

iManager U2000 Unified Network Management System V100R002C01

Operation Guide for ONU NE Management

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About This Document

Related Version

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

Product Name	Version
iManager U2000	V100R002C01

Intended Audience

This document describes the functions and services provided by the ONU. After you read this document, you should be able to know how to operate the ONU and configure services through the U2000.

This document is intended for:

- Data Configuration Engineer
- Network Monitoring Engineer

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.
	Indicates a hazard with a medium or low level of risk, which if not avoided, could result in minor or moderate injury.
	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.

Symbol	Description
© TIP	Indicates a tip that may help you solve a problem or save time.
	Provides additional information to emphasize or supplement important points of the main text.

Command Conventions

The command conventions that may be found in this document are defined as follows.

Convention	Description
Boldface	The keywords of a command line are in boldface .
Italic	Command arguments are in <i>italics</i> .
[]	Items (keywords or arguments) in brackets [] are optional.
{ x y }	Optional items are grouped in braces and separated by vertical bars. One item is selected.
[x y]	Optional items are grouped in brackets and separated by vertical bars. One item is selected or no item is selected.
{ x y }*	Optional items are grouped in braces and separated by vertical bars. A minimum of one item or a maximum of all items can be selected.
[x y]*	Optional items are grouped in brackets and separated by vertical bars. Several items or no item can be selected.

GUI Conventions

The GUI conventions that may be found in this document are defined as follows.

Convention	Description
Boldface	Buttons, menus, parameters, tabs, window, and dialog titles are in boldface . For example, click OK .
>	Multi-level menus are in boldface and separated by the ">" signs. For example, choose File > Create > Folder .

Change History

Updates between document issues are cumulative. Therefore, the latest document issue contains all updates made in previous issues.

Changes in Issue 03 (2010-11-19) Based on Product Version V100R002C01

The third commercial release has the following updates:

The following changes: 1.1.5 Configuring the xFTP File in the NAT Networking Mode.

Changes in Issue 02 (2010-09-24) Based on Product Version V100R002C01

The second commercial release has the following updates:

The parameter names and graphs are changed according to latest GUIs.

Changes in Issue 01 (2010-08-16) Based on Product Version V100R002C01

Initial release for V100R002C01 version.

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1 Managing Network Elements

About This Chapter

The U2000 provides device management functions through the graphical user interface (GUI). The GUI displays the physical status of the devices in the topological view. Therefore, the devices are managed in a centralized manner through the topology or view.

Context

Optical network units (ONUs) are classified into two types: multi-dwelling unit (MDU) and optical network terminal (ONT).

- MDUs are deployed in corridors or by the road and used as ONUs in the fiber to the building (FTTB) or fiber to the curb (FTTC) scenario. The MDUs provide voice, video, and data services for multiple users through various ports, and the OLT at the CO implements convergence of the services of multiple remote ONUs.
- ONTs are deployed in user homes and used as ONUs in the fiber to the home (FTTH) scenario. An ONT provides voice, video, and data services for a single user, and the OLT at the CO implements convergence of the services of multiple ONUs.

1.1 Configuring the xFTP Service

This topic describes how to configure the FTP, SFTP, or TFTP service on Windows, Solaris, or Linux OS and how to check the xFTP service on the U2000.

1.2 Adding an ONU

This topic describes how to add an ONU to the U2000 so that the connection between the ONU and the OLT can be set up in the L2 topological view. After the ONU is added, the U2000 can maintain and manage the ONU and other devices in a centralized manner.

1.3 Replacing an ONU

This topic describes how to replace an ONU when it is faulty. In this case, connect the new ONU that is of the same type as the faulty ONU to the corresponding port on the OLT, and then bind the MAC address of the new ONU. After the new ONU goes online, service configuration data is issued to the new ONU automatically. Therefore, you need not configure the data again.

1.4 Moving an ONU

This topic describes how to move an ONU so that the ONU is connected to another optical splitter.

1.5 Managing the SRG Web Service

The SRG is a service router gateway developed by Huawei. The SRG is a cost-effective security and access solution for small and medium-sized enterprise networks and the telecommunications networks.

1.6 Configuration Example of the Outband Management (Based on the SNMPv3 Protocol)

This topic provides an example for configuring the outband management to manage and maintain the ONU. In outband management the non-service channel is used to transmit the management information. With the use of the non-service channel, the management channel and the service channel are separated, which provides a more reliable management channel for the device compared with the inband management.

1.7 Configuration Example of the Inband Management

This topic provides an example for configuring the inband management to manage and maintain the ONU. The inband management transmits the management information through the service channel of the device. The inband management features the flexible networking without any adjunct device and low cost, but it is difficult to maintain.

1.1 Configuring the xFTP Service

This topic describes how to configure the FTP, SFTP, or TFTP service on Windows, Solaris, or Linux OS and how to check the xFTP service on the U2000.

1.1.1 Configuring the FTP, SFTP, or TFTP Service (Windows)

This topic describes how to configure and start the FTP, SFTP, or TFTP service on Windows OS. NE software communicates with the client or NEs through the FTP, SFTP, or TFTP protocol for NE upgrade, data backup, and patch installation.

1.1.2 Configuring the FTP, SFTP, or TFTP Service (Solaris)

This topic describes how to configure and start the FTP, SFTP, or TFTP service on Solaris OS. The DC communicates with clients or NEs by using the FTP, SFTP, or TFTP protocol to upgrade NEs, back up data, and install patches.

1.1.3 Configuring the FTP, SFTP, or TFTP Service (Linux)

This topic describes how to configure and start the FTP, SFTP, or TFTP service on Linux OS. The DC communicates with clients or NEs by using the FTP, SFTP, or TFTP protocol to upgrade NEs, back up data, and install patches.

1.1.4 Configuring the xFTP Watcher

When NE data is synchronized to the U2000 server in FTP or SFTP mode, you need to configure the xFTP watcher. If you configure the xFTP watcher correctly, the NE data is successfully synchronized to the U2000 server and the U2000 successfully manages the NEs whose data is synchronized in xFTP mode.

1.1.5 Configuring the xFTP File in the NAT Networking Mode

In the NAT networking mode, the xFTP must be configured to ensure that the device data can be synchronized to the U2000 server automatically.

1.1.1 Configuring the FTP, SFTP, or TFTP Service (Windows)

This topic describes how to configure and start the FTP, SFTP, or TFTP service on Windows OS. NE software communicates with the client or NEs through the FTP, SFTP, or TFTP protocol for NE upgrade, data backup, and patch installation.

Context

- The third-party tool must be started after the FTP, SFTP, or TFTP server is configured.
- The file transfer parameters set on the U2000 must be the same as the parameters set on the FTP, SFTP, or TFTP server.

Procedure

• Configuring the FTP server by using the third-party tool wftpd32.exe

- 1. Copy the wftpd32.exe file to the U2000 server and double-click the file.
- 2. In the dialog box that is displayed, choose **Security** > **Users/rights** and create a user; choose **Security** > **Host/net** and enter the IP address of the FTP server.

💐 No log file open -	WFTPD	User	· / Rights Security Dia	og	x
<u>File Edit Yiew Log</u>	Jost Security Settings	LUS LUS LOSE Add/Update Delete Help	er Name: ftpu: ser New User jome Directory: D:\ Help	er Delete Char Char Restricted	Done nge Pass to home Rights>>
	Host address (numeric only) 10.10.210.169	C Allow			

- Configuring the SFTP server by using the third-party tool msftpsrvr.exe
 - 1. Copy the **msftpsrvr.exe** file to the U2000 server and double-click the file.
 - 2. In the dialog box that is displayed, create a user.

💔 Core FTP mini-sf	tp-server	
User: sftpus	ser	<u>S</u> tart
Password: *****	ok	<u>A</u> bout
Port: 22		
Root DA		
Connections		
address/IP	connected @	[

- Configuring the TFTP server by using the third-party tool tftpd32.exe
 - 1. Copy the **tftpd32.exe** file to the U2000 server and double-click the file.
 - 2. In the dialog box that is displayed, set the root directory and the IP address of the TFTP server.

1	🄖 Tftpd32 b	y Ph	. Jouni	in					_ 🗆 ×
	Current Direct	tory	D:\						<u>B</u> rowse
	Server interfa	ces	10.10.2	210.169				•	Show <u>D</u> ir
	Tftp Server	Tftp	Client	Syslog) server				
	Connection r Write reques <tftp\backup Connection r Write reques</tftp\backup 	ecei t for 138' ecei t for	ved from file <tftp \10.71.5 ved from file <lzf <="" td=""><td>10.71. /backu 59.63_1 10.71. 10.71.5</td><td>59.63 or p138/10 61\2008 59.63 or 9.63_16</td><th>n port 1!).71.59. 3050815 n port 31 1/2008</th><th>533 63_161 50612\ 599 050815</th><th>/20080 UA5000 50741/L</th><th>508150612 0(IPMB).dat> JA5000(IPM 🗸</th></lzf></tftp 	10.71. /backu 59.63_1 10.71. 10.71.5	59.63 or p138/10 61\2008 59.63 or 9.63_16	n port 1!).71.59. 3050815 n port 31 1/2008	533 63_161 50612\ 599 050815	/20080 UA5000 50741/L	508150612 0(IPMB).dat> JA5000(IPM 🗸
	Current Actior	۱	<tft< td=""><td>p\back</td><td>up\10.7</td><th>1.59.63</th><th>_161\2</th><th>008050</th><th>8162911\UA5</th></tft<>	p\back	up\10.7	1.59.63	_161\2	008050	8162911\UA5
	About			[Settin	qs]		Help

• Testing the communication between the FTP, SFTP, or TFTP service and the NE software

- 1. Choose Administration > NE Software Management > FTP Settings from the main menu.
- 2. In the dialog box that is displayed, click the **File Transfer Service Setting** tab to configure the parameters of the file transfer service.

Operation Third Party FTP Setting HA Server Setting System Information File Transfer Service Setting Transfer Protocol Directory Setting File Transfer Service Root Directory : D: File Transfer Service Configuration Configure FTP User Name : ftpuser Port Number : 21 Test ETP Password : •••••••• Test ETP Test ETP Test ETP
System Information File Transfer Service Setting Transfer Protocol Directory Setting
Directory Setting File Transfer Service Root Directory : D: File Transfer Service Configuration Configure FTP User Name : ftpuser Port Number : 21 Password : Test ETP
File Transfer Service Root Directory : D: File Transfer Service Configuration Configure FTP User Name : ftpuser Port Number : 21 Password : ••••••••• Test ETP
File Transfer Service Configuration Configure FTP User Name : ftpuser Port Number : 21 Password : Test <u>E</u> TP
File Transfer Service Configuration Configure FTP User Name : ftpuser Password : Test ETP
Configure FTP User Name : ftpuser Port Number : 21 Password : Test ETP
User Name : ftpuser Port Number : 21
Password : Test ETP
Configure SFTP
User Name : ftpuser Port Number : 22
Paceword · Tast SETP
Configure TFTP
No configuration required for TFTP.
Cancer Appry

- File Transfer Service Root Directory configured on the U2000 must be the same as the root directory configured on the FTP, SFTP, or TFTP server. In addition, the FTP, SFTP, or TFTP server must be started.
- If the FTP protocol is used, ensure that the user name and password set in the last step are the same as the user name and password set when the FTP server is configured.
- If the SFTP protocol is used, ensure that the user name, password, and port number set in the last step are the same as the user name, password, and port number set when the SFTP server is configured.
- Click **Test FTP**, **Test SFTP**, or **Test TFTP** to check the configuration of the file transfer service.
- 3. Click the **Transfer Protocol** tab. Select a proper protocol from the **Protocol** dropdown list for file transfer between NEs and the U2000 server.

peration Third Party F	TP Setting H.	A Server Setting		
System Information	File Transfe	r Service Setting	Transfer Pi	rotocol
Server File Transfer Proto Server File Transfer Proto	col Configuration col: FTP	~		
NE Protocol Configuration The configured protoco recover, load etc.	1 I will be used for f	ile transfer operat	ions such as backu	p,
NE Typ	e 🗠		Protocol	
MA5300V1(V100)		TFTP		▼ 🛆
MA5600T(V800)		TFTP		•
MA5600V3(V300)		FTP		
MA5603T(V800)		SFTP		
MA5603U(V800)		TFTP		
MA5605(V100)		TFTP		•
MA5606T(V800)		TFTP		•
MA5610(V800)		TFTP		•
MA5612(V800)		TFTP		▼
MA5616(V800)		TFTP		▼
MA56180/800)		TETP		

4. Click OK.

----End

1.1.2 Configuring the FTP, SFTP, or TFTP Service (Solaris)

This topic describes how to configure and start the FTP, SFTP, or TFTP service on Solaris OS. The DC communicates with clients or NEs by using the FTP, SFTP, or TFTP protocol to upgrade NEs, back up data, and install patches.

Prerequisite

You must be logged in to the Solaris OS as user root.

Context

- In the case of the Solaris- or Linux-based U2000, the FTP, SFTP, or TFTP function provided by the Solaris or Linux OS is used.
- On Solaris OS, the FTP, SFTP, or TFTP server can be configured in the command line interface (CLI). The configuration method varies with OS versions. The following section describes the configuration processes on the Solaris 8 and Solaris 10 OSs in details.
- The root directory, user name, and password of the FTP, SFTP, or TFTP service must be the same as those that are set on the U2000 client.

Procedure

- Configure the FTP server.
 - 1. To start the FTP service, run the following commands:
 - Solaris 8:
 - # cd /etc/init.d

./inetsvc start

- Solaris 10:

inetconv -i /etc/inet/inetd.conf 1>/dev/null 2>&1

svcadm enable svc:/network/ftp

2. To check whether the FTP service is started, run the **# netstat -a | grep ftp** command.

```
If the following message is displayed, it indicates that the FTP service is started.
                                              Tdle
 *.tftp
        *.tftp
Tdle
       *.ftp
                                  * *
                                                          0
                                                                  0 49152
                                                                                   0
LISTEN
       *.ftp
                                                 * *
0
        0
 49152
               0 LISTEN
```

3. To create an FTP user and set its user name and password, run the following commands:

```
# useradd -d /tftpboot -s /bin/bash ftpuser
# passwd ftpuser
New Password: ftp123
Re-enter new Password: ftp123
```

• Configure the SFTP server.

- 1. If the ssh service is not started, perform the following steps to start it:
 - (1) In the /etc/ssh/sshd_config file, change PasswordAuthentication no to PasswordAuthentication yes and PermitRootLogin no to PermitRootLogin yes.
 - (2) Run the svcadm refresh svc:/network/ssh:default command.
- 2. To check whether the ssh service is started on Solaris OS, run the svcs -a |grep ssh command.

```
If the following message is displayed, it indicates that the ssh service is started on Solaris OS.
online May_04 svc:/network/ssh:default
*.tftp
```

3. To create an SFTP user and set its user name and password, run the following commands:

useradd -d /tftpboot sftpuser
passwd sftpuser

- Configure the TFTP server.
 - 1. On the Common Desktop Environment (CDE) desktop, right-click and choose **File** > **File Manager** from the shortcut menu.
 - 2. Locate the **inetd.conf** file in the **etc** directory and double-click the file to open the file.
 - 3. Search for the **tftp dgram udp6 wait root** /**usr**/**sbin**/**in.tftpd in.tftpd -s** /**tftpboot** command.

If the command does not exist, add it to the file. If the command exists but is commented out by the pound sign (#), delete the pound sign and save the file.

4. Start the TFTP service.

- Solaris 8: Run the ./inetsvc start command in the /etc/init.d path to start the TFTP service. After the service is started, the default TFTP file path is /tftpboot.
- Solaris 10: Run the inetconv -i /etc/inet/inetd.conf 1>/dev/null 2>&1 command, and then run the svcadm enable svc:/network/tftp/udp6:default command to start the TFTP service. After the service is started, the default TFTP file path is / tftpboot.

If the /etc/inet/inetd.conf configuration file is modified, you need to stop the TFTP service and then restart it. To stop the TFTP service, do as follows:

- Solaris 8: Run the ./inetsvc stop command in the /etc/init.d path.
- Solaris 10: Run the svcadm disable svc:/network/tftp/udp6:default command.
- 5. Run the **#svcs** |**grep tftp** command to check whether the TFTP service is started on Solaris OS.
- Testing the communication between the FTP, SFTP, or TFTP service and the NE software
 - 1. Choose Administration > NE Software Management > FTP Settings from the main menu.
 - 2. In the dialog box that is displayed, click the **File Transfer Service Setting** tab to configure the parameters of the file transfer service.

TP Settings	×
Operation Third Party FTP Setting HA Server Setting System Information File Transfer Service Setting Transfer Protocol	
Directory Setting File Transfer Service Root Directory : D:	
File Transfer Service Configuration Configure FTP	
User Name : ttpuser Port Number : 21	
Password : Test <u>F</u> TP	
Configure SFTP	
User Name : ftpuser Port Number : 22	
Password : Test SFTP	
Configure TFTP	
No configuration required for TFTP.	
OK Cancel Apply	Ì

- File Transfer Service Root Directory configured on the U2000 must be the same as the root directory configured on the FTP, SFTP, or TFTP server. In addition, the FTP, SFTP, or TFTP server must be started.
- If the FTP protocol is used, ensure that the user name and password set in the last step are the same as the user name and password set when the FTP server is configured.
- If the SFTP protocol is used, ensure that the user name, password, and port number set in the last step are the same as the user name, password, and port number set when the SFTP server is configured.
- Click **Test FTP**, **Test SFTP**, or **Test TFTP** to check the configuration of the file transfer service.
- 3. Click the **Transfer Protocol** tab. Select a proper protocol from the **Protocol** dropdown list for file transfer between NEs and the U2000 server.

peration Third Party F	TP Setting	HA Server Setting	
System Information	File Tra	nsfer Service Setting	Transfer Protocol
Server File Transfer Proto Server File Transfer Protoc	col Configura	tion TP 👻	
VE Protocol Configuration The configured protocol recover, load etc.	will be used	for file transfer opera	tions such as backup,
NE Type	a 🛆		Protocol
MA5300V1(V100)		TFTP	▼ 🛆
MA5600T(V800)		TFTP	▼
MA5600V3(V300)		FTP	
MA5603T(V800)		SFTP	
MA5603U(V800)		TFTP	
MA5605(V100)		TFTP	▼
MA5606T(V800)		TFTP	▼
MA5610(V800)		TFTP	▼
MA5612(V800)		TFTP	▼
MA5616(V800)		TFTP	▼
MA56180/800)		TETP	▼

4. Click **OK**.

----End

1.1.3 Configuring the FTP, SFTP, or TFTP Service (Linux)

This topic describes how to configure and start the FTP, SFTP, or TFTP service on Linux OS. The DC communicates with clients or NEs by using the FTP, SFTP, or TFTP protocol to upgrade NEs, back up data, and install patches.

Prerequisite

You must be logged in to the Linux OS as user **root**.

Context

- In the case of the Solaris- or Linux-based U2000, the FTP, SFTP, or TFTP function provided by the Solaris or Linux OS is used.
- The root directory, user name, and password of the FTP, SFTP, or TFTP service must be the same as those that are set on the U2000 client.
- In a distributed system, you need to configure the FTP or SFTP service on the master server and the slave server that is deployed with the access NE management instance by following the same procedure.

Procedure

• Configure the FTP server.

1. To create an FTP user and set its user name and password, run the following commands:

```
# useradd -d /tftpboot -s /bin/bash ftpuser
# passwd ftpuser
New Password: ftp123
Re-enter new Password: ftp123
```

- 2. Restart the FTP service.
 - To stop the FTP service, run the following commands:

```
# cd /etc/init.d
```

#/xinetd stop

- To start the FTP service, run the following commands:
 - # cd /etc/init.d

./xinetd start

- Configure the SFTP server.
 - 1. In the terminal window, run the **useradd -d** /**ftpboot -m -s** /**bin**/**bash ftpuser** command to create an SFTP user. **ftpuser** in the command indicates the SFTP user name.
 - 2. Restart the OS.
 - 3. After the OS is restarted, run the **passwd ftpuser** command to change the password of the SFTP user to **ftpuser**.
 - 4. In the /etc/ssh/sshd_config file, change PasswordAuthentication no to PasswordAuthentication yes to allow the SFTP user to log in to the Linux OS after entering the password.
 - 5. After the configuration file is modified, run the /etc/init.d/sshd stop command to stop the SFTP service.
 - 6. Run the /etc/init.d/sshd start command to start the SFTP service.
 - 7. Run the sftp servername@localhost command to connect to the server.
- Configure the TFTP server.
 - 1. To configure the TFTP server by using the YaST, do as follows:
 - (1) Click **YaST**. The administrator setting panel is displayed.
 - (2) Choose Network Services > TFTP Server. The TFTP Server Configuration window is displayed, as shown in the following figure.

Configuring a TETP Server	IFIP Server Configuration
Use this to enable a server for TFTP (trivial file transfer protocol). The server will be started using xinetd.	<u>○ Disable</u> <u>○ Disable</u> <u>○ Disable</u> <u>○ Disable</u>
Note that TFTP and FTP are not the same.	Boot Image Directory //ftpboot Browse
Boot Image Directory: Specify the directory where served files are located. The usual value is /fftpboot. It is	Set the file transfer root directory Open Port in Firewall Firewall is disabled
created if it does not exist. The server uses this as its root directory (using the -s option).	<u>V</u> iew Log

- 2. To configure the TFTP server by using the Konsole, do as follows:
 - (1) In the terminal window, run the **cd** /**etc**/**xinetd.d** command to navigate to the / **etc**/**xinetd.d** directory. Then, run the **vi tftp** command to open the **tftp** file.
 - (2) Set **disable** to **no** (that is, **disable = no**) to start the TFTP server.

To stop the TFTP service, set **disable** to **yes** (that is, **disable = yes**) in the **tftp** file. To restart the TFTP service, run the /**etc/init.d/xinetd restart** command.

----End

1.1.4 Configuring the xFTP Watcher

When NE data is synchronized to the U2000 server in FTP or SFTP mode, you need to configure the xFTP watcher. If you configure the xFTP watcher correctly, the NE data is successfully synchronized to the U2000 server and the U2000 successfully manages the NEs whose data is synchronized in xFTP mode.

Prerequisite

The third-party software must be available for configuring the FTP server if more than 5,000 NEs are managed.

The FTP or SFTP server must be configured and the xFTP service must be enabled. For details, see 1.1.1 Configuring the FTP, SFTP, or TFTP Service (Windows), 1.1.2 Configuring the FTP, SFTP, or TFTP Service (Solaris), and 1.1.3 Configuring the FTP, SFTP, or TFTP Service (Linux).

Context

Data synchronization in xFTP mode is implemented based on the FTP or SFTP protocol. To improve the efficiency of synchronizing NE data, NEs upload their data in the form of files to the U2000 by using the FTP or SFTP protocol.

NE Type	Applicable Version			
MA5662	MA5662 V800R202C00			
ATN910	ATN931 V800R202			
MA5626E	MA5626E V800R307C00			
MA5620E	MA5620E V800R307C00			
MA5620G	MA5620G V800R307C00			
MA5626G	MA5626G V800R307C00			
MA5610	MA5610 V800R306C01			
	MA5610 V800R307C00			
MA5616	MA5616 V800R306C01			
	MA5616 V800R307C00			
	MA5616 V800R308C00			
MA5652G	MA5652 V800R306C01			
	MA5652 V800R307C00			
MA5620	MA5620 V800R307C00			
MA5626	MA5626 V800R307C00			
ATN930	ATN930 V800R307			
MA5635	MA5635 V800R307C00			
MA5612	MA5612 V800R307C00			
MA5628	MA5628 V800R307C00			

Table 1-1 Types and versions of NEs supporting data synchronization in xFTP mode

- In the case of the NE whose data is synchronized in SNMP mode, you do not need to configure the xFTP watcher.
- The U2000 synchronizes data in FTP or SFTP mode, not in TFTP mode.
- After the U2000 that is newly installed is started successfully, it automatically configures the xFTP watcher. Therefore, you do not need to modify the default configuration unless it is necessary.

Procedure

- 1 Choose Administration > Settings > xFtpWatcher from the main menu.
- 2 In the **xFtpWatcher** dialog box, click Add.
- 3 In the dialog box that is displayed, set the parameters.

xFtp\	Watcher						×
Con	figure List						1
Т	īype \land 👘 I	P address 🛆	Port 🗠	User Name 🛆	Root 🗠	State 🛆	Add
FTF	P 10.7	1.227.225	21	ftpuser	d:	🕐 Runni	Modify
							Delete
👋 Configu	ure Informa	tion		×			Test
Configure							
	Type:	FTP	IP address	that can be	Prompt		2
	IP:	10 .10 .10 .6	used to co	nmunicate		Test Result:Run	ning
	Port:	21					_
	Username:	ftpuser	The user	name, , and root		OK	
	Password:	•••••	path must	be the same set on the			
	Root path:	d:	FTP serve	er.			
	2	[est	ок	Cancel	ОК	Cancel	Apply

- The default values of Username, Password, and Root path of the U2000 FTP service are ftpuser, u2000ftpuser, d: (Windows-based server) or /ftpboot (Linux-based server or Solaris-based server for single-server system) or /opt/sybase/data (Solaris-based server for backup system) respectively.
- If the user password and path of the FTP service are changed, make sure that **Password** and **Root path** in the **xFtpWatcher** dialog box are also changed.
- IP address cannot be set to 127.0.0.1.
- In the case of a single-server system, **IP address** is the IP address of the FTP server that can communicate with NEs, that is, the IP address of the U2000 server. In the case of a distributed system, **IP address** is the IP address that is configured by means of the network address translation (NAT).
- The value of **Root path** must be correct. In addition, **Root path** must be an absolute path and cannot end with / or \ or contain a space.

----End

1.1.5 Configuring the xFTP File in the NAT Networking Mode

In the NAT networking mode, the xFTP must be configured to ensure that the device data can be synchronized to the U2000 server automatically.

Prerequisite

The xFTP watcher of the U2000 must be configured, the FTP server must be configured successfully, and the FTP service must be enabled. For details, see **1.1.4 Configuring the xFTP Watcher**.

Context

- If the NAT networking mode is adopted or the U2000 manages NEs in multiple separated network segments, you need to create the **iptable_ne2nms.cfg** file manually and configure it to ensure that the device data is synchronized to the U2000 server automatically.
- In the distributed NAT networking mode, the **iptable_ne2nms.cfg** file must be configured on the master server.

Procedure

- 1 Open the iptable_ne2nms.cfg file in the installation directory \$IMAPROOT/server/etc/ conf/ of the U2000 server.
- 2 Configure the iptable_ne2nms.cfg file.

Each line added to the configuration file indicates a mapping configuration. The format of the mapping configurations is as follows:

NE start IP address NE end IP address U2000 IP address [the IP address of the U2000 after NAT translation]

The parameters are separated with white spaces or tab spaces.

- NE start IP address and NE end IP address: Specify the IP address range of NEs.
- U2000 IP address: Indicates the external IP address that the U2000 at a site uses to communicate with NEs. The IP address ranges of the NEs at different sites can overlap.
- The IP address of the U2000 after NAT translation: If the NAT networking mode is adopted between the U2000 and NEs, this parameter must be specified. Otherwise, this parameter does not need to be specified.

For example, if the NAT networking mode is not adopted, the mapping configuration is 10.71.226.1 10.71.226.255 10.71.221.153.

If the NAT networking mode is adopted, the mapping configuration is 10.71.227.1 10.71.227.255 10.71.221.152 10.10.10.10.

----End

Example

In the NAT networking mode, the IP address of the U2000 server is 136.12.36.2 and the IP address changes to 198.168.23.25 after the mapping on the firewall. The IP addresses of certain devices are in the 198.0.0.0 network and these devices can communicate with the U2000 through the mapping address of the U2000 server. The IP addresses of other devices are in the 136.0.0.0 network and these devices can communicate with the U2000 server.

In this case, configure the iptable_ne2nms.cfg file as follows:

136.0.0.1 136.0.0.255 136.12.36.2

198.0.0.1 198.0.0.255 136.12.36.2 198.168.23.25

1.2 Adding an ONU

This topic describes how to add an ONU to the U2000 so that the connection between the ONU and the OLT can be set up in the L2 topological view. After the ONU is added, the U2000 can maintain and manage the ONU and other devices in a centralized manner.

Prerequisite

Before adding an ONU, make sure that the FTP server is configured correctly and the FTP service starts. For details, see **1.1.1 Configuring the FTP, SFTP, or TFTP Service (Windows)**.

For the ONUs that support the EPON upstream mode:
- When the OLT is set to work in the profile mode, you need to configure the EPON line profile and the EPON service profile for it.
- The ONU that is discovered automatically must exist on the OLT.

For the ONUs that support the GPON upstream mode:

- When the OLT is set to work in the distributed mode, you need to configure the GPON ONU capacity profile and the MDU SNMP profile for it.
- When the OLT is set to work in the profile mode, you need to configure the GPON line profile and the GPON service profile for it.
- The ONU that is discovered automatically must exist on the OLT.

ONUs can be configured and managed remotely on the OLT through the OMCI or SNMP protocol similarly. The difference is as follows:

- If an ONU is added through the OMCI protocol, the U2000 can discover the ONU automatically when the ONU is online only after the OLT issues the SNMP parameters.
- If an ONU is added through the SNMP protocol, the U2000 can discover the ONU automatically when the ONU is online.

Context

- When you add an ONU on the U2000 and do not set **Alias**, the U2000 obtains the system name of the ONU and considers the system name as the ONU alias.
- When the U2000 discovers multiple ONUs automatically, it obtains the system names of the ONUs and consider the system names as the ONU aliases.

To set the system name of an ONU, run the **sysname** command. By default, the device name is the system name. For details, see the command reference.

Procedure

• To add an MDU that supports xPON upstream transmission, do as follows:

- 1. On the topological navigation tree, select the required ODN under the OLT node. Select the splitter under the ODN, right-click, and then choose New > ONU; or select the splitter under the ODN, right-click the blank area on the Physical Root interface on the right side, and then choose New > ONU.
- 2. On the interface that is displayed, set the parameters on the **Basic Parameters** and **Network Management Channel Parameters** tab pages (on this interface, the ONU that supports the GPON upstream mode is considered as an example).

					×
Affiliated Port:	0/2/0	*	Splitter ID:	Splitter(L1) -	
Name:	ONU	*	Alias:		
ONU ID(0-127):	🗌 Auto Assign	127 *	Splitter Port ID(1-128):	1	
ONU Type:	MDU	•			
Protection	Role				
Basic Parame	ters Network	Management Chann	el Parameters		_
Line Profile:		*	Service Profile:		
Optic Alarm Pi	rofile:		ONU VAS Profile:		
Auth Info					
Auth Way:	MAC Address	*			
MAC Addre	ss: <u></u>	: : :	Key:	*	
LOID:		*	CHECKCODE:	*	
Auth Mode:	Always On	•	Time Out(h)(1-168):	🗹 Disable 📃 *	
Extend Inform	nation				
	P Status	PITP Status	IGMP Mode: CT	-c 💌	
OblUTimo					
Vanday ID:			Terminal Tuna:		
Coffuere V			Terminai Type.		
Soltware vi					
			ОК (Cancel <u>A</u> pply	
Add ONU Info					×
					-
Affiliated Port:	0/2/0	*	Splitter ID:	Splitter(L1) -	
Affiliated Port: Name:	0/2/0 ONU	*	Splitter ID: Alias:	Splitter(L1) -]
Affiliated Port: Name: ONU ID(0-127):	0/2/0 ONU Auto Assign [*	Splitter ID: Alias: Splitter Port ID(1-128):	Splitter(L1)]
Affiliated Port: Name: ONU ID(0-127): ONU Type:	0/2/0 ONU Auto Assign MDU	*	Splitter ID: Alias: Splitter Port ID(1-128):	Splitter(L1)]
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection	O/2/0 ONU Auto Assign (MDU Role	* *	Splitter ID: Alias: Splitter Port ID(1-128):	Splitter(L1)]
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame	O/2/0 ONU Auto Assign (MDU Role	nagement Channel P	Splitter ID: Alias: Splitter Port ID(1-128): arameters	Splitter(L1)]
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame	072/0 ONU I Auto Assign MDU Role ters Network Ma	▼* * • • •	Splitter ID: Alias: Splitter Port ID(1-128): arameters	Splitter(L1)]
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame	O/2/0 ONU Auto Assign (MDU Role ters Network Managem	nagement Channel P	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr	Splitter(L1) Splitter(L1)]
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame	O/2/0 ONU I Auto Assign (MDU Role ters Network Managem	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr	Splitter(L1)]
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame	O/2/0 ONU Auto Assign (MDU Role ters Network Managem	nagement Channel P	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr	Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame ♥ OLT Set Net Para Manager VI	O/2/0 ONU I Auto Assign MDU Role ters Network Managem	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr Gateway IP Address:	Splitter(L1)]
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI IP Address	O/2/0 ONU I Auto Assign MDU Role ters Network Managem AN(1-4095): 	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr Gateway IP Address: IP Address Mask:	Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame ✓ OLT Set Net Para Manager VI IP Address Priority(0-7)	O/2/0 ONU I Auto Assign MDU Role ters Network Managem AN(1-4095): 	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr Gateway IP Address: IP Address Mask:	Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI IP Address Priority(0-7)	O/2/0 ONU I Auto Assign MDU Role ters Network Managem AN(1-4095): 	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr Gateway IP Address: IP Address Mask:	Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame ♥ OLT Set Net Para Manager VI IP Address Priority(0-7)	O/2/0 ONU I Auto Assign (MDU Role ters Network Managem AN(1-4095): 10.1 : 10.1 : 10.1	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr Gateway IP Address: IP Address Mask:	Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame ✓ OLT Set Net Para Manager VI IP Address Priority(0-7) Static Route	O/2/0 ONU I Auto Assign MDU Role ters Network Managerr AN(1-4095): 10.1 : Parameters	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr Gateway IP Address: IP Address Mask:	Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI IP Address Priority(0-7) Static Route Target IP A	Or2/0 ONU I Auto Assign [MDU Role ters Network Managem AN(1-4095): [: 10.1 :	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr Gateway IP Address: IP Address Mask:	Splitter(L1) ▼ 1 * offile: * 255.255.255.0 *	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame ✓ OLT Set Net Para Manager VI IP Address Priority(0-7) Static Route Target IP A Next Hop IF	Or2/0 ONU I Auto Assign [MDU Role ters Network Managem AN(1-4095):	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr Gateway IP Address: IP Address Mask: Target Mask:	Splitter(L1) ▼ 1 * onflie: * 255.265.255.0 *	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI IP Address Priority(0-7) Static Route Target IP A Next Hop IF	OV2/0 ONU I Auto Assign MDU Role ters Network Managem s Network Managem AN(1-4095): : 10.1 : 10.1 : 10.1 : 2 Parameters 3 > Address: 1	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr Gateway IP Address: IP Address Mask: Target Mask:	Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame ✓ OLT Set Net Para Manager VI IP Address Priority(0-7) Static Route Target IP A Next Hop IF	OV2/0 ONU Image: Auto Assign MDU Role ters Network Managem AN(1-4095):	nagement Channel P ent Channel Paramet	Splitter ID: Alias: Splitter Port ID(1-128): arameters ers EPON SNMP Pr Gateway IP Address: IP Address Mask: Target Mask:	Splitter(L1) ▼ 1 * offile: * 255.255.255.0 *	

- When the OLT works in the profile mode, the ONU that supports the EPON upstream mode needs to be bound with the EPON line profile and the EPON service profile.
- When the OLT works in the profile mode, the ONU that supports the GPON upstream mode needs to be bound with the GPON line profile and the GPON service profile.
- When the OLT works in the distributed mode, the ONU that supports the GPON upstream mode needs to be bound with the ONU capacity profile.
- When the **OLT sets network management channel parameters** check box is cleared, ONUs are configured and managed remotely on the OLT through the OMCI protocol.
- When the **OLT sets network management channel parameters** check box is selected, ONUs are configured and managed remotely on the OLT through the SNMP protocol.
- Do not add the SNMP parameters on the ONU through the serial port, but issue the SNMP profile from the OLT to the ONU only.
- 3. Click OK.
- 4. 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.
- 5. Choose VLAN from the navigation tree.
- 6. On the VLAN tab page, right-click and choose Add from the shortcut menu.
- 7. In the dialog box that is displayed, set the parameters.
 - VLAN ID: 4000
 - Type: Smart VLAN
- 8. Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
 - Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4
- 9. Click Finish.
- 10. Choose **GPON** > **GPON ONU** from the navigation tree.
- 11. On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.
- 12. In the information list, select the record where the shelf, slot, port, and ONU IDs are 0, 2, 1, and 0 respectively and click the **ServicePort Info** tab in the lower pane.
- 13. On the ServicePort Info tab page, right-click and choose Add from the shortcut menu.
- 14. In the dialog box that is displayed, set the parameters.
 - Connection Type: LAN-GPON
 - VLAN ID: 4000
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 4000
 - 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)

- 15. Click OK.
- To add an MDU that supports GE upstream transmission, do as follows:

The MDU that supports GE upstream transmission supports the SNMPv3 protocol.

- 1. Choose Administration > NE Communicate Parameter > NE Access Protocol Parameters from the main menu.
- 2. On the tab page, click **Reset**. In the dialog box that is displayed, click the **SNMPv1 Parameters** tab and then click **Add**.
- 3. In the dialog box that is displayed, set the name and SNMP parameters as follows: Default Access Protocol Parameters

SNMPv1 Parameters SNMPv2 Parameters SNMPv3 Parameters					
Template Na 🔺	Version 🗠	Timeout Inter 🗠	Retries 🗠	Poll Interval(s) ^	NE Port 🔿
123	SNMPv3	5	3	1800	161
default	SNMPv3	10	5	1800	161
Template Nam	e: <u>huawei</u>		* Version:	SNMPv3	
-Common param Retries: Timeout Interva	al(s): 5	÷	Poll Interval(s): NE Port:	1800	÷
NE Lloor	params		*		
Context Name	:		Context Engine	e ID: 01234567	8
Privacy protoc	ol: DES	▼	Auth Protocol:	HMACMD	5 🔻 🛄
			(0 <u>K</u>	<u>Cancel</u>

The SNMPv3 protocol supports three security levels: authentication, noauth, and privacy. To implement successful communication through the SNMPv3 protocol, ensure that the authentication and encryption modes of the SNMP user on the device, SNMP group, and the SNMP parameters on the U2000 are the same.

- 4. Click **OK**.
- 5. Select the added SNMP parameters. Click **OK**.
- 6. In the dialog box that is displayed, click **Yes**. Test the set SNMP parameters.
- 7. The U2000 displays the **Loading** dialog box. After the testing is complete, click **OK**.
- 8. In the physical root view page, right-click and then choose New > NE.
- 9. In the dialog box that is displayed, set the parameters.

8	Create NE			×
	Create NE Create NE Access NE Access NE Access NE Grad-Party Microsoft Windows Grad-Sun Workstation Grad-TR069	IP Address: Device Name: Device Alias: Physical path: Maintance: SNMP Parameters: Status: Coordinate: Time Zone and DST: Remarks:	10 . 10 . 20 . 2 OLT_10.10.20.2 Shenzhen_CHINA Physical Root/ SNMP V3:huawei In Service 219,127 UnSet	X
			QK <u>Cancel Apply</u>	

10. Click **OK**.

----End

1.3 Replacing an ONU

This topic describes how to replace an ONU when it is faulty. In this case, connect the new ONU that is of the same type as the faulty ONU to the corresponding port on the OLT, and then bind the MAC address of the new ONU. After the new ONU goes online, service configuration data is issued to the new ONU automatically. Therefore, you need not configure the data again.

Context

You can replace the ONU with a new ONU if the ONU is not used any more. The data of the original ONU is synchronized to the new ONU.

Procedure

- 1 On the Main Topology, choose the OLT that the ONU is connected to from the navigation tree, select the ONU subnode, right-click, and then choose GPON Option > Replace ONU or EPON Option > Replace ONU.
- 2 In the **Replace ONU** dialog box, modify the authentication information.
- 3 Click OK.

----End

Result

After the ONU is replaced, the new ONU is online, that is, the ONU icon in the **Physical Root** navigation tree in Main Topology changes from gray to green.

The OLT reports a trap to the U2000, and the U2000 determines whether the ONU is the new ONU according to the MAC address in the trap. If the ONU is the new ONU, the U2000 applies

the configuration data that is backed up to the new ONU. In addition, the DC automatically creates an upgrade task. Choose Administration > NE Software Management > NE Upgrade Task Management from the main menu. Then, view the task information on the NE Upgrade Task Management tab page.

1.4 Moving an ONU

This topic describes how to move an ONU so that the ONU is connected to another optical splitter.

Context

An ONU can be moved only between ODN submaps where the same PON port is located. It cannot be moved to the ODN submap where another PON port is located.

Procedure

- 1 On the **Main Topology**, select the OLT to which the ONU is connected from the navigation tree, select the ONU subnode, right-click, and then choose **Move To**.
- 2 On the Move ONU interface, select the required splitter.
- 3 Click OK.

----End

1.5 Managing the SRG Web Service

The SRG is a service router gateway developed by Huawei. The SRG is a cost-effective security and access solution for small and medium-sized enterprise networks and the telecommunications networks.

Context

The web-manager function provides users with a simple and friendly Web configuration interface. Through this interface, users can operate and maintain the SRG conveniently.

The **NE Explorer** tab page is used to configure and manage the access services of the SRG, and the **Web LCT** tab page is used to configure and manage other services of the SRG, such as route configuration and security management.

Procedure

1 On the **Physical Root** navigation tree on the **Main Topology** tab page, double-click the required SRG device; or select the required **SRG** device, right-click, and then choose **NE Explorer**, the U2000 supports the automatic login of the Web interface of the SRG.

In certain circumstances, to log in to the WEB LCT, do as follows:

- Click the WEB LCT tab, set User name and Password, and then click Referring to log in to the Web management interface.
- The initial account and password for logging in to the LCT Web management interface are **admin** and **Admin@123** respectively.

----End

1.6 Configuration Example of the Outband Management (Based on the SNMPv3 Protocol)

This topic provides an example for configuring the outband management to manage and maintain the ONU. In outband management the non-service channel is used to transmit the management information. With the use of the non-service channel, the management channel and the service channel are separated, which provides a more reliable management channel for the device compared with the inband management.

Example Network

After you add a static route to the U2000 on the ONU and set the related SNMP parameters, the U2000 manages and maintains the ONU in the outband management mode through the ETH port.



Figure 1-1 Example network of the outband management

Data Plan

Configuring the Data Plan for the Outband Management (U2000 Standalone System)

The IP address of the outband management interface on the ONU side and the IP address of the gateway must be in the same subnet. When the IP address of the outband management interface and the IP address of the U2000 are in different subnets, you need to configure the route information for forwarding the IP packets. The IP address of the destination host for the traps is the IP address of the U2000.

Table 1-2 Data	plan for the outband	network management	in the standalone mode
----------------	----------------------	--------------------	------------------------

Item	Data
Outband network management interface on the ONU	IP address: 10.10.21.2/24
U2000	IP address: 10.10.21.1/24
The IP address of the gateway of the ONU	IP address: 10.10.20.254/24
SNMP	User name: user1

Item	Data
	Group name: group1
	View user: hardy
	Authentication method: MD5 Authentication password: auth12345678
	Encryption method: DES Encryption password: pri12345678
	Version: V3

Configuring the Data Plan for the Outband Management (U2000 HA System)

- If the floating IP address allocation scheme is used, the active and standby U2000 servers use the floating IP address to communicate with the device. That is, the IP address of the destination host for the traps is the floating IP address. The IP address of the outband management interface on the ONU side and the IP address of the gateway must be in the same subnet. When the IP address of the outband management interface and the floating IP address, you need to configure the route information for forwarding the IP packets.
- If the floating IP address allocation scheme is not used, the IP addresses used for the communication between the active and standby servers and the device are different. The IP address of the outband management interface on the ONU side and the IP address of the gateway must be in the same subnet. When the IP address of the outband management interface and the IP addresses of the active and standby U2000 servers are in different subnets, you need to configure the route information for forwarding the IP packets.

Item	Data	
Outband network management interface on the ONU	IP address: 10.10.20.2/24	
U2000 (adopting the method of allocating floating IP addresses)	Floating IP address: 10.10.21.1/24	
U2000 (not adopting the method of allocating	IP address of the active server: 10.10.21.1/24	
floating IP addresses)	IP address of the standby server: 10.10.21.2/24	
The IP address of the gateway of the ONU	IP address: 10.10.20.254/24	
SNMP	User name: user1	
	Group name: group1	
	View user: hardy	

Table 1-3 Data plan for the outband network management in the HA system

Item	Data
	Authentication method: MD5 Authentication password: auth12345678
	Encryption method: DES Encryption password: pri12345678
	Version: V3

Procedure

1 Procedures for configuring the outband network management on the device

Procedures for configuring the outband network management on the device in the standalone mode

1. Configure the IP address of the maintenance network port.

By default, the IP address of the maintenance network port is 10.11.104.2, and the subnet mask is 255.255.255.0.

huawei(config)#interface meth 0

huawei(config-if-meth0)#ip address 10.10.20.2 255.255.255.0

huawei(config-if-meth0)#quit

2. Add a route for the outband network management.

huawei(config)#ip route-static 10.10.21.0 24 10.10.20.254

- 3. Set the SNMP parameters.
 - Set the SNMP user, group, and view.
 - huawei(config)#snmp-agent usm-user v3 user1 group1 authentication-mode md5 auth12345678 privacy-mode des56 pri12345678
 - huawei(config)#snmp-agent group v3 group1 authentication read-view hardy write-view hardy
 - huawei(config)#snmp-agent mib-view hardy include ip
 - (Optional) Set the administrator flag and contact.
 - huawei(config)#snmp-agent sys-info contact HW-075528780808
 - (Optional) Set the location information about the device.

huawei(config)#snmp-agent sys-info location Shenzhen_China

• (Optional) Configure the engine ID of the SNMP entity.

huawei(config)#huawei(config)#snmp-agent local-engineid 0123456789

• Set the SNMP version.

The SNMP version must be consistent with the SNMP version set on the U2000. The following example assumes that the SNMP version on the U2000 is SNMP V3.

huawei(config)#snmp-agent sys-info version v3

4. Enable the sending of the trap packet.

huawei(config)#snmp-agent trap enable standard

5. Configure the IP address of the destination device of the trap packet.

huawei(config)#snmp-agent target-host trap-hostname huawei address 10.10.21.1 trap-paramsname ABC

huawei(config)#snmp-agent target-host trap-paramsname ABC v3 securityname user1 privacy

6. Configure the IP address of the maintenance network port as the source IP address of the trap packet.

huawei(config)#snmp-agent trap source meth 0

7. Save the data.

huawei(config)#save

Procedures for configuring the outband network management on the device in the HA system

- When the HA system adopts the method of allocating floating IP addresses, the procedures for configuring the outband network management on the device in the HA system is the same as the procedures for configuring the outband network management on the device in the standalone mode.
- The following describes how to configure the outband network management on the device when the HA system does not adopt the method of allocating floating IP addresses.
- Configure the IP address of the maintenance network port.

huawei(config)#interface meth 0

huawei(config-if-meth0)#ip address 10.10.20.2 255.255.255.0

• Add the route for the outband network management.

huawei(config)#ip route-static 10.10.21.0 24 10.10.20.254

- Set the SNMP parameters.
 - Set the SNMP user, group, and view.
 - huawei(config)#snmp-agent usm-user v3 user1 group1 authentication-mode md5 auth12345678 privacy-mode des56 pri12345678
 - huawei(config)#snmp-agent group v3 group1 authentication read-view hardy write-view hardy
 - huawei(config)#snmp-agent mib-view hardy include ip
 - (Optional) Set the administrator flag and contact.
 - huawei(config)#snmp-agent sys-info contact HW-075528780808

- (Optional) Set the location information about the device.

huawei(config)#snmp-agent sys-info location Shenzhen_China

- (Optional) Configure the engine ID of the SNMP entity.

huawei(config)#huawei(config)#snmp-agent local-engineid 0123456789

- Set the SNMP version.

The SNMP version must be consistent with the SNMP version set on the U2000. The following example assumes that the SNMP version on the U2000 is SNMP V3.

- huawei(config)#snmp-agent sys-info version v3
- Enable the sending of the trap packet.

huawei(config)#snmp-agent trap enable standard

• Configure the IP address of the destination device of the trap packet.

huawei(config)#snmp-agent target-host trap-hostname huawei address 10.10.21.1 trapparamsname ABC1

huawei(config)#snmp-agent target-host trap-paramsname ABC1 v3 securityname user1 privacy

huawei(config)#snmp-agent target-host trap-hostname huawei address 10.10.21.2 trapparamsname ABC2

huawei(config)#snmp-agent target-host trap-paramsname ABC2 v3 securityname user1 privacy

• Configure the IP address of the maintenance network port as the source address of the trap packet.

huawei(config)#snmp-agent trap source meth 0

• Save the data.

huawei(config)#save

2 Procedure for configuring the outband management on the U2000 side

The MDU that supports GE upstream transmission supports the SNMPv3 protocol.

- 1. Choose Administration > NE Communicate Parameter > NE Access Protocol Parameters from the main menu.
- 2. On the tab page, click **Reset**. In the dialog box that is displayed, click the **SNMPv1 Parameters** tab and then click **Add**.
- 3. In the dialog box that is displayed, set the name and SNMP parameters as follows:

Template Na 🔺	Version 🗠	Timeout Inter 🛆	Retries 🗠	Poll Interval(s) <	NE Port 🗠
123	SNMPv3	5	3	1800	161
default	SNMPv3	10	5	1800	161
Template Nam	e: huawei		* Version:	SNMPv3	•
-Common param Retries:	eters:	÷	Poll Interval(s):	1800	
Timeout Interva	ıl(s): <u>5</u>		NE Port:	161	
-SINMP V3 Secury	params		+		
NE User:	user1				
Context Name	:		Context Engine	ID: 01234567	8
Privacy protoco	DES	•	Auth Protocol:	HMACMD	5 🔹
			(0 <u>K</u>	<u>C</u> ancel

The SNMPv3 protocol supports three security levels: authentication, noauth, and privacy. To implement successful communication through the SNMPv3 protocol, ensure that the authentication and encryption modes of the SNMP user on the device, SNMP group, and the SNMP parameters on the U2000 are the same.

4. Click OK.

- 5. Select the added SNMP parameters. Click **OK**.
- 6. In the dialog box that is displayed, click **Yes**. Test the set SNMP parameters.
- 7. The U2000 displays the Loading dialog box. After the testing is complete, click OK.
- 8. In the physical root view page, right-click and then choose New > NE.
- 9. In the dialog box that is displayed, set the parameters.

- NMS	
E-Access NE	IP Address: 10 . 10 . 20 . 2
E- 3rd-Party	Device Name: OLT_10.10.20.2
Dummy Device Microsoft Windows	Device Alias: shenzhen_CHINA
Sun Workstation	Physical path: Physical Root/
I±⊢ TR069	Maintance:
	SNMP Parameters: SNMP V3:huawei
	Status: In Service 💌
	Coordinate: 219,127
	Time Zone and DST: UnSet
	Remarks:
	<u>O</u> K <u>C</u> ancel <u>Apply</u>

10. Click **OK**.

----End

Result

The U2000 can manage and maintain the ONU normally.

1.7 Configuration Example of the Inband Management

This topic provides an example for configuring the inband management to manage and maintain the ONU. The inband management transmits the management information through the service channel of the device. The inband management features the flexible networking without any adjunct device and low cost, but it is difficult to maintain.

Example Network

After you add a static route to the U2000 on the ONU and set the related SNMP parameters, the U2000 manages and maintains the ONU in the inband management through the upstream port.

The procedure for configuring inband management by means of the SNMPv1 protocol is similar to that by means of the SNMPv2c protocol. This topic considers the SNMPv1 protocol as an example.



Figure 1-2 Example network of the inband management

Data Plan

Configuring the Data Plan for the Inband Management (U2000 Standalone System)

The IP address of the inband management interface on the ONU side and the IP address of the gateway must be in the same subnet. When the IP address of the inband management interface and the IP address of the U2000 are in different subnets, you need to configure the route information for forwarding the IP packets. The IP address of the destination host for the traps is the IP address of the U2000.

Item	Data
ONU	• SNMP Profile: snmpprofile
	• Line Profile: lineprofile
	• Service Profile: serviceprofile
	• ONU Capacity Profile: ontprofile
	• Affiliated Port: 0/2/0
	• Name: 0/2/0
	• ONU ID: 1
	• Splitter Port ID: 1
	• Auth Way: SN
	• Key: 0123456789ABCDEF
	• Manager VLAN: 100
	• IP Address: 10.10.20.2
	• IP Address Mask: 255.255.0.0
Inband network management interface on the ONU	IP address: 10.10.21.2/24
U2000	IP address: 10.10.21.1/24
The IP address of the gateway of the ONU	IP address: 10.10.20.254/24
Get Community	public
Set Community	private
SNMP Version	V1

 Table 1-4 Data plan for the inband network management in the standalone mode

Configuring the Data Plan for the Inband Management (U2000 HA System)

- If the floating IP address allocation scheme is used, the active and standby U2000 servers use the floating IP address to communicate with the device. That is, the IP address of the destination host for the traps is the floating IP address. The IP address of the inband management interface on the ONU side and the IP address of the gateway must be in the same subnet. When the IP address of the inband management interface and the floating IP address of the U2000 are in different subnets, you need to configure the route information for forwarding the IP packets.
- If the floating IP address allocation scheme is not used, the IP addresses used for the communication between the active and standby servers and the device are different. The IP address of the inband management interface on the ONU side and the IP address of the gateway must be in the same subnet. When the IP address of the inband management interface and the IP address of the active and standby U2000 servers are in different subnets, you need to configure the route information for forwarding the IP packets.

Item	Data
ONU	• SNMP Profile: snmpprofile
	• Line Profile: lineprofile
	• Service Profile: serviceprofile
	• ONU Capacity Profile: ontprofile
	• Affiliated Port: 0/2/0
	• Name: 0/2/0
	• ONU ID: 1
	• Splitter Port ID: 1
	• Auth Way: SN
	• Key: 0123456789ABCDEF
	• Manager VLAN: 100
	• IP Address: 10.10.20.2
	• IP Address Mask: 255.255.0.0
Inband network management interface on the ONU	IP address: 10.10.20.2/24
U2000 (adopting the method of allocating floating IP addresses)	Floating IP address: 10.10.21.1/24
U2000 (not adopting the method of allocating	IP address of the active server: 10.10.21.1/24
floating IP addresses)	IP address of the standby server: 10.10.21.2/24
The IP address of the gateway of the ONU	IP address: 10.10.20.254/24
Get Community	public
Set Community	private
SNMP Version	V1

 Table 1-5 Data plan for the inband network management in the HA system

Procedure

1 Procedures for configuring the inband network management on the device

Procedures for configuring the inband network management on the device in the standalone mode

The SNMP parameters must be consistent with the SNMP parameters on the U2000. Configure the parameters according to the actual requirements.

1. Configure the IP address of the inband network management port.

If the packet transmitted from the upstream port is untagged, run the **native-vlan** command to configure the native VLAN of the upstream port to be the same as the VLAN of the upstream port.

- a. Create the network management VLAN.
 huawei(config)#vlan 1000 standard
- b. Add the upstream ports.
 huawei(config)#port vlan 1000 0/0 0
- c. Enter the U2000 VLAN interface.
 huawei(config)#interface vlanif 1000
- d. Configure the IP address of the U2000 VLAN interface. huawei(config-if-Vlanif1000)#ip address 10.10.20.2 255.255.255.0 huawei(config-if-vlanif1000)#quit
- Add a route for the inband network management. huawei(config)#ip route-static 10.10.21.0 24 10.10.20.254
- 3. Set the SNMP parameters.
 - Set the community name and access rights. huawei(config)#snmp-agent community read public huawei(config)#snmp-agent community write private
 - (Optional) Set the administrator flag and contact.

huawei(config)#snmp-agent sys-info contact HW-075528780808

• (Optional) Set the location information about the device.

huawei(config)#snmp-agent sys-info location Shenzhen_China

• Set the SNMP version.

The SNMP version must be consistent with the SNMP version set on the U2000. The following example assumes that the SNMP version on the U2000 is SNMP V1.

huawei(config)#snmp-agent sys-info version v1

4. Enable the sending of the trap packet.

huawei(config)#snmp-agent trap enable

5. Configure the IP address of the destination device of the trap packet.

huawei(config)#snmp-agent target-host trap-hostname huawei address 10.10.21.1 trap-paramsname ABC

huawei(config)#snmp-agent target-host trap-paramsname ABC v1 securityname private

6. Set the source IP address of the trap packet.

huawei(config)#snmp-agent trap source vlanif 1000

7. Save the data.

huawei(config)#save

Procedures for configuring the inband network management on the device in the HA system

- When the HA system adopts the method of allocating floating IP addresses, the procedures for configuring the inband network management on the device is the same as the procedure for configuring the inband network management on the device in the standalone mode.
- The following describes how to configure the inband network management on the device when the HA system does not adopt the method of allocating floating IP addresses.

1. Configure the IP address of the inband network management port.

If the packet transmitted from the upstream port is untagged, run the **native-vlan** command to configure the native VLAN of the upstream port to be the same as the VLAN of the upstream port.

- a. Create the network management VLAN. huawei(config)#vlan 1000 standard
- b. Add the upstream ports.

huawei(config)#port vlan 1000 0/0 0

c. Enter the U2000 VLAN interface.

huawei(config)#interface vlanif 1000

- d. Configure the IP address of the U2000 VLAN interface. huawei(config-if-Vlanif1000)#ip address 10.10.20.2 255.255.255.0 huawei(config-if-vlanif1000)#quit
- Add a route for the inband network management. huawei(config)#ip route-static 10.10.21.0 24 10.10.20.254
- 3. Set the SNMP parameters.
 - Set the community name and access rights. huawei(config)#snmp-agent community read public huawei(config)#snmp-agent community write private
 - (Optional) Set the administrator flag and contact. huawei(config)#snmp-agent sys-info contact HW-075528780808
 - (Optional) Set the location information about the device. huawei(config)#snmp-agent sys-info location Shenzhen_China
 - Set the SNMP version.

The SNMP version must be consistent with the SNMP version set on the U2000. The following example assumes that the SNMP version on the U2000 is SNMP V1.

huawei(config)#snmp-agent sys-info version v1

4. Enable the sending of the trap packet.

huawei(config)#snmp-agent trap enable

5. Configure the IP address of the destination device of the trap packet.

huawei(config)#snmp-agent target-host trap-hostname huawei address 10.10.21.1 trap-paramsname ABC1

huawei(config)#snmp-agent target-host trap-paramsname ABC1 v1 securityname private

huawei(config)#snmp-agent target-host trap-hostname huawei address 10.10.21.2 trap-paramsname ABC2

huawei(config)#snmp-agent target-host trap-paramsname ABC2 v1 securityname private

- 6. Set the source IP address of the trap packet.
 - huawei(config)#snmp-agent trap source vlanif 1000
- 7. Save the data.

huawei(config)#save

2 Procedure for configuring the inband management on the U2000 side

The MDU that supports GPON upstream transmission is considered as an example.

- 1. Configuring an MDU SNMP Profile
 - a. Choose **Configuration** > **Access Profile Management** > **MDU SNMP Profile** from the main menu.
 - b. Right-click and choose Add Global Profile from the shortcut menu.
 - c. In the dialog box that is displayed, set the parameters.

	1 5 7				
Add MDU SNMP Profile					×
Profile Parameter					
Nome	onmonrofilo	1	Alion		
Name.	shripprome		Allas.	l	
SNMP Version:	v1 💌	*	Read Name:	public *	
Write Name:	private	*	Trap Host IP:	10.10.21.1 *	
Trap UDP Port (1-65535):	162	*	SNMP Security Name:	public *	
				Canada Canada	
				Sancel Apply	

- d. Click OK.
- e. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- f. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configuring a GPON Line Profile
 - a. Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - b. Click the **GPON Line Profile** tab. Right-click and choose **Add Global Profile** from the shortcut menu.
 - c. In the dialog box that is displayed, set the parameters.
 - 1) Choose **Basic Info** from the navigation tree, and then set the basic parameters of the profile.

Add GPON Line Profile		X
Name: gponlineprofile	* Alias:	
Configuration Base Info. Line Ethernet port binding group T-CONT Info.	Name Upstream FEC Switch Mapping Mode Qos Mode OMCC Encryption	Value OFF VLAN Priority Queue Off
	ОК	Cancel Apply

2) Choose **T-CONT Info.** from the navigation tree, right-click, and then choose **ADD T-CONT** from the shortcut menu. In the dialog box that is displayed, set **T-CONT Index** and **DBA Profile**.

ame: gponlineprofile	* Alias:		
Configuration	Name	Value	
E Line	Upstream FEC Switch		
 Ethernet port binding group 	Mapping Mode	VLAN Driesity Oueue	
T-CONT ADD T-CONT	QUS MODE	Off	
	T-CONT Index(0-127): DBA Profile:	dba-profile_6 OK Cancel	
< <u> </u>			



It is recommended that you do not set **T-CONT Index** to **0**. TCONT 0 is reserved for the internal communication of the GPON protocol.

3) Choose **T-CONTx** from the navigation tree, right-click, and then choose **ADD GEM Port** from the shortcut menu. In the dialog box that is displayed, set **GEM Port Index**.

x indicates the T-CONT index.

Add GPON Line Profile		×
Name: gponlineprofile	* Alias:	
Configuration Base Info. E Line Ethernet port binding group T-CONT Info. ADD GEM Port DEL T-CONT	ADD GEM Port T-C GEM Port Parameters DB/ T-CONT Index(0-127): GEM Port Index(0-1023): GEM Port Index(0-1023): Priority Queue: O CAR Profile: Service Type: ETH Encryption Switch: ON Cascade Switch:	X
	OK Cancel]
	OK Cancel Apply	/

4) Choose GEM Portx from the navigation tree, right-click, and then choose ADD GEM Connection from the shortcut menu. In the dialog box that is displayed, set the basic parameters of the GEM connection.

x indicates the GEM port index.

Ad	d GPON Line Profile				×	
N	ame: gponlineprofile	* 4	Alias:			
		4	ADD	GEM Connection		×
	Configuration Base Info.	N: GEM Port Inde:	GE	M Connection Parameters		
	Line Ethernet port binding group T CONT lefe	Priority Queue CAR Profile	G	EM Port Index(0-1023):	1	
		Service Type	G	EM Connection Index(0-1023):		
	ADD GEM C	Connection witc	٧	'LAN ID(1-4094):	1000	
			F	riority:		T
			F	fort Type:		•
			F	ort ID(1-8):		
			E	lindGroup ID:		T
			C	AR Profile:		
	< III >				ок	Cancel
				OK Cancel	Apply	

- d. Click OK.
- e. In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- f. In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Adding the MDU That Supports GPON Upstream Transmission
 - a. On the topological navigation tree, select the required ODN under the OLT node. Select the splitter under the ODN, right-click, and then choose **New > ONU**; or select

the splitter under the ODN, right-click the blank area on the **Physical Root** interface on the right side, and then choose **New** > **ONU**.

b. On the interface that is displayed, set the parameters on the **Basic Parameters** and **Network Management Channel Parameters** tab pages (on this interface, the ONU that supports the GPON upstream mode is considered as an example).

11				1 /
👋 Add ONU Info				2
Affiliated Port:	0/2/0	*	Splitter ID:	Splitter(L1)
Name:	ONU	*	Alias:	
ONU ID(0-127):	🗌 Auto Assign	127 *	Splitter Port ID(1-128	3): 1
ONU Type:	MDU	•		
Protection F	Role			
Basic Paramet	ers Netwo	rk Management Char	inel Parameters	
Line Profile:		*	Service Profile:	
Optic Alarm Pro	ofile:		ONU VAS Profile:	
Auth Info				
Auth Way:	MAC Address	3 T	*	
MAC Addres	s:		Kev:	*
			* CHECKCODE:	*
Buth Mode:	Alwaya On		Time Out/b)/1.180	
Auth Mode:	Always On	· · · · · · · · · · · · · · · · · · ·	Time Out(n)(1-168	a): 🕑 Disable
Extend Inform	nation			
	Status	PITP Status	IGMP Mode:	стс
	014140		ionni modo. I <u>c</u>	
ONU Type				
Vendor ID:		•	Terminal Type:	-
Software Ve	rsion:			
			ОК	Cancel <u>A</u> pply

У Add ONU Info					×
Affiliated Port:	0/2/0		*	Splitter ID:	Splitter(L1)
Name:	ONU		*	Alias:	
ONU ID(0-127):	🖌 Auto Assi	gn	*	Splitter Port ID(1-128)	: 1
ONU Type:	MDU	•			
Protection F	Role				
Basic Paramet	ers Netwo	ork Management Chan	nel Pa	rameters	
I OLT Sets Net Para Manager VL IP Address:	: Network Mar AN(1-4095):	agement Channel Par	amete]*]*	rs EPON SNMP f Gateway IP Address: IP Address Mask:	Profile:*
Priority(0-7)	:				
Static Route I	Parameters				
Target IP Ad	ldress:			Target Mask:	
Next Hop IP	Address:				
				ОК	Cancel Apply

- When the OLT works in the profile mode, the ONU that supports the EPON upstream mode needs to be bound with the EPON line profile and the EPON service profile.
- When the OLT works in the profile mode, the ONU that supports the GPON upstream mode needs to be bound with the GPON line profile and the GPON service profile.
- When the OLT works in the distributed mode, the ONU that supports the GPON upstream mode needs to be bound with the ONU capacity profile.
- When the **OLT sets network management channel parameters** check box is cleared, ONUs are configured and managed remotely on the OLT through the OMCI protocol.
- When the **OLT sets network management channel parameters** check box is selected, ONUs are configured and managed remotely on the OLT through the SNMP protocol.
- Do not add the SNMP parameters on the ONU through the serial port, but issue the SNMP profile from the OLT to the ONU only.
- c. Click OK.
- d. 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.
- e. Choose VLAN from the navigation tree.
- f. On the VLAN tab page, right-click and choose Add from the shortcut menu.
- g. In the dialog box that is displayed, set the parameters.
 - VLAN ID: 4000
 - Type: Smart VLAN
- h. Click Next.

- Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4
- i. Click Finish.
- j. Choose **GPON** > **GPON ONU** from the navigation tree.
- k. On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.
- 1. In the information list, select the record where the shelf, slot, port, and ONU IDs are 0, 2, 1, and 0 respectively and click the **ServicePort Info** tab in the lower pane.
- m. On the ServicePort Info tab page, right-click and choose Add from the shortcut menu.
- n. In the dialog box that is displayed, set the parameters.
 - Connection Type: LAN-GPON
 - VLAN ID: 4000
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 4000
 - 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)
- o. Click OK.

----End

Result

After the parameters on the element management system (EMS) are configured successfully, the U2000 can manage and maintain the ONU normally.

2 Configuring the VLAN Stacking Wholesale Service

About This Chapter

The VLAN stacking is a service by which the subscribers can access their corresponding ISP service in batches based on some rules.

Context

The wholesale service allows the subscribers to access their own ISP service in batches based on some rules when the L2 metropolitan area network has many ISPs.

The Stacking VLAN packets contain the inner and outer VLAN tags allocated by the ONU. The packets can be applied to the upper BRAS for performing the dual VLAN authentication and adding to the number of access subscribers.

2.1 Introduction to the VLAN Stacking Wholesale Service

VLAN stacking refers to the stacking of the 802.1Q tags. It allows the device to add two 802.1Q VLAN tags to an untagged user packet or change a tagged user packet into a packet with two 802.1Q VLAN tags. The packet with two VLAN tags can then be transmitted over the backbone network of the service provider. When the packet reaches the BRAS, the BRAS authenticates the packet based on the two VLAN tags, or removes the outer VLAN tag and identifies the user by the inner VLAN tag.

2.2 Configuring the VLAN Stacking Wholesale Service

This topic describes how to configure the VLAN stacking wholesale service on the ONU in the FTTx networking scenario.

2.3 Application Example: Configuring the VLAN Stacking Wholesale Service

Based on the example network, this topic describes how to configure the VLAN Stacking Wholesale Service.

2.1 Introduction to the VLAN Stacking Wholesale Service

VLAN stacking refers to the stacking of the 802.1Q tags. It allows the device to add two 802.1Q VLAN tags to an untagged user packet or change a tagged user packet into a packet with two 802.1Q VLAN tags. The packet with two VLAN tags can then be transmitted over the backbone network of the service provider. When the packet reaches the BRAS, the BRAS authenticates the packet based on the two VLAN tags, or removes the outer VLAN tag and identifies the user by the inner VLAN tag.

Background

The VLAN stacking feature allows the ONU to add an inner 802.1Q VLAN tag and an outer 802.1Q VLAN tag to an access user packet. The packet with two VLAN tags is transmitted to the layer-2 switching network, and forwarded to the ISP network according to the outer VLAN tag.

Wholesale service: In a layer-2 metropolitan area network, there may exist multiple Internet service providers (ISPs). The services of these ISPs need to be delivered to their respective users quickly. Therefore, the outer VALN tag is used to identify the ISP and the inner VLAN tag is used to identify the user. In this way, different user groups with different outer VLAN tags can access the specified ISP networks and obtain the services provided by the ISPs.

2.2 Configuring the VLAN Stacking Wholesale Service

This topic describes how to configure the VLAN stacking wholesale service on the ONU in the FTTx networking scenario.

Context

Figure 2-1 shows the flowchart for configuring the VLAN Stacking Wholesale Service.



Figure 2-1 Flowchart for configuring the VLAN Stacking Wholesale Service

2.3 Application Example: Configuring the VLAN Stacking Wholesale Service

Based on the example network, this topic describes how to configure the VLAN Stacking Wholesale Service.

Prerequisite

The devices are connected according to the example network as shown in the figure **Figure 2-2** and the devices work in the normal state.

Context

Figure 2-2 shows an example network of the VLAN Stacking Wholesale Service.



Figure 2-2 Example network of the VLAN Stacking Wholesale Service

Users 1 and 2 belong to one ISP, and users 3 and 4 belong to another ISP. Based on the VLAN stacking feature, the ONU adds the outer VLAN tag to differentiate ISPs and inner VLAN tag to differentiate users and forwards the user packet to the L2 network. Then the switch at the L2 forwards the user packets to the specified ISP BRAS based on the outer VLAN tag. The BRASs

of the user's ISP remove the outer VLAN tag and identify the users based on the inner VLAN tag. After passing the authentication, the users can obtain various services provided by the ISP.

Data Plan

 Table 2-1 provides the data plan for configuring the VLAN Stacking Wholesale Service.

Item Data	Data		
Upstream port	0/0/1		
ISP1 user group	Upstream VLAN ID (outer VLAN tag): 20		
	VLAN type: Smart VLAN		
	VLAN attribute: Stacking VLAN		
	User 1:		
	• Inner VLAN tag: 11		
	User 2:		
	• Inner VLAN tag: 12		
ISP2 user group Upstream VLAN ID (outer VLAN tag): 21			
	VLAN type: Smart VLAN		
	VLAN attribute: Stacking VLAN		
User 3: • Inner VLAN tag: 11			
		User 4:	
	• Inner VLAN tag: 12		

Table 2-1 Data plan for configuring the VLAN Stacking Wholesale Service

Procedure

- **1** Configuring the VLAN Service Profile.
 - 1. Choose Configuration > Access Profile Management > VLAN Service Profile from the main menu.
 - 2. Right-click and choose Add Global Profile from the shortcut menu.
 - 3. In the dialog box that is displayed, set the parameters.
 - Name: Vservice_profile
 - Forwarding Mode: vlan-mac
 - 4. Click OK.
 - 5. Select the VLAN Service Profile, right-click, and then choose **Download to NE**.
 - 6. In the dialog box that is displayed, select the required MDU, and then click **OK**.
- **2** Configure the MEF IP traffic profile.

- 1. Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
- 2. Click the **MEF IP Traffic Profile** tab. Right-click and choose **Add Global Profile** from the shortcut menu.
- 3. In the dialog box that is displayed, set the MEF IP traffic profile parameters **Name** to **ip_profile** and **CIR** to **3072kbit/s**.
- 4. Click **OK**.
- 5. Select the MEF IP traffic profile, right-click, and then choose **Download to NE**.
- 6. In the dialog box that is displayed, select the required MDU, and then click **OK**.
- 3 Adding a VLAN and configuring an Upstream Port.
 - 1. In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
 - 2. Choose VLAN from the navigation tree. On the VLAN tab page, set the filter criteria or click imes to display the VLANs.
 - 3. Right-click the list, and then choose **Batch Add**.
 - 4. In the dialog box that is displayed, select **Base Info.**, set the parameters.
 - Start VLAN ID: 20.
 - End VLAN ID: 21.
 - Type: Smart VLAN.
 - Attribute: Stacking.
 - 5. Click Next, configure an Upstream Port, set 0/0/1 as the upstream port of the VLAN.
 - 6. Click Done.
- 4 Configure a service virtual port.
 - 1. In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
 - 2. Choose **Connection** > **Service Port** from the navigation tree.
 - 3. On the **Service Port** tab page, set the filter criteria to display the required service virtual ports. Right-click the list, and then choose **Add**.
 - 4. In the dialog box that is displayed, set the parameters.
 - In the Attribute field, set Port Type to ETHER and Service Type to Muti-Service VLAN.
 - In the Network Side field, set VLAN Choice to Stacking VLAN, Outer VLAN ID to 20, and Inner VLAN ID to 11.
 - In the User Side field, set Interface Selection to 0/2/0 and User VLAN to 11.
 - Click **OK**.
 - 5. Configure the service virtual ports for users 2, 3, and 4 according to the data plan.
- 5 Save the data.
 - 1. On the tab page that is displayed, choose **NE Properties** > **Auto Save Configuration** from the navigation tree.
 - 2. In the right pane, set **Save Type** to **All**, select the **Enable Auto Save** check box, and then select **Absolute Period** or **Relative Period**.

3. Click Apply.

----End

3 Configuring the QinQ VLAN Private Line Service

About This Chapter

QinQ VLAN is used in the private line services of enterprise private networks to provide safe channels for the data transmission between the enterprise private networks.

Context

The private line service allows the private network services to be transparently transmitted to the peer end, for example, on an intranet.

To communicate with each other, users that are on the same private network but at different locations are connected to the public network through the ONU respectively. On the ONU, configure the upstream VLAN for user packets from the private network to have the QinQ attribute. In this way, the packet has two VLAN tags: an inner VLAN tag from the private network and an outer VLAN tag from the public network. Through the outer VLAN tag, the packet is transparently transmitted to the peer private network user. In this way, private network users can communicate with each other.

3.1 Introduction to the QinQ VLAN Private Line Service

QinQ VLAN is a tunnel protocol based on the 802.1Q encapsulation. QinQ VLAN adds an 802.1Q tag to a VLAN packet that already has an 802.1Q tag from the private network so that this VLAN packet can be transparently transmitted from the private network to the layer-2 VPN through the public network.

3.2 Configuring the QinQ VLAN Leased Line Service

This topic describes how to configure the QinQ VLAN Leased Line Service on the ONU in the FTTx networking scenario.

3.3 Application Example: Configuration the QinQ VLAN Leased Line Service

Based on the example network, this topic describes how to configure the QinQ VLAN Leased Line Service.

3.1 Introduction to the QinQ VLAN Private Line Service

QinQ VLAN is a tunnel protocol based on the 802.1Q encapsulation. QinQ VLAN adds an 802.1Q tag to a VLAN packet that already has an 802.1Q tag from the private network so that this VLAN packet can be transparently transmitted from the private network to the layer-2 VPN through the public network.

Background

The ONU receives a packet with a private VLAN tag and uses the QinQ (802.1Q in 802.1Q) feature to add a public VLAN tag (that is, the QinQ VLAN tag) to the packet. The packet with the private VLAN tag is forwarded to the peer ONU over the public network according to its outer public VLAN tag. The peer ONU removes the outer VLAN tag and transmits the packet to the peer private network.

The ONU also supports the transparent transmission of BPDU packets from a private network to its peer private network by using the QinQ VLAN private line service.

3.2 Configuring the QinQ VLAN Leased Line Service

This topic describes how to configure the QinQ VLAN Leased Line Service on the ONU in the FTTx networking scenario.

Context

Figure 3-1 shows the flowchart for configuring the QinQ VLAN Leased Line Service.





3.3 Application Example: Configuration the QinQ VLAN Leased Line Service

Based on the example network, this topic describes how to configure the QinQ VLAN Leased Line Service.

Prerequisite

The devices are connected according to the example network as shown in the figure **Figure 3-2** and the devices work in the normal state.

Context

Figure 3-2 shows an example network of the QinQ VLAN Leased Line Service.

Figure 3-2 Example network of the QinQ VLAN Leased Line Service



Two offices of the enterprise are connected to the metropolitan area network (MAN) through ONU_A and ONU_B respectively. After the QinQ VLAN private line service is configured on the ONU, the services can be transparently transmitted between the two offices within the enterprise private network over the public network.

Data Plan

 Table 3-1 provides the data plan for configuring the QinQ VLAN Leased Line Service.
Item Data	Data
ONU_A	Upstream port: 0/0/1
	Upstream VLAN ID: 10
	VLAN type: Smart VLAN
	VLAN attribute: QinQ
	BPDU transparent transmission: enabled
	Traffic profile: ip_profile, with the permitted access rate of 3072kbit/s
ONU_B	The same as the data plan of ONU_A

Table 3-1 Data plan for configuring the QinQ VLAN Leased Line Service

Procedure

- **1** Configuring the VLAN Service Profile.
 - 1. Choose Configuration > Access Profile Management > VLAN Service Profile from the main menu.
 - 2. Right-click and choose Add Global Profile from the shortcut menu.
 - 3. In the dialog box that is displayed, set the **Name** of the VLAN Service Profile as **Vservice_profile**, and then select **Enable** for the **BPDU Tunnel**.
 - 4. Click **OK**.
 - 5. Select the VLAN Service Profile, right-click, and then choose **Download to NE**.
 - 6. In the dialog box that is displayed, select the required MDU, and then click **OK**.
- 2 Configure the MEF IP traffic profile.
 - 1. Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - 2. Click the **MEF IP Traffic Profile** tab. Right-click and choose **Add Global Profile** from the shortcut menu.
 - 3. In the dialog box that is displayed, set the MEF IP traffic profile parameters **Name** to **ip_profile** and **CIR** to **3072kbit/s**.
 - 4. Click **OK**.
 - 5. Select the MEF IP traffic profile, right-click, and then choose **Download to NE**.
 - 6. In the dialog box that is displayed, select the required MDU, and then click **OK**.
- 3 Adding a VLAN and configuring an Upstream Port.
 - 1. In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
 - 2. Choose VLAN from the navigation tree. On the VLAN tab page, set the filter criteria or click is to display the VLANs.
 - 3. Right-click the list, and then choose Add.
 - 4. In the dialog box that is displayed, select **Base Info.**, set the parameters.

- VLANID: 10.
- Type: Smart VLAN.
- Attribute: QinQ.
- 5. Click Next, configure an Upstream Port, set 0/0/1 as the upstream port of the VLAN.
- 6. Click Done.
- 4 Configure a service virtual port.
 - 1. In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
 - 2. Choose **Connection** > **Service Port** from the navigation tree.
 - 3. On the **Service Port** tab page, set the filter criteria to display the required service virtual ports. Right-click the list, and then choose **Add**.
 - 4. In the dialog box that is displayed, set the parameters.
 - In the Attribute field, set Port Type to ETHER and Service Type to Muti-Service VLAN.
 - In the Network Side field, set VLAN Choice to Smart VLAN and VLAN ID to 10.
 - In the User Side field, set Interface Selection to 0/2/0.
 - Click **OK**.
 - 5. Click **OK**.
- 5 Save the data.
 - 1. On the tab page that is displayed, choose **NE Properties** > **Auto Save Configuration** from the navigation tree.
 - 2. In the right pane, set **Save Type** to **All**, select the **Enable Auto Save** check box, and then select **Absolute Period** or **Relative Period**.
 - 3. Click Apply.
 - ----End

4 Configuring the Dual GE Link Aggregation Upstream Transmission

This topic describes how to configure the dual GE link aggregation upstream transmission. The ONU supports the networking application of the dual GE link aggregation upstream transmission and provides services for community users as a Mini DSLAM device. Port aggregation means that two GE upstream ports of the ONU are aggregated to increase the bandwidth and balance the input and output load between member ports. **Currently, the MA5616 supports the dual GE link aggregation upstream transmission.**

Example Network

Figure 4-1 shows an example network of the dual GE link aggregation upstream transmission.

The PC is connected to the Ethernet access port of the ONU. The user packets are sent to the ONU through the port and then sent upstream to the upper-layer network through the upstream GE port on the control card of the device.



Figure 4-1 Example network of the dual GE link aggregation upstream transmission

Data Plan

 Table 4-1 describes the data plan for the dual GE link aggregation upstream transmission.

Item	Data	Remarks
Traffic profile	The default value: ip-traffic-table_3	The committed access rate (CAR), priority, and priority policy are configured in traffic profiles. Therefore, when adding a service virtual port, you can specify the CAR, priority and priority policy by choosing a specific traffic profile.
Service port	0/1/0	-
Upstream port	0/0/0 and 0/0/1	The two Ethernet ports to be aggregated.
Requirement s for the upper-layer device	 LAN Switch: The LAN switch transparently transmits the service packets of an MDU at Layer 2. A VLAN must be configured for the service access of the MDU. The VLAN ID must be the same as that of the upstream VLAN of the MDU. 	For the configuration of the LAN switch and the BRAS, see the related configuration guides.
	BRAS: Configure the BRAS according to the authentication and accounting requirements of users. For example, configure the access user domain (including the authentication scheme, accounting scheme, and authorization scheme that are bound to the domain) and specify the RADIUS server.	

Table 4-1 Data plan for the dual GE link aggregation upstream transmission

Procedure

1 Configure the Ethernet port aggregation.

To perform the following operations in the navigation tree, you need to navigate to the NE Explorer of the ONU. To navigate to the NE Explorer of the ONU, do as follows: In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.

- 1. Choose **ETH** from the navigation tree.
- 2. Click the Aggregation Group tab, and set the filter criteria or click 😢 to display the aggregation groups.
- 3. In the information list, right-click and choose **Add** from the shortcut menu.
- 4. In the dialog box that is displayed, set the parameters.

Ad	d Aggregation	Group					×
	Aggregated Etl	nernet Port Bas	e Info				
	Name:	ethgroup1	*	Aggregation Mo	de:	Ingress	•
	Work Mode:	Manual	•	Aggregation Me	thod:	Aggregation Inside Board	•
	Board Type:	H831CCUB	•				
	Aggregated Po	irts					
	Aggregatable	Ports			Aggre	gated Ports	
	🖃 🧰 Frame	e:0				Aggregated Ports 🗠	
		ot:U Port:0			Fram	e:0 / Slot:0 / Port:0	
		Port:1			Fram	e:0 / Slot:0 / Port:1	
				>			
L							
				[0k	Cancel	Annly
				L	Ur		

5. Click **OK**.

2 Add a VLAN and configure an upstream port for the VLAN.

- 1. Choose VLAN from the navigation tree.
- 2. In the information list, right-click and choose **Add** from the shortcut menu.
- 3. In the dialog box that is displayed, set the parameters.

Add VLAN		×
 Base Info Configure VLAN 		
	VLAN ID(1-4095):	10 *
	Name:	VLANID_10 *
	Alias:	
	Туре:	Smart VLAN 🔹
	Attribute:	Common 🔹 *
	802.1 Priority:	0 •
	E	ack Next Done Cancel

4. Click **Next** to configure the upstream port for the VLAN.

Add VLAN			×
Add VLAN	Sub Port L3 Interface	Extended Info	SubPort List - Frame:0 - Slot00 - Port:00
		~	
	<u>B</u> ack	<u>N</u> ext	Done Cancel

- 5. Click Done.
- 3 Add a service virtual port.
 - 1. Choose **Connection** > **Service Port** from the navigation tree.
 - 2. On the **Service Port** tab page, set the filter criteria to display the required service virtual ports.
 - 3. In the information list, right-click and choose Add from the shortcut menu.
 - 4. In the dialog box that is displayed, set the parameters.

dd Service Port	2
Basic Info	Attributes
Name: 10/0_4_0/0/35/Single *	Connection Type: LAN-ADSL •
Network Side	User Side
	Interface Selection: 0/1/0
VLAN Choice: Smart VLAN Vlan ID(1-4095): 10	VPI(0-255): 0 *
	VCI(32-255): 35 Service Type: Single *
Traffic Profile Info	
Very the upstream and downstream settings the same	Downstream Traffic Name: ip-traffic-table_3
	OK Cancel Apply

5. Click OK.

----End

Result

The PC can still access the Internet through PPPoE dialup after you deactivate port 0/0/0 or 0/0/1.

5 Configuring the VoIP ISDN BRA Service (H. 248 Protocol)

This topic describes how to configure the VoIP ISDN BRA service based on the H.248 protocol for the ONU. Then, the service is sent upstream to the IP network through the control card. In this way, the ISDN BRA service is configured successfully. **Currently, the MA5616 supports the ISDN BRA service.**

Example Network

Figure 5-1 shows an example network of the VoIP ISDN BRA service.



Figure 5-1 Example network of the VoIP ISDN BRA service

Data Plan

 Table 5-1 describes the data plan for the VoIP ISDN BRA service.

Item		Data		
Parameters of the media	IP address and mask of the VLAN L3 interface	10.13.4.116/16		
stream and signaling stream	IP address of the media stream and signaling stream	10.13.4.116		
	Upstream interface of the media stream and signaling stream	0/0/0		
	Upstream VLAN of the media stream and signaling stream	VLAN ID: 10		
	Default media gateway (MG) of the MG interface	10.13.1.1		
TID profile	Index of the TID profile used by the ISDN BRA user	2 (default, no configuration is required)		
	Prefix of the TID terminal used by the ISDN BRA user	A (default, no configuration is required)		
Static route from the MG to the MGC	IP address of the destination network segment	10.14.0.0		
	IP address of the gateway	10.13.1.1		
Attribute	MG interface ID	0		
parameters of the MG interface	Encoding mode of the MG interface	text		
	Protocol supported by the MG interface	H.248		
	Signaling port ID of the MG interface	2944		
	Media/Signaling IP address of the MG interface	10.13.4.116		
	Default MG of the MG interface	10.13.1.1		

Table 5-1 Data plan for the VoIP ISDN BRA service

Item		Data
	IP address of the primary MGC to which the MG interface belongs	10.14.1.2
	Port ID of the primary MGC to which the MG interface belongs	2944
	Transmission mode of the MG interface	UDP
	Start negotiation version of the H.248 protocol of the MG interface	2
	domainname	mdu.com
Association	Association ID	0
	Local port	1401
	Local IP address	10.13.4.116/16
	Remote port ID	1400
	IP address of the primary MGC at the remote end	10.14.1.2/16
BRA user data	ISDN phone1 and ISDN phone2	 Shelf/slot/port ID of the BRA user: 0/1/0 Phone number: 83110001 Working mode: point to multi-point Terminal ID: 2 IUA interface ID: 0 Priority of the user: Cat3 (default)
	ISDN phone3	 Shelf/slot/port ID of the BRA user: 0/1/1 Phone number: 83110002 Working mode: point to point Terminal ID: 4 IUA interface ID: 2 Priority of the user: Cat1 NOTE In the point to point mode, the terminal endpoint identifier (TEI) of the ISDN BRA digital phone is always 0.

Procedure

1 Add a VLAN and configure its upstream port, L3 interface, media IP address, and signaling IP address.

To perform the following operations in the navigation tree, you need to navigate to the NE Explorer of the ONU. To navigate to the NE Explorer of the ONU, do as follows: In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.

- 1. Choose VLAN from the navigation tree.
- 2. In the information list, right-click and choose Add from the shortcut menu.
- 3. In the dialog box that is displayed, set the parameters.

Add VLAN		×
 Base Info Configure VLAN 		
	VLAN ID(1-4095):	10 *
	Name:	VLANID_10 *
	Alias:	
	Туре:	Smart VLAN
	Attribute:	Common 💌 *
	802.1 Priority:	0
	E	ack Next Done Cancel

4. Click Next to configure the upstream port and L3 interface of the VLAN.

	<u> </u>
Base Info Configure VLAN	Sub Port L3 Interface Extended Info
	⊖-
	>>>
	<<
	Back Next Done Cancel

Add VLAN		×
 Base Info Configure VLAN 	Sub Port L3 Interface Extended Info Image: Configure L3 Interface Management Status: DHCPOption60: Obtain the IP address in the DHCP mode IP Address: IP Address: IP Mask: Acceptable Frame Type:	UP
·	<u>B</u> ack <u>N</u> ext	Done Cancel

- 5. Click Done.
- 6. In the VLAN list, select the newly added VLAN and click the **IP Interface** tab in the lower pane.
- 7. In the information list, right-click and choose Add from the shortcut menu.
- 8. In the dialog box that is displayed, configure the media IP address and signaling IP address.

dd VLAN					
 Base Info Configure VLAN 					
	VLAN ID(1-4095):	10			*
	Name: Alias:	VLANID_10			*
	Type:	Smart VLAN	4		*
	Attribute:	Common			*
	802.1 Priority:	Unconfigur	ed		•
	<u>B</u>	ack	Next	<u>D</u> one	<u>C</u> ancel

2 Configure a static route.

- 1. Choose **Static Route** from the navigation tree.
- 2. In the information list, right-click and choose Add from the shortcut menu.
- 3. In the dialog box that is displayed, set the parameters.

Add a Static Route			x
Target IP Address:	10.14.0.1		*
Target Mask:	255.255.0 .0		*
Next Hop IP Address:	10.13.1.1		*
	ОК	Cancel <u>A</u> pply	

- 4. Click **OK**.
- **3** Configure the MG.
 - 1. Choose Voice Gateway > Media Gateway from the navigation tree.
 - 2. On the Media Gateway tab page, set the filter criteria to display the required MGs.
 - 3. In the information list, right-click and choose **Add** from the shortcut menu.
 - 4. In the dialog box that is displayed, set the parameters.

MG ID: (0-16777215)	0	Name:	mg1
Alias:		MG Message MID Type:	MG Domain N
MG Device Name:		MG Domain Name:	huawei.com
Signaling IP Address: 🔲 DHCP	10.13.4.116	Signaling Port No.: (2900-2999)	2944
Media IP Address 1: 📃 DHCP	10.13.4.116 💌	Media IP Address 2:	
Protocol Type:	H248 💌	Transmission Mode:	UDP
Coding Type:	Text 💌	Profile Name:	NoProfile
Support Profile Negotiation:	Enable 🔻	Start Negotiate H248 Version:	V2
Count of Heartbeat Retransmission(0~20):	3	Interval of Heartbeat Retransmission(s)(0-655):	60
Heartbeat Initiation Duration(s)(5-655):	60	2833 Encryption Key:	
🗹 Enable message retransmission	n		

- 5. Click OK.
- 6. In the MG list, select a record and click the MGC Attribute Info tab in the lower pane. In the window that is displayed, right-click the record where MGC Index is set to 0 and choose Modify from the shortcut menu.

Modify MGC		×
MGC Attributes		
MG ID:	0	
MGC Index:	0	
NMS MGC Profile:	mgc1	
	OK Cancel <u>A</u> pply)

Click next to **NMS MGC Profile**. In the dialog box that is displayed, add an MGC profile.

Alias A	Protocol Type 🔨	DNS Name 🔨	Port
Profile			
ew MGC Profile		×	
Profile Parameter			
Name:	mac1	*	
Alias:			
Protocol Type:	H.248	-	
DNS Name:			
IP Address 1:	10.14.1.2		
IP Address 2:			
UDP/SCTP Port Number(1-65534):	2944		
ОК	Cancel <u>/</u>	Apply	
	Profile Parameter Name: Alias: Protocol Type: DNS Name: IP Address 1: IP Address 2: UDP/SCTP Port Number(1-65534):	Profile Parameter Name: mgc1 Alias:	Profile Parameter Name: mgc1 * Alias:* Protocol Type: H.248 ▼ DNS Name: IP Address 1: 10.14.1.2 IP Address 2: UDP/SCTP Port Number(1-65534): 2944 OK Cancel Apply

- 7. In the MG list, right-click a record and choose **Cold Start** from the shortcut menu.
- 8. In the confirmation dialog box, click Yes.

4 Configure a signaling gateway and an association.

- 1. Choose Voice Gateway > Signaling Gateway from the navigation tree.
- 2. On the **Signaling Gateway** tab page, set the filter criteria to display the required SGs.
- 3. In the information list, right-click and choose Add from the shortcut menu.
- 4. In the dialog box that is displayed, set the parameters.

Add Signaling Gateway	×
Device Name: 10.71.212.18	2
Signaling Gateway Attributes	
SG ID (0-1):	0
Name:	sg1
Alias:	
MG ID:	
Protocol Type:	IUA
IID Map:	Format 1 💌
IID Prefix	
Pending Time(s)(1-100):	4
Working Mode:	Override
Association Auto-Locked:	Yes
C/S Mode	Client
	OK Cancel <u>A</u> pply

- 5. Click OK.
- 6. On the Association tab page, set the filter criteria to display the required associations.
- 7. In the information list, right-click and choose **Add** from the shortcut menu.
- 8. In the dialog box that is displayed, set parameters of the association.

Add Associatio	n			×
Device Name:	10.71.212	.182		
-Association At	tributes			
Association	ID (0-3):	0 🗸	SG ID (0-1):	0 🔻
Name:		IUA1	Alias:	
Local IP Add	tress:	10.13.4.116 💌	Local Port (1-65534):	1401
Priority (0-1	5):	0	Associated Switching MGC :	Active MGC 💌
NMS MGC F	rofile:	iua1		
			ОК	Cancel <u>A</u> pply

Click next to **NMS MGC Profile**. In the dialog box that is displayed, add an MGC profile.

elect A NMS MGC Pro	file			l
Protocol Type = H.248			▼ Filter	No. 0, Total:0
Name 🗠	Alias 🗠	Protocol Type 🗠	DNS Name 🗠	Port N
<u>A</u> dd Global Profile <u>E</u> ile	8 ▶			
New M	IGC Profile		×	
Nan	10:	iua1	*	
Alia	s:			
Prot	ocol Type: ddress 1:	xUA 10.14.1.2	*	
IP A	ddress 2:			
UDF	VSCTP Port Number(1-65534): 1400	*	
		Cancel	Apply	
<				2
			ОК	Cancel

- 9. Click OK.
- 5 Configure the attributes of the VoIP ISDN BRA port.
 - 1. Choose **DSL** > **ISDN(BRA)** Port from the navigation tree.
 - 2. In the VoIP ISDN BRA port list, right-click a record and choose **Configure Attribute** from the shortcut menu.
 - 3. In the dialog box that is displayed, set the parameters.

Configure ISDN BR/	\ Port				X
Port Location Info					
Device Name:	10.71.212.182	2			
Name:	Frame:0/Slot:1	l/Port:0			
Service Details	Physical De	etails			
D Channel Attribute	3				
SG ID:	0	•	Interface ID: (0~65535)		0
B Channel Attributes	;				
MG ID:	0	•	🗌 Automatica	lly select term	inal ID
Telephone No.:	83110001		Terminal ID: (0-9998)	A	2
Overload riority:	Cat3	•	🗌 UNI fault re	porting	
•	< < >	>> [ок	Cancel	Apply

Configure ISDN BR	A Port	×		
Port Location Info	Port Location Info			
Device Name:	avice Name: 10.71.212.182			
Name:	Frame:0/Slot:1/Port:0			
Service Details	Physical Details			
Working Mode:	P2MP	Remote Power Supply		
Deactivate Dela (10~360)	ay(s):	Support Auto-Deactivation		
L1 Activation Mo	ode: Stable Activation	 UNI Fault Alarm 		
L2 Supervis	ion			
(<< < > >>	OK Cancel <u>Apply</u>		

4. Click OK.

----End

Result

ISDN phone1 and ISDN phone2 can communicate with ISDN phone3 by dialing number 83110002.

When ISDN phone3 dials number 83110001, ISDN phone1 and ISDN phone2 can hear the ringing tone. In addition, ISDN phone1 and ISDN phone2 can communicate with ISDN phone3 at the same time.

6 Configuring the PHS Service

This topic describes how to configure the PHS service. The ONU connects to base stations of the personal handyphone system (PHS) and transmits received signals to the UA5000 transparently. Then the UA5000 transmits the signals to the cell site controller (CSC) for processing. In this way, the ONU carries and transmits the PHS service successfully. **Currently, the MA5616 supports the PHS service.**

Example Network

Figure 6-1 shows an example network of the PHS service.



Figure 6-1 Example network of the PHS service

Data Plan

 Table 6-1 describes the data plan for the PHS service on the OLT.

 Table 6-2 describes the data plan for the PHS service on the UA5000.

Table 6-3 describes the data plan for the PHS service on the MA5616.

Item	Data
Clock VLAN	11
Service VLAN	10
IP address of the L3 interface	10.13.4.100/24
PON access port	0/4/0
GE access port	0/20/0

Table 6-1 Data plan for the PHS service on the OLT

Table 6-2 Data plan for the PHS service on the UA5000 (on the convergence side)

Item	Data
NE configuration	
Service IP address	10.13.4.101/24
Upstream port	0/2/1 (GE port)
Association configuration	
Association ID	0
Local port ID	11000
Local IP address	10.13.4.101
Remote port ID	12000
Remote IP address	10.13.4.116
SPC configuration	
Shelf/slot/port/timeslot of the DSLD card	0/6/0/0
	0/6/1/0
	0/6/2/0
	0/6/3/0
Local port ID	16400, 16408, 16416, and 16424
Local IP address	10.13.4.101
Remote port ID	57600, 57608, 57616, and 57624
Remote IP address	10.13.4.116
Type of the SPC starting port	MNT
Encoding type of the DSP channel	5
RTP (UDP) packetization interval of the DSP channel	10 ms

Item	Data
Clock configuration	
Clock VLAN	11
IP address of the L3 interface of the clock VLAN	20.20.20.10/24
Remote IP address of the L3 interface for receiving clock packets	20.20.20.20/24

 Table 6-3 Data plan for the PHS service on the MA5616

Item	Data
NE configuration	
Service VLAN	10
IP address of the L3 interface	10.13.4.102/24
Upstream port	0/0/1 (PON port)
Association configuration	
Association ID	0
Local port ID	12000
Local IP address	10.13.4.116
Remote port ID	11000
Remote IP address	10.13.4.101
SPC configuration	
Shelf/slot/port/timeslot of the DSLD card	0/2/0/0
	0/2/1/0
	0/2/2/0
	0/2/3/0
Remote port ID	16400, 16408, 16416, and 16424
Remote IP address	10.13.4.101
Local port ID	57600, 57608, 57616, and 57624
Local IP address	10.13.4.102
Type of the SPC starting port	MLT
Encoding/Decoding type of a DSP	clearmode coding mode
Clock configuration	

Clock VLAN	11
Card where the adaptive clock source is located	0/2
IP address of the L3 interface for receiving ACM clock packets	20.20.20.20/24
Remote IP address of the L3 interface for sending clock packets	20.20.20.10/24

Procedure

• Configure the PHS service on the OLT side.

In addition to forwarding services, the OLT also forwards clock packets from the UA5000 to the ONU.

To perform the following operations in the navigation tree, you need to navigate to the NE Explorer of the OLT 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 the ONU data on the OLT side.
 - (1) Add a PHS service VLAN and clock VLAN.
 - a. Choose VLAN from the navigation tree.
 - b. Right-click the list, and then choose **Batch Add** from the shortcut menu.
 - c. In the dialog box that is displayed, set the parameters.

Batch Add VLAN		<u></u>	×
Base Info Configure VLAN	Start ID(1-4095):	10	
	End ID(1-4095): Type:	11 • Smart VLAN •	
	Attribute: VLAN Priority:	Unconfigured	
		Back <u>N</u> ext <u>D</u> one <u>C</u> ancel]

- d. Click Done.
- e. In the information list, right-click VLAN 10 and choose **Configure** from the shortcut menu. In the dialog box that is displayed, set the IP address of the L3 interface to **10.13.4.100**.
- f. Click Done.
- (2) Add a service virtual port.

Service virtual ports are required for both the service VLAN and the clock VLAN.

- a. Choose **Connection** > **Service Port** from the navigation tree.
- b. On the **Service Port** tab page, set the filter criteria to display the required service virtual 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.

Basic Info			Attributes			
Name: 10/0_4_0/0/Mu Alias:	Iti-Service VLAN/10	*	Connection Type:	LAN-EPON	1	•
Network Side			User Side			
Bundle ID(1-8192): VLAN Choice: Tag-Transform: Vlan ID(1-4095): Cos value(0-7):	Smart VLAN	· • • •	Create Bulk Ser Interface Selection: Service Type: User VLAN(1-4095)	vice Port	0/4/0/0 Multi-Service VL 10	AN V
raffic Profile Info						
Upstream Traffic Name	and downstream settings the sa	ame) I	Downstream Traffic Na	ime: ip-tra	ffic-table_5	
				ок	Cancel	Apply

- e. Click **OK**.
- 2. Configure the UA5000 data on the OLT side.
 - (1) Configure the attributes of an Ethernet port.

You need to disable the unicast suppression function of the upstream Ethernet port and set the service VLAN as the default VLAN of the upstream Ethernet port, because clock packets are unidirectionally transmitted from the UA5000 to the ONU. If the VLAN ID of the upstream Ethernet port is the same as the default VLAN ID, the packets of the upstream Ethernet port do not contain VLAN tags. Specifically, the packets are untagged.

- a. Choose **ETH** from the navigation tree.
- b. Click the **Ethernet Port** tab, and set the filter criteria or click it display the Ethernet ports.
- c. In the Ethernet port list, right-click the port 0/20/0 and choose **Configure Attributes** from the shortcut menu.
- d. In the dialog box that is displayed, set the parameters.

Configure Attributes	×
Name:	Frame:0/Slot:20/Port:0
Auto-negotiation Mode:	Enable
Working Mode:	Auto-Full Duplex 💌
Port Rate(Mbit/s):	Auto-negotiation 1000
Type of Connected Cable:	
Pause Frame Flow Control:	No
Support Jumbo Frame:	Disable 👻
Default VLAN ID(1-4095):	10
Broadcast Suppression:	7 💌
Multicast Suppression:	7
Unicast Suppression:	0FF 🗨
	OK Cancel <u>A</u> pply

- e. Click OK.
- (2) Configure an upstream port for the clock VLAN.

To transmit user packets tagged with clock VLAN IDs upstream through an Ethernet port, you need to add the Ethernet port to the clock VLAN.

- a. Choose VLAN from the navigation tree.
- b. In the information list, right-click VLAN 10 and choose **Configure** from the shortcut menu.
- c. In the dialog box that is displayed, set the parameters.

Sub Port L3 Interface Configure VLAN Image: Configure VLAN Image: Configure VLAN Image: Configure VLAN <t< th=""></t<>
Back Next Done Cancel

d. Click Done.

• Configure the PHS service on the ONU side.

To perform the following operations, you need to navigate to the NE Explorer of the ONU as follows: In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or rightclick the required ONU and choose **NE Explorer** from the shortcut menu.

- 1. Add a VLAN and configure its upstream port, L3 interface, media IP address, and signaling IP address.
 - (1) Choose VLAN from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.

			×
 Base Info Configure VLAN 			
	VLAN ID(1-4095):	10 *	
	Name:	VLANID_10	
	Alias:		
	Туре:	Smart VLAN	
	Attribute:	Common 👻 *	
	802.1 Priority:	0	
	B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel	5

(4) Click Next to configure the upstream port and L3 interface of the VLAN.

Add VLAN		×							
🔯 Base Info 🚳 Configure VLAN	Sub Port L3 Interface Extended Info								
	Physical Port List Frame:0 Slot00 Fig. Port:01	SubPort List Frame:0 Grant Slot:00 Grant Slot:0							
	Back Next	Done Cancel							
		Back Next Done Cancel							
		and the second se							
Add VLAN Base Info Configure VLAN	Sub Port L3 Interface Extended Info	×							
Add VLAN	Sub Port L3 Interface Extended Info	×							
Add VLAN	Sub Port L3 Interface Extended Info								
Add VLAN	Sub Port L3 Interface Extended Info Configure L3 Interface Management Status: DHCPOption60: Obtain the IB address in the DHCB mode	UP •*							
Add VLAN	Sub Port L3 Interface Extended Info Configure L3 Interface Management Status: DHCPOption60: Obtain the IP address in the DHCP mode IP Address:	UP • *							
Add VLAN Base Info Configure VLAN	Sub Port L3 Interface Extended Info Configure L3 Interface Management Status: DHCPOption60: Dbtain the IP address in the DHCP mode IP Address: IP Mask:	UP • • 10.13.4.116 • 255.255.0 •							
Add VLAN	Sub Port L3 Interface Extended Info Configure L3 Interface Management Status: DHCPOption60: Obtain the IP address in the DHCP mode IP Address: IP Mask: Acceptable Frame Type:	UP • * 10.13.4.116 * 255.255.255.0 * ethemetii • *							
Add VLAN Base Info Configure VLAN	Sub Port L3 Interface Extended Info Configure L3 Interface Management Status: DHCPOption60: Obtain the IP address in the DHCP mode IP Address: IP Mask: Acceptable Frame Type:	UP • • 10.13.4.116 • 255.255.255.0 • ethernetii •							

- (5) Click Done.
- (6) In the VLAN list, select the newly added VLAN and click the **IP Interface** tab in the lower pane.
- (7) In the information list, right-click and choose Add from the shortcut menu.
- (8) In the dialog box that is displayed, configure the media IP address and signaling IP address.

Add VLA	N		×
S Base Conf	igure VLAN		
		VLAN ID(1-4095):	10 *
		Name:	VLANID_10 *
		Alias:	
		Туре:	Smart VLAN
		Attribute:	Common
		802.1 Priority:	Unconfigured
		B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

- 2. Configure the MG.
 - (1) Choose Voice Gateway > Media Gateway from the navigation tree.
 - (2) On the **Media Gateway** tab page, set the filter criteria to display the required MGs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

0	1 2 /		1	
MG				
IG Attributes				
MG ID:	0		Name:	mg1
(0-16/1/215)				
Alias:			MG Message MID Type:	MG Domain N 💌
MG Device Name:			MG Domain Name:	huawei.com
			Signaling Port No.:	
Signaling IP Address: DHCP	10.13.4.116		(2900-2999)	2944
Media IP Address 1: DHCP	10.13.4 .116		Media IP Address 2:	▼
Protocol Type:	H248	-	Transmission Mode:	UDP -
~				
Coding Type:	Text	-	Profile Name:	NoProfile -
Current Drofile Megatistics:	Epoblo	-	Ctart Magatista U240 Varsian:	102
Support Frome Negotiation.		<u> </u>	Start Negotiate H246 Version.	1 12
Count of Heartbeat	2		Interval of Heartbeat	0.0
Retransmission(0~20):	12		Retransmission(s)(0-655):	00
Heartbeat Initiation				
Duration(s)(5-655):	60		2833 Encryption Key:	
Enable messade retransmission				
Enable message retransmission				
			ОК	Cancel Apply

- (5) Click OK.
- (6) In the MG list, select a record and click the MGC Attribute Info tab in the lower pane. In the window that is displayed, right-click the record where MGC Index is set to 0 and choose Modify from the shortcut menu.

М	odify MGC				×
	MGC Attributes				1
	MG ID:	0			
	MGC Index:	0			
	NMS MGC Profile:	mgc1			
	(ОK	Cancel	<u>A</u> pply	

Click next to **NMS MGC Profile**. In the dialog box that is displayed, add an MGC profile.

elect A NMS MGC I	Profile			×
Protocol Type = H.24	48		▼ Filter	No. 0, Total:0
Name 🗠	Alias 🗠	Protocol Type 🗠	DNS Name 🗠	Port N
<u>A</u> dd Global Pr <u>F</u> ile	rofile			
Nev	w MGC Profile		×	
F	Profile Parameter			
Ν	Name:	mgc1	*	
A	Nias:			
F	Protocol Type:	H.248	•	
C	ONS Name:			
[[P Address 1:	10.13.4.101		
11	P Address 2:			
U	JDP/SCTP Port Number(1-65	534): 2944		
		OK Cancel	Apply	
		III		
<u></u>				
			ОК	Cancel

- (7) In the MG list, right-click a record and choose **Cold Start** from the shortcut menu.
- (8) In the confirmation dialog box, click Yes.
- 3. Configure a signaling gateway (SG) and an association.
 - (1) Choose Voice Gateway > Signaling Gateway from the navigation tree.
 - (2) On the **Signaling Gateway** tab page, set the filter criteria to display the required SGs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

A	dd Signaling Gateway	X
	Device Name: 10.71.212.182	
	Signaling Gateway Attributes	
	SG ID (0-1):	0
	Name:	sg1
	Alias:	
	MG ID:	•
	Protocol Type:	IUA 💌
	IID Map:	Format 1 💌
	IID Prefix	
	Pending Time(s)(1-100):	4
	Working Mode:	Override
	Association Auto-Locked:	Yes
	C/S Mode	Client
		OK Cancel <u>Apply</u>

- (5) Click **OK**.
- (6) On the **Association** tab page, set the filter criteria to display the required associations.
- (7) In the information list, right-click and choose Add from the shortcut menu.
- - Name: iua1
 - Protocol Type: xUA
 - IP Address 1: 10.13.4.101
 - UDP/SCTP Port Number: 11000

Add Association	2182		×
Association Attributes	2.102		
Association ID (0-3):	0 🗸	SG ID (0-1):	0 🗸
Name:	IUA1	Alias:	
Local IP Address:	10.13.4.116 💌	Local Port (1-65534):	1401
Priority (0-15):	0	Associated Switching MGC :	Active MGC -
NMS MGC Profile:	iua1		
		ОК	Cancel Apply

- (9) Click OK.
- 4. Configure SPCs.

You need to configure four SPCs according to the data plans.

- (1) Choose **Connection** > **SPC** from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.

Name:	enc1	Aliae:	
Ranie.	Normal	Anas.	
Service Type:	Normai	Connection Type:	
Total Channels(1-32):			
Start Frame(0-255):	0	Start Slot(0-255):	2
Start Port(0-255):	0	Start Channel(0-31):	0
Local IP Address:	10.13.4.116	Remote IP Address:	10.13.4.101
Local Port (57600-57856):	57600	Remote Port (1-65534):	16400
Voice Codec Type:		RTP Sampling Time:	
VAD Switch:		EC Switch:	
Start Port Subtype:	No Subtype 💌	End Port Subtype:	No Subtype 🔻
Connection Mode:	SendRecei 🔻	Remote Port Step (1-65534):	
IUA Link Set No. (0-31):	0	IUA Interface ID (0-65535):	
itter Buffer Channel	Adapt 👻	DSP Working Mode:	Voice 🔻
Non-linear PLC		Redundancy	

(4) Click **OK**.

- 5. Configure a clock VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, add VLAN 11.
 - (4) Click Next, set the IP address of the L3 interface of the VLAN 11 to 20.20.20, and then set the port 0/0/0 as the upstream port of the VLAN 11.
 - (5) Click Done.
- 6. Configure an ACM IP address.

An ACM IP address is used to receive ACM clock packets. You need to set the IP address of the L3 interface of the clock VLAN to the ACM IP address.

- (1) Choose NE Properties > ACM IP Address from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.



- (4) Click OK.
- 7. Configure a clock source.
 - (1) Choose **NE Properties** > **Clock Management** > **Clock Source** from the navigation tree.
 - (2) Click the Frequency Clock Source (SYSCLK) tab.
 - (3) Right-click the list and choose Add Clock Source from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

A	dd Clock Source			×
	Clock Type			
	Line clock	O Bits clock		(PM clock
ſ	Working Mode:		ACM	
	Index:		0	-
	Frame:		0	
	Slot:		2	
	Port:			
		ок с	ancel	<u>A</u> pply

- (5) Click OK.
- Configure the PHS service on the UA5000 side.
 - 1. Configure the attributes of an Ethernet port.
 - (1) Choose **ETH** from the navigation tree.
 - (2) Click the **Ethernet Port** tab, and set the filter criteria or click 💌 to display the Ethernet ports.
 - (3) In the Ethernet port list, select a record and click the **IP Interface Info.** tab in the lower pane. On the **IP Interface Info.** tab page, right-click and choose **Add** from the shortcut menu.

	- [Ethernet Port				
- I NE Ponol	_					
+- C NE Properties		Device Name	Frame	Slot	Port	Auto Negotiat
NE Profile Management		10.78.217.99				Disable
		10.78.217.99	0	5	32	Enable
		Dataila (ID lata	in the second	O Balakanan Info		▼
+ C 1 V 35		Details IP inter	nace mio. IMP	C Address Init.		
+- [] ASL		IP Address Index	IP Address	Subnet Mask 🛆 🛛 G	ateway IP Address	
Connection		1	10.78.217.99 2	55.255.255.0 10	.78.217.1	
• 🗖 Voice Gateway		2	10.10.10.11 2	55.255.255.0 10	.10.10.1	11
		Add				
	\dd IP	Interface 🔪				×
	[IP In	terface Details Info.				
	IP	Address Index:	0 🔻	IP Address:	10.13.4.1	01
					10.40.4	
	SU	ubnet Mask:	255.255.255.0	Gateway IP Addre	ess: [10.13.4.1	00
	VL	AN ID(0~4095):		QoS Strategy	None	•
				ОК	Cancel	Apply

You need to configure the service IP address and the IP address of the clock interface separately. For information about the IP address of the clock interface, see section "Data Plan."

- (4) Click OK.
- 2. Configure an SG and an association.

- (1) Choose Voice Gateway > Signaling Gateway from the navigation tree.
- (2) On the **Signaling Gateway** tab page, set the filter criteria to display the required SGs.
- (3) In the information list, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set SG ID to 0.
- (5) Click OK.
- (6) On the **Association** tab page, set the filter criteria to display the required associations.
- (7) In the information list, right-click and choose Add from the shortcut menu.
- - Association ID: 0
 - SG ID: 0
 - Local IP Address: 10.13.4.101
 - Local Port: 1401
 - NMS MGC Profile: iua1

MGC profile:

- Protocol Type: xUA
- IP Address 1: 10.13.4.116
- UDP/SCTP Port Number: 12000
- (9) Click OK.
- 3. Configure SPCs.

You need to configure four SPCs according to the data plans.

- (1) Choose **Connection** > **SPC** from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - Name: spc1
 - Service Type: Normal
 - Connection Type: IP SPC
 - Total Channels: 1
 - Start Frame: 0
 - Start Slot: 6
 - Start Port: 0
 - Start Channel: 0
 - Local IP Address: 10.13.4.101
 - Remote IP Address: 10.13.4.116
 - Local Port: 16400
 - Remote Port: 57600
 - Start Port Subtype: MNT Subtype

- End Port Subtype: MNT Subtype
- (4) Click OK.
- 4. Configure a clock source and a clock channel.
 - (1) Choose **NE Properties** > **Clock Management** > **Clock Source** from the navigation tree.
 - (2) Click the Frequency Clock Source (TDM) tab.
 - (3) Right-click the list and choose Add Clock Source.
 - (4) In the dialog box that is displayed, set the parameters.
 - Index: 0
 - Frame: 2
 - Slot: 0
 - Port: 0
 - (5) Click Finish.
 - (6) Choose **NE Properties** > **Clock Management** > **Clock Channel** from the navigation tree.
 - (7) In the information list, right-click and choose Add from the shortcut menu.
 - (8) In the dialog box that is displayed, set the parameters.

	ſ	Clock Channel			
- 🕅 NE Panel		Channel ID) ^	Local IP Address	^
E- C NE Properties		0		10.144.73.163	
🔚 🔚 Base Info	ľ	Add Clock Channel			×
– 📝 NE IP Management	l			-	_
🕂 🗂 Clock Management		Local IP Address:	20.20.20.10		
- 🗟 Clock Source		VLAN ID(1-4095):	11		*
Clock Channel		Demote ID Address	20.00.00.00	\ \	
— 🗹 Configure NE Handshake Parame	e	Remote IP Address.	20.20.20.20		
- Y User-Defined Ring Mode			OK	Concel Inniu	
Auto Save Configuration			UK	Cancer Apply	
- eg Authorization	Π	TT		10.144.73.103	



----End

Result

The local fixed-line call, local mobile call, long-distance call, and certain special telecom call services (such as 114 and 10000), are available through PHS phones and the communication quality is good. In addition, text messages can be sent between PHS phones and mobile phones.

7 Configuring the PPPoE or IPoE Access Service (GE Upstream Transmission)

This topic describes how to configure the PPPoE or IPoE service. The ONU supports PPPoE and IPoE services by using the xDSL access technology and thus enables users to access the Internet in PPPoE or IPoE mode. **Currently, the MA5616 supports the PPPoE or IPoE access service.**

Example Network

Figure 7-1 shows an example network of the PPPoE or IPoE access service.

User data packets are transmitted to the ONU in PPPoE or IPoE mode. Then, the ONU transmits the user data packets upstream to upper layer devices through a GE port. In this way, users can access the Internet in PPPoE or IPoE mode.

Figure 7-1 Example network of the PPPoE or IPoE access service



Data Plan

Table 7-1 describes the data plan for the PPPoE or IPoE access service.

After an xDSL port is bound to an xDSL profile and activated, the xDSL port can transmit services. This topic focus more on the relationships between xDSL profiles than on the data plan of these services. In actual applications, you need to plan the profile data according to actual requirements.

Table 7-1	Data plan	for the	PPPoE or	· IPoE	access	service
-----------	-----------	---------	----------	--------	--------	---------

Item	Data			
Traffic profile CIR: 1024 kbit/s				
	Outer Priority: 1			
	Priority policy: Local-Setting			
Network-side VLAN	10			
Upstream port ID	0/0/0			
Encapsulation mode	PPPoE			

Procedure

• Configure the Internet service stream.

To perform the following operations in the navigation tree, you need to navigate to the NE Explorer of the ONU. To navigate to the NE Explorer of the ONU, do as follows: In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.

1. Add a VLAN and configure its upstream port.

- (1) Choose VLAN from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
| Add VLAN | | × |
|---|------------------|--|
| Base Info Configure VLAN | | |
| | VLAN ID(1-4095): | 10 * |
| | Name: | VLANID_10 * |
| | Alias: | |
| | Туре: | Smart VLAN 🔹 |
| | Attribute: | Common 💌 * |
| | 802.1 Priority: | 0 |
| | | |
| | B | ack <u>N</u> ext <u>D</u> one <u>C</u> ancel |

(4) Click **Next** to configure its upstream port.

Add VLAN	<u>×</u>
Add VLAN	Sub Port L3 Interface Extended Info
	K K Back Next Done Cancel

- (5) Click Done.
- 2. Configure an MEF IP traffic profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

escription 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 thar Parameter PBS must be greater that 	ameter CBS, parameter PIR, and para ere, the rate is not restricted. h or equal to parameter CIR. in or equal to parameter CBS.	imet
rofile Parameters		
Name:	internet	
Alias:		
CIR (Kbit/s) (64-10240000):	1024 🗌 Unli	mite
CBS (bytes) (2000-10240000):	34768	
PIR (Kbit/s) (64-10240000):	2048	
PBS (bytes) (2000-10240000):	67536	
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	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Add a service virtual port.
 - (1) Choose **Connection** > **Service Port** from the navigation tree.
 - (2) On the **Service Port** tab page, set the filter criteria to display the required service virtual ports.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

Add Service Port	X
Basic Info Name: [0_1_0/0/35/Multi-Service Encapsulation/PPPoE]*	Attributes
Alias:	
Network Side	UserSide
	Interface Selection: 0/1/0 *
	Auto-sensing
VLAN Choice: Smart VLAN 💌 *	VPI(0-255): 0 *
Vian ID(1-4095): 10*	VCI(32-255): 35 *
	Service Type: Multi-Service Encaps 💌 *
	User-Side Encapsulation: PPPoE
	Select the required connection type according to the type of the xDSL port.
Traffic Profile Info	
\fbox Keep the upstream and downstream settings the same	
Upstream Traffic Name: internet	Downstream Traffic Name: internet
	OK Cancel Apply

(5) Click OK.

• Configure an ADSL port.

1. Configure an ADSL or NGADSL profile.

The ONU supports two ADSL modes, that is, ADSL mode and NGADSL mode. You can switch the mode by running the related command. The default mode is the ADSL mode.

- Configure an ADSL profile.
 - (1) Choose **Configuration**>**Access Profile Management**>**ADSL Profile** from the main menu.
 - (2) Click the **ADSL Line Profile** tab, and select **MA56T&MDU** from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters and click OK. In the profile list, right-click the newly configured profile and choose Download to NE from the shortcut menu to apply the ADSL line profile to the NE.
 - (5) Click the ADSL Alarm Profile tab, and select MA56T&MDU from the Device Type drop-down list.
 - (6) Right-click and choose Add Global Profile from the shortcut menu.
 - (7) In the dialog box that is displayed, set the parameters and click OK. In the profile list, right-click the newly configured profile and choose Download to NE from the shortcut menu to apply the ADSL alarm profile to the NE.
- Configure an NGADSL profile.
 - Choose Configuration > Access Profile Management > NGADSL Profile from the main menu.
 - (2) Click the ADSL Line Profile tab.
 - (3) On the **ADSL Line Profile** tab page, configure the line spectrum configuration profile, line configuration profile, channel configuration

profile, and line profile in sequence. The line configuration profile is dependent on the line spectrum configuration profile, and the line profile is dependent on the line configuration profile and the channel configuration profile.

- a. On the **Line Spectrum Configuration Profile** tab page, add a line spectrum configuration profile.
- b. On the **Line Configuration Profile** tab page, add a line configuration profile.
- c. On the **Channel Configuration Profile** tab page, add a channel configuration profile.
- d. On the **Line Template** tab page, add a line profile and apply it to the ONU.

ADSL Line Profile ADSL Alarm Profile				
Line Template Line Configuration Profile	Channel Configuration Profile	Line Spectrum	Configuration Profile	
Device Type: MA56T&MDU All				
Nam	1e ^			
Add Global Profile				
Copy Global Profile				
Delete Global Profile				
Modify Global Profile				
Download to NE				

- (4) Click the ADSL Alarm Profile tab.
- (5) On the **ADSL Alarm Profile** tab page, configure the line alarm configuration profile, channel alarm configuration profile, and alarm profile in sequence. The alarm profile is dependent on the line alarm configuration profile and the channel alarm configuration profile.
 - a. On the Line Alarm Configuration Profile tab page, add a line alarm configuration profile.
 - b. On the **Channel Alarm Configuration Profile** tab page, add a channel alarm configuration profile.
 - c. On the **Alarm Template** tab page, add an alarm profile and apply it to the ONU.

ADSL Line Profile ADSL Alarm Profile			
Alarm Template Line Alarm Configuration Profile	Channel Alarm Configuration Profile		
Device Type: MA56T&MDU 💌 All			
Name 🗠			
d Add Global Profile			
<u>C</u> opy Global Profile			
Delete Global Profile			
Modify Global Profile			
Download to NE			

2. Configure and activate an ADSL port.

An ADSL port is activated by default. To bind it to a profile, you need to deactivate it first.

- (1) Choose DSL > ADSL from the navigation tree.
- (2) On the ADSL tab page, set the filter criteria or click ≥ to display the ADSL ports.

(3) In the ADSL port list, right-click a record and choose **Configure Attributes** from the shortcut menu.

С	Configure Attributes			×І
	Location Info			
	Name:	Frame:0/Slot	:1/Port:1	
	Port Type:	ADSL2+		
ι	Line Profile:		DEFVAL	
ļ	Alarm Profile:		DEFVAL	
I	ine-monitoring	g(%)(0-100):		
			OK Cancel <u>A</u> pply)

(4) In the ADSL port list, right-click the record and choose **Activate** from the shortcut menu.

• Configure a VDSL2 port.

1. Configure a VDSL2 profile.

- Choose Configuration > Access Profile Management > VDSL2 Profile from the main menu.
- (2) Click the VDSL2 Line Profile tab.
- (3) On the **VDSL2 Line Profile** tab page, configure the line spectrum configuration profile, line configuration profile, channel configuration profile, and line profile in sequence. The line configuration profile is dependent on the line spectrum configuration profile, and the line profile is dependent on the line configuration profile and the channel configuration profile.
 - a. On the Line Spectrum Configuration Profile tab page, add a line spectrum configuration profile.
 - b. On the **Line Configuration Profile** tab page, add a line configuration profile.
 - c. On the **Channel Configuration Profile** tab page, add a channel configuration profile.
 - d. On the **Line Template** tab page, add a line profile and apply it to the ONU.

VDSL2 Line Profile	VDSL2 Ala	ırm Profile					
Line Template	Line Configura	ation Profil	le	Channel Configuration	on Profile	Line Spectrum	Configuration Profile
Device Type: MA56T8	MDU 🔻	All					
		1	Nam	e ^			
Add Global Profile		_					
<u>C</u> opy Global Profile	_						
Delete Global Profile							
Delete Global Profile	A <u>n</u> d Device Pr	ofile					
Modify Global Profile							
Modify Global Profile And Device Profile		ofile					
Download to N <u>E</u>							

(4) Click the **VDSL2** Alarm Profile tab.

- (5) On the **VDSL2 Alarm Profile** tab page, configure the line alarm configuration profile, channel alarm configuration profile, and alarm profile in sequence. The alarm profile is dependent on the line alarm configuration profile and the channel alarm configuration profile.
 - a. On the **Line Alarm Configuration Profile** tab page, add a line alarm configuration profile.
 - b. On the **Channel Alarm Configuration Profile** tab page, add a channel alarm configuration profile.
 - c. On the **Alarm Template** tab page, add an alarm profile and apply it to the ONU.

VDSL2 Line Profile VDSL2 Alarm Profile		
Alarm Template Line Alarm Configurati	ion Profile	Channel Alarm Configuration Profile
All		
	Name 🛆	
Add Global Profile		
<u>C</u> opy Global Profile		
<u>D</u> elete Global Profile		
Delete Global Profile And Device Profile		
Modify Global Profile		
Modify Global Profile And Device Profile		
Download to N <u>E</u>		

2. Configure and activate a VDSL2 port.

A VDSL2 port is activated by default. To bind it to a profile, you need to deactivate it first.

- (1) Choose DSL > VDSL2 from the navigation tree.
- (2) On the **VDSL2** tab page, set the filter criteria or click to display the VDSL2 ports.
- (3) In the VDSL2 port list, right-click a record and choose **Configure Attributes** from the shortcut menu. In the dialog box that is displayed, select a configured line profile and alarm profile.
- (4) In the VDSL2 port list, right-click a record and choose Activate from the shortcut menu.

• Configure a G.SHDSL port.

- 1. Configure a G.SHDSL profile.
 - (1) Choose Configuration > Access Profile Management > G.SHDSL Profile from the main menu.
 - (2) Click the **G.SHDSL Line Profile** tab, and select from the **Device Type** dropdown list.
 - (3) In the dialog box that is displayed, set the parameters and click **OK**. In the profile list, right-click the newly configured profile and choose **Download to NE** from the shortcut menu to apply the G.SHDSL line profile to the NE.
 - (4) Click the **G.SHDSL Alarm Profile** tab, and select from the **Device Type** dropdown list.
 - (5) In the dialog box that is displayed, set the parameters and click **OK**. In the profile list, right-click the newly configured profile and choose **Download to NE** from the shortcut menu to apply the G.SHDSL alarm profile to the NE.

2. Configure and activate a G.SHDSL port.

A G.SHDSL port is activated by default. To bind it to a profile, you need to deactivate it first.

- (1) Choose **DSL** from the navigation tree.
- (2) On the tab page, set the filter criteria or click \checkmark to display the G.SHDSL ports.
- (3) In the G.SHDSL port list, right-click a record and choose **Configure Attributes** from the shortcut menu. In the dialog box that is displayed, select a configured line profile and alarm profile.
- (4) In the G.SHDSL port list, right-click a record and choose **Activate** from the shortcut menu.

----End

Result

After the configuration, the PC can access the Internet in PPPoE or IPoE mode.

8 Configuring the Triple Play Service

With the rapid development of broadband services, more and more users demand abundant services to be carried on broadband, such as video services and voice services. In the triple play network, the VoIP, IPTV, and Internet services are transmitted over one cable to the ONU through the home gateway or the optical access modem in a centralized manner. **Currently, the MA5616 supports the triple play service.**

The triple play network supports multiple service stream configuration modes as shown in **Table 8-1**. This topic considers the single-PVC multi-service mode (based on user-side VLANs) as an example to describe how to configure the triple play service.

Implementati on Mode	Feature
Single PVC	Internet, VoIP, and IPTV service streams are carried by the one PVC. After the service streams reach the ONU, the ONU distinguishes the services according to the user-side VLANs or user-side 802.1p priorities of the services.
	The existing modem needs to be re-configured to save PVC resources.
Multiple PVCs	Internet, VoIP, and IPTV service streams are carried by three different PVCs.
	The existing modem needs to be re-configured.

 Table 8-1 Implementation mode of the triple play service

Example Network

Figure 8-1 shows an example network of the triple play service.



Figure 8-1 Example network of the triple play service

Data Plan

 Table 8-2 describes the data plan for the triple play service.

Fable 8-2 Data	plan for	the triple	play service
----------------	----------	------------	--------------

Item	Data
Traffic profile parameters	Internet service: 1 Mbit/s VoIP service: 64 Mbit/s IPTV service: no limit
Upstream port ID	0/0/0
Upstream VLANs	Internet service: smart VLAN 10 VoIP service: smart VLAN 11 IPTV service: smart VLAN 12
User-side VLANs	Internet service: smart VLAN 2 VoIP service: smart VLAN 3 IPTV service: smart VLAN 4
IGMP version	IGMP v3 (default IGMP version in the multicast VLAN mode)
Multicast source	ISP 1 (IP address is 10.10.10.10 and the multicast program with the IP address of 224.1.1.1 are provided.)

Item	Data
Multicast program library	Program 1 (IP address is 224.1.1.1 and the program source IP address is 10.10.10.10, the IP address of ISP 1.)
Upstream priority	802.1p priority: 6 for VoIP services, 5 for IPTV services, and 1 for Internet services.

Procedure

• Configure the Internet, VoIP, and IPTV service streams.

A service stream is a service channel connecting the user side to the network side. Service streams are a must for service provisioning. The procedures for configuring Internet, VoIP, and IPTV service streams are similar. This topic considers the Internet service as an example to describe how to configure a service stream. Then you can follow this procedure to configure the VoIP and IPTV service streams according to the corresponding data plans.

To perform the following operations in the navigation tree, you need to navigate to the NE Explorer of the ONU. To navigate to the NE Explorer of the ONU, do as follows: In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.

1. Add a VLAN and configure its upstream port.

- (1) Choose VLAN from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.

Add VLAN			×
 Base Info Configure VLAN 			
	VLAN ID(1-4095):	10	*
	Name:	VLANID_10	*
	Alias:		
	Type:	Smart VLAN 🗸	*
	Attribute:	Common	*
	802.1 Priority:	0	
	E	ack <u>Next</u> <u>D</u> one <u>C</u> ancel	5

(4) Click **Next** to configure its upstream port.

Add VLAN			×
Add VLAN	Sub Port L3 Interface	Extended Info	×
		< < <	
	<u>B</u> ack	<u>N</u> ext <u>D</u> one <u>C</u> ancel	

(5) Click Done.

2. Configure an MEF IP traffic profile.

Because the VoIP, IPTV, and Internet services are provided through the same port, you need to set the 802.1p priority for each service.

Generally, the priorities for the VoIP service, IPTV service, and Internet service are in a descending order.

- (1) Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
- (2) Click the **MEF IP Traffic Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.

Id MEF IP Traffic 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:	internet *
Alias:	
CIR (Kbit/s) (64-10240000):	1024 Unlimited
CBS (bytes) (2000-10240000):	\$4768
PIR (Kbit/s) (64-10240000):	2048
PBS (bytes) (2000-10240000):	67536
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 <u>A</u> pply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Add a service virtual port.

- In multi-PVC mode, VoIP, IPTV, and Internet services are carried by different PVCs on the user side. Thus, each port is configured with at least three PVCs. The **Service Type** is set to **Single** and the value of **VLAN ID** on the network side differs with service types. In this way, multiple services can be carried by different PVCs.
- In single-PVC mode, a unique PVC is used to carry services of different types between the access device and user terminals. The **Service Type** parameter is set to distinguish the services.
- (1) Choose **Connection** > **Service Port** from the navigation tree.
- (2) On the **Service Port** tab page, set the filter criteria to display the required service virtual ports.
- (3) In the information list, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.

Add Service Port	X
Basic Info	Attributes
Name: 10/0_2_0/0/35/Multi-Service VLAN/2 * Alias:	Connection Type: LAN-VDSL2
Network Side	User Side
VLAN Choice: Smart VLAN Vian ID(1-4095): 10 The VPI and VCI identify a PVC. In single- PVC mode, different services use the same PVC. In multi-PVC mode, different services use different PVCs.	Interface Selection: 0/2/0 Channel Mode: ATM Channel Mode: ATM VPI(0-255): 0 VCI(32-255): 35 Service Type: Multi-Service VLAN User VLAN(1-4095): 2 Each PVC can carry multiple types of
Traffic Profile Info	services. In this case, you need to set the user-side parameters to distinguish the
Keep the upstream and downstream settings the same	services.
Upstream Traffic Name: internet	Downstream Traffic Name: internet
The traffic profile varies with the service.	
	OK Cancel Apply

(5) Click OK.

After the preceding steps, the configurations of the Internet and VoIP service streams are complete. When a user successfully dials up on a PC by using the PPPoE dialup software, the user can access the Internet. In addition, VoIP users can communicate with each other successfully.

• Configure multicast data.

To provision an IPTV service, you also need to configure the IGMP proxy and multicast programs.

- 1. Add a multicast VLAN and configure the multicast mode.
 - (1) Choose Multicast > Multicast VLAN from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.

Base Information					
	1				
Nomo:	IGMPVIan 200		Aliae: inf	v	
INAILIE.	TOWF VIAIT_200				
IGMP Version:	IGMP V3		<u></u>		
Autogeneration F	Program IP Address		Work Mode		
Program Match Mode: Enable Disable 			Work Mode:	igm	ip_proxy 💌
Start IP Address	s:		Snooping Re	port Switch: 🔿 0	pen 💿 Close
End IP Address:			Snooping Le	ave Switch: 🔿 O	ipen 🖲 Close
		<u>B</u> ack	<u>N</u> ext	Done	<u>C</u> ancel
d Multicast VL	AN				
Default Up Port Ir	nfo				
Frame: 0		Slot: 0		Port: 0	
¤arameter Info					
Parameter Info IGMP Report Pr Log Switch:	iority(0-7): 6 • Oper	* n O Close	Report Interval() Global-Leave S	3)(10-5000): <u>10</u> witch: • () Dpen () Close
Parameter Info IGMP Report Pr Log Switch:	iority(0-7): <mark>6</mark>	n O Close Back	Report Interval() Global-Leave S	5)(10-5000): 10 witch: • (Dpen O Close
Parameter Info- IGMP Report Pr Log Switch:	iority(0-7): 6 • Oper	n O Close	Report Interval(Global-Leave S <u>N</u> ext	5)(10-5000): 10 witch: () (Dpen O Close
Parameter Info- IGMP Report Pr Log Switch: d Multicast VL Select VLAN	iority(0-7): 6 © Oper AN	n O Close <u>B</u> ack	Report Interval(Global-Leave S <u>N</u> ext	5)(10-5000): 1 <u>0</u> witch: • (Dpen O Close
Parameter Info IGMP Report Pr Log Switch: d Multicast VL Select VLAN Please input q	iority(0-7): 6 Oper AN uery condition	n O Close Back	Report Interval(Global-Leave S <u>Next</u>	5)(10-5000): <u>10</u> witch: ● (<u>Done</u>	Dpen O Close
Parameter Info IGMP Report Pr Log Switch: d Multicast VL Select VLAN Please Input q VLAN ID ~	iority(0-7): 6 Oper AN uery condition Name	n O Close Back	Report Interval(Global-Leave S Next	5)(10-5000): 10 witch:	Dpen O Close Cancel No. 1, Total Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: d Multicast VL Select VLAN Please Input q VLAN ID 12	iority(0-7): 6 • Oper AN uery condition Name VLANID_12	n O Close Back	Report Interval(Global-Leave S Next	5)(10-5000): 10 witch: ● 0	Dpen O Close Cancel No. 1, Total Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: Select VLAN Please input q VLAN ID ~ 12 22	iority(0-7): 6 • Oper AN uery condition Name VLANID_12 VLANID_22	n O Close	Report Interval(Global-Leave S Next Next Smart VLAN Smart VLAN	5)(10-5000): 10 witch: ● 0 Done Common Common	Dpen O Close Cancel No. 1, Total Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: Select VLAN Please input q VLAN ID ~ 12 22 33	Iority(0-7): 6 Oper AN Uuery condition Name VLANID_12 VLANID_22 VLANID_33 VLANID_33	Alias	Report Interval(Global-Leave S <u>N</u> ext <u>N</u> ext Type ~ Smart VLAN Smart VLAN Smart VLAN	5)(10-5000): 10 witch: ● 0 Done ✓ Find Attribute ~ Common Common	Dpen O Close Cancel No. 1, Total Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: Select VLAN Please input q VLAN ID ~ 12 22 33 1111	iority(0-7): 6 • Oper • Oper	Alias	Report Interval(Global-Leave S <u>N</u> ext <u>N</u> ext Smart VLAN Smart VLAN Smart VLAN Smart VLAN	S)(10-5000): 10 witch: ● (Done ✓ Find Attribute ~ Common Common Common Common	Dpen O Close Cancel No. 1, Total Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: d Multicast VL Select VLAN Please input q VLAN ID ~ 12 22 33 1111	iority(0-7): 6	Alias	Report Interval(Global-Leave S <u>Next</u> <u>Xppe ^</u> Smart VLAN Smart VLAN Smart VLAN Smart VLAN	S)(10-5000): 10 witch: ● (Dpen O Close Cancel No. 1, Total Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: d Multicast VL Select VLAN Please input q VLAN ID ~ 12 22 33 1111	iority(0-7): 6	Alias	Report Interval(Global-Leave S <u>Next</u> <u>Xppe ~</u> Smart VLAN Smart VLAN Smart VLAN Smart VLAN	S)(10-5000): 10 witch: ● C ■ Done ■ Common Common Common Common Common	Dpen O Close Cancel No. 1, Total: Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: Select VLAN Please input q VLAN ID ~ 12 22 33 1111	iority(0-7): 6 Oper AN VLANID_12 VLANID_22 VLANID_33 VLANID_1111	Alias	Report Interval(Global-Leave S <u>Next</u> <u>X</u> Type ~ Smart VLAN Smart VLAN Smart VLAN	S)(10-5000): 10 witch:	Dpen O Close Cancel No. 1, Total Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: Select VLAN Please input q VLAN ID ~ 12 22 33 1111	iority(0-7): 6 Oper Name VLANID_12 VLANID_22 VLANID_33 VLANID_1111	Close Back Allas	Report Interval(Global-Leave S Next Vext Smart VLAN Smart VLAN Smart VLAN Smart VLAN	B)(10-5000): 10 witch:	Dpen O Close Cancel No. 1, Total Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: Select VLAN Please input q VLAN ID ^ 12 22 33 1111	iority(0-7): 6 Oper AN VLANID_12 VLANID_22 VLANID_33 VLANID_1111	Alias	Report Interval(Global-Leave S Next Smart VLAN Smart VLAN Smart VLAN Smart VLAN	S)(10-5000): 10 witch:	Dpen O Close Cancel No. 1, Total Super VLAN ID

- (4) Click Finish.
- 2. Add a virtual upstream port.
 - (1) Choose **Multicast** > **Virtual Uplink Port** from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.

Add Virtual Uplink Port	×
IGMP VLAN	Parameters
	Frame: 0 *
IGMP VLAN ID: 12*	Slot: 0 *
	Port: 0 *
ОК	Cancel <u>A</u> pply

- (4) Click Finish.
- 3. Configure a program profile.
 - (1) Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
 - (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

Add Program Profile				×
Description Info				
 Configure the desi When the program can not have a sour program must have 	red parameters. is provisioned, if the I ce IP address.If the IG a source IP	GM MP	P version of the multicast VLAN version of the multicast VLAN is	is V2, the program s V3, address.the
	· ·			
Name:	program1			*
Alias:		_		
Begin IP Address:	224.1 .1 .1	*	End IP Address:	224.1 .1 .1 *
Source IP Address:	10.10.10.10		Host IP:	1 .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				
🗌 Prejoin Attribute			🗹 Host Attribute	
Unsolicited Attribu	ute	🗾 Log Attribute		
🔲 Across VLAN Attri	bute			
			ок с	ancel <u>A</u> pply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required device and click Next.
- (8) In the dialog box that is displayed, set VLAN ID to 12 and click Done.
- 4. Configure multicast users.

- (1) Choose **Multicast** > **Multicast** User from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.

				GMPUser_C)_4_0	_5		Alia	s:		multiuser1	
Max Program	NO.(1-1	16):	8					Ľ	Enable Log S	witch		
Quick Leave	Mode:		r	nac-based			•	Ľ	Default Video	Flow		
User Max Ba	nd Width	1(0-429496	7294):				*		Unlimited Bar	nd Width		
Receive	3lobal-L	.eave							Enable Autho	rization		
Name ^ 200/0_4	∧Conn LAN-/F	Interface Int Frame: 0/SI	formation ot: 4/Por	Service Single	~Se	Upstre. ip-traffi.	. Downst . ip-traffic	trea :-ta	Vlan ID \land 200			
Name ^	^Conn	Interface Int	formation	Service	∕Se	Upstre.	. Downst	trea	Vlan ID \land		<u> </u>	
200/0_4	LAN-/	Frame: 0/Sli Frame: 0/Sl	ot: 4/Por ot: 4/Por	Single Multi-Serv		ip-traffi in-traffi	ip-traffic	≻ta sta	200			

(4) Click Finish.

IPTV users can watch program 1.

----End

9 Configuring the Ethernet Port Access Service (GE Upstream Transmission)

This topic describes how to configure the Ethernet port access service. TheONU supports the access of one or multiple video and data services through a single Ethernet port in multi-service mode. **Currently, the MA5612 supports the Ethernet port access service.**

Example Network

Figure 9-1 shows an example network of the Ethernet port access service.

The PC and STB are connected to the Ethernet port on the ONU through the LAN switch, implementing the Ethernet access in the single-port for multi-service mode and transmitting data upstream to the router through the GE upstream port 0/0/0. Then, the data is transmitted to the Internet.



Figure 9-1 Example network of the Ethernet port access service

Data Plan

Table 9-1 describes the data plan for the Ethernet port access service.

 Table 9-1 Data plan for the Ethernet port access service

Item	Data
Service port ID	0/4/1
Upstream port ID	0/0/0
Upstream VLANs	Internet service: VLAN 10IPTV service: VLAN 12
User-side VLAN	 Internet service: VLAN 2 IPTV service: VLAN 3
Internet mode	РРРоЕ
Program library	Program 1 (multicast IP address: 224.1.1.1, program source IP address: 10.10.10.10)
Priority	802.1p priority: 4 for IPTV services and 1 for Internet services.

Item	Data
Requirements for the LAN switch of the upper-layer device	 The LAN switch transparently transmits the service packets of the ONU. A VLAN must be configured for the service access of the ONU. The VLAN ID must be the same as that of the upstream VLAN of the ONU. For detailed configuration of the LAN switch, see the related configuration guide.

Procedure

• Configure Internet and IPTV service streams.

A service stream is a service channel connecting the user side to the network side. Service streams are a must for service provisioning. The procedures for configuring Internet and IPTV service streams are similar. Therefore, this topic considers the Internet service as an example to describe how to configure the service stream. Then you can follow this procedure to configure the IPTV service streams according to the corresponding data plan.

To perform the following operations in the navigation tree, you need to navigate to the NE Explorer of the ONU. To navigate to the NE Explorer of the ONU, do as follows: In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.

1. Add a VLAN and configure its upstream port.

- (1) Choose VLAN from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.

×
D_10 *
tVLAN 👻 *
non 💌
▼
<u>Next</u> <u>D</u> one <u>C</u> ancel

(4) Click **Next** to configure its upstream port.

Add VLAN	×	:
Add VLAN	Sub Port L3 Interface Extended Info	:
	Image: Control of the sector of the secto	

- (5) Click Done.
- 2. Configure a traffic profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

A

Id MEF IP Traffic 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	ameter CBS, parameter PIR, and parameter re, the rate is not restricted. I or equal to parameter CIR.	
Parameter PBS must be greater that Profile Parameters	n or equal to parameter CBS.	
Name:	internet	*
Alias:		
CIR (Kbit/s) (64-10240000):	1024 🗌 Unlimited	
CBS (bytes) (2000-10240000):	34768	*
PIR (Kbit/s) (64-10240000):	2048	*
PBS (bytes) (2000-10240000):	67536	*
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	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Add a service virtual port.
 - (1) Choose **Connection** > **Service Port** from the navigation tree.
 - (2) On the **Service Port** tab page, set the filter criteria to display the required service virtual ports.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

Add Service Port	×
Basic Info	Attributes
Alias:	Connection Type: LAN-ETHER 🗨
Network Side VLAN Choice: Smart VLAN Vlan ID(1-4095): 10	User Side Interface Selection: 0/4/0 • • Service Type: Multi-Service VLAN+E. • • User VLAN(1-4095): 2 • • User-Side Encapsulation: PPPoE • •
Traffic Profile Info	
Upstream Traffic Name: internet	Downstream Traffic Name: internet
	OK Cancel <u>A</u> pply

(5) Click OK.

The configuration of Internet service stream is complete and users can access the Internet by using the PPPoE dialup software successfully on a PC.

• Configure the multicast data.

To provision an IPTV service, you also need to configure the IGMP proxy and multicast programs.

1. Add a multicast VLAN and configure the multicast mode.

- (1) Choose Multicast > Multicast VLAN from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.

Add Multicast VL/	N N				×
-Base Information					
Name:	IGMPVIan_200		Alias: ipt	٧	
IGMP Version:	IGMP V3				
Autogeneration P	rogram IP Address		Work Mode		
Program Match	Mode: 🖲 Enable	O Disable	Work Mode:	igm	p_proxy 💌
Start IP Address	:		Snooping Re	port Switch: 🔿 0	pen 🔘 Close
End IP Address:			Snooping Le	ave Switch: 🔿 O	pen 🖲 Close
		<u>B</u> ack	<u>N</u> ext	Done	<u>C</u> ancel
Add Multicast VLA	N N				×
- Default Up Port In	fo				
Frame: 0		Slot: 0		Port: 0	
IGMP Report Pri Log Switch:	ority(0-7): 6 Oper	n O Close	Report Interval(Global-Leave S	3)(10-5000): <u>10</u> witch:	* Open O Close
		Back	<u>N</u> ext	Done	<u>C</u> ancel
Add Multicast VLA	AN .				
Select VLAN					
Please input q	uerv condition		×	🖌 Find	No. 1. Total:4
	Name	Alias	Type 🛆	Attribute 🛆	Super VLAN ID
12	VLANID_12		Smart VLAN	Common	
22	VLANID_22		Smart VLAN	Common	
33	VLANID_33		Smart VLAN	Common	
1111	VLANID_1111		Smart VLAN	Common	
		<u>B</u> ack	<u>N</u> ext	<u>D</u> one	<u>C</u> ancel

- (4) Click Finish.
- 2. Add a virtual upstream port.
 - (1) Choose **Multicast** > **Virtual Uplink Port** from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.

Add Virtual Uplink Port	×
IGMP VLAN	Parameters
	Frame: 0 *
IGMP VLAN ID: 12*	Slot: 0 *
	Port: 0 *
ОК	Cancel <u>A</u> pply

- (4) Click Finish.
- 3. Configure a program profile.
 - (1) Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
 - (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

dd Program Profile				×
Description Info	red parameters			
 Configure the desired When the program can not have a sour program must have 	is provisioned, if the I re IP address.If the IG a source IP	GM MP	P version of the multicast VLAN version of the multicast VLAN is	is V2, the program s V3, address.the
Name:	program1			*
Alias:		_		
Begin IP Address:	224.1 .1 .1	*	End IP Address:	224.1 .1 .1 *
Source IP Address:	10 .10 .10 .10		Host IP:	1.0.0.0 *
Priority (0-7):	7	*	Bandwidth (Kbit/s) (0-65534):	5000 *
Grade:	no-grade 💌	*	Multicast VLAN(1-4095):	
Preview Parameter				
Preview Profile: 0				*
Attribute Parameter				
📃 Prejoin Attribute			🖌 Host Attribute	
Unsolicited Attrib	🖌 Log Attribute			
🗌 Across VLAN Attri	bute			
			ок с	ancel <u>A</u> pply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required device and click Next.
- (8) In the dialog box that is displayed, set VLAN ID to 12 and click Done.
- 4. Configure multicast users.

- (1) Choose **Multicast** > **Multicast** User from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.

				GMPUser_0	_4_0	_5		Alia	IS:		multiuser1	
Max Program	n NO.(1-1	16):	8		_		•	Ľ	Enable Log S	witch		
Quick Leave	Mode:		r	nac-based			•	M	Default Video	Flow		
User Max Ba	nd Width	1(0-4294967	7294):				*		Unlimited Bar	nd Width		
Receive	Global-L	.eave							Enable Autho	rization		
Name 200/0_4	△Conn LAN-/F	Interface Inf Frame: 0/SIr	formation ot: 4/Por	Service Single	Se	Upstre ip-traffi	. Downst . ip-traffic	rea -ta	Vian ID 🔿 200			
Name 🛆	_ _Conn	Interface Inf	formation	Service	Se	Upstre	Downst	rea	Vian ID 🛆			,
200/0_4	LAN-/	Frame: 0/Slo Frame: 0/Slo	ot: 4/Por ot: 4/Por	Single Multi-Serv		ip-traffi in-traffi	ip-traffic	-ta	200			

(4) Click Finish.

IPTV users can watch program 1.

----End

10 Configuring the VLAN ID Extension Service

This topic describes how to configure the VLAN ID extension service. Broadband users of multiple ONUs are authenticated on a BRAS to obtain broadband services provided by carriers. The BRAS can identify users according to L2 VLANs. Therefore, the number of supported VLANs is extended. Currently, the MA5616, MA5612, MA5620, and MA5626 support the VLAN ID extension service.

Example Network

Figure 10-1 shows an example network of the VLAN ID extension service.

Broadband users of multiple ONUs are authenticated on a BRAS to obtain broadband services provided by carriers. The BRAS supports the user identification through L2 VLAN. Specifically, the outer VLAN tag identifies the ONU that connects to users, and the inner VLAN tag identifies the users that are connected to the device.



Figure 10-1 Example network of the VLAN ID extension service

Data Plan

 Table 10-1 describes the data plan for the VLAN ID extension service.

Item	Data			
	Upstream port ID: 0/0/0			
ONU_A	Upstream VLAN ID (outer VLAN tag): 100 VLAN attribute: stacking VLAN			
	User 1: inner VLAN tag 11			
	User 2: inner VLAN tag 12			
	Upstream port ID: 0/0/0			
ONU_B	Upstream VLAN ID (outer VLAN tag): 101 VLAN attribute: stacking VLAN			
	User 3: inner VLAN tag 11			
	User 4: inner VLAN tag 12			

Table 10-1 Data plan for the VLAN ID extension service

Procedure

• Configure the VLAN ID extension service on the ONU_A side.

To perform the following operations in the navigation tree, you need to navigate to the NE Explorer of the ONU. To navigate to the NE Explorer of the ONU, do as follows: In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.

1. Add a VLAN and configure its upstream port.

- (1) Choose VLAN from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.

Add	VLAN		×	1
8	Base Info Configure VLAN			
		VLAN ID(1-4095):	100 *	
		Name:	VLANID_100	
		Alias:		
		Туре:	Smart VLAN 👻 *	
		Attribute:	Stacking *	
		802.1 Priority:	Unconfigured	
		B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel	

(4) Click **Next** to configure its upstream port.

- (5) Click **Done**.
- 2. Add a service virtual port.

The operations for adding a service virtual port for user 1 are similar to those for user 2. This topic considers user 1 as an example to describe how to add a service virtual port.

- (1) Choose **Connection** > **Service Port** from the navigation tree.
- (2) On the **Service Port** tab page, set the filter criteria to display the required service virtual ports.
- (3) In the information list, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.

Add Service Port	X
Basic Info	Attributes
Name: 100/0_4_0/Multi-Service Encapsulation/PPPoE * Alias:	Connection Type: LAN-ETHER 🗨
Network Side	User Side
VLAN Choice: Stacking VLAN 💌 *	Interface Selection: 0/4/0 💌 *
Outer VLAN ID(1-4095): 100* Inner VLAN ID(1-4095): 11 *	Service Type: Multi-Service Encaps
The outer VLAN ID identifies an MDU and the inner VLAN ID identifies the user of the MDU.	
Traffic Profile Info	
☑ Keep the upstream and downstream settings the same	
Upstream Traffic Name: ip-traffic-table_2*	Downstream Traffic Name: ip-traffic-table_2
	OK Cancel Apply

(5) Click OK.

• **Configure the VLAN ID extension service on the ONU_B side.** (See the procedure for configuring the VLAN ID extension service on the ONU_A side).

----End

Result

After being authenticated by the BRAS, the users connected to the ONU_A and ONU_B can access the Internet.

Two users of the ONU can be identified by one outer VLAN tag. In this manner, the number of access users based on one VLAN tag is increased.

11 Configuring the Ethernet OAM Diagnosis

About This Chapter

This topic describes the principles, configuration procedure, and configuration example of the Ethernet OAM diagnosis.

Prerequisite

- The corresponding VLAN must exist.
- The VLAN must be configured with an upstream port.

Context

With the extension of the Ethernet technology from the carrier network to MAN and WAN, carriers are more concerned about the maintainability of devices. Therefore, the maintenance of Ethernet devices becomes more and more important. The operations, administration and maintenance (OAM) issue of the transmission network is pressing. The 802.1ag connectivity fault management (CFM) provides an end-to-end method for detecting faults. The Ethernet OAM mechanism supported by the 802.1ag CFM covers connectivity check (CC), loopback (LB), link trace (LT), and forward AIS alarms.

Figure 11-1 shows the flowchart for configuring the Ethernet OAM diagnosis on the ONU.



Figure 11-1 Flowchart for configuring the Ethernet OAM diagnosis

11.1 Introduction to the Ethernet OAM

This topic describes the basic concepts and principles of the Ethernet connectivity fault management (CFM) and the example network of the Ethernet OAM. The Ethernet OAM mechanism supported by the 802.1ag covers the connectivity check (CC), link trace (LT), and loopback (LB).

11.2 Configuring an MD

This topic describes how to configure an MD. Different MDs are maintained by different management entities.

11.3 Configuring an MA

This topic describes how to add an MA, add devices to the MA, configure the interval for sending CCM packets and the function of checking remote MEPs, check the remote MEPs configured in the MA, and report alarms of detected faults.

11.4 Configuring a Source MEP

This topic describes how to create a source MEP to detect the connectivity of a channel in an MA, and how to configure the administrative status, CCM and LTM priority, and CCM sending status for the MEP.

11.5 Enabling the Global CFM Function

This topic describes how to configure the Ethernet OAM global parameters on the U2000 and issue the parameters to the specified devices. You can configure the Ethernet OAM global parameters in the **System Parameter Profile** of the U2000. Devices can detect and locate Ethernet faults through the bound **System Parameter Profile**.

11.6 Configuration Example of the Ethernet OAM Diagnosis

This topic provides an example for configuring the Ethernet OAM on the ONU.

11.1 Introduction to the Ethernet OAM

This topic describes the basic concepts and principles of the Ethernet connectivity fault management (CFM) and the example network of the Ethernet OAM. The Ethernet OAM mechanism supported by the 802.1ag covers the connectivity check (CC), link trace (LT), and loopback (LB).

Context

The basic concepts and principles of the Ethernet CFM are described as follows.

- 1. Basic concepts:
 - Maintenance domain (MD): The Ethernet CFM divides a network into a maximum of eight layers. A bridge can have different layers to manage different MDs. A CFM MD consists of bridges, and is a combination of bridges and maintenance levels. MDs come under three layers: user domain (levels 7-5), service provider domain (levels 4-3), and carrier domain (levels 2-0). Different MDs are maintained by different management entities.
 - Maintenance association (MA): An MD can be divided into multiple MAs. Each MA maps with a service instance (SI) identified by a VLAN in the MD. That is, the MA can be understood as a combination of an MD and a VLAN. (According to the standard, multiple VLANs can map with one SI, and one SI maps with one MA.)
 - Maintenance point (MP): An MA consists of maintenance points (MPs) that are defined on the ports of bridges. That is, an MP is a combination of a bridge port, a VLAN, and a maintenance level. MPs are classified into two types: maintenance association end point (MEP) and maintenance association intermediate point (MIP). An MEP initiates and responds to CFM messages. An MIP does not initiate CFM messages. It only transparently transmits or responds to CFM messages.
- 2. Principles of fault detection:
 - Continuity check messages (CCMs) are used to detect Ethernet faults. Each MEP actively sends CCM packets at regular intervals. The CCM packets are copied to the multicast addresses. All the MIPs and MEPs in the MD can receive the CCM packets but need not respond. When an MEP receives CCM packets from other MEPs, it sets up and maintains an MEP CCM database. The database records the MEP IDs, MAC addresses of the MEPs, and the mappings between the MEPs and the receiving ports. The database also records the information about other MEPs in the MA. If the MEP does not receive CCM packets from another MEP for three successive times, the MEP reports a fault.
 - Loss of CCM packets may be caused by a link fault, a switched network fault, or wrong configurations between two MEPs. The NMS can use other methods, such as loss of physical layer signals, instead of CCM packets, to detect the link faults. But in this case, the NMS cannot detect the non-link faults, such as switched network faults or wrong configurations. After a fault is discovered through CCM packets, you can use LB or LT to locate the fault (for example, in the switched network).
 - CCM packets can detect not only the link faults and switched network faults, but also the service configuration errors (such as unmatched MA names), repeated MEP configurations (such as repeated MEP names), undesired MEPs, loopback (repeated serial numbers), data loss, and data corruption (such as wrong checksum).
- 3. Alarm mechanism: There are four types of alarms.
- Cross-connection alarm: After an MEP on a bridge receives a CCM packet, the MEP checks whether certain configuration (including the type and length of the MD name; the MD name; the type and length of the MA name; and the MA name) of the peer MEP as carried by the CCM packet is completely the same as the local configuration. If the configurations are different, the MEP reports a cross-connection alarm.
- Loss-of-CCM alarm: If an MEP on a bridge does not receive a CCM packet from a remote MEP in a specific period (3.5 times the sending interval), the MEP reports a loss-of-CCM alarm.
- Error alarm: After an MEP on a bridge receives a CCM packet, the MEP compares the MEP information in the received CCM packet with the configuration information about the remote MEP, including the interval for sending CCM packets. If the information does not match, the MEP reports an error alarm.
- RDI alarm: If a local MEP does not receive CCM packets from its remote MEP, the local MEP sends a CCM packet with an RDI bit. When another MEP receives the CCM packet with the RDI bit, the MEP reports an RDI alarm.
- 4. LT principle:
 - The LT helps to check the MIP path between two MEPs. A link trace message (LTM) contains a known multicast address, but is not multicasted. The LTM contains additional information indicating the MAC address of the destination MEP. When the LTM is forwarded by MIPs to the destination MEP in unicast mode, each MIP sends a link trace reply (LTR) to the source MEP. In this way, the source MEP learns the MIPs along the path to the destination MEP and records their MAC addresses.
- 5. LB principle:
 - LB helps an MEP to locate faults in an MA. LB uses the unicast MAC address of an MEP or MIP that is discovered by the CC or LT. The source MEP creates a loopback message (LBM) containing the index of the destination MEP, sends the LBM, and starts the timer. After receiving the LBM, the destination MEP sends an LBR to the source MEP. The loopback test succeeds. If the timer of the source MEP expires, the loopback test fails.

11.2 Configuring an MD

This topic describes how to configure an MD. Different MDs are maintained by different management entities.

Prerequisite

- The corresponding VLAN must exist.
- The VLAN must be configured with an upstream port.
- You can perform this operation only after the CFM function is enabled globally.

Context

- The system supports three MDs.
- MDs with the same name format and the same name cannot be created on the same device, but can be created on different devices.
- MDs of the same level cannot be created on the same device, but can be created on different devices.

• The total length of the names of an MA and the corresponding MD must be less than or equal to 43 characters.

Procedure

- 1 In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
- 2 Choose ETH OAM from the navigation tree.
- 3 Click the Maintenance Domain tab, right-click the list, and then choose Add.
- 4 In the dialog box that is displayed, set **MD Name Format**, **MD Name**, **Level** and **MHF Creation Rule** as follows.

Add D X		
Add MD		
MD Name Format:	Character string type	
MD Name:	Domain1	
Level:	3	
MHE Creation Rule:	Default MHE	
L		

5 Click OK.

----End

11.3 Configuring an MA

This topic describes how to add an MA, add devices to the MA, configure the interval for sending CCM packets and the function of checking remote MEPs, check the remote MEPs configured in the MA, and report alarms of detected faults.

Prerequisite

- The corresponding VLAN must exist.
- The VLAN must be configured with an upstream port.
- The MD must be configured.

Context

- You can perform this operation only after the CFM function is enabled globally.
- Each MD can be configured with up to 48 MAs. The system supports up to 48 MAs. That is, if you configure 48 MAs in an MD, you cannot configure MAs in other MDs.

- The MA must belong to an MD. Do not create an MA that is consistent with an existing one.
- The MAs in the same MD cannot be associated with the same VLAN.
- The total length of the names of an MA and the corresponding MD must be less than or equal to 43 characters.

Procedure

- 1 In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
- 2 Choose ETH OAM from the navigation tree.
- 3 Click the Maintenance Association tab, right-click the list, and then choose Add.
- 4 In the dialog box that is displayed, set MD Name, MA Name Format, MA Name, and CC Interval as follows.

k	id HA	×
	Add MA	
	MD Name:	Domain1
	MA Name Format:	Character string type 🔹 *
	MA Name:	MA *
	CC Interval:	10s 🔻
-		
		OK Cancel Apply

- 5 Click OK.
- 6 Select the added MA1, right-click, and then choose Configure.
- 7 In the dialog box that is displayed, set MHF Creation Rule, Remote MEP Detection Function and Associated VLAN as follows.

C	onfigure ∎A	×
	Configure MA	
	MD Name:	Domain1
	MA Name Format:	Character string type 💌
	MA Name:	MA
	MHF Creation Rule:	Default MHF 🗨
	Remote MEP Detection Function:	enable 🔻
	Associated VLAN(0-4095):	1*
	ОК	Cancel <u>A</u> pply

8 Click OK.

----End

11.4 Configuring a Source MEP

This topic describes how to create a source MEP to detect the connectivity of a channel in an MA, and how to configure the administrative status, CCM and LTM priority, and CCM sending status for the MEP.

Prerequisite

- The corresponding VLAN must exist.
- The VLAN must be configured with an upstream port.
- The MD must be configured. For details, see 11.2 Configuring an MD.
- The MA must be configured. For details, see **11.3** Configuring an MA.

Context

An MEP is the end point of a maintenance channel. Ethernet OAM depends on the MEPs at both ends of a channel to check the connectivity. Therefore, the MEPs must be created. After creating the MEPs, you can use them to check the connectivity of a channel in an MA.

- The MEP takes effect only after the administrative function is enabled.
- The MEP can send CCM packets at regular intervals to check the connectivity of a channel only after the CCM packet sending function is enabled successfully.
- After the CCM and LTM priority is successfully configured, the system discards the packets with lower priority in case of congestion.

Procedure

- 1 In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
- 2 Choose ETH OAM from the navigation tree.
- 3 Click the Maintenance Association tab, set the querying criteria or click imes to display the records. imes to display the records.
- 4 Select a record from the list, and then click the **Source MEP ID Info** tab in the lower pane. Right-click the list, and then choose **Add**.
- 5 In the dialog box that is displayed, set MEP ID, Interface Info, Interface Direction, VLAN TAG1, VLAN TAG2 and CCM And LTM Priorityas follows.

k	ld Source ∎EP		×
	Add Source MEP		
	MEP ID(1-8191):	2 *	
	Interface Info:	0/8/0	
	Interface Direction:	Down 💌 *	
	VLAN TAG1(1-4095):	22	
	VLAN TAG2(1-4095):	25	
	CCM And LTM Priority:	•	
		OK Cancel Apply	

- 6 Click OK.
- 7 Select the added source MEP, right-click, and then choose **Configure**.
- 8 In the dialog box that is displayed, enable the Administrative Status and CC Sending Status of the MEP, and then set CCM And LTM Priority, Alarm Waiting Time and Alarm Recovery Time as follows.

C	onfigure Source EP	×	
	Configure Source MEP		
	Administrative Status:	enable 🔻	
	CCM And LTM Priority:	2 *	
	CC Sending Status:	enable 🔻 *	
	Alarm Waiting Time(ms)(2500-10000):	2500 *	
	Alarm Recovery Time(ms)(2500-10000):	10000 *	
OK Cancel Apply			

9 Click OK.

----End

11.5 Enabling the Global CFM Function

This topic describes how to configure the Ethernet OAM global parameters on the U2000 and issue the parameters to the specified devices. You can configure the Ethernet OAM global parameters in the **System Parameter Profile** of the U2000. Devices can detect and locate Ethernet faults through the bound **System Parameter Profile**.

Context

When the global CFM function is enabled, the CFM packets are captured, and the functions of CC, LB and LT are enabled. When the global CFM function is disabled, the CFM packets are not captured, and the functions of CC, LB, and LT are disabled.

The system parameter profile is a collection of system parameters, such as ETH OAM parameters and other parameters. After a system parameter profile is issued to a device successfully, the parameters in the profile overwrite the original parameters on the device. This may affect the services of the device. Therefore, the system parameter profile must be issued to the device before service provisioning.

Procedure

- 1 In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
- 2 On the navigation tree of the tab page that is displayed, choose NE Properties > Protocol > ETH OAM.
- **3** In the parameter configuration area in the right pane, configure the global parameters of the Ethernet OAM devices, including the multicast MAC base address that is used to send CC/LT packets, and then set **Global remote MEP test** and **Global CFM switch**.

Parameter	Value
MAC address	01-80-C2-00-01-00
Global remote MEP test	Open
Global CFM switch	Open
Alarm switch	Open

4 Click Apply.

----End

11.6 Configuration Example of the Ethernet OAM Diagnosis

This topic provides an example for configuring the Ethernet OAM on the ONU.

Prerequisite

- The example network as shown in Figure 11-2 must be complete.
- The network devices and lines must be in the normal state.

Example Network

Figure 11-2 shows the example network of the Ethernet OAM on the ONU. The link between ONU_A and ONU_B uses the Ethernet OAM mechanism to detect link faults. Both ONU_A and ONU_B are configured with a local MEP and a remote MEP. The local MEP ID of ONU_B is the same as the remote MEP ID of ONU_A. The remote MEP ID of ONU_B is the same as the local MEP ID of ONU_A.

Figure 11-2 Example network of the Ethernet OAM



Data Plan

Table 11-1 provides the data plan for the Ethernet OAM on the ONU.

Item	Data
ONU_A	• Port: 0/1/0
	• Smart VLAN: 100
	• MD Name Format: character string type
	• MD Name: MD1
	• Level: 3
	• MA Name Format: character string type
	• MA Name: MA1
	• Remote MEP check: Enable
	• Associated VLAN: 100
	• MEP ID: 2
	• Interface Direction: UP
	• CCM and LTM Priority: 7
	• Administrative Status: enable
	• CC Sending Status: enable
	• Alarm Waiting Time: 2500
	• Alarm Recovery Time: 10000
ONU_B	• Port: 0/0/1
	• Smart VLAN: 100
	• MD Name Format: character string type
	• MD Name: MD2
	• Level: 3
	• MA Name Format: character string type
	• MA Name: MA2
	• Remote MEP check: Enable
	• Associated VLAN: 100
	• MEP ID: 2
	• Interface Direction: UP
	• CCM and LTM Priority: 7
	Administrative Status: enable
	• CC Sending Status: enable
	• Alarm Waiting Time: 2500
	• Alarm Recovery Time: 10000

Table 11-1 Dat	a plan for the	Ethernet OAM
----------------	----------------	--------------

- Configure the remote MEP of ONU_A on ONU_B in the same way as configuring the MEP of ONU_A.
- This topic considers the configuration on ONU_A as an example.

Procedure

- **1** Add a VLAN and configure the upstream port of the VLAN.
 - 1. In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
 - 2. Choose VLAN from the navigation tree.
 - 3. Right-click the list, and then choose **Add**. In the dialog box that is displayed, set the related parameters.

Parameter settings:

- VLAN ID: 100
- Type: Smart VLAN
- Attribute: Common
- 4. Click Next, and then select port 0/1/0 as the upstream port. Click Done.
- 2 Configure the MD.
 - 1. Choose ETH OAM from the navigation tree.
 - 2. Click the Maintenance Domain tab, right-click the list, and then choose Add.
 - 3. In the dialog box that is displayed, set the device name and the name format, name, and level of the MD as follows, and then click **OK**.
 - MD Name Format: character string type
 - MD Name: MD1
 - Level: 3
- 3 Configure the MA.
 - 1. Click the Maintenance Association tab, right-click the list, and then choose Add.
 - 2. In the dialog box that is displayed, set the parameters as follows, and then click **OK**.
 - MD Name: MD1
 - MA Name Format: character string type
 - MA Name: MA1
 - 3. Select the added MA1, right-click, and then choose **Configure**.
 - 4. In the dialog box that is displayed, set the parameters as follows, and then click **OK**.
 - Remote MEP check: Enable
 - Associated VLAN: 100
- 4 Configure the MEP ID.
 - 1. Click the **Maintenance Association** tab, set the querying criteria or click 😢 to display the records.
 - 2. Select the added MA1, and then click the **MEP ID Info** tab in the lower pane. Right-click the list, and then choose **Add**.
 - 3. In the dialog box that is displayed, set **MEP ID** to **2**.
- 5 Configure the MEP.
 - 1. Click the **Maintenance Association** tab, set the querying criteria or click it display the records.

- 2. Select the added MA1, and then click the **Source MEP ID Info** tab in the lower pane. Right-click the list, and then choose **Add**.
- 3. In the dialog box that is displayed, set the parameters as follows, and then click **OK**.
 - MEP ID: 2
 - Interface Info: 0/1/0
 - Interface Direction: UP
 - CCM and LTM Priority: 7
- 4. Select the added MEP1, right-click, and then choose **Configure**.
- 5. In the dialog box that is displayed, set the parameters as follows, and then click **OK**.
 - Administrative Status: enable
 - CCM and LTM Priority: 7
 - CC Sending Status: enable
 - Alarm Waiting Time: 2500
 - Alarm Recovery Time: 10000

----End

Result

After successful configuration, you can query the statistics of the packets on ONU_A or ONU_B. The number of the transmitted CCM packets and the number of the received CCM packets are not zero.

12 Detecting the Network

About This Chapter

This topic describes how to check the connectivity of a network and whether the host is reachable, and how to check all gateways passed by data packets sent from a source host to the destination host. In addition, this operation helps you to locate network faults and log in to the device through the network remotely to configure and maintain the device.

12.1 Telnet

This topic describes how to log in to the device through the network remotely to configure and maintain the device.

12.2 Ping

This topic describes how to send ping packets to a remote host to check whether it is reachable. To check the network connectivity or the line quality, perform this operation.

12.3 Tracert

This topic descries how to test the route that is passed by data packets sent from a source host to the destination host. To track the route that is passed by data packets and locate the network fault, perform this operation. After running the ping command to test the network and detect a fault, you can run the tracert command to locate the fault on the network.

12.4 SSH

The secure shell (SSH) guarantees the security of the network communications by providing authentication, encryption, and authorization. When users telnet the router through an insecure network, SSH offers secure information guarantee and powerful authentication to protect the device against attacks such as IP address spoofing and interception of the plain text password.

12.1 Telnet

This topic describes how to log in to the device through the network remotely to configure and maintain the device.

Prerequisite

Make sure that port 9811 between the U2000 server and clients is enabled before you telnet a device.

Procedure

- 1 On the navigation tree or in the topological view, select a required device.
- 2 Right-click, and then choose **Tool** > **Telnet**. When you successfully telnet to the remote server or device through the network, you can operate the device through command lines.

----End

12.2 Ping

This topic describes how to send ping packets to a remote host to check whether it is reachable. To check the network connectivity or the line quality, perform this operation.

Context

During the ping process, the source host sends the ICMP ECHO-REQUEST packets to the destination host. If the network connection between the source host and the destination host is normal, after receiving the ICMP ECHO-REQUEST packets, the destination host responds to the source host with the ICMP ECHO-REPLY packets.

Procedure

- 1 On the navigation tree or in the topological view, select a required device.
- 2 Right-click, and then choose Tool > Ping.
- 3 In the dialog box that is displayed, select the **Ping** or **Continual Ping** parameter, and then click **Start**.

- If the operation is successful, it indicates that the destination host is reachable. In the **Result** area, the system displays the information indicating that the network connectivity is in the normal state. The displayed information includes the number of sent packets, number of received response packets, packet loss ratio, and minimum, maximum, and average values of the response time.
- If the operation fails, it indicates that the destination host is not reachable. The system fails to check the network connectivity or line failure. The system displays the message **Request time out**.

----End

12.3 Tracert

This topic descries how to test the route that is passed by data packets sent from a source host to the destination host. To track the route that is passed by data packets and locate the network fault, perform this operation. After running the ping command to test the network and detect a fault, you can run the tracert command to locate the fault on the network.

Context

The execution process of the tracert command is as follows:

- The source host sends a packet with TTL 1. TTL times out. The first hop sends back an ICMP error message to indicate that this packet cannot be sent.
- The source host sends a packet with TTL 2. TTL times out. The second hop sends back an ICMP error message to indicate that this packet cannot be sent.
- The source host sends a packet with TTL 3. TTL times out. The third hop sends back an ICMP error message to indicate that this packet cannot be sent.
- The process continues in this manner until the packet reaches the destination host.
- The purpose of performing these operations is to record the source address of each ICMP TTL time-out message, so as to provide the route that an IP packet passes to reach the destination host.

Procedure

- 1 On the navigation tree or in the topological view, select a required device.
- 2 Right-click, and then choose **Tool** > **Tracert**.

----End

12.4 SSH

The secure shell (SSH) guarantees the security of the network communications by providing authentication, encryption, and authorization. When users telnet the router through an insecure network, SSH offers secure information guarantee and powerful authentication to protect the device against attacks such as IP address spoofing and interception of the plain text password.

Procedure

- **1** On the navigation tree or in the topological view, select a required device.
- 2 Right-click, and then choose Tool > SSH.
- 3 In the dialog box that is displayed, set the parameters.
- 4 Click OK.
 - ----End

$13_{\rm Saving \, the \, Data}$

About This Chapter

After saving the data to the flash memory of the device, you can query the data information to maintain and manage the device.

13.1 Setting the Parameters for Saving the Data

You can configure the auto save period of the data through enabling the auto save function of the device. The U2000 automatically saves the data to the flash memory of the device according to the configured period. Through the U2000, you can periodically maintain and manage the device according to the saved data information.

13.2 Immediately Enabling Data Saving Function

This topic describes how to immediately enable the auto save function of the device to save the current data of the device in time.

13.1 Setting the Parameters for Saving the Data

You can configure the auto save period of the data through enabling the auto save function of the device. The U2000 automatically saves the data to the flash memory of the device according to the configured period. Through the U2000, you can periodically maintain and manage the device according to the saved data information.

Context

The absolute period and relative period of the device are based on the time of the site where the device is located.

Procedure

- 1 In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
- 2 Choose NE Properties > Auto Save Configuration from the navigation tree on the tab page that is displayed.
- 3 In the right pane, set the **Absolute Period** or **Relative Period** parameter for saving the data.
 - Absolute Period: The data is automatically saved at a specified time. For example, if the Absolute **Period** parameter is set to **01h 05m 31s**, the data is automatically saved at the preset time.
 - Relative Period: The data is automatically saved at an interval. For example, if the **Relative Period** parameter is set to **00d 05h 31m**, the data is automatically saved every other 331 minutes.
- 4 Click Apply.

----End

13.2 Immediately Enabling Data Saving Function

This topic describes how to immediately enable the auto save function of the device to save the current data of the device in time.

Context

- This operation is applicable to only the device that supports the SNMP protocol.
- After being enabled immediately, the automatic saving function cannot be manually stopped. Do not power off or reset the device before the data is saved. Otherwise, the data saved to the flash memory is damaged.

Procedure

- 1 On the **Physical Root** navigation tree on the **Main Topology** tab page, select the required, rightclick, and then choose **Save Data Immediately**.
- 2 In the dialog box that is displayed, Click OK.

----End

14 Synchronization

About This Chapter

This topic describes how to synchronize the NE data, NE time, NE alarms and system parameter profile so that the data of the NE and the data on the U2000 are the same.

14.1 Synchronizing NE Data

This topic describes how to synchronize the device panel data and service data on the U2000 with that of NEs. The synchronization facilitates centralized maintenance and management.

14.2 Synchronizing the NE Time

This topic describes how to synchronize the NE time with the U2000 time to ensure that the time when the NE reports the information is correct.

14.3 Synchronizing the NE Alarm

This topic describes how to synchronize the NE alarm. After the communication between the U2000 and the device recovers or the U2000 restarts, the alarms generated on the device side are not reported to the U2000 in time. This results in the inconsistency of the alarm status between the U2000 and the device. In this case, you need to synchronize the alarms. You can synchronize the alarms manually, or set the automatic synchronization function. This ensures that the U2000 monitors the actual running status of the device.

14.4 Synchronizing the System Parameter Profile

You can perform this operation to synchronize the system parameter profile that is modified at the global side to the device to maintain the consistency of the parameters in the system parameter profile.

14.1 Synchronizing NE Data

This topic describes how to synchronize the device panel data and service data on the U2000 with that of NEs. The synchronization facilitates centralized maintenance and management.

Prerequisite

The FTP, SFTP, or TFTP server must be configured and the FTP, SFTP, or TFTP service must be started.

In the physical topology, the gear on the upper left of an MDU icon indicates that the MDU is in the pre-deployment state. If the U2000 and NEs communicate in the normal state, the MDU state changes from pre-deployment to running after the data of the MDU is synchronized.

Context

- During the operation of the U2000, the data of NEs and the data on the U2000 must be the same.
- After the data of an NE is configured and the NE runs in the normal state, synchronize the data on the U2000 with that of the NE manually. When an error occurs to the NE data, check whether the NE data saved on the U2000 is correct. If it is correct, download the data from the U2000 to the NE. In this case, the data of the NE is restored.

Procedure

- In the **Physical Root** navigation tree on the **Main Topology** tab page, right-click the required ONU and choose **Synchronize NE Data** from the shortcut menu.
- ----End

14.2 Synchronizing the NE Time

This topic describes how to synchronize the NE time with the U2000 time to ensure that the time when the NE reports the information is correct.

Context

- The U2000 delivers the system time automatically when a device gets online.
- After synchronizing the NE time, do not change the system time of the U2000 frequently.

Procedure

• On the **Physical Root** navigation tree on the **Main Topology** tab page, select the required ONU, right-click, and then choose **Set NE Time**.

----End

14.3 Synchronizing the NE Alarm

This topic describes how to synchronize the NE alarm. After the communication between the U2000 and the device recovers or the U2000 restarts, the alarms generated on the device side

are not reported to the U2000 in time. This results in the inconsistency of the alarm status between the U2000 and the device. In this case, you need to synchronize the alarms. You can synchronize the alarms manually, or set the automatic synchronization function. This ensures that the U2000 monitors the actual running status of the device.

Procedure

• By manual alarm synchronization, all alarms generated by NE are synchronized.

1. On the **Physical Root** navigation tree on the **Main Topology** tab page, select the required ONU, right-click, and then choose **Synchronize Current Alarms**.

----End

14.4 Synchronizing the System Parameter Profile

You can perform this operation to synchronize the system parameter profile that is modified at the global side to the device to maintain the consistency of the parameters in the system parameter profile.

Procedure

1 On the **Physical Root** navigation tree on the **Main Topology** tab page, select the required **ONU**, right-click, and then choose **Synchronize System Parameter Profile**.

----End

15 File Operations

About This Chapter

By file operation, you can save the records as a file, preview the file printing effect, and print the file. In this case, you can save and analyze the related information of the U2000.

15.1 Saving the Records as a File

This topic describes how to save the records as a text file, an Excel file, and an HTM (HTML) file. In this case, you can use the records in different file formats.

15.2 Previewing the File Printing Effect

This topic describes how to preview the file printing effect so that you can adjust the page settings before printing.

15.3 Printing

You can print out the records in the U2000 information list to keep the related information of the U2000 and analyze it.

15.1 Saving the Records as a File

This topic describes how to save the records as a text file, an Excel file, and an HTM (HTML) file. In this case, you can use the records in different file formats.

Context

This topic uses VLAN as an example. For other subjects, the steps are the same except that the navigation path is different.

Procedure

- 1 In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
- 2 Choose VLAN from the navigation tree.
- 3 On the VLAN tab page, set the filter criteria or click \bowtie to display the VLANs.
- 4 In the information list, right-click, and then choose File > Save As.
- 5 In the dialog box that is displayed, set the parameters.
 - Set Start Row and End Row.
 - Click for File Name, and then set the file saving location, file name, file type and encoding.
- 6 Click OK.

----End

15.2 Previewing the File Printing Effect

This topic describes how to preview the file printing effect so that you can adjust the page settings before printing.

Context

This topic uses VLAN as an example. For other subjects, the steps are the same except that the navigation path is different.

Procedure

- 1 In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
- 2 Choose VLAN from the navigation tree.
- 3 On the VLAN tab page, set the filter criteria or click \bowtie to display the VLANs.
- 4 Right-click the list, and then choose **File** > **Print Preview**.

5 In the dialog box that is displayed, preview the file printing effect, or adjust the page settings according to the requirements. Click **Close** to close the current dialog box, or click **Print** to print the file.

----End

15.3 Printing

You can print out the records in the U2000 information list to keep the related information of the U2000 and analyze it.

Context

This topic uses VLAN as an example. For other subjects, the steps are the same except that the navigation path is different.

Procedure

- 1 In the Main Topology, double-click the required ONU in the **Physical Root** navigation tree; or right-click the required ONU and choose **NE Explorer** from the shortcut menu.
- 2 Choose VLAN from the navigation tree.
- 3 On the VLAN tab page, set the filter criteria or click 😢 to display the VLANs.
- 4 Right-click the list, and then choose File > Print.
- 5 In the dialog box that is displayed, set the parameters.
- 6 Click OK.

----End

16 Introduction to the PnP Solution to FTTx Devices

About This Chapter

This topic describes the plug and play (PnP) solution to FTTx devices.

16.1 Introduction to the PnP Function This topic describes the application background, plug-and-play (PnP) function, and benefits of the PnP function.

16.2 PnP Application Scenario This topic describes the PnP application scenario.

16.1 Introduction to the PnP Function

This topic describes the application background, plug-and-play (PnP) function, and benefits of the PnP function.

Background

Currently, FTTx network construction is in full swing. Box-shape devices with a small capacity are not deployed only in the telecommunications room. They are widely deployed in street racks, corridors of communities, business buildings, and houses of users. Therefore, access points are closer to users. Nevertheless, though better user experience is provided, a lot of problems appear, such as an exponential increase in the number of access devices, complex deployment environment, and a rapid increase in the software commissioning workload.

Function

Concerning different challenges, the U2000 provides a PnP function during MDU engineering installation, maintenance, and parts replacement.

Before installing the MDU, you can import the sheet into the U2000 to implement not only the pre-deployment of NE and NE services, but also the in-batch and offline deployment of MDU. After the MDU is installed and powered on, the U2000 automatically applies the configuration data to the MDU and field software commissioning is not required. The offline deployment and PnP function greatly improves the deployment efficiency and lowers the skill requirements for installation engineers. The construction is simple and thus the number of site visits is reduced, which saves the deployment costs.

When the MDU is faulty and needs to be replaced, the MDU is reported to the U2000. After the MDU is powered on, the previous configuration data and the device version are automatically recovered and do not need to be reconfigured. The PnP solution provides fast replacement of MDUs, which simplifies the procedures and lowers the skill requirements for installation engineers.

16.2 PnP Application Scenario

This topic describes the PnP application scenario.

xPON upstream MDUs support the PnP function during pre-deployment and fast replacement.

- Pre-deployment: In deployment, a present pre-deployment sheet is imported into the U2000. After an MDU is installed and powered on, the U2000 automatically applies the previous configuration data and device version to the MDU. In this case, you do not need to configure the MDU again and the PnP function and fast replacement of the MDU are achieved.
- Fast replacement: When an MDU is faulty, you need to replace the MDU and power it on. After the MDU is reported to the U2000, the previous configuration data and the device version are automatically recovered and do not need to be reconfigured.

16.2.1 Predeploying xPON MDUs

Predeploying xPON MDUs achieves the plug and play (PnP) function in the engineering and installation phase. In a fiber to the building (FTTB) network, a large number of dispersed remote network elements (NEs) are far away from the telecommunications room at the central office

(CO). To configure the NEs in batches and implement the PnP feature of the NEs, the U2000 supports NE pre-deployment and NE service pre-deployment by importing sheets.

16.2.2 Replacing an MDU Quickly

In the FTTX network, a large number of optical network units (ONUs) work. If a faulty ONU is replaced with a new one, you need to only enter the authentication information, after which the previous configuration data will be applied automatically. The following considers the MA5620E as an example to describe how to quickly replace an MDU.

16.2.1 Predeploying xPON MDUs

Predeploying xPON MDUs achieves the plug and play (PnP) function in the engineering and installation phase. In a fiber to the building (FTTB) network, a large number of dispersed remote network elements (NEs) are far away from the telecommunications room at the central office (CO). To configure the NEs in batches and implement the PnP feature of the NEs, the U2000 supports NE pre-deployment and NE service pre-deployment by importing sheets.

Context

xPON MDUs are classified into GPON MDUs and EPON MDUs. Generally, GPON MDUs use SNs for authentication and EPON MDUs use MAC addresses for authentication.

Predeploying an xPON MDU is applicable to the following scenarios:

In one scenario, the MAC address or SN of the MDU is known. Specifically, the mapping between the MAC address or SN and the IP address of the MDU is planned. Then, installation engineers must comply with the plan to install the MDU in a specified place.
 Figure 16-1 shows the flowchart for predeploying the MDU whose MAC address or SN is known.

Figure 16-1 Flowchart for predeploying the MDU whose MAC address or SN is known



• In the other scenario, the MAC address or SN of the MDU is unknown. Specifically, the IP address is planned but the mapping between the IP address and the MAC address or SN of the MDU is unknown. Then, installation engineers need to write down the MAC address or SN of the MDU after installing the MDU and provide the MAC address or SN to the network management center (NMC). In this case, an NMC engineer binds the IP address and the MAC address or SN. **Figure 16-2** shows the flowchart for predeploying the MDU whose MAC address or SN is unknown.

Figure 16-2 Flowchart for predeploying the MDU whose MAC address or SN is unknown



16.2.2 Replacing an MDU Quickly

In the FTTX network, a large number of optical network units (ONUs) work. If a faulty ONU is replaced with a new one, you need to only enter the authentication information, after which the previous configuration data will be applied automatically. The following considers the MA5620E as an example to describe how to quickly replace an MDU.

Context

When a faulty ONU is replaced with a new one, you need to connect the new ONU to the relevant port of the OLT through an optical fiber and bind the authentication information of the new ONU. After the new ONU goes online, the U2000 automatically applies service configuration data to the new ONU. Therefore, you need not reconfigure the data.

Advantages:

- An MDU is replaced easily and the OSS need not reapply configuration data.
- The MAC address and SN of the MDU are displayed only on the OLT and U2000. MDUs are differentiated according to their IP addresses in the OSS.
- The on-site construction is simple and no configuration data is required.
- The version and configuration data can be restored automatically.

Figure 16-3 shows the flowchart for quickly replacing an MDU.



Figure 16-3 Flowchart for quickly replacing an MDU

CAUTION Make sure that any of the FTP, TFTP, and SFTP services are running.

Procedure

- **1** Set the automatic backup policy.
 - 1. Choose Administration > NE Software Management > User-Defined Policy from the main menu.
 - 2. In the User-Defined Policy dialog box, set NE Type and NE Version, and click Next, as shown in Figure 16-4.

Figure 16-4 User-defined policy (1)

👋 Vser-Defined Policy	×
NE Tree	NE Table
NE Type : MA5620E(V800) 💌	Sno. Resource Na IP/LAN Ad Version
NE Version : All Version 💌	
- O S 2	
□- □- <t< th=""><td></td></t<>	
	Next Cancel Einish

3. In the User-Defined Policy dialog box, set parameters on the Backup Policy and Save Policy tab pages as required, and click Finish, as shown in Figure 16-5.

8	👋 User-Defined Policy 🛛 🛛 💌		
	Backup Policy	Save Policy	
	Period :	Weekly	
	Day :	Sunday 🔻	
	Time :	08:00	
	Content Type :	Data File 🔻	
	Policy Status :	 Running Suspended 	
	🔲 Save before ta	king Backup	
	Previous	Cancel <u>F</u> inish	

Figure 16-5 User-defined policy (2)

2 (Optional) Set the automatic upgrade policy.

For details, see 17.3.1 Upgrading MDUs in Batches Automatically.

- 3 On-site engineers replace the ONU.
- 4 In the U2000 window, right-click the new ONU that is used to replace the faulty ONU, such as MA5620E, and choose **EPON Option** > **Replace ONU** from the shortcut menu.
- 5 In the **Replace ONU** dialog box, click the **Basic Info** tab, set **Auth Way** to **MAC Address** in the **Auth Info** field, and then click next to **MAC**.
- 6 In the MAC Address List dialog box, select a record and click OK.
- 7 In the Replace ONU dialog box, click the Basic Info tab and click OK.

\triangle caution

After the MDU is powered on, the U2000 automatically registers the MDU, and restores the version and configuration data of the MDU.

----End

17 Predeploying xPON MDUs

About This Chapter

Predeploying xPON MDUs achieves the plug and play (PnP) function in the engineering and installation phase. In a fiber to the building (FTTB) network, a large number of dispersed remote network elements (NEs) are far away from the telecommunications room at the central office (CO). To configure the NEs in batches and implement the PnP feature of the NEs, the U2000 supports NE pre-deployment and NE service pre-deployment by importing sheets.

Context

xPON MDUs are classified into GPON MDUs and EPON MDUs. Generally, GPON MDUs use SNs for authentication and EPON MDUs use MAC addresses for authentication.

Predeploying an xPON MDU is applicable to the following scenarios:

In one scenario, the MAC address or SN of the MDU is known. Specifically, the mapping between the MAC address or SN and the IP address of the MDU is planned. Then, installation engineers must comply with the plan to install the MDU in a specified place.
 Figure 17-1 shows the flowchart for predeploying the MDU whose MAC address or SN is known.



Figure 17-1 Flowchart for predeploying the MDU whose MAC address or SN is known

• In the other scenario, the MAC address or SN of the MDU is unknown. Specifically, the IP address is planned but the mapping between the IP address and the MAC address or SN of the MDU is unknown. Then, installation engineers need to write down the MAC address or SN of the MDU after installing the MDU and provide the MAC address or SN to the network management center (NMC). In this case, an NMC engineer binds the IP address and the MAC address or SN. **Figure 17-2** shows the flowchart for predeploying the MDU whose MAC address or SN is unknown.

Figure 17-2 Flowchart for predeploying the MDU whose MAC address or SN is unknown


17.1 Example Network of xPON MDU Pre-deployment

When predeploying an xPON MDU, ensure that the OLT applies channel configurations to the MDU after the optical path between the OLT and the MDU is enabled. In this case, the U2000 can manage the MDU.

Context

Figure 17-3 shows an example network of xPON MDU pre-deployment.

Figure 17-3 Example network of xPON MDU pre-deployment



17.2 Configuration Flow of xPON MDU Pre-deployment

This topic describes how to predeploy an xPON MDU. Predeploying an xPON MDU is divided into two phases: MDU auto-discovery and MDU auto-configuration. Basic parameters are set in the MDU auto-discovery phase to meet the requirements for MDU auto-configuration. By using the MDU auto-configuration function, the upgrade and service data configuration of the MDU are automatically configured after the MDU is powered on. In this case, the MDU can carry services immediately after power-on.

Context

The following section describes the flow of how to predeploy an xPON MDU for the first time. In addition, the flow for expanding MDUs is included in this flow. You can select the steps according to the requirements.

- 1. Import the software file of an MDU to the NE software and configure the MDU upgrade policy. A large number of MDUs of different versions can be upgraded to the specified version automatically according to the specified area and type during the deployment after the MDU upgrade policy is configured. For details, see **17.3.1 Upgrading MDUs in Batches Automatically**.
- 2. Add an OLT to the U2000. The prerequisite for predeploying an MDU is that an OLT must be added to the U2000 and the OLT data configured on the U2000 is the same as the data configured on the OLT. For details, see **17.3.2** Adding an OLT to the U2000.
- 3. Create the global profile referenced in the network planning sheet. For details, see **17.3.3** Creating a Global Profile Referenced in the Network Planning Sheet. The global profile can be created by
 - Adding the global profile manually.
 - Generating the global profile based on an NE profile.
- 4. Fill in the network planning sheet according to the data plan and import the sheet into the U2000. For details, see 17.4.1 Filling In a Network Planning Sheet and 17.4.2 Importing a Network Planning Sheet.
- 5. Bind the MAC address or SN reported by the MDU to the IP address of the MDU. For information on how to predeploy an MDU whose MAC address or SN is unknown, see **17.4.3 (Optional) Binding a MAC Address or SN to the MDU**.
- 6. Check whether the MDU is predeployed successfully after the MDU is powered on. For details, see 17.5.1 Viewing a Pre-deployment Task and the Result.
- 7. Predeploy the MDU again if the pre-deployment fails. For details, see 17.5.2 Predeploying an MDU or ONT Again.

Figure 17-4 shows the flowchart for predeploying an xPON MDU.



Figure 17-4 Flowchart for predeploying an xPON MDU

17.3 Preparation

During this phase, you need to make sure that the devices run in the normal state and configure the profiles that the predeployment profile references.

17.3.1 Upgrading MDUs in Batches Automatically

This topic describes how to upgrade an MDU remotely on the U2000. After an MDU is powered on, the U2000 compares the type and version of the MDU with those in the configured policy for automatic MDU upgrade. If the MDU version is different from the target version in the automatic upgrade policy, the U2000 creates an automatic upgrade task to automatically upgrade the MDU. If the MDU is new to the U2000 (the information about the vendor and type of the MDU does not exist on the U2000), the U2000 automatically creates a null upgrade policy.

17.3.2 Adding an OLT to the U2000

This topic describes how to add an OLT to the U2000 before importing the MDU network planning sheet.

17.3.3 Creating a Global Profile Referenced in the Network Planning Sheet You can select a global profile in the **Default Value Policy** worksheet of the network planning sheet only after the global profile is configured on the U2000.

17.3.1 Upgrading MDUs in Batches Automatically

This topic describes how to upgrade an MDU remotely on the U2000. After an MDU is powered on, the U2000 compares the type and version of the MDU with those in the configured policy for automatic MDU upgrade. If the MDU version is different from the target version in the automatic upgrade policy, the U2000 creates an automatic upgrade task to automatically upgrade the MDU. If the MDU is new to the U2000 (the information about the vendor and type of the MDU does not exist on the U2000), the U2000 automatically creates a null upgrade policy.

Configuring the FTP, SFTP, or TFTP Service (Windows)

This topic describes how to configure and start the FTP, SFTP, or TFTP service on Windows OS. NE software communicates with the client or NEs through the FTP, SFTP, or TFTP protocol for NE upgrade, data backup, and patch installation.

Context

- The third-party tool must be started after the FTP, SFTP, or TFTP server is configured.
- The file transfer parameters set on the U2000 must be the same as the parameters set on the FTP, SFTP, or TFTP server.

Procedure

- Configuring the FTP server by using the third-party tool wftpd32.exe
 - 1. Copy the **wftpd32.exe** file to the U2000 server and double-click the file.
 - 2. In the dialog box that is displayed, choose **Security** > **Users/rights** and create a user; choose **Security** > **Host/net** and enter the IP address of the FTP server.

•	
No log file open - WFTPD	User / Rights Security Dialog
ile Edit Yiew Logging Messages Security Help	
General Users/rights Host Security Settings Nost Security Settings Default action Close Cose (Add/Update Delete Help Specific action Host address (Data address Close (Add/Update Close (Add/Update Close Cose (Cose	User Name: Itpuser Done User User Home Directory: D:\ Help Rights>>
	2

- Configuring the SFTP server by using the third-party tool msftpsrvr.exe
 - 1. Copy the **msftpsrvr.exe** file to the U2000 server and double-click the file.
 - 2. In the dialog box that is displayed, create a user.

🚺 Core FTP mini-sf	tp-server	
User: sftpus	ser	<u>S</u> tart
Password: ******	ok	<u>A</u> bout
Port: 22		
Root D3		
Connections		
address/IP	connected @	
1		

- Configuring the TFTP server by using the third-party tool tftpd32.exe
 - 1. Copy the **tftpd32.exe** file to the U2000 server and double-click the file.
 - 2. In the dialog box that is displayed, set the root directory and the IP address of the TFTP server.

🔖 Tftpd32 b	y Ph. Jounin				
Current Direc	tory D:N				Browse
Server interfa	ces 10.10.210).169		•	Show <u>D</u> ir
Tftp Server	Tftp Client S	yslog server			
Connection received from 10.71.59.63 on port 1533 Write request for file <tttp 10.71.59.63_161="" 20080508150612<br="" backup138=""><tttp backup138\10.71.59.63_161\20080508150612\ua5000(ipmb).datc<br="">Connection received from 10.71.59.63 on port 3699 Write request for file <lzf 10.71.59.63_161="" 20080508150741="" td="" ua5000(ipm="" ♥<=""></lzf></tttp></tttp>					
Current Actio	n <tftp\l< td=""><td>backup\10.7</td><th>1.59.63_161\20</th><th>080508</th><th>3162911\UA5</th></tftp\l<>	backup\10.7	1.59.63_161\20	080508	3162911\UA5
About		Settin	38		<u>H</u> elp

- Testing the communication between the FTP, SFTP, or TFTP service and the NE software
 - 1. Choose Administration > Software Management > FTP Settings from the main menu.
 - 2. In the dialog box that is displayed, click the **File Transfer Service Setting** tab to configure the parameters of the file transfer service.

TP Settings			×
Operation Third Pa	arty FTP Setting HA	Server Setting	
System Information	File Transfer	Service Setting	Transfer Protocol
Directory Setting			
File Transfer Service	Root Directory : /ftp	boot	
File Transfer Service	Configuration		
Configure FTP			
User Name :	ftpuser		
Password :	•••••		Test <u>E</u> TP
Configure SFTP			
User Name :	ftpuser	Port Number :	22
Password :	•••••		Test SFTP
Configure TFTP			
No configuration (equired for TFTP.		Test TFTP
		ОК	Cancel Apply

- File Transfer Service Root Directory configured on the U2000 must be the same as the root directory configured on the FTP, SFTP, or TFTP server. In addition, the FTP, SFTP, or TFTP server must be started.
- If the FTP protocol is used, ensure that the user name and password set in the last step are the same as the user name and password set when the FTP server is configured.
- If the SFTP protocol is used, ensure that the user name, password, and port number set in the last step are the same as the user name, password, and port number set when the SFTP server is configured.
- Click **Test FTP**, **Test SFTP**, or **Test TFTP** to check the configuration of the file transfer service.
- 3. Click the **Transfer Protocol** tab. Select a proper protocol from the **Protocol** dropdown list for file transfer between NEs and the U2000 server.

System Information	File Transfer S	Service Setting Transfer Protocol
NE Protocol Configuratior The configured protoco recover, load etc.	will be used for file	transfer operations such as backup,
NE Typ	e ^	Protocol
MA5610(V800)		TFTP 👻
MA5612(V800)		TFTP 👻
MA5616(V800)		TFTP 🔻
MA5618(V800)		TFTP 👻
MA5620(V800)		TFTP 👻
MA5620E(V800)		TFTP 👻
MA5620G(V800)		FTP 🔻
MA5626(V800)		FTP
MA5626E(V800)		SFTP
MA5626G(V800)		TFTP
MA5635(MA5635V200)		TFTP 🗸
1		



----End

Command Reference

То	Run the Command	In
Configure the file server	file-server	Privilege mode

Importing the MDU Software File

This topic describes how to import the MDU software file from the U2000 server or client to the NE software library for management. The MDU software files that the upgrade policy is applicable to include the software package file, upgrade file, and voice file (including the **Voice** file, **Profile** file, and digitmap file).

Prerequisite

The FTP, SFTP, or TFTP service must be configured and the xFTP service must be started and be running. For details, see **Configuring the FTP, SFTP, or TFTP Service (Windows)**.

Procedure

- 1 Choose Administration > NE Software Management > NE Software Library Management from the main menu.
- 2 In the list, right-click and choose **Import** from the shortcut menu.
- 3 In the dialog box that is displayed, configure the target software upgrade package of the MDU.

Import			×
MA5603T MA5603U MA5605 MA5606T MA5610 MA5612 MA5618 MA5618		Import Mode : File Type : Path :	○ <u>S</u> ingle Resource ● <u>W</u> hole Version ▼ D:/U2000/Ver.ini … *
	•	Version : Description :	MA5600V800R308C00 *
			OK Cancel Apply

If a patch needs to be installed for the device of the corresponding version, import the patch file first. For details, see the release notes for the patch.

In the **Version** field, enter the target version. Ensure that the target version is the same as the target version of the MDU.

4 Click OK.

----End

Command Reference

То	Run the Command	In
Query the language and current version of the MDU	display language	Common user mode

Configuring the ONU Upgrade Policy

When a plug-in/plug-out MDU is powered on, or a faulty MDU is replaced with a new one, you can configure the MDU policy to upgrade the NE(s) automatically. When an ONU is powered on, the U2000 automatically compares the current version of the ONU with the target version in the ONU upgrade policy. If the current version of the ONU is different from the target version in the ONU upgrade policy, the U2000 automatically upgrades the ONU to the target version. If a voice file exists in the software library, the U2000 also loads the voice file when upgrading the ONU.

Prerequisite

- The NE software must work in the normal state and the NE software process must be started.
- The U2000 must work in the normal state.
- The software package has been imported to the software library.

Procedure

• Path one:

- 1. Choose Administration > NE Software Management > Auto Upgrade Policy from the main menu.
- 2. In the window that is displayed, choose the required branch according to the type of the NE to be upgraded from the navigation tree in the left pane. Then, select the required NE type from the NE list in the right pane.
- 3. Click **Configure Upgrade Version** next to the selected NE type. In the dialog box that is displayed, select the required version from the **Upgrade Version** drop-down list and select the load file. Click **OK**.

After you select the required version from the **Upgrade Version** drop-down list, the NE software management module automatically imports the patch or package file that matches the version from the software library.

- 4. Click **OK**.
- After the ONU upgrade policy is configured, the NE software automatically creates an upgrade task. Choose Administration > NE Software Management > NE Upgrade Task Management from the main menu. On the NE Upgrade Task Management tab page, view the task information.
- Path two:
 - 1. Choose Configuration > FTTx Service Pre-Deployment > Configure MDU Upgrade Policy from the main menu.
 - 2. In the dialog box that is displayed, choose the type of the NE to be upgraded. Then, select the required NE from the list, right-click, and then choose **Modify Policy**.
 - 3. In the dialog box that is displayed, set **Policy Status** to **Run**, select the required version from the **Target Version** drop-down list and the load file.

After you select the required version from the **Target Version** drop-down list, the NE software management module automatically imports the patch or package file that matches the version from the software library.

4. Click OK.

----End

Result

After the configuration, the upgrade policy is automatically run in the following circumstances:

- When a plug and play MDU is powered on, the U2000 automatically upgrades it to the target version according to the policy.
- After a faulty MDU is replaced with a new one, the U2000 automatically rolls back it to the original version before the fault occurs according to the policy.

Choose Administration > Task Schedule > Scheduling Center from the main menu. On the Scheduling Center tab page, view the execution status of the task.

17.3.2 Adding an OLT to the U2000

This topic describes how to add an OLT to the U2000 before importing the MDU network planning sheet.

Prerequisite

- The inband or outband IP address and SNMP parameters of the OLT and the route between the OLT and the U2000 must be set.
- The FTP service of the U2000 server must be started in the normal state. For details, see **Configuring the FTP, SFTP, or TFTP Service (Windows)**.

Context

If the OLT has been added to the U2000, to ensure that the data on the U2000 is the same as the data on the OLT, right-click the OLT in the Main Topology and choose **Synchronize NE Data** from the shortcut menu.

Procedure

- 1 In the Main Topology, choose **Physical Root** or an NE from the navigation tree, right-click in the topology view in the right pane, and then choose **New** > **NE** from the shortcut menu.
- 2 In the dialog box that is displayed, set the parameters such as the IP address and name of the NE.

3 Click OK.

----End

17.3.3 Creating a Global Profile Referenced in the Network Planning Sheet

You can select a global profile in the **Default Value Policy** worksheet of the network planning sheet only after the global profile is configured on the U2000.

Context

You can create a global profile that is referenced in the network planning sheet by

- Adding the global profile manually.
- Generating the global profile based on an NE profile.

Procedure

• Adding a global profile manually

Function	Global Profile	Remarks
Profiles to be added in GPON profile mode	• 19.1.1 Configuring an MDU SNMP Profile	These profiles must be applied to the OLT.
	• 19.1.2 Configuring a DBA Profile	
	• 19.1.3 Configuring a GPON Line Profile	
	• 19.2.2 Configuring an MEF IP Traffic Profile	-
	• 19.2.8 Configuring a Program Profile	
	• 19.2.9 Adding a Multicast Rights Profile	
	• 19.3.9 Adding an MGC Profile	
	• 19.3.10 Configuring a UAS Profile	
	• 19.3.11 Adding a TID Profile	

Function	Global Profile	Remarks
Profiles to be added in GPON discrete mode	 19.1.1 Configuring an MDU SNMP Profile Configuring an ONT Capability Profile 19.1.2 Configuring a DBA Profile 	An ONT capability profile must match the hardware capability of the ONT to which the profile is bound. Otherwise, certain configuration data cannot be applied. The global profile of the ONT capability profile must be configured on the U2000. In addition, the same ONT capability profile must be created on the U2000 and OLT. Otherwise, the network planning sheet cannot be imported into the U2000. These profiles must be
	 19.2.2 Configuring an MEF IP Traffic Profile 19.2.8 Configuring a Program Profile 19.2.9 Adding a Multicast Rights Profile 19.3.9 Adding an MGC Profile 19.3.10 Configuring a UAS Profile 19.3.11 Adding a TID Profile 	-
Profiles to be added in EPON profile mode	 19.1.1 Configuring an MDU SNMP Profile 23.1.2 Configuring a DBA Profile 23.1.3 Configuring a Line Profile 	These profiles must be applied to the OLT.

Function	Global Profile	Remarks
	• 19.2.2 Configuring an MEF IP Traffic Profile	-
	• 19.2.8 Configuring a Program Profile	
	• 19.2.9 Adding a Multicast Rights Profile	
	• 19.3.9 Adding an MGC Profile	
	• 19.3.10 Configuring a UAS Profile	
	• 19.3.11 Adding a TID Profile	

• Generating a global profile based on an NE profile

This section considers the EPON DBA profile as an example to describe how to generate a global profile based on an NE profile. The procedures for operating all profiles are the same but differ in the navigation path.

- 1. 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.
- 2. Choose **Configuration** > **Access Profile Management** > **EPON Profile** from the main menu.
- 3. Click the **DBA Profile** tab.
- 4. Right-click the required profile in the list and choose **Generate Global Profile** from the shortcut menu.
- 5. In the dialog box that is displayed, click **OK**.

----End

17.4 Operations on Sheets

During this phase, you need to perform relevant operations on sheets.

17.4.1 Filling In a Network Planning Sheet

This topic describes how to obtain and fill in a network planning sheet. In addition, this topic describes the contents of the sheet. A network planning sheet can be imported into the U2000 after you fill in the sheet correctly.

17.4.2 Importing a Network Planning Sheet

The predeployed NE is generated on the U2000 after you import a network planning sheet into the U2000.

17.4.3 (Optional) Binding a MAC Address or SN to the MDU

The **Authentication Information** parameter is optional in the network planning sheet. If the MAC address or SN of an MDU is unknown, you need to bind the MAC address or SN and the IP address of the MDU after the MDU goes online and is auto-discovered. Then, you can apply the predeployed data to the MDU on the U2000.

17.4.1 Filling In a Network Planning Sheet

This topic describes how to obtain and fill in a network planning sheet. In addition, this topic describes the contents of the sheet. A network planning sheet can be imported into the U2000 after you fill in the sheet correctly.

Prerequisite

The global profile that has the same name as the profile whose name is filled in the sheet must exist on the U2000. For information on how to configure the profile, see **17.3.3 Creating a Global Profile Referenced in the Network Planning Sheet**.

Procedure

1 Obtain the network planning sheet from the installation path of the U2000.

The name of the network planning sheet is **Networking Planning Sheet (xPON).xls**, where x represents G or E. The paths to the network planning sheet vary with the types of the operating systems (OSs), as follows:

- Windows-based server: X:\U2000\client\template\MDU Pre-Deploy\en\, where x indicates the name of the disk, such as D, E, and F.
- Solaris-based server: /opt/U2000/client/template/MDU Pre-Deploy/en

The network planning sheet is forward compatible. To learn the instructions on how to use the network planning sheet and the precautions, open the network planning sheet and read the contents in **Instructions**.

2 Double-click a blank network planning sheet and fill in the sheet.

Configure IPTV services instead of broadband services in the **Data Plan** worksheet if the broadband services and IPTV services use the same service stream.

• The **Data Plan** worksheet contains parameters particular to an MDU to be predeployed. These parameters can be classified into two parts: **ONU Management Information** and **E2E Service Channel Data**.

Configure IPTV services instead of broadband services in the **Data Plan** worksheet if the broadband services and IPTV services use the same service stream.

- Parameter settings in ONU Management Information of an ONU must be unique and cannot conflict with other ONUs. The parameters include ONU ID, ONU Description (ONU name displayed on the U2000), ONU Management IP Address, and Authentication Information. If the MAC address or SN of the ONU is unknown, the authentication information can be blank.
- An E2E service channel is used by the U2000 to manage the MDU. You can deploy services such as broadband and IPTV services after the E2E service channel is set up and the MDU goes online and becomes stable.
- The Default Value Policy worksheet defines Management Channel Parameters, GEM Port Channel Parameters, OLT Service Channel, ONU Service Channel, Voice IP Address Pool, Voice Service (H.248, SIP, and MGCP), and Multicast User. These parameters are effective in the entire network.
- In the **Data Plan** worksheet of the network planning sheet, select an ONU type from the **ONU Type** drop-down list. In the dialog box that is displayed, click **OK**. Then, a worksheet

is automatically generated for the ONU in the network planning sheet. This is the worksheet of the common command configuration script.

#the execute mode of command configuration script .	
	-
Telnet	
File	
#the prepositive common command configuration script .	_
#the postpositive common command configuration script .	_

The contents in the common command configuration script are the same as the commands on the ONU. This worksheet collects certain common scripts for editing and then applying to the ONU. You can copy the edited commands to the common command configuration script.

By default, some prepositive common commands and postpositive common commands are generated when you generate the resource planning sheet.

Key Parameter	Description
the execute mode of command configurati on script	Indicates that the command configuration script is run in file loading mode or Telnet mode in the network planning sheet.
the prepositive common	Specifies the operations contained in the command prescript. For example, the creation of an ADSL line profile can be specified in the prescript because the creation is not supported in the network planning sheet.
command configurati on script	Such as the commands that are used to configure security policies and access control list (ACL), are saved in the prepositive common command configuration script .
	NOTE By default, some prepositive common commands are generated when you edit the network planning sheet.
the postpositiv e common command configurati on script	Specifies the commands that must be executed after data configuration. NOTE By default, some postpositive common commands are generated when you edit the network planning sheet.

3 After filling in the network planning sheet, click Verify Data in the Data Plan worksheet to verify the contents in the worksheet.

If an error exists in the network planning sheet, the cause of the error is provided in the blank area at the end of the line.

The data verification performed by the network planning sheet is not complete. To ensure data accuracy, it is recommended that you check the contents carefully.

----End

Other Operations on the Planning Sheet

Button	Description
Generate Network Deployment Sheets for Deployment	Exports the data plan to Resource Deployment Sheet.
Generate Network Deployment Sheets for Service Capacity Expansion	
User Define Sheetform	Displays the customized operations on the U2000 and broadband, IPTV, VoIP, and reserved services. If you select certain parameters, these parameters are displayed in the Data Plan and Default Value Policy worksheets. In addition, the parameters that are not selected are hidden after you customize the operations.
Clear Form	Clears the data in the current worksheet.
Add a Row	Adds an empty row above the row where the cursor points in the current worksheet.
Delete a Row	Deletes the row where the cursor points from the current worksheet.
Show Comments/Hide Comments	Displays or hides remarks. In the Data Plan worksheet, the remarks, including the definition, range, navigation path of each parameter and the information about whether the parameter is mandatory or not, are provided in the cell above the parameter. You can click View Remarks or Hide Remarks to display or hide the remarks.
Chinese/English	Switches the language of the descriptions in the table between Chinese and English.

17.4.2 Importing a Network Planning Sheet

The predeployed NE is generated on the U2000 after you import a network planning sheet into the U2000.

Prerequisite

- The preparations must be complete. For details, see 17.3.1 Upgrading MDUs in Batches Automatically, 17.3.2 Adding an OLT to the U2000, and 17.3.3 Creating a Global Profile Referenced in the Network Planning Sheet.
- The dependent processes of subtasks must be started. The names of the relevant processes are Access Device Common Service, Access Device Manager, Profile Manager, and xFtpWatcher Process.

Procedure

- 1 Choose Configuration > FTTx Service Pre-Deployment > Import Network Deployment Sheets from the main menu.
- 2 In the dialog box that is displayed, select the network planning sheet to be deployed and click **Open**.
- 3 After importing the network planning sheet, click **OK**.
- 4 The U2000 automatically performs the pre-deployment task after the MDU is powered on. Choose Administration > Task Schedule > Scheduling Center from the main menu. Then, you can view the execution status of the pre-deployment task.

Two types of pre-deployment tasks are displayed in the scheduling center, that is, OLT tasks and ONU tasks. For example, when two MDUs are deployed on an OLT, three tasks are displayed in the scheduling center, that is, one deployment task of the OLT and two deployment tasks of the MDUs.

----End

17.4.3 (Optional) Binding a MAC Address or SN to the MDU

The **Authentication Information** parameter is optional in the network planning sheet. If the MAC address or SN of an MDU is unknown, you need to bind the MAC address or SN and the IP address of the MDU after the MDU goes online and is auto-discovered. Then, you can apply the predeployed data to the MDU on the U2000.

Prerequisite

- The U2000 must work in the normal state.
- The auto-discovery of the xPON port must be enabled. For details, see **Confirming a GPON MDU** or **Confirming an EPON MDU**.

Procedure

- Binding the SN and IP address of a GPON MDU if the MDU uses the SN for authentication
 - 1. Choose Configuration > FTTx Service Pre-Deployment > GPON MDU Batch Bind SN from the main menu.
 - 2. In the dialog box that is displayed, enter the IP address of the MDU to which the SN is bound in the **IP** field, and select SN that the construction engineer on site provides from the **SN** drop-down list.
 - 3. Click OK.
- Binding the MAC address and IP address of an EPON MDU if the MDU uses the MAC address for authentication.

- 1. Choose Configuration > FTTx Service Pre-Deployment > EPON MDU Batch Bind MAC from the main menu.
- 2. In the dialog box that is displayed, enter the IP address of the MDU to which the MAC address is bound in the **MDU Management IP** field, and select the MAC address that the construction engineer on site provides from the **MAC** drop-down list.
- 3. Click **OK**.

----End

17.5 Acceptance

During this phase, you need to perform an acceptance test on the predeployment task.

17.5.1 Viewing a Pre-deployment Task and the Result

Viewing a pre-deployment task and the service data of the predeployed MDU helps you determine whether the MDU is predeployed successfully.

17.5.2 Predeploying an MDU or ONT Again

You need to find out the failure cause if an MDU or ONT fails to be predeployed. Then, import the network planning sheet into the U2000 again. Then, the U2000 automatically performs the MDU pre-deployment task.

17.5.1 Viewing a Pre-deployment Task and the Result

Viewing a pre-deployment task and the service data of the predeployed MDU helps you determine whether the MDU is predeployed successfully.

Procedure

• Viewing a pre-deployment task in the scheduling center

- 1. Choose Administration > Task Schedule > Scheduling Center from the main menu.
- 2. On the tab page that is displayed, choose **Deployment Task** from the navigation tree. In the task list, select a task and view the details.

Workbench Scheduling Center 🗙								
Scheduling Center								
Task Classification		All						
- D Global Profile Task	ľ	Task Status 🛆	Result 🛆		Task Na 🛆	Exe	cution Type 🛆	Exec
Deployment Task	I	X	-			Immediate	task	
TL1 Offline Configuration	I	X	-			Immediate	task	
- MDU Remote Acceptance	I	X	-			Immediate	task	
			The task had executed suc	ceeded.	Delivering	Immediate	task	100%
Detail Info Log Info Job Information								
		State	Result		Device Nar	me	Device IP	
		Finished	Succeeded	10.7	8.217.131		10.78.217.131	

3. If the scheduling of a pre-deployment task fails, click the **Log Info** tab, right-click the failed task and choose **Log Details** from the shortcut menu. Then, you can view the details in logs.

Scheduling Center				
Task Classification	All			
	Task Status 🛆	Result 🛆	Task Na 🛆	Execution Type 🛆
Deployment Task	×			Immediate task
TL1 Offline Configuration	8			Immediate task
— 🗋 MDU Remote Acceptance		The task had executed succee	ded. Delivering A	Immediate task
	X			Immediate task
	Detail Info Log Info	Job Information		
	Start Date	Start Time	End Date	End Time
	03/02/2010	09:39 0	03/02/2010	09:39
		Log Details		

• Viewing the service data of the predeployed MDU

Navigate to the MDU NE to view the application status of service data and determine whether the MDU is predeployed successfully. Only the NE management data of the MDU will be synchronized in the MDU pre-deployment to improve upgrade efficiency. Therefore, the NE data of the predeployed MDU must be synchronized before you view the service data of the MDU.

1. In the Main Topology, right-click the required MDU in the **Physical Root** navigation tree and choose **Synchronize NE Data** from the shortcut menu.



2. Double-click the MDU node to verify the service data after the NE data is synchronized.

----End

17.5.2 Predeploying an MDU or ONT Again

You need to find out the failure cause if an MDU or ONT fails to be predeployed. Then, import the network planning sheet into the U2000 again. Then, the U2000 automatically performs the MDU pre-deployment task.

Context

• The data of previously predeployed OLT, MDU, or ONT will be deleted automatically when you predeploy them again.

• Predeploying an OLT, MDU, or ONT again will be slow because the data of the previously previous deployed data needs to be deleted when you predeploy them again.

 Table 17-1 describes the common problems and solutions to network planning sheets.

Common Problem	Solution
The system displays an error message "Name of the ONT capability profile repeats the default profile name ranging from ont-profile_1 to ont- profile_128" when you import the network planning sheet into the U2000.	This problem can be resolved by changing the profile name. The MDU does not allow the U2000 to apply a profile named by following the default naming rules, such as the ONT capability profile and DBA profile, to the MDU. If you need to use the profile named by following the default naming rules, create this profile on the MDU directly, synchronize the profile to the U2000, and then generate a global profile from the NE profile.
The system displays the message "Network transmission times out. Please try again later" when you import the network planning sheet to the U2000 and verify the service data of the MDU.	This problem can be resolved by importing the network planning sheet again into the U2000. You need to check the memory usage of the server. Increase the memory to prevent this problem from occurring again if the available memory is less than 4 GB.
The system displays the message "Device name contains invalid characters" when you import the network planning sheet into the U2000 and verify the service data of the MDU	You need to check and ensure that the device name in the network planning sheet does not contain any unsupported special characters.

Table 17-1 The common problems and solutions to network planning sheets

 Table 17-2 describes the common problems occurred when tasks are performed on the OLT and solutions to these problems.

Table 17-2 The common problems occurred when tasks are performed on the OLT and solutions to these problems

Common Problem	Solution
The system displays the message "The subitem resource is insufficient so that the task stopped" when the tasks are performed on the OLT. After you click the Log Info tab and double-click the failed task to view the failure cause, the message "VLAN already exists" is displayed.	To resolve this problem, change the type and attribute of this VLAN on the OLT and ensure that the VLAN type and attribute are the same as those of the predeployed VLAN. This problem occurs because the OLT already has a VLAN that has the same VLAN ID but different VLAN type and attribute from the VLAN preset in the network planning sheet.

Common Problem	Solution
When performing the subtask of deploying service virtual ports in the process of MDU pre- deployment, the system displays the message "Database operation failed."	This problem occurs because the data on the U2000 and MDU is different. If the system displays this message when performing an OLT task, synchronize the service virtual port data of the OLT and import the network planning sheet into the U2000 again; if the system displays this message when performing an MDU task, delete the MDU and import the network planning sheet again.
The system displays the message "The message transmitted by MDP failed" in the process of performing an OLT task when you predeploy an MDU again.	To resolve this problem, check and ensure that the processes relevant to the subtasks of the pre-deployment are started.

 Table 17-3 describes the common problems occurred when tasks are performed on the MDU and solutions to these problems.

 Table 17-3 The common problems occurred when tasks are performed on the MDU and solutions to these problems.

Common Problem	Solution
The system displays the message "The subitem resource is insufficient so that the task stopped" when the Synchronize physical resource data of NE task is performed.	To resolve this problem, choose Administration > Settings > xFtpWatcher from the main menu and ensure that the status indicator is green.
The system displays a failure and the message "Incorrect parameter" is recorded in logs when the Import network planning sheet of service virtual ports task is performed.	To resolve the problem, ensure that the service virtual ports of xDSL ports are configured with VPIs and VCIs.

Procedure

- 1 Choose Configuration > FTTx Service Pre-Deployment > Import Network Deployment Sheets from the main menu.
- 2 In the dialog box that is displayed, select the modified network planning sheet and click **Open**.
- 3 Click Finish after the network planning sheet is imported into the U2000.

----End

17.6 Configuration Example of xPON MDU Pre-deployment

This topic considers the scenario wherein a GPON MDU (MA5620G) is connected to an OLT as an example to describe how to predeploy an xPON MDU.

Prerequisite

- This configuration example describes only how to predeploy an xPON MDU. For information about MDU automatic upgrade, see 17.3.1 Upgrading MDUs in Batches Automatically.
- The OLT must be in profile mode.
- This topic considers the scenario wherein the SN of the xPON MDU is unknown as an example.
- This topic considers the Windows-based server as an example.
- This topic considers broadband and narrowband services as examples.

Configure IPTV services instead of broadband services in the **Data Plan** worksheet if the broadband services and IPTV services use the same service stream.

Context

Table 17-4 and Table 17-5 provide the data that must be planned in the network planning sheet.

Configura tion Item	Data Plan	Remarks
U2000 server	192.168.50.17	The U2000 server needs to use ports 23, 8080, 9801, and 9803. Therefore, ensure that these ports are enabled on the firewall so that the U2000 server can communicate with NEs successfully.
OLT	 IP Address: 192.168.20.100 Management mode: inband Upstream port: 0/0/1 Upstream VLAN: 1000 GPON port: 0/5/0 	The upstream VLAN is the same as the native VLAN of the upstream port.
Profile referenced in a network planning sheet	 DBA profile Name: dba-profile_mdu Bandwidth Compensation: Yes Accept the default values for other parameters. 	-

Table 17-4 Data plan in the preparation phase

Configura tion Item	Data Plan	Remarks
	Line profile Name: line-profile_mdu Manning Mada: VI AN 	-
	 Mapping Mode: VLAN Qos Mode: Priority Queue T-CONT Index: 1 	
	 DBA Profile Name: dba- profile_mdu CEN(P+t) 	
	 GEM Port Index: 1 Accept the default values for other parameters. 	
	MDU SNMP profile Name: snmpprofile SNMP Version: v1 	-
	Read Name: publicWrite Name: private	
	 Trap Host IP: 192.168.50.17 Trap UDP Port: 162 SNMP Security Name: public 	
	MEF IP traffic profile	-
	Name: traffic-profile_1CIR: 64Kbit/s	
	 Outer Priority: 1 Accept the default values for other parameters. 	
	MGC Profile • Name: mgcprofile1	-
	 Protocol Type: H.248 IP Address1: 200.200.200 (IP address of the MGC) UTP/SCTP Port Number: 2944 	
	TID Profile • Name: tid-profile_1 • Format: %u • Parameter List: r	A TID profile must be used when termination IDs are configured hierarchically.

Configura tion Item	Data Plan	Remarks
Data Plan	• OLT IP Address: 192.168.20.100	-
	• PON Port: 0/5/0	
	• ONU ID: 0	
	• ONU Description: Building F in company B, City S	
	• ONU Type: MA5620G	
	• ONU Management IP Address: 192.168.20.10	
	• ONU Management IP Mask: 24	
	• ONU Gateway: 192.168.20.1	
	• Network Management	
	- GEMPORT: 1	
	- CVLAN: 100	
	- SVLAN: 100	
	• Boardband	
	- GEMPORT: 1	
	- CVLAN: 1001	
	- SVLAN: 1001	
	• VoIP	
	- GEMPORT: 1	
	- CVLAN: 2000	
	- SVLAN: 2000	
	- Voice Address Mode: static IP	
	- Voice IP Address: 10.121.68.28	
	- Voice IP Mask: 24	
	- Voice Gateway: 10.121.68.1	
	 MGC Domain Name: 001882D4C6FE-BGW 	

Table 17-5 Data plan in a network planning sheet

Configura tion Item	Data Plan	Remarks
Default Value Policy	 Management Channel Parameters ONU Type: MA5620G Authentication Mode: SN 	-
Policy	 Authentication Mode: SN Line Profile Name: line-profile_mdu MxU SNMP Profile Name: snmpprofile IP Address of the U2000 Static Route: 192.168.20.17 IP Mask of the U2000 Static Route: 24 Management Mode: SNMP Mapping Mode: VLAN GEM Port Channel Parameters: Create a GEM port whose Service Name is Broadband and a GEM port whose Service Name is Broadband and a GEM port whose Service Name is Voice in the same way. Service Name: Network Management Service Type: ETH Encryption Switch: off Subtending Switch: off T-CONT ID: 1 DBA Profile Name: dbaprofile_mdu OLT Service Channel: Create an OLT service channel whose Service in the same way. 	
	downstream traffic profile for the OLT service channel of voice services.	
	Management - SVLAN Type: smart	
	 SVLAN Attribute: Common SVLAN Upstream Port: 0/19/0 	
	 Upstream Traffic Control Profile: traffile profile 1 	

Configura tion Item	Data Plan	Remarks
	- Downstream Traffic Control	
	 ONU Service Channel: Create an ONU service channel whose Service Name is Voice in the same way. Do not set the names of the upstream traffic profile and downstream traffic profile, VPI, and VCI for the OLT service channel of voice services. 	
	- ONU Type: MA5620G	
	- Service Name: Broadband	
	- CVLAN Type: smart	
	- CVLAN Attribute: Common	
	- CVLAN Upstream Port: 0/0/1	
	 Upstream Traffic Control Profile: traffile_profile_1 	
	 Downstream Traffic Control Profile: traffile_profile_1 	
	- VPI: 8	
	- VCI: 35	
	• VoIP IP Address Pool	
	- ONU Type: MA5620G	
	- IP Type: Media	
	- QoS Policy: TOS	
	- IP Priority: 0	
	- TOS: 0	
	• H.248 Voice Service	
	- ONU Type: MA5620G	
	- MID Type: MG Domain Name	
	- Protocol Port Number: 2944	
	- Transmission Mode: UDP	
	 Name of the Active MGC Profile: mgcprofile1 	
	- Profile Index: 5	
	 Start Negotiation Version Number: Depend on profile 	
	- RTP Terminal Prefix: A	
	 Name of the TID Profile Used by the RTP: tidprofile1 	

Configura tion Item	Data Plan	Remarks
MA5620G	the execute mode of command configuration script: File	-

Procedure

- 1 Adding an OLT to the U2000 (For details, see 17.3.2 Adding an OLT to the U2000.)
 - 1. In the Main Topology, choose **Physical Root** or an NE from the navigation tree, right-click in the topology view in the right pane, and then choose **New** > **NE** from the shortcut menu.
 - 2. In the dialog box that is displayed, set the parameters.
 - IP Address: 192.168.20.100
 - Device Name: 192.168.20.100-MA5680T
 - 3. Click OK.
- 2 Configuring the profile referenced in the network planning sheet (For details, see 17.3.3 Creating a Global Profile Referenced in the Network Planning Sheet.)
 - 1. Configuring a DBA profile. (For details, see 19.1.2 Configuring a DBA Profile.)
 - a. Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - 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: dba-profile_mdu
 - Bandwidth Compensation: Yes
 - Accept the default values for other parameters.
 - 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. Configuring a line profile (For details, see 19.1.3 Configuring a GPON Line Profile.)

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, multicast, and voice services.

- a. Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
- 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
- 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: dba-profile_mdu
- 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
- 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 parameters.
 - GEM Connection Index: 0 (this parameter is set to 0 automatically)
 - VLAN ID: 4000 (management VLAN ID)
 - Priority: 1
- 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 parameters.
 - GEM Connection Index: 1 (this parameter is set to **1** automatically)
 - VLAN ID: 1001 (VLAN ID of the Internet service)
 - Priority: 2
- 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 parameters.
 - GEM Connection Index: 3 (this parameter is set to 3 automatically)
 - VLAN ID: 2000(VLAN ID of the voice service)
 - Priority: 1
- 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. Configuring an MDU SNMP profile (For details, see 19.1.1 Configuring an MDU SNMP Profile.)
 - a. Choose **Configuration** > **Access Profile Management** > **MDU SNMP Profile** from the main menu.
 - b. Click the MDU SNMP 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: snmpprofile
 - SNMP Version: v1
 - Read Name: public

- Write Name: private
- Trap Host IP: 192.168.50.17 (IP address of the U2000 server)
- Trap UDP Port: 162
- SNMP Security Name: public
- 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. Configuring an MEF IP traffic profile (For details, see 19.2.2 Configuring an MEF IP Traffic Profile.)
 - a. Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - 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: traffile_profile_1
 - CIR: 20480
 - Outer Priority: 1
 - e. Click OK.
- 5. Configuring an MGC profile (For details, see 19.3.9 Adding an MGC Profile.)
 - a. Choose **Configuration** > **Access Profile Management** > **MGC Profile** from the main menu.
 - b. Right-click and choose Add Global Profile from the shortcut menu.
 - c. In the dialog box that is displayed, set the parameters.
 - Name: mgcprofile1
 - Protocol Type: H.248
 - IP Address1: 200.200.200 (IP address of the MGC)
 - UTP/SCTP Port Number: 2944
 - d. Click OK.
- 6. Configuring a TID profile (For details, see 19.3.11 Adding a TID Profile.)
 - a. Choose **Configuration** > **Access Profile Management** > **TID Profile** from the main menu.
 - b. Right-click and choose Add Global Profile from the shortcut menu.
 - c. In the dialog box that is displayed, set the parameters.
 - Name: tid-profile_1
 - Format: %u
 - Parameter List: r
 - d. Click **OK**.
- 3 Filling in the network planning sheet (For details, see 17.4.1 Filling In a Network Planning Sheet.)

- 1. Navigate to the path X:\U2000\client\template\MDU Pre-Deploy\en\ on the Windowsbased server, and double-click the Network Planning Sheet(GPON).xls file.
- 2. In the **Data Plan** sheet, set the parameters as follows:
 - OLT IP Address: 192.168.20.100
 - PON Port: 0/5/0
 - ONU ID: 0
 - ONU Description: Building F in company B, block L, City S
 - ONU Type: MA5620G
 - ONU Management IP Address: 192.168.20.10
 - ONU Management IP Mask: 24
 - ONU Gateway: 192.168.20.1
 - Network Management
 - GEMPORT: 1
 - CVLAN: 100
 - SVLAN: 100
 - Broadband
 - GEMPORT: 1
 - CVLAN: 1001
 - SVLAN: 1001
 - VoIP
 - GEMPORT: 1
 - CVLAN: 2000
 - SVLAN: 2000
 - Voice Address Mode: static IP
 - Voice IP Address: 10.121.68.28
 - Voice IP Mask: 24
 - Voice Gateway: 10.121.68.1
 - MGC Domain Name: 001882D4C6FE-BGW
- 3. In the **Default Value Policy** sheet, set the parameters as follows:
 - Management Channel Parameters
 - ONU Type: MA5620G
 - Authentication Mode: SN
 - Line Profile Name: line-profile_mdu
 - MxU SNMP Profile Name: snmpprofile
 - IP Address of the U2000 Static Route: 192.168.20.17
 - IP Mask of the U2000 Static Route: 24
 - Management Mode: SNMP
 - Mapping Mode: VLAN
 - GEM Port Channel Parameters: Create a GEM port whose Service Name is Broadband and a GEM port whose Service Name is Voice in the same way.

- Service Name: Network Management
- Service Type: ETH
- Encryption Switch: off
- Subtending Switch: off
- T-CONT ID: 1
- DBA Profile Name: dba-profile_mdu
- OLT Service Channel: Create an OLT service channel whose Service Name is **Broadband** and an OLT service channel whose Service Name is Voice in the same way. Do not set the names of the upstream traffic profile and downstream traffic profile for the OLT service channel of voice services.
 - Service Name: Network Management
 - SVLAN Type: smart
 - SVLAN Attribute: Common
 - SVLAN Upstream Port: 0/19/0
 - Upstream Traffic Control Profile: traffile_profile_1
 - Downstream Traffic Control Profile: traffile_profile_1
- ONU Service Channel: Create an ONU service channel whose **Service Name** is **Voice** in the same way. Do not set the names of the upstream traffic profile and downstream traffic profile, VPI, and VCI for the OLT service channel of voice services.
 - ONU Type: MA5620G
 - Service Name: Broadband
 - CVLAN Type: smart
 - CVLAN Attribute: Common
 - CVLAN Upstream Port: 0/0/1
 - Upstream Traffic Control Profile: traffile_profile_1
 - Downstream Traffic Control Profile: traffile_profile_1
 - VPI: 8
 - VCI: 35
- VoIP IP Address Pool
 - ONU Type: MA5620G
 - IP Type: Media
 - QoS Policy: TOS
 - IP Priority: 0
 - TOS: 0
- H.248 Voice Service
 - ONU Type: MA5620G
 - MID Type: MG Domain Name
 - Protocol Port Number: 2944
 - Transmission Mode: UDP
 - Name of the Active MGC Profile: mgcprofile1
 - Profile Index: 5

- Start Negotiation Version Number: Depend on profile
- RTP Terminal Prefix: A
- Name of the TID Profile Used by the RTP: tidprofile1
- 4. In the MA5620G sheet, set the execute mode of command configuration script to File.
- 5. Choose **File** > **Save** from the main menu to save the sheet.
- 4 Importing the network planning sheet (For details, see 17.4.2 Importing a Network Planning Sheet.)
 - 1. Choose Configuration > FTTx Service Pre-Deployment > Import Network Deployment Sheets from the main menu.
 - 2. In the dialog box that is displayed, select Network Planning Sheet(GPON).xls and click Open.
 - 3. After importing the network planning sheet, click **OK**.
- 5 Binding the MDU and its SN (For details, see 17.4.3 (Optional) Binding a MAC Address or SN to the MDU.)
 - 1. Choose Configuration > FTTx Service Pre-Deployment > GPON MDU Batch Bind SN from the main menu.
 - 2. In the dialog box that is displayed, enter the IP address of the MDU that is to be bound to the SN in the **MDU Management IP** field, and select the SN provided by installation engineers from the **SN** drop-down list.
 - 3. Click OK.

----End

Result

See **17.5.1 Viewing a Pre-deployment Task and the Result** to determine whether the MA5626G is predeployed successfully.

18 Predeploying xPON ONTs

About This Chapter

A large number of ONTs need to be deployed in the xPON FTTH network. ONTs can be bulk imported into the U2000 by means of a network planning sheet. The bulk operation simplifies and speeds up the ONT deployment so that the costs of building networks are reduced.

Context

xPON ONTs are classified into GPON ONTs and EPON ONTs.

18.1 Example Network of xPON ONT Pre-deployment

When predeploying an xPON ONT, ensure that the OLT applies channel configurations to the ONT after the optical path between the OLT and the ONT is enabled. In this case, the U2000 can manage the ONT.

18.2 Configuration Flow of xPON ONT Pre-deployment

This topic describes how to predeploy an xPON ONT. Predeploying an xPON ONT is divided into two phases: ONT auto-discovery and ONT auto-configuration. Basic parameters are set in the ONT auto-discovery phase to meet the requirements for ONT auto-configuration. By using the ONT auto-configuration function, the upgrade and service data configuration of the ONT are automatically configured after the ONT is powered on. In this case, the ONT can carry services immediately after power-on.

18.3 Preparation

During this phase, you need to make sure that the devices run in the normal state and configure the profiles that the predeployment profile references.

18.4 Operations on Sheets

During this phase, you need to perform relevant operations on sheets.

18.5 Acceptance During this phase, you need to perform an acceptance test on the predeployment task.

18.6 Configuration Example of xPON ONT Pre-deployment

This topic considers the scenario wherein an EPON ONT (850e) is connected to an OLT as an example to describe how to predeploy an xPON ONT.

18.1 Example Network of xPON ONT Pre-deployment

When predeploying an xPON ONT, ensure that the OLT applies channel configurations to the ONT after the optical path between the OLT and the ONT is enabled. In this case, the U2000 can manage the ONT.

Context

Figure 18-1 shows the example network of xPON ONT pre-deployment.



Figure 18-1 Example network of xPON ONT pre-deployment
18.2 Configuration Flow of xPON ONT Pre-deployment

This topic describes how to predeploy an xPON ONT. Predeploying an xPON ONT is divided into two phases: ONT auto-discovery and ONT auto-configuration. Basic parameters are set in the ONT auto-discovery phase to meet the requirements for ONT auto-configuration. By using the ONT auto-configuration function, the upgrade and service data configuration of the ONT are automatically configured after the ONT is powered on. In this case, the ONT can carry services immediately after power-on.

Context

The following section describes the flow of how to predeploy an xPON ONT for the first time. In addition, the flow for expanding ONTs is included in this flow. You can select the steps according to the requirements.

- 1. Ensure that the OLT is added to the U2000 and the OLT data on the U2000 is the same as the OLT data on the ONT. For details, see **18.3.1 Adding an OLT to the U2000**.
- 2. You can add a global profile or generate a global profile based on the NE profile. For details, see 17.3.3 Creating a Global Profile Referenced in the Network Planning Sheet.
- 3. Fill in the network planning sheet according to the data plan and import the sheet to the U2000. For details, see 17.4.1 Filling In a Network Planning Sheet and 17.4.2 Importing a Network Planning Sheet.
- 4. Check whether the ONT is predeployed successfully after the ONT is powered on. For details, see 17.5.1 Viewing a Pre-deployment Task and the Result.
- 5. Predeploy the ONT again if the pre-deployment fails. For details, see **18.5.2 Predeploying** an MDU or ONT Again.

Figure 18-2 shows the flowchart for predeploying an xPON ONT.



Figure 18-2 Flowchart for predeploying an xPON ONT

18.3 Preparation

During this phase, you need to make sure that the devices run in the normal state and configure the profiles that the predeployment profile references.

18.3.1 Adding an OLT to the U2000

This topic describes how to add an OLT to the U2000 before importing the MDU network planning sheet.

18.3.2 Configuring the Profile Referenced in a Network Planning Sheet

You can select a global profile in the **Default Value Policy** worksheet of the network planning sheet only after the global profile is configured on the U2000.

18.3.1 Adding an OLT to the U2000

This topic describes how to add an OLT to the U2000 before importing the MDU network planning sheet.

Prerequisite

• The U2000 must work in the normal state.

- The inband or outband IP address and SNMP parameters of the OLT and the route between the OLT and the U2000 must be set.
- The FTP service of the U2000 server must be started in the normal state. For details, see **Configuring the FTP, SFTP, or TFTP Service (Windows)**.

Context

If the OLT has been added to the U2000, to ensure that the data on the U2000 is the same as the data on the OLT, right-click the OLT in the Main Topology and choose **Synchronize NE Data** from the shortcut menu.

Procedure

- 1 In the Main Topology, choose **Physical Root** or an NE from the navigation tree, right-click in the topology view in the right pane, and then choose **New** > **NE** from the shortcut menu.
- 2 In the dialog box that is displayed, set the parameters such as the IP address and name of the NE.

8	Create NE				×
,					
	₽ NM	<u> </u>			
	SIG Series		IP Address:	10 . 10 . 10 . 6	
	S Series		Dovice Name:	10 10 10 6	
	E SVN Series		Device Name.	10.10.10.0	
	H 3rd-Party		Device Alias:		
	H Dummy Device				
	H-Microsoft Windows		Parent Path:	Physical Root/	
			Maintance:		
			mannanroo.		
	E CY Series		SNMP Parameters:	SNMP V1:default	
	H DMT Series		Otation		
	H Ohiert Tyne		Status:	In Service	
	F EGW Series		Coordinate:	186,316	
	+ Eudemon Series				
	E LH WDM Series		Time Zone and DST:	UnSet	
			Remarks:		
	🗄 Marine Series				
	🗄 - Metro WDM Series				
	⊕- NA WDM Series				
	. E Series ⊡				
	🗄 NG WDM Series				
	🔄 MSTP Series				
	🕀 SDH Series				
				OK Cancel Apply	ור

3 Click OK.

----End

18.3.2 Configuring the Profile Referenced in a Network Planning Sheet

You can select a global profile in the **Default Value Policy** worksheet of the network planning sheet only after the global profile is configured on the U2000.

Context

You can configure a global profile referenced in a network planning sheet by

- Adding a global profile manually.
- Generating a global profile based on an NE profile.

Procedure

• Adding a global profile manually

Function	Global Profile	Remarks
Profiles to be added in GPON profile mode	 19.1.3 Configuring a GPON Line Profile 20.1.2 Configuring a GPON Service Profile 19.1.2 Configuring a DBA Profile 	These profiles must be applied to the OLT.
	 19.2.2 Configuring an MEF IP Traffic Profile 20.2.1 Configuring the ONT Value-Added Service Configuration Profile 	-
Profiles to be added in GPON discrete mode	 Configuring a GPON ONT Capability Profile 19.1.2 Configuring a DBA Profile 	An ONT capability profile must match the hardware capability of the ONT to which profile is bound. Otherwise, certain configuration data cannot be applied. The global profile of the ONT capability profile must be configured on the U2000. In addition, the same ONT capability profile must be created on the U2000 and OLT. Otherwise, the network planning sheet cannot be imported into the U2000. These profiles must be applied to the OLT.
	 19.2.2 Configuring an MEF IP Traffic Profile 20.2.1 Configuring the ONT Value-Added Service Configuration Profile 	-

Function	Global Profile	Remarks
Profiles to be added in EPON profile mode	• 23.1.3 Configuring a Line Profile	These profiles must be applied to the OLT.
	• 24.1.2 Configuring a Service Profile	
	• 23.1.2 Configuring a DBA Profile	
	• 19.2.2 Configuring an MEF IP Traffic Profile	-
	• 20.2.1 Configuring the ONT Value-Added Service Configuration Profile	

• Generating a global profile based on an NE profile

This section considers the EPON DBA profile as an example to describe how to generate a global profile based on an NE profile. The procedures for operating all profiles are the same but differ in the navigation path.

- 1. 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.
- 2. Choose **Configuration** > **Access Profile Management** > **EPON Profile** from the main menu.
- 3. Click the **DBA Profile** tab.
- 4. Right-click the required profile in the list and choose **Generate Global Profile** from the shortcut menu.
- 5. In the dialog box that is displayed, click **OK**.

----End

18.4 Operations on Sheets

During this phase, you need to perform relevant operations on sheets.

18.4.1 Filling In a Network Planning Sheet

This topic describes how to obtain and fill in a network planning sheet. In addition, this topic describes the contents of the sheet. A network planning sheet can be imported into the U2000 after you fill in the sheet correctly.

18.4.2 Importing a Network Planning Sheet

The predeployed NE is generated on the U2000 after you import a network planning sheet into the U2000.

18.4.1 Filling In a Network Planning Sheet

This topic describes how to obtain and fill in a network planning sheet. In addition, this topic describes the contents of the sheet. A network planning sheet can be imported into the U2000 after you fill in the sheet correctly.

Prerequisite

A global profile that has the same name as the profile used in the network planning sheet must exist on the U2000. For information on how to configure the profile, see **18.3.2 Configuring the Profile Referenced in a Network Planning Sheet**.

Procedure

1 Obtain a network planning sheet from the installation path of the U2000.

The name of the network planning sheet is **Networking Planning Sheet (xPON).xls**, where x represents G or E. The paths to the network planning sheet vary with the types of the operating systems (OSs), as follows:

- Windows-based server: X:\U2000\client\template\MDU Pre-Deploy\en\, where x indicates the name of the disk, such as D, E, and F.
- Solaris-based server: /opt/U2000/client/template/MDU Pre-Deploy/en
- 2 Double-click a blank network planning sheet and fill in the sheet.
 - The **Data Plan** worksheet contains parameters particular to an ONT to be predeployed. These parameters can be classified into two parts: **ONU Management Information** and **E2E Service Channel Data**.
 - Parameter settings in ONU Management Information of an ONU must be unique and cannot conflict with other ONUs. The parameters include ONU ID, ONU Description (ONU name displayed on the U2000), and Authentication Information. If the MAC address or SN of the ONU is unknown, the authentication information can be blank.
 - An E2E service channel is used by the U2000 to manage the ONT. You can deploy services such as the broadband and IPTV services after the E2E service channel is set up and the ONT goes online and becomes stable.
 - The Default Value Policy worksheet defines Management Channel Parameters, GEM Port Channel Parameters, OLT Service Channel, ONU Service Channel, Voice IP Address Pool, Voice Service (H.248, SIP, and MGCP), and Multicast User. These parameters are effective in the entire network.
- 3 After filling in the network planning sheet, click Verify Data in the Data Plan worksheet to verify the contents in the worksheet.

If an error exists in the network planning sheet, the cause of the error is provided in the blank area at the end of the line.

The data verification performed by the network planning sheet is not complete. To ensure data accuracy, it is recommended that you check the contents carefully.

----End

18.4.2 Importing a Network Planning Sheet

The predeployed NE is generated on the U2000 after you import a network planning sheet into the U2000.

Prerequisite

• The preparations must be complete. For details, see **18.3.1 Adding an OLT to the U2000** and **18.3.2 Configuring the Profile Referenced in a Network Planning Sheet**.

• The dependent processes of subtasks must be started. The names of the relevant processes are Access Device Common Service, Access Device Manager, Profile Manager, and xFtpWatcher Process.

Procedure

- 1 Choose Configuration > FTTx Service Pre-Deployment > Import Network Deployment Sheets from the main menu.
- 2 In the dialog box that is displayed, select the network planning sheet to be deployed and click **Open**.
- 3 After importing the network planning sheet, click OK.
- 4 The U2000 automatically performs the pre-deployment task after the ONT is powered on. Choose Administration > Task Schedule > Scheduling Center from the main menu. Then, you can view the execution status of the pre-deployment task.

----End

18.5 Acceptance

During this phase, you need to perform an acceptance test on the predeployment task.

18.5.1 Viewing a Pre-deployment Task and the Result

Viewing a pre-deployment task and the service data of the predeployed ONT helps you determine whether the ONT is predeployed successfully.

18.5.2 Predeploying an MDU or ONT Again

You need to find out the failure cause if an MDU or ONT fails to be predeployed. Then, import the network planning sheet into the U2000 again. Then, the U2000 automatically performs the MDU pre-deployment task.

18.5.1 Viewing a Pre-deployment Task and the Result

Viewing a pre-deployment task and the service data of the predeployed ONT helps you determine whether the ONT is predeployed successfully.

- Viewing a pre-deployment task in the scheduling center
 - 1. Choose Administration > Task Schedule > Scheduling Center from the main menu.
 - 2. On the tab page that is displayed, choose **Deployment Task** from the navigation tree. In the task list, select a task and view the details.

www.workbench Scheduling Center X						
Scheduling Center						
Task Classification	All					
- D Global Profile Task	Task Status 🛆	Result 🛆	Task Na 🛆	Exe	cution Type 🛆	Exec
Deployment Task	X	-		Immediate	task	
 TL1 Offline Configuration 	X			Immediate	task	
- 🗋 MDU Remote Acceptance	X			Immediate	task	
		The task had executed succeed	led. Delivering	Immediate	task	100%
	Detail Info Log Info	Job Information				
	State	Result	Device Na	me	Device IP	
	Finished	Succeeded	10.78.217.131		10.78.217.131	

3. If the scheduling of a pre-deployment task fails, click the **Log Info** tab, right-click the failed task and choose **Log Details** from the shortcut menu. Then, you can view the details in logs.

Scheduling Center					
Task Classification	All				
Global Profile Task	Task Status 🛆	Result 🛆	Task Na 🛆	Execution Type 🛆	
Deployment Task	8			Immediate task	
TL1 Offline Configuration	Z			Immediate task	
- MDU Remote Acceptance		The task had executed succe	eded. Delivering A	Immediate task	
				Immediate task	
	Detail Info Log Info	Job Information			
	Start Date	Start Time	End Date	End Time	
	03/02/2010	09:39	03/02/2010	09:39	
		_og Details			

- Viewing an ONT loading task
 - 1. Choose Administration > Task Schedule > ONT Task List from the main menu.
 - 2. In the **ONT Load Task** dialog box, an ONT loading task is generated on the **Current Task** tab page. The ONT loading task is started and completed successfully after the ONT is powered on and works in the normal state. In this case, you can view the task on the **History Task** tab page.

👐 Workbench	ONT Load Task 🗙			
Current Task	History Task	File Server	Auto U	pgrade Po
All				
Status 🛆	File Type 🔺 XML	Device N: 10.71.32.153	ame Ø	Fram
👐 Workbench	ONT Load Task 🗙			
Current Task	History Task	File Server	Auto Up	ograde Pol
All				
Status 🛆	File Type	🔺 Devic	e Name	Fra
	XML	10.71.32.15	3	0

• Viewing the service data of the predeployed ONT

- 1. 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.
- 2. Choose **EPON** > **EPON ONU** from the navigation tree.
- 3. On the **EPON ONU** tab page, set the filter criteria or click ≥ to display the EPON ONUs.
- 4. In the ONT list, right-click an ONT and choose **Configure Value-Added Service** from the shortcut menu.
- 5. In the dialog box that is displayed, check and ensure that the configuration is the same as the predeployed configuration, and then click **OK**.

----End

18.5.2 Predeploying an MDU or ONT Again

You need to find out the failure cause if an MDU or ONT fails to be predeployed. Then, import the network planning sheet into the U2000 again. Then, the U2000 automatically performs the MDU pre-deployment task.

Context

- The data of previously predeployed OLT, MDU, or ONT will be deleted automatically when you predeploy them again.
- Predeploying an OLT, MDU, or ONT again will be slow because the data of the previously previous deployed data needs to be deleted when you predeploy them again.

Table 18-1 describes the common problems and solutions to network planning sheets.

Common Problem	Solution
The system displays an error message "Name of the ONT capability profile repeats the default profile name ranging from ont-profile_1 to ont- profile_128" when you import the network planning sheet into the U2000.	This problem can be resolved by changing the profile name. The MDU does not allow the U2000 to apply a profile named by following the default naming rules, such as the ONT capability profile and DBA profile, to the MDU. If you need to use the profile named by following the default naming rules, create this profile on the MDU directly, synchronize the profile to the U2000, and then generate a global profile from the NE profile.
The system displays the message "Network transmission times out. Please try again later" when you import the network planning sheet to the U2000 and verify the service data of the MDU.	This problem can be resolved by importing the network planning sheet again into the U2000. You need to check the memory usage of the server. Increase the memory to prevent this problem from occurring again if the available memory is less than 4 GB.
The system displays the message "Device name contains invalid characters" when you import the network planning sheet into the U2000 and verify the service data of the MDU.	You need to check and ensure that the device name in the network planning sheet does not contain any unsupported special characters.

 Table 18-1
 The common problems and solutions to network planning sheets

 Table 18-2 describes the common problems occurred when tasks are performed on the OLT and solutions to these problems.

Common Problem	Solution
The system displays the message "The subitem resource is insufficient so that the task stopped" when the tasks are performed on the OLT. After you click the Log Info tab and double-click the failed task to view the failure cause, the message "VLAN already exists" is displayed.	To resolve this problem, change the type and attribute of this VLAN on the OLT and ensure that the VLAN type and attribute are the same as those of the predeployed VLAN. This problem occurs because the OLT already has a VLAN that has the same VLAN ID but different VLAN type and attribute from the VLAN preset in the network planning sheet.
When performing the subtask of deploying service virtual ports in the process of MDU pre- deployment, the system displays the message "Database operation failed."	This problem occurs because the data on the U2000 and MDU is different. If the system displays this message when performing an OLT task, synchronize the service virtual port data of the OLT and import the network planning sheet into the U2000 again; if the system displays this message when performing an MDU task, delete the MDU and import the network planning sheet again.
The system displays the message "The message transmitted by MDP failed" in the process of performing an OLT task when you predeploy an MDU again.	To resolve this problem, check and ensure that the processes relevant to the subtasks of the pre-deployment are started.

Table 18-2 The common problems occurred when tasks are performed on the OLT and solutions to these problems

Table 18-3 describes the common problems occurred when tasks are performed on the MDU and solutions to these problems.

Table 18-3 The common problems occurred when tasks are performed on the MDU and solutions to these problems.

Common Problem	Solution
The system displays the message "The subitem resource is insufficient so that the task stopped" when the Synchronize physical resource data of NE task is performed.	To resolve this problem, choose Administration > Settings > xFtpWatcher from the main menu and ensure that the status indicator is green.
The system displays a failure and the message "Incorrect parameter" is recorded in logs when the Import network planning sheet of service virtual ports task is performed.	To resolve the problem, ensure that the service virtual ports of xDSL ports are configured with VPIs and VCIs.

Procedure

- 1 Choose Configuration > FTTx Service Pre-Deployment > Import Network Deployment Sheets from the main menu.
- 2 In the dialog box that is displayed, select the modified network planning sheet and click **Open**.
- 3 Click Finish after the network planning sheet is imported into the U2000.

----End

18.6 Configuration Example of xPON ONT Pre-deployment

This topic considers the scenario wherein an EPON ONT (850e) is connected to an OLT as an example to describe how to predeploy an xPON ONT.

Prerequisite

- The OLT must be in profile mode.
- This topic considers the Windows-based server as an example.

Context

Table 18-4 and Table 18-5 provide the data that must be planned in the network planning sheet.

Configura tion Item	Data Plan	Remarks
U2000 server	192.168.50.17	The U2000 server needs to use ports 23, 8080, 9801, and 9803. Therefore, ensure that these ports are enabled on the firewall so that the U2000 server can communicate with NEs successfully.
OLT	 IP Address: 192.168.20.100 Management mode: inband Upstream port: 0/0/1 Upstream VLAN: 1000 GPON port: 0/5/0 	The upstream VLAN is the same as the native VLAN of the upstream port.
Profile referenced in the network planning sheet	 DBA profile Name: dba-profile_ont Bandwidth Compensation: Yes Accept the default values for other parameters. 	-

Table 18-4 Data plan in the preparation phase

Configura tion Item	Data Plan	Remarks
	Line profile	-
	• Name: line-profile_ont	
	• Mapping Mode: VLAN	
	• Qos Mode: Priority Queue	
	• T-CONT Index: 1	
	• DBA Profile: dba-profile_ont	
	• GEM Port Index: 1	
	• Accept the default values for other parameters.	
	Service profile	-
	• Name: service-profile_ont	
	• Number of Pots Ports: 2	
	• Number of ETH Ports: 4	
	• Default VLAN ID: 1001	
	MEF IP traffic profile	-
	• Name: traffic-profile_1	
	• CIR: 64Kbit/s	
	• Outer Priority: 1	
	• Accept the default values for other parameters.	
	ONT VAS configuration profile	-
	• Profile Name: VOIPHG850a	
	• Vendor ID: HWTC(2011)	
	• Terminal Type: 850e	
	• Version: V1R1C02B010~Later	
	• Signal Protocol: H248	
	• Digitmap: x.T	
	• MGC Port: 2944	
	• MGC domain name: MGC.com	

Configura tion Item	Data Plan	Remarks
Data Plan	• OLT IP Address: 192.168.20.100	-
	• PON Port: 0/5/0	
	• ONU ID: 0	
	 ONU Name: Building F in residential section B, block L, City S 	
	• Authentication Mode: 00-1E- E3-22-A9-93	
	• ONU Type: 850e	
	• Broadband	
	- CVLAN: 1001	
	- SVLAN: 1001	
	• VoIP	
	- CVLAN: 2000	
	- SVLAN: 2000	
	- Voice Address Mode: static IP	
	 Voice IP Address: 10.121.68.28 	
	- Voice IP Mask: 24	
	- Voice Gateway: 10.121.68.1	
	- PSTN Terminal ID Prefix: A8	
	- RTP Terminal ID Prefix: A8	
	- Telephone No.: 28971111	

Table 18-5 Data plan in a network planning sheet

Configura tion Item	Data Plan	Remarks
Default Value Policy	 PON Channel Parameters ONU Type: 850e Authentication Mode: MAC Line Profile Name: line-profile_ont Service Profile Name: service-profile_ont ONT VAS Configuration Profile: VOIP850e Enable DHCP: Enable Enable PITP: Enable 	
	• Service Channel: Create a service channel whose Service Name is Voice in the same way. Do not set the names of the upstream traffic profile and downstream traffic profile for the service channel of voice services.	
	 Service Name: Broadband SVLAN Type: smart SVLAN Attribute: Common SVLAN Upstream Port: 0/19/0 Upstream Traffic Control Profile: traffile_profile_1 Downstream Traffic Control Profile: traffile_profile_1 	

- 1 Adding an OLT to the U2000 (For details, see 18.3.1 Adding an OLT to the U2000.)
 - 1. In the Main Topology, choose **Physical Root** or an NE in the navigation tree, right-click in the topology view in the right pane, and then choose New > NE from the shortcut menu.
 - 2. In the dialog box that is displayed, set the parameters.
 - IP Address: 192.168.20.100
 - Device Name: 192.168.20.100-MA5680T
 - 3. Click OK.
- 2 Configuring the profile referenced in the network planning sheet (For details, see 18.3.2 Configuring the Profile Referenced in a Network Planning Sheet.)
 - 1. Configuring a DBA profile (For details, see 23.1.2 Configuring a DBA Profile.)

- a. Choose **Configuration** > **Access Profile Management** > **EPON Profile** from the main menu.
- 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: dba-profile_ont
 - Bandwidth Compensation: Yes
 - Accept the default values for other parameters.
- 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. Configuring a line profile (For details, see 23.1.3 Configuring a Line Profile.)
 - a. Choose **Configuration** > **Access Profile Management** > **EPON Profile** from the main menu.
 - 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 line-profile_ont.
 - DBA Profile: dba-profile_ont
 - 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. Configuring a service profile (For details, see 24.1.2 Configuring a Service Profile.)
 - a. Choose **Configuration** > **Access Profile Management** > **EPON Profile** from the main menu.
 - 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 service-profile_ont.
 - Choose **Base Info.** from the navigation tree and set the parameters.
 - Number of Pots Ports: 2
 - Number of ETH Ports: 4
 - Choose UNI Port from the navigation tree. In the window that is displayed, rightclick the record where Port Type is ETH Port and Port ID is 1, and choose Config VLAN of UNI Port from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - VLAN Type: Translation
 - Default VLAN ID: 1001 (VLAN ID of the Internet service)
 - 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. Configuring an MEF IP traffic profile (For details, see 19.2.2 Configuring an MEF IP Traffic Profile.)
 - a. Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - 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: traffile_profile_1
 - CIR: 20480
 - Outer Priority: 1
 - e. Click OK.
- 5. Configuring the VAS configuration profile of the ONT (For details, see 20.2.1 Configuring the ONT Value-Added Service Configuration Profile.)
 - a. Choose **Configuration** > **Access Profile Management** > **ONT VAS Profile** from the main menu.
 - 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.
 - Set **Profile Name** to **VOIP850e**.
 - Set Vendor ID to HWTC(2011).
 - Set **Terminal Type** to **850e**.
 - Set Version to V100R001C02B010~Later.
 - Choose **Country code and signaling protocol** from the navigation tree and set **Signal Protocol** to **H248**.
 - Choose H.248 protocol basic configure > H.248 Global digitmap configure > Global digitmap configure 1 from the navigation tree and set Digitmap to x.T.
 - Choose H.248MGC > H.248 MGC configure 1 from the navigation tree and set MGC port to 2944 and MGC domain name to MGC.com.
 - d. Click OK.
- 3 Filling in the network planning sheet (For details, see 18.4.1 Filling In a Network Planning Sheet.)
 - 1. Navigate to the path X:\U2000\client\template\MDU Pre-Deploy\en\ on the Windowsbased server, and double-click the Network_Planning_Sheet(EPON_FTTH).xls file.
 - 2. In the **Data Plan** worksheet, set the parameters as follows:
 - OLT IP Address: 192.168.20.100
 - PON Port: 0/5/0
 - ONU ID: 0
 - ONU Name: Building F in residential section B, block L, City S
 - Authentication Mode: 00-1E-E3-22-A9-93
 - ONU Type: 850e

- Broadband
 - CVLAN: 1001
 - SVLAN: 1001
- VoIP
 - CVLAN: 2000
 - SVLAN: 2000
 - Voice Address Mode: static IP
 - Voice IP Address: 10.121.68.28
 - Voice IP Mask: 24
 - Voice Gateway: 10.121.68.1
 - PSTN Terminal ID Prefix: A8
 - RTP Terminal ID Prefix: A8
 - Telephone No.: 28971111
- 3. In the **Default Value Policy** worksheet, set the parameters as follows:
 - PON Channel Parameters
 - ONU Type: 850e
 - Authentication Mode: MAC
 - Line Profile Name: line-profile_ont
 - Service Profile Name: service-profile_ont
 - ONT VAS Configuration Profile: VOIP850e
 - Enable DHCP: Enable
 - Enable PITP: Enable
 - Service Channel: Create a service channel whose **Service Name** is **Voice** in the same way. Do not set the names of the upstream traffic profile and downstream traffic profile for the service channel of voice services.
 - Service Name: Broadband
 - SVLAN Type: smart
 - SVLAN Attribute: Common
 - SVLAN Upstream Port: 0/19/0
 - Upstream Traffic Control Profile: traffile_profile_1
 - Downstream Traffic Control Profile: traffile_profile_1
- 4. Choose **File** > **Save** from the main menu to save the sheet.
- 4 Importing the network planning sheet (For details, see 18.4.2 Importing a Network Planning Sheet.)
 - 1. Choose Configuration > FTTx Service Pre-Deployment > Import Network Deployment Sheets from the main menu.
 - 2. In the dialog box that is displayed, select Network_Planning_Sheet(EPON_FTTH).xls and click Open.
 - 3. After importing the network planning sheet, click **OK**.
 - ----End

Result

See **18.5.1 Viewing a Pre-deployment Task and the Result** to determine whether the 850e is predeployed successfully.

19 Configuring the GPON FTTB Services

About This Chapter

An FTTB network consisting of an OLT in profile mode and a number of MDUs provides users with Internet, multicast, and voice services.

Context

The MDU configuration is simplified when the OLT is in profile mode.

To query the current xPON configuration mode, run the **diagnose** command to enter the diagnosis mode, and then run the **display xpon mode** command.

- In the diagnosis mode, you must be a user with operator rights or higher to query the current xPON configuration mode.
- If you switch the xPON configuration mode in the diagnosis mode, the system saves data and restarts automatically.

You can run the **xpon mode switch-to command** in the diagnosis mode to switch the xPON mode of the current system, for example, from discrete mode to profile mode.

```
huawei(config)#diagnose huawei(diagnose)%%xpon mode switch-to profile-mode
Warning: The operation will automatically save and reboot system. Are you sure to
proceed? (y/n)[n]:
```

19.1 Adding an MDU to the U2000 (OLT in Profile Mode)

This topic describes how to add an MDU to the U2000 when the OLT is in the profile mode. After the MDU is successfully added to the U2000, you can configure the FTTB service for the MDU on the U2000.

19.2 Configuring Services on the OLT

An FTTB network consisting of OLTs and MDUs provides users with Internet services, multicast services, and voice services.

19.3 Configuring Services on the MDU

An FTTB network consisting of OLTs and MDUs provides users with Internet services, multicast services, and voice services.

19.4 Configuration Examples of the GPON FTTB Services

This topic provides examples to describe how to configure the Internet, voice, and multicast services in a GPON FTTB network.

19.1 Adding an MDU to the U2000 (OLT in Profile Mode)

This topic describes how to add an MDU to the U2000 when the OLT is in the profile mode. After the MDU is successfully added to the U2000, you can configure the FTTB service for the MDU on the U2000.

Context

You can add an MDU on the device side in the following two scenarios: online MDU confirmation and offline MDU deployment. The profile bound to an MDU and the authentication information of the MDU must be the same as those configured on the MDU on the user side.

- Online MDU confirmation: When an MDU is online, the MDU can be managed immediately after it is added to the U2000. This topic considers the online MDU confirmation as an example to describe how to add an MDU to the U2000.
- Offline MDU deployment: When an MDU is offline, you need to add the MDU and configure the FTTB service for the MDU offline. After the MDU goes online, the configuration data is applied to the MDU through the optical network termination management and control interface (OMCI) message to complete the service configuration on the MDU.

19.1.1 Configuring an MDU SNMP Profile

The MDU Simple Network Management Protocol (SNMP) profile is a collection of SNMP parameters. You can configure the information about an MDU management channel to OLT to implement the remote deployment and maintenance for the MDU.

19.1.2 Configuring a DBA Profile

The GPON DBA profile is a collection of traffic parameters of a T-CONT. DBA is used to control the upstream bandwidth of the services on the ONU. DBA profiles are bound to T-CONTs. Different T-CONTs are planned for different bandwidth assurance types. After a GPON DBA profile is successfully configured and bound to a T-CONT, the system controls the traffic of the T-CONT based on the traffic parameters specified in the GPON DBA profile. In this case, the GPON DBA profile implements the flexible dynamic bandwidth allocation.

19.1.3 Configuring a GPON Line Profile

The GPON line profile is a collection of parameters required for setting up channels for GPON lines. You need to bind the ONU and line profile when the ONU management mode is **OMCI** or **SNMP**.

19.1.4 Confirming an MDU

This topic describes how to confirm the auto-discovered ONU that is connected to a GPON port. The auto-discovered ONU can work in the normal state only after it is confirmed.

19.1.5 Configuring a VLAN

The MDU is connected to the xPON port of the OLT through an optical fiber. You can perform the service configuration only after adding an MDU successfully on the OLT. To configure the MDU from the U2000, you must configure the inband management VLAN and IP address for the OLT and the MDU on the OLT.

19.1.6 Adding a Service Virtual Port

After an ONT is successfully added, the control channel is set up, but the data channel is not set up yet. In this case, you need to add a service virtual port on the OLT to manage ONU data.

19.1.7 Checking the Communication Between the OLT and MDU

After the parameters on the U2000 are set successfully, you need to check whether the U2000 can manage and maintain the ONUs successfully.

19.1.1 Configuring an MDU SNMP Profile

The MDU Simple Network Management Protocol (SNMP) profile is a collection of SNMP parameters. You can configure the information about an MDU management channel to OLT to implement the remote deployment and maintenance for the MDU.

Context

You can configure the SNMP parameter profile of the MDU on the U2000, and configure the information about an MDU management channel to the OLT. Then, the OLT manages the MDU through the SNMP mode so that the remote deployment and maintenance for the MDU can be implemented.

- 1 Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
- 2 Right-click and choose Add Global Profile from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

Ad	d MDU SNMP Profile					×
	Profile Parameter					
	Name:	SNMP	*	Alias:		
	SNMP Version:	v1 💌	*	Read Name:	public *	
	Write Name:	private	*	Trap Host IP:	10.71.227.234 *	
	Trap UDP Port (1-65535):	162	*	SNMP Security Name:	public *	
				OK Ca	ncel <u>A</u> pply	

Key Parameter	Description
SNMP Version	Ensure that the SNMP version of the U2000 server is the same as the corresponding SNMP version configured on the device. Generally, the SNMP Version of the U2000 server is set to v1.
Trap Host IP	Specifies the IP address of the destination device for traps. The trap packets of the device are sent to the U2000 server that maps the IP address.
	NOTE Generally, the IP address of the U2000 server is set to the IP address of the destination device for traps.
Trap UDP Port	Specifies the ID of the UDP port that is used to receive the traps that the device reports to the U2000.

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

The MDU SNMP profile that is generated by the U2000 can be referenced by the OLT only after the profile is applied to the corresponding OLT.

----End

Command Reference

То	Run the Command	In
Add an MDU SNMP managemen t profile	snmp-profile add	Global config mode

19.1.2 Configuring a DBA Profile

The GPON DBA profile is a collection of traffic parameters of a T-CONT. DBA is used to control the upstream bandwidth of the services on the ONU. DBA profiles are bound to T-CONTs. Different T-CONTs are planned for different bandwidth assurance types. After a GPON DBA profile is successfully configured and bound to a T-CONT, the system controls the traffic of the T-CONT based on the traffic parameters specified in the GPON DBA profile. In this case, the GPON DBA profile implements the flexible dynamic bandwidth allocation.

Context

- The traffic configured in the GPON DBA profile is specified as the traffic after the data is encapsulated to the GPON encapsulation mode (GEM) frames. Hence, the actual traffic of packets is slightly lighter than the traffic specified in the GPON DBA profile.
- The GPON DBA profile that is added on the U2000 exists only in the database of the U2000, but it is not applied to the device. The GPON DBA profile can be created on the device only after it is bound to the T-CONT.

- The profiles with the **Name** ranging from **dba-profile_1** to **dba-profile_9** are the default GPON DBA profiles of the system. The traffic parameters in the profiles are assigned with typical values. You can query the default GPON DBA profiles but cannot add or delete them.
- 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 a mix of fixed bandwidth, assured bandwidth, and maximum bandwidth.

Procedure

- 1 Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- 2 Click the DBA Profile tab. Right-click and choose Add Global Profile from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

k,	ld DBA Profile		×
	Profile Parameters		
	Name:	DBA_profile	*
	Alias:		
	T-CONT type:	Fixed Bandwidth 🔹	
	Assured Bandwidth (Kbit/s) (128 to 1235456):	128	
	Fixed Bandwidth (Kbit/s) (128 to 1235456):	128	*
	Maximum Bandwidth (Kbit/s) (128 to 1235456):	128	
	Bandwidth Compensation:	No	
		OK Cancel Apply	

Key Parameter	Description
Name	Indicates the name of a GPON DBA profile. It uniquely identifies a GPON DBA profile. The GPON DBA name must be unique.
T-CONT type	Indicates the type of a GPON DBA profile. It is defined according to the bandwidth requirement of the services carried on the T- CONT. You can allocate the bandwidth for T-CONTs of different types to control the traffic of the T-CONT.
Assured Bandwidth Fixed Bandwidth Maximum Bandwidth	Generally, the service with a high priority adopts a fixed bandwidth and an assured bandwidth, and the service with a low priority adopts the maximum bandwidth. The VoIP service always has the highest priority.

4 Click OK.

----End

Command Reference

То	Run the Command	In
Query the DBA profiles in the system	display DBA-profile	Privilege mode
Add a DBA profile	DBA-profile add	Global config mode

19.1.3 Configuring a GPON Line Profile

The GPON line profile is a collection of parameters required for setting up channels for GPON lines. You need to bind the ONU and line profile when the ONU management mode is **OMCI** or **SNMP**.

Prerequisite

The DBA profile must be already configured in the system. For details, see **19.1.2 Configuring a DBA Profile**.

Context

- The flow mapping mode configured in the GPON line profile must match the flow mapping mode of the flow (such as the GEM connection flow) specified in the GPON line profile.
- The flow control mode configured in the GPON line profile must match the flow control mode of the GEM port specified in the GPON line profile.
- When adding a GPON line profile, you can use or reference the four default line profiles, lineprofile_1 to lineprofile_4, provided by the NE.

- 1 Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- 2 Click the GPON Line Profile tab. Right-click and choose Add Global Profile from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.
 - 1. Choose **Basic Info** from the navigation tree, and then set the basic parameters of the profile.

Name: gponlineprofile	* Alias:	
Configuration - Base Info. - Line - Ethernet port binding group - T-CONT Info.	Name Upstream FEC Switch Mapping Mode Oos Mode OMCC Encryption	Value OFF VLAN Priority Queue Off
	ОК	Cancel <u>A</u> pply

Key Paramete r	Description
Upstream FEC Switch	Specifies whether to enable the upstream forward error correction (FEC) function of the ONT line profile. To improve the reliability of data transmission between the OLT and the ONT, enable the FEC function. After the upstream FEC function is enabled, the system inserts the redundancy data into normal packets. In this manner, the line has the error tolerance capability, but certain bandwidth is wasted.
Mapping Mode	Flow mapping manages the service streams on the ONU, namely, manages the mapping between GEM ports and the upstream data flows on the ONT service ports. After the mapping is established, the ONU service streams are carried and transmitted upstream through the specified GEM ports. Each ONT can be configured with only one mapping mode.
Qos Mode	• When the Qos Mode of the GEM port is set to Priority Queue , users can specify the transmit queue of the GEM port packets in a T-CONT. When transmitting the upstream data, the T-CONT transmits the data strictly according to the priority of the queue.
	• When the Qos Mode of the GEM port is set to GEM Port CAR , the ONU limits the rate of the data packets carried on the GEM port according to the CAR setting of the GEM port. Currently, the GEM port CAR is set by binding the CAR profile to the ONU, and only the average rate and maximum rate can be set. When several service streams exist on the GEM port, the service streams are schedule in PQ, WRR, or PQ+WRR mode, depending on the default scheduling mode of the ONU. Currently, the scheduling mode cannot be set on the OLT. When a T-CONT consists of multiple GEM ports, the scheduling mode of the data packets between the GEM ports also depends on the default scheduling mode of the ONU.
	• When the flow control mode of the GEM port is set to Flow CAR , the ONU performs CAR on the service streams of the GEM port. The controlling is more specific than the GEM port CAR. After being performed with CAR, the service streams are scheduled in the T-CONT queue. The scheduling mode is the default scheduling mode of the ONU.

2. Choose **T-CONT Info.** from the navigation tree, right-click, and then choose **ADD T-CONT** from the shortcut menu. In the dialog box that is displayed, set **T-CONT Index** and **DBA Profile**.

Add GPON Line Profile		×
Name: gponlineprofile	* Alias:	
Configuration Base Info. Line Ethernet port binding group T-CONT ADD T-CONT	Name Upstream FEC Switch Mapping Mode Qos Mode OMCC Encryption	Value OFF VLAN Priority Queue Off
	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): DBA Profile:	the second secon
< <u> </u>		OK Cancel

\triangle caution

It is recommended that you do not set **T-CONT Index** to **0**. TCONT 0 is reserved for the internal communication of the GPON protocol.

3. Choose **T-CONTx** from the navigation tree, right-click, and then choose **ADD GEM Port** from the shortcut menu. In the dialog box that is displayed, set **GEM Port Index**.

x indicates the T-CONT index.

Add GPON Line Profile			×
Nama: gnonlinenrafile		t Aliae:	
Ivanie. gponiniepionie]* Alias	
		ADD GEM Port	
Configuration			
- Base Info.	T-C	GEM Port Parameters	
⊟- Line - Ethernet port binding group ⊡- T-CONT Info.	DB/	T-CONT Index(0-127):	1
T-CO ADD GEM Port		GEM Port Index(0-1023):	1*
DEL T-CONT		Priority Queue:	0 🔻
		CAR Profile:	
		Service Type:	ETH 🔻
		Encryption Switch:	ON 🔻
		Cascade Switch:	OFF 💌
			OK Cancel
		ОК	Cancel <u>Apply</u>

4. Choose **GEM Portx** from the navigation tree, right-click, and then choose **ADD GEM Connection** from the shortcut menu. In the dialog box that is displayed, set the basic parameters of the GEM connection.

x indicates the GEM port index.				
Add GPON Line Profile		X		
Name: gponlineprofile	*	Alias:		
Configuration Base Info. E Line Ethernet port binding group T-CONT1 Info. CEM Poeta ADD GEM P DEL GEM P	N: GEM Port Inde; Priority Queue CAR Profile Service Type onnection ort	ADD GEM Connection GEM Connection Parameters GEM Port Index(0-1023): 1 GEM Connection Index(0-1023): VLAN ID(1-4094): 1000 Priority: Port Type: Port ID(1-8): BindGroup ID:	×	
<u><) </u>		CAR Promis:		
		OK Cancel Apply		

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

----End

Command Reference

То	Run the Command	In
Enter the ONT line profile mode	ont-lineprofile gpon	Global config mode
Bind a DBA profile to a T-CONT	tcont	ONT line profile mode
Bind a GEM index to a T-CONT and configure the related attributes in an ONT line profile	gem add	ONT line profile mode
Set up the mapping relationship between the upstream data flow on the ONT service ports and the GEM ports	gem mapping	ONT line profile mode
Configure the QoS mode in the ONT line profile	qos-mode	ONT line profile mode

19.1.4 Confirming an MDU

This topic describes how to confirm the auto-discovered ONU that is connected to a GPON port. The auto-discovered ONU can work in the normal state only after it is confirmed.

Prerequisite

The Line profile must be already configured in the system. For details, see **19.1.3 Configuring** a GPON Line Profile.

The MDU SNMP profile must be already configured in the system. For details, see **19.1.1 Configuring an MDU SNMP Profile**.

Context

When the ONU auto-discovery function is enabled, the OLT can periodically check whether there are new online ONUs. If new online ONUs are discovered, the OLT reports a group of ONUs to be confirmed to the U2000 for user confirmation.

Procedure

- 1 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.
- 2 Choose GPON > GPON UNI Port from the navigation tree.
- 3 On the GPON UNI Port tab page, set the filter criteria to display the required GPON UNI ports.
- 4 Select the GPON UNI port to be enabled with the auto-discovery function, right-click and choose **Enable ONU Auto Find** from the shortcut menu.
- 5 Select a record from the GPON UNI ports list, and click the **Auto-Discovered ONU Info** tab in the lower part of the tab page.
- 6 Select an ONU to be confirmed, right-click, and then choose **Confirm ONU** from the shortcut menu.
- 7 In the dialog box that is displayed, configure the basic parameters and network management channel parameters for confirming the ONU, and then click **OK**.

This section considers the GUIs in profile mode as an example.

Confirm ONU				X
Affiliated Port:	0/15/0	*	Splitter:	Splitter(L1) 💌
Name:	0/15/0	*	Alias:	
ONU ID(0-127):	🖌 Auto Assign	*	Splitter Port ID(1-128):	
ONU Type:	MDU	-		
Protection F	Role			
Basic Paramete	ers Network Manage	ment Char	nnel Parameters	
Line Profile:	lineprofile_4	*	Service Profile:)*
Alarm Profile:			ONU VAS Profile:	
Optic Alarm Pro	ofile:			
Authentication	n Info			
Authenticatio	on Mode: SN	*	Timeout Duration (h)(1-168):	No Limit
SN:	32303131B39FD	641	Password:	*
ONU Type				
Verdor ID:	HWTC(2011)	-	Terminal Type:	-
Software Ve	rsion:	-		
			ОК	Cancel <u>A</u> pply

Confirm ONU							×
Affiliated Port:	0/17/2	-	*	Splitter:	[Splitter(L1)	-
Name:	Frame0/Slot17/P	ort2	*	Alias:	[
ONU ID(0-127):	🗌 Auto Assign	0	*	Splitter Port ID(1-12	28):		
ONU Type:	MDU	•]				
Basic Paramet	ers Netwo	rk Management	Chan	nel Parameters			
OLT sets channel	: network manage parameters	ment	18	NMP Profile Name:	snm	pprofile_1	*
SNMP Paran	ns Info						
Manager VL	AN(1-4095): 400	10	*	Priority(0-7):	7		
IP Address:	10	.10 .106.6	*	IP Address Mask	: 25	5.255.255.0	*
Gateway IP	Address: 10	10.10.1					
-Static Route	Parameters						
IP Address:	10.1	.10 .1		IP Address Mask:	255.	.255.255.0	
Next Hop IF	Address: 40.10	.10 .10					
				🗌 Locate to ON	U list	after operation	succeeds
				ОК		Cancel	Apply

Key Parameter	Description
ONU ID	Indicates the ONU ID. It always ranges from 0.
ONU Type	Indicates the ONU type and needs to be set to MDU .
Line Profile	Indicates the line profile of the port to which the ONU is connected. After a line profile is bound to a port, the system can directly reference the line profile when activating a port. During the activation, the system checks the line distance and conditions and performs a negotiation between the CO and CPE to determine whether the port can work under the conditions as preset in the line profile, such as upstream and downstream line rates and noise margin.
Authenticat ion Mode	Indicates the mode in which the OLT authenticates the ONU.

When adding the ONU of the SNMP management mode, you must set the **Authentication Mode** and **Line Profile** parameters. When adding the ONU of the OAM management mode, you must set the **Authentication Mode**, **Line Profile**, and **Service Profile** parameters.

----End

Command Reference

То	Run the Command	In
Confirm the ONT that is in the auto-discovery mode	ont confirm	GPON mode
Enter the GPON mode from the global configuration mode	interface gpon	Global config mode
Enable the ONT auto-discovery function of a GPON port	port ont-auto-find enable	GPON mode
Query the auto-discovery ONTs in the system or the settings for the ONT auto-discovery time	display ont autofind	Privilege mode, GPON mode

19.1.5 Configuring a VLAN

The MDU is connected to the xPON port of the OLT through an optical fiber. You can perform the service configuration only after adding an MDU successfully on the OLT. To configure the MDU from the U2000, you must configure the inband management VLAN and IP address for the OLT and the MDU on the OLT.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose VLAN from the navigation tree.
- 3 On the VLAN tab page, set the filter criteria or click \bowtie to display the VLANs.
- 4 In the information list, right-click and choose Add from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

Add VLAN				x
Base Info Configure VLAN	VLAN ID(1-4095): Name: Alias: Type: Attribute: VLAN Priority:	10 VLANID_10 Standard VLAN Common		*
	Back		Done	<u> </u>
Add VLAN				×
Configure VLAN	Sub Port L3 I	Interface Extended Info extra constraints of the second s	E- ∰ SubPort Lis	t 19 Port:00
	Bac	k <u>N</u> ext	<u>D</u> one	<u>C</u> ancel

Key Parameter	Description
VLAN ID	Indicates the VLAN ID. The VLAN ID uniquely identifies a VLAN.
	Add VLANs according to data plan.
Туре	Indicates the VLAN type. NOTE Usually, Smart is selected.
Attribute	Indicates the VLAN attribute. NOTE For xPON FTTB, QinQ is usually selected.
VLAN Priority	Indicates the VLAN priority. This parameter is applicable to the VLANs for an OLT.

6 Click Done.

----End

Command Reference

То	Run the Command	In
Query the information about the VLAN	display vlan	Privilege mode
Add one VLAN or more VLANs of a same type in batches	vlan	Global config mode
Set the VLAN attribute	vlan attrib	Global config mode

19.1.6 Adding a Service Virtual Port

After an ONT is successfully added, the control channel is set up, but the data channel is not set up yet. In this case, you need to add a service virtual port on the OLT to manage ONU data.

Prerequisite

The management VLAN where the service virtual port belongs must be configured. The upstream port of the VLAN must be configured. For details, see **19.1.5 Configuring a VLAN**.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose GPON > GPON ONU from the navigation tree.
- 3 On the GPON ONU tab page, set the filter criteria to display the required GPON ONUs.

- **4** Select the required record from the GPON ONU list, and click the **ServicePort Info** tab in the lower pane.
- 5 On the ServicePort Info tab page, right-click and choose Add from the shortcut menu.
- 6 In the dialog box that is displayed, set the parameters.

Add Service Po	rt		x
Basic Info ID(1-32768): Name: Alias:	2 4000/0_5_0/0/3/Multi-Service VLAN/3000 *	Attributes Connection Type: LAN-GPON	*
Network Side Bundle ID VLAN Choice: Tag-Transforr Vlan ID(1-409 Cos value(0-7	(1-8192): Smart VLAN	User Side Interface Selection: 0/5/0/0/3 • Service Type: Multi-Service VLAN • User VLAN(1-4095): 3000 •]*]*
Traffic Profile In	nfo upstream and downstream settings the same nffic Name: ip-traffic-table_6	Downstream Traffic Name: ip-traffic-table_6)
		OK Cancel Apply	

This section considers the GUIs in profile mode as an example.

Key Parameter	Description
VLAN ID	Indicates the management VLAN ID of the OLT. It is used to uniquely identify a VLAN.

7 Click OK.

----End

Command Reference

То	Run the Command	In
Add a service virtual port	service-port	Global config mode

19.1.7 Checking the Communication Between the OLT and MDU

After the parameters on the U2000 are set successfully, you need to check whether the U2000 can manage and maintain the ONUs successfully.

Context

When an MDU is in the predeployed state, you can right-click the MDU in **Physical Root** and choose **Synchronize NE Data** from the shortcut menu to synchronize the data of the MDU manually.

- **1** To check the status of the ONU, do as follows:
 - 1. In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
 - 2. Choose GPON > GPON ONU from the navigation tree.
 - 3. On the GPON ONU tab page, set the filter criteria to display the required GPON ONUs.
 - 4. Select a record according to the shelf/slot/port number and ONT ID from the GPON ONU list. If the **Status** indicator is green, it indicates that the ONU is activated.

	 GPON ONU									
- 🔟 NE Panel							×	🗸 Find	No.	0, Total:2
- C Properties	Status 🗠	Operation St ~	Configuration /	Frame 🔿	Slot 🔿	Port 🔿	ONU ID 🗠	Name 🛆	Alias 🗠	Verdor
The Profile Management				0	2	0	10	10.71.227		
Depart Dinding Daix		Activate	Normal	0	5	0	0	10.71.227		HWTC
GPON UNI Port GPON UNI Port GPON UNI Port GPON ONU										

- 2 To check whether the ONU can ping the OLT successfully, do as follows:
 - 1. In the Main Topology, choose the ONU from the **Physical Root** navigation tree, rightclick, and then choose **Tool** > **Ping** from the shortcut menu.
 - 2. In the dialog box that is displayed, select **Ping** and click **Start**. If a reply message is displayed, it indicates that the connection between the OLT and ONU is successfully set up.
| Ping X | | |
|--|--|--|
| Ping O Continual ping | | |
| Result | | |
| Reply from 10.71.227.12: bytes=32 time=3ms TTL=64 | | |
| Reply from 10.71.227.12: bytes=32 time=3ms TTL=64 | | |
| Reply from 10.71.227.12: bytes=32 time=5ms TTL=64 | | |
| Reply from 10.71.227.12: bytes=32 time=5ms TTL=64 | | |
| Packets: Sent = 4. Received = 4. Lost = 0 (0% loss | | |
| Approximate round trip times in milli-seconds: | | |
| Minimum = 3ms, Maximum = 5ms, Average = 4ms | | |
| | | |
| | | |
| <u>S</u> tart Close | | |

----End

Command Reference

То	Run the Command	In
Query the information about the device when it functions as an ONU	display onu info	Global config mode

19.2 Configuring Services on the OLT

An FTTB network consisting of OLTs and MDUs provides users with Internet services, multicast services, and voice services.

Context

Several operations are required when you configure a service. The following lists the services configured at the OLT side and the service configuration steps.

Services	Steps
Internet access service	• 19.2.1 Configuring a VLAN
	• 19.2.3 Adding a Service Port

Services	Steps	
Multicast service	• 19.2.1 Configuring a VLAN	
	• 19.2.3 Adding a Service Port	
	• 19.2.7 Configuring the Multicast VLAN	
	• 19.2.5 Configuring the Virtual Multicast Upstream Port	
	• 19.2.6 Configuring a Preview Profile	
	• 19.2.8 Configuring a Program Profile	
	• 19.2.10 Configuring a Multicast User	
Voice service	• 19.2.1 Configuring a VLAN	
	• 19.2.3 Adding a Service Port	

19.2.1 Configuring a VLAN

Virtual local area network (VLAN) is a technology used to form virtual workgroups by grouping the devices of a LAN logically.

19.2.2 Configuring an MEF IP Traffic Profile

An MEF IP traffic profile defines a series of traffic parameters. It is referenced by the device and the port to monitor and manage the traffic. After an MEF IP traffic profile is created, you can directly reference it when creating a traffic stream and setting the port rate limit.

19.2.3 Adding a Service Port

After being configured successfully, the service port can carry service streams of various types.

19.2.4 Configuring Multicast System Parameters

Before you provision multicast services, you need to configure multicast system parameters according to the global data plan. The parameters include the Internet Group Management Protocol (IGMP) parameters and NTV mode.

19.2.5 Configuring the Virtual Multicast Upstream Port

To provide demand services when the upstream port is not working in the MSTP mode, you need to configure a virtual multicast upstream port to transmit and receive the multicast packets (including the protocol packets and data packets). After the virtual multicast upstream port is added, the multicast packets are transmitted and received through this port.

19.2.6 Configuring a Preview Profile

This topic describes how to deliver a configured preview profile to a device and make the preview profile take effect on the device.

19.2.7 Configuring the Multicast VLAN

One or more multicast VLANs are used to separate the multicast service from other services. After configuring the multicast user, you need to add the user to a multicast VLAN so that the user can watch the programs in the multicast VLAN.

19.2.8 Configuring a Program Profile

This topic describes how to deliver a configured program profile to a device and make the program profile take effect on the device.

19.2.9 Adding a Multicast Rights Profile

A rights profile is used to manage the rights to a series of programs. In the rights profile, you can set the rights to different programs and then bind the rights profile to the users that need to

be authenticated. The users that need not be authenticated can watch all the programs provided by the NE.

19.2.10 Configuring a Multicast User

This topic describes how to add a multicast user. Only multicast users can watch multicast programs.

19.2.1 Configuring a VLAN

Virtual local area network (VLAN) is a technology used to form virtual workgroups by grouping the devices of a LAN logically.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose VLAN from the navigation tree.
- 3 On the VLAN tab page, set the filter criteria or click [▶] to display the VLANs.
- 4 In the information list, right-click and choose Add from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

VLANUD/1 4005):	10
Name:	VLANID 10
Alias:	
Туре:	Standard VLAN
Attribute:	Common 👻 *
VLAN Priority:	
	VLAN ID(1-4095): Name: Alias: Type: Attribute: VLAN Priority:

Add VLAN		×
Base Info Configure VLAN	Sub Port L3 Interface Extended Info Physical Port List Prame:0 Participation Prame:0	
	<u>Back N</u> ext <u>D</u> one <u>C</u> ancel)

Key Parameter	Description
Start ID End ID	Indicates the start and end IDs when you add VLANs in batches.
Туре	Indicates the VLAN type.
Attribute	Indicates the VLAN attribute.
VLAN Priority	Indicates the VLAN priority. This parameter is applicable to the VLANs for an OLT.

6 Click Done.

----End

Command Reference

То	Run the Command	In
Query the information about the VLAN	display vlan	Privilege mode
Add one VLAN or more VLANs of a same type in batches	vlan	Global config mode
Set the VLAN attribute	vlan attrib	Global config mode

19.2.2 Configuring an MEF IP Traffic Profile

An MEF IP traffic profile defines a series of traffic parameters. It is referenced by the device and the port to monitor and manage the traffic. After an MEF IP traffic profile is created, you can directly reference it when creating a traffic stream and setting the port rate limit.

Context

The MEF IP traffic profile that is added through the U2000 exists only in the database of the U2000, but it is not applied to the device. The MEF IP traffic profile is created on the device only when the device references the MEF IP traffic profile to create a service virtual port or the MEF IP traffic profile is successfully applied to the device manually.

- 1 Choose Configuration > Access Profile Management > Traffic Profile from the main menu.
- 2 Click the **MEF IP Traffic Profile** tab.
- 3 Right-click and choose Add Global Profile from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

X

Add MEF IP Traffic Profile

Description Info

- Configure the desired parameters.
- When parameter CIR is not set, parameter 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 than or equal to parameter CBS.

Profile Parameters	
Name:	mefip_profile *
Alias:	
CIR (Kbit/s) (64-10240000):	64 Unlimited
CBS (bytes) (2000-10240000):	*
PIR (Kbit/s) (64-10240000):	128 *
PBS (bytes) (2000-10240000):	60960 *
Outer Priority (0-7):	0*
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

Key Parameter	Description
CIR	Indicates the committed information rate. It ranges from 1 to 8192. The rate must be an integer multiple of 64 kbit/s, namely, the rate must rage from 64 kbit/s to 524288 kbit/s.
	If this parameter is set, the CBS, PIR, and PBS parameters are available.

Key Parameter	Description
Outer Priority	Indicates the keywords of scheduling priority. The larger the value, the higher the scheduling priority ranks. It ranges from 0 to 7.
Inner Priority	

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

----End

Command Reference

То	Run the Command	In
Query an existing traffic profile in the system	display traffic table ip	Privilege mode
Create an MEF IP traffic profile	traffic table ip	Global config mode

19.2.3 Adding a Service Port

After being configured successfully, the service port can carry service streams of various types.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose Connection > Service Port from the navigation tree.
- 3 In the information list, right-click and choose Add from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

Add Service Po	rt					×
Basic Info ID(1-32768):	1000			Attributes		
Name: Alias:	1000/0_3_	_0/0/1/Multi-Service V	LAN/100 *	Connection Type:	AN-GPON	*
- Network Side				User Side		
ULAN Choice: Tag-Transforr	(1-8192): n:	Smart VLAN Default	···	Interface Selection: Cos value(0-7): Service Type:	0/3/0/0/1 Multi-Service VLAN	*
Vlan ID(1-409	5):	1000	*	User VLAN(1-4095):	100	*
Traffic Profile In	fo					
✓ Keep the Upstream Trake	upstream ai fîic Name:	nd downstream setti	ngs the same	Downstream Traffic Nan	ne: ip-traffic-table_2	···· *
					OK Cancel	Apply

The parameter of port selection used when a service virtual port is added in the profile mode is different from that used when a service virtual port is added in the distributed mode.

Key Parameter	Description
Vlan ID	Indicates the VLAN ID of the service virtual port. The VLAN ID uniquely identifies a VLAN.
Interface Selection	 In the discrete mode, this parameter is displayed in the format shelf ID/slot ID/port ID/GEM port ID. In the profile mode, this parameter is displayed in the format shelf ID/slot ID/port ID/ONT ID/GEM port ID.
Traffic Profile Info	Selects only the traffic profile that exists on the device. Otherwise, an error is reported.

5 Click OK.

----End

Command Reference

То	Run the Command	In
Query the 802.1x configuration of a service virtual port	display dot1x service-port	Privilege mode
Bind a service virtual port with 802.1x authentication	dot1x service-port	Global config mode

19.2.4 Configuring Multicast System Parameters

Before you provision multicast services, you need to configure multicast system parameters according to the global data plan. The parameters include the Internet Group Management Protocol (IGMP) parameters and NTV mode.

Procedure

• Configure IGMP parameters.

IGMP defines the mechanism used to set up and maintain the relationship of multicast group members between the device and the router. By setting IGMP parameters, you can effectively control the IGMP parameters of multicast packets, including the relevant parameters defined in IGMP.

- 1. Choose **Configuration** > **Access Profile Management** > **System Parameter Profile** from the main menu.
- 2. On the **System Parameter Profile** tab page, select the required device type from the **Device Type** drop-down list.
- 3. Right-click and choose Add Global Profile from the shortcut menu.
- In the dialog box that is displayed, enter the name of the system parameter profile. Choose all parameters from the **Parameters for Selection** navigation tree, click
 to add the parameters to the **Selected Parameters** navigation tree, and then click **Next**.

dd System Parameters Profile		×
Description Info Please set the required system parameters. On the first page, you can customize the required para On the second page, you can set the customized para	rameters. rameters.	
Profile Parameters		
Name: system	* Alias:	
Parameters for Selection Authorization	Selected Parameters	
	< <u>B</u> ack <u>Next></u> Einish Cance	

- 5. Choose **Protocol** > **IGMP** from the **System Parameter Settings** navigation tree.
- 6. In the dialog box that is displayed, set the parameters.

ne. Igmp-related	* Allas.	
/stem Parameter Settings		7
Protocol	Parameter	Value
- IGWP	Interval for general query (s) (30-5000)	125
	Max response time for general query (0.1s) (1-255)	100
	Max response time for V3 general query (0.1s) (1-317	100
	System robustness factor (1-10)	2
	Auto report time interval (s) (1-5000)	10
	V1 router aging time (s) (1-5000)	400
	V2 router aging time (s) (1-5000)	400
	Interval for specific queries (0.1s) (1-50000)	10
	Max response time for specific query (0.1 s) (1-255)	8
	Max response time for V3 specific query (0.1s) (1-317	8
	Number of specific queries (1-10)	2
	Recognition time (s) (1-120)	30
	Proxy switch of report packets	Close
	IGMP leave message proxy switch	Close
	User querier switch	Close
	User Action Report switch	Disable
	V3 report Snooping Process	firstmatch
	IGMP packet encapsulation	All
	ECHO switch	Enable

During configuration, use the default IGMP parameters.

- 7. Click Finish.
- Configure NTV parameters.

Configure the multicast video service mode.

- 1. Choose Configuration > Access Profile Management > System Parameter Profile from the main menu.
- 2. On the **System Parameter Profile** tab page, select the required device type from the **Device Type** drop-down list.
- 3. Right-click and choose Add Global Profile from the shortcut menu.
- 4. In the dialog box that is displayed, enter the name of the system parameter profile. Choose all parameters from the **Parameters for Selection** navigation tree, click

to add the parameters to the **Selected Parameters** navigation tree, and then click **Next**.

Add System Parameters Profile
Description Info • Please set the required system parameters. • On the first page, you can customize the required parameters. • On the second page, you can set the customized parameters.
Profile Parameters Name: system Allas:
Parameters for Selection Selected Parameters ⊕ System working mode How h
< <u>Back</u> Next> Einish Cancel

- 5. Choose NTV from the System Parameter Settings navigation tree.
- 6. In the dialog box that is displayed, set the parameters.

ame: ntv	* Alias:		
System Parameter Setting	8		
	Parameter	Value	
	Default VPI for VOD (0-255)	0	
	Default VCI for VOD (32-255)	35	
	Default user VLAN (1-4095)	1	
	Default encapsulation mode on the user side	IPoE	
	Program Number of License	1024	
	NTV mode	IGMP_proxy	
	Uplink port mode	Default	
	Right profile mode	Profile based mode	
	Authentication switch	Open	
	Preview switch	Open	
	Preview auto clear time	04:00:00	
	Multicast log production interval (h) (0-12, Close the	1 2	
	Enable bandwidth management switch	Open	
	Global log switch	Open	
	IGMP over PPPoE user aging time (s) (10-1200)	150	
	Priority of multicast authority	Forbidden-preview-watch	
	CDR report interval (s) (60-43200)	600	
	CDR report number (100-200)	200	
	CDR switch	enable	
	Multicast CAC value at the user side; bandwidth all	oc 100	
	Multicast UpStream Mode	IGMP	
	Query source IP address of packet	Query source IP address of packet 192.168.1.1	
		K.	

Key Paramete r	Description
Enable bandwidth managem ent switch	Specifies whether the system performs bandwidth management. If the switch for bandwidth management is enabled, the system limits the bandwidth for multicast programs on the upstream port or the user port. If the switch for bandwidth management is disabled, the system does not perform multicast bandwidth management on the upstream port or the user port, and the system does not guarantee the bandwidth for multicast programs.
	• When the bandwidth management switch is disabled, the bandwidth for the program that is added is automatically adjusted to 0.
	• In the MSTP mode, if users are online, this switch cannot be enabled after it is disabled. To enable the switch, change the mode of the upstream port or force all the users to log out first.
	NOTE Choose Open.

7. Click Finish.

----End

Command Reference

То	Run the Command	In
Query the configuratio n of IGMP global parameters	display igmp config global	Privilege mode, BTV mode, MVLAN mode
Set the current IGMP version of a multicast VLAN to V2 or V3	igmp version NOTE Choose v3 version.	MVLAN mode
Enable the call detailed record (CDR) function of the system	igmp cdr enable	BTV mode
Set the multicast log reporting	igmp log report	BTV mode
Set the IGMP mode of a multicast VLAN	igmp mode NOTE Choose proxy mode.	MVLAN mode

19.2.5 Configuring the Virtual Multicast Upstream Port

To provide demand services when the upstream port is not working in the MSTP mode, you need to configure a virtual multicast upstream port to transmit and receive the multicast packets (including the protocol packets and data packets). After the virtual multicast upstream port is added, the multicast packets are transmitted and received through this port.

Prerequisite

The Uplink port mode parameter cannot be configured with MSTP. For details, see 19.2.4 Configuring Multicast System Parameters.

Procedure

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

- 2 Choose Multicast > Virtual Uplink Port from the navigation tree.
- 3 In the information list, right-click and choose Add from the shortcut menu.
- 4 In the dialog box that is displayed, configure the shelf, slot, and port of the upstream port.

Add Virtual Uplink Port		×
Location Info		
Device Name: 10.10.10.6		*
Multicast VLAN Info	Uplink Port Info	
	Frame: 0	*
VLAN ID(1-4095): 1000 *	Slot: 19	*
	Port: 0	*
	OK Cancel] <u>Apply</u>

5 Click OK.

----End

Command Reference

То	Run the Command	In
Query the information about a multicast upstream port	display igmp uplink-port	Privilege mode, BTV mode, MVLAN mode
Query isolation of upstream ports and subtended cards	display isolate	Privilege mode
Query all the VLANs of a specified upstream port	display port vlan	Privilege mode

То	Run the Command	In
Configure the default upstream port of a multicast VLAN	igmp default uplink-port	MVLAN mode
Add a multicast upstream port to a multicast VLAN	igmp uplink-port	MVLAN mode
Set the port to function as an upstream port or a subtended port	network-role	SCU mode, GIU mode, ETH mode
Add an upstream port to a VLAN	port vlan	Global config mode

19.2.6 Configuring a Preview Profile

This topic describes how to deliver a configured preview profile to a device and make the preview profile take effect on the device.

- 1 Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
- 2 Click the **Preview Profile** tab, and select the required device type from the **Device Type** dropdown list.
- 3 Right-click and choose Add Global Profile from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

k	ld Preview Profile	×
	Profile Parameters	
	Name:	previewprofile *
	Alias:	
	Preview Duration (s) (10 to 6000):	120 *
	Preview Times (1 to 255):	8*
	Preview Interval (s) (0 to 7650):	120 *
	ОК	Cancel Apply

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

----End

Command Reference

То	Run the Command	In
Enable the function of multicast preview	igmp preview	BTV mode
Add a program preview profile	igmp preview-profile add	BTV mode

19.2.7 Configuring the Multicast VLAN

One or more multicast VLANs are used to separate the multicast service from other services. After configuring the multicast user, you need to add the user to a multicast VLAN so that the user can watch the programs in the multicast VLAN.

Prerequisite

The corresponding VLAN must exist. For details, see 19.2.1 Configuring a VLAN.

Procedure

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

- 2 Choose Multicast > Multicast VLAN from the navigation tree.
- **3** Click **Find**. In the dialog box that is displayed, set the filtering criteria and display the multicast VLANs that meet the requirement.
- 4 On the Multicast VLAN interface, right-click, and then choose Add.
- 5 In the dialog box that is displayed, set the parameters.

Add Multicast VLAN						×
Basic Info						
Device Name: 1	0.78.217.109					*
Name:			Alias:			
IGMP Version:	GMP V3		💌 🗯 🗌 Defaul	IT VLAN		
Autogeneration Pro	gram IP Address		-Work Mode			
Program Match Mo	ode: 💿 Enable	O Disable	IGMP Work Mc	ode:	igmp_snoo	oping 🔻 *
Start IP Address:			Snooping Rep	port Switch:	🔿 Open	• Close
End IP Address:			Snooping Lea	we Switch:	🔿 Open	Close
			IGMP Video M	ode:	Multicast	•
			IGMP Inner VL	.AN(1~4095):		
		<	: <u>B</u> ack <u>N</u> ex	₫> <u>E</u> i	inish	Cancel

Key Parameter	Description
IGMP Work Mode	 Indicates the working mode of the multicast VLAN. igmp_proxy: In this mode, the system processes multicast packets as a proxy. For a user, the system functions as a multicast server. For the upper-layer device, the system functions as a multicast user. igmp_snooping: The system transmits multicast packets transparently. In this mode, the functions of hosting, pre-adding, reporting in an unsolicited manner, and statically adding multicast programs do not take effect. tv_off: disables the IGMP function. In this mode, multicast users cannot watch programs.

6 Click Next.

7 In the dialog box that is displayed, set the parameters.

Add Multicast VLAN					×
Default Up Port Info					
Frame:		Slot:	Por	t:	
Parameter Info					
IGMP Report Priority (0-7):	6		Report Interval(S) (10-5000):	10	*
Log Switch:	• Open	O Close	Global-Leave Switch	: • Open	O Close
		< <u>B</u> ack	Next>	<u>F</u> inish	Cancel

Key Parameter	Description
Report Interval	Indicates the interval at which the system reports IGMP Report packets to the upper-layer device in an unsolicited manner.

- 8 Click Next.
- 9 Select the required VLAN from the list, and then click Finish.

A	dd Multicast	VLAN				×
	Select VLAN					
						No. 0. Totako
	Please input query condition			- ind	NO. 2, TOTAI:3	
	VLAN ID 🛆	Name	Alias	Туре 🛆	Attribute 🛆	Super VLAN II
	1	VLANID_1		Smart VLAN	Common	
	1111	VLANID_11		Smart VLAN	Stacking	
	4000	VLANID_40		Smart VLAN	Common	
	<					
		<back< td=""><td></td><td>ext></td><td>Finish</td><td>Cancel</td></back<>		ext>	Finish	Cancel



Command Reference

То	Run the Command	In
Query the configuratio n of a specific multicast VLAN	display igmp config vlan	Privilege mode, BTV mode, MVLAN mode
Create a multicast VLAN and enter the multicast VLAN mode	multicast-vlan	Global config mode, BTV mode

19.2.8 Configuring a Program Profile

This topic describes how to deliver a configured program profile to a device and make the program profile take effect on the device.

Prerequisite

The multicast preview profile must be configured.

Context

The MA5620E, MA5626E, MA5620G, and MA5626G do not support program profiles.

- 1 Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
- 2 Click the **Program Profile** tab, and select the required device type from the **Device Type** dropdown list.
- 3 Right-click and choose Add Global Profile from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

Add Program Profile			×			
 Description Info Configure the desired parameters. When the program is provisioned, if the IGMP version of the multicast VLAN is V2, the program can not have a source IP address. If the IGMP version of the multicast VLAN is V3, address. the program must have a source IP 						
Name:	program		*			
Alias:						
Begin IP Address:	224.100.100.100 *	End IP Address:	224.100.100.150 *			
Source IP Address:	10 . 15 . 10 .110	Host IP:	10.10.10.6 *			
Priority (0 to 7):	7 *	Bandwidth (Kbit/s) (0 to 65534):	\$000 *			
Grade:	no-grade 💌 *	Multicast VLAN(1-4095):	10			
Preview Parameter						
Preview Profile: 1			*			
Attribute Parameter						
🗌 Prejoin Attribute		🗾 Host Attribute				
Unsolicited Attribu	ute	🗾 Log Attribute				
🔲 Across VLAN Attri	bute					
		OK Can	cel <u>A</u> pply			

- 5 Click OK.
- 6 In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- 7 In the dialog box, select the required devices in the left pane, and then click Next.
- 8 In the dialog box that is displayed, set the VLAN ID and click Finish.

----End

Command Reference

То	Run the Command	In
Query the information about a multicast program	display igmp program	Privilege mode, BTV mode, MVLAN mode
Add a static multicast program to a multicast VLAN	igmp program add	MVLAN mode

19.2.9 Adding a Multicast Rights Profile

A rights profile is used to manage the rights to a series of programs. In the rights profile, you can set the rights to different programs and then bind the rights profile to the users that need to be authenticated. The users that need not be authenticated can watch all the programs provided by the NE.

Prerequisite

- The U2000 must work in the normal state.
- The required program profile must be configured on the MDU.

Context

The MA5620E, MA5626E, MA5620G, and MA5626G do not support rights profiles.

- 1 Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
- 2 Click the Right Profile tab and select MA56T&MDU from the Device Type drop-down list.
- 3 Right-click and choose Add Global Profile from the shortcut menu.
- 4 In the Add Right Profile dialog box, set Name to right_profile. In the Selected Program Profile area, right-click and choose Select Profile from the shortcut menu. In the Right column, set the required program profile.

Add Rig	ht Prof	file			×
Configur	e Right Ba	ase Attribute			
Name:	right pr	ofile			*
Alias:					
74100.	I				
Selected	Program	Profile			
					No. 0, Total:0
Nan	ne 🗠	Alias 🛆	IP Address 🛆	Source IP 🛆	Right 🛆
		_			
		_	Select Profile		
			ОК	Cancel	Apply

5 Click OK.

----End

Command Reference

То	Run the Command	In
Add program rights to a multicast rights profile.	igmp profile add	BTV mode

19.2.10 Configuring a Multicast User

This topic describes how to add a multicast user. Only multicast users can watch multicast programs.

Prerequisite

The corresponding service virtual port must exist.

Context

- When adding a multicast user, you must specify a service virtual port.
- An authentication user must be bound to a rights profile to obtain relevant rights. A nonauthentication user can watch all the programs configured on the device. You need not configure the rights for a non-authentication user.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose Multicast > Multicast User from the navigation tree.
- 3 On the Multicast User tab page, set the filter criteria to display the required multicast users.
- 4 In the information list, right-click and choose Add from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

dd User							×
Select Device							
Device Name:	10.10.10.6						["
Parameters							
Name:		er_0_2_2/12/222	/single Ali:	is:			
Max. Program	ns NO.(1-32):	8	* 🖌	Enable Log	Switch		
Quick Leave 1	Mode:	mac-based	▼ □	Enable Auth	orization	🖌 Default Video	Flow
User Max Bar (0-42949672)	nd Width(kbit/s 94):	s)	Ľ	Unlimited Ba	and Width	🗾 Receive Glob	al-Leave
- Select Service I	Port						
11						🗸 Find	No. 1, Total:1
Name 🛆	Alias 🛆 🛛 .	Interface Information	n Service Typ	e 🛆 Service	e Para Upsti	ream Traffic Name	e (Tx)Downstrea
1/0_2_2/12 1	0.71.211	Frame: 0/Slot: 2/P	Single		ip-tra	ffic-table_5	ip-traffic-tal
							>
			< <u>B</u> a	ick	<u>N</u> ext>	<u> </u>	Cancel

Key Parameter	Description
Quick Leave mode	Indicates the mode of multicast users for leaving multicast groups.
Max. Programs NO.	Each multicast user can watch up to 32 programs online simultaneously. By default, each multicast user can watch eight programs online simultaneously.
User Max Band Width	This parameter and Unlimited Band Width are mutually exclusive. If you select Unlimited Band Width , the setting of this parameter is invalid.

After selecting **Enable Authorization**, click **Next**. In the dialog box that is displayed, configure the rights profile that is delivered to the multicast user.

6 Click Finish.

- 7 In the information list, select the multicast user and click the User Multicast VLAN tab in the lower pane. Right-click the list and choose Add from the shortcut menu.
- 8 In the dialog box that is displayed, select the multicast VLAN to be bound, and click **OK**.

----End

Command Reference

То	Run the Command	In
Query the information about a multicast user	display igmp user	Privilege mode, BTV mode, MVLAN mode
Add a multicast user	igmp user add	BTV mode

19.3 Configuring Services on the MDU

An FTTB network consisting of OLTs and MDUs provides users with Internet services, multicast services, and voice services.

Context

Several operations are required when you configure a service. The following lists the services configured at the MDU side and the service configuration steps.

Services	Steps		
Internet access service	• 19.3.1 Configuring a VLAN		
	• 19.3.3 Adding a Service Port		
	• 19.3.4 Configuring an ADSL Line Profile		
	• 19.3.5 Configuring an ADSL Alarm Profile		
	• 19.3.6 Configuring the Attributes of an ADSL Port		
	• 19.3.7 Activating an ADSL Port		
Multicast service	• 19.3.1 Configuring a VLAN		
	• 19.3.3 Adding a Service Port		
	• 19.2.7 Configuring the Multicast VLAN		
	• 19.2.5 Configuring the Virtual Multicast Upstream Port		
	• 19.2.6 Configuring a Preview Profile		
	• 19.2.8 Configuring a Program Profile		
	• 19.2.10 Configuring a Multicast User		
Voice service	• 19.3.1 Configuring a VLAN		
	• 19.3.2 Configuring an IP Interface		
	• 19.3.8 Configuring a Static Route		
	• 19.3.9 Adding an MGC Profile		
	• 19.3.10 Configuring a UAS Profile		
	• 19.3.12 Adding an MG		
	• 19.3.13 Binding an MGC Profile		
	• 19.3.14 Starting an MG		
	• 19.3.15 Configuring a VoIP PSTN Port		

19.3.1 Configuring a VLAN

Virtual local area network (VLAN) is a technology used to form virtual workgroups by grouping the devices of a LAN logically.

19.3.2 Configuring an IP Interface

The IP interface is mainly used to forward IP packets at layer 3. The configured IP address is placed into the IP address pool and functions as the signaling IP address of the MG or the media IP address, which is used to communicate with the MGC.

19.3.3 Adding a Service Port

After being configured successfully, the service port can carry service streams of various types.

19.3.4 Configuring an ADSL Line Profile

An ADSL line profile provides parameters that are required for activating an ADSL port. After the ADSL line profile is configured successfully, when you configure the attributes of the ADSL port, you can directly reference the ADSL line profile to limit the port rate and noise margin to improve the service quality.

19.3.5 Configuring an ADSL Alarm Profile

When the ADSL port is activated, it directly references the ADSL alarm profile to monitor the performance of the port. When the actual parameter value of the port exceeds the threshold, the system generates an alarm.

19.3.6 Configuring the Attributes of an ADSL Port

This topic describes how to configure a line profile, an alarm profile, extended profile (optional) of an ADSL port. These attributes can be used after the ADSL port is activated.

19.3.7 Activating an ADSL Port

The ADSL port can transmit the service in the normal state only when it is activated successfully.

19.3.8 Configuring a Static Route

This topic describes how to configure the static route between the U2000 server and an ONU. When the ONU is managed through the SNMP protocol, you can manage and maintain the ONU by performing this operation.

19.3.9 Adding an MGC Profile

An MGC profile defines the peer parameters of an MG port. To configure the MG port and enable it to communicate with the MGC, you only need to bind the pre-configured MGC profile to the MG port. The data of an MG port provides the information about the ports and connections between the MG and the MGC. Various services are provided through an MG port only when the MG port is configured properly. Ensure that the data configured on the MG port is the same as the corresponding data configured on the MGC.

19.3.10 Configuring a UAS Profile

A UAS profile is added when an MG that supports the SIP protocol is added. The SIP protocol is a control-layer protocol of the IMS and it is one of the framework protocols designed by the IETF for the multimedia communication system. The SIP protocol is also an application-layer protocol for creating, modifying, and terminating multimedia sessions. It is used with other protocols, such as RTP, RTCP, SDP, RTSP, and DNS, to complete session establishment and media negotiation.

19.3.11 Adding a TID Profile

A terminal ID (TID) is the prefix that a terminal carries when it registers with an MG. A terminal is a logical entity on the MG and it initiates and receives media streams or control streams. When creating a terminal, the MG allocates a unique TID to identify the terminal.

19.3.12 Adding an MG

Before provisioning services for network elements, you can add an MG according to the global data plan to enable the MG port to communicate with the upper layer MGC.

19.3.13 Binding an MGC Profile

This topic describes how to bind a configured MGC profile to an MG interface to configure the MG interface and interconnect the MG interface with an MGC.

19.3.14 Starting an MG

For the MG that supports the MGCP and H.248 protocols, cold start the MG port so that the MG port can negotiate with the MGC through the specified MGC protocol. In this case, the MG port can register with the MGC so that the configured data can take effect. For the MG that supports the SIP protocol, you also need to restart the MG to make the configuration data to take effect after the configuration

19.3.15 Configuring a VoIP PSTN Port

This topic describes how to access and configure the VoIP PSTN voice service.

19.3.16 Adding an xPON FTTB Service Provisioning Profile

The U2000 of the latest version plans to use the service provisioning profile to provision services to users. The service provisioning profile encapsulates common attributes of the service channel

to a profile. To provision services to users, bind this profile to the port, and then set user-defined service parameters, thus implementing service provisioning at one step.

19.3.17 Configuring an xPON FTTB Service

You can directly configure and provision an xPON FTTB service by binding the configured xPON FTTB service provision profile with a certain physical port on the ONU.

19.3.1 Configuring a VLAN

Virtual local area network (VLAN) is a technology used to form virtual workgroups by grouping the devices of a LAN logically.

Context

Before you provision services for network elements, you can add a VLAN or add VLANs in batches according to the global data plan. When VLANs with continuous IDs and the VLAN type is consistent with the VLAN attribute, these VLANs can be added in batches. In addition, the names of the VLANs that are added in batches are generated automatically.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose VLAN from the navigation tree.
- 3 On the VLAN tab page, set the filter criteria or click [▶] to display the VLANs.
- 4 In the information list, right-click and choose Add from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

Add VLAN		X
Sase Info Configure VLAN		
	VLAN ID(1-4095):	2*
	Name:	VLANID_2 *
	Alias:	
	Туре:	Smart VLAN 👻 *
	Attribute:	Common 💌 *
	802.1 Priority:	2
	E	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

Add VLAN	
Add VLAN Base Info Configure VLAN	Sub Port L3 Interface Extended Info
	Back Next Done Cancel

Key Parameter	Description
VLAN ID	Indicates the VLAN ID. The VLAN ID uniquely identifies a VLAN. NOTE Add VLANs according to data plan.
Туре	Indicates the VLAN type. NOTE Usually, Smart is selected.
Attribute	Indicates the VLAN attribute. NOTE For xPON FTTB, QinQ is usually selected.
802.1 Priority	Indicates the VLAN 802.1 priority. This parameter is applicable to the VLANs for an ONU.

6 Click Done.

----End

Command Reference

То	Run the Command	In
Query the information about the VLAN	display vlan	Privilege mode

То	Run the Command	In
Add one VLAN or more VLANs of a same type in batches	vlan	Global config mode
Set the VLAN attribute	vlan attrib	Global config mode

19.3.2 Configuring an IP Interface

The IP interface is mainly used to forward IP packets at layer 3. The configured IP address is placed into the IP address pool and functions as the signaling IP address of the MG or the media IP address, which is used to communicate with the MGC.

Prerequisite

An IP interface can be added only after the L3 interface of the VLAN is configured.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose VLAN from the navigation tree.
- 3 Click the VLAN tab. On the VLAN tab page, set the filter criteria or click is to display the VLANs. Select a record from the VLAN list, and then click the **IP Interface** tab in the lower pane.
- 4 On the **IP Interface** tab page, right-click, and then choose **Add**.
- 5 In the dialog box that is displayed, set the parameters of the IP interface.
- 6 Click OK.

----End

19.3.3 Adding a Service Port

After being configured successfully, the service port can carry service streams of various types.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose Connection > Service Port from the navigation tree.
- 3 In the information list, right-click and choose Add from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

Add Service Port	×
Basic Info Name: 1001/0_1_0/Multi-Service VLAN/3000 * Alias:	Attributes Connection Type: LAN-ETHER 🕶 *
Network Side ServicePortBundle Cos value(0-7): * VLAN Choice: Smart VLAN * Vlan ID(1-4095): 1001*	User Side Interface Selection: 0/1/0 • • Service Type: Multi-Service VLAN • • User VLAN(1-4095): 3000 • •
Traffic Profile Info ✓ Keep the upstream and downstream settings the same Upstream Traffic Name: ip-traffic-table_5	Downstream Traffic Name: ip-traffic-table_5
	OK Cancel Apply

Key Parameter	Description
Vlan ID	Indicates the VLAN ID of the service virtual port. The VLAN ID uniquely identifies a VLAN.

Select only the MEF IP Traffic Profile that exists on the device. Otherwise, the system reports an error.

5 Click OK.

----End

Command Reference

То	Run the Command	In
Query the 802.1x configuration of a service virtual port	display dot1x service-port	Privilege mode

То	Run the Command	In
Bind a service virtual port with 802.1x authentication	dot1x service-port	Global config mode

19.3.4 Configuring an ADSL Line Profile

An ADSL line profile provides parameters that are required for activating an ADSL port. After the ADSL line profile is configured successfully, when you configure the attributes of the ADSL port, you can directly reference the ADSL line profile to limit the port rate and noise margin to improve the service quality.

Context

- A profile name uniquely identifies a profile. Therefore, the profile name must be specified and it must be unique. Otherwise, the profile cannot be added.
- You can add profiles that have the same parameters but different names.

- 1 Choose Configuration > Access Profile Management > ADSL Profile from the main menu.
- 2 Click the **ADSL Line Profile** tab, and select the required device type from the **Device Type** drop-down list.
- 3 Right-click and choose Add Global Profile from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

Create ADSL Line Profile			×
▶ Set Basic Parameters	Name: 🗌 Auto Name	adsl_line_profile	*
Set Advanced Parameters	Allas: ADSL Operating Mode:	All	
• Set Extended Parameters	Line Type:	Interleaved	▼
	Adapt Mode in Downstream:	Adaptation At Startup	•
	Fast Rate Attributes		
13* 8°	ATU-C(Downstream) Fast	Min. Tx Rate (Kbit/s)(32-31999):	32
	ATU-C(Downstream) Fast	Max. Tx Rate (Kbit/s)(33-32000):	6144
	ATU-R(Upstream) Fast Mi	n. Tx Rate (Kbit/s)(32-6000):	32
	ATU-R(Upstream) Fast Ma	ix. Tx Rate (Kbit/s)(32-6000):	640
	Interleaved Rate Attributes		
	ATU-C(Downstream) Inter	leaved Min. Tx Rate (Kbit/s)(32-31	1999): 32*
	ATU-C(Downstream) Inter	leaved Max. Tx Rate (Kbit/s)(33-3.	2000): 6144 *
	ATU-R(Upstream) Interlea	ved Min. Tx Rate (Kbit/s)(32-6000): <u>32</u> *
	ATU-R(Upstream) Interlea	ved Max. Tx Rate (Kbit/s)(32-6000): 640 *
	< <u>B</u> acl	k <u>N</u> ext> <u>F</u> inis	sh Cancel

- 5 Click Next.
- 6 In the dialog box that is displayed, set the parameters.

Create ADSL Line Profile		×
Set Basic Parameters	ATU-R(Downstream) Target SNR Mgn. (dB) (0 to 31):	6*
 Set Advanced Parameters 	ATU-R(Downstream) Min. SNR Mgn. (dB)(0-6):	
 Set Extended Parameters 	ATU-R(Downstream) Max. SNR Mgn. (dB)(6-31):	31 *
	ATU-C(Upstream) Target SNR Mgn. (dB) (0 to 31):	6 *
	ATU-C(Upstream) Min. SNR Mgn. (dB)(0-6):	•
	ATU-C(Upstream) Max. SNR Mgn. (dB)(6-31):	31 *
18 ⁸⁷ - 18 ₄₁	ATU-C(Downstream) Max. Interleaved Delay (ms) (0 to 255):	6*
1 adds - 1	ATU-R(Upstream) Max. Interleaved Delay (ms) (0 to 255):	6*
	Downstream Channel Bit Swap:	Disable 🔻
	Upstream Channel Bit Swap:	Disable 🔻
	Trellis Coding:	Enable 🔻
	< <u>B</u> ack <u>N</u> ext> <u>E</u> in	ush Cancel

7 Click Finish.

----End

Command Reference

То	Run the Command	In
Add an ADSL2+ line profile	adsl line-profile add	Global config mode, ADSL mode

19.3.5 Configuring an ADSL Alarm Profile

When the ADSL port is activated, it directly references the ADSL alarm profile to monitor the performance of the port. When the actual parameter value of the port exceeds the threshold, the system generates an alarm.

Context

- A profile name uniquely identifies a profile. Therefore, the profile name must be specified and it must be unique. Otherwise, the profile cannot be added.
- You can add profiles that have the same parameters but different names.

Procedure

- 1 Choose Configuration > Access Profile Management > ADSL Profile from the main menu.
- 2 Click the ADSL Alarm Profile tab, and select the required device type from the Device Type drop-down list.
- 3 Right-click and choose Add Global Profile from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

Cı	create ADSL Alarm Profile			
	Profile Info			
	Name:	sl_alarm_profile		*
	Alias:			
	ATU-C(Downstream) 15-min Loss Thresh (s) (0-900):	* ATU-R(Upstream) 15-mi	n Loss Thresh (s) (0-900):	10 *
	ATU-C(Downstream) 15-min ESs Thresh (s) (0-900):	* ATU-R(Upstream) 15-mi	n ESs Thresh (s) (0-900):	10 *
	ATU-C(Downstream) 15-min Lofs Thresh (s) (0-900):	* ATU-R(Upstream) 15-mi	n Lofs Thresh (s) (0-900):	•
	ATU-C(Downstream) 15-min Lprs Thresh (s) (0-900):	* ATU-R(Upstream) 15-mi	n Lprs Thresh (s) (0-900):	•
	ATU-C(Downstream) Fast Mode Negative Rate (Kbit/s) (0-31968):	 ATU-R(Upstream) Fast M 	fode Negative Rate (Kbit/s) (0-5968):	•
	ATU-C(Downstream) Interleaved Mode Negative Rate (Kbit/s) (0-31968):	* ATU-R(Upstream) Interle	aved Mode Negative Rate (Kbit/s) (0-5968):	•
	ATU-C(Downstream) Fast Mode Positive Rate (Kbit/s) (0-31968):	* ATU-R(Upstream) Fast M	fode Positive Rate (Kbit/s) (0-5968):	0 *
	ATU-C(Downstream) Interleaved Mode Positive Rate (Kbit/s) (0-31968):	* ATU-R(Upstream) Interle	aved Mode Positive Rate (Kbit/s) (0-5968):	•
	ATU-C(Downstream) 15-min Tx SesL Thresh (s) (0-900):	* ATU-R(Upstream) 15-mi	n Tx SesL Thresh (s) (0-900):	•
	ATU-C(Downstream) 15-min Tx UasL Thresh (s) (0-900):	* ATU-R(Upstream) 15-mi	n UasL Thresh (s) (0-900):	0 *
	ATU-C(Downstream) 15-min Lols Thresh (s) (0-900):	* ATU-C(Downstream) 15-	min Fast Training Failure Thresh (s) (0-900):	•
	ATU-C(Downstream) Initialization Failure Trap Enable:	sable 🔻		
			OK Cancel	Apply

5 Click OK.

----End

Command Reference

То	Run the Command	In
Add an ADSL2+ alarm profile	adsl alarm-profile add	Global config mode, ADSL mode

19.3.6 Configuring the Attributes of an ADSL Port

This topic describes how to configure a line profile, an alarm profile, extended profile (optional) of an ADSL port. These attributes can be used after the ADSL port is activated.

Context

You can modify the attributes of a port when the port is in the activated, activating, or deactivated state. If the port is in the deactivated state, modify the port attributes directly. If the port is in the activated or activating state, deactivate it before modifying the port attributes.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose DSL > ADSL from the navigation tree.
- 3 On the ADSL tab page, set the filter criteria or click [™] to display the ADSL ports.
- 4 In the information list, select an ADSL port record, right-click, and then choose **Configure Attributes**.
- 5 In the dialog box that is displayed, bind the ADSL port to the corresponding profile.

С	Configure Attributes 🔀			<
	Location Info			
	Name:	Frame: 0/Slot: 1/Port: 1		
	Port Type:	ADSL2+		
l	Line Profile:		ADSL LINE PROFILE 1002	
Alarm Profile:			DEFVAL	
Extended Profile:		rofile:		
I	ine-monitoring	g(%)(0-100):	0	
			OK Cancel Apply	

6 Click OK.

----End

Command Reference

То	Run the Command	In
Query the status of ADSL2+ ports and the information about their activation profiles	display adsl port state	Privilege mode

19.3.7 Activating an ADSL Port

The ADSL port can transmit the service in the normal state only when it is activated successfully.

Context

- The ADSL port must be activated and then it can transmit the service.
- Before configuring new parameters to an activated port, you need to deactivate the port, configure the port with a profile with the new parameters, and then activate the port.
- When you activate a port:
 - If the ATU-R is online (powered on), the activating process is complete after the training is successful.
 - If the ATU-R is offline (powered off), the connection set up during the activating process is interrupted, and the ATU-C is in the detection state. When the ATU-R is powered on again, the training automatically initiates. If the training is successful, the port is activated.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose DSL > ADSL from the navigation tree.
- 3 On the ADSL tab page, set the filter criteria or click 🖄 to display the ADSL ports.
- **4** In the information list, select an ADSL port to be activated, right-click, and then choose **Activate**.

----End

Command Reference

То	Run the Command	In
Activate an ADSL2+ port	activate	ADSL mode

19.3.8 Configuring a Static Route

This topic describes how to configure the static route between the U2000 server and an ONU. When the ONU is managed through the SNMP protocol, you can manage and maintain the ONU by performing this operation.

Prerequisite

The ONU must be managed through the SNMP protocol.

- 1 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.
- 2 Choose Static Route from the navigation tree.
- 3 In the information list, right-click and choose Add from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

Add a Static Route		×
Target IP Address:	10 .71 .10 .146]*
Target Mask:	255.255.255.0]*
Next Hop IP Address:	10.78.10.1]*
	OK Cancel <u>Apply</u>	

Key Parameter	Description
Target IP Address	Indicates the destination IP address. It is used to identify the destination IP address or destination network of IP packets.
Target Mask	Indicates the subnet mask of the IP address. A subnet mask consists of consecutive 1s and can be represented in dotted decimal notation when it is written in the text format. The subnet mask and the destination IP address identify the address of the network segment where the destination host or router is located. You can obtain the address of the network segment by performing a logical AND operation on the destination IP address and the subnet mask.
Next Hop IP Address	Indicates the next hop IP address, which is used to identify the next router on the route of IP packets. Latest configuration of the next hop IP address automatically overwrites the previous one and becomes the next hop IP address in the current route information.

----End

Command Reference

То	Run the Command	In
Query the static route between the U2000 server and an ONT	display ont snmp-route	GPON mode
Set the static route between the U2000 server and an ONT	ont snmp-route	Privilege mode, BTV mode, MVLAN mode

19.3.9 Adding an MGC Profile

An MGC profile defines the peer parameters of an MG port. To configure the MG port and enable it to communicate with the MGC, you only need to bind the pre-configured MGC profile to the MG port. The data of an MG port provides the information about the ports and connections between the MG and the MGC. Various services are provided through an MG port only when the MG port is configured properly. Ensure that the data configured on the MG port is the same as the corresponding data configured on the MGC.

- 1 Choose Configuration > Access Profile Management > MGC Profile from the main menu.
- 2 Right-click and choose Add Global Profile from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

l	e∎ ∎GC Profile	
	Profile Parameter	
	Name:	mgc *
	Alias:	
	Protocol Type:	H.248 💌
	DNS Name:	www.mgc.com
	IP Address 1:	10 . 70 . 71 . 100
	IP Address 2:	10 . 70 . 71 . 70
	Port Number(1-65534):	1000
	0	K Cancel Apply

Key Parameter	Description	
Name	Indicates the name of an MGC profile. It is used to uniquely identify an MGC profile.	
Protocol Type	When you configure the MGC, set Protocol Type to H.248 or MGCP according to the system protocol. When you configure the association, set Protocol Type to xUA .	
DNS Name	 Specifies the domain name of the MGC. The domain name is used to identify the MGC. NOTE You must set both or either of DNS Name and IP Address. If DNS Name and IP Address are set, the system analyzes the domain name to obtain the IP address of the MGC. If the analysis fails, the system uses the pre-configured IP address. 	
	 This parameter is available when the Protocol Type is set to H.248 or MGCP. 	

Key Parameter	Description
IP Address 1/IP Address	Indicates peer end IP address 1. If you set Protocol Type to H.248 or xUA , the name of this parameter is IP Address 1 . If you set Protocol Type to MGCP , the name of this parameter is IP
IP Address 2	Indicates peer end IP address 2. This parameter is used to implement SCTP multi-homing. Therefore, this parameter takes effects only when the transmission protocol of the MG port is set to the SCTP protocol.

----End

Command Reference

То	Run the Command	In
Configure the attributes of an MG port that supports the H. 248 protocol	if-h248 attribute	H.248 mode
Configure the attributes of an MG port that supports the MGCP protocol	if-mgcp attribute	MGCP mode

The MGC profile is encapsulated by the U2000. No command is available for the MGC profile in the CLI of the device.

19.3.10 Configuring a UAS Profile

A UAS profile is added when an MG that supports the SIP protocol is added. The SIP protocol is a control-layer protocol of the IMS and it is one of the framework protocols designed by the IETF for the multimedia communication system. The SIP protocol is also an application-layer protocol for creating, modifying, and terminating multimedia sessions. It is used with other protocols, such as RTP, RTCP, SDP, RTSP, and DNS, to complete session establishment and media negotiation.

- 1 Choose Configuration > Access Profile Management > UAS Profile from the main menu.
- 2 Right-click and choose Add Global Profile from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

Add UAS Profile	×
Profile Parameter	
Name:	UAS *
Alias:	
Address Mode:	Fix mode 💌
IP Address 1:	111.111.111.110 *
IP Address 2:	111.111.111
Proxy Port(1-65535);	23 *
Domain Name:	
2000000	
ОК	Cancel <u>A</u> pply

Key Parameter	Description
Address Mode	Indicates the address mode of the SIP MG. Enumerated type. The options are Fix mode and DNS-A query mode .
IP Address 1	Indicates the IP address of the proxy server of the SIP MG. This parameter is available only when Address Mode is set to Fix mode .
IP Address 2	Indicates the standby IP address of the proxy server of the SIP MG. This parameter is available only when Address Mode is set to Fix mode .
Proxy Port	Indicates the port ID of the proxy server of the SIP MG.
Domain Name	Indicates the name of the home domain of the SIP MG. This parameter is available only when Address Mode is set to DNS-A query mode .

----End

Command Reference

То	Run the Command	In
Configure the mandatory attributes of an SIP interface	if-sip attribute basic	STP mode

The MGC profile is encapsulated by the U2000. No command is available for the MGC profile in the CLI of the device.

19.3.11 Adding a TID Profile

A terminal ID (TID) is the prefix that a terminal carries when it registers with an MG. A terminal is a logical entity on the MG and it initiates and receives media streams or control streams. When creating a terminal, the MG allocates a unique TID to identify the terminal.

Prerequisite

The U2000 must work in the normal state.

- 1 Choose Configuration > Access Profile Management > TID Profile from the main menu.
- 2 Right-click and choose Add Global Profile from the shortcut menu.
- 3 In the New TID Profile dialog box, set Name to tid-profile_1 and set other parameters.

Ν	ew TID Profile			×
	Profile Parameter			
	Name:	tid-profile_1	*	
	Alias:			
	Format:	%u%u%u%u	*	
	Parameter List:	S+1,F+1,P+1,B	*	
			OK Cancel <u>A</u> pply	
K	Key Parameter Description			
F	ormat		Indicates the format character string. It defines the format of the character string generated by the parameter list.	
Р	arameter List		Indicates the parameters to be converted character string. The number of parameter must be the same as that defined in the for character string.	to a ers mat

----End

Command Reference

То	Run the Command	In
Add a user-defined TID profile.	tid-template add	Global config mode

19.3.12 Adding an MG

Before provisioning services for network elements, you can add an MG according to the global data plan to enable the MG port to communicate with the upper layer MGC.

Prerequisite

The signaling IP address and media IP address must exist in the corresponding IP address pool.

Context

- The MG ID must be unique on a device.
- The MG parameters must be set to be the same as the corresponding MGC parameters.
- You can configure up to eight MGs on an OLT.
- After the MG is added, you must perform the cold starting or recovering operation so that the MG can work in the normal state.
- After the MG is added successfully, the system adds two MGCs concurrently. This MG can provide services for the user when the MG communicates with only one MGC.
- The H.248 protocol separates the signaling stream and the media stream and uses different QoS policies for the two types of streams.

The procedure for adding the MG supporting the H.248, MGCP, and SIP protocols are the same. The difference only lies in the parameter settings. The following figure considers only the procedures for adding the MG supporting the H.248 and SIP protocols as an example.

Procedure

- 1 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.
- 2 Choose Voice Gateway > Media Gateway from the navigation tree.
- 3 On the Media Gateway tab page, set the filter criteria to display the required MGs.
- 4 In the information list, right-click and choose Add from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

Adding the MG supporting the H.248 protocol:

Add MG			×
MG Attributes			
MG ID: (0-16777215)	1	Name:	mg1
Alias:		MG Message MID Type:	Signaling IP Ad 🔻
MG Device Name:	mgdevice	MG Domain Name:	huawei.com
Signaling IP Address: 🗌 DHCP	10.10.10.6	Signaling Port No.: (2900-2999)	2944
Media IP Address 1: 🗌 DHCP	10.10.10.6 💌	Media IP Address 2:	
Protocol Type:	H248 💌	Transmission Mode:	UDP 👻
Coding Type:	Text 💌	Profile Name:	
Support Profile Negotiation:	Disable 🔻	Start Negotiate H248 Version:	V3 💌
Count of Heartbeat Retransmission(0~20):	3	Interval of Heartbeat Retransmission(s)(0-655):	60
Heartbeat Initiation Duration(s)(5-655):	60	2833 Encryption Key:	
		ОК	Cancel <u>A</u> pply

Key Parameter	Description
MG ID	Indicates the ID of the MG. It uniquely identifies an MG.
MG Message MID Type	Indicates the message ID (MID) type of the H.248 message. The MID exists in the header of a message and identifies the message sender.
	Relation to other parameters:
	After an MID type is selected, you must configure its attributes.
	• If the MID type is selected as signaling IP address, you must set Signaling IP Address .
	 If the MID type is selected as MG domain name, you must set MG Domain Name.
	• If the MID type is selected as MG device name, you must set MG Device Name .
Signaling IP	Indicates the signaling IP address of the MG.
Address	NOTE The signaling IP address must exist in the IP address pool. It can be the same as the media IP address.
Transmission Mode	Indicates the transmission mode that the MG uses.

Key Parameter	Description	
Profile Name	Indicates the name and version of the profile used by the MG. After this parameter is set, the H.248 protocol can adapt certain parameter between the MG and the MGC through the profile negotiation. If the negotiation fails, the MG fails to register with the MGC. Hence, the devic defines profiles according to customers' requirements.	
	NOTE	
	• The values of the Profile Name parameter displayed in the interface are the preset profile names provided by the device. Therefore, they cannot be modified through the U2000.	
	• In the case of the customized profile named CustomizingProfileTemplet , you can modify the profile name through the CLI on the device. Then, the U2000 obtains the profile name that is used by the device port by querying the details of the device port.	

Adding the MG supporting the SIP protocol:

Add MG			×
MG Attributes			
MG ID: (0~16777215)	10	Name:	mg1
Alias:		MG Domain Name:	huawei.com
Signaling IP Address:	10.10.10.7	Signaling Port No.: (5000~5999)	5000
Media IP Address:	10.10.10.7 🔹	Protocol Type:	SIP
Transmission Mode:	TCP 💌	Profile Name:	wer
Conference Factory URI:		Gateway Telephone Context :	2432
Homing Domain Name:	homedomain.com	Registration Server URI:	werw12ad
Authentication User Name:	user1	Authentication Password:	345
Active NMS UAS Profile :	a	Standby NMS UAS Profile:	a
		ОК	Cancel <u>A</u> pply

Key Parameter	Description
MG ID	Indicates the ID of the MG. It is used to uniquely identify the MG.
Signaling IP Address	Indicates the signaling IP address of the MG.

Key Parameter	Description
Signaling Port No.	Indicates the number of the signaling port that the MG uses.
Media IP Address 1	Indicates the IP address of the media traffic that is controlled by the signaling.
Profile Name	 Indicates the name and version of the profile used by the MG. NOTE The values of the Profile Name parameter displayed in the interface are the preset profile names provided by the device. Therefore, they cannot be modified through the U2000. In the case of the customized profile named CustomizingProfileTemplet, you can modify the profile name through the CLI on the device. Then, the U2000 obtains the profile name that is used by the device port by querying the details of the device port.

----End

Command Reference

То	Run the Command	In	
Query the running status and basic configuration of all the MG ports that support the H. 248 protocol in the current system	display if-h248 all	Common user level	
Query the running status of all the MG ports that support the SIP protocol in the current system	display if-sip all	Common user level	
Query the running status and basic configuration of all the MG ports that support the MGCP protocol in the current system.	display if-mgcp all	Common user level	
Configure the attributes of the MG ports that support the H. 248 protocol	if-h248 attribute	H.248 mode	
Configure the attributes of the MG ports that support the MGCP protocol	if-mgcp attribute	MGCP mode	
Configure the mandatory attributes of the SIP interface	if-sip attribute basic	STP mode	

In the CLI of the device, the configuration of the MG ports that support the H.248, MGCP, and SIP protocols consists of a series of command lines. For details, see the command reference manuals of the device.

19.3.13 Binding an MGC Profile

This topic describes how to bind a configured MGC profile to an MG interface to configure the MG interface and interconnect the MG interface with an MGC.

- 1 In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.
- 2 Choose Voice Gateway > Media Gateway from the navigation tree.
- 3 On the Media Gateway tab page, set the filter criteria to display the required MGs.
- 4 In the information list, select a record and click the MGC Attribute Info tab in the lower pane. In the list, right-click a record and choose **Bind Profile** from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

М	odify MGC		×
	MGC Attributes		
	MG ID:	2	
	MGC Index:	0	
	NMS MGC Profile:	mgcprofile1	
	C	OK Cancel <u>A</u> pply	

Key Parameter	Description
MGC Index	When the H.248 protocol is used, an MG interface can initiate the registration with two MGCs but the MG interface registers with only one MGC at the same time. When an MGC is faulty and cannot communicate with MGs, the MG interface registers with the other MGC automatically. The MGC indexes are 0 to 1 and the priority of index 0 is higher than the priority of index 1.

- 6 Click OK.
 - ----End

Command Reference

То	Run the Command	In
Configure the attributes of an MG interface when the H.248 protocol is used.	if-h248 attribute	H.248 mode

19.3.14 Starting an MG

For the MG that supports the MGCP and H.248 protocols, cold start the MG port so that the MG port can negotiate with the MGC through the specified MGC protocol. In this case, the MG port can register with the MGC so that the configured data can take effect. For the MG that supports the SIP protocol, you also need to restart the MG to make the configuration data to take effect after the configuration

Procedure

- 1 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.
- 2 Choose Voice Gateway > Media Gateway from the navigation tree.
- 3 On the Media Gateway tab page, set the filter criteria to display the required MGs.
- **4** Select a record to be configured from the MG list, right-click, and then choose **Recover** (H.248) or **Reset** (MGCP/SIP) from the shortcut menu.
- 5 In the dialog box that is displayed, click **Yes**.

----End

Command Reference

То	Run the Command	In
Reset the specified MG port that supports the H.248, MGCP, and SIP protocols	reset	H.248 mode MGCP mode SIP mode

19.3.15 Configuring a VoIP PSTN Port

This topic describes how to access and configure the VoIP PSTN voice service.

Prerequisite

• The network devices and lines must be in the normal state.

- A proper MGC profile that supports the H.248 and MGCP protocols or UAS profile that supports the SIP protocol must be configured. For details, see **19.3.9 Adding an MGC Profile** or **19.3.10 Configuring a UAS Profile**.
- The MG port that supports the H.248 and MGCP protocols or the SIP interface that supports the SIP protocol must be configured. Foe details, see **19.3.12 Adding an MG**.
- The OLT can interconnect with the MGC or IMS port (that supports the SIP protocol).

Context

The OLT accesses the VoIP PSTN service stream through the voice service profile and transmits the service stream upstream to the IP network through the control board, thus providing the VoIP PSTN service.

Procedure

- 1 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.
- 2 Choose ASL > POTS Port from the navigation tree.
- **3** Click the **VoIP PSTN Port** tab, and set the filter criteria to display the required VoIP PSTN ports.
- 4 Select a record from the VoIP PSTN port list, right-click, and then choose **Configure Attribute** from the shortcut menu.

If selecting multiple records, you can configure the attributes in batches.

5 In the dialog box that is displayed, click the Service Details tab. Configure the attributes of the VoIP PSTN port, including MG ID and Telephone No.

Configure VoIP PSTN Port			×
Port Location Info			
Name: Frame:0/Slot:3/Port:3			
Service Details Physical E)etails		
MG ID: (0-16777215)	1	Automatically select termin	al ID
Telephone No.:	83100000	Terminal ID(0-9999):	1
Overload Priority :	Cat3 💌	User Type:	DEL User 💌
Caller ID Transmission Time:	After Ring 💌	Caller ID Format:	SDMF(FSK) -
FSK Delay Time: (10ms) (0-100)	80	Terminal Poweroff Duration: (10ms) (10-100)	10
DSP input gain(dB):	0 💌	DSP output gain(dB):	0 🗸
🗌 Automatic Gain Control		🗌 Spectral Noise Suppressio	n
Automatic Gain Control Parameter(dbm0)(-24 to -9):		Spectral Noise Suppression Parameter(db)(6-20):	
	<< <) > >> OK	Cancel <u>A</u> pply

Key Parameter	Description			
MG ID	Definition:			
	Indicates the MG ID corresponding to the VoIP PSTN port.			
Telephone No	Definition:			
	Indicates the telephone number bound to the VoIP PSTN user.			
	• The telephone number that is set here is invalid. The valid telephone numbers are set on the MGC.			
	• The telephone number that is set here is used for standalone paging only when the standalone function is configured and enabled.			
	• If this parameter is not set, the telephone number is empty by default.			
Terminal ID	Definition:			
	Indicates the ID of the physical terminal corresponding to the VoIP PSTN user.			
	One VoIP PSTN user occupies only one terminal ID.			
	NOTE			
	• This parameter is available only when the TID profile bound with the ISDN PSTN user on the MG is configured to not support the terminal layering function.			
	• This parameter is mandatory if the Terminal ID Auto Selected check box is not selected.			

6 Click the **Physical Details** tab. Configure the physical attributes of the VoIP PSTN port, including **High Level Width**, **Reversed Polarity**, and **Dial Mode**.

Configure VolP PSTN Port				×	
Port Location Info					
Name: Frame:0/Slot:3/Port:3					
Service Details Physical Details					
High Level Width(ms): (20-500)	100	Low Level Width(ms): (20-500)	300		
Voltage(Vrms):	2.5 💌	16KC/12KC:	16KC 👻		
Reversed Polarity Pulse Level: (ms) (20-1270)	100	Reversed Polarity Puls	е		
Port Current:	20mA 💌	Port Impedance:	600ΩInterface ▼		
Polarity Reversal Mode:	Hard Polarity R 💌	Dial Mode:	DTMF-Pulse-b 🔻		
Send Voice Gain(dB):	0 💌	Receive Voice Gain(dB):	-7 💌		
PortPowerdeny:					
Port Locked					
	<< <	> >> OK	Cancel <u>A</u> pply		

Key Parameter	Description
Dial Mode	 Indicates the dial mode of the VoIP PSTN port. NOTE DTMT: It is the dual tone multi-frequency mode. The dial tones of common fixed-line phones adopt two high and low frequency groups and 16 frequency combinations to represent the keys, such as keys 0 to 9, the * key, and the # key, and transmit the user dialing signaling. Pulse: During the dialing, each digit is represented by a group of pulses. These pulses connect or disconnect the current in the telephone lines in an instant.

----End

Command Reference

То	Run the Command	In
Query the status of one or more PSTN ports	 display pstn state NOTE If the system currently supports are the H.248, MGCP, or SIP protocol, the command format is different. If you need to query the status in ESL user mode, run the config command to enter global config mode, run the esl user command to enter ESL user mode, and then run the display pstn state command. If you need to query the status in PSTN port mode, run the config command to enter global config mode, run the pstnport command to enter status in PSTN port mode, run the config command to enter global config mode, run the config command to enter global config mode, run the status in PSTN port mode, run the config command to enter global config mode, run the pstnport command to enter global config mode, run the pstnport command to enter global config mode, run the config command to enter global config mode, run the pstnport command to enter global config mode, run the pstnport command to enter global config mode, run the pstnport command to enter global config mode, run the pstnport command to enter global config mode, run the pstnport command to enter global config mode, run the pstnport command to enter global config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode, run the pstnport command to enter plobal config mode. 	Privilege mode, ESL user mode, PSTN port mode
	display pstn state command.	
Configure the attributes of an existing PSTN user	 mgpstnuser attribute set NOTE Before running this command, run the config command to enter the global config mode, and then run the esl user command to enter the ESL user mode. You can configure the attributes of a DSTM 	ESL user mode
	 You can configure the attributes of a PSTN user only after the PSTN user is added. You can configure the attributes of a PSTN user by specific physical position (the shelf ID, slot ID, and port ID) or by "MG port ID + terminal ID". When the TID profile bound with the ISDN PSTN user on the MG port is configured to support the terminal layering function, you can configure the attributes only by physical position. 	

То	Run the Command	In
Configure the attributes of the existing PSTN users in batches	mgpstnuser attribute batset NOTE See the precaution of the mgpstnuser attribute set command.	ESL user mode

19.3.16 Adding an xPON FTTB Service Provisioning Profile

The U2000 of the latest version plans to use the service provisioning profile to provision services to users. The service provisioning profile encapsulates common attributes of the service channel to a profile. To provision services to users, bind this profile to the port, and then set user-defined service parameters, thus implementing service provisioning at one step.

Prerequisite

- If the ports on an ONU are ADSL ports, perform the operations in 19.3.4 Configuring an ADSL Line Profile and 19.3.5 Configuring an ADSL Alarm Profile before configuring the Basic Info branch.
- Perform the operations in **19.2.1 Configuring a VLAN** and **19.2.2 Configuring an MEF IP Traffic Profile** before configuring the **Service Port** branch.
- Perform the operations in **19.2.7 Configuring the Multicast VLAN** before configuring the **Multicast User** branch.

- 1 Choose Configuration > Access Profile Management > Service Provisioning Profile from the main menu.
- 2 Click the **xPON FTTB Service Provisioning Profile** tab.
- 3 In the dialog box that is displayed, set the parameters.

Basic Info		
- ServicePort - Multicast User	ONU Port Information	
	Port Type: ETH Port Mode:	-
	Line Profile:	
	OK Cancel) Apply
ON FTTB Service ne: gPON-fttb	OK Cancel Provisioning Profile Alias:) (Apply
Of FTTB Service ne: gPON-fttb Basic Info ServicePort	OK Cancel Provisioning Profile Alias: • To delete a serviceport, right-click the selected node in the left pane.) (<u>A</u> pply
OX FTTB Service e: gPON-fttb Basic Info ServicePort └──HSI Multicast User	OK Cancel Provisioning Profile Alias: • To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: HSI * Service Priority: 0) <u>A</u> pply
OJ FTTB Service ne: gPON-fttb Basic Info ServicePort └─ <mark>HSI</mark> Multicast User	OK Cancel Provisioning Profile Alias: ONU Side Configuration OLT side configuration) Apply
OM FTTB Service he: gPON-fttb Basic Info ServicePort └──SI Multicast User	OK Cancel Provisioning Profile Alias: To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: HSI ONU Side Configuration VLAN Attribute: Common VLAN Common Use OLT Side Configuration) Apply
ON FTTB Service e: gPON-fttb Basic Info ServicePort └──ISI Multicast User	OK Cancel Provisioning Profile Alias: ONU Side Configuration VLAN Attribute: Common VLAN Attribute: QinQ)
OJ FTTB Service ne: gPON-fttb Basic Info ServicePort └─ <mark>HSI</mark> Multicast User	Cancel Provisioning Profile Alias: To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: HSI ONU Side Configuration VLAN Attribute: Common VL) Apply
OX FTTB Service ne: gPON-fttb Basic Info ServicePort └ HSI Multicast User	OK Cancel Provisioning Profile Alias: ONU Side Configuration VLAN Attribute: Common VLAN Attribute: Common VLAN Attribute: Common VLAN Attribute: QinQ VLAN Attribute: QinQ VLAN Attribute: QinQ VLAN Switch Mode: Defaul Network Side VLAN(1-4095): 100) Apply
ON FTIB Service ne: gPON-fttb Basic Info ServicePort └──HSI Multicast User	OK Cancel Provisioning Profile Alias: ONU Side Configuration VLAN Attribute: Common Network Side VLAN(1-4095): 1001 Traffic Classification Info Service Type: Multi-service VLAN Multi-service VLAN) (рріу
OI FITE Service ne: gPON-fitb Basic Info ServicePort └──¶SI Multicast User	OK Cancel Provisioning Profile Alias: To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: HSI ONU Side Configuration VLAN Attribute: Common ▼ Use OLT Side Configuration VLAN Attribute: QinQ VLAN Attribute: QinQ VLAN Switch Mode: Defaul Network Side VLAN(1-4095): 100 Traffic Classification Info Service Type: Multi-service VLAN ▼ User VLAN(1-4095): 10 ▼	t
01 FTTB Service ne: gPON-fttb Basic Info ServicePort HSI Multicast User	OK Cancel Provisioning Profile Alias: ONU Side Configuration VLAN Attribute: Common VLAN Attribute: Common VLAN Attribute: Common VLAN Attribute: QinQ VLAN Switch Mode: Defaul Network Side VLAN(1-4095): 10 Traffic Classification Info Service Type: Mutth-service VLAN Service Type: Se) (Арріу
ON FTIB Service ne: gPON-fttb Basic Info ServicePort └─FSI Multicast User	OK Cancel Provisioning Profile Alias: To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: HSI Service Priority: 0 ONU Side Configuration VLAN Attribute: Common Use OLT Side Configuration VLAN Attribute: QinQ VLAN Attribute: QinQ VLAN Attribute: QinQ VLAN Switch Mode: Defaul Network Side VLAN(1-4095): 100 Traffic Classification Info Service Type: Multi-service VLAN User VLAN(1-4095): 10 Traffic Classification Info Service Type: Multi-service VLAN User VLAN(1-4095): 100) Apply
OX YTTB Service ne: gPON-fttb Basic Info ServicePort └──ISI Multicast User	OK Cancel Provisioning Profile Alias: To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: HSI Service Priority: 0 ONU Side Configuration VLAN Attribute: Common ▼ Use OLT Side Configuration VLAN Attribute: QinQ VLAN Switch Mode: Defaul Network Side VLAN(1-4095): 100 Traffic Classification Info Service Type: Multi-service VLAN ▼ User VLAN(1-4095): 100 ✓ Keep traffic the same ✓ Keep traffic the same) <u>A</u> pphy t
01 FTTB Service ne: gPON-fttb Basic Info ServicePort HSI Multicast User	OK Cancel Provisioning Profile Alias:) (Арріу
ON FTIB Service ne: gPON-fittb Basic Info ServicePort └─FSI Multicast User	OK Cancel Provisioning Profile Alias: To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: HSI Service Priority: □ ONU Side Configuration VLAN Attribute: Common ▼ Network Side VLAN(1-4095): 1001 VLAN Attribute: Quinto VLAN (1-4095): Quinto VLAN (1-4095):) <u>А</u> ррју т
OJ FTTB Service ne: gPON-fttb Basic Info ServicePort └──ISI Multicast User	OK Cancel Provisioning Profile Alias: To delete a serviceport, right click the selected node in the left pane. ServicePriority: 0 ONU Side Configuration VLAN Attribute: Common Network Side VLAN(1-4095): 1001 VLAN Attribute: Generation VLAN Attribute: Common VLAN Attribute: Common VLAN Attribute: Common VLAN Attribute: Common VLAN Attribute: Quer VLAN(1-4095): 1001 VLAN Switch Mode: Defaul Network Side VLAN(1-4095): 100 Traffic Classification Info Service Type: Multi-service VLAN User VLAN(1-4095): 100 Traffic Classification Info Service Type: Multi-service VLAN User VLAN(1-4095): 1001 Keep traffic the same Upstream Traffic Name (Tx): traffic-table_6 Downstream Traffic Name (Rx): traffic-table_6 Townstream Traffic Name (Rx): traffic-table_6 Taffic Classification Info traffic Name (Rx): traffic-table_6 traffic Name (Rx): traffic table_6 traffic Name (Rx): traffic table_6 traffic Name (Rx): traffic table_6 traffic table_6) <u>А</u> ррђу

dd xPON FTTB Service	Provisioning Profile
Name: gPON-fttb	* Alias:
e-ServicePort HSI PTV Multicast User	• To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: PTV • Service Priority: 4 OLT side configuration ULAN Attribute: Common Use OLT Side Configuration Use OLT Side Configuration Use OLT Side Configuration ULAN Attribute: Common Use VLAN(1-4095): 1000 Traffic Classification Info Service Type: Multi-service VLAN User VLAN(1-4095): 30 • * User VLAN(1-4095):* Downstream Traffic Name (Tx):* Downstream Traffic Name (Tx):*
ld xPOX FITB Service Name: gPON-fttb — Basic Info	C Cancel Apply C Cancel Apply C Alias: C Cancel Concel Concel C Conce
ServicePort HSI User Multicast User	To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: VoIP

Name: gPON-fttb	* Alias:
Basic Info ServicePort HSI UPTV VoIP Multicast User	 To delete the multicast user, right-click the selected node in the left pane. IGMP Flow Channel: IPTV Video Flow Channel: IPTV Multicast VLAN(1-4095): 100 Max. Programs(1-16): 8 Image: The selected node in the left pane. Image: The selected node in the selected node in the left pane. Image: The selected node in the left pane. Image: The selected node in the left pane. Image: The selected node in the sel
	OK Cancel Apply

Key Parameter	Description		
Basic Info			
Name	Indicates the name of the xPON FTTB service provisioning profile.		
ONU Port Information			
Port Type	Indicates the type of an ONU port. NOTE You can set the port type according to different ONUs.		
Port Mode	Indicates the mode of ONU port. Enumerated type. The options are ATM and PTM . This parameter is available when Port Type is set to VDSL2 or G.SHDSL .		
ServicePort			
Service Priority	Definition: Specifies the service priorities for different services. NOTE The voice service has the highest priority, the multicast server has the medium priority and the Internet service has the lowest priority.		
ONU Side Configuration			

Key Parameter	Description
Service Type	Indicates the type of services carried on the service virtual port.
	The port can work in the following modes:
	• Single: Each service virtual port maps a service stream. Different service streams can be distinguished by different service virtual ports.
	• Multi-Service VLAN: Each service virtual port carries multiple service streams. You need to set User-Side VLAN to distinguish the service streams. The services are distinguished based on the VLAN ID contained in the packets from the service virtual ports. You can label the packets with different upstream VLAN IDs.
	• Multi-Service Encapsulation: Each service port carries multiple service streams. You need to set User-Side Encapsulation to distinguish the service streams. The services are distinguished based on the encapsulation types (IPoE/PPPoE) of the packets from the subscriber ports. You can label the packets with different upstream VLAN IDs.
	 Multi-Service VLAN+802.1p: Each service virtual port carries multiple service streams. You need to set User-Side VLAN and 802.1p Priority to distinguish the service streams. The services are distinguished according to the VLAN IDs and the 802.1p priorities of the packets from the subscriber ports. NOTE
	 Multi-Service VLAN+Encapsulation: Each service virtual port carries multiple service streams. You need to set User-Side VLAN and User- Side Encapsulation to distinguish the service stream.
OLT Side Confi	guration

Key Parameter	Description		
VLAN Switch Mode	Specifies the mode of switching the VLAN tag of the packets of the service virtual port.		
	Enumerated type. The options are as follows:		
	• Default: Indicates that a VLAN tag is added to the upstream packet of the service virtual port and the VLAN tag is deleted from the downstream packets of the service virtual port.		
	• Transparent: Indicates that the upstream packet of the service virtual port is transmitted transparently and the VLAN tag is not switched.		
	• Translate: Indicates that the VLAN tag in the upstream packet is transmitted upstream after being switched to the specified VLAN tag. The VLAN tag is then switched back to the original VLAN tag in the downstream direction.		
	• Translate_And_Add: Indicates that the VLAN tag of the upstream packet of the service virtual port is switched and another VLAN tag is added to the packet. In the downstream direction, the added VLAN tag is deleted from the downstream packets and switched back to the original VLAN tag.		
	• Add_Double: Indicates that two VLAN tags are added to the upstream packets of the service virtual port and then the VLAN tags are deleted from the downstream packets of the service virtual port.		
	NOTE This parameter is available when VLAN Attribute is set to QinQ .		
Multicast User	1		
IGMP Flow	Specifies the protocol traffic channel of the multicast service.		
Channel	Enumerated type. Select a protocol traffic channel by setting the Service Port parameter.		
Multicast VLAN	Specifies the multicast VLAN ID.		

----End

19.3.17 Configuring an xPON FTTB Service

You can directly configure and provision an xPON FTTB service by binding the configured xPON FTTB service provision profile with a certain physical port on the ONU.

Prerequisite

- The OLT that the ONU is connected to must be in the profile mode.
- The configured xPON FTTB service profile must be applied to the ONU. For details, see **19.3.16 Adding an xPON FTTB Service Provisioning Profile**.

Context

The physical ports that can be configured on the ONU include the Ethernet port, ADSL port, and VDSL2 port. This section considers the Ethernet port as an example.

Procedure

- 1 In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.
- 2 Choose ETH from the navigation tree.
- 3 Click the Ethernet Port tab, and set the filter criteria or click [▶] to display the Ethernet ports.
- 4 Select a record from the Ethernet port list, right-click, and then choose Add Service from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

Add Service			×
Name:	Frame:0/Slot:4/Port:6	Service Provisioning Profil	e: srvprovprofile_2
UNIP		Parameter Name	Parameter Value
			OK Cancel Apply

You can modify the parameters in the selected service provisioning profile.

In the Add Service dialog box that is displayed, click next to Service Provisioning **Profile**, In the Add Service dialog box that is displayed, click **Find** to display the required service provisioning profiles that meet the filtering criteria. Select a record from the profile list, and click **OK**.

6 Click OK.

----End

19.4 Configuration Examples of the GPON FTTB Services

This topic provides examples to describe how to configure the Internet, voice, and multicast services in a GPON FTTB network.

19.4.1 Data Plan for the GPON FTTB Services

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

19.4.2 Configuring the GPON FTTB Internet Service (LAN Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in LAN access mode and the MDU is connected to an OLT through a GPON port.

19.4.3 Configuring the GPON FTTB Internet Service (ADSL2+ Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in ADSL2+ access mode and the MDU is connected to an OLT through a GPON port.

19.4.4 Configuring the GPON FTTB Internet Service (VDSL2 Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in VDSL2 access mode and the MDU is connected to an OLT through a GPON port.

19.4.5 Configuring the GPON FTTB Multicast Service

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

19.4.6 Configuring the GPON FTTB Voice Service (H.248 Protocol)

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

19.4.7 Configuring the GPON FTTB Voice Service (SIP Protocol)

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

19.4.8 Configuring the GPON FTTB Service by Using a Service Provisioning Profile

This topic describes how to configure various services when a user is connected to an MDU in LAN access mode and the MDU is connected to an OLT through a GPON port.

19.4.1 Data Plan for the GPON FTTB Services

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

Data Plan

Service Type	Item	Settings	Remarks
Device managemen t	Management VLAN of an OLT	VLAN ID: 8Type: Smart VLAN	The management VLAN of an OLT is the management VLAN between the OLT and an MDU.
	Upstream port of the OLT	0/19/0	-
	Layer 3 interface	IP Address: 192.168.50.4	The IP address of the Layer 3 interface of the management VLAN of the OLT functions as the IP address of the OLT for inband network management.
	GPON port of the OLT	0/2/1	-
	Upstream port of the MDU	0/0/1	-
	Service port of the MDU	0/1/1	-

Table 19-1 Data plan for the GPON FTTB services

Service Type	Item	Settings	Remarks
	MDU	 Name: MDU ONU ID: 0 ONU Type: MDU Authentication Mode: SN SN: 485754438E1CDE42 Manager VLAN: 8 IP Address: 192.168.50.2 IP Address Mask: 255.255.255.0 	To configure the MDU on the OLT in Telnet mode, ensure that the management VLANs of the OLT and the MDU are the same and the management IP addresses of the OLT and the MDU are in the same network segment. When the MDU is connected to the OLT through a GPON port, the MDU uses the SNMP protocol as the network management protocol and does not require service profiles.
	MDU SNMP profile	 Name: snmpprofile SNMP Version: v1 Read Name: public Write Name: private Trap Host IP: 192.168.50.3 Trap UDP Port: 162 SNMP Security Name: public 	-
	Service virtual port (based on the management VLAN)	 VLAN ID: 8 Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN: 8 Upstream Traffic Name: FTTx 	After the MDU is added to the U2000 successfully, a control channel has been established but no data channel is established. In this case, you need to create a service virtual port on the OLT to help the OLT manage the MDU.

Service Type	Item	Settings	Remarks
	MEF IP traffic profile	 Name: FTTx CIR: 20480 Outer Priority: 1 	The MEF IP traffic profile is used on the OLT or MDU 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 	Different services have different GEM port IDs, and the GEM port IDs map VLAN IDs.
Internet service	VLAN	 VLAN ID: 1001 Type: Smart VLAN Attribute: QinQ 	 In the case of the Internet service, users are identified by QinQ VLANs. A CVLAN is allocated to each user on the MDU and an SVLAN is allocated to each slot, port, or OLT according to networking scenarios. Plan VLANs for the MDUs that are connected to the same OLT in a centralized manner and ensure that each VLAN is unique to an MDU.

Service Type	Item	Settings	Remarks
	Service virtual port on the OLT side	 Name: HSI VLAN ID: 1001 Interface Selection: 0/2/1/0/0 	-
		 Service Type: Multi- Service VLAN User VLAN: 1001 	
		• Upstream Traffic Name: ip- traffic-table_6	
	Service virtual port on the MDU side	 Name: HSI Vlan ID: 1001 Interface Selection: 0/1/1 User VLAN: untagged Upstream Traffic Name: FTTx 	-
IPTV service	VLAN	VLAN ID: 1000, 3000Type: Smart VLAN	-
	Service virtual port on the OLT side	 Name:IGMP Vlan ID: 1000 Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN: 1000 Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-
	Multicast VLAN on the OLT side	 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) 	-

Service Type	Item	Settings	Remarks
	Multicast user	 Alias: IGMPUserA Unlimited Band Width: selected Select Service Port: service virtual port named IGMP 	-
	Multicast VLAN on the MDU side	 IGMP Version: IGMP V3 Work Mode: igmp_snooping VLAN ID: 1000 	-
	Service virtual port on the MDU side	 Name: IGMP Vlan ID: 1000 Interface Selection: 0/1/1 Service Type: Multi-Service VLAN User VLAN: untagged Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-
VoIP service	VLAN	VLAN ID: 2000Type: Smart VLAN	-
	Service virtual port on the OLT side	 Name: VOIP Vlan ID: 2000 Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN: 2000 Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-

Service Type	Item	Settings	Remarks
	Signaling IP address Media IP address	17.10.10.10	The H.248 and SIP protocols support separation of media and signaling streams. The media and signaling IP addresses can be the same or different.
	Gateway	17.10.10.1	-
	Parameters of the MG interface (H. 248 protocol) NOTE The parameters of the MG interface must be the same as the parameters on the media gateway controller (MGC). There are many negotiation parameters in the H. 248 protocol. This table provides the mandatory parameters in the H. 248 protocol.	 MG ID: 0 Name: mg1 Signaling Port No.:2944 Transmission Mode: UDP 	The ID of the MG interface used for the VoIP service determines the virtual access gateway (VAG) that a service user is assigned to.
	MGC profile	 Name: mgcprofile1 Protocol Type: H.248 IP Address 1: 200.200.200.200 Port Number: 2944 	-

Service Type	Item	Settings	Remarks
	Parameters of the SIP interface (SIP protocol) NOTE The parameters of the SIP interface must be the same as the parameters on the IP multimedia subsystem (IMS). There are many negotiation parameters in the SIP protocol. This table provides the mandatory parameters in the SIP protocol.	 MG ID: 0 Name: mg1 Signaling IP Address: 17.10.10.10 Signaling Port No.: 5060 Media IP Address 1: 17.10.10.10 Transmission Mode: UDP MG Domain Name: huawei.com Active NMS UAS Profile: uasprofile1 	The ID of the SIP interface used for the VoIP service determines the VAG that a service user is assigned to.
	UAS profile	 Name: uasprofile1 Address Mode: Fix mode IP Address 1: 200.200.200.200 Proxy Port: 5060 	-
	PSTN user	Phone 1-Phone 2: 83110000-83110001	-

19.4.2 Configuring the GPON FTTB Internet Service (LAN Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in LAN access mode and the MDU is connected to an OLT through a GPON port.

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 19.4.1 Data Plan for the GPON FTTB Services.

Example Network

MA5620, MA5626, MA5610, and MA5612 support LAN access. The configuration procedure in this topic is applicable to the MA5620 V800R308, MA5626 V800R308, MA5612 V800R308, and MA5610 V800R308.

- The PC that gains access to the network by means of PPPoE dialup is connected to an FE port on the MDU and the MDU is connected to the OLT and then to the upper layer network through a GPON port. In this case, the high-speed Internet service is available for the PC.
- The high-speed Internet service is identified by two VLANs that are accurately bound. A user VLAN is allocated to each user on the MDU and a service VLAN is allocated to each slot on the OLT.
- The following two profiles are used for the high-speed Internet service:
 - DBA profile in which **T-CONT type** is set to **Assured Bandwidth/Maximum Bandwidth** and **Maximum Bandwidth** is set to **32768Kbit/s**
 - MEF IP traffic profile in which CIR is set to 20480Kbit/s

Figure 19-1 Configuring the GPON FTTB Internet service (LAN access)



- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8
 - Type: Smart VLAN

A	dd VLAN		×
	Base Info Configure VLAN		
		VLAN ID(1-4095):	8
		Name:	VLANID_8
		Alias:	
		Type:	Smart VLAN 👻 *
		Attribute:	Common 💌 *
		VLAN Priority:	Unconfigured
		E	ack <u>Next</u> <u>D</u> one <u>C</u> ancel

- (5) Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN		2	4
Add VLAN	Sub Port L3 Interface	Extended Info	ſ
	Back	Next Cone Cancel	

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected

A	dd VLAN			
	Base Info Configure VLAN	Sub Port L3 Interface	Extended Info	
		Management Status:	UP *	
		IP Address:	192.168.50 .4 *	
		IP Mask:	255.255.255.0 *	
		Acceptable Frame Type:	ethernetii 💌 *	
		Back	Next Done Cancel	1
Г				Î

- IP Address: 192.168.50.4

- (6) Click **Done**.
- 2. Configure an MDU SNMP profile. For details, see 19.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

Ad	d MDU SNMP Profile					×
	Due file Demonstern					
	Profile Parameter					
	Name:	snmpprofile	*	Alias:		
	SNMP Version:	v1 💌	*	Read Name:	public *	
	Write Name:	private	*	Trap Host IP:	10.71.210.71 *	
	Trap UDP Port (1-65535):	162	÷	SNMP Security Name:	public *	
				ОК	Cancel Apply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.

- Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the **DBA Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

A	dd DBA Profile		x
	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	
		OK Cancel Apply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a line profile. For details, see 19.1.3 Configuring a GPON 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, multicast, and voice services.

- (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

ld GPON Line Profile	_	
Name: FTTx	* Alias:	
Configuration	Name	Value
Base Info.	Upstream FEC Switch	OFF
t±⊢ Line	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off
	0	K Cancel <u>Apply</u>

- 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		×
Name: FTTx	* Alias:	
Configuration Base Info. Line Ethernet port binding group T-CONT Info ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTX	
	OK Cancel Apply	

- 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. Line H Ethernet port binding group T-CONT Info. AD GEM Port DEL T-CONT DEL T-CONT	ADD GEM Port GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch: Cascade Switch:	1 1 1 1 1 1 1 1 1 1 1 1 1 1
		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: 8

Add GPON Line Profile			×
Name: FTTx	*	Alias:	
	A	DD GEM Connection	
Configuration ⊢ Base Info. ⊡ Line ⊢ Ethernet port binding group ⊡ T-CONT Info. ⊡ CEM P —	GEM Port In	GEM Connection Parameters	
	Priority Que CAR Profile Service Typ Connection Port	GEM Port Index(0-1023):	1
		GEM Connection Index(0-1023):	
ADD GEM DEL GEM		VLAN ID(1-4094):	8
		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
<[>			OK Cancel
	_	OK Cancel	Apply

- 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: 1001

Add GPON Line Profile					×
Name: FTTx	*		GEM Connection		
Configuration Base Info. Line Ethernet port binding group T-CONT Info. T-CONTI	GEM Port Ind Priority Queue CAR Profile Service Type	-GE (M Connection Parameters 3EM Port Index(0-1023): 3EM Connection Index(0-1023):	1	
ADD GEM Col DEL GEM Por	nnection / 1 SV t Swi		/LAN ID(1-4094):	1001	
		F	Priority:		
		F	Port Type:		
		F	Port ID(1-8):		
		E	BindGroup ID:		
		0	CAR Profile:		
				0K	
	_	(OK 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: 1000

Add GPON Line Profile			×
Name: FTTx	*	D GEM Connection	
Configuration Base Info. Line Ethernet port binding group T-CONT Info. T-CONT I CAR Serv CAR Serv DEL GEM Port	A Porting rity Queek Profile rice Type tice Type Swi	D GEM Connection GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-1023): VLAN ID(1-4094): Priority: Port Type: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	1 2 1000
			ОК
		OK Cancel	Apply

- 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: 3 (this parameter is set to **3** automatically)
 - VLAN ID: 2000
| Add GPON Line Profile | | | × |
|--|--------------------------------|-------------------------------|-------|
| Name: FTTx | * | | |
| Configuration
├── Base Info.
└── Line
├── Ethernet port binding group | GEM Port Ind
Priority Queps | GEM Connection Parameters | 1 |
| E⊢ T-CONT Info.
E⊢ T-CONT1 | CAR Profile
Service Type | GEM Connection Index(0-1023): | 3 |
| ADD GEM Con | nection / h SV | VLAN ID(1-4094): | 2000 |
| DEL GEM Port | Swi | Priority: | |
| | | Port Type: | |
| | | Port ID(1-8): | |
| | | BindGroup ID: | |
| | | CAR Profile: | |
| | | | ок |
| | | OK Cancel | Apply |

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected

- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

							×
Affiliated Port:	0/2/0		*	Splitter:		Splitter(L1)	•
Name:	MDU		*	Alias:			
ONU ID(0-127):	0		*	Splitter Port ID(1	1-128):	1	
ONU Type:	MDU		*				
Basic Paramet	ers	Network Manag	ement Ch	annel Parameters			
Line Profile:	FTTx		 *	Service Profile:			*
Alarm Profile:				ONU VAS Profile:			
Authenticatio	n Info						
	(201		Timeout Dura	ation –		
Authenticati	on Mode:	SN		(h)(1-168):			
SN:		485754438E1C	DE42	Password:	sł	henzhen	*
ONU Type							
Verdor ID:	HV	ЛС(2011)	-	Terminal Type:	MDU		-
Software Ve	rsion:		-				
				L ocate to	ONILList	after oneration	succeeds
					0140 1101	and operation	
				OK		Cancel	Apply
Confirm ONU							×
Confirm ONU Affiliated Port:	0/2/0		*	Splitter:		Splitter(L1)	× •
Confirm ONU Affiliated Port: Name:	0/2/0 MDU		*	Splitter: Alias:		Splitter(L1)	× •
Confirm ONU Affiliated Port: Name: ONU ID(0-127):	0/2/0 MDU		*	Splitter: Alias: Splitter Port ID(1	1-128):	Splitter(L1)	×
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type:	0/2/0 MDU 0 MDU		× *	Splitter: Alias: Splitter Port ID(1	1-128):	Splitter(L1)	×
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/0 MDU 0 MDU ers Net	work Managem	× * × * ent Chann	Splitter: Alias: Splitter Port ID(1	1-128):	Splitter(L1)	×
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/0 MDU 0 MDU rers Net	work Managem	× * * * ent Chann	Splitter: Alias: Splitter Port ID(1 el Parameters	1-128):	Splitter(L1)	
Confirm ONU Affiliated Port Name: ONU ID(0-127): ONU Type: Basic Paramet OLT sets channel	0/2/0 MDU 0 MDU ters Net	work Managem anagement	▼* * • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name	1-128): e: snm	Splitter(L1) 1 pprofile	×
Confirm ONU Affiliated Port Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param	0/2/0 MDU MDU MDU ers Net network m parameters ns Info	work Managem anagement	* * * ent Chann	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Nami	I-128): e: snm	Splitter(L1) 1 pprofile	×
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel I SNMP Param Manager VL	0/2/0 MDU MDU MDU ers Net enetwork m parameters ns Info AN(1-4095	work Managem anagement): 8	▼ * * * * * ent Chann	Splitter: Allas: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7):	I-128): e: snm	Splitter(L1) 1 pprofile	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramett ☑ OLT sets channel I SNMP Param Manager VL IP Address:	0/2/0 MDU 0 MDU erers Net enetwork m parameters ns Info AN(1-4095)	work Managem anagement : <u>8</u> 192.168.50 .	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Ma	I-128): e: snm ask: 25	Splitter(L1) 1 pprofile 55.255.255.0	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet ØUT sets channel SNMP Param Manager VL IP Address: Gateway IP	0/2/0 MDU 0 MDU ers Net ers Net ers Net sinfo AN(1-4095) Address:	work Managem anagement : 8 192.168.50.	* * * * * * * * * * * * * * * * * * *	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Ma	I-128): e: snm ask: <u>25</u>	Splitter(L1) 1 pprofile 55.255.265.0	
Confirm ONU Affiliated Port Name: ONU ID(0-127): ONU Type: Basic Paramet SNMP Param Manager VL IP Address: Gateway IP	0/2/0 MDU 0 MDU ers Net ers Net ers Net AN(1-4095) Address: Parameters	work Managem anagement): 8 192.168.50 .	• * • * • * • * • * • * • * • * • * • *	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Ma	1-128): e: snm ask: 25	Splitter(L1) 1 pprofile 55.255.255.0	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet SIMP Param Manager VL IP Address: Gateway IP Static Route I IP Address:	0/2/0 MDU 0 MDU ers Net ers Net ers Net antork m parameters as Info AN(1-4095) Address: Parameters	work Managem anagement : 8 192.188.50.	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SINMP Profile Nami Priority(0-7): IP Address Ma	e: snm	Splitter(L1) 1 pprofile 55.255.255.0	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramett I OLT sets I OLT sets Channel I SNMP Param Manager VL IP Address: Gateway IP - Static Route I IP Address: Newt Here IP	0/2/0 MDU 0 MDU ers Net ers Net ers Net ers Net Aldress: Parameters Parameters	work Managem anagement): 8 [192.168.50]	• • • • • • • • • • • • • • • • • • •	Splitter: Allas: Splitter Port ID(1 el Parameters SINMP Profile Name Priority(0-7): IP Address Mat	1-128): e: snm sk: <u>25</u>	Splitter(L1) 1 pprofile 55.255.255.0	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet I Basic Paramet I OLT sets OLT sets OLT sets OLT sets I PAddress: Oateway IP Static Route I IP Address: Next Hop IP	0/2/0 MDU 0 MDU ers Net ers Net ers Net Anv(1-4095) Address: Parameters Address:	work Managem anagement 192.168.50	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Prioriby(0-7): IP Address Mas	e: snm	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet SNMP Param Manager VL IP Address: Gateway IP Static Route I IP Address: Next Hop IP	0/2/0 MDU 0 MDU ers Net carameters ns Info AN(1-4095) Address: Parameters	work Managem anagement 192.168.50	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Mas	1-128): e: snm 	Splitter(L1) 1 pprofile 55.255.255.0	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Sasic Paramet Manager VL IP Address: Gateway IP Static Route I IP Address: Next Hop IP	0/2/0 MDU 0 MDU ers Net retwork m parameters as Info AN(1-4095) Address: Parameters	work Managem anagement : : : : : : : : : : :	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SINMP Profile Name Priority(0-7): IP Address Mas IP Address Mas	I-128): e: snm ask: 25 sk: .	Splitter(L1)	×

- (6) Click OK.
- 6. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

I Service Po	л					
Basic Info				Attributes		
ID(1-32768):	2					
Name:	FTTx_MD	U	*	Connection Type:	LAN-GPON	•
Alias:						
letwork Side				User Side		
Bundle ID	(1-8192):					-
VLAN Choice:		Smart VLAN	▼ *	Interface Selection	0/2/1/0/0	•
Tag-Transfor	n:		•	Service Type:	Multi-Service VLAN	-
Vian ID(1-409	(5):	8	. •	User VLAN(1-409	5): 8	-
Cos value/0-7	n-		*			
	·					
raffic Profile Ir	ifo					
🗹 Keep the	upstream a	ind downstream se	ttings the same			
Upstream Tra	iffic Name:	ip-traffic-table_6		Downstream Traffic N	lame: ip-traffic-table_6	
-,						

• Configure the Internet service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN
 - Attribute: QinQ

Add VLAN					×
Sase Info Configure VLAN					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Туре:	Smart VLAN			*
	Attribute:	QinQ			*
	VLAN Priority:	Unconfigured			•
	E	lack	Next	Done	<u>C</u> ancel

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

Add VLAN			2
Add VLAN Base Info Configure VLAN	Sub Port L3 Interface	Extended Info	SubPort List
	<u>B</u> ack	Next	Done Cancel

- (5) Click **Done**.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI

- 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- VLAN ID: 1001
- Service Type: Multi-Service VLAN
- User VLAN: 1001
- 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)

dd Service Po	rt					1
Basic Info ID(1-32768):	1			Attributes		
Name:	HSI			Connection Type:	AN-GPON	-
Alias:					AN-GPON	
VLAN Choice: Tag-Transforr Vian ID(1-409 Cos value(0-7	(1-8192): n: 5):	SmartVLAN 1001		Interface Selection: Service Type: User VLAN(1-4095):	0/2/0/0/0 Multi-Service VLAN 1001	V
Traffic Profile Ir	ifo upstream a ffic Name:	nd downstream setting	s the same	Downstream Traffic Nar	ne: [p-traffic-table_6]
					OK Cancel (Spply

• Configure the Internet service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

- 1. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
 - (5) Click OK.

- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN

Add VLAN					×
💓 Base Info 🌚 Configure VLAN					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Туре:	Smart VLAN			*
	Attribute:	Common			▼ *
	802.1 Priority:	Unconfigured			-
	B	ack	Next	Done	<u>C</u> ancel

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

Add VLAN	×
Add VLAN Base Info Configure VLAN	Sub Port L3 Interface Extended Info
	Back Next Cancel

- (6) Click **Done**.
- 3. Add a service virtual port on the MDU side. For details, see 19.3.3 Adding a Service Port.

- (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - Name:HSI
 - Connection Type: LAN-ADSL (when the physical port is an ADSL port) or LAN-VDSL2 (when the physical port is a VDSL2 port) or LAN-ETHER (when the physical port is an Ethernet port)
 - Vlan ID: 1001
 - Interface Selection: 0/1/1
 - VPI: 0 (when the physical port is an ADSL or VDSL2 port)
 - VCI: 0 (when the physical port is an ADSL or VDSL2 port)
 - User VLAN: untagged
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: FTTx

Basic Info	Attributes
Name: HSI	Connection Type: LAN-VDSL2 LAN-ADSL LAN-ADSL
Network Side	User Side
VLAN Choice: Smart VLAN Vlan ID(1-4095): 1001 *	Interface Selection: 0/1/1 Channel Mode: ATM Atto-sensing VPI(0-255): 0 VCI(32-255): 35 Service Type: Multi-Service VLAN User VLAN(1-4095): untagged
Traffic Profile Info	
Upstream Traffic Name: FTTx	Downstream Traffic Name: FTTx

----End

Result

The user gains access to the Internet after the dialup is performed successfully by the PPPoE dialup software on the PC.

19.4.3 Configuring the GPON FTTB Internet Service (ADSL2+ Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in ADSL2+ access mode and the MDU is connected to an OLT through a GPON port.

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 19.4.1 Data Plan for the GPON FTTB Services.

Example Network

The MA5616 supports ADSL2+ access. The configuration procedure in this topic is applicable to the MA5616 V800R308.

- The PC is connected to an ADSL2+ port on the MDU. The data frames from the PC are transmitted to separate service channels according to user-side VLANs. Then, the OLT switches VLAN tags (that is, switches user-side VLANs to upstream VLANs) and transmits the data frames through an upstream port.
- The PC gains access to the Internet in PPPoE access mode. If the access mode is set to IPoA or PPPoA, you need to configure protocol conversion and encapsulation modes.



Figure 19-2 Configuring the GPON FTTB Internet service (ADSL2+ access)

Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

(1) 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.

- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8
 - Type: Smart VLAN

Add VLAN		X
 Base Info Configure VLAN 		
	VLAN ID(1-4095):	8
	Name:	VLANID_8
	Alias:	
	Type:	Smart VLAN 👻 *
	Attribute:	Common 💌 *
	VLAN Priority:	Unconfigured 💌
	E	Back Next Done Cancel

- (5) 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 Configure VLAN	Sub Port L3 Interface Extended Info
	Back Next Done Cancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN				2
 Base Info Configure VLAN 	Sub Port L3 Interface	Extended Info		
	Management Status:	UP 192.168.50 .4		*
	IP Mask:	255.255.255.0		*
	Acceptable Frame Type:	ethernetii		*
	Back	Next	Done	<u>C</u> ancel

- (6) Click **Done**.
- 2. Configure an MDU SNMP profile. For details, see 19.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

Add MDU SNMP	Profile

Name:	snmpprofile *	Alias:	
SNMP Version:	v1 •	Read Name:	public *
Write Name:	private *	Trap Host IP:	10.71.210.71 *
Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.

- (2) Click the **DBA Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

A	dd DBA Profile	X
	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
		OK Cancel Apply

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

4. Configure a line profile. For details, see 19.1.3 Configuring a GPON 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, multicast, and voice services.

- (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

GPUN Line Profile		
ame: <u> FTTx</u>	* Alias:	
Configuration	Name	Value
Base Info.	Upstream FEC Switch	OFF
±- Line	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off

- 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	2
Name: FTTx	* Alias:
Configuration Base Info. Etherent port binding group T-CONT Info. ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTx
	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

ne: FTTx	* Alias:	
onfiguration - Base Info. - Line - Ethernet port binding group - T-CONT Info. - T-CONT DEL T-CONT	ADD GEM Port GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch: Cascade Switch:	1 1 1 0N ○FF
		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: 8

Add GPON Line Profile			×
Name: FTTx	*	Alias:	
	A	DD GEM Connection	>
Configuration ├── Base Info. □── Line	GEM Port In	GEM Connection Parameters	
Ethernet port binding group	CAR Profile	GEM Port Index(0-1023):	1
GEM P ADD GEM	Connection Port	VLAN ID(1-4094):	8
		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
	I		OK Cancel
		OK Cancel	Apply

- 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: 1001

Add GPON Line Profile				[×
Name: FTTx	*	Alient [1
Configuration		DD GE	M Connection		
⊢ Base Info. ⊡ Line ⊢ Ethernet port binding group	GEM Port Ind Priority Quepe	GEM	1 Port Index(0-1023):	1	
E⊢ T-CONT Info. E⊢ T-CONT1	CAR Profile Service Type	GEM	1 Connection Index(0-1023)		
ADD GEM Cor	nection / n Sv	VLA	N ID(1-4094):	1001	
DEL GEM Port	t <u>Swi</u>	Prior	rity:		_
		Port	Type:		_
		Port	ID(1-8):		_
		Bind	IGroup ID:		
		CAR	Profile:		_
				ок	
			OK Cancel	Apply)

- 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: 1000

Add GPON Line Profile			×
Name: FTTx	*	Allos:	
Configuration ├─ Base Info. ▷─ Line ├─ Ethernet port binding group	GEM Port Ind Priority Quepe	GEM Connection Parameters GEM Port Index(0-1023):	1
T-CONT Info. T-CONT1	CAR Profile Service Type	GEM Connection Index(0-1023):	2
ADD GEM Cor	nnection / 1 SV	VLAN ID(1-4094):	1000
DEL GEM Port	<u>Swi</u>	Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
			ок
	_	OK Cancel	Apply

- 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: 3 (this parameter is set to **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile					×
Name: FTTx	*	A DI	CEM Connection	_	i
Configuration Base Info.	GEM Port Ind		3EM Connection Parameters	4	
Ethernet port binding group E- T-CONT Info. E- T-CONT1	Priority Quepe CAR Profile Service Type		GEM Connection Index(0-1023):	3	
ADD GEM Co	nnection / <mark>1 Sv</mark>		VLAN ID(1-4094):	2000	
DEL GEM Poi	t Swi		Priority:		
			Port Type:		
			Port ID(1-8):		_
			BindGroup ID:		_
			CAR Profile:		
				0K	
			OK Cancel	<u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 5. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected

- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

Confirm ONU							×
Affiliated Port:	0/2/0		*	Splitter:		Splitter(L1)	•
Name:	MDU		*	Alias:			
ONU ID(0-127):	0		*	Splitter Port ID(1	1-128):	1	
ONU Type:	MDU		*				
Basic Paramet	ers	Network Manag	gement Ch	annel Parameters			
Line Profile:	FTTx		 *	Service Profile:			*
Alarm Profile:				ONU VAS Profile:			
Authentication	n Info						
Authenticati	on Mode:	SN	•	Timeout Dura	ation 🕞	🛛 No Limit 🗌	*
SN:		485754438E10	DE42	Password:	s	henzhen	*
Verder ID:	LB	ACTC/2014)	_	Terminal Tune:	MDU		
Coffware Va	uroion:	WIC(2011)		renninar type.			
SUILWATE VE							
				Locate to	ONU list	t atter operation	n succeeds
				OK		Cancel	Apply
Confirm ONU							X
Confirm ONU Affiliated Port:	0/2/0		*	Splitter:		Splitter(L1)	×
Confirm ONU Affiliated Port: Name:	0/2/0 MDU	_	*	Splitter: Alias:		Splitter(L1)	× •
Confirm ONU Affiliated Port: Name: ONU ID(0-127):	0/2/0 MDU	_	*	Splitter: Alias: Splitter Port ID(1	1-128):	Splitter(L1)	× •
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type:	0/2/0 MDU 0		*	Splitter: Alias: Splitter Port ID(1	1-128):	Splitter(L1)	×
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/0 MDU 0 MDU	atwork Managem	* * *	Splitter: Alias: Splitter Port ID(1	1-128):	Splitter(L1)	× •
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/0 MDU 0 MDU rers Ne	etwork Managem	× * * *	Splitter: Alias: Splitter Port ID(1 el Parameters	1-128):	Splitter(L1)	×
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet MoLT sets channel ;	0/2/0 MDU 0 MDU ers Ne ers Ne retwork n parameter	etwork Managem nanagement S	▼ * * • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name	1-128): e: snm	Splitter(L1)	× •
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel I SNMP Param	0/2/0 MDU 0 MDU errs Ne errs Ne erretwork n parameter	etwork Managem nanagement s	▼ * × × × × × × × ×	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Nami	I-128): e: snm	Splitter(L1)	× •
Contirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet CLT sets channel ; SNMP Param Manager VL	0/2/0 MDU MDU MDU erers Ne eretwork n parameter ns Info AN(1-409:	etwork Managem nanagement s 5): 8	<pre></pre>	Splitter: Allas: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7):	I-128): e: snm	Splitter(L1) 1 pprofile	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet CLT sets channel ; SNMP Param Manager VL IP Address:	0/2/0 MDU MDU mDU eers Ne ers Ne ers Ne ers Info AN(1-409:	etwork Managem nanagement s 5): 8 192.168.50	* * * * * * * * * * * * * * * * * * *	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address M:	1-128): e: snm ask: 26	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel µ SNMP Param Manager VL IP Address: Gateway IP	0/2/0 MDU MDU ers Ne ers Ne ers Ne ers Ne ADU AN(1-409: Address:	etwork Managem nanagement s 5): 8 192.168.50	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Ma	1-128): e: snm ask: 25	Splitter(L1) 1 pprofile 55.255.255.0	
Contirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel p SNMP Param Manager VL IP Address: Gateway IP. - Static Route F	0/2/0 MDU 0 MDU ers Ne ers Ne ers Ne ers Ne ADU AN(1-409: Address: Parameter	etwork Managem nanagement S 5): 8 192.168.50 S	• * • * • * • * • * • * • * • * • * • *	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Ma	e: snm	Splitter(L1) 1 pprofile 55.255.255.0	
Contirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet I OLT sets channel ; SNMP Param Manager VL IP Address: Gateway IP. - Static Route F IP Address:	0/2/0 MDU 0 MDU ers No ers No ers No ers Info AN(1-409: Address: Parameter	etwork Managem nanagement s 5): 8 192.168.50 s	• * • * • * • * • * • * • * • * • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Mat	e: snm	Splitter(L1) 1 pprofile 55.255.255.0	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Contrainel ; OLT sets Contrainel ; Contrainel ;	0/2/0 MDU 0 MDU ers Ne retwork n parameter Is Info AN(1-409: Address: Parameter Address:	etwork Managem nanagement s 5): 8 192.168.50 s	▼ * + * * * * * * * * * * * * *	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Mas IP Address Mas	e: snm ask: 2	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel J OLT sets Channel J OLT S	0/2/0 MDU 0 MDU ers Ne r network n parameter s Info AN(1-409: Address: Parameter Address:	etwork Managem nanagement s 5): [8 [192.168.50 [] s s	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Mas	e: snm	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel µ OLT sets channel µ OLT sets channel µ Manager VL IP Address: Gateway IP . Static Route F IP Address: Next Hop IP	0/2/0 MDU 0 MDU ers Ne retwork n parameter Is Info AN(1-409: Address: Parameter Address:	etwork Managem nanagement \$ 5): 8 192.168.50 \$ 	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Mas IP Address Mas	1-128): e: snm 	Splitter(L1) Splitter(L1)	× • • • • • • • • • • • • •

- (6) Click OK.
- 6. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

r Service Po						
Basic Info				Attributes		
ID(1-32768):	2					
Name:	FTTX_MD	J	*	Connection Type:	LAN-GPON	•
Alias:						
letwork Side				User Side		
Bundle ID	(1-8192):					
VLAN Choice:		Smart VLAN	▼*	Interface Selection:	0/2/1/0/0	•
Tag-Transforr	n:		•	Service Type:	Multi-Service VLAN	-
Vlan ID(1-409	5):	8	 _	User VLAN(1-4095):	8	•
Coc volue/0-7	Ŋ.		*			
Cos value(o-r	<i>).</i>					
raffic Profile In	ifo					
🖌 Keep the	upstream a	nd downstream sett	ings the same			
Upstream Tra	ffic Name:	ip-traffic-table 6		Downstream Traffic Na	me: ip-traffic-table 6	
					OK Cancel	Apply

• Configure the Internet service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN
 - Attribute: QinQ

Add VLAN					×
Sase Info Configure VLAN					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Туре:	Smart VLAN			*
	Attribute:	QinQ			*
	VLAN Priority:	Unconfigured			•
	E	lack	Next	Done	<u>C</u> ancel

(4) 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	SubPortList ☐ If Frame:0 ☐ If Frame:0 ☐ If Frame:0 If Port 00
	Back	Next	Done Cancel

- (5) Click **Done**.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI

- 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- VLAN ID: 1001
- Service Type: Multi-Service VLAN
- User VLAN: 1001
- 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)

d Service Po	rt					
Basic Info				Attributes		
ID(1-32768):	1					
Name:	HSI		*	Connection Type:	AN-GPON	
Alias:					AN-EPON AN-GPON	
Network Side				User Side		J
- Rundle ID	(1.0102)					
	(1-0132).	0		Interface Polection:	0/20/0/0	-
VLAN Choice:		Smart VLAN		intenace Selection.	02/000	
Tag-Transfor	n:			Service Type:	Multi-Service VLAN	_
Vlan ID(1-409	5):	1001		User VLAN(1-4095):	1001	_
Cos value(0-7	'):		*			
Traffic Profile Ir	nfo					
🖌 k'een the	unetroom o	nd downstream settir	nae the come			
		a activite and setting				
Upstream Tra	iffic Name:	ip-traffic-table_6		Downstream Traffic Nar	ne: [lp-traffic-table_6	
					OK Cancel	Apply

• Configure the Internet service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

1. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN

dd VLAN					[
😵 <mark>Base Info</mark> S Configure VLAN					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Type:	Smart VLAN			*
	Attribute:	Common			*
	802.1 Priority:	Unconfigured	- 		•
		Back	Next	Done	Cancel

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

Add VLAN			×
Base Info	Sub Port L3 Interface	Extended Info	SubPort List Grame:0 Grame:
	<u>B</u> ack	Next	Done Cancel

- (6) Click Done.
- 2. Add a service virtual port on the MDU side. For details, see 19.3.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:HSI
 - Connection Type: LAN-ADSL (when the physical port is an ADSL port) or LAN-VDSL2 (when the physical port is a VDSL2 port) or LAN-ETHER (when the physical port is an Ethernet port)
 - Vlan ID: 1001
 - Interface Selection: 0/1/1
 - VPI: 0 (when the physical port is an ADSL or VDSL2 port)

- VCI: 0 (when the physical port is an ADSL or VDSL2 port)
- User VLAN: untagged
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

Basic Info	Attributes
Allas:	Connection Type: LAN-VDSL2
letwork Side	User Side LAN-VDSL2
VLAN Choice: Smart VLAN 👻 *	Interface Selection: Dr1/1 Channel Mode: ATM Auto-sensing
Vian ID(1-4095): 1001	VPI(0-255): 0 * VCI(32-255): 35 *
	Service Type: Multi-Service VLAN Viser VLAN(1-4095): untagged
raffic Profile Info	
V Keep the upstream and downstream settings the same	Downstream Traffic Name: FTTx
	OK Cancel Apply

- (4) Click OK.
- 3. Configure an ADSL line profile. For details, see 19.3.4 Configuring an ADSL Line Profile.
 - (1) Choose Configuration > Access Profile Management > ADSL Profile from the main menu.
 - (2) Click the **ADSL Line Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: adsl_profile
 - Other parameters: default settings
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE and click **OK**.
- 4. Configure the attributes of an ADSL port and activate the ADSL port. For details, see 19.3.6 Configuring the Attributes of an ADSL Port and 19.3.7 Activating an ADSL Port.
 - (1) Choose DSL > ADSL from the navigation tree.
 - (2) On the **ADSL** tab page, enter the filter criteria or click is to display the required ADSL ports.
 - (3) In the information list, right-click port 0/1/1 and choose **Configure Attributes** from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

- Line Profile: adsl_profile
- Other parameters: default settings
- (5) Click OK.
- (6) In the information list, right-click port 0/1/1 and choose Activate from the shortcut menu.

----End

Result

The user gains access to the Internet after the dialup is performed successfully by the PPPoE dialup software on the PC.

19.4.4 Configuring the GPON FTTB Internet Service (VDSL2 Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in VDSL2 access mode and the MDU is connected to an OLT through a GPON port.

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 19.4.1 Data Plan for the GPON FTTB Services.

Example Network

The MA5616 and MA5652 support VDSL2 access. The configuration procedure in this topic is applicable to the MA5616 V800R308 and MA5652 V800R308.

- The PC is connected to a VDSL2 port on the MDU. The data frames from the PC are transmitted to separate service channels according to user-side VLANs. Then, the OLT switches VLAN tags (that is, switches user-side VLANs to upstream VLANs) and transmits the data frames through an upstream port.
- The PC gains access to the Internet in PPPoE access mode. If the access mode is set to IPoA or PPPoA, you need to configure protocol conversion and encapsulation modes.



Figure 19-3 Configuring the GPON FTTB Internet service (VDSL2 access)

Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

(1) 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.

- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8
 - Type: Smart VLAN

Add VLAN		<u>></u>
🚳 Base Info 🚳 Configure VLAN		
	VLAN ID(1-4095):	8
	Name:	VLANID_8
	Alias:	
	Туре:	Smart VLAN 👻 📩
	Attribute:	Common
	VLAN Priority:	Unconfigured
	E	Back Next Done Cancel

- (5) 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 Configure VLAN	Sub Port L3 Interface Extended Info
	Back Next Done Cancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN				
Sase Info Configure VLAN	Sub Port L3 Interface	Extended Info	3	
	Management Status:	UP		*
	IP Mask:	255.255.255.0		*
	Acceptable Frame Type:	ethernetii		*
	Back	Next	Done	<u>C</u> ancel

- (6) Click Done.
- 2. Configure an MDU SNMP profile. For details, see 19.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

Add MDU	SNMP	Profile

Name:	snmpprofile *	Alias:	
SNMP Version:	<u>v1</u> ★	Read Name:	public *
Write Name:	private *	Trap Host IP:	10.71.210.71 *
Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.

x

- (2) Click the **DBA Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

ł	Add 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
		OK Cancel Apply

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

4. Configure a line profile. For details, see 19.1.3 Configuring a GPON 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, multicast, and voice services.

- Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

ld GPON Line Profile		
Name: FTTx	* Alias:	
Configuration Ease Info ⊕ Line	Name Upstream FEC Switch Mapping Mode Qos Mode OMCC Encryption	Value OFF VLAN Priority Queue Off
	0	K 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		×
Name: FTTx	* Alias:	
Configuration Base Info. Uhe Ethernet port binding group T-CONT Info ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTX OK Cancel	
	OK Cancel Apply	

- 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. → Line → Ethernet port binding group → T-CONT Info. → T-CONT Info. → T-CONT DEL T-CONT	ADD GEM Port - GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch: Cascada Switch:	X 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		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: 8

Add GPON Line Profile			×
Name: FTTx	*	Alias:	
	A	DD GEM Connection	<u>></u>
Configuration Base Info.	GEM Port In	GEM Connection Parameters	
Ethernet port binding group E- T-CONT Info.	CAR Profile	GEM Port Index(0-1023):	1
E- T-CONT1	Service Typ	GEM Connection Index(0-1023):	
ADD GEM	Connection/ Port	VLAN ID(1-4094):	8
		Priority:	•
		Port Type:	•
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
			OK Cancel
		OK Cancel	Apply

- 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: 1001

Add GPON Line Profile			×
Name: FTTx	*	DD GEM Connection	
Configuration → Base Info. □- Line	GEM Port Ind Priority Quese	GEM Connection Parameters GEM Port Index(0-1023):	1
Ethernet port binding group E- T-CONT Info. E- T-CONT1	CAR Profile Service Type	GEM Connection Index(0-1023):	0
ADD GEM Cor	nnection / h SV	VLAN ID(1-4094):	1001
DEL GEM Por		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
			ок
		OK Cancel	Apply

- 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: 1000

Add GPON Line Profile			×
Name: FTTx	*	Nice:	
Configuration Base Info. Line Ethernet port binding group T-CONT Info. T-CONT1 GEL ADD GEM Cor DEL GEM Port	CAR Profile Service Type nection 1 Sv Swi	GEM Connection GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-1023): VLAN ID(1-4094):	1 2 1000
		Priority: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	
			ОК
	_	OK Cancel	Apply

- 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: 3 (this parameter is set to **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile			×
Name: FTTx	*		
Configuration ├── Base Info. └── Line ├── Ethernet port binding group	GEM Port Ind Priority Queps	GEM Connection Parameters	1
E⊢ T-CONT Info. E⊢ T-CONT1	CAR Profile Service Type	GEM Connection Index(0-1023):	3
ADD GEM Con	nection / h SV	VLAN ID(1-4094):	2000
DEL GEM Port	Swi	Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
			ок
		OK Cancel	Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected

- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

Confirm ONU				×
Affiliated Port:	0/2/0	•	* Splitter:	Splitter(L1)
Name:	MDU		* Alias:	
ONU ID(0-127):	0		* Splitter Port ID(1-128): 1
ONU Type:	MDU	•	*	
Basic Paramet	ers	Network Management	Channel Parameters	
Line Profile:	FTTx		Service Profile:	· · · · · · · · · · · · · · · · · · ·
Alarm Profile:			ONU VAS Profile:	
Authentication	n Info			
Authenticati	on Mode:	SN	Timeout Dur	ation 🔽 No Limit
	on mode.		(h)(1-168):	
SN:		485754438E1CDE42	Password:	shenzhen *
ONU Type				
Verdor ID:	H	NTC(2011)	Terminal Type:	MDU
Software Ve	rsion:			
			🗌 Locate to	ONU list after operation succeeds
				CancerAppry
Confirm ONU				×
Affiliated Port:	0/2/0	-	* Splitter:	Splitter(L1) 💌
Name:	MDU		* Alias:	
ONU ID(0-127):	0		* Splitter Port ID(1-128): 1
ONU Type:	MDU	•	*	
Basic Paramet	ers <mark>N</mark> e	etwork Management Cha	innel Parameters	<u></u>
OLT sets	network n	nanagement	CNIMP Profile Norm	er enmnnrafile
channel p	parameter	s		
SNWP Param	is into			
Manager VL	AN(1-409)	5): 8	* Priority(0-7):	
IP Address:		192.168.50.2	* IP Address M	ask: 255.255.255.0
Gateway IP.	Address:			
Static Route F	Parameter	s		
IP Address:			IP Address Ma	sk:
Next Hop IP	Address:		J	
			🗌 Locate to	ONU list after operation succeeds

- (6) Click OK.
- 6. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

I Service Po	л					
Basic Info				Attributes		
ID(1-32768):	2					
Name:	FTTx_MD	U	*	Connection Type:	LAN-GPON	•
Alias:						
letwork Side				User Side		
Bundle ID	(1-8192):					-
VLAN Choice:		Smart VLAN	▼ *	Interface Selection	0/2/1/0/0	•
Tag-Transfor	n:		•	Service Type:	Multi-Service VLAN	-
Vian ID(1-409	(5):	8	. •	User VLAN(1-409	5): 8	-
Cos value/0-7	n-		*			
	·					
raffic Profile Ir	ifo					
🗹 Keep the	upstream a	ind downstream se	ttings the same			
Upstream Tra	iffic Name:	ip-traffic-table_6		Downstream Traffic N	lame: ip-traffic-table_6	
-,						

• Configure the Internet service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN
 - Attribute: QinQ

Add VLAN					×
 Base Info Configure VLAN 					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Type:	Smart VLAN			*
	Attribute:	QinQ			*
	VLAN Priority:	Unconfigured			•
	E	lack	Next	<u>D</u> one	<u>C</u> ancel

(4) 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 Base Info Configure VLAN	Sub Port L3 Interface	Extended Info	B SubPort List	
	<u>B</u> ack	<u>N</u> ext	Done Cancel	

- (5) Click **Done**.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI

- 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- VLAN ID: 1001
- Service Type: Multi-Service VLAN
- User VLAN: 1001
- 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	Attributes
ID(1-32769): 1 Name: HSI * Alias:	Connection Type: LAN-GPON LAN-GPON LAN-GPON LAN-GPON
Network Side Bundle ID(1-8192): VLAN Choice: Smart VLAN Tag-Transform:	User Side
Traffic Profile Info	Downstream Traffic Name: ip-traffic-table_6
	OK Cancel Apply

• Configure the Internet service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

1. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN

Add VLAN					×
Oonfigure VLAN					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Type:	Smart VLAN			*
	Attribute:	Common			*
	802.1 Priority:	Unconfigured			-
	B	ack 🔰 📐	Next	Done	<u>C</u> ancel

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

Add VLAN			×
Sase Info Configure VLAN	Sub Port L3 Interface	Extended Info	Image: SubPort List Image: Image: Statut Image: Image: Statut Image: Image: Image: Statut Image: Image: Image: Image: Image: Statut Image: Imag
	Back	Next	<u>D</u> one <u>C</u> ancel

- (6) Click Done.
- 2. Add a service virtual port on the MDU side. For details, see 19.3.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:HSI
 - Connection Type: LAN-ADSL (when the physical port is an ADSL port) or LAN-VDSL2 (when the physical port is a VDSL2 port) or LAN-ETHER (when the physical port is an Ethernet port)
 - Vlan ID: 1001
 - Interface Selection: 0/1/1
 - VPI: 0 (when the physical port is an ADSL or VDSL2 port)
- VCI: 0 (when the physical port is an ADSL or VDSL2 port)
- User VLAN: untagged
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

Basic Info	Attributes	
Name: HSI *	Connection Type:	AN-VDSL2
Network Side	User Side	AN-VDSL2
	Interface Selection:	0/1/1
	Channel Mode:	ATM 💌 *
	Auto-sensing	
	VPI(0-255):	0
Vian ID(1-4095): 1001	VCI(32-255):	35
	Service Type:	Multi-Service VLAN 🗸
	User VLAN(1-4095):	untagged 💌 *
Fraffic Profile Info		
Keep the upstream and downstream settings the same		
Upstream Traffic Name: FTTx*	Downstream Traffic Nar	ne: FTTx
		0

(4) Click OK.

3. Configure a VDSL2 line profile.

The VDSL2 line profile needs to be bound to a line configuration profile and channel configuration profile, and the line configuration profile needs to be bound to a line spectrum configuration profile.

- (1) Choose Configuration > Access Profile Management > VDSL2 Profile from the main menu.
- (2) Click the VDSL2 Line Profile tab.
- (3) Click the Line Spectrum Configuration Profile tab, and select the required device type from the Device Type drop-down list.
- (4) Right-click and choose Add Global Profile from the shortcut menu.
- (5) In the dialog box that is displayed, set the parameters.
 - Name: vdsl_profile1
 - Other parameters: default settings
- (6) Click OK.
- (7) Click the **Line Configuration Profile** tab, and select the required device type from the **Device Type** drop-down list.
- (8) Right-click and choose Add Global Profile from the shortcut menu.
- (9) In the dialog box that is displayed, set the parameters.
 - Name: vdsl_profile2
 - Transmission Mode: G.992.5 POTS overlapped, G.992.5 Annex I All-Digital overlapped
 - Line Spectrum Configuration Profile: vdsl_profile1

- Other parameters: default settings
- (10) Click Finish.
- (11) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (12) In the dialog box that is displayed, select the required MDU and click OK.
- (13) Click the **Channel Configuration Profile** tab, and select the required device type from the **Device Type** drop-down list.
- (14) Right-click and choose Add Global Profile from the shortcut menu.
- (15) In the dialog box that is displayed, set the parameters.
 - Name: vdsl_profile3
 - Other parameters: default settings
- (16) Click **OK**.
- (17) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (18) In the dialog box that is displayed, select the required MDU and click OK.
- (19) Click the Line Template tab, and select the required device type from the Device Type drop-down list.
- (20) Right-click and choose Add Global Profile from the shortcut menu.
- (21) In the dialog box that is displayed, set the parameters.
 - Name: vdsl_profile
 - Line Configuration Profile: vdsl_profile2
 - Channel1 Configuration Profile: vdsl_profile3
 - Other parameters: default settings
- (22) Click OK.
- (23) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (24) In the dialog box that is displayed, select the required MDU and click **OK**.
- 4. Configure the attributes of a VDSL2 port and activate the VDSL2 port.
 - (1) Choose DSL > VDSL2 from the navigation tree.
 - (2) On the **VDSL2** tab page, enter the filter criteria or click to display the required VDSL2 ports.
 - (3) In the information list, right-click port 0/2/1 and choose **Configure Attributes** from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Line Profile: vdsl_profile
 - Other parameters: default settings
 - (5) Click OK.
 - (6) In the information list, right-click port 0/2/1 and choose Activate from the shortcut menu.
- ----End

Result

The user gains access to the Internet after the dialup is performed successfully by the PPPoE dialup software on the PC.

19.4.5 Configuring the GPON FTTB Multicast Service

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

Prerequisite

- The OLT must be added to the U2000.
- The licenses of multicast programs or users must have been applied for and installed.

Context

For details of the data plan, see 19.4.1 Data Plan for the GPON FTTB Services.

Example Network

- The set-top box (STB) is connected to port 0/0/1 on the MDU, and data frames are transmitted through an upstream port of the MDU to the OLT. The OLT transmits the data frames to separate service channels according to user-side VLANs, switches VLAN tags (that is, switches user-side VLANs to upstream VLANs), and then transmits the data frames through an upstream port.
- The OLT uses IGMP proxy, and the MDU uses IGMP snooping. IGMP proxy and IGMP snooping are Layer 2 multicast protocols.
- Multicast programs are configured statically.
- Multicast logs are reported to the log server as CDR files.



Figure 19-4 Configuring the GPON FTTB multicast service

Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8
 - Type: Smart VLAN

Add VLAN		×
 Base Info Configure VLAN 		
	VLAN ID(1-4095):	8
	Name:	VLANID_8
	Alias:	
	Type:	Smart VLAN 👻 *
	Attribute:	Common 💌 *
	VLAN Priority:	Unconfigured
	B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

- (5) Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN	<u>×</u>
Add VLAN Base Info Configure VLAN Configure VLAN	Sub Port L3 Interface Extended Info
	<u>Back</u> <u>N</u> ext <u>D</u> one <u>C</u> ancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN				
Base Info Configure VLAN	Sub Port L3 Interface Configure L3 Interface Management Status: IP Address: IP Mask: Acceptable Frame Type:	Extended Info UP 192.188.50.4 255.255.0 ethernetii		* *
	Back	Nevt	Done	Cancel
	Imagement Status: IP Address: IP Mask: Acceptable Frame Type:	UP 192168.50.4 2552552550 ethernetii	Done	Can

- (6) Click Done.
- 2. Configure an MDU SNMP profile. For details, see 19.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

Add MDU	SNMP	Profile

Name:	snmpprofile *	Alias:	
SNMP Version:	v1 •	Read Name:	public *
Write Name:	private *	Trap Host IP:	10.71.210.71 *
Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.

x

- (2) Click the **DBA Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

ł	Add 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
		OK Cancel Apply

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

4. Configure a line profile. For details, see 19.1.3 Configuring a GPON 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, multicast, and voice services.

- Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

Add GPON Line Profile		<u>ک</u>
Name: FTTx	* Alias:	
Configuration	Name	Value
Base Info.	Upstream FEC Switch	OFF
	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off
	OK.	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		×
Name: FTTx	* Alias:	
Configuration Base Info. Line Ethernet port binding group T-CONT Info ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTX 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

ne: FTTx	* Alias:	
onfiguration - Base Info. - Line - Ethernet port binding group - T-CONT Info. - T-CONT Info. ADD GEM Port DEL T-CONT	ADD GEM Port GEM Port Parameters T-CONT Index(0-127); GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch: Cascade Switch:	× 1 1 0N 0FF
		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: 8

Add GPON Line Profile			×
Name: FTTx	*	Alias:	
	A	DD GEM Connection	
Configuration Base Info.	GEM Port In	GEM Connection Parameters	
├─ Ethernet port binding group ├─ T-CONT Info.	CAR Profile	GEM Port Index(0-1023):	1
	Service Typ	GEM Connection Index(0-1023):	
ADD GEM DEL GEM	Port	VLAN ID(1-4094):	8
		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
<[>			OK Cancel
	_	OK Cancel	Apply

- 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: 1001

Add GPON Line Profile			X
Name: FTTx	*	DD GEM Connection	1
Configuration Base Info. Line Ethernet port binding group T-CONT1 Info. GET ADD GEM Connection DEL GEM Port	All ort Ind Quepe ofile Type A Swi	OF GEM Connection GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-1023): VLAN ID(1-4094): Priority:	1
		Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	
			ок
		OK Cancel	Apply

- 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: 1000

Add GPON Line Profile			×
Name: FTTx	*	Nice:	
Configuration Base Info. Line Ethernet port binding group T-CONT Info. T-CONT1 GEL ADD GEM Cor DEL GEM Port	CAR Profile Service Type nection 1 Sv Swi	GEM Connection GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-1023): VLAN ID(1-4094):	1 2 1000
		Priority: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	
			ок
	_	OK Cancel	Apply

- 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: 3 (this parameter is set to **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile			×
Name: FTTx	* 01		
Configuration Base Info. Line	EM Port Ind	D GEM Connection GEM Connection Parameters GEM Port Index(0-1023):	1
	AR Profile ervice Type	GEM Connection Index(0-1023):	3
ADD GEM Conne	ction / h SV	VLAN ID(1-4094):	2000
DEL GEM Port	SWI	Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
<			ок
		OK Cancel	Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected

- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

Confirm ONU						×
Affiliated Port:	0/2/0	-	* Splitter:		Splitter(L1)	•
Name:	MDU		* Alias:			
ONU ID(0-127):	0		* Splitter Po	rt ID(1-128):	1	
ONU Type:	MDU	•	*			
Basic Paramet	ers	Network Management	Channel Parame	ters		
Line Profile:	FTTx		Service Profile); 		*
Alarm Profile:			ONU VAS Pro	file:		
Authenticatio	n Info					
		[Timeout	Duration		
Authenticati	on Mode:	SN	(h)(1-16	8):		*
SN:		485754438E1CDE42	Passwo	rd: s	shenzhen	*
ONU Type						
Verdor ID:	H	WTC(2011)	Terminal T	ype: MDU		-
Software Ve	rsion:	~				
			🗆 Loca	te to ONU lis	st after operatio	n succeeds
				ок	Cancel	Apply
Confirm ONU						×
Affiliated Port:	0/2/0	Ŧ	* Splitter:		Splitter(L1)	•
Name:	MDU		* Alias:			
ONU ID(0-127):	0		* Splitter Po	rt ID(1-128):	1	
ONU Type:	MDU	•	*			
Basic Paramet	ers Ne	etwork Management Cha	annel Parameters	_		
— OLT sets	network n	nanagement				
channel (parameter	s	SNMP Profile	Name: snr	npprofile	*
SNMP Param	is Info					
Manager VL	AN(1-409	5): 8	* Priority(0	-7):		
IP Address:		192.168.50.2	* IP Addre	ss Mask: 2	55.255.255.0	*
Gateway IP	Address:					
Static Route I						
orane reoute i	Parameter	'S				
IP Address:	Parameter	·s	IP Addres	s Mask: .		
IP Address: Next Hop IP	Parameter Address:	°s	IP Addres	s Mask: 🗌 .		
IP Address: Next Hop IP	Parameter Address:	\$ 	IP Addres	s Mask:	• •	
IP Address: Next Hop IP	Parameter Address:	S 	IP Addres	s Mask: .	 st after operatio	n succeeds

- (6) Click OK.
- 6. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

Basic Info Attributes D(1-32768): 2 Attributes Name: FTD_MDU Alias: Connection Type: Network Side User Side VLAN Choice: Smart VLAN Tag-Transform: - - - Vlan ID(1-4095): 8 Cos value(0-7): + Except the upstream and downstream settings the same Downstream Traffic Name: Upstream Traffic Name: Ip-traffic-table_6	ld Service Port				
Network Side User Side Bundle ID(1-8192): Image: State	Basic Info ID(1-32768): 2 Name: FTTx_MD Alias:	U*	Attributes	AN-GPON	*
VLAN Choice: Smart VLAN Tag-Transform:	Network Side		User Side		
Traffic Profile Info	VLAN Choice: Tag-Transform: Vlan ID(1-4095): Cos value(0-7):	SmartVLAN	Interface Selection: Service Type: User VLAN(1-4095):	0/2/1/0/0 Multi-Service VLAN 8	• * • * • *
Upstream Traffic Name: up-traffic-table_6 Downstream Traffic Name: up-traffic-table_6	Traffic Profile Info	and downstream settings the same			
	Upstream Traffic Name:	ip-traffic-table_6	Downstream Traffic Nan	ne: ip-traffic-table_6	

- (7) Click OK.
- Configure the multicast service on the OLT side.

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. Add a VLAN. For details, see 19.2.1 Configuring a VLAN.

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Type: Smart VLAN
- (4) Click Done.
- 2. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

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

Add VLAN		X
Sase Info Configure VLAN		
	VLAN ID(1-4095):	*
	Name:	VLANID_1000
	Alias:	
	Type:	Smart VLAN 👻 *
	Attribute:	Common 👻 *
	VLAN Priority:	Unconfigured 💌
	E	Back Next Done Cancel

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



- (5) Click Done.
- 3. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:IGMP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 1000
 - Service Type: Multi-Service VLAN
 - User VLAN: 1000
 - 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)

Basic Info		Attributes
ID(1-32768): 1		
Name: IGMP	*	Connection Type: LAN-GPON
Alias:		LAN-EPON LAN-GPON
letwork Side		- User Side
Bundle ID(1-8192):	Smart VLAN	Interface Selection: 0/2/1/0/0
Tag-Transform: Vlan ID(1-4095):	• 1000•	User VLAN(1-4095): 1000
Cos value(0-7):	*	
raffic Profile Info		
🗹 Keep the upstream a	nd downstream settings the same	
Upstream Traffic Name:	ip-traffic-table_6	Downstream Traffic Name: ip-traffic-table_6

- (4) Click **OK**.
- 4. Add a multicast VLAN on the OLT side. For details, see 19.2.7 Configuring the Multicast VLAN.
 - (1) Choose Multicast > Multicast VLAN from the navigation tree.
 - (2) On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3

- Work Mode: igmp_proxy
- VLAN ID: 3000

Basic Info					
Device Name:	10 71 227 35				
Name:	10111221.00		011-0-1		[
Name:			Allas:		
IGMP Version:	IGMP V3		💌 * 🗌 Def	ault VLAN	
Autogeneration Pr	ogram IP Address		-Work Mode-		
Program Match N	Aode: 💿 Enable	O Disable	IGMP Work	: Mode:	igmp_proxy 🗸
- Ctart ID Addroco:			Chooping	Donort Owitch:	O Onon @ Cloco
			onoopingr	topon ownen.	
End IP Address:			Snooping L	Leave Switch:	Open O Close
			IGMP Video	o Mode:	Multicast 👻
			IGMP Inner	VLAN(1~4095):	
			< <u>B</u> ack	<u>N</u> ext> <u>E</u> ir	nish Cancel
d Multicast V	LAN				
Default Up Por	t Info				
Frame: 0		Slot: 19		Port: 0	
Parameter Info					
IGMP Report	Priority 6		* Report Inten	/al(S) 10	
(0-7):			(10-5000):		
Log Switch:	Oper	n 📀 Close	Global-Leav	e Switch: 🛛 🔍 🤆	Open 🔷 Close
ld Multicast	(VLAN	< <u>B</u> ack) <u>N</u> ext>	<u> </u>	Cancel
Id Multicast Select VLAN	(VLAN	< <u>B</u> ack	<u>N</u> ext>	<u> </u>	Cancel
Id Multicast Select VLAN VLAN Attrik	VLAN pute=Common N	< <u>B</u> ack VLAN	Next>	Find	Cancel No. 31, Total:32
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31	VLAN pute=Common V Name	< <u>B</u> ack VLAN	× ✓	Einish	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attril VLAN ID ^ 31	VLAN Dute=Common V Name VLANID_31 VLANID_32	< <u>B</u> ack VLAN	× ✓ Type ∧ Smart VLAN	Einish Find Attribute A Common	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33	VLAN Dute=Common N Name VLANID_31 VLANID_32 VLANID_32	< <u>B</u> ack VLAN	Next> Type ^ Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34	VLAN Dute=Common V Name VLANID_31 VLANID_32 VLANID_33 VLANID_33	< <u>B</u> ack VLAN	Next> ▼ ✓ Type ^ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35	< <u>B</u> ack VLAN		Einish Find Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36	VLAN	< <u>B</u> ack		Einish Find Attribute Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36 37	VLAN	< <u>B</u> ack		Einish Find Attribute Common	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36 37 38	VLAN Name VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38	< <u>B</u> ack VLAN		Einish Find Common	Cancel No. 31, Total:32 Super VLAN II
Id Multicest Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36 37 38 39	VLAN Name VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39	< <u>B</u> ack VLAN	Next>	Einish Find Common Common Common Common Common Common Common Common Common Common	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrit 31 32 33 34 35 36 37 38 39 40	VLAN ULANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_38 VLANID_39	< <u>B</u> ack VLAN	Next>	Einish Find Common Common Common Common Common Common Common Common Common Common Common	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrit 31 32 33 34 35 36 37 38 39 40 77	VLAN Name VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39	< <u>B</u> ack VLAN	Next>	Einish Find Common Comm	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrit 31 32 33 34 35 36 37 38 39 40 77 101	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_38 VLANID_37	< <u>B</u> ack VLAN	Next>	Einish Find Common Comm	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrit 31 32 33 34 35 36 37 38 39 40 77 101 102	VLAN ULANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101	< <u>B</u> ack VLAN	Next>	Einish Find Common Comm	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrit 31 32 33 34 35 36 37 38 39 40 77 101 102 103	VLAN ULANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_103	< <u>B</u> ack	Next>	Einish Find Common Comm	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrit VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234	VLAN ULANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_103	< <u>B</u> ack	Next>	Einish Find Common Comm	Cancel
Id Multicast Select VLAN VLAN Attrit VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235	VLAN ULANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_103 VLANID_103 VLANID_103 VLANID_103 VLANID_234 VLANID_235	< <u>B</u> ack		Einish Find Common Comm	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrit VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000	VLAN ULANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_103 VLANID_234 VLANID_235 VLANID_20	< <u>B</u> ack		Einish Find Common Comm	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrit VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000	VLAN	< <u>B</u> ack		Einish Find Common Comm	Cancel
Id Multicast Select VLAN VLAN Attrit VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000 4001	VLAN VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_37 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_102 VLANID_103 VLANID_234 VLANID_235 VLANID_235 VLANID_20 VLANID_40	<back< td=""><td></td><td>Einish Find Common Comm</td><td>Cancel No. 31, Total:32 Super VLAN II</td></back<>		Einish Find Common Comm	Cancel No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrit VLAN ID ∧ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000 4001 ≤∫	VLAN ULANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_37 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_102 VLANID_103 VLANID_234 VLANID_235 VLANID_20 VLANID_40	< <u>B</u> ack		Einish Find Common Comm	Cancel

- (5) Click Finish.
- 5. Add a virtual upstream port for the multicast service on the OLT side. For details, see 19.2.5 Configuring the Virtual Multicast Upstream Port.

- (1) Choose Multicast > Virtual Uplink Port from the navigation tree.
- (2) On the **Virtual Uplink Port** tab page, set the filter criteria to display the required virtual upstream ports.
- (3) In the information list, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - 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): 3000 *	Slot: 19	*
	Port: 0	*
	OK Canc	el <u>A</u> pply

- (5) Click Done.
- 6. Configure a program profile on the OLT side. For details, see 19.2.8 Configuring a Program Profile.
 - (1) Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
 - (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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 desiri When the program is can not have a source program must have a 	ed parameters. Is provisioned, if the IGMI Ie IP address.If the IGMP a source IP	P version version o	of the multicast VLAN i f the multicast VLAN is	s V2, the program V3, address.the	1	
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	:	0.0.0.0	*	
Priority (0-7):	7*	Bandw	dth (Kbit/s) (0-65534):	5000	*	
Grade:	no-grade 💌 *	Multica	st VLAN(1-4095):			
Preview Parameter						
Preview Profile: 0					*	
Attribute Parameter						
🗌 Prejoin Attribute			🗾 Host Attribute			
🗌 Unsolicited Attribu	Unsolicited Attribute					
🗌 Across VLAN Attrib	iute					
			ок с	ancel <u>A</u> p	ply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required OLT and click Next. Then, set VLAN ID to 3000.
- (8) Click OK.
- 7. Configure a multicast user on the OLT side. For details, see 19.2.10 Configuring a Multicast User.

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.

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

ld User								
Select Device								
Device Name:	10.71.227.35	;						
Parameters								
Name:		4/56/uservlan/u	ntagged	Alias:			IGMPUserA	
Max. Program	ns NO.(1-32):	8		• 🗹 Enab	le Log Swi	itch		
Quick Leave I	Mode:	mac-based	•	🗌 Enab	le Authoriz	ation	🗹 Default \	/ideo Flow
User Max Bar	nd Width(Kbit/s)		🔽 Liniim	uited Rand	Midth	Receive	Global eave
(0-42949672	94):				nica bana		12 Heccirc	CIDDUI LEUNE
Select Service	Port							
11						<u> </u>	🗸 Find	No. 3, Total:144
Name 🗠	Alias 🛆 🛛 C	Connection Type \sim	Interface	Information	Service 7	Туре 🛆	Service Para	Upstream Traffic
1/0_14_2/6	LA	N-ADSL	Frame:	0/Slot 14/	Single			ip-traffic-table_3 🖉
30/0_12_0/	LA	N-GPON	Frame:	0/Slot: 12/	Single			ip-traffic-table_6
21/0_2_1/3	L.	N-GPON		0/Slot: 2/P	Multi-Sen		User VLAN:	ip-traffic-table_6
1/0_13_0/1	LA	N-ADSL	Frame:	0/Slot 13/	Single			
1/0_13_1/1	LA	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0_13_2/1	LA	N-ADSL	Frame:	0/Slot: 13/	Single			E_test_1
1/0_13_3/1	L	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0_13_4/1	L	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0 13 5/1	L	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0 13 6/1	L	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0 13 7/1		N-ADSL	Frame:	0/Slot: 13/	Single			
419 42 044			F	0/01-4-4-0/	Oin et a			
			_		_			
			_					
				< <u>B</u> ack		ext>	<u> </u>	Cancel

- (4) Click Finish.
- (5) Select the multicast user, click the User Multicast VLAN tab in the lower pane, right-click, and then choose Add from the shortcut menu.
- (6) In the dialog box that is displayed, select the record where **Multicast VLAN ID** is set to **3000** and click **OK**.

Diagon in						Final	No. 2 Totali
Please in	iput qu	tery condition			<u> </u>	Finu	NU. 2, TUTAL
1	Name		Alias	Multicast VLAN ID		IGMP Version	· · · ·
MPV Ad	d Mul	ticast VLAN				×	tv_off
MPV .	Total :	1 Succeeded : 1	Foiled : 0				igmp_
	rotur.	1, 040000404 . 1,	r anca . o				
			10	0%			
				<u>D</u> etails <<	<u>C</u> los	e	
	No.	Device Name	Name	Result	Failure (Cause	
	1	10.71.227.35	IGMPVIan_300	0 Succeeded			
			4				
	<			1			
J							e

• Configure the multicast service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

1. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

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

ſ	dd VLAN		×
	 Base Info Configure VLAN 		
		VLAN ID(1-4095):	1000 *
		Name:	VLANID_1000
		Alias:	
		Type:	Smart VLAN 👻 *
		Attribute:	Common
		802.1 Priority:	Unconfigured
		E	Back Next Done Cancel

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

Add VLAN
Add VLAN
Back Next Done Cancel

- (6) Click Done.
- 2. Add a service virtual port on the MDU side. For details, see 19.3.3 Adding a Service Port.

If the access port of MDU is xDSL port, ensure that the xDSL port is activated.

- (1) On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.

- Name: IGMP
- Connection Type: LAN-ADSL (when the physical port is an ADSL port) or LAN-VDSL2 (when the physical port is a VDSL2 port) or LAN-ETHER (when the physical port is an Ethernet port)
- Vlan ID: 1000
- Interface Selection: 0/1/1
- VPI: 0 (when the physical port is an ADSL or VDSL2 port)
- VCI: 0 (when the physical port is an ADSL or VDSL2 port)
- Service Type: Multi-Service VLAN
- User VLAN: untagged
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

asic Info	Attributes
Name: IGMP •	Connection Type: LAN-VDSL2 LAN-ADSL LAN-0.5HDSL
etwork Side	User Side LAN-VDSL2
VLAN Choice: Smart VLAN 🔷 * Vlan ID(1-4095): 1000	Interface Selection: 0/1/1 Channel Mode: ATM Auto-sensing VP(0-255): 0 VC(32-255): 35 Service Type: Multi-Service VLAN User VLAN(1-4095): 1000
raffic Profile Info	
Keep the upstream and downstream settings the same	Deventeren Treffe Names ETTE
opstream trailic Name. FTIX	Downstream trainc Name. Filtx

- (4) Click **OK**.
- 3. Add a multicast VLAN on the MDU side. For details, see 19.2.7 Configuring the Multicast VLAN.
 - (1) Choose Multicast > Multicast VLAN from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3
 - Work Mode: igmp_snooping
 - VLAN ID: 1000

Base Information	1				
Name:			Alias:		
IGMP Version:	IGMP V3	•	·		
Autogeneration F	Program IP Addr	ess	Work Mode		
Program Match	Mode: 💿 Ena	ble 🔿 Disable	Work Mode:	igm	p_snooping 🔻
Start IP Addres:	в:		Snooping Re	eport Switch: 🔘 O	pen 🖲 Close
End IP Address			Snooping Le	ave Switch: 🔿 O	pen 🔍 Close
		Back	Next	<u>D</u> one	<u>C</u> ancel
Multicast VL	AN				
)efault Un Port I	nfo				
oldan op i on i					
Frame: 0		Slot: 0		Port: 1	
arameter Info	iority/0 7\: R		Report Interval	(2)/(10, 5000); 10,]
Parameter Info IGMP Report Pr Log Switch:	iority(0-7): <u>6</u>)* Dpen O Close	Report Interval	(S)(10-5000): 10 Switch: • ())* Open O Close
Parameter Info IGMP Report Pr Log Switch:	iority(0-7): 6	* Open O Close	Report Interval	(S)(10-5000): 10 Switch: • (Dpen O Close
Parameter Info IGMP Report Pr Log Switch:	iority(0-7): 6	* Dpen O Close	Report Interval Global-Leave S	(S)(10-5000): 10 Switch: • (Dpen O Close
'arameter Info- IGMP Report Pr Log Switch:	iority(0-7): 6)en Oclose Back	Report Intervali Global-Leave S	(S)(10-5000): 10 Writch: • (Done	Dpen O Close
Parameter Info IGMP Report Pr Log Switch:	iority(0-7): 6 • ()pen O Close Back	Report Intervali Global-Leave S	(S)(10-5000): 10 Writch: •. 0 	Dpen Close
Parameter Info IGMP Report Pr Log Switch: I Multicast VL Select VLAN	iority(0-7): 6 • ()pen O Close Back	Report Interval Global-Leave S	(S)(10-5000): 10 Writch: • Done	Dpen Close
Parameter Info IGMP Report Pr Log Switch: I Multicast VL Select VLAN	iority(0-7): 6 • ()pen ○ Close Back	Report Interval <u>Global-Leave S</u> <u>Next</u>	(S)(10-5000): 10 writch: ● (Dpen Close
Parameter Info IGMP Report Pr Log Switch: I Multicast VL Relect VLAN All VLAN ID A	iority(0-7): 6 • (AN Name)en Oclose Back Alias	Report Interval Global-Leave S Next	(S)(10-5000): 10 witch: • (Dpen Close
Parameter Info- IGMP Report Pr Log Switch: 4 Multicast VL Select VLAN All VLAN ID ~	iority(0-7): 6 • (AN Name VLANID_1	Dpen O Close Back Alias	Report Interval Global-Leave S Next	(S)(10-5000): 10 Switch: • (Done ✓ Find Attribute ∧ Common	Dpen Close
Parameter Info- IGMP Report Pr Log Switch: I Multicast VL Select VLAN All VLAN ID ~	iority(0-7): 6 • (• (• (• (• (• (• (• (Dpen Close Eack	Report Intervali Global-Leave S Next	(S)(10-5000): 10 writch: ● 0 Pone V Find Attribute ~ Common Common	Dpen Close Qancel No. 7, Total:2: Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: I Multicast VL Select VLAN All VLAN ID ~ 16	iority(0-7): 6 • (AN VLANID_1 VLANID_500	Dpen Close Back	Report Intervalu Global-Leave S Next Smart VLAN Smart VLAN Smart VLAN	(S)(10-5000): 10 writeh: ● (2000e ✓ Find Attribute ~ Common Common Common	Deen Close Concel No. 7, Total:23 Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: I Multicast VL Select VLAN All VLAN ID ~ 6 00 00	iority(0-7): 6 • (AN VLANID_1 VLANID_600 VLANID_500	Dpen O Close	Report Interval Global-Leave S Next	(S)(10-5000): 10 writch: ●. C Pone ✓ Find Attribute ~ Common Common Common	Doen Close Concel No. 7, Total:22 Super VLAN ID
Parameter Info IGMP Report Pr Log Switch: Select VLAN All VLAN ID ~ 6 00 00 02 04	Iority(0-7): 6	Dpen O Close Back Alfas Alfas	Report Intervall Global-Leave S Next Vext Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN	(S)(10-5000): 10 witch: ● (20000 ✓ Find Attribute ^ Common Common Common Common	Dpen Close Concel No. 7, Total:22 Super VLAN ID
Parameter Info- IGMP Report Pr Log Switch: H Multicast VL Select VLAN All VLAN ID ~ KAN ID ~ KAN ID ~ KAN ID ~ KAN ID ~ KAN ID ~ KAN KAN ID ~ KAN KAN KAN KAN KAN KAN KAN KAN KAN KAN	iority(0-7): 6 • (AN VLANID_1 VLANID_500 VLANID_500 VLANID_504 VLANID_789	Dpen O Close Back Alias Alias	Report Intervali Global-Leave S Next Vext Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	(S)(10-5000): 10 writch: • . (■ Done ✓ Find Attribute ~ Common Common Common Common Common	Dpen Close
Parameter Info- IGMP Report Pri Log Switch: Select VLAN All VLAN ID ~ 36 500 502 504 89 000	Iority(0-7): 6	Alias	Report Interval Global-Leave S Next Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	(S)(10-5000): 10 writeh: • (↓ Find ↓ Find ↓ Attribute ~ Common Common Common Common Common Common	Dpen Close
IGMP Report Pri Log Switch: A Multicast VL Select VLAN All VLAN ID VLAN ID 56 500 502 504 589 500 301	iority(0-7): 6	Aljas Aljas Aljas Aljas Aljas	Report Intervali Global-Leave S Olobal-Leave S Next Very Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	(S)(10-5000): 10 writeh: ● (2000) Common Common Common Common Common Common Common Common Common Common	Deen Close
CMP Report Pri Log Switch: A Multicast VL Select VLAN All VLAN ID So So So So So So So So So So So So So	iority(0-7): 6	Dpen Close Back Allas Al	Report Interval Global-Leave S Next Type ~ Smart VLAN Smart VLAN	(S)(10-5000): 10 writch: ●. (●. ())))))))))))))))))))))))))))))))))))	Deen Close

- (4) Click Done.
- 4. Add a virtual upstream port for the multicast service on the MDU side. For details, see 19.2.5 Configuring the Virtual Multicast Upstream Port.
 - (1) Choose **Multicast** > **Virtual Uplink Port** from the navigation tree.
 - (2) On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1000
 - Frame: 0
 - Slot: 0
 - Port: 1

Add Virtual Uplink Port	×
IGMP VLAN	Parameters
	Frame: 0 *
IGMP VLAN ID: 1000*	Slot: 0 *
	Port: 1 *
ОК	Cancel <u>A</u> pply

- (5) Click OK.
- 5. Configure a program profile on the MDU side. For details, see 19.2.8 Configuring a Program Profile.
 - (1) Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
 - (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click the program profile whose **IP Address** is set to **224.0.1.1** and choose **Download to NE** from the shortcut menu.
 - (4) In the dialog box that is displayed, select the required MDU and click Next. Then, set VLAN ID to 1000.
 - (5) Click OK.
- 6. Configure a multicast user on the MDU side. For details, see 19.2.10 Configuring a Multicast User.
 - (1) Choose **Multicast** > **Multicast** User from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Alias: IGMPUserA
 - Unlimited Band Width: selected
 - Select Service Port: service virtual port named IGMP

		_		_				
ocation Info								
Name:			IGMPUs	er_0_2_1_11	Alias:		IGMPUserA	
Max Program I	NO.(1-16):		8		* 🗹 Enab	le Log Switch		
Quick Leave M	lode:		mac-ba	sed 🔻	🔹 🗹 Defat	ult Video Flow		
User Max Ban	d Width(0-429	4967294):			* 🗹 Unlin	nited Band Wid	lth	
Receive G	lobal-Leave				🗔 Enab	le Authorization	n	
elect ServiceP	ort							
11							✓ Find	No. 9, Total:9
			-					
Name 🗠	Alias 🗠	Connection	Type 🗠	Interface Information	n Service Type 🗠	Service Para	Upstream Traffic N	lameDownstrea
Name ^ 1601/0_2	Alias 🗠	Connection LAN-VDSL2	Туре 🗠	Interface Information Frame: 0/Slot: 2/P	n Service Type ~ Single	Service Para	Upstream Traffic N ip-traffic-table_1	lameDownstrea ip-traffic-tat
Name ^ 1601/0_2 1611/0_2	Alias ^	Connection LAN-VDSL2 LAN-VDSL2	Туре 🛆	Interface Information Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P	n Service Type ~ Single Multi-Service V	Service Para User VLAN:	Upstream Traffic N ip-traffic-table_1 .ip-traffic-table_1	ip-traffic-tal ip-traffic-tal
1601/0_2 1611/0_2 66/0_1_0/6	Alias ^	Connection LAN-VDSL2 LAN-VDSL2 LAN-ADSL	Туре 🛆	Interface Information Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P Frame: 0/Slot: 1/P	n Service Type ~ Single Multi-Service V Multi-Service V	Service Para User VLAN: User VLAN:	Upstream Traffic N ip-traffic-table_1 .ip-traffic-table_1 .ip-traffic-table_1	lameDownstrea ip-traffic-tat ip-traffic-tat ip-traffic-tat
Name ^ 1601/0_2 1611/0_2 66/0_1_0/6 1606/0_2	Alias ^	Connection LAN-VDSL2 LAN-VDSL2 LAN-ADSL LAN-VDSL2	Type 🔿	Interface Information Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P Frame: 0/Slot: 1/P Frame: 0/Slot: 2/P	Service Type ^ Single Multi-Service V Multi-Service V Multi-Service V	Service Para User VLAN: User VLAN: User VLAN:	Upstream Traffic N ip-traffic-table_1 .ip-traffic-table_1 .ip-traffic-table_1 .ip-traffic-table_1	lameDownstrea ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai
Name ^ 1601/0_2 1611/0_2 66/0_1_0/6 1606/0_2 1605/0_2	Alias ^	Connection LAN-VDSL2 LAN-VDSL2 LAN-ADSL LAN-VDSL2 LAN-VDSL2	Type ^	Interface Information Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P Frame: 0/Slot: 1/P Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P	Service Type Single Multi-Service V Multi-Service V Multi-Service V Multi-Service V	Service Para User VLAN: User VLAN: User VLAN: User VLAN:	Upstream Traffic N ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1	ameDownstrea ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal
Name ^ 1601/0_2 1611/0_2 1606/0_1_0/6 1606/0_2 1605/0_2 1615/0_2	Alias ^	Connection LAN-VDSL2 LAN-VDSL2 LAN-ADSL LAN-VDSL2 LAN-VDSL2 LAN-VDSL2	Type ^	Interface Information Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P Frame: 0/Slot: 1/P Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P	h Service Type Single Multi-Service V., Multi-Service V., Multi-Service V., Multi-Service C., Multi-Service E.,	Service Para User VLAN: User VLAN: User VLAN: User VLAN: User VLAN:	Upstream Traffic N ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1	ameDownstrea ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai
Name ^ 1601/0_2 1611/0_2 160/0_1_0/6 1605/0_2 1615/0_2 1616/0_2	Alias ^	Connection LAN-VDSL2 LAN-VDSL2 LAN-ADSL LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2	Type ^	Interface Information Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P Frame: 0/Slot: 1/P Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P Frame: 0/Slot: 2/P	Nervice Type ~ Single Multi-Service V Multi-Service V Multi-Service V Multi-Service V Multi-Service E Multi-Service E	Service Para User VLAN: User VLAN: User VLAN: User VLAN: User VLAN: User-Side	Upstream Traffic N ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1	ameDownstrea ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal
Name ~ 1601/0_2 1611/0_2 1611/0_2 1606/0_2 1605/0_2 1615/0_2 1616/0_2 1301/0_2	Alias ^	Connection LAN-VDSL2 LAN-VDSL2 LAN-ADSL LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2	Type ^	Interface Information Frame: 0/Slot 2/P Frame: 0/Slot 2/P Frame: 0/Slot 2/P Frame: 0/Slot 2/P Frame: 0/Slot 2/P Frame: 0/Slot 2/P Frame: 0/Slot 2/P	h Service Type ~ Single Multi-Service V Multi-Service V Multi-Service V Multi-Service E Multi-Service E Multi-Service E	Service Para User VLAN: User VLAN: User VLAN: User VLAN: User VLAN: User-Side User-Side User-Side User-VLAN:1	Upstream Traffic N ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 aaaa	ame Downstrea ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai
Name A 1601/0_2 1611/0_2 1611/0_2 1606/0_2 1605/0_2 1615/0_2 1616/0_2 1301/0_2	Alias ^	Connection LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2	Type ^	Interface Information Frame: 0/Slot 2/P Frame: 0/Slot 2/P	Nervice Type ~ Single Multi-Service V Multi-Service V Multi-Service V Multi-Service E Multi-Service E Multi-Service V	 Service Para Service Para User VLAN: User VLAN: User VLAN: User VLAN: User VLAN: User-Side User-Side User-VLAN:1 User VLAN:1 	Upstream Traffic N ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 aaaa FTTX	ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal ip-traffic-tal bbbb FTTX
Name ~ 1601/0_2 1611/0_2 1611/0_2 1606/0_2 1605/0_2 1615/0_2 1616/0_2 1301/0_2 (<)	Alias ^	Connection LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2	Type ^	Interface Information Frame: O/Siot 2/P Frame: O/Siot 2/P	Service Type ~ Single Multi-Service V., Multi-Service V., Multi-Service V., Multi-Service E., Multi-Service E., Multi-Service V.,	 Service Para User VLAN: User VLAN User VLAN User VLAN User-Side User-Side User VLAN.1 	Upstream Traffic N ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 aaaa FTTX	ameDownstrea ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai bbbb FTTX
Name ~ 1601/0_2 1611/0_2 1605/0_1_0/6 1605/0_2 1615/0_2 1615/0_2 1616/0_2 1000/0_2 <	Alias A	Connection LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2 LAN-VDSL2	Type ^	Interface Information Frame: 0/Slot 2/P Frame: 0/Slot 2/P III	Service Type ~ Single Multi-Service V., Multi-Service V., Multi-Service V., Multi-Service E., Multi-Service E., Multi-Service V., Multi-Service V.	Service Para Construct Para User VLAN: User VLAN: User VLAN: User VLAN: User-Side User-VLAN: User VLAN:	Upstream Traffic N ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 ip-traffic-table_1 aaaa FTTX	ameDownstrea ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai ip-traffic-tai bbbb FTTX

(4) Click **Finish**.

- (5) Select the multicast user, click the User Multicast VLAN tab in the lower pane, right-click, and then choose Add from the shortcut menu.
- (6) In the dialog box that is displayed, select the record where Multicast VLAN ID is set to 1000 and click OK.

dd Multicast VL	AN to user atch Add Multicast VI A	N		XI
	Count\Succeeded\Failed:	1\1\0		. 3, Tota
GMPVIan_504		100%		
GMPVIan_500				
IGMPVIan_100		Detail ·	< <u>C</u> lose	
GMPVIan_130				-
GMPVIan_100	Name	Result	Description	
	IGMPVIan_1000	Succeeded		
			OK Cancel	Apply

----End

Result

The user can watch program1 on TV.

19.4.6 Configuring the GPON FTTB Voice Service (H.248 Protocol)

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

Prerequisite

The OLT must be added to the U2000.

The data of the MGC interface and PSTN user corresponding to the MG interface must be configured on the MGC.

Context

H.248 is the Media Gateway Control Protocol. In the MG separation architecture, H.248 is the communication protocol between an MGC and an MG, and it is used for the MGC to control the MG.

The MDU functions as an MG and the SoftX3000 functions as an MGC if the softswitch that matches the MDU is SoftX3000.

For details of the data plan, see 19.4.1 Data Plan for the GPON FTTB Services.

Example Network

MA5620, MA5626, MA5616, and MA5612 support H.248 Protocol. The configuration procedure in this topic is applicable to the MA5620 V800R308, MA5626 V800R308, MA5612 V800R308, and MA5616 V800R308.

The MDU is connected to a GPON port on the OLT, and phone 1 and phone 2 are connected to voice service ports on the MDU.



Figure 19-5 Configuring the GPON FTTB voice service (H.248 protocol)

Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8

- Type: Smart VLAN

Add VLAN		
S Base Info Configure VLAN		
	VLAN ID(1-4095)	*
	Name:	VLANID_8
	Alias:	
	Type:	Smart VLAN 👻 *
	Attribute:	Common 💌 *
	VLAN Priority:	Unconfigured 💌
1		Back Next Done Cancel

- (5) 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 Cancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN				2
 Base Info Configure VLAN 	Sub Port L3 Interface	Extended Info		
	Management Status:	UP 192.168.50 .4		*
	IP Mask:	255.255.255.0		*
	Acceptable Frame Type:	ethernetii		*
	Back	Next	Done	<u>C</u> ancel

- (6) Click **Done**.
- 2. Configure an MDU SNMP profile. For details, see 19.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

dd	MDU	SNMP	Profile	

Name:	snmpprofile *	Alias:	
SNMP Version:	v1 •	Read Name:	public *
Write Name:	private *	Trap Host IP:	10.71.210.71 *
Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *

(5) Click OK.

A

- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.

- (2) Click the **DBA Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

A	dd 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	
		OK Cancel <u>Apply</u>	

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

4. Configure a line profile. For details, see 19.1.3 Configuring a GPON 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, multicast, and voice services.

- (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

GPUN Line Profile		
ame: <u> FTTx</u>	* Alias:	
Configuration	Name	Value
Base Info.	Upstream FEC Switch	OFF
±- Line	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off

- 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	×
Name: FTTx	* Alias:
Configuration Base Info. Ethernet port binding group F-CONT Info ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTIX
	OK Cancel Apply

- 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

ne: FTTx	* Alias:	
onfiguration - Base Info. - Line - Ethernet port binding group - T-CONT Info. - T-CONT DEL T-CONT	ADD GEM Port GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch: Cascade Switch:	1 1 1 0N ○FF
		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: 8

Add GPON Line Profile			×
Name: FTTx	*	Alias:	
	A	DD GEM Connection	>
Configuration Base Info. Line	GEM Port In	GEM Connection Parameters	
Ethernet port binding group	CAR Profile	GEM Port Index(0-1023):	1
GEM P ADD GEM	Connection Port	VLAN ID(1-4094):	8
		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
	I		OK Cancel
		OK Cancel	Apply

- 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: 1001

Add GPON Line Profile				×
Name: FTTx	*	liee:		i
Configuration Base Info. Line - Ethernet port binding group - T-CONT Info. - T-CONTI GE ADD GEM Con	GEM Port Ind Priority Quede CAR Profile Service Type nection 1 Sv	GEM Conn GEM Conn GEM Por GEM Cor	onnection ection Parameters I Index(0-1023): mection Index(0-1023): 1-4094):	1
DEL GEM Port	Swi	Priority: Port Type Port ID(1- BindGrou CAR Prof	: -8): IP ID: file:	
			Cancel	OK

- 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: 1000

Add GPON Line Profile				×
Name: FTTx	*	61	iaa:	i
		AD	D GEM Connection	
Configuration	1	Γ	GEM Connection Parameters	
⊢ Base Info. ⊡ Line ⊢ Ethernet port binding group	GEM Port Ind Priority Queue		GEM Port Index(0-1023):	1
E⊢ T-CONT Info. E⊢ T-CONT1	CAR Profile Service Type		GEM Connection Index(0-1023):	2
GE ADD GEM Cor	nnection / 1 Sv		VLAN ID(1-4094):	1000
DEL GEM Por	swi		Priority:	
			Port Type:	
			Port ID(1-8):	
			BindGroup ID:	
			CAR Profile:	
				ок
	-		OK Cancel	Apply

- 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: 3 (this parameter is set to **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile					×
Name: FTTx	*	A DI	CEM Connection	_	i
Configuration Base Info.	GEM Port Ind		3EM Connection Parameters	4	
Ethernet port binding group E- T-CONT Info. E- T-CONT1	Priority Quepe CAR Profile Service Type		GEM Connection Index(0-1023):	3	
ADD GEM Co	nnection / <mark>1 Sv</mark>		VLAN ID(1-4094):	2000	
DEL GEM Poi	t Swi		Priority:		
			Port Type:		
			Port ID(1-8):		_
			BindGroup ID:		_
			CAR Profile:		
				0K	
			OK Cancel	<u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 5. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected

- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

						×
Affiliated Port:	0/2/0		*	Splitter:	Splitter	(L1) 🔻
Name:	MDU		*	Alias:		
ONU ID(0-127):	0		*	Splitter Port ID(1-128): 1	
ONU Type:	MDU		*			
Basic Paramet	ers	Network Manag	gement Cha	annel Parameters		
Line Profile:	FTTx		*	Service Profile:		···· *
Alarm Profile:				ONU VAS Profile:		
Authenticatio	n Info					
Authenticati	on Mode:	SN	•	Timeout Dura	ation 🔽 No Lin	nit 🛛 🖈
Automout	on mode.			(h)(1-168):		
SN:		485754438E1C	DE42	Password:	shenzhen	*
ONU Type						
Verdor ID:	H	WTC(2011)	-	Terminal Type:	MDU	-
Software Ve	rsion:		-			
				🗌 Locate to	ONU list after op	eration succeeds
				OK	Cancel	Apply
Confirm ONU						×
Confirm ONU Affiliated Port:	0/2/0		*	Splitter:	Splitter	(L1) •
Confirm ONU Affiliated Port: Name:	0/2/0 MDU		*	Splitter: Alias:	Splitter	(L1) V
Confirm ONU Affiliated Port: Name: ONU ID(0-127):	0/2/0 MDU 0		*	Splitter: Alias: Splitter Port ID(1	Splitter	(L1)
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type:	0/2/0 MDU 0 MDU		× * *	Splitter: Alias: Splitter Port ID(1	Splitter	(L1)
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/0 MDU 0 MDU ers Ne	etwork Managem	× * • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(el Parameters	Splitter	(L1)
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/0 MDU 0 MDU ters Ne	etwork Managem nanagement	× × × × ent Channe	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam	Splitter	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel	0/2/0 MDU 0 MDU ers Ne retwork n parameter	etwork Managem nanagement s	▼* * • • • • • • • •	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam	Splitter	× (_1) ~
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel J SNMP Param	0/2/0 MDU 0 MDU ters Ne ters Ne ters Ne	etwork Managem nanagement s	<pre>* * * * * * * * * * * * *</pre>	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam	Splitter	× (L1) •
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param Manager VL	0/2/0 MDU 0 MDU ers Ne ers Ne ers Ne s Info AN(1-409)	etwork Managem nanagement s 5): 8	<pre></pre>	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7):	Splitter	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet ☑ OLT sets channel I SNMP Param Manager VL IP Address:	0/2/0 MDU 0 MDU ers No network n parameter ns Info AN(1-409:	etwork Managem nanagement s 5): 8 192,168,50	* * * * * * * * * * * * * * * * * * *	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address M	Splitter	(L1) *
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet ☑ OLT sets channel J SNMP Param Manager VL IP Address: Gateway IP	0/2/0 MDU 0 MDU ers Ne ers Ne ers Ne ers Ne AN(1-409: Address:	etwork Managem nanagement \$ 5): 8 192.168.50 	<pre>* * * * * * * * * * * * * * * * * * *</pre>	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address M	Splitter	(L1)
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param Manager VL IP Address: Gateway IP Static Route I	0/2/0 MDU 0 MDU ers Ne ers Ne ers Ne s Info AN(1-409: Address: Parameter	etwork Managem nanagement s 5): 8 192.168.50 	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address M	Splitter	× (∟1) ▼ *
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet I OLT sets channel I SNMP Param Manager VL IP Address: Gateway IP - Static Route I IP Address:	0/2/0 MDU 0 MDU ers Ne ers Ne erameter ns Info AN(1-409: Address: Parameter	etwork Managem nanagement s 5): 8 192.168.50 s	* * * * * * * * * * * * * * * * * * * *	Splitter: Alias: Splitter Port ID(el Parameters SINMP Profile Nam Priority(0-7): IP Address Ma	Splitter -1-128): 1 e: snmpprofile ask: 255.255.2 sk:	× (L1) •
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet I OLT sets channel I SNMP Param Manager VL IP Address: Gateway IP Static Route I IP Address: Next Hop IP	0/2/0 MDU 0 MDU ers Network n parameter ns Info AN(1-409) Address: Parameter Address:	etwork Managem nanagement s 5): 8 192.168.50	• • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address Ma	Splitter	(L1)
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet ☑ OLT sets channel I SNMP Param Manager VL IP Address: Gateway IP Static Route I IP Address: Next Hop IP	0/2/0 MDU ers Ne enetwork n parameter is Info AN(1-409: Address: Parameter	etwork Managem nanagement s 5): [8 [192,168.50 [] s]	• • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address Ma IP Address Ma	Splitter -1-128): 1 e: snmpprofile ask: 255 255 2: sk:	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param Manager VL IP Address: Gateway IP Static Route I IP Address: Next Hop IP	0/2/0 MDU 0 mDU eers No ers No ersetwork n parameter ns Info AN(1-409: Address: Parameter Address:	etwork Managem nanagement s 5): 8 192.168.50 s c	<pre> *</pre>	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address Mat	Splitter	(L1)

- (6) Click OK.
- 6. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

Basic Info				n rA	ttributes				
ID(1-32768):	2								
Name:	FTTX_MD	U	*		Connection Type:	LAN-GP	ОМ	•	•
Alias:									
Network Side				ייין 1 ר ^ע	Jser Side				
Dundle ID/	1.04.000								
	1-6192).			r		0/2/17	0.00	_	
VLAN Choice:		Smart VLAN	 *		interface Selection	0/2/1/	070		•
Tag-Transform	n.		•		Service Type:	Multi-	Bervice VLAN		•
Vian ID(1-409	i):	8		L	User VLAN(1-4095	i): 8			•
Cos value(0-7)	C		*						
Fraffic Profile In	0								
🗹 Keep the u	pstream a	nd downstream se	ettings the same						
Upstream Trat	fic Name:	ip-traffic-table_6		Do	wnstream Traffic N	lame: ip-	traffic-table_6		

(7) Click OK.

• Configure the voice service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

Add VLAN		×
Base Info Configure VLAN		
	VLAN ID(1-4095):	2000 *
	Name:	VLANID_2000 *
	Alias:	
	Туре:	Smart VLAN 💌 *
	Attribute:	Common 💌 *
	VLAN Priority:	Unconfigured
	B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN		X
Sase Info Configure VLAN	Sub Port L3 Interface	Extended Info
	Physical Port List	 SubPort List Frame:0 Sot19 Port00
	<u>B</u> ack	Next Done Cancel

- (6) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: VOIP

- 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- Vlan ID: 2000
- Service Type: Multi-Service VLAN
- User VLAN: 2000
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

asic Info				Attributes		
ID(1-32768):	1					
Name:	VOIP		*	Connection Type:	LAN-GPON	•
Alias:					AN-EPON AN-GPON	
letwork Side –				User Side		
ULAN Choice:	(1-8192):	Smart VLAN) t	Interface Selection:	0/2/1/0/0	-
Tag-Transform	n:		•	Service Type:	Multi-Service VLAN	•
Vlan ID(1-409	5):	2000		User VLAN(1-4095):	2000	-
Cos value(0-7):		*			
raffic Profile In	fo					
I⊻ Keep the ι	upstream ar	nd downstream se	ttings the same			
Upstream Tra	ffic Name:	ip-traffic-table_6		Downstream Traffic Nar	me: ip-traffic-table_6	

- (4) Click **OK**.
- Configure the voice service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

- 1. Add an MGC profile. For details, see 19.3.9 Adding an MGC Profile.
 - (1) Choose Configuration > Access Profile Management > MGC Profile from the main menu.
 - (2) Right-click and choose Add Global Profile from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: mgcprofile1
 - Protocol Type: H.248
 - IP Address 1: 200.200.200 (IP address of the MGC)
 - Port Number: 2944
| Profile Parameter | |
|------------------------------|-----------------|
| Name: | mgcprofile1 * |
| Alias: | |
| Protocol Type: | H.248 💌 |
| DNS Name: | |
| IP Address 1: | 200.200.200.200 |
| IP Address 2: | · · · |
| UDP/SCTP Port Number(1-65534 | 4): 2944 |

- (4) Click **OK**.
- 2. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

P	dd VLAN		X
	🚳 <mark>Base Info</mark> Configure VLAN		
		VLAN ID(1-4095):	2000 *
		Name:	VLANID_2000
		Alias:	
		Туре:	Smart VLAN 🔹
		Attribute:	Common 👻 *
		802.1 Priority:	Unconfigured
		B	Back Next Done Cancel

- (4) Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

Add VLAN	
Base Info Configure VLAN	Sub Port L3 Interface Extended Info
	Back Next Done Cancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 17.10.10.10

Add VLAN		
 Base Info Configure VLAN 	Sub Port L3 Interface Extended Info Image: Image of the status image of	UP • • 17.10.10.10 • 255.255.0 • ethernetii • •
	Back Next	Done Cancel

(5) Click Done.

3. Add an IP interface on the MDU side. For details, see 19.3.2 Configuring an IP Interface.

The procedure for adding a signaling IP interface is similar to the procedure for adding a media IP interface. The IP interface of the VLAN can be configured only when the L3 interface of the VLAN is configured with an IP address. According to the networking plan, the media IP address and the signaling IP address can be different.

- (1) In the information list, select the record where VLAN ID is set to 2000 and click the IP Interface tab in the lower pane.
- (2) On the **IP Interface** tab page, right-click and choose **Add** from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - IP Address: 17.10.10.10
 - IP Type: Media
 - Gateway: 17.10.10.1

1	Add IP Interface 🔀				
	IP Address:	17.10.10.10	*		
	ІР Туре	● Media	🔿 Signal		
	Gateway:	17 .10 .10 .1	*		
		(OK Cancel Apply		

(4) Click OK.

4. Configure a static route. For details, see 19.3.8 Configuring a Static Route.

If the IP address of the VLAN IP interface is not in the same network segment as the IP address of the MGC, you need to configure a static route.

- (1) Choose Static Route from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - Target IP Address: 200.200.200 (IP address of the MGC or IMS)
 - Target Mask: 255.255.255.0
 - Next Hop IP Address: 17.10.10.1
- (4) Click OK.
- 5. Configure the MG. For details, see 19.3.12 Adding an MG, 19.3.13 Binding an MGC Profile, and 19.3.14 Starting an MG.
 - (1) Choose Voice Gateway > Media Gateway from the navigation tree.
 - (2) On the **Media Gateway** tab page, set the filter criteria to display the required MGs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - MG ID: 0
 - Name: mg1
 - Signaling IP Address: 17.10.10.10
 - Signaling Port No.: 2944
 - Media IP Address 1: 17.10.10.10

MG ID: 0-16777215)	0	Name:	mg1
Alias:		MG Message MID Type:	Signaling IP Ad
IG Device Name:		MG Domain Name:	
Signaling IP Address: 🗌 DHCP	17.10.10.10	Signaling Port No.: (2900-2999)	2944
fedia IP Address 1: 🗌 DHCP	17.10.10.10	Media IP Address 2:	`
Protocol Type:	H248	Transmission Mode:	UDP
Coding Type:	Text	Profile Name:	
Support Profile Negotiation:	Disable	 Start Negotiate H248 Version: 	V3
count of Heartbeat Retransmission(0~20):	3	Interval of Heartbeat Retransmission(s)(0-655):	60
leartbeat Initiation Duration(s)(5-655):	60	2833 Encryption Key:	

- (5) Click OK.
- (6) In the information list, select the record where **MG ID** is set to **0**, and click the **MGC Attribute Info** tab in the lower pane. In the list, right-click the record where **MGC Index** is set to **0** and choose **Bind Profile** from the shortcut menu.
- (7) In the dialog box that is displayed, set NMS MGC Profile to mgcprofile1 and click OK.

Media Gateway	DSP Channe	l Ri	inging Mapping		
All					
MG Status 🛆 MG ID	🔺 🛛 Name 🔺	Alias	🛆 🛛 MG Domair	n Name 🛆 🛛 Signaling IP A	\ddress 🛆
0	mg1			17.10.10.10	
<					
Authentication Param	eter Details	Online	e User Details	TID Profile Reference De	etails
Terminal ID Prefi	x Details		DMM Timer Deta	ils Standalor	ne Paramete
MG Details	MGC	Attribute	e Info	MG Software	Parameter I
MGC Status	MGC Inde	x M	odify MGC		
<u> </u>	n	_	MGC Attributes		
Bind Profile	e(M) 🦯				
Delete Pro			MG ID:	0	
Activate			MGC Index:	0	
Legend		-	WOC INVEX.	0	
Legenu				ofile: machrofile1	
Eile			TAMO MOCTI	onic. Ingepromer	
				ОК Са	incel

- (8) In the information list, right-click the record where **MG ID** is set to **0** and choose **Cold Start** from the shortcut menu.
- (9) In the dialog box that is displayed, click Yes.
- 6. Configure the attributes of a VoIP PSTN port. For details, see 19.3.15 Configuring a VoIP PSTN Port.
 - (1) Choose **ASL** > **POTS Port** from the navigation tree.
 - (2) Click the **VoIP PSTN Port** tab, and set the filter criteria to display the required VoIP PSTN ports.
 - (3) In the information list, select ports 0/1/0 and 0/1/1 by holding down the **Shift** key, right-click, and then choose **Configure Attributes** from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

Parameter	Value	Step
MG ID	0	-
Terminal ID	0	1
Telephone No.	83110000	1

Multi-field Batch Op	eration		
			Record Number:
Field Name	Field Value	Step	2
MGID	0		
Terminal ID	1	1	
Telephone No.	83110000	1	
			Delete
			Delete All
Operation Ture			
Operation Type			
Field Name:	Field Value:	Step:	
	T 92110000	1	Add to Liet
Tolonhono No	• 03110000		
Telephone No.			
Telephone No.			

(5) Click OK.

----End

Result

Phone 1 and phone 2 can communicate with each other after the configuration is complete.

- 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 ringback tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

19.4.7 Configuring the GPON FTTB Voice Service (SIP Protocol)

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

Prerequisite

- The OLT must be added to the U2000.
- The PSTN user data corresponding to the SIP interface must be configured on the IMS.

Context

The IMS is an IP-based subsystem for controlling multimedia sessions on the next generation network (NGN). The IMS includes all the core network elements that control multimedia services such as audio, video, text, and instant message services.

The Session Initiation Protocol (SIP) is a control-layer protocol of the IMS and it is one of the framework protocols designed by the Internet Engineering Task Force (IETF) for the multimedia

communication system. The SIP protocol is also an application-layer protocol for creating, modifying, and terminating multimedia sessions. It is used with other protocols to complete session establishment and media negotiation. These protocols include the Real-time Transport Protocol (RTP), RTP Control Protocol (RTCP), Session Description Protocol (SDP), Real Time Streaming Protocol (RTSP), and Domain Name System (DNS).

For details of the data plan, see 19.4.1 Data Plan for the GPON FTTB Services.

Example Network

MA5620, MA5626, MA5616, and MA5612 support SIP Protocol. The configuration procedure in this topic is applicable to the MA5620 V800R308, MA5626 V800R308, MA5612 V800R308, and MA5616 V800R308.

The MDU is connected to a GPON port on the OLT, and phone 1 and phone 2 are connected to voice service ports on the MDU.

Figure 19-6 Configuring the GPON FTTB voice service (SIP protocol)



Procedure

• Add the MDU to the U2000 in profile mode.

1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8
 - Type: Smart VLAN

Add VLAN		×
 Base Info Configure VLAN 		
	VLAN ID(1-4095):	8
	Name:	VLANID_8
	Alias:	
	Type:	Smart VLAN 👻 *
	Attribute:	Common
	VLAN Priority:	Unconfigured
	B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

- (5) 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	
	<u>B</u> ack	Next Done Canc	el

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN		<u>×</u>
 Base Info Configure VLAN 	Sub Port L3 Interface	Extended Info
	Management Status:	UP *
	IP Address:	192.168.50 .4 *
	IP Mask:	255.255.255.0
	Acceptable Frame Type:	ethernetii 💌 *
	Back	Next Done Cancel

- (6) Click Done.
- 2. Configure an MDU SNMP profile. For details, see 19.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)

- Trap UDP Port: 162
- SNMP Security Name: public

A	d MDU SNMP Profile					X
	Profile Parameter					
	Name:	snmpprofile	*	Alias:		
	SNMP Version:	v1	*	Read Name:	public ,	•
	Write Name:	private	*	Trap Host IP:	10.71.210.71	•
	Trap UDP Port (1-65535):	162	*	SNMP Security Name:	public +	•
				OK	Cancel <u>App</u>	ly

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

A	dd 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
		OK Cancel Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a line profile. For details, see 19.1.3 Configuring a GPON 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, multicast, and voice services.

- (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

Add GPON Line Profile		X
Name: FTTx	* Alias:	
Configuration Base Info ⊕ Line	Name Upstream FEC Switch Mapping Mode Gos Mode OMCC Encryption	Value OFF VLAN Priority Queue Off
	0K	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

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dd GPON Line Profile	
Name: FTTx	* Alias:
Configuration Base Info.	ADD T-CONT
Line Ethernet port binding group	T-CONT Parameters
ADD T-CONT	T-CONT Index(0-127): 1*
	DBA Profile: FTTx
	OK Cancel
	OK Cancel <u>Apply</u>

- 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.

d GPON Line Profile		
Name: FTTx	* Alias:	
Configuration Base Info. Current Fort binding group CONT Info. ADD GEM Port DEL T-CONT	ADD GEM Port GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023) Priority Queue: CAR Profile: Service Type: Encryption Switch: Cascade Switch:	1 1 1 1 1 1 1 1 1 1 1 1 1 1
		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: 8

Add GPON Line Profile		X
Name: FTTx	* Alias:	
	ADD GEM Connection	2
Configuration Base Info. GEM Port I	GEM Connection Parameters	
Ethernet port binding group F- T-CONT Info. Priority Qu CAR Profil	GEM Port Index(0-1023):	1
E- T-CONT1 Service Ty	GEM Connection Index(0-1)	023): 0
ADD GEM Connection DEL GEM Port	VLAN ID(1-4094):	8
	Priority:	•
	Port Type:	
	Port ID(1-8):	
	BindGroup ID:	
	CAR Profile:	
<u><</u>		OK Cancel
	OK Cance	el <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: 1001

Add GPON Line Profile				X
Name: FTTx	*	01		
Configuration Base Info.	۱ ЭEM Port Ind	AD	D GEM Connection GEM Connection Parameters	
Ethernet port binding group	Priority Quedie CAR Profile Service Type		GEM Port Index(0-1023): GEM Connection Index(0-1023):	0
GEI ADD GEM Conn	rection / <mark>h Sv</mark>		VLAN ID(1-4094):	1001
DEL GEM Port	Swi		Priority:	
			Port Type:	
			Port ID(1-8):	
			BindGroup ID:	
			CAR Profile:	
				ОК
			OK Cancel	Apply

- 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: 1000

Add GPON Line Profile				×	4
Name: FTTx	*	Aliee:			
		DD GEM (Connection		
Configuration Base Info.	GEM Port Ind	-GEM Conr	nection Parameters		
Line Ethernet port binding group	Priority Que	GEM Po	ort Index(0-1023):	1	
□- T-CONT Info. □- T-CONT1	CAR Profile Service Type	GEM Co	onnection Index(0-1023)): 2	
ADD GEM Cor	nnection / 1 SV	VLAN ID)(1-4094):	1000	
DEL GEM Port	t <u>5wi</u>	Priority:			
		Port Typ	ie:		
		Port ID(1-8):		
		BindGro	oup ID:		
		CAR Pro	ofile:		
			C	ок	
		0	K Cancel	Apply	

- 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: 3 (this parameter is set to **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile			×
Name: FTTx	*	Aliaa:	1
		DD GEM Connection	
Configuration	1	GEM Connection Parameters	
- Base Info.	GEM Port Ind		
Ethernet port hinding group	Priority Que	GEM Port Index(0-1023):	1
E T-CONT Info.	CAR Profile	GEM Connection Index(0-1023):	3
E- T-CONT1	Service Type	,	
ADD GEM Col	nnection / <mark>h SV</mark>	VLAN ID(1-4094):	2000
DEL GEM Por	t Swi		
		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
< <u> </u>			ок
		OK Cancel	Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.

- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
- (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected
 - SNMP Profile: snmpprofile (click in next to SNMP Profile and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
 - Manager VLAN: 8
 - IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
 - IP Address Mask: 255.255.255.0

Confirm ONU				×
Affiliated Port:	0/2/0	~	Splitter:	Splitter(L1)
Name:	MDU		Alias:	
ONU ID(0-127):	0		Splitter Port ID(1-128): 1
ONU Type:	MDU	•	•	
Basic Paramet	ers	Network Management (Channel Parameters	7
Line Profile:	FTTx	*	Service Profile:	*
Alarm Profile:			ONU VAS Profile:	
Authenticatio	n Info			
Authenticati	on Mode:	SN 🔻	Timeout Dura (h)(1-168):	ation 🗹 No Limit 📃 *
SN:		485754438E1CDE42	Password:	shenzhen *
-ONU Type Verdor ID: Software Ve	HN ersion:	VTC(2011)	Splitter: Splitter(L1) Alias: Splitter Port ID(1-128): Splitter Port ID(1-128): Splitter PortID: Service Profile: ONU VAS Profile: Timeout Duration No Limit Service Profile: Locate to ONU list after operation succeeds OK Cancel Apply	
			🗌 Locate to	ONU list after operation succeeds
			ОК	Cancel <u>Apply</u>

Confirm ONU					×
Affiliated Port:	0/2/0	•	*	Splitter:	Splitter(L1) 💌
Name:	MDU]*	Alias:	
ONU ID(0-127):	0		*	Splitter Port ID(1-128)	: 1
ONU Type:	MDU	•	*		
Basic Paramet	ers Netw	ork Management Ch	annel I	Parameters	
☑ OLT sets channel	network ma parameters	nagement	SN	IMP Profile Name: sn	mpprofile*
SNMP Param	ns Info				
Manager VL	AN(1-4095):	8	*	Priority(0-7):	
IP Address:		192.168.50.2	*	IP Address Mask:	255.255.255.0 *
Gateway IP	Address:				
Static Route	Parameters -				
IP Address:	Γ		1	IP Address Mask:	
Next Hop IP	Address:]		
				🗌 Locate to ONU I	ist after operation succeeds
				ок	Cancel <u>A</u> pply

- (6) Click **OK**.
- 6. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
 - (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
 - (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

Basic Info	rt			Attributes		
Name: Alias:	FTTX_MDU	J		Connection Type:	AN-GPON	*
Network Side Bundle IC VLAN Choice Tag-Transfor Vlan ID(1-409 Cos value(0-7	(1-8192): n: 5):	Smart VLAN 8		User Side Interface Selection: Service Type: User VLAN(1-4095):	0/2/1/0/0 Multi-Service VLAN 8	• • •
Traffic Profile II	nfo upstream a nffic Name:	nd downstream settings th ip-traffic-table_6	e same	Downstream Traffic Nar	ne: ip-traffic-table_6	
					OK Cancel	Apply

- (7) Click OK.
- Configure the voice service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

Add VLAN		×
Sase Info Configure VLAN		
	VLAN ID(1-4095):	2000 *
	Name:	VLANID_2000 *
	Alias:	
	Type:	Smart VLAN 👻 *
	Attribute:	Common 💌 *
	VLAN Priority:	Unconfigured
	B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

- (4) Click Next.
- (5) 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 D Physical Port List D P Slot09 P Slot19 D Slot20 P Slot20	SubPort List	
	<u>B</u> ack	Next Done Cancel)

- (6) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: VOIP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 2000
 - Service Type: Multi-Service VLAN
 - User VLAN: 2000
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: FTTx

asic Info				Attributes	
ID(1-32768):	1				
Name:	VOIP		*	Connection Type:	LAN-GPON 🔻
Alias:					LAN-EPON LAN-GPON
letwork Side				User Side	
ULAN Choice:	(1-8192):	Smart VLAN		Interface Selection:	0/2/1/0/0
Taq-Transfor	n:		•	Service Type:	Multi-Service VLAN
- Vlan ID(1-409	5):	2000		User VLAN(1-4095):	2000 🗸
Cos value(0-7	'):		*		
raffic Profile Ir	nfo				
🗹 Keep the	upstream a	nd downstream setti	ings the same		
Upstream Tra	iffic Name:	ip-traffic-table_6		Downstream Traffic Na	me: ip-traffic-table_6

- (4) Click OK.
- Configure the voice service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

1. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

Add VLAN		×
😥 Base Info 🌚 Configure VLAN		
	VLAN ID(1-4095):	2000 *
	Name:	VLANID_2000 *
	Alias:	
	Туре:	Smart VLAN 🔹 *
	Attribute:	Common *
	802.1 Priority:	Unconfigured
	B	lack Next Done Cancel

- (4) Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

Add VLAN	Sub Port L3 Interface Extended Info
Configure VLAN	Image: Subport List Image: Subport List </th
	Back Next Done Cancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 17.10.10.10

Add VLAN		×
Base Info Configure VLAN	Sub Port L3 Interface Extended Info Image: Configure L3 Interface Management Status: DHCPOption60: Obtain the IP address in the DHCP mode IP Address: IP Address: IP Mask: Acceptable Frame Type:	UP • • 17.10.10.10 • 256.256.256.0 • ethernetii •
·	Back Next	Done Cancel

- (5) Click **Done**.
- 2. Add an IP interface on the MDU side. For details, see 19.3.2 Configuring an IP Interface.

The procedure for adding a signaling IP interface is similar to the procedure for adding a media IP interface. The IP interface of the VLAN can be configured only when the L3 interface of the VLAN is configured with an IP address. According to the networking plan, the media IP address and the signaling IP address can be different.

- (1) In the information list, select the record where VLAN ID is set to 2000 and click the IP Interface tab in the lower pane.
- (2) On the **IP Interface** tab page, right-click and choose **Add** from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.

- IP Address: 17.10.10.10
- IP Type: Media
- Gateway: 17.10.10.1

1	dd IP Inter	ace	×	1
	IP Address:	17.10.10.10	*	
	ІР Туре	◉ Media	🔿 Signal	
	Gateway:	17 .10 .10 .1	*	
		(OK Cancel <u>A</u> pply	

(4) Click OK.

3. Configure a static route. For details, see 19.3.8 Configuring a Static Route.

If the IP address of the VLAN IP interface is not in the same network segment as the IP address of the MGC, you need to configure a static route.

- (1) Choose Static Route from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - Target IP Address: 200.200.200 (IP address of the MGC or IMS)
 - Target Mask: 255.255.255.0
 - Next Hop IP Address: 17.10.10.1
- (4) Click OK.
- 4. Add a UAS profile. For details, see 19.3.10 Configuring a UAS Profile.
 - (1) Choose **Configuration** > **Access Profile** > **UAS Profile** from the main menu.
 - (2) Right-click and choose Add Global Profile from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: uasprofile1
 - Address Mode: Fix mode
 - IP Address 1: 200.200.200 (IP address of the IMS)
 - Proxy Port: 5060

A	dd UAS Profile	×	
	Profile Parameter		
	Name:	uasprofile1 *	
	Alias:		
	Address Mode:	Fix mode 🛛 💌	
	IP Address 1:	200.200.200.200 *	
	IP Address 2:		
	Proxy Port(1-65535):	5060 *	
	Domain Name:		
	OK Cancel <u>A</u> pply		

- (4) Click OK.
- 5. Add a SIP interface. For details, see 19.3.12 Adding an MG.
 - (1) Choose Voice Gateway > Media Gateway from the navigation tree.
 - (2) On the **Media Gateway** tab page, set the filter criteria to display the required MGs.
 - (3) In the information list, right-click and choose **Add** from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - MG ID: 0
 - Name: mg1
 - Signaling IP Address: 17.10.10.10
 - Signaling Port No.: 5060
 - Media IP Address 1: 17.10.10.10
 - Transmission Mode: UDP
 - MG Domain Name: huawei.com
 - Active NMS UAS Profile: uasprofile1

MG ID:	0	Name:	mg1
u~10777215)		MG Domain Name:	
Signaling IP Address: 🔲 DHCP	17.10.10.10	Signaling Port No.: (5000~5999)	5060
vledia IP Address 1: 🗌 DHCP	17.10.10.10	Protocol Type:	SIP
Fransmission Mode:	UDP -	Profile Name:	Default
Conference Factory URI:		Gateway Telephone Context :	
Homing Domain Name:	huawei.com	Registration Server URI:	
Authentication User Name:		Authentication Password:	
Active NMS UAS Profile :	uasprofile1	Standby NMS UAS Profile:	
Service Logic Name:	Default -		

- (5) Click **OK**.
- 6. Configure the attributes of a VoIP PSTN port. For details, see 19.3.15 Configuring a VoIP PSTN Port.
 - (1) Choose **ASL** > **POTS Port** from the navigation tree.
 - (2) Click the **VoIP PSTN Port** tab, and set the filter criteria to display the required VoIP PSTN ports.
 - (3) In the information list, select ports 0/1/0 and 0/1/1 by holding down the **Shift** key, right-click, and then choose **Configure Attributes** from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

Parameter	Value	Step
MG ID	0	-
Telephone No.	83110000	1

			Record Number:
Field Name	Field Value	Step	2
MGID	0		_
Terminal ID	1	1	
relephone No.	83110000	1	Datata
			Delete
			Delete All
			Delete All
			Delete All
neration Type			
peration Type			
peration Type	Field Value:	Step:	

(5) Click OK.

----End

Result

Phone 1 and phone 2 can communicate with each other after the configuration is complete.

- 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 ringback tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

19.4.8 Configuring the GPON FTTB Service by Using a Service Provisioning Profile

This topic describes how to configure various services when a user is connected to an MDU in LAN access mode and the MDU is connected to an OLT through a GPON port.

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 19.4.1 Data Plan for the GPON FTTB Services.

Example Network

A service provisioning profile provides common parameters that need to be set for services. To provision a service quickly, set a service provisioning profile, bind it to a service port, and customize service parameters.



Figure 19-7 Configuring the GPON FTTB service by using a service provisioning profile

Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.

- VLAN ID: 8
- Type: Smart VLAN

Add VLAN		×
Add VLAN	VLAN ID(1-4095): Name: Alias: Type: Attribute: VLAN Priority:	8 VLANID_8 Smart VLAN Common
		3ack Done Cancel

- (5) 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	Bub Port L3 Interface E Image: State of the state o	xtended Info	IbPort List Frame:0 - Stot19 Port:00	
	Back	Next Do	ne <u>C</u> ancel	J

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN				
Sase Info Configure VLAN	Sub Port L3 Interface	Extended Info	3	
	Management Status:	UP		*
	IP Mask:	255.255.255.0		*
	Acceptable Frame Type:	ethernetii		*
	Back	Next	Done	<u>C</u> ancel

- (6) Click Done.
- 2. Configure an MDU SNMP profile. For details, see 19.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

d	MDU	SNMP	Profile	

Name:	snmpprofile *	Alias:	
SNMP Version:	v1 •	Read Name:	public *
Write Name:	private *	Trap Host IP:	10.71.210.71 *
Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *

(5) Click OK.

Ad

- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.

- (2) Click the **DBA Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

ł	Add 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
		OK Cancel Apply

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

4. Configure a line profile. For details, see 19.1.3 Configuring a GPON 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, multicast, and voice services.

- Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

ld GPON Line Profile		
Name: FTTx	* Alias:	
Configuration Ease Info ⊕ Line	Name Upstream FEC Switch Mapping Mode Qos Mode OMCC Encryption	Value OFF VLAN Priority Queue Off
	0	K 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		×
Name: FTTx	* Alias:	
Configuration Base Info. Uhe Ethernet port binding group T-CONT Info ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTX OK Cancel	
	OK Cancel Apply	

- 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

dd GPON Line Profile		×
Name: FTTx	* Alias:	
Configuration Base Info. E Line Ethernet port binding group T-CONT Info. ADD GEM Port DEL T-CONT	ADD GEM Port - GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch: Consolid Outlinh:	1 1 1 1 ETH ▼ ON ▼
<u>()</u>		OK Cancel
	ОК	Cancel <u>Apply</u>

- 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: 8

Add GPON Line Profile			×
Name: FTTx	*	Alias:	
	A	DD GEM Connection	
Configuration Base Info.	GEM Port In	GEM Connection Parameters	
├─ Ethernet port binding group ├─ T-CONT Info.	CAR Profile	GEM Port Index(0-1023):	1
	Service Typ	GEM Connection Index(0-1023):	
ADD GEM DEL GEM	Port	VLAN ID(1-4094):	8
		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
<[>			OK Cancel
	_	OK Cancel	Apply

- 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: 1001

Add GPON Line Profile			X
Name: FTTx	*	DD GEM Connection	1
Configuration Base Info. Line Ethernet port binding group T-CONT1 Info. GET ADD GEM Connection DEL GEM Port	All ort Ind Quepe ofile Type A Swi	OF GEM Connection GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-1023): VLAN ID(1-4094): Priority:	1
		Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	
			ок
		OK Cancel	Apply

- 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: 1000

Add GPON Line Profile				
Name: FTTx	*	Nice:		
Configuration Base Info. Line Ethernet port binding group T-CONT Info. T-CONT1 GEL ADD GEM Cor DEL GEM Port	CAR Profile Service Type nection 1 Sv Swi	GEM Connection GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-1023): VLAN ID(1-4094):	1 2 1000	
		Priority: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:		
			ОК	
		OK Cancel	Apply	

- 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: 3 (this parameter is set to **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile			×
Name: FTTx	*		
Configuration ├── Base Info. └── Line ├── Ethernet port binding group	GEM Port Ind Priority Queps	GEM Connection Parameters	1
E⊢ T-CONT Info. E⊢ T-CONT1	CAR Profile Service Type	GEM Connection Index(0-1023):	3
ADD GEM Con	nection / h SV	VLAN ID(1-4094):	2000
DEL GEM Port		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
			ок
		OK Cancel	Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected

- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

				×
Affiliated Port:	0/2/0	-	splitter:	Splitter(L1) 💌
Name:	MDU		* Alias:	
ONU ID(0-127):	0	1	Splitter Port ID(1-	128): 1
ONU Type:	MDU	•	•	
Basic Paramet	ers	Network Management (Channel Parameters	
Line Profile:	FTTX		Service Profile:	*
Alarm Profile:			ONITIVAS Profile:	
Authentication	n Info		onto with home.	
Automotion			Timeout Durat	ion —
Authenticati	on Mode:	SN	(h)(1-168):	No Limit
SN:		485754438E1CDE42	Password:	shenzhen *
-ONU Type				
Verdor ID:	H	A/TC(2011)	Terminal Type:	MDU
Software Ve	rsion:			
			Locate to C	NU list after operation succeeds
			ОК	Cancel <u>A</u> pply
0				
Comm UNU				
Affiliated Port:	0/2/0		Splitter:	Splitter(L1)
Name:	MDU		* Alias:	
ONU ID(0-127):	0		 Splitter Port ID(1- 	128): 1
ONU Type:	MDU	•	•	
Basic Paramet	ers <mark>Ne</mark>	twork Management Cha	nnel Parameters	
OLT sets	network n	nanagement	SNMP Profile Name	snmpprofile
channel	narameter	S		
- SNMP Param	e Info			
SNMP Param	is Info	2		
-SNMP Param Manager VL	is Info AN(1-4095	5): 8	* Priority(0-7):	
-SNMP Param Manager VL IP Address:	is Info AN(1-409	5): 8 192.168.50.2	* Priority(0-7): * IP Address Ma	sk: 255.255.255.0 *
SNMP Param Manager VL IP Address: Gateway IP.	is Info AN(1-409 Address:	5): 8 192.168.50.2	Priority(0-7): Priority(0-7):	sk: 255.255.255.0 *
-SNMP Param Manager VL IP Address: Gateway IP . -Static Route R	is Info AN(1-4098 Address: Parameter	5): 8 192.168.50.2 s	 Priority(0-7): IP Address Ma 	sk: 255.255.255.0 *
-SNMP Param Manager VL IP Address: Gateway IP . -Static Route F IP Address:	is Info AN(1-409 Address: Parameter	5): 8 192.168.50.2 s	Priority(0-7): IP Address Ma IP Address Mas	sk: 255 255 255 0 *
-SNMP Param Manager VL IP Address: Gateway IP -Static Route F IP Address: Next Hop IP	AN(1-409) AN(1-409) Address: Parameter Address:	5): [8 [192.168.50.2 s 	 Priority(0-7): IP Address Ma IP Address Masi 	sk: 255 255 255 0 *
SNMP Param Manager VL IP Address: Gateway IP . -Static Route F IP Address: Next Hop IP	is Info AN(1-409 Address: Parameter Address:	5): 8 192.168.50.2 s 	Priority(0-7): IP Address Ma IP Address Mas	sk: 255.255.255.0 *
SNMP Param Manager VL IP Address: Gateway IP Static Route F IP Address: Next Hop IP	is Info AN(1-409 Address: Parameter Address:	5): [8 [192.168.50.2 s 	Priority(0-7): IP Address Ma IP Address Mas IP Address Masi	sk: 255.255.255.0 * c

- (6) Click OK.
- 6. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

1 Service Po	л							
Basic Info				^1 1	ttributes			
ID(1-32768):	2							
Name:	FTTx_MD	U	*		Connection Type	: U	AN-GPON	•
Alias:								
Network Side				ין רי	Jser Side			
Bundle IL	(1-8192):							_
VLAN Choice		Smart VLAN	▼ *		Interface Selection	on:	0/2/1/0/0	-
Tag-Transfor	n:		•		Service Type:		Multi-Service VLAN	-
Vian ID(1-409	(5):	8	_		User VLAN(1-40)	95):	8	-
Cos value(0-)	n-		*					
	·							
raffic Profile In	ifo							
🗹 Keep the	upstream a	ind downstream se	attings the same					
Upstream Tra	iffic Name:	ip-traffic-table_6		Do	wnstream Traffic	Nam	e: ip-traffic-table_6	

(7) Click OK.

• Configure the Internet service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN
 - Attribute: QinQ

Add VLAN					X
Se Base Info Configure VLAN					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Туре:	Smart VLAN			*
	Attribute:	QinQ			*
	VLAN Priority:	Unconfigured			-
	B	lack 📄 📩	Next	Done	<u>C</u> ancel

(4) 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 Base Info Configure VLAN	Sub Port L3 Interface	Extended Info	BubPort List ⊕ ∰ Frame:0 ⊕ — Slot19 ↓ ₩ Port:00	
	<u>B</u> ack	<u>N</u> ext	<u>Done</u>	

- (5) Click **Done**.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI

- 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- VLAN ID: 1001
- Service Type: Multi-Service VLAN
- User VLAN: 1001
- 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)

ld Service Po	rt				
Basic Info				Attributes	
ID(1-32768):	1				
Name:	HSI		*	Connection Type:	LAN-GPON
Alias:					AN-EPON AN-GPON
Network Side				User Side	,
VLAN Choice: Tag-Transfor Vlan ID(1-409	(1-8192): : n: 5):	Smart VLAN 		Interface Selection: Service Type: User VLAN(1-4095):	0/2/0/0/0 Multi-Service VLAN 1001
Cos value (0-7	'): 		*		
Traffic Profile Ir	1fo				
Upstream Tra	upsiream ai iffic Name:	ip-traffic-table_6	js me same	Downstream Traffic Nar	me: ip-traffic-table_6
					OK Cancel Apply

(4) Click **OK**.

• Configure the multicast service on the OLT side.

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. Add a VLAN. For details, see 19.2.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Type: Smart VLAN
 - (4) Click **Done**.
- 2. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

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

Add VLAN						x
🔯 Base II 🔯 Config	nfo ure VLAN					
		VLAN ID(1-4095):	1000			*
		Name:	VLANID_1000			*
		Alias:				
		Type:	Smart VLAN			*
		Attribute:	Common			*
		VLAN Priority:	Unconfigured			•
		B	ack 🚺 📩	Next	Done	<u>C</u> ancel

(4) 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	SubPort List Frame:0 Stot19 Soft 00	
	<u>B</u> ack	<u>N</u> ext	Done Cancel	

- (5) Click **Done**.
- 3. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:IGMP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- Vlan ID: 1000
- Service Type: Multi-Service VLAN
- User VLAN: 1000
- 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)

Service Port			AM-14-14-5		
asic into			Attributes		
ID(1-32768): 1					
Name: IGI	/P	*	Connection Type:	AN-GPON	•
Alias:				AN-EPON AN-GPON	
letwork Side			User Side		
Bundle ID(1-8	192):				
VLAN Choice:	Smart VLAN	_ *	Interface Selection:	0/2/1/0/0	•
Tag-Transform:		•	Service Type:	Multi-Service VLAN	•
Vlan ID(1-4095):	1000		User VLAN(1-4095):	1000	-
Cos value(0-7):		*			
raffic Profile Info					
🗾 Keep the upst	ream and downstream settings	the same			
Upstream Traffic I	Name: ip-traffic-table_6		Downstream Traffic Nan	ne: ip-traffic-table_6	
				JK Cancel	Apply

- (4) Click **OK**.
- 4. Add a multicast VLAN on the OLT side. For details, see 19.2.7 Configuring the Multicast VLAN.
 - (1) Choose **Multicast** > **Multicast** VLAN from the navigation tree.
 - (2) On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3
 - Work Mode: igmp_proxy
 - VLAN ID: 3000

Device Norma					
Device marrie.	10.71.227.35				*
Nama			Aliaci		
ivaille.			Alias.		
IGMP Version:	IGMP V3		▼ * _ Def:	ault VLAN	
Autogeneration Pro	ogram IP Address		Work Mode		
Program Match N	dode: 💿 Enable	O Disable	IGMP Work	Mode:	igmp_proxy 👻
Start IP Address:			Snooping F	Report Switch:	O Open Close
End IP Address:			Chooping	oouo Quitab:	
			Shooping E	.eave Jwitch.	We want
			IGMP Video	I Mode:	municasi
			IGMP Inner	VLAN(1~4095):	
			<back< th=""><th>lext> Ei</th><th>nish Cancel</th></back<>	lext> Ei	nish Cancel
d Multicast V	'LAN		_		
Default Up Por	t Info				
Frame: 0		Slot: 19		Port: 0	
		010L <u>13</u>		T OIL 0	
Parameter Info					
IGMP Report	Priority 6		* Report Interv	al(S)	
(0-7):	<u> </u>		(10-5000):	10]
Log Switch:	Oper	n 🔘 Close	e Global-Leav	e Switch: 🛛 🔍	Open 🛛 🔿 Close
			<u>_</u>		
iu mutucasi	VLAN				
-Select VLAN	VLAN				
Select VLAN	VLAN	/LAN	* ✓	Find	No. 31, Total:32
Select VLAN	oute=Common N	/LAN	∛ _ √ 	Find	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ~ 31	oute=Common V Name VLANID_31	/LAN	▼ ✓ Type ^ Smart VLAN	Find Attribute ^ Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ^ 31 32	VLAN oute=Common V Name VLANID_31 VLANID_32	/LAN	▼ ✓ Type ∧ Smart VLAN Smart VLAN	Find Attribute へ Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrit VLAN ID ~ 31 32 33	VLAN oute=Common V Name VLANID_31 VLANID_32 VLANID_33	/LAN	♥ Type ^ Smart VLAN Smart VLAN Smart VLAN	Find Attribute ^ Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34	/LAN	Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ^ Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35	/LAN	Type ~ Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_35	/LAN	Type ~ Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrit VLAN ID ~ 31 32 33 34 35 36 37	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37	/LAN	V Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrit VLAN ID ~ 31 32 33 34 35 36 37 38	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_38	/LAN	X Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36 37 38 39 40	VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_40	/LAN	V Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_40 VLANID_77	/LAN Alias	V Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_35 VLANID_36 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_40 VLANID_77 VLANID_101	/LAN	X Type ∧ Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101 102	VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_33 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_102	/LAN	V Type ~ Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrit VLAN Attrit 31 32 33 34 35 36 37 38 39 40 77 101 102 103	VLAN Name VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_103	/LAN	V Type ~ Smart VLAN Smart VLAN	Find Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrit VLAN Attrit 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_103	/LAN Alias	V Type ~ Smart VLAN Smart VLAN	Find Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrit VLAN Attrit 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235	VLAN Name VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_103 VLANID_103 VLANID_234 VLANID_235	/LAN	V Type ~ Smart VLAN Smart VLAN	Find Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrit VLAN Attrit 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_35 VLANID_36 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_40 VLANID_77 VLANID_101 VLANID_101 VLANID_103 VLANID_103 VLANID_234 VLANID_235 VLANID_20	/LAN	V Type ~ Smart VLAN Smart VLAN Standard V Standard V	Find Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000	VLAN Name VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_39 VLANID_40 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_235 VLANID_20	/LAN Alias	Type Smart VLAN Standard V Standard V Smart VLAN Smart VLAN	Find Attribute ~ Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000 4001	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_234 VLANID_235 VLANID_20 VLANID_30	/LAN Alias	▼ Type ∧ Type ∧ Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common	No. 31, Total:32 Super VLAN II
Select VLAN VLAN Attrik VLAN ID ∧ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000 4001 <∫	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_37 VLANID_38 VLANID_39 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_234 VLANID_235 VLANID_30 VLANID_40	/LAN	X Type ∧ Smart VLAN	Find Attribute ~ Common	No. 31, Total:32 Super VLAN II

- (5) Click Finish.
- 5. Add a virtual upstream port for the multicast service on the OLT side. For details, see 19.2.5 Configuring the Virtual Multicast Upstream Port.
 - (1) Choose Multicast > Virtual Uplink Port from the navigation tree.

- (2) On the **Virtual Uplink Port** tab page, set the filter criteria to display the required virtual upstream ports.
- (3) In the information list, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Frame: 0
 - Slot: 19
 - Port: 0

Add Virtual Uplink Port	X
Location Info	
Device Name: 10.71.227.35	•
Multicast VLAN Info	Uplink Port Info
	Frame: 0 *
VLAN ID(1-4095): 3000 *	Slot: 19 *
	Port: 0 *
	OK Cancel <u>Apply</u>

- (5) Click **Done**.
- 6. Configure a program profile on the OLT side. For details, see 19.2.8 Configuring a Program Profile.
 - Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
 - (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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 desin When the program i can not have a sourc program must have	ed parameters. Is provisioned, if the IG e IP address.If the IGM a source IP	MF 1P	Presion of the multicast VLAN is version of the multicast VLAN is	s V2, the program V3, address.the	
Name:	program1] *
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					
🔲 Prejoin Attribute			🗾 Host Attribute		
Unsolicited Attribu	te		🗵 Log Attribute		
🔲 Across VLAN Attrib	ute				
			ок с	ancel <u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required OLT and click Next. Then, set VLAN ID to 3000.
- (8) Click OK.
- 7. Configure a multicast user on the OLT side. For details, see 19.2.10 Configuring a Multicast User.

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.

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

ld User									
Select Device									
Device Name:	10.71.227.35								
Parameters									
Name:		4/56/uservlan/u	ntagged	Alias:			IGMPUserA		
Max. Program	ns NO.(1-32):	8		🔹 🗹 Enab	le Log Swi	tch			
Quick Leave	Mode:	mac-based	•	🗌 Enab	le Authoriz	ation	🗹 Default \	/ideo Flow	
User Max Bai (0-42949672	nd Width(Kbit/s) 94):			🛛 🗹 Unlin	nited Band	Width	Receive	Global-Leave	
Select Service	Port								
11						•	🖌 Find	No. 3, Total:14	14
Name 🗠	Alias 🛆 🛛 Ci	onnection Type 🗠	Interface	e Informatio	n Service "	Гуре 🛆	Service Para	Upstream Traffic	
1/0_14_2/6	LAI	N-ADSL	Frame:	0/Slot: 14/	Single			ip-traffic-table_3	^
30/0_12_0/	LAI	N-GPON	Frame:	0/Slot: 12/	Single			ip-traffic-table_6	
21/0_2_1/3	LAI	N-GPON	Frame:	0/Slot: 2/P	Multi-Serv	rice V	User VLAN:	ip-traffic-table_6	
1/0_13_0/1	LAI	N-ADSL	Frame:	0/Slot: 13/	Single				
1/0_13_1/1	LAI	N-ADSL	Frame:	0/Slot: 13/	Single				
1/0_13_2/1	LAI	N-ADSL	Frame:	0/Slot: 13/	Single			E_test_1	
1/0_13_3/1	LAI	N-ADSL	Frame:	0/Slot: 13/	Single				
1/0_13_4/1	LAI	N-ADSL	Frame:	0/Slot: 13/	Single				
1/0 13 5/1	LAI	V-ADSL	Frame:	0/Slot: 13/	Single				
1/0 13 6/1	LAI	N-ADSL	Frame:	0/Slot: 13/	Single	_			
1/0 13 7/1	LAI	N-ADSL	Frame:	0/Slot: 13/	Single				
410 42 044			F	0/01-4-4-0/	010010	_			v
<u>«</u>			_					2	
				< <u>B</u> ack	N	ext>	<u>E</u> inish	Cancel	

- (4) Click Finish.
- (5) Select the multicast user, click the User Multicast VLAN tab in the lower pane, right-click, and then choose Add from the shortcut menu.
- (6) In the dialog box that is displayed, select the record where **Multicast VLAN ID** is set to **3000** and click **OK**.

d Multica Select Mult	st VLA ticast VL	N to user _AN	_			
Please i	nput qu	ery condition		-	Find	No. 2, Total:
	Name		Alias	Multicast VLAN ID 🛆	IGMP Versio	n
GMPV Ad	d Mult	icast VLAN			×	tv_off
GMPV	Total : 1	1, Succeeded : 1,	Failed : O			igmp_
			100'	%		
				<u>D</u> etails <<	Close	
	No.	Device Name	Name	Result F	ailure Cause	
	1	10.71.227.35	IGMPVIan_3000	Succeeded		
	<					
	<u>, -, -</u>					
<[)	>

• Configure the voice service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

1	dd VLAN		X
	 Base Info Configure VLAN 		
		VLAN ID(1-4095):	2000 *
		Name:	VLANID_2000 *
		Alias:	
		Type:	Smart VLAN 👻 *
		Attribute:	Common 💌 \star
		VLAN Priority:	Unconfigured
		B	Back <u>N</u> ext <u>D</u> one <u>C</u> ancel

- (4) Click Next.
- (5) 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 Cancel	

- (6) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: VOIP

- 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- Vlan ID: 2000
- Service Type: Multi-Service VLAN
- User VLAN: 2000
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

Basic Info				Attributes	
ID(1-32768):	1 VOIP		*	Connection Type:	LAN-GPON
Allas: Network Side				User Side	LAN-GPON
ULAN Choice: Tag-Transform	:-8192):	Smart VLAN	••••	Interface Selection: Service Type:	0/2/1/0/0 Multi-Service VLAN
Vlan ID(1-4095 Cos value(0-7)): [2000	*	User VLAN(1-4095):	2000 🗸
raffic Profile Inf					
I veep the u	ostream an ic Name:	d downstream setti ip-traffic-table_6	ngs the same	Downstream Traffic Na	me: ip-traffic-table_6)
					OK Cancel Annix

- (4) Click **OK**.
- Configure the service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

- 1. Add a service provisioning profile.
 - (1) Choose Configuration > Access Profile Management > Service Provisioning Profile from the main menu.
 - (2) Click the **xPON FTTB Service Provisioning Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Set Name to serviceprofile.
 - Right-click **ServicePort** in the navigation tree and choose **Add serviceport** from the shortcut menu. In the right pane, set the parameters of the service virtual port.
 - In the case of the Internet service:
 - ServicePort Name: pppoe
 - Service Priority: 1

- VLAN Attribute: Common
- Network Side VLAN: 1001
- VPI: auto
- Service Type: Multi-service VLAN
- User VLAN: untagged
- Keep traffic the same: selected
- Upstream Traffic Name: FTTx
- Downstream Traffic Name: FTTx

In the case of the multicast service:

- ServicePort Name: multicast
- Service Priority: 4
- VLAN Attribute: Common
- Network Side VLAN: 1000
- VPI: auto
- Service Type: Multi-service VLAN
- User VLAN: untagged
- Keep traffic the same: selected
- Upstream Traffic Name: FTTx
- Downstream Traffic Name: FTTx
- Right-click Multicast User in the navigation tree and choose Add multicast user from the shortcut menu. In the right pane, set the parameters of the multicast user.
 - IGMP Flow Channel: multicast
 - Multicast VLAN: 1000
- (5) Click OK.

2. Add a service.

The steps for configuring an xDSL port are similar to the steps for configuring an Ethernet port.

- (1) Choose **ETH** from the navigation tree.
- (2) Click the **Ethernet Port** tab, and set the filter criteria or click [™] to display the Ethernet ports.
- (3) In the information list, right-click port 0/1/1 and choose **Add Service** from the shortcut menu.
- (4) In the dialog box that is displayed, click mext to Service Provisioning Profile. In the dialog box that is displayed, select the service provisioning profile whose Name is set to serviceprofile.
- (5) Click OK.

----End

Result

The user gains access to the Internet after the dialup is performed successfully by the PPPoE dialup software on the PC.

Phone 1 and phone 2 can communicate with each other after the configuration is complete.

- 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 ringback tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

20 Configuring the GPON FTTH Services

About This Chapter

An FTTH network consisting of an OLT in profile mode and a number of ONTs provides users with Internet services, multicast services, and voice services.

Context

The ONT configuration is simplified when the OLT is in profile mode.

To query the xPON mode of the current system, run the **diagnose** command to enter the diagnosis mode and then run the **display xpon mode** command.

- In the diagnosis mode, the user with the rights higher than operator can perform this operation.
- Switching the xPON mode of the system enables the system to automatically save data and restart.

You can run the **xpon mode switch-to** command in the diagnosis mode to switch the xPON mode of the current system, for example, from discrete mode to profile mode.

```
huawei(config)#diagnose
huawei(diagnose)%%xpon mode switch-to profile-mode
Warning: The operation will automatically save and reboot system. Are you sure
to proceed? (y/n)[n]:
```

20.1 Adding an ONT to the U2000 (OLT in Profile Mode)

This topic describes how to add an ONT to the U2000 when the OLT is in the profile mode. After an ONT is added successfully, you can configure FTTH services for the ONT on the U2000.

20.2 Configuring Services

An FTTH network consisting of an OLT and a number of MDUs provides users with Internet, multicast, and voice services.

20.3 Configuration Examples of the GPON FTTH Services

This topic provides examples to describe how to configure the Internet, voice, and multicast services in a GPON FTTH network.

20.1 Adding an ONT to the U2000 (OLT in Profile Mode)

This topic describes how to add an ONT to the U2000 when the OLT is in the profile mode. After an ONT is added successfully, you can configure FTTH services for the ONT on the U2000.

Context

After an ONT is added on the NE side, it supports online confirmation and offline deployment. The information about the profile bound to an ONT and the authentication information must be the same as those configured for the actual ONT on the user side.

- Online confirmation: If you add an ONT after the ONT is powered on, it goes online immediately.
- Offline deployment: If an ONT is not online, you need to add it offline and configure services for the ONT. After the ONT goes online, the configuration is applied to the ONT through the optical network termination management and control interface (OMCI). Then, service configuration for the ONT is complete.

20.1.1 Configuring a GPON Line Profile

The GPON line profile is a collection of parameters required for setting up channels for GPON lines. You need to bind the ONU and line profile when the ONU management mode is **OMCI** or **SNMP**.

20.1.2 Configuring a GPON Service Profile The GPON service profile consolidates the parameters related to the ONU service into a profile.

20.1.3 Confirming an ONT

This topic describes how to confirm the auto-find ONU connected to a port. An auto-find ONU is in the auto-find state before it is confirmed. The auto-find ONU can start to work only after it is confirmed.

20.1.1 Configuring a GPON Line Profile

The GPON line profile is a collection of parameters required for setting up channels for GPON lines. You need to bind the ONU and line profile when the ONU management mode is **OMCI** or **SNMP**.

Prerequisite

The DBA profile must be already configured in the system. For details, see **19.1.2 Configuring a DBA Profile**.

Context

- The flow mapping mode configured in the GPON line profile must match the flow mapping mode of the flow (such as the GEM connection flow) specified in the GPON line profile.
- The flow control mode configured in the GPON line profile must match the flow control mode of the GEM port specified in the GPON line profile.
- When adding a GPON line profile, you can use or reference the four default line profiles, lineprofile_1 to lineprofile_4, provided by the NE.

- 1 Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- 2 Click the **GPON Line Profile** tab. Right-click and choose **Add Global Profile** from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.
 - 1. Choose **Basic Info** from the navigation tree, and then set the basic parameters of the profile.

Name: gponlineprofile	* Alias:	
Configuration ├── Base Info. └── Line └── Ethernet port binding group └── T-CONT Info.	Name Upstream FEC Switch Mapping Mode Qos Mode OMCC Encryption	Value OFF VLAN Priority Queue Off
< III >		
	ОК	Cancel Apply

Key Paramete r	Description
Upstream FEC Switch	Specifies whether to enable the upstream forward error correction (FEC) function of the ONT line profile. To improve the reliability of data transmission between the OLT and the ONT, enable the FEC function. After the upstream FEC function is enabled, the system inserts the redundancy data into normal packets. In this manner, the line has the error tolerance capability, but certain bandwidth is wasted.
Mapping Mode	Flow mapping manages the service streams on the ONU, namely, manages the mapping between GEM ports and the upstream data flows on the ONT service ports. After the mapping is established, the ONU service streams are carried and transmitted upstream through the specified GEM ports. Each ONT can be configured with only one mapping mode.

Key Paramete r	Description
Qos Mode	• When the Qos Mode of the GEM port is set to Priority Queue , users can specify the transmit queue of the GEM port packets in a T-CONT. When transmitting the upstream data, the T-CONT transmits the data strictly according to the priority of the queue.
	• When the Qos Mode of the GEM port is set to GEM Port CAR , the ONU limits the rate of the data packets carried on the GEM port according to the CAR setting of the GEM port. Currently, the GEM port CAR is set by binding the CAR profile to the ONU, and only the average rate and maximum rate can be set. When several service streams exist on the GEM port, the service streams are schedule in PQ, WRR, or PQ+WRR mode, depending on the default scheduling mode of the ONU. Currently, the scheduling mode cannot be set on the OLT. When a T-CONT consists of multiple GEM ports, the scheduling mode of the data packets between the GEM ports also depends on the default scheduling mode of the ONU.
	• When the flow control mode of the GEM port is set to Flow CAR , the ONU performs CAR on the service streams of the GEM port. The controlling is more specific than the GEM port CAR. After being performed with CAR, the service streams are scheduled in the T-CONT queue. The scheduling mode is the default scheduling mode of the ONU.

2. Choose **T-CONT Info.** from the navigation tree, right-click, and then choose **ADD T-CONT** from the shortcut menu. In the dialog box that is displayed, set **T-CONT Index** and **DBA Profile**.

dd GPC	ON Line Profile		
Name:	gponlineprofile	* Alias:	
Confi	auvertie n	Nama Valua	
E Ba	guration ase Info.	Upstream FEC Switch OFF	
🖻 Li	ne	Mapping Mode VLAN	
	- Ethernet port binding group	Qos Mode Priority Queue	
	ADD T-CONT	OMCC Encryption Off	
		ADD T-CONT	L
		T-CONT Index(0-127): 1 * DBA Profile: dba-profile_6	
		OK Cancel	
<			
		OK Cancel	<u>A</u> pply

It is recommended that you do not set **T-CONT Index** to **0**. TCONT 0 is reserved for the internal communication of the GPON protocol.

3. Choose **T-CONTx** from the navigation tree, right-click, and then choose **ADD GEM Port** from the shortcut menu. In the dialog box that is displayed, set **GEM Port Index**.

x indicates the T-CONT index.

Add GPON Line Profile		×
Name: gponlineprofile	* Alias:	
Configuration Base Info. E Line Ethernet port binding group T-CONT Info. ADD GEM Port DEL T-CONT	ADD GEM Port T-C GEM Port Parameters DB/ T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: ETH Encryption Switch: OFF Cascade Switch: CFF	*
	OK Canc	31
	OK Cancel	Apply

4. Choose **GEM Portx** from the navigation tree, right-click, and then choose **ADD GEM Connection** from the shortcut menu. In the dialog box that is displayed, set the basic parameters of the GEM connection.

x indicates the GEM port index.

Add GPON Line Profile				×	
Name: gponlineprofile	*	Alias:			
		ADD	GEM Connection		×
Configuration Base Info.	N: GEM Port Inde:	GE	M Connection Parameters		
Elne Ethernet port binding group E T-CONT Info.	Priority Queue CAR Profile		GEM Port Index(0-1023):	1	
	Service Type Swi		GEM Connection Index(0-1023):	0	
DEL GEM P	ort vito		VLAN ID(1-4094):	1000	
			Port Type:	·	•
			Port ID(1-8):		
			BindGroup ID:		•
			CAR Profile:]
				OK Ca	ncel
			OK Cancel	Apply	

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

----End

Command Reference

То	Run the Command	In
Enter the ONT line profile mode	ont-lineprofile gpon	Global config mode
Bind a DBA profile to a T-CONT	tcont	ONT line profile mode
Bind a GEM index to a T-CONT and configure the related attributes in an ONT line profile	gem add	ONT line profile mode
Set up the mapping relationship between the upstream data flow on the ONT service ports and the GEM ports	gem mapping	ONT line profile mode
Configure the QoS mode in the ONT line profile	qos-mode	ONT line profile mode

20.1.2 Configuring a GPON Service Profile

The GPON service profile consolidates the parameters related to the ONU service into a profile.

- 1 Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- 2 Click the GPON Service Profile tab. Right-click and choose Add Global Profile from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

Add GPON Service Profile				
Name: service-profile	* Alias:			
Configuration	Name	Value		
Base Info.	Number of Pots Ports(0-8)	0		
	Number of IPhost Ports	1		
	Number of ETH Ports(0-8)	0		
	Number of TDM Ports(0-8)	0		
	TDM Port Type	T1		
	Service Type of TDM Port	TDMoverGEM		
	Number of MOCA Ports(0-8)	0		
	Number of CATV Ports(0-8)	0		
	MAC Address Learning Switch	ON		
	Transparent Transmission S	OFF		
	Multicast VLAN Forward Mode	Untag		
	Multicast VLAN(1-4095)			
	Upstream IGMP packet forwa	Transparent		
	Upstream IGMP packet forwa	10		
	ОК	Cancel Apply		

ļ

I GPON Service Profile				
ame: service-profile	* Alias:			
Configuration	Port Type		Port	tID
– Base Info. – UNI Port	ETH Port	UNI Por	t Configurati	on Properties
	ETH Port	3		
	ETH Port	4		
	ETH Port	5		
Config ETH Bort	ETH Port	6		~1
Port Type:	ETH		-	
Port ID:	1		*	•
Priority Policy:	Unconcern		•	
QinQ:	Unconcern		•	
Upstream CAR Profile:				
Downstream CAR Profile:				
Default VLAN ID(1-4094):	1001			Apply

- 1. Choose **Basic Info** from the navigation tree, and then set the basic parameters of the profile.
- 2. Choose **UNI Port** from the navigation tree. In the right pane, select the record from the ETH port list, right-click, and then choose **UNI Port Configuration Properties** and set the relevant parameters in the dialog box that is displayed.
- **4** In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- 5 In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 6 Click OK.

----End

Command Reference

То	Run the Command	In
Query the information about the ONT service profile	display ont-srvprofile	Privilege mode
Enter the ONT line profile mode	ont-srvprofile	Global config mode

20.1.3 Confirming an ONT

This topic describes how to confirm the auto-find ONU connected to a port. An auto-find ONU is in the auto-find state before it is confirmed. The auto-find ONU can start to work only after it is confirmed.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose GPON > GPON UNI Port from the navigation tree.
- 3 On the GPON UNI Port tab page, set the filter criteria to display the required GPON UNI ports.
- **4** Select a GPON UNI port for which you want to enable the function of automatically discovered ONU, right-click and choose **Enable ONU Auto Find** from the shortcut menu.
- 5 Select the GPON UNI port from the list with ONUs to be confirmed, and click the Auto-Discovered ONU Info tab in the lower part of the page.
- 6 Select an ONU that needs to be confirmed, right-click, and then choose Confirm ONU.
- 7 In the dialog box that is displayed, configure the basic parameters for confirming the ONU, and click **OK**.

This section considers the GUIs in profile mode as an example.

Confirm ONU								×
Affiliated Port:	0/8/0		*	Splitter:		Splitter(L1)) 🔻	
Name:	0/8/0		*	Alias:				
ONU ID(0-127):	🗌 Auto A	ssign 0	*	Splitter Port ID(1	1-128):			
ONU Type:	ONT		-					
Basic Paramete	ers	Network Manage	ement Cł	nannel Parameters				_
Line Profile:	ont_linep	rofile)*	Service Profile:	srvprofil	le_1		
Alarm Profile:				ONU VAS Profile:				
Authentication	n Info							
Authenticatio	on Mode:	SN	•	 Timeout Dura (h)(1-168): 	ation 🕞	No Limit	*	
SN:		0123456789ABC	DEF	Password:			*	
ONU Type								
Terminal Ty	pe: Echo	Life:HG850a	-	Software Version:	V1R1C	:03B030	-	
				OK		Cancel	Apply	

Key Parameter	Description
ONU ID	Indicates the ID that identifies an ONU. Usually, it starts from 0.
ONU Type	Specifies ONTs.
Line Profile	Indicates the line profile bound to the port to which the ONU belongs. You can bind a port with the line profile. When the port is activated, it can reference the profile. According to the upstream and downstream line rates and the noise tolerance set in the profile, the port detects the line distance and line status, negotiates between the local and remote devices, and determines whether it can work under the conditions.
Service Profile	Indicates the service profile bound to the ONU. A service profile contains the parameters relevant to the ONU service.
Authenticat ion Mode	Indicates the mode used when the OLT authenticates an ONU. By default, the GPON ONU uses the SN-based authentication mode.

When you add an ONU in the SNMP management mode, the management mode and line profile are mandatory. When you add an ONU in the OAM management mode, the parameters of management mode, line profile, and service profile are mandatory.

----End

Command Reference

То	Run the Command	In
Confirm an ONT in the auto- discovery state	ont confirm	GPON mode
Switch to the GPON mode from the global config mode	interface gpon	Global config mode
Enable the function of automatically discovered ONU connected to a GPON port	port ont-auto-find enable	GPON mode
Query the current ONTs automatically discovered or time set for automatically discovering ONTs from the system	display ont autofind	Privilege mode, GPON mode

20.2 Configuring Services

An FTTH network consisting of an OLT and a number of MDUs provides users with Internet, multicast, and voice services.

Context

Several operations are required when you configure a service. The following lists the services configured at the OLT side and the service configuration steps.

Services	Steps
Internet access service	• 19.2.1 Configuring a VLAN
	• 19.2.3 Adding a Service Port
Multicast service	• 19.2.1 Configuring a VLAN
	• 19.2.3 Adding a Service Port
	• 19.2.7 Configuring the Multicast VLAN
	• 19.2.5 Configuring the Virtual Multicast Upstream Port
	• 19.2.6 Configuring a Preview Profile
	• 19.2.8 Configuring a Program Profile
	• 19.2.10 Configuring a Multicast User
Voice service	• 19.2.1 Configuring a VLAN
	• 19.2.3 Adding a Service Port
	• 20.2.1 Configuring the ONT Value-Added Service Configuration Profile
	• 20.2.2 Configuring the Voice Value-Added Service of an ONT

20.2.1 Configuring the ONT Value-Added Service Configuration Profile

After configuring an ONT value-added service configuration profile and binding it to an ONT successfully, you can activate the ONT and directly deliver the value-added service defined by the profile to the subscribers of the ONT. Each ONT can be bound to only one value-added service configuration profile.

20.2.2 Configuring the Voice Value-Added Service of an ONT

The ONT value-added service (VAS) is used to support the function of provisioning the VoIP service on the ONT, and to set the parameters for the VASs on the ONT, such as the VoIP service. After an ONT is upgraded, the XML parameters of the ONT must be set again. Therefore, upgrade the ONT before configuring the VAS for the ONT.

20.2.3 Adding a GPON FTTH Service Provisioning Profile

The U2000 of the latest version plans to use the service provisioning profile to provision services to users. The service provisioning profile encapsulates common attributes of the service channel to a profile. To provision services to users, bind this profile to the port, and then set user-defined service parameters, thus implementing service provisioning at one step.

20.2.4 Configuring the GPON FTTH Service

You can directly configure and provision the GPON FTTH service by binding the configured GPON FTTH service provisioning profile with a certain physical port on the ONT.

20.2.1 Configuring the ONT Value-Added Service Configuration Profile

After configuring an ONT value-added service configuration profile and binding it to an ONT successfully, you can activate the ONT and directly deliver the value-added service defined by the profile to the subscribers of the ONT. Each ONT can be bound to only one value-added service configuration profile.

Context

The value-added service configuration profiles vary with the types of the ONTs and the software versions. This section considers the Echolife:HG850a profile as an example.

Procedure

- 1 Choose Configuration > Access Profile Management > ONT VAS Profile from the main menu.
- 2 In the information list, right-click and choose Add from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

Add OBT VAS Pro	ofile				×
Profile Name:	HG850a	*	Vendor ID:	HWTC	*
Terminal Type:	EchoLife:HG850a	*	Version:	V1R1C01B010 ~ Later	*
- HG850a Content - Voice - Config - Countent - MGCF - SIP pr - SIP us - Lav - Secur - Telecu	fig Info. gure NTP server ry code and signali ' protocol basic con ' server config otocol configure P protocol configure gmap configure gmap configure protocol basic con Global digmap cor MGC User ype nterface onfiguration configuration ity config	Paramete SIP server SIP server port(1 ~ SIP domain name Expire time(sec.)(5	er Name 65534) 5~31536000)	Parameter Value	
	_ <u>I</u> mpor	t E <u>x</u> port		K Cancel <u>A</u>	pply

4 Click OK.

----End

Command Reference

То	Run the Command	In
-	-	-

20.2.2 Configuring the Voice Value-Added Service of an ONT

The ONT value-added service (VAS) is used to support the function of provisioning the VoIP service on the ONT, and to set the parameters for the VASs on the ONT, such as the VoIP service. After an ONT is upgraded, the XML parameters of the ONT must be set again. Therefore, upgrade the ONT before configuring the VAS for the ONT.

Prerequisite

- The FTP service must be enabled.
- An ONT value-added service template must be configured in the system.
- The ONT must be upgraded.

- 1 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.
- 2 Choose GPON > GPON ONU from the navigation tree.
- 3 On the GPON ONU tab page, set the filter criteria to display the required GPON ONUs.
- 4 In the case of the parameters that cannot be obtained from the ONT VAS to function as the parameters of the ONT VAS profile, you can customize the configuration for a single ONT VAS.
 - Configuring the VAS for a single ONT:
 - 1. Select a record from the ONT list, right-click, and then choose **Configure Value-Added Service** from the shortcut menu.
 - 2. In the dialog box that is displayed, set the parameter associated with the VoIP service.

Configure VAS					×
Profile Name:	HG850a		Vendor ID:	HWTC	-
Terminal Type:	EchoLife:HG850a	-	Version:	V1R1C03B029	-
Activated Status:	Inactivated				
 → HG850a Config → Voice → Config → Countrian → MGCP ⇒ MGCP ⇒ MGCP ⇒ SIP loc ⇒ SIP loc ⇒ SIP dig → H.248 i ⇒ H.248 i<td>g Info. ure NTP server y code and sign protocol basic c server configure al port configure are configure are configure are configure al port configure map configure are configure al port configure map configure are co</td><td>Paramet</td><td>er Name</td><td>Parameter Value</td><td>ad Task</td>	g Info. ure NTP server y code and sign protocol basic c server configure al port configure are configure are configure are configure al port configure map configure are configure al port configure map configure are co	Paramet	er Name	Parameter Value	ad Task

- Configuring the VAS for multiple ONTs:
 - 1. Select multiple ONTs by pressing **Ctrl** or **Shift**, right-click, and then choose **Bind VAS Profile** from the shortcut menu.
 - 2. In the dialog box that is displayed, select the required ONT value-added service profile, and then click **OK**.

	ofile			
Profile Name 🛆	Vendor 🛆	Terminal Type 🛆	Begin Version 🛆	End Version 🛆
HG850a	HWTC	EchoLife:HG850a	V1R1C01B010	Later
928	нитс	SmartAX OT928G	V1R3C01B010	V1R3C02B999
	1			
Detail Info Ter	minal Reference	Terminal Unreferen	ice	
1.0.1			- Cind	No. 0. Totalio
All			Find	No. 0, Total:0
All Device Name	Frame 📐	Slot 🛆	Find Port	No. 0, Total:0
All Device Name	Frame 🛆	Slot 📐	▼ Find Port ∧	No. 0, Total:0
All Device Name	Frame 📐	Slot 🔺	Find Port	No. 0, Total:0
All Device Name	Frame 🔺	Slot 🔺	Find Port	No. 0, Total:0
All Device Name	Frame 人	Slot 📐	▼ Find Port ∧	No. 0, Total:0
All Device Name	Frame 人	Slot 📐	▼ Find	No. 0, Total:0
All Device Name	Frame 🔨	Slot 🔨	Find Port Swite	NO. 0, Total:0

5 Click OK.

----End

20.2.3 Adding a GPON FTTH Service Provisioning Profile

The U2000 of the latest version plans to use the service provisioning profile to provision services to users. The service provisioning profile encapsulates common attributes of the service channel to a profile. To provision services to users, bind this profile to the port, and then set user-defined service parameters, thus implementing service provisioning at one step.

Prerequisite

- Perform the operations in 20.1.1 Configuring a GPON Line Profile and 20.1.2 Configuring a GPON Service Profile before configuring the Basic Info branch.
- Perform the operations in 19.2.1 Configuring a VLAN and 19.2.2 Configuring an MEF IP Traffic Profile before configuring the Service Port branch.
- Perform the operations in **19.2.7 Configuring the Multicast VLAN** before configuring the **Multicast User** branch.

- 1 Choose Configuration > Access Profile Management > Service Provisioning Profile from the main menu.
- 2 Click the GPON FTTH Service Provisioning Profile tab.
- 3 In the dialog box that is displayed, set the parameters.

Basic Info ServicePort Multicast User	ONU Information	7404			
	 Deploy an ONU ONU Device Type: Line Profile: Alarm Profile: Authentication Mode: 	and provision its service for EchoLife:HG850a FTTX alarm-profile_1	or the first time	 Add the servi Device Version: e Profile: IU VAS Profile: but Duration(h)(1-168): 	ce to an existing ONU V1R1C03B030 FTT22

Neme: OPCNL_FTH Value Volume		Provisioning Profile	<u>×</u>
In the left pare. ServicePort Name: HS View Side	Name: GPON_FTTH	* Alias:	
OK Cancel Apply Add COUL FTTH Alias: Name: GPON_FTTH Alias: ServicePort ServicePort Name: VolP Multicast/User ServicePort Name: VolP Number Of VLAN Attribute: OIP User Side VLAN Attribute: OIP User Side VLAN Switch Mode: Default Service Type: Multi-service VLAN Network Side VLAN(1-095): 200 User Vian ID(1-4095): 100 (Port1) Image: VLAN Side VLAN(1-4095): 200 If Keep traffic the same Upstream Traffic Name (Tro): Image: VLAN Side VLAN (Traffic-table_5) Downstream Traffic Name (Tro):	Basic Info ServicePort	• To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: HSI Velan Attribute: QinQ VLAN Switch Mode: Default Service Type: Single-service Image: Keep traffic the same Upstream Traffic Name (Tx): (p-traffic-table_3) Image: Comparison of the same	* ble_3*
OK Cancel Apply Add CAUL FITH Alias: Image: GPON_FITH ServicePont Name: VolP Network Side Image: GPON_FITH User Side Image: GPON_FITH Opent(0.127): Image: GPON_FITH Network Side Image: GPON_FITH Opent(0.127): Image: GPON_FITH Opent(0.127): Image			
Vid CPOR_FTTH Alias: Basic Info • To delete a serviceport, right-click the selected node in the left pane. Basic Info • To delete a serviceport, right-click the selected node in the left pane. Basic Info • To delete a serviceport, right-click the selected node in the left pane. Basic Info • To delete a serviceport, right-click the selected node in the left pane. Basic Info • To delete a serviceport, right-click the selected node in the left pane. Wulth:sast User VLAN Attribute: VLAN Attribute: OinQ VLAN Switch Mode: Default VLAN Switch Mode: Default VLAN Switch Mode: Default Very VLAN Switch Mode: User Vian ID(1-4095): Vor Keep traffic the same Upstream Traffic Name (Th): Upstream Traffic Name (Th): Ip-traffic-table_5 Image: Part Part Part Part Part Part Part Part		OK Cancel	Apply
Name: GPON_FTTH • Alias: • To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: VolP • Weinder Side VLAN Attribute: OID Over Side • VLAN Attribute: OID Service Type: Multi-service VLAN • Network Side Default Service Type: Multi-service VLAN • Keep traffic the same User Vian ID(1-4095): 100 (Port.1) • • Keep traffic the same Upstream Traffic Name (Thy: Ip-traffic-table_5 •	dd GPON FTTH Service Pr	Provisioning Profile	×
Basic Info ServicePort HSI Multicast User • To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: VolP • Network Side • VLAN Attribute: OinQ User Side • VLAN Attribute: OinQ GemPort(0-1277): 2 • • • Service Type: Multi-service VLAN • • VLAN Switch Mode: Default • User Vlan ID(1-4095): 100 (Port.1) • • • Keep traffic the same • Upstream Traffic Name (Tx): Ip-traffic-table_5 • • • Downstream Traffic Name (Rx): Ip-traffic-table_5 • • •	Name: GPON_FTTH	* Alias:	
	Name: GPON_FTTH	To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: VolP Network Side User Side User Side VI AN Attribute: 0 in0	*

dd GPON FTTH Service Pro	visioning Profile	×
Basic Info ServicePort HSI VolP Inv Multicast User	• To delete a serviceport, right-click the selected node in the left pane. ServicePort Name: IPTV • Network Side VLAN Attribute: Common • GemPort(0-127): 2 * • Service Type: • Single-service Image: Single Service • Keep traffic the same Upstream Traffic Name (Tx): • p-traffic-table_1 Image: Single Service • Downstream Traffic Name (Rx): • p-traffic-table_1	
dd GPON FTTH Service Pro Name: GPON_FTTH	OK Cancel Apply visioning Profile Alias:	
Basic Info ServicePort HSI UVOP IPTV Multicast User User 1	 To delete the multicast user, right-click the selected node in the left pane. IGMP Flow Channel: IPTV Multicast VLAN(1-4095): 200 Max. Programs(1-32): 8 Enable authentication Right Profile:	

Key Parameter	Description
Basic Info	
Name	Indicates the name of the GPON FTTH service provisioning profile.
ONU Port Info	
Port Type	Indicates the ONU port type. NOTE You can set the port type according to different ONUs.
Port Mode	Indicates the ONU port type. Enumerated type. The options are ATM and PTM . NOTE This parameter is available when Port Type is set to VDSL2 or G.SHDSL .
ONU side	
Service Type	 Indicates the type of services carried on the service virtual port. The port can work in the following modes: Single: Each service port maps a service stream. Different service
	 streams can be distinguished by service ports. Multi-Service VLAN: Each service port carries multiple service streams. The services are distinguished based on the VLAN ID contained in the packets subscriber ports. You can label the packets with different upstream VLAN IDs. Multi-Service Encapsulation: Each service port carries multiple service streams. The service streams. The services are distinguished to set User-Side Encapsulation to distinguish the service streams. The services are distinguished based on the encapsulation types (IPoE/PPPoE) of the packets from the subscriber port. You can label the packets with different upstream VLAN IDs. Multi-Service VLAN+802.1p: Each service port carries multiple service streams. You need to set User-Side VLAN and 802.1p Priority to distinguish the service streams. The services are distinguished according to the VLAN IDs and the 802.1p priorities of the packets from the subscriber port. NOTE Multi-Service VLAN+Encapsulation: Each service port carries multiple service streams. You need to set User-Side VLAN and User-Side Encapsulation to distinguish the service streams. The service streams are distinguished according to the VLAN IDs and the 802.1p priorities of the packets from the subscriber port.
OLT Side	
Multicast User	
IGMP Flow Channel	Specifies the protocol traffic channel of the multicast service. Enumerated type. Select a protocol traffic channel by setting the Service Port parameter.

Key Parameter	Description
Multicast VLAN	Specifies the multicast VLAN ID.

4 Click OK.

----End

20.2.4 Configuring the GPON FTTH Service

You can directly configure and provision the GPON FTTH service by binding the configured GPON FTTH service provisioning profile with a certain physical port on the ONT.

Prerequisite

- The OLT that the ONU is connected to must be in the profile mode.
- The configured GPON FTTH service provisioning profile must be applied to the ONT. For details, see **20.2.3 Adding a GPON FTTH Service Provisioning Profile**.

- 1 In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.
- 2 Choose GPON > GPON ONU from the navigation tree.
- 3 On the GPON ONU tab page, set the filter criteria to display the required GPON ONUs.
- 4 Select a record from the Ethernet port list, right-click, and then choose Add Service from the shortcut menu.

Add Service				×
Port: Service Provisioning Profile:	0/1 3/0 srvprovprofile_6	ONT ID:	3	
	Parameter Name Network-side VLAN(1~4095)		Parameter Value	
		OK	Cancel <u>A</u> pply	

In the Add Service dialog box, click a next to Service Provisioning Profile. In the Add Service dialog box, click Find to display the required service provisioning profiles that meet the filtering criteria. Select a record from the profile list, and click OK.

5 Click OK.

----End

20.3 Configuration Examples of the GPON FTTH Services

This topic provides examples to describe how to configure the Internet, voice, and multicast services in a GPON FTTH network.

20.3.1 Data Plan for the GPON FTTH Services

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.

20.3.2 Configuring the GPON FTTH Internet Service

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

20.3.3 Configuring the GPON FTTH Multicast Service

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

20.3.4 Configuring the GPON FTTH Voice Service (H.248 Protocol)

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

20.3.5 Configuring the GPON FTTH Voice Service (SIP Protocol)

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

20.3.6 Configuring the GPON FTTH Service by Using a Service Provisioning Profile This topic describes how to configure various services when an ONT is connected to an OLT through a GPON port.

20.3.1 Data Plan for the GPON FTTH Services

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 t	Upstream port of an OLT	0/19/0	-

Table 20-1 Data plan for the GPON FTTH services

Service Type	Item	Settings	Remarks
	Layer 3 interface	IP Address: 192.168.50.4	The IP address of the Layer 3 interface of the management VLAN of the OLT functions as the IP address of the OLT for inband network management.
	GPON port of the OLT	0/2/1	-
	ONT	SN: 32303131B39FD641 Name: ONT ONU Type: ONT ONU ID: 0 Authentication Mode: SN Terminal Type: EchoLife:HG850a Software Version: V1R1C03B030	-
	MEF IP traffic profile	 Name: FTTx CIR: 20480 Outer Priority: 1 	The MEF IP traffic profile is used on the MDU 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 	-

Service Type	Item	Settings	Remarks
	Service profile	Name: FTTx Number of Pots Ports: 2 Number of ETH Ports: 4 Vlan Type: Translation C-VLAN: 1001,1000 S-VLAN: 1001,1000	-
Internet service	VLAN	 VLAN ID: 1001 Type: Smart VLAN Attribute: QinQ 	-
	Service virtual port	 Name: HSI VLAN ID: 1001 Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN: 1001 Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-
	ONT VAS configuration profile	 Profile Name: VOIPHG850a Vendor ID: HWTC(2011) Terminal Type: EchoLife:HG850a Version: V1R1C01B010~Later WAN VLAN ID: 1001 IP get mode: pppoe PPPoE Account Enable: enable WAN Service Type: INTERNET 	-
IPTV service	VLAN	 VLAN ID: 1000, 3000 Type: Smart VLAN 	-

Service Type	Item	Settings	Remarks
	Service virtual port	• Name: IGMP	-
		• Vlan ID: 1000	
		• Interface Selection: 0/2/1/0/0	
		 Service Type: Multi- Service VLAN 	
		• User VLAN: 1000	
		• Keep the upstream and downstream settings the same: selected	
		 Upstream Traffic Name: FTTx 	
	Multicast VLAN	• IGMP Version: IGMP V3	-
		• Work Mode: igmp_proxy	
		• VLAN ID: 3000	
	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	
VoIP	VLAN	• VLAN ID: 2000	-
service		• Type: Smart VLAN	

Service Type	Item	Settings	Remarks
	Service virtual port	 Name: VOIP Vlan ID: 2000 Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN: 2000 Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-
	ONT VAS configuration profile (H.248 protocol)	 Profile Name: VOIPHG850a Vendor ID: HWTC(2011) Terminal Type: EchoLife:HG850a Version: V1R1C01B010~Later Signal Protocol: H248 Digitmap: x.T MGC Port: 2944 MGC domain name: MGC.com 	-

Service Type	Item	Settings	Remarks
	ONT VAS configuration profile (SIP protocol)	 Profile Name: VOIPHG850a Vendor ID: HWTC(2011) Terminal Type: EchoLife:HG850a Version: V1R1C01B010~Later Signal Protocol: SIP SIP server port: 5060 SIP server IP: 200.200.200.200 SIP digitmap: x.T WAN VLAN ID: 2000 IP get mode: dhcp WAN Service Type: VOIP User1 phone number: 87650001, User1 password: test1234 User2 phone number: 87650002, User1 password: test1234 	

20.3.2 Configuring the GPON FTTH Internet Service

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

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 20.3.1 Data Plan for the GPON FTTH Services.

Example Network

This topic considers the ONT whose **Terminal Type** is set to **EchoLife:HG850a** as an example. The configuration procedure of the ONTs of other types is similar to the configuration procedure described in this topic.

- 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 20-1 Configuring the GPON FTTH Internet service

Procedure

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - Choose Configuration > Access Profile Management > Traffic Profile from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480

- Outer Priority: 1
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Add DBA Profile	2
Profile Parameters	
Name:	<u>FTTχ</u> *
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
	OK Cancel Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON 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, multicast, and voice services.

- (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

Add GPON Line Profile		×
Name: FTTx	* Alias:	
Configuration Base Info ⊕ Line	Name Upstream FEC Switch Mapping Mode Oos Mode OMCC Encryption	Value OFF VLAN Priority Queue Off
	ОК	Cancel <u>Apply</u>

- 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. Line Ethernet port binding group T-CONT Info ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTX
< <u> </u>	OK Cancel Apply

- 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

Add GPON Line Profile		×
Name: FTTx	* Alias:	
Configuration Base Info. Ethernet port binding group T-CONT Info. ADD GEM Port DEL T-CONT	ADD GEM Port GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch: Cascade Switch:	X
< <u> </u>		OK Cancel
	ОК	Cancel Apply

- 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 1 automatically)
 - VLAN ID: 1001

Add GPON Line Profile			×
Name: FTTx	*	Nice	
Configuration ├─ Base Info. ├─ Line ├─ Ethernet port binding group	GEM Port Ind Priority Queue	- GEM Connection Parameters GEM Port Index(0-1023):	1
	Service Type	GEM Connection Index(0-1023):	0
ADD GEM Col	nnection / 1 SV	VLAN ID(1-4094):	1001
DEL GEM Por	t <u>swi</u>	Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
	<u> </u>		ОК
	-	OK Cancel	Apply

- 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 2 automatically)
 - VLAN ID: 1000

Add GPON Line Profile			×
Name: FTTx	*	DD GEM Connection	
Configuration ⊢ Base Info. ⊟ Line ⊢ Ethernet port binding group ⊖ T-CONT Info. ⊡ T-CONT I	GEM Port Ind Priority Quept CAR Profile Service Type	-GEM Connection Parameter GEM Port Index(0-1023): GEM Connection Index(0-	s11023): 22
ADD GEM Cor	nnection / <mark>1 SV</mark> Swi	VLAN ID(1-4094):	1000
		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
		·	ОК
		OK Cance	I <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 **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile			×
Name: FTTx	*		
Configuration		GEM Connection	
- Base Info. - Line - Ethernet port hinding group	GEM Port Ind Priority Quepe	GEM Port Index(0-1023):	1
Enternet port sinding group	CAR Profile Service Type	GEM Connection Index(0-1023):	3
ADD GEM Cor	nnection <mark>/ <mark>1 SV</mark> </mark>	VLAN ID(1-4094):	2000
DEL GEM Por	t <u>Swi</u>	Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
			ОК
	_	OK Cancel	Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile. For details, see 20.1.2 Configuring a GPON Service Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the Service Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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

Vame: ETTy	t Aliac:	
valle. FIIX	* Alias.	
Configuration	Name Value	
 Base Info. 	Number of Pots Ports(0-8) 2	<u> </u>
- UNI Port	Number of IPhost Ports 1	
	Number of ETH Ports(0-8) 4	
	Number of TDM Ports(0-8) 0	
	TDM Port Type T1	
	Service Type of TDM Port TDMoverGEM	
	Number of MOCA Ports(0-8) 0	
	Number of CATV Ports(0-8) 0	=
	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	
	OK Cancel	Apply

- 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: 1001 (VLAN ID of the Internet service)
 - C-VLAN: 1001(user VLAN ID of the ONT)

Add VLAN Switch			×
			i
Service Type:	Translation	•	*
S-VLAN(0-4095):	1001		*
S-Priority(0-7):			
C-VLAN(0-4095);	1001	* 🗌 untagged	
, ,			
C-Priority(0-7):			1
o i nomyto i y.	·		J
C-Encan:			1
C-Encap.			
		OK Cancel	ור

- 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 2, 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: 1000 (VLAN ID of the multicast service)
- C-VLAN: 1000 (user VLAN ID of the ONT)

Add VLAN Switch				×
Service Type:	Translation		•	*
S-VLAN(0-4095):	1000			*
S-Priority(0-7):				
C-VLAN(0-4095):	1000	*	🗌 untagged	
C-Priority(0-7):				
C-Encap:			-	
		ОК	Cancel	

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

5. Confirm the ONT. For details, see 20.1.3 Confirming an ONT.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and choose Enable ONU Auto Find from the shortcut menu.
- (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 32303131B39FD641, and then choose **Confirm ONU** from the shortcut menu.
 - 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: EchoLife:HG850a
 - Software Version: V1R1C03B030

Confirm ONU		x
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 Ch	annel 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:	32303131B39FD641	Password: 123456 *
ONU Type		
Verdor ID:	HWTC(2011) -	Terminal Type: EchoLife:HG850a 💌
Software Ve	rsion: V1R1C03B030 💌	
		Locate to ONU list after operation succeeds
		OK Cancel Apply

(6) 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

- (1) Choose **GPON** > **GPON ONU** from the navigation tree.
- (2) On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.
- (3) 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.
- (4) 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.
- (5) In the dialog box that is displayed, set **Default VLAN ID** to 1001.
- (6) Click **OK**.
- 2. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN

- Attribute: QinQ

Add VLAN		X
◎ Base Info ● Configure VLAN		
	VLAN ID(1-4095):	1001 *
	Name:	VLANID_1001 *
	Alias:	
	Type:	Smart VLAN *
	Attribute:	QinQ *
	VLAN Priority:	Unconfigured
	E	Back <u>Cancel</u> <u>Cancel</u>

(4) 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	Extended Info		
	Physical Port List Frame:0 P-Slot19 Slot19 Slot20 Slot20	>> < <	SubPort List Frame:0 Solution Port 00 Port 00	
	Back	Next	Done Cancel	

- (5) Click Done.
- 3. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - VLAN ID: 1001
 - Service Type: Multi-Service VLAN

- User VLAN: 1001
- 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	×
Basic Info ID(1-32768): 1	Attributes
Name: HSI *	Connection Type: LAN-GPON
Network Side Bundle ID(1-8192): VLAN Choice: Smart VLAN Tag-Transform: Vian ID(1-4095): 1001 Cos value(0-7):	User Side
Traffic Profile Info	Downstream Traffic Name: [p-traffic-table_6]
	OK Cancel Apply

- (4) Click OK.
- 4. Configure the VAS configuration profile of the ONT.
 - Choose Configuration > Access Profile Management > ONT VAS Profile from the main menu.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Set **Profile Name** to **VOIPHG850a**.
 - Set Vendor ID to HWTC(2011).
 - Set Terminal Type to EchoLife:HG850a.
 - Set Version to V1R1C01B010~Later.
 - Choose Layer3 > WAN Interface from the navigation tree, right-click the list, and then choose Add. Choose WAN property configuration 1 protocol from the navigation tree and set the parameters.
 - WAN VLAN ID: 1001
 - IP get mode: pppoe
 - PPPoE Account Enable: enable
 - WAN Service Type: INTERNET
 - (4) Click OK.
- 5. Bind the VAS profile.
 - (1) Choose GPON > GPON ONU from the navigation tree.
 - (2) On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.

- (3) 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 choose **Bind VAS Profile** from the shortcut menu.
- (4) In the dialog box that is displayed, select the VAS profile whose **Profile Name** is set to **VOIPHG850a** and click **OK**.
- 6. Configure Value-Added Service.
 - (1) Choose GPON > GPON ONU from the navigation tree.
 - (2) On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.
 - (3) 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 choose **Configure Value**-Added Service from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

Choose **WAN Interface** from the navigation tree and choose **Add** from the shortcut menu.

- Choose WAN property configuration 1 from the navigation tree and set PPPoE username to 1@pppoe and PPPoE password to test1234.
- (5) Click OK.

----End

Result

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

- 1. The FE 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.

20.3.3 Configuring the GPON FTTH Multicast Service

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.

Context

For details of the data plan, see 20.3.1 Data Plan for the GPON FTTH Services.

Example Network

This topic considers the ONT whose **Terminal Type** is set to **EchoLife:HG850a** as an example. The configuration procedure of the ONTs of other types is similar to the configuration procedure described in this topic.

- 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 20-2 Configuring the GPON FTTH multicast service

Procedure

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - Choose Configuration > Access Profile Management > Traffic Profile from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.

- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Nome:	ETTy
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

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON 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, multicast, and voice services.

- (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.

- (4) 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



- 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	×
Name: FTTx	* Alias:
Configuration Base Info. Ethernet port binding group T-CONT Info. ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 BA Profile: FTTx OK Cancel
	OK Cancel <u>Apply</u>

- 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

	tion:	
	* Anas.	·
Configuration ├── Base Info. ⊡── Line	ADD GEM Port	
Ethernet port binding group T-CONT Info. T-CONT	T-CONT Index(0-127):	1
ADD GEM Port / DEL T-CONT	GEM Port Index(0-1023):	1*
	Priority Queue:	1
	CAR Profile:	
	Service Type:	ETH
	Encryption Switch:	ON V
	Cascade Switch:	OFF 👻
(<))		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: 0 (this parameter is set to 1 automatically)
 - VLAN ID: 1001

Add GPON Line Profile			×
Name: FTTx	*	Aliaa:	
Outformation	·	ADD GEM Connection	
Base Info.	GEM Port Ind	GEM Connection Parameters	
Line Ethernet port binding group	Priority Queue	GEM Port Index(0-1023):	1
	Service Type	GEM Connection Index(0-1023):	
GEI ADD GEM Co	nnection / h Sv	VLAN ID(1-4094):	1001
DEL GEM Po		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
			ок
	_	OK Cancel	Apply

- 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 2 automatically)
 - VLAN ID: 1000

Add GPON Line Profile			×
Name: FTTx	*	DD GEM Connection	
Configuration ├─ Base Info. ├─ Line ├─ Ethernet port binding group └─ T-CONT Info.	GEM Port Ind Priority Quepe CAR Profile	GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-1023):	1
GEI ADD GEM Cor DEL GEM Port	Service Type inection / 1 Sv	VLAN ID(1-4094): Priority:	1000
		Port Type: Port ID(1-8):	
		BindGroup ID: CAR Profile:	
<u>(()</u>			ок
		OK Cancel	Apply

- 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 **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile				×
Name: FTTx	*	Aliee:		
		DD GEM C	onnection	
Configuration	[]/	GEM Conne	ection Parameters	
- Base Info.	GEM Port Ind			
Ethernet port binding group	Priority Que	GEM Por	t Index(0-1023):	1
- T-CONT Info.	CAR Profile	GEM Cor	nection Index(0-1023):	3
E- T-CONT1	Service Type			
ADD GEM Cor	nnection / 1 SV	VLAN ID(1-4094):	2000
DEL GEM Port	t Swi	Priority		
		r nonty.		·
		Port Type	c.	
		Deut ID/4	0).	
		PUNID(I	-8).	·
		BindGrou	ip ID:	
		CAR Prof	ile:	
				ок
		ОК	Cancel	Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile. For details, see 20.1.2 Configuring a GPON Service Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the Service Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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

Add GPON Service Profile			×
Name: FTTx	* Alias:		
Configuration	Namo	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	T1	
	Service Type of TDM Port	TDMoverGEM	
	Number of MOCA Ports(0-8)	0	
	Number of CATV Ports(0-8)	0	
	MAC Address Learning Swit	ON	
	Transparent Transmission	OFF	
	Multicast Mode	Unconcern	
	Multicast forward mode	Untag	
	Multicast forward VLAN(1-40	1.0	
	Upstream IGMP packet forw	Unconcern	
	Upstream IGMP Packet For		
	Jopstean IOWE Facket FUL.		
	ОК	Cancel <u>A</u> pply	כ

- 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: 1001 (VLAN ID of the Internet service)
 - C-VLAN: 1001(user VLAN ID of the ONT)

Add VLAN Switch				×
				ī
Service Type:	Translation			*
S-VLAN(0-4095):	1001			*
S-Priority(0-7):				
C-VLAN(0-4095);	1001	*	🗌 untagged	
· · · · ·	,			
C-Priority(0-7):				1
o i nonij(o i j.	I			1
C-Encan:				1
O-Encap.				
		ОК	Cancel	ור
				- 1

- 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 2, 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: 1000 (VLAN ID of the multicast service)
- C-VLAN: 1000 (user VLAN ID of the ONT)

Add VLAN Switch				×
Service Type:	Translation		•	*
S-VLAN(0-4095):	1000			*
S-Priority(0-7):				
C-VLAN(0-4095):	1000	*	🗌 untagged	
C-Priority(0-7):				
C-Encap:			-	
		OK	Cancel	

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

5. Confirm the ONT. For details, see 20.1.3 Confirming an ONT.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and choose Enable ONU Auto Find from the shortcut menu.
- (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 32303131B39FD641, and then choose **Confirm ONU** from the shortcut menu.
 - 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: EchoLife:HG850a
 - Software Version: V1R1C03B030

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	ters Network Management Cha	nnel 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 (h)(1-168):
SN:	32303131B39FD641	Password: 123456 *
ONU Type		
Verdor ID:	HWTC(2011) -	Terminal Type: EchoLife:HG850a 💌
Software Ve	ersion: V1R1C03B030 💌	
		Locate to ONU list after operation succeeds
		OK Cancel <u>Apply</u>

(6) 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

- (1) Choose **GPON** > **GPON ONU** from the navigation tree.
- (2) On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.
- (3) 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.
- (4) 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 **2**, and choose **Modify**from the shortcut menu.
- (5) In the dialog box that is displayed, set **Default VLAN ID** to 1000.
- (6) Click OK.
- 2. Add a VLAN. For details, see 19.2.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Type: Smart VLAN
 - (4) Click Done.
- 3. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

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

Add VLAN		X
 Base Info Configure VLAN 		
	VLAN ID(1-4095):	1000 *
	Name:	VLANID_1000 *
	Alias:	
	Туре:	Smart VLAN 👻 *
	Attribute:	Common
	VLAN Priority:	Unconfigured
	B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

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



- (5) Click Done.
- 4. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:IGMP

- 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- Vlan ID: 1000
- Service Type: Multi-Service VLAN
- User VLAN: 1000
- 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)

Basic Info D(1-32769): 1 Name: iGMP Alias: Connection Type: LAN-GPON Alias: User Side Tag-Transform: Tag-Transform: Cos value(0-7): Cos value(0-7	d Service Port		
VLAN-OPON Network Side Bundle ID(1-8192): VLAN Choice: Smatt VLAN Tag-Transform: Vlan ID(1-4095): 1000 Cos value(0-7):	Basic Info ID(1-32768): 1 Name: IGMP Alias:	*	Attributes Connection Type: LAN-GPON LAN-EPON
Cos value(0-7):	Network Side Bundle ID(1-8192): VLAN Choice: Tag-Transform: Vlan ID(1-4095);	Smart VLAN	User Side Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN(1-4095): 1000
Opstean name name. Ip-tame-table_0	Cos value(0-7): Traffic Profile Info I keep the upstream a Upstream Traffic Name:	nd downstream settings the same	Downstream Traffic Name: [p-traffic-table_6

- (4) Click OK.
- 5. Add a multicast VLAN on the OLT side. For details, see 19.2.7 Configuring the Multicast VLAN.
 - (1) Choose Multicast > Multicast VLAN from the navigation tree.
 - (2) On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3
 - Work Mode: igmp_proxy
 - VLAN ID: 3000

logic Info					
Basic Into					
Device Name:	10.71.227.35				*
Name:			Alias:		
IGMP Version:	IGMP V3		💌 * 🗌 Def	ault VLAN	
Autogeneration Pr	ogram IP Address		Work Mode		
Program Match N	/lode: 💿 Enable	O Disable	IGMP Work	Mode:	igmp_proxy 🗸
Start IP Address:			Snooping F	Report Switch:	O Open Close
End IP Address:			Onemiant	a auto Outoba	
Linu in ridurooo.	<u> </u>		Shooping L	leave Switch.	Cluse
			IGMP Video	Mode:	Multicast 👻
			IGMP Inner	VLAN(1~4095):	
			< <u>B</u> ack	<u>l</u> ext> <u>E</u> ir	nish Cancel
d Multicast V	LAN				
Default Up Port	t Info				
Frame: 0		Slot: 19		Port: 0	
·					,
Parameter Info					
IGMP Report	Priority 6		Report Inten	al(S) 10	
(0-7):			- (10-5000):		
Log Switch:	Oper	n 📀 Close	Global-Leav	e Switch: 🛛 🔍	Open 🔿 Close
ld Multicast	VLAN				
1d Multicast -Select VLAN	VLAN)(
1d Multicast Select VLAN	VLAN	VLAN	*	Find	No. 31, Total:32
Id Multicast Select VLAN VLAN Attrit	VLAN pute=Common Name	VLAN Alias	✓ ✓ ✓	Find Attribute A	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31	VLAN oute=Common Name VLANID_31	VLAN Alias	▼ ✓ ✓ Type ∧ Smart VLAN	Find Attribute ~ Common	No. 31, Total:32 Super VLAN II
dd Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32	VLAN oute=Common 1 Name VLANID_31 VLANID_32	VLAN 3	▼ ✓ Type ∧ Smart VLAN Smart VLAN	Find Attribute ^ Common Common	No. 31, Total:32 Super VLAN II
dd Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33	VLAN Name VLANID_31 VLANID_32 VLANID_33	VLAN	Type ^ Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34	VLAN Dute=Common Name VLANID_31 VLANID_32 VLANID_33 VLANID_33	VLAN	Type ^ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_32	VLAN : Alias	Type ^ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 27	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37	VLAN : Alias	Type Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36 37 29	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37	VLAN : 3	Type Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36 37 38 39	VLAN	VLAN 3	Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40	VLAN	VLAN 3	V Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute A Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77	VLAN	VLAN : :	V Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute A Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101	VLAN	VLAN		Find Attribute A Common Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101 102	VLAN	VLAN		Find Attribute A Common Common Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101 102 103	VLAN Dute=Common Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_77 VLANID_101 VLANID_101 VLANID_102 VLANID_103	VLAN ::		Find Attribute A Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_31 VLANID_37 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_234	VLAN :		Find Attribute ~ Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31, Total: 32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_31 VLANID_31 VLANID_35 VLANID_37 VLANID_38 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_234 VLANID_235	VLAN		Find Attribute ~ Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000	VLAN ULANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_103 VLANID_234 VLANID_235 VLANID_20	VLAN		Find Attribute ~ Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000	VLAN ULANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_103 VLANID_234 VLANID_235 VLANID_20 VLANID_30	VLAN		Find Common	No. 31, Total:32 Super VLAN II
Jd Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000 4001	VLAN ULANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_234 VLANID_235 VLANID_30. VLANID_40.	VLAN		Find Attribute Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000 4001 <	VLAN VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_37 VLANID_37 VLANID_37 VLANID_30 VLANID_101 VLANID_101 VLANID_102 VLANID_102 VLANID_234 VLANID_235 VLANID_30 VLANID_40	VLAN		Find Attribute Common	No. 31, Total:32 Super VLAN II
Id Multicast Select VLAN VLAN Attrik VLAN ID ∧ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000 4001 < ∫	VLAN ULANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_37 VLANID_37 VLANID_37 VLANID_37 VLANID_101 VLANID_101 VLANID_102 VLANID_102 VLANID_234 VLANID_235 VLANID_30 VLANID_40	VLAN		Find Attribute Common	No. 31, Total:32 Super VLAN II

- (5) Click Finish.
- 6. Add a virtual upstream port for the multicast service on the OLT side. For details, see 19.2.5 Configuring the Virtual Multicast Upstream Port.
 - (1) Choose Multicast > Virtual Uplink Port from the navigation tree.

- (2) On the **Virtual Uplink Port** tab page, set the filter criteria to display the required virtual upstream ports.
- (3) In the information list, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Frame: 0
 - Slot: 19
 - Port: 0

Add Virtual Uplink Port	X
Location Info	
Device Name: 10.71.227.35	•
Multicast VLAN Info	Uplink Port Info
	Frame: 0 *
VLAN ID(1-4095): 3000 *	Slot: 19 *
	Port: 0 *
	OK Cancel <u>Apply</u>

- (5) Click **Done**.
- 7. Configure a program profile on the OLT side. For details, see 19.2.8 Configuring a Program Profile.
 - (1) Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
 - (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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 desin When the program i can not have a sourc program must have	ed parameters. Is provisioned, if the IG e IP address.If the IGM a source IP	MF 1P	Presion of the multicast VLAN i version of the multicast VLAN is	s V2, the program V3, address.the	
Name:	program1] *
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					
🔲 Prejoin Attribute			🗾 Host Attribute		
Unsolicited Attribu	te		🗵 Log Attribute		
🔲 Across VLAN Attrib	ute				
			ок с	ancel <u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required OLT and click Next. Then, set VLAN ID to 3000.
- (8) Click OK.
- 8. Configure a multicast user on the OLT side. For details, see 19.2.10 Configuring a Multicast User.

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.

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

Select Device								
Device Name	10.71.227.35	i						
Parameters								
Name:		4/56/uservlan/u	intagged	Alias:		IGMF	UserA	
Max. Program	ms NO.(1-32):	8		🔹 🗹 Enabl	le Log Switcl	n		
Quick Leave	Mode:	mac-based	•	🗌 🗔 Enabl	le Authorizati	on 🗹 D	efault Vide	ao Flow
User Max Ba (0-4294967)	ınd Width(Kbit/s 294):)		🛛 🗹 Unlim	iited Band W	idth 🗹 R	eceive Glo)bal-Leave
Select Service	Port							
11						🗸 Find	1	No. 3, Total:144
Name 🗠	Alias 🗠 🛛 C	onnection Type ~	Interface	e Information	Service Typ	e 🗠 Servic	e Para Up	stream Traffic
1/0_14_2/6	LA	N-ADSL	Frame:	0/Slot: 14/	Single		ip-	traffic-table_3 🗹
30/0_12_0/	LA	N-GPON	Frame:	0/Slot: 1 2/	Single		ip-	traffic-table_6
21/0_2_1/3	LA	N-GPON	Frame:	0/Slot 2/P	Multi-Servic	e V User V	'LAN: ip-'	traffic-table_6
1/0_13_0/1	LA	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0_13_1/1	LA	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0_13_2/1	LA	N-ADSL	Frame:	0/Slot: 13/	Single		E_	test_1
1/0_13_3/1	LA	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0_13_4/1	LA	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0_13_5/1	LA	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0_13_6/1	LA	N-ADSL	Frame:	0/Slot: 13/	Single			
1/0 13 7/1	LA	N-ADSL	Frame:	0/Slot: 13/	Single			
40 40 04			F	001-64.00	0	_		N
								2

- (4) Click Finish.
- (5) Select the multicast user, click the User Multicast VLAN tab in the lower pane, right-click, and then choose Add from the shortcut menu.
- (6) In the dialog box that is displayed, select the record where **Multicast VLAN ID** is set to **3000** and click **OK**.

				AIT					10. 2, Total.
OMD/	Name		_	Alias	Multicast VLAN		IGMP Ve	ersion	tu off
	dd Mul	ticast VLA	.N						igron
Olwir V	Total :	1, Succeed	ed : 1, I	Failed : O					igitip.
				100	~				
				100	1%				
					Details <<		Close		
	No.	Device N	lame	Name	Result	Fa	ailure Cause		
	1	10.71.227.3	35	IGMPVIan_300	D Succeeded				
	<	_							
	,								
<									

----End

Result

The user can watch program1 on TV.

20.3.4 Configuring the GPON FTTH Voice Service (H.248 Protocol)

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

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 20.3.1 Data Plan for the GPON FTTH Services.

Example Network

This topic considers the ONT whose **Terminal Type** is set to **EchoLife:HG850a** as an example. The configuration procedure of the ONTs of other types is similar to the configuration procedure described in this topic.

- Phone 1 and phone 2 are connected to TEL ports on the ONT separately and can communicate with each other.
- The ONT obtains an IP address in Dynamic Host Configuration Protocol (DHCP) mode.



Figure 20-3 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. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - Choose Configuration > Access Profile Management > Traffic Profile from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx

- CIR: 20480
- Outer Priority: 1
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Add 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
	OK Cancel Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON 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, multicast, and voice services.

- Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

d GPON Line Profile		
ame: FTTx	* Alias:	
Configuration	Name	Value
Base Info.	Upstream FEC Switch	OFF
⊞- Line	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off

- 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

GPON Line Profile	
ime: FTTx	* Alias:
Configuration Base Info. ⇒ Line Ethernet port binding group T-CONT Info ADD T-CONT	ADD T-CONT
<>	
	OK Cancel Annly

- 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

Add GPON Line Profile		×
Name: FTTx	* Alias:	
Configuration Base Info. Ethernet port binding group T-CONT Info. ADD GEM Port DEL T-CONT	ADD GEM Port GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch: Cascade Switch:	X 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
< <u> </u>		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: 0 (this parameter is set to 1 automatically)
 - VLAN ID: 1001

Add GPON Line Profile			×
Name: FTTx	*	Nice	
Configuration ├─ Base Info. ├─ Line ├─ Ethernet port binding group	GEM Port Ind Priority Queue	- GEM Connection Parameters GEM Port Index(0-1023):	1
	Service Type	GEM Connection Index(0-1023):	0
ADD GEM Col	nnection / 1 SV	VLAN ID(1-4094):	1001
DEL GEM Por	t <u>swi</u>	Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
	<u></u>		ОК
	-	OK Cancel	Apply

- 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 2 automatically)
 - VLAN ID: 1000

Add GPON Line Profile					×
Name: FTTx	*	013	iee:		_
,		AD	D GEM Connection		
Configuration Base Info.	GEM Port Ind	٦	GEM Connection Parameters		
 Line Ethernet port binding group 	Priority Que		GEM Port Index(0-1023):	1	
E⊢ T-CONT Info. E⊢ T-CONT1	CAR Profile Service Type		GEM Connection Index(0-1023):	2	
GEI ADD GEM Cor	nection / n Sv		VLAN ID(1-4094):	1000	
DEL GEM Port	swi		Priority:		
			Port Type:		
			Port ID(1-8):		
			BindGroup ID:		
			CAR Profile:	·	
			CARTIONIC.	1	
				OK	
			OK 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 **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile			×
Name: FTTx	*		
Configuration		GEM Connection	
- Base Info. - Line - Ethernet port hinding group	GEM Port Ind Priority Quepe	GEM Port Index(0-1023):	1
Enternet port sinding group	CAR Profile Service Type	GEM Connection Index(0-1023):	3
ADD GEM Cor	nnection <mark>/ <mark>1 SV</mark> </mark>	VLAN ID(1-4094):	2000
DEL GEM Por	t <u>Swi</u>	Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
	<u></u>		ок
	_	OK Cancel	Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile. For details, see 20.1.2 Configuring a GPON Service Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the Service Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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

	+ Aliae:	
valle. Filx	* Alids.	
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 T1	
	Service Type of TDM Port TDMoverGEM	
	Number of MOCA Ports(0-8) 0	
	Number of CATV Ports(0-8) 0	=
	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	\checkmark
	OK Cancel	Apply

- 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: 1001 (VLAN ID of the Internet service)
 - C-VLAN: 1001(user VLAN ID of the ONT)

Add VLAN Switch		<u>_</u>	×
Service Type:	Translation	▼ *	•
S-VLAN(0-4095):	1001	1	۶. I
S-Priority(0-7):			
C-VLAN(0-4095);	1001	* 🗌 untagged	
	,		
C-Priority(0-7):			
C-i nonty(0-i).	I		
C Encon:			
C-Encap.		Ť	
		OK Cancel	1
		Cancer	Л

- 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 2, 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: 1000 (VLAN ID of the multicast service)
- C-VLAN: 1000 (user VLAN ID of the ONT)

Add VLAN Switch				×
Service Type:	Translation		•	*
S-VLAN(0-4095):	1000			*
S-Priority(0-7):				
C-VLAN(0-4095):	1000	*	🗌 untagged	
C-Priority(0-7):				
C-Encap:			-	
		ОК	Cancel	

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

5. Confirm the ONT. For details, see 20.1.3 Confirming an ONT.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and choose Enable ONU Auto Find from the shortcut menu.
- (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 32303131B39FD641, and then choose **Confirm ONU** from the shortcut menu.
 - 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: EchoLife:HG850a
 - Software Version: V1R1C03B030

Confirm ONU			x
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 Cha	nnel 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 (h)(1-168):	No Limit
SN:	32303131B39FD641	Password: 1	23456 *
ONU Type			
Verdor ID:	HWTC(2011)	Terminal Type: EchoL	ife:HG850a 🔻
Software Ve	rsion: V1R1C03B030 💌		
		Locate to ONU list	t after operation succeeds
		ОК	Cancel <u>Apply</u>

(6) 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.

1. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

Add VLAN					2
월 Base Info ② Configure VLAN	VLAN ID(1-4 Name:	095): 2000 VLANID.			· ·
	Alias:				
	Type:	Smart V	'LAN		*
	Attribute:	Commo	on		*
	VLAN Priorit	y: Unconfi	gured		•
		<u>B</u> ack	Next	ne	<u>C</u> ancel

- (4) Click Next.
- (5) 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	Extended Info	SubPort List Grame:0 Grame:0 Prame:0 Prame:
	⊡ 🖶 Port01 ⊡ 🚍 Slot20	>>	
	Back	Next	Done Cancel

- (6) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: VOIP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 2000
 - Service Type: Multi-Service VLAN

- User VLAN: 2000
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

- Service Full			
Basic Info		Attributes	
ID(1-32768): 1			
Name: VOIP	*	Connection Type:	LAN-GPON 🔻
Aliae:			AN-EPON
Aliao.			AN-GPON
letwork Side		User Side	
Bundle ID(1-8192)			
VI ANI Obsisses	0	Interface Selection:	0/2/1/0/0
VLAN Choice:	Smart VLAN	interiace Selection.	0/2/110/0
Tag-Transform:	🔻	Service Type:	Multi-Service VLAN 💌
Vian ID(1-4095)	2000	User VLAN(1-4095):	2000 💌
Cos value(0-7):	*		
raffic Profile Info			
Keep the upstream	and downstream settings the same		
Upstream Traffic Nam	: ip-traffic-table_6	Downstream Traffic Nar	me: ip-traffic-table_6
			OK 📗 Cancel 📗 Apply

- (4) Click OK.
- 3. Configure the value-added service (VAS) configuration profile of the ONT.
 - Choose Configuration > Access Profile Management > ONT VAS Profile from the main menu.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Set Profile Name to VOIPHG850a.
 - Set Vendor ID to HWTC(2011).
 - Set Terminal Type to EchoLife:HG850a.
 - Set Version to V1R1C01B010~Later.
 - Choose Country code and signaling protocol from the navigation tree and set Signal Protocol to H248.
 - Choose H.248 Global digitmap configure from the navigation tree and set Digitmap to x.T.
 - Choose H.248MGC > H.248 MGC configure 1 from the navigation tree and set MGC port to 2944 and MGC domain name to MGC.com.
 - (4) Click OK.
- 4. Bind the VAS profile.
 - (1) Choose GPON > GPON ONU from the navigation tree.
 - (2) On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.
 - (3) 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 choose **Bind VAS Profile** from the shortcut menu.
(4) In the dialog box that is displayed, select the VAS profile whose **Profile Name** is set to **VOIPHG850a** and click **OK**.

----End

Result

The user can watch program1 on TV.

20.3.5 Configuring the GPON FTTH Voice Service (SIP Protocol)

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

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 20.3.1 Data Plan for the GPON FTTH Services.

Example Network

This topic considers the ONT whose **Terminal Type** is set to **EchoLife:HG850a** as an example. The configuration procedure of the ONTs of other types is similar to the configuration procedure described in this topic.

- Phone 1 and phone 2 are connected to TEL ports on the ONT separately and can communicate with each other.
- The ONT obtains an IP address in DHCP mode.



Figure 20-4 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. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - Choose Configuration > Access Profile Management > Traffic Profile from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx

- CIR: 20480
- Outer Priority: 1
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Add 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	a): <u>32768</u> *
Bandwidth Compensation:	No
	OK Cancel Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON 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, multicast, and voice services.

- Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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 GPON Line Profile		
Name: FTTx	* Alias:	
Configuration Base Info ⊕- Line	Name Upstream FEC Switch Mapping Mode Qos Mode OMCC Encryption	Value OFF VLAN Priority Queue Off
		DK 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

lame: FTTx	* Alias:
Configuration Base Info. Chine Ethernet port binding group T-CONT Info. ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTx OK Cancel

- 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

	tion:	
	* Anas.	·
Configuration ├── Base Info. ⊡── Line	ADD GEM Port	
Ethernet port binding group T-CONT Info. T-CONT	T-CONT Index(0-127):	1
ADD GEM Port / DEL T-CONT	GEM Port Index(0-1023):	1*
	Priority Queue:	1
	CAR Profile:	
	Service Type:	ETH
	Encryption Switch:	ON V
	Cascade Switch:	OFF 👻
(<))		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: 0 (this parameter is set to 1 automatically)
 - VLAN ID: 1001

Add GPON Line Profile				×
Name: FTTx	*		lice	1
		AD	DD GEM Connection	
Configuration Base Info	GEM Port Ind	7	GEM Connection Parameters	
E- Line	Priority Que		GEM Port Index(0-1023):	1
□- T-CONT Info. □- T-CONT1	CAR Profile Service Type		GEM Connection Index(0-1023):	0
ADD GEM Co	nnection / <mark>1 Sv</mark>		VLAN ID(1-4094):	1001
DEL GEM PO	t Swi		Priority:	
			Port Type:	
			Port ID(1-8):	
			BindGroup ID:	
			CAR Profile:	
				ок
			OK Cancel	Apply

- 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 2 automatically)
 - VLAN ID: 1000

Add GPON Line Profile			×
Name: FTTx	*	DD GEM Connection	
Configuration ├─ Base Info. ├─ Line ├─ Ethernet port binding group └─ T-CONT Info.	GEM Port Ind Priority Quepe CAR Profile	GEM Connection Parameters GEM Port Index(0-1023): GEM Connection Index(0-1023):	1
GEI ADD GEM Cor DEL GEM Port	Service Type inection / 1 Sv	VLAN ID(1-4094): Priority:	1000
		Port Type: Port ID(1-8):	
		BindGroup ID: CAR Profile:	
<u>(()</u>			ок
		OK Cancel	Apply

- 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 **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile				×
Name: FTTx	*	Aliee:		
		DD GEM C	onnection	
Configuration	[]/	GEM Conne	ection Parameters	
- Base Info.	GEM Port Ind			
Ethernet port binding group	Priority Que	GEM Por	t Index(0-1023):	1
- T-CONT Info.	CAR Profile	GEM Cor	nection Index(0-1023):	3
E- T-CONT1	Service Type			
ADD GEM Cor	nnection / 1 SV	VLAN ID(1-4094):	2000
DEL GEM Port	t Swi	Priority		
		r nonty.		·
		Port Type	c.	
		Deut ID/4	0).	
		PUNID(I	-8).	·
		BindGrou	ip ID:	
		CAR Prof	ile:	
				ок
		ОК	Cancel	Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile. For details, see 20.1.2 Configuring a GPON Service Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the Service Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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

Add GPON Service Profile			×
Name: FTTx	* Alias:		
Configuration	Namo	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	T1	
	Service Type of TDM Port	TDMoverGEM	
	Number of MOCA Ports(0-8)	0	
	Number of CATV Ports(0-8)	0	
	MAC Address Learning Swit	ON	
	Transparent Transmission	OFF	
	Multicast Mode	Unconcern	
	Multicast forward mode	Untag	
	Multicast forward VLAN(1-40	1.0	
	Upstream IGMP packet forw	Unconcern	
	Upstream IGMP Packet For		
	Jopstean IOWE Facket FUL.		
	ОК	Cancel <u>A</u> pply	כ

- 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: 1001 (VLAN ID of the Internet service)
 - C-VLAN: 1001(user VLAN ID of the ONT)

Add VLAN Switch		<u>د</u>	×
Service Type:	Translation	*	۴.
S-VLAN(0-4095):	1001	*	•
S-Priority(0-7):			
C-VLAN(0-4095);	1001	* 🗌 untagged	
· · · · ·	,		
C-Priority(0-7):			
o i nonij(o i j.	I		
C-Encan:		•	
o-Encap.			
		OK Cancel	1
			7

- 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 2, 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: 1000 (VLAN ID of the multicast service)
- C-VLAN: 1000 (user VLAN ID of the ONT)

Add VLAN Switch				×
Service Type:	Translation		•	*
S-VLAN(0-4095):	1000			*
S-Priority(0-7):				
C-VLAN(0-4095):	1000	*	🗌 untagged	
C-Priority(0-7):				
C-Encap:			-	
		OK	Cancel	

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

5. Confirm the ONT. For details, see 20.1.3 Confirming an ONT.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and choose Enable ONU Auto Find from the shortcut menu.
- (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 32303131B39FD641, and then choose **Confirm ONU** from the shortcut menu.
 - 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: EchoLife:HG850a
 - Software Version: V1R1C03B030

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 Cha	nnel Parameters	
Line Profile:	FTTX*	Service Profile: FTT	
Alarm Profile:		ONU VAS Profile:	
Optic Alarm Pro	ofile:		
Authenticatio	n Info		
Authenticati	on Mode: SN 💌 *	Timeout Duration (h)(1-168):	No Limit
SN:	32303131B39FD641	Password: 1	23456 *
ONU Type			
Verdor ID:	HWTC(2011)	Terminal Type: EchoL	ife:HG850a 🔻
Software Ve	rsion: V1R1C03B030 💌		
		🔲 Locate to ONU lis	t after operation succeeds
		ОК	Cancel Apply

(6) 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.

1. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

Add VLAN		2
Sase Info Configure VLAN		
	VLAN ID(1-4095):	2000 *
	Name:	VLANID_2000 *
	Alias:	
	Type:	Smart VLAN
	Attribute:	Common 💌
	VLAN Priority:	Unconfigured

- (4) Click Next.
- (5) 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 Cancel

- (6) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: VOIP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 2000
 - Service Type: Multi-Service VLAN

- User VLAN: 2000
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

dd Service Port			2
Basic Info ID(1-32768): 1		Attributes	
Name: VOIP	*	Connection Type:	AN-GPON
Alias:			AN-GPON
ULAN Choice: VLAN Choice: Tag-Transform: Vlan ID(1-4095):	Smart VLAN 2000	Interface Selection: Service Type: User VLAN(1-4095):	0/2/1/0/0 Multi-Service VLAN 2000
Traffic Profile Info	ud downstream settings the same		
Upstream Traffic Name:	ip-traffic-table_6	Downstream Traffic Nar	ne: ip-traffic-table_6
			OK Cancel Apply

(4) Click OK.

3. Configure the VAS configuration profile of the ONT.

- Choose Configuration > Access Profile Management > ONT VAS Profile from the main menu.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - Set Profile Name to VOIPHG850a.
 - Set Vendor ID to HWTC(2011).
 - Set Terminal Type to EchoLife:HG850a.
 - Set Version to V1R1C01B010~Later.
 - Choose **Country code and signaling protocol** from the navigation tree and set **Signal Protocol** to **SIP**.
 - Choose SIP protocol configure > SIP protocol configure 1 from the navigation tree and set SIP server port to 5060 and SIP server IP to 200.200.200.200.
 - Choose SIP digitmap configure from the navigation tree and set SIP digitmap to x.T.
 - Choose Layer3 > WAN Interface from the navigation tree, right-click the list, and then choose Add. Choose WAN property configuration 1 protocol from the navigation tree and set the parameters.
 - WAN VLAN ID: 2000
 - IP get mode: dhcp
 - WAN Service Type: VOIP
- (4) Click **OK**.
- 4. **Bind the VAS profile.**

- (1) Choose **GPON** > **GPON ONU** from the navigation tree.
- (2) On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.
- (3) 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 choose **Bind VAS Profile** from the shortcut menu.
- (4) In the dialog box that is displayed, select the VAS profile whose **Profile Name** is set to **VOIPHG850a** and click **OK**.
- 5. Configure Value-Added Service.
 - (1) Choose **GPON** > **GPON ONU** from the navigation tree.
 - (2) On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.
 - (3) 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 choose **Configure Value**-Added Service from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

Choose **SIP user configure** from the navigation tree and choose **Add** from the shortcut menu.

- Choose User port number 1 from the navigation tree and set User phone number to 87650001 and User password to test1234.
- Choose User port number 2 from the navigation tree and set User phone number to 87650002 and User password to test1234.
- (5) Click OK.

----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 ringback tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

20.3.6 Configuring the GPON FTTH Service by Using a Service Provisioning Profile

This topic describes how to configure various services when an ONT is connected to an OLT through a GPON port.

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 20.3.1 Data Plan for the GPON FTTH Services.

Example Network

This topic considers the ONT whose **Terminal Type** is set to **EchoLife:HG850a** as an example. The configuration procedure of the ONTs of other types is similar to the configuration procedure described in this topic.

A service provisioning profile provides common parameters that need to be set for services. To provision a service quickly, set a service provisioning profile, bind it to a service port, and customize service parameters.

Figure 20-5 Configuring the GPON FTTH service by using a service provisioning profile



Procedure

• Add the ONT to the U2000 in profile mode.

- 1. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

A	dd 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	
		OK Cancel Apply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON 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, multicast, and voice services.

- (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

Add GPON Line Profile		×
Name: FTTx	* Alias:	
Configuration ► Base Info ⊕ Line	Name Upstream FEC Switch Mapping Mode Qos Mode OMCC Encryption	Value OFF VLAN Priority Queue 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	×
Name: FTTx	* Alias:
Configuration Base info. Ethemet port binding group T-CONT Info ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTX OK
	OK Cancel Apply

- 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		
Add GPON Line Profile		
Name: FTTx	* Alias:	
Configuration	ADD GEM Port	×
Base Info. Line Ethernet port hinding group	GEM Port Parameters	
	T-CONT Index(0-127):	1
ADD GEM Port / DEL T-CONT	GEM Port Index(0-1023):	1*
	Priority Queue:	1
	CAR Profile:	
	Service Type:	ETH
	Encryption Switch:	ON
	Cascade Switch:	OFF 👻
		OK Cancel
	ОК	Cancel Apply

- 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 1 automatically)
 - VLAN ID: 1001

Add GPON Line Profile			×
Name: FTTx	*	DD GEM Connection	
Configuration Base Info. Line Ethernet port binding group T-CONT Info. T-CONTI GE ADD GEM Cont DEL GEM Port	GEM Port In GEM Port User CAR Profile Service Type nection 1 Sv Swi	GEM Connection Parameter GEM Port Index(0-1023): GEM Connection Index(0- VLAN ID(1-4094): Priority: Port Type: Port ID(1-8): BindGroup ID: CAR Profile:	3 023): 0 1001
<			ОК
		OK Cance	I <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 2 automatically)
 - VLAN ID: 1000

Add GPON Line Profile			×
Name: FTTx	*	Allos:	
Configuration ├─ Base Info. ▷─ Line ├─ Ethernet port binding group	GEM Port Ind Priority Quepe	GEM Connection Parameters GEM Port Index(0-1023):	1
T-CONT Info. T-CONT1	CAR Profile Service Type	GEM Connection Index(0-1023):	2
ADD GEM Cor	nnection / 1 SV	VLAN ID(1-4094):	1000
DEL GEM Port	<u>Swi</u>	Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
			ок
	_	OK Cancel	Apply

- 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 **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile					×
Name: FTTx	*		CEM Connection		_
Configuration	GEM Port Ind	GE	EM Connection Parameters		
⊢ Line ⊢ Ethernet port binding group	Priority Que		GEM Port Index(0-1023):	1	
E⊢ T-CONT Info. E⊢ T-CONT1	CAR Profile Service Type		GEM Connection Index(0-1023):	3	
ADD GEM Co	nnection <mark>/ <u>1 Sv</u></mark>	Γ	VLAN ID(1-4094):	2000	
DEL GEM Por	t Swi		Priority:		
			Port Type:		
			Port ID(1-8):		
			BindGroup ID:		
			CAR Profile:		_
				0K	
			OK Cancel	<u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile. For details, see 20.1.2 Configuring a GPON Service Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the Service Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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

Add GPON Service Profile			×
Name: FTTx	* Alias:		
Configuration	Name	Value	
Base Info.	Number of Pots Ports(0-8)	2	<u>~</u>
- UNI Port	Number of IPhost Ports	1	
	Number of ETH Ports(0-8)	4	
	Number of TDM Ports(0-8)	0	
	TDM Port Type	T1	
	Service Type of TDM Port	TDMoverGEM	
	Number of MOCA Ports(0-8)	0	
	Number of CATV Ports(0-8)	0	=
	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		<u> </u>
	ОК	Cancel <u>A</u> pply	

- 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: 1001 (VLAN ID of the Internet service)
 - C-VLAN: 1001(user VLAN ID of the ONT)

Add VLAN Switch				×
Service Type:	Translation		•] *
S-VLAN(0-4095):	1001] *
S-Priority(0-7):				j
C-VLAN(0-4095):	1001	*	🗌 untagged	
C-Priority(0-7):				j
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 2, 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: 1000 (VLAN ID of the multicast service)
 - C-VLAN: 1000 (user VLAN ID of the ONT)

Add VLAN Switch				×
Service Type:	Translation		•	*
S-VLAN(0-4095):	1000			*
S-Prioritv(0-7):				
, (, -	1			
C 1/LAN/0 4005):	1000	*		
C-VERI4(0-4080).	1000		🖂 untaggeu	
	[1
C-Priority(0-7):				
C-Encap:				
		ОК	Cancel	

(5) Click **OK**.

- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. Confirm the ONT. For details, see 20.1.3 Confirming an ONT.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose Enable ONU Auto Find from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 32303131B39FD641, and then choose **Confirm ONU** from the shortcut menu.
 - 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: EchoLife:HG850a
 - Software Version: V1R1C03B030

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 Manageme	ent Cha	nnel 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 (h)(1-168): ✓ No Limit
SN:	32303131B39FD64	1	Password: 123456 *
ONU Type			
Verdor ID:	HWTC(2011)	•	Terminal Type: Echol ife:HG850a
Software Ve	rsion: V1R1C03B030	v	
			Lucale to UNU list after operation succeeds
			OK Cancel Apply

(6) 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

- (1) Choose GPON > GPON ONU from the navigation tree.
- (2) On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.
- (3) 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.
- (4) 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.
- (5) In the dialog box that is displayed, set **Default VLAN ID** to 1001.
- (6) Click OK.
- 2. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN
 - Attribute: QinQ

٨	dd VLAN		×
	Base Info Configure VLAN		
		VLAN ID(1-4095):	1001 *
		Name:	VLANID_1001 *
		Alias:	
		Туре:	Smart VLAN 👻 *
		Attribute:	QinQ *
		VLAN Priority:	Unconfigured
		B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

(4) 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 Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Port Dist Image: Sub Port List Image: Sub Port List Image: Port Dist Image: Sub Port List Image: Sub Port List Image: Port Dist Image: Sub Port List Image: Sub Port Dist Image: Port Dist Image: Sub Port List Image: Sub Port Dist Image: Port Dist Image: Sub Port Dist Image: Sub Port Dist Image: Port Dist Image: Sub Port Dist Image: Sub Port Dist Image: Port Dis Ima
	Back Next Done Cancel

- (5) Click Done.
- 3. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - VLAN ID: 1001
 - Service Type: Multi-Service VLAN
 - User VLAN: 1001
 - 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)

lacic Info				Attributos	
ID(1-32768)	1			Autories	
Name:	HSI		*	Connection Type:	AN-GPON 🔻
Alias:					AN-EPON AN-GPON
letwork Side				User Side	
Bundle ID	(1-8192):	SmartVLAN		Interface Selection:	0/2/0/0/0
Tag-Transfor	m:		•	Service Type:	Multi-Service VLAN 💌
Vlan ID(1-409	(5):	1001		User VLAN(1-4095):	1001 💌
Cos value(0-)	'): '		*		
raffic Profile Ir	ifo				
🖌 Keep the	upstream ar	nd downstream setti	ings the same		
	affic Name:	ip-traffic-table_6		Downstream Traffic Nar	ne: ip-traffic-table_6
Upstream Tra					

(4) 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

- (1) Choose GPON > GPON ONU from the navigation tree.
- (2) On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.
- (3) 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.
- (4) 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 **2**, and choose **Modify**from the shortcut menu.
- (5) In the dialog box that is displayed, set **Default VLAN ID** to 1000.
- (6) Click **OK**.

2. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

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

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

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

Add VLAN	2	1
Add VLAN	Sub Port L3 Interface Extended Info	
	Back Next Cancel	

- (5) Click Done.
- 3. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:IGMP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 1000
 - Service Type: Multi-Service VLAN
 - User VLAN: 1000

- 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)

asic Info				P	Attributes		
ID(1-32768):	1						
Name:	IGMP		*		Connection Type:	LAN-GPON	•
Alias:						LAN-EPON LAN-GPON	
letwork Side					User Side		
Bundle ID	(1-8192):						
VI AN Choice	,.	Smart VI AN			Interface Selection:	0/2/1/0/0	•
Tog Transform		On an VENT			Service Type:	Multi-Service VI AN	
ray-mansion							
Vlan ID(1-409	5):	1000			User VLAN(1-4095):	1000	`
Cos value(0-7):		*				
raffic Profile In	fo						
🗹 Keep the	upstream ai	nd downstream set	tings the same				
Upstream Tra	ffic Name:	ip-traffic-table_6		D	ownstream Traffic Na	me: ip-traffic-table_6	

- (4) Click OK.
- 4. Add a multicast VLAN on the OLT side. For details, see 19.2.7 Configuring the Multicast VLAN.
 - (1) Choose Multicast > Multicast VLAN from the navigation tree.
 - (2) On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3
 - Work Mode: igmp_proxy
 - VLAN ID: 3000

Add Multicast VLAN	<u>×</u>
Basic Info	
Device Name: 10.71.227.35	•
Name:	Alias:
IGMP Version: IGMP V3	🗲 \star 🗌 Default VLAN
Autogeneration Program IP Address	Work Mode
Program Match Mode: Enable Disable 	IGMP Work Mode: igmp_proxy 💌 🗮
Start IP Address:	Snooping Report Switch: O Open
End IP Address:	Snooping Leave Switch: Open OClose
	IGMP Video Mode: Multicast 💌
	IGMP Inner VLAN(1~4095):
<u> </u> >	Back Next> Einish Cancel

d Multicast V	LAN				
Default Up Por	t Info				
Frame: 0		Slot: 19		Port: 0	
Paramatar Info					
	Duinuth		- Deventinter	- 1 (72)	
(0-7):	Phoney 6		* (10-5000):	ai(5) 10	
Log Switch:	One	n 🔿 Close	Giobal-Leav	e Switch: 🔘 ()nen O Cinse
203 0111011	0.000				
		< <u>B</u> ack	Next>	Einish	Cancel
d Multicast	VLAN				
Select VLAN					
VLAN Attrit	oute=Common i		×	Find	No. 31 Total:32
	Nama	Aliac		Attributo	Rupor VII AN II
	MANID 21	Allas	Cmort VII AN	Common	
37	VLANID 32		Smart VLAN	Common	
33	VLANID 33		Smart VLAN	Common	
34	VLANID 34		Smart VLAN	Common	
35	VLANID_35		Smart VLAN	Common	
36	VLANID_36		Smart VLAN	Common	
37	VLANID_37		Smart VLAN	Common	
38	VLANID_38		Smart VLAN	Common	
39	VLANID_39		Smart VLAN	Common	
40	VLANID_40		Smart VLAN	Common	
77	VLANID_77		Smart VLAN	Common	
101	VLANID_101		Smart VLAN	Common	
102	VLANID_102		Smart VLAN	Common	
103	VLANID_103		Smart VLAN	Common	
234	VLANID_234		Standard V	Common	
235	VLANID_235		Standard V	Common	
2000	VLANID_20		Smart VLAN	Common	
4001	VLANID_30		Smart VLAN	Common	
<					
	< Ro	ck	Nevt>	Finish	Cancel
	<u></u> u				

- (5) Click Finish.
- 5. Add a virtual upstream port for the multicast service on the OLT side. For details, see 19.2.5 Configuring the Virtual Multicast Upstream Port.
 - (1) Choose Multicast > Virtual Uplink Port from the navigation tree.
 - (2) On the **Virtual Uplink Port** tab page, set the filter criteria to display the required virtual upstream ports.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Frame: 0
 - Slot: 19
 - Port: 0

Add Virtual Uplink Port	×
Location Info Device Name: 10.71.227.35	•
Multicast VLAN Info VLAN ID(1-4095): 3000 +	Uplink Port Info Frame: 0 * Slot: 19 * Port: 0 *
	OK Cancel Apply

- (5) Click Done.
- 6. Configure a program profile on the OLT side. For details, see 19.2.8 Configuring a Program Profile.
 - (1) Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
 - (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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)

dd Program Profile				
Description Info Configure the desir When the program can not have a sourd program must have	ed parameters. Is provisioned, if the IGN re IP address.If the IGMI a source IP	1P ve P ver	rsion of the multicast VLAN i sion of the multicast VLAN is	s V2, the program V3, address.the
Name: Alias:	program1			
Profile Index (1-1024):	1			
Begin IP Address:	224.0 .1 .1	E	nd IP Address:	224.0 .1 .1
Source IP Address:	10.10.10.20	н	ost IP:	0.0.0.0
Priority (0-7):	7	в	andwidth (Kbit/s) (0-65534):	5000
Grade:	no-grade 💌	M	ulticast VLAN(1-4095):	
Preview Parameter				
Preview Profile: 0				···· •
Attribute Parameter				
🗌 Prejoin Attribute			🗾 Host Attribute	
🔲 Unsolicited Attribu	te		🖌 Log Attribute	
Across VLAN Attrit	oute			
			ОКСС	ancel Apply

(5) Click OK.

- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required OLT and click Next. Then, set VLAN ID to 3000.
- (8) Click OK.
- 7. Configure a multicast user on the OLT side. For details, see 19.2.10 Configuring a Multicast User.

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.

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

ld User									
Select Device									
Device Name:	10.71.227.3	35							
Parameters									
Name:		4/56/uservlan/u	ntagged	Alias:			IGMPUserA		
Max. Program	ns NO.(1-32):	8		🗹 Enabl	e Log Sv	vitch			
Quick Leave	Mode:	mac-based	-	🗌 Enabl	e Author	ization	🗹 Default V	/ideo Flow	
User Max Ba (0-42949672	nd Width(Kbit/ 94):	's)		🗹 Unlim	ited Ban	d Width	Receive	Global-Leave	
Select Service	Port								
11							Find	No. 3. Tota	al:14-
Name 🛆	Alias 🛆	Connection Type ~	Interface	Information	Service	Type ^	Service Para	Upstream Tra	ffic
1/0 14 2/6	L	AN-ADSL	Frame: 0	Slot 14/	Sinale			ip-traffic-table	3
30/0 12 0/	L	AN-GPON	Frame: 0	Slot 12/	Sinale			ip-traffic-table	6
21/0 2 1/3	1	AN-GPON	Frame: 0	Slot 2/P	Multi-Se	rvice V	User VLAN:	ip-traffic-table	6
1/0 13 0/1		AN-ADSL	Frame: 0	Slot 13/	Sinale				
1/0 13 1/1	L	AN-ADSL	Frame: 0	Slot: 13/	Single				
1/0 13 2/1	L	AN-ADSL	Frame: 0	Slot: 13/	Single			E test 1	
1/0 13 3/1	L	AN-ADSL	Frame: 0	Slot: 13/	Single				
1/0 13 4/1	L	AN-ADSL	Frame: 0	Slot: 13/	Single				
1/0_13_5/1	L	AN-ADSL	Frame: 0	Slot: 13/	Single				
1/0_13_6/1	L	AN-ADSL	Frame: 0	Slot: 13/	Single				
1/0_13_7/1	L	AN-ADSL	Frame: 0	Slot: 13/	Single				
10 10 04	l		F	01-4-4-07	0:	_			
N									
				<back< td=""><td></td><td>Vext></td><td>Einish</td><td>Can</td><td>icel</td></back<>		Vext>	Einish	Can	icel

- (4) Click Finish.
- (5) Select the multicast user, click the User Multicast VLAN tab in the lower pane, right-click, and then choose Add from the shortcut menu.
- (6) In the dialog box that is displayed, select the record where Multicast VLAN ID is set to 3000 and click OK.

dd Multica	ast VLAN to use	er				×
Select Mul	lticast VLAN					
Please i	Please input query condition					No. 2, Total:2
	Name	Alias	Multicast VLAN I	DA	IGMP Versio	n .
IGMPV AC	dd Multicast VL	AN			×	tv_off
IGMPV	Total : 1. Succee	ded : 1. Failed : 0				igmp_(
	·					
	100%					
			Details <<		Close	
	No. Device	Name Name	Result	Fail	ure Cause	
	1 10.71.227	7.35 IGMPVIan_30	00 Succeeded			
	<					
-						
<)		>
			-			
			L	OK	Cancel	Apply

- Configure the VAS configuration profile of the ONT.
 - 1. Choose Configuration > Access Profile Management > ONT VAS Profile from the main menu.
 - 2. In the information list, right-click and choose Add from the shortcut menu.
 - 3. In the dialog box that is displayed, set the parameters.
 - Set **Profile Name** to **VOIPHG850a**.
 - Set Vendor ID to HWTC(2011).
 - Set Terminal Type to EchoLife:HG850a.
 - Set Version to V1R1C01B010~Later.
 - Choose Country code and signaling protocol from the navigation tree and set Signal Protocol to SIP.
 - Choose SIP protocol configure > SIP protocol configure 1 from the navigation tree and set SIP server port to 5060 and SIP server IP to 200.200.200.
 - Choose **SIP digitmap configure** from the navigation tree and set **SIP digitmap** to **x.T**.
 - Choose Layer3 > WAN Interface from the navigation tree, right-click the list, and then choose Add. Choose WAN property configuration 1 protocol from the navigation tree and set the parameters.
 - WAN VLAN ID: 20
 - IP get mode: dhcp
 - WAN Service Type: VOIP
 - 4. Click OK.
- Add a service provisioning profile.
 - 1. Choose **Configuration** > **Access Profile Management** > **Service Provisioning Profile** from the main menu.
 - 2. Click the GPON FTTH Service Provisioning Profile tab.
 - 3. Right-click and choose Add Global Profile from the shortcut menu.
 - 4. In the dialog box that is displayed, set the parameters.
 - Set Name to serviceprofile.

- Choose Base Info. from the navigation tree and set the parameters.
 - Deploy and ONU and provision its service for the first time option button: clicked
 - ONU device type: EchoLife:HG850a
 - ONU Device Version: V1R1C03B030
 - Line Profile: FTTx
 - Service Profile: FTTx
 - ONU VAS Profile: VOIPHG850a
 - Authentication Mode: SN
- Right-click **ServicePort** in the navigation tree and choose **Add serviceport** from the shortcut menu. In the right pane, set the parameters of the service virtual port.

In the case of the Internet service:

- ServicePort Name: pppoe
- VLAN Attribute: Common
- Network Side VLAN: 1001
- GemPort: 1
- Service Type: Multi-service VLAN
- User VLAN: untagged
- Keep traffic the same: selected
- Upstream Traffic Name: FTTx
- Downstream Traffic Name: FTTx

In the case of the multicast service:

- ServicePort Name: multicast
- VLAN Attribute: Common
- Network Side VLAN: 1000
- GemPort: 1
- Service Type: Multi-service VLAN
- User VLAN: untagged
- Keep traffic the same: selected
- Upstream Traffic Name: FTTx
- Downstream Traffic Name: FTTx
- Right-click Multicast User in the navigation tree and choose Add multicast user from the shortcut menu. In the right pane, set the parameters of the multicast user.
 - IGMP Flow Channel: multicast
 - Multicast VLAN: 1000
- 5. Click OK.
- Configure the service.
 - 1. Choose **GPON** > **GPON ONU** from the navigation tree.
 - 2. On the **GPON ONU** tab page, set the filter criteria to display the required GPON ONUs.

- 3. 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 choose **Config Service** from the shortcut menu.
- 4. In the dialog box that is displayed, click in next to Service Provisioning Profile. In the dialog box that is displayed, select the service provisioning profile whose Name is set to serviceprofile.
- 5. Click OK.

----End

Result

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

- 1. The FE 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.

The user can watch program1 on TV.

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 ringback tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

21 Configuring the GPON Private Line Access and FTTO Services (OT928G)

About This Chapter

The deployment of an OLT and OT928G in a network provides the private line access and fiber to the office (FTTO) solutions.

Context

In an private line access network, the OT928G functions as a cellular backhaul unit (CBU) and is connected to 2G or 3G base stations in various modes to carry 2G or 3G services over the FTTM network.

- The GPON native TDM solution is used to carry wireless 2G services and services in the wireless 3G CS domain. It is mainly used to carry voice services.
- The GPON Ethernet solution is used to carry services in the 3G PS domain and mainly used to carry data services.

In an FTTO network, the OT928G functions as a single business unit (SBU), provides multiple types of ports, and supports various networking modes to meet network requirements of enterprise users for different environments and services.

- Eight POTS ports are used to connect to telephones inside enterprises and provide the highquality and low-cost VoIP service on the IP network.
- Eight E1 ports are used to connect to TDM PBXs of enterprises.
- Four FE electrical ports and one FE/GE adaptive electrical port are used to connect to LAN switches of enterprises and provide Ethernet private-line services.

21.1 Adding an ONT to the U2000 (OLT in Profile Mode)

This topic describes how to add an ONT to the U2000 when the OLT is in the profile mode. After an ONT is added successfully, you can configure FTTM or FTTO services for the ONT on the U2000.

21.2 Configuring Services

An FTTO or FTTM network with an OLT and OT928G provides various services for users.

21.3 Configuration Examples of the GPON Private Line Access and FTTO Services (OLT +OT928G)

This topic provides examples to describe how to configure various services in a GPON private line access or FTTO network.

21.1 Adding an ONT to the U2000 (OLT in Profile Mode)

This topic describes how to add an ONT to the U2000 when the OLT is in the profile mode. After an ONT is added successfully, you can configure FTTM or FTTO services for the ONT on the U2000.

Context

The OT928G supports five ETH ports, eight E1 ports, and eight POTS ports.

Procedure

- **1** 20.1.1 Configuring a GPON Line Profile.
- 2 20.1.2 Configuring a GPON Service Profile.

In the dialog box that is displayed, click the **Base Info.** tab. Set **Number of Pots Ports** to **8**, **Number of ETH Ports** to **5**, and **Number of TDM Ports** to **8**.

3 20.1.3 Confirming an ONT.

In the dialog box that is displayed, click the **Basic Parameters** tab. Set **Terminal Type** to **SmartAX OT928G**.

----End

21.2 Configuring Services

An FTTO or FTTM network with an OLT and OT928G provides various services for users.

Context

Several operations are required when you configure a service. The following lists the services configured at the OLT side and the service configuration steps.

Services	Steps
Ethernet Private-Line Service of an Enterprise	 21.2.2 Configuring a VLAN Service Profile 21.2.3 Configuring a VLAN 19.2.3 Adding a Service Port 21.2.1 Setting Queue Scheduling Parameters
TDM PBX Access Service/ Native TDM Mobile Bearer Service (Based on the SDH Network)	 21.2.1 Setting Queue Scheduling Parameters 21.2.4 Configuring a TDM Connection 21.2.5 Configuring a Clock Source

Services	Steps
Ethernet Mobile Bearer Service	• 19.2.1 Configuring a VLAN
	• 19.2.3 Adding a Service Port
	• 21.2.1 Setting Queue Scheduling Parameters

21.2.1 Setting Queue Scheduling Parameters

To ensure the QoS of important services in case of network congestion, you need to select different queue scheduling modes according to the priorities of the services. You need to set the queue scheduling parameters on the OLT only once. Then, the parameters are globally valid.

21.2.2 Configuring a VLAN Service Profile

The parameters related to services in VLAN attributes are combined to form a profile. The profile can be referenced by a VLAN on a device after the profile is applied to the device.

21.2.3 Configuring a VLAN

Virtual local area network (VLAN) is a technology used to form virtual workgroups by grouping the devices of a LAN logically.

21.2.4 Configuring a TDM Connection

This topic describes how to add a TDM E1 connection and set up the mapping between E1 ports and GEM ports.

21.2.5 Configuring a Clock Source

This topic describes how to set the clock signal of a specified port as the reference clock source of the system.

21.2.1 Setting Queue Scheduling Parameters

To ensure the QoS of important services in case of network congestion, you need to select different queue scheduling modes according to the priorities of the services. You need to set the queue scheduling parameters on the OLT only once. Then, the parameters are globally valid.

Procedure

- 1 Choose Configuration > Access Profile Management > System Parameter Profile from the main menu.
- 2 On the System Parameter Profile tab page, select the required OLT type from the Device Type drop-down list.
- 3 Right-click and choose Add Global Profile from the shortcut menu.
- In the dialog box that is displayed, set the name of the system parameter profile to FTTx. Choose QoS > Queue scheduler mode from the Parameters for Selection navigation tree, click
 to add the parameter to the Selected Parameters navigation tree, and then click Next.
- 5 Choose QoS > Queue scheduler mode from the navigation tree to configure the queue scheduling mode.
| ame: FTTx | * Alias: | |
|---------------------------|--|---------|
| Pueter Decemptor Cottings | | |
| System Farameter Settings | Demonstra | Lister. |
| Queue scheduler mode | Parameter
Queue echedular mode | Value |
| | Queue0 weight (0.100.255 indicates this gueue is not | 10 |
| | Queue1 weight (0-100,255:indicates this queue is not. | 10 |
| | Queue2 weight (0-100-255:indicates this queue is not. | 20 |
| | Queue2-weight (0-100-255-indicates this queue is not. | 20 |
| | Queue 4 weight (0-100,255,indicates this queue is not. | . 20 |
| | Queues weight (0-100,255,indicates this queue is not. | 0 |
| | QueueS-weight (0-100,255.indicates this queue is not. | . U |
| | Queueb-weight (0-100,255;indicates this queue is not | . U |
| | | |

Key Parameter	Description
Queue scheduler mode	Distributes the packets that are transmitted from the same port to multiple queues and schedules the queues to determine the sequence of transmitting the packets.
	It is recommended that you use both the weighted round robin (WRR) and priority queuing (PQ) scheduling modes. In this case, the system schedules the queue with weight 0 in the PQ mode, and then schedules the queues with the weights other than 0 in the WRR mode.
Queue-weight	Indicates the percentage of the bandwidth occupied by each queue. The sum of the weights of the queues must be 0 or 100.

6 Click OK.

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

----End

Command Reference

То	Run the Command	In
Configure the queue scheduling mode of Ethernet ports	queue-scheduler	Global config mode

21.2.2 Configuring a VLAN Service Profile

The parameters related to services in VLAN attributes are combined to form a profile. The profile can be referenced by a VLAN on a device after the profile is applied to the device.

- 1 Choose Configuration > Access Profile Management > VLAN Service Profile from the main menu.
- 2 Right-click and choose Add Global Profile from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

Add VLAN Service Profile	×
Name: FTTx	*
Alias:	
Forward Mode	Protocol Switch
Forwarding Mode: 🛛 vlan-mac 🔍	DHCP Mode: invalid 🔻
Enable Layer2 Interconnection	PPPoE MAC Mode: multimac 💌
Security Switch	Enable DHCP Proxy
Enable Anti-ipspoofing	Enable DHCP Option82
Enable Anti-macspoofing	Enable PITP
Tunnel Switch	Forward Strategy
Enable BPDU Tunnel	Packet-policy Broadcast
Enable RIP Tunnel	Packet-policy Unicast
Enable VTP-CDP Tunnel	Packet-policy Multicast
	OK Cancel <u>A</u> pply

Key Parameter	Description
Enable BPDU Tunnel	Enables the BPDU transparent transmission. After this function is enabled, the layer 2 protocol packets in the private network can be transmitted transparently in the public network. This function is applicable to QinQ VLANs.

4 Click OK.

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

----End

Command Reference

То	Run the Command	In
Create a VLAN service profile	vlan service-profile	Global config mode

21.2.3 Configuring a VLAN

Virtual local area network (VLAN) is a technology used to form virtual workgroups by grouping the devices of a LAN logically.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose VLAN from the navigation tree.
- 3 On the VLAN tab page, set the filter criteria or click 😻 to display the VLANs.
- 4 In the information list, right-click and choose Add from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

Add VLAN					x
Sonfigure VLAN	VLAN ID(1-4095): Name: Alias: Type: Attribute: VLAN Priority:	2001 VLANID_2001 Smart VLAN Common Unconfigured			* *
	<u>E</u>	lack	Next	One	<u>C</u> ancel
Add VLAN					×
Base Info Configure VLAN	Sub Port L	3 Interface Port List a:0 at:08 at:10 at:19 Port:01 at:20	Extended Info	□ □ □ □ □ □ □ □ □ □ □ □ □ □	it 0 :19 Port:00

dd VLAN			×
🚳 Base Info 🚳 Configure VLAN	Sub Port L3 Interface	Extended Info	
	VLAN Service Profile: te	st	*
	BPDU Tunnel		PTunnel
	VLAN Forwarding		
	VLAN forwarding mode:	VLAN-MAC	
	Packet Policy		
	VLAN broadcast packet fo	orwarding policy :	Forward 💌
	VLAN multicast packet for	warding policy:	Forward
	VLAN unknown unicast p	acket forwarding policy:	Forward
	Security Config Anti-macspoofing: Disa	ab 💌 PPPoE MA	C mode: Multi 💌
·	Back	Next	Done Cancel

Key Parameter	Description
Start ID End ID	Indicates the start and end IDs when you add VLANs in batches.
Туре	Indicates the VLAN type.
Attribute	Indicates the VLAN attribute.
VLAN Priority	Indicates the VLAN priority. This parameter is applicable to the VLANs for an OLT.

6 Click Done.

----End

Command Reference

То	Run the Command	In
Query the information about the VLAN	display vlan	Privilege mode
Add one VLAN or more VLANs of a same type in batches	vlan	Global config mode
Set the VLAN attribute	vlan attrib	Global config mode

21.2.4 Configuring a TDM Connection

This topic describes how to add a TDM E1 connection and set up the mapping between E1 ports and GEM ports.

- 1 Choose Connection > Native TDM Connection from the navigation tree.
- 2 In the information list, right-click and choose Add from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

Add E1 Connection	×
Name: FTTM	Network Interface Type: E1
Alias:	
Network Interface Info	User Interface Info
 E1 Port Frame: 00 Slot: 18 Port: 00 Port: 01 Port: 01 Port: 02 Port: 03 Port: 03 Port: 04 Port: 05 Port: 05 Port: 06 Port: 07 Port: 08 Port: 09 Port: 10 Port: 11 	 GPON Port Frame: 00 Slot: 02 Port: 00 ONT: 00 GEM Port: 00 GEM Port: 01 GEM Port: 01 GEM Port: 03 GEM Port: 04 ONT: 01
 □ Port: 12 □ Port: 13 □ Port: 14 □ Port: 15 	
	OK Cancel <u>A</u> pply

Key Parameter	Description
Network Interface Type	The upstream port on the TOPA card is an E1 or STM-1 port. If the upstream port is an STM-1 port, configure a VC12 tributary. The VC12 tributary likes a virtual container that carries E1 frames. Sixty-three VC12 virtual containers exist because an STM-1 port supports 63 channels of E1 frames.

4 Click OK.

----End

Command Reference

То	Run the Command	In
Add a native TDM service stream	tdm-connect	Global config mode

21.2.5 Configuring a Clock Source

This topic describes how to set the clock signal of a specified port as the reference clock source of the system.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- 3 In the the Frequency Clock Source(8K) tab, right-click and choose Add Clock Source from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

Add Clock Source			×
Clock Type			
Line clock	🔾 🖯 Bit clock	O XPM clock	
Working Mode:		SYSLINE -	
Index:		0 🔻	
Frame:		0	
Slot:		18	
Port:		0	
	ОК	Cancel <u>A</u> pply	

Key Parameter	Description
Clock Type	Indicates the clock type. The line clock is an E1 clock source and is provided by an upper layer node. The BITS clock is provided by the BITS clock device.

Key Parameter	Description
Frame/Slot/Port	Indicates the shelf ID, slot ID, and port ID of the clock source, which must be the same as the actual shelf ID, slot ID, and port ID.

5 Click OK.

----End

Command Reference

То	Run the Command	In
Set a port on a card in a slot of a shelf as the reference clock source	clock source	Global config mode

21.3 Configuration Examples of the GPON Private Line Access and FTTO Services (OLT+OT928G)

This topic provides examples to describe how to configure various services in a GPON private line access or FTTO network.

21.3.1 Data Plan for the GPON Private Line Access and FTTO Services (OLT+OT928G)

This topic provides the data plan for the configuration examples of the GPON private line access or FTTO services. You can configure the services according to the data plan.

21.3.2 Configuring the Ethernet Private-Line Service of an Enterprise

In this configuration example, the OT928G gains access to the data of the Ethernet switch of an enterprise through an FE or a GE port and transparently transmits the data in the enterprise intranet over the public network in the QinQ VLAN private-line mode.

21.3.3 Configuring the TDM PBX Access Service/Native TDM Mobile Bearer Service (Based on the SDH Network)

In this configuration example, the OT928G is connected to the TDM PBX of an enterprise or a base station through an E1 port to carry the PBX fixed-line telephone service or traditional circuit switching service in a GPON network.

21.3.4 Configuring the Ethernet Mobile Bearer Service

In this configuration example, the OT928G is connected to the 3G NodeB base station through an FE or a GE port and the data is transmitted by the OLT to the packet switch network (PSN), which implements IP-based wireless network.

21.3.1 Data Plan for the GPON Private Line Access and FTTO Services (OLT+OT928G)

This topic provides the data plan for the configuration examples of the GPON private line access or FTTO services. You can configure the services according to the data plan.

Data Plan

Service Type	Item	Settings	Remarks
Device managemen	Upstream port of the OLT	0/19/0	-
t	GPON port of the OLT	0/2/1	-
	ONT	SN: 32303131B39FD641 Name: ONT ONU Type: ONT ONU ID: 0	-
		Authentication Mode: SN Terminal Type: SmartAX OT928G Software Version: V1R3C03B062	
Ethernet private-line service of an enterprise	DBA profile	 Name: FTTx T-CONT Type: Assured Bandwidth/Maximum Bandwidth Assured Bandwidth: 20480 Maximum Bandwidth: 51200 	-
	GPON line profile	 Name: FTTx Mapping Mode: VLAN Qos Mode: Priority Queue T-CONT Index: 1 DBA Profile: FTTx GEM Port Index: 1, 2 Priority Queue: 0 VLAN ID: 50, 60 	-

Table 21-1 Data plan for the GPON Private Line Access and FTTO services

Service Type	Item	Settings	Remarks
	GPON service profile	 Name: FTTx Number of Pots Ports: 8 Number of ETH Ports: 5 Number of TDM Ports: 8 TDM Port Type: E1 Service Type: Translation Default VLAN ID: 50, 60 S-VLAN: 50, 60 C-VLAN: 3000 	-
	VLAN service profile	 Name: FTTx Enable BPDU Tunnel: selected 	-
	User VLAN	 VLAN ID: 2001 Type: Smart VLAN Attribute: QinQ 	-
	Service virtual port	 Name: intranet1, intranet2 Connection Type: LAN-GPON VLAN ID: 2001 (service VLAN ID) Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN: 50, 60 (VLAN IDs of the enterprise intranet) Keep the upstream and downstream settings the same: selected Upstream/Downstream Traffic Name: ip-traffic-table_6 	

Service Type	Item	Settings	Remarks
TDM PBX access service/ Native TDM	Queue scheduler mode DBA profile	 Queue scheduler mode: WRR Queue0-weight: 10 Queue1-weight: 10 Queue2-weight: 20 Queue3-weight: 20 Queue4-weight: 40 Name: FTTx T-CONT Type: Fixed Bandwidth Fixed Bandwidth 	-
private line access service		 Fixed Bandwidth: 44800 Bandwidth Compensation: Yes 	
(based on the SDH network)	GPON line profile	 Name: FTTx Mapping Mode: E1T1 Qos Mode: Priority Queue T-CONT Index: 1 DBA Profile: FTTx GEM Port Index: 1 Service Type: TDM Priority Queue: 0 Port Type: E1 Port ID: 1 	-
	GPON service profile	 Name: FTTx Number of Pots Ports: 8 Number of ETH Ports: 5 Number of TDM Ports: 8 TDM Port Type: E1 	-
	TDM E1 connection	 Name: FTTx Network Interface Type: E1 Network Interface Info: 0/6/0 User Interface Info: 0/2/1/1/0 	-

Service Type	Item	Settings	Remarks
	Clock source	 Clock Type: Line clock Working Mode: SYSLINE Index: 0 Frame: 0 Slot: 6 Port: 0 Clock Type: Bit clock BITS Type: 2MHz BITS Impedance: 75ohm Index: 1 Frame: 0 Slot: 0 Dut 60 	-
	Queue scheduler mode	 Port: 0 Queue scheduler mode: WRR Queue0-weight: 10 Queue1-weight: 10 Queue2-weight: 20 Queue3-weight: 20 Queue4-weight: 40 	-
Ethernet private line access service	DBA profile	 Name: FTTx T-CONT Type: Assured Bandwidth/Maximum Bandwidth Assured Bandwidth: 20480 Maximum Bandwidth: 51200 	-
	GPON line profile	 Name: FTTx Mapping Mode: VLAN Qos Mode: Priority Queue T-CONT Index: 1 DBA Profile: FTTx GEM Port Index: 1 Priority Queue: 0 VLAN ID: 10 	-

Service Type	Item	Settings	Remarks
	GPON service profile	 Name: FTTx Number of Pots Ports: 8 Number of ETH Ports: 5 Number of TDM Ports: 8 TDM Port Type: E1 Vlan Type: Translation Default VLAN ID: 10 	-
	VLAN service profile	 Name: FTTx Enable BPDU Tunnel: selected 	-
	Service VLAN	VLAN ID: 2000Type: Smart VLAN	-
	Service virtual port	 Name: Eth_Fttm Connection Type: LAN-GPON VLAN ID: 2000 (service VLAN ID) Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN: 10 (user-side VLAN ID) Keep the upstream and downstream settings the same: selected Upstream/Downstream Traffic Name: ip-traffic-table_6 	-
	Queue scheduler mode	 Queue scheduler mode: WRR Queue0-weight: 10 Queue1-weight: 10 Queue2-weight: 20 Queue3-weight: 20 Queue4-weight: 40 	-

21.3.2 Configuring the Ethernet Private-Line Service of an Enterprise

In this configuration example, the OT928G gains access to the data of the Ethernet switch of an enterprise through an FE or a GE port and transparently transmits the data in the enterprise intranet over the public network in the QinQ VLAN private-line mode.

Context

For details of the data plan, see **21.3.1 Data Plan for the GPON Private Line Access and FTTO Services (OLT+OT928G)**.

The OT928G need not be configured directly and all configurations are completed on the OLT and applied to the OT928G through the OMCI protocol.

Example Network



Figure 21-1 Configuring the Ethernet private-line service of the enterprise

The OT928G devices gain access to the data of the intranets of enterprise branches A and B through an Ethernet switch. Therefore, configure the QinQ VLAN private lines on the OT928G devices of the two branches separately. Then, the service data and BPDU packets between the enterprise intranets can be transmitted upstream to the OLT through a GPON port and the OLT transmits the signals upstream to the IP network. In this manner, a transparent and secure data transmission channel is provided for the enterprise branches in different areas.

- Add the ONT to the U2000 in profile mode.
 - 1. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

- Name: FTTx
- T-CONT Type: Assured Bandwidth/Maximum Bandwidth
- Assured Bandwidth: 20480
- Maximum Bandwidth: 51200
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a line profile. For details, see 20.1.1 Configuring a GPON Line Profile.
 - Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the GPON Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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
 - 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
 - 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: 0
 - 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: 2
 - Priority Queue: 0
 - 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 (default value)
 - VLAN ID: 50 (VLAN ID of the enterprise intranet)
 - Right-click GEM Port2 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 (default value)
 - VLAN ID: 60 (VLAN ID of the enterprise intranet)

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a service profile. For details, see 20.1.2 Configuring a GPON Service Profile.

The service profile must match the ONT type. This section considers the OT928G as an example to describe how to configure a service profile. The OT928G has five Ethernet ports, eight E1 ports, and eight POTS ports.

- (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
- (2) Click the GPON Service Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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: 8
 - Number of ETH Ports: 5
 - Number of TDM Ports: 8
 - TDM Port Type: E1
 - Choose UNI Port from the navigation tree. In the window that is displayed, right-click the record where Port Type is ETH Port and Port ID is 1, and choose UNI Port Configuration Properties from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - Default VLAN ID: 50 (VLAN ID of the enterprise intranet)
 - In the dialog box that is displayed, right-click and choose **Add**, and configure the parameters of VLAN switch.
 - Service Type: Translation
 - S-VLAN: 50 (VLAN ID of the enterprise intranet)
 - C-VLAN: 3000 (user VLAN ID of the ONT)
 - Choose UNI Port from the navigation tree. In the window that is displayed, right-click the record where Port Type is ETH Port and Port ID is 2, and choose UNI Port Configuration Properties from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - Default VLAN ID: 50 (VLAN ID of the enterprise intranet)
 - In the dialog box that is displayed, right-click and choose **Add**, and configure the parameters of VLAN switch.
 - Service Type: Translation
 - S-VLAN: 50 (VLAN ID of the enterprise intranet)
 - C-VLAN: 3000 (user VLAN ID of the ONT)
 - Choose UNI Port from the navigation tree. In the window that is displayed, right-click the record where Port Type is ETH Port and Port ID is 3, and choose UNI Port Configuration Properties from the shortcut menu. In the dialog box that is displayed, set the parameters.

- Default VLAN ID: 60 (VLAN ID of the enterprise intranet)
- In the dialog box that is displayed, right-click and choose **Add**, and configure the parameters of VLAN switch.
 - Service Type: Translation
 - S-VLAN: 60 (VLAN ID of the enterprise intranet)
 - C-VLAN: 3000 (user VLAN ID of the ONT)
- Choose UNI Port from the navigation tree. In the window that is displayed, right-click the record where Port Type is ETH Port and Port ID is 4, and choose UNI Port Configuration Properties from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - Default VLAN ID: 60 (VLAN ID of the enterprise intranet)
 - In the dialog box that is displayed, right-click and choose **Add**, and configure the parameters of VLAN switch.
 - Service Type: Translation
 - S-VLAN: 60 (VLAN ID of the enterprise intranet)
 - C-VLAN: 3000 (user VLAN ID of the ONT)
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Confirm the ONT. For details, see 20.1.3 Confirming an ONT .
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 32303131B39FD641, and then choose **Confirm ONU** from the shortcut menu.
 - Set Name to ONT.
 - Set ONU ID to 0.
 - Set ONU Type to ONT.
 - On the **Base Info** 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: SmartAX OT928G
 - Software Version: V1R3C03B062

(6) Click OK.

• Configure the Ethernet private-line service of the enterprise on the OLT.

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 VLAN service profile. For details, see 21.2.2 Configuring a VLAN Service Profile.
 - Choose Configuration > Access Profile Management > VLAN Service Profile from the main menu.
 - (2) Right-click and choose Add Global Profile from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - Enable BPDU Tunnel: selected
 - (4) Click OK.
 - (5) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (6) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a service VLAN on the OLT. For details, see 19.2.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2001
 - Type: Smart VLAN
 - Attribute: QinQ
 - (4) Click Next.
 - Click the Sub Port tab and add upstream port 0/19/0 as the upstream port of the VLAN.
 - Click the **Extended Info** tab and select the VLAN service profile named FTTx.
 - (5) Click Finish.
- 3. Add a service virtual port on the OLT. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select VLAN 2001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: intranet1
 - Connection Type: LAN-GPON
 - VLAN ID: 2001 (service VLAN ID)
 - Interface Selection: 0/2/1/0/1

- Service Type: Multi-Service VLAN
- User VLAN: 50 (VLAN ID of the enterprise intranet)
- Keep the upstream and downstream settings the same: selected
- Upstream/Downstream Traffic Name: ip-traffic-table_6 (The OLT does not restrict the rate of service streams in the management VLAN. Therefore, it is recommended that you use the default profile ip-traffic-table_6.)
- (4) Click OK.
- (5) Repeat the preceding operations to add another service virtual port.
 - Name: intranet2
 - Connection Type: LAN-GPON
 - VLAN ID: 2001 (service VLAN ID)
 - Interface Selection: 0/2/1/0/2
 - Service Type: Multi-Service VLAN
 - User VLAN: 60 (VLAN ID of the enterprise intranet)
 - Keep the upstream and downstream settings the same: selected
 - Upstream/Downstream Traffic Name: ip-traffic-table_6 (The OLT does not restrict the rate of service streams in the management VLAN. Therefore, it is recommended that you use the default profile ip-traffic-table_6.)

4. Set queue scheduling parameters.

You need to set the queue scheduling parameters on the OLT only once. Then, the parameters are globally valid.

The WRR mode is used for queues 0-4 and their weights are 10, 10, 20, 20, and 40 respectively. The PQ mode is used for queues 5-7.

- Choose Configuration > Access Profile Management > System Parameter Profile from the main menu.
- (2) On the **System Parameter Profile** tab page, select the required device type from the **Device Type** drop-down list.
- (3) In the information list, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the name of the system parameter profile to FTTx. Choose QoS > Queue scheduler mode from the Parameters for Selection navigation tree, click >>> to add the parameter to the Selected Parameters navigation tree, and then click Next.
- (5) Choose **QoS** > **Queue scheduler mode** from the navigation tree to set the queue scheduling mode.
 - Queue scheduler mode: WRR
 - Queue0-weight: 10
 - Queue1-weight: 10
 - Queue2-weight: 20
 - Queue3-weight: 20
 - Queue4-weight: 40
- (6) Click OK.

----End

Result

The enterprise users in different areas of the same intranet (VLAN 50 or 60) can communicate with each other.

21.3.3 Configuring the TDM PBX Access Service/Native TDM Mobile Bearer Service (Based on the SDH Network)

In this configuration example, the OT928G is connected to the TDM PBX of an enterprise or a base station through an E1 port to carry the PBX fixed-line telephone service or traditional circuit switching service in a GPON network.

Context

For details of the data plan, see **21.3.1 Data Plan for the GPON Private Line Access and FTTO Services (OLT+OT928G)**.

The OT928G need not be configured directly and all configurations are completed on the OLT and applied to the OT928G through the OMCI protocol.

Example Network



Figure 21-2 Configuring the TDM PBX access service

The OT928G is connected to the TDM PBX of the enterprise through an E1 port and then is connected to the OLT through a GPON upstream port. The OLT provides E1 or STM-1 ports to transmit the TDM service to the SDH network.



Figure 21-3 Configuring the native TDM mobile bearer service (based on the SDH network)

The OT928G gains access to the TDM service data of the base station through an E1 port, encapsulates service packets to GEM frames in the native TDM encapsulation mode, and then transmits the GEM frames to the OLT through a GPON port. The TOPA card on the OLT transmits E1 or STM-1 signals, depending on the daughter card that is attached to the TOPA card.

- If E1 signals are transmitted upstream, the NH1A daughter card performs TDM packet decapsulation, de-jitter buffer, and clock synchronization. After the NH1A card obtains the VC12, it converts the TDM data packets to E1 frames according to the mapping and transmits the E1 frames to upper layer SDH equipment through the corresponding E1 port.
- If STM-1 signals are transmitted upstream, the O2CE daughter card performs TDM packet decapsulation, de-jitter buffer, and clock synchronization. After the O2CE card obtains the VC12, it maps the VC12 to VC4 and then to the STM-1 port for transmission to upper layer SDH equipment.
- Native TDM refers to encapsulating TDM frames to GPON GEM frames (TDMoGEM) and transmitting the frames over the GPON network. This mode features simple encapsulation, low network overhead, and good link quality.

Procedure

- Add the ONT to the U2000 in profile mode.
 - 1. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.

The bandwidth of each E1 port on the OT928G is 4416 kbit/s. If the OT928G works in the native TDM mode, however, you need to enable the bandwidth compensation function because of the following:

- Packets in the TDMoEoGEM encapsulation mode contain the information about the Ethernet, GEM frames, and TDM payloads.
- Packet fragmentation and queue buffer cause more overheads.

The recommended formula for calculating the TDM bandwidth is Bandwidth = $4416 \times N + 640$ kbit/s, where N equals the number of E1 ports.

- (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
- (2) Click the **DBA Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT Type: Fixed Bandwidth
 - Fixed Bandwidth: 44800
 - Bandwidth Compensation: Yes
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a line profile. For details, see 20.1.1 Configuring a GPON Line Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.

- (2) Click the GPON Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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: E1T1
 - Qos Mode: Priority Queue
 - 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
 - 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
 - Service Type: TDM
 - 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 (default value)
 - Port Type: E1
 - Port ID: 1
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 3. Configure a service profile. For details, see 20.1.2 Configuring a GPON Service Profile.

The service profile must match the ONT type. This section considers the OT928G as an example to describe how to configure a service profile. The OT928G has five Ethernet ports, eight E1 ports, and eight POTS ports.

- (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the **GPON Service Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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: 8
 - Number of ETH Ports: 5
 - Number of TDM Ports: 8

- TDM Port Type: E1
- (5) Click **OK**.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Confirm the ONT. For details, see 20.1.3 Confirming an ONT .
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose Enable ONU Auto Find from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 32303131B39FD641, and then choose **Confirm ONU** from the shortcut menu.
 - Set Name to ONT.
 - Set ONU ID to 0.
 - Set ONU Type to ONT.
 - On the **Base Info** 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: SmartAX OT928G
 - Software Version: V1R3C03B062
 - (6) Click OK.

• Configure the native TDM service on the OLT.

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. Set queue scheduling parameters. For details, see 21.2.1 Setting Queue Scheduling Parameters.

You need to set the queue scheduling parameters on the OLT only once. Then, the parameters are globally valid.

The WRR mode is used for queues 0-4 and their weights are 10, 10, 20, 20, and 40 respectively. The PQ mode is used for queues 5-7.

(1) Choose Configuration > Access Profile Management > System Parameter Profile from the main menu.

- (2) On the **System Parameter Profile** tab page, select the required OLT type from the **Device Type** drop-down list.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the name of the system parameter profile to FTTx. Choose QoS > 802.1p PRI queue and QoS > Queue scheduler mode from the Parameters for Selection navigation tree, click >>>> to add the parameters to the Selected Parameters navigation tree, and then click Next.
- (5) Choose **802.1p PRI queue** from the navigation tree and configure the mapping between queues and 802.1p priorities. It is recommended that you use the default values. Choose **Queue scheduler mode** from the navigation tree and configure the queue scheduling mode.
 - Queue scheduler mode: WRR
 - Queue0-weight: 10
 - Queue1-weight: 10
 - Queue2-weight: 20
 - Queue3-weight: 20
 - Queue4-weight: 40
- (6) Click Finish.
- (7) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (8) In the dialog box that is displayed, select the required NE(s), and click **OK**.

2. Configure a TDM connection.

Set up a native TDM service stream between the GEM port and the upstream port on the TPOA card.

- (1) Choose Connection > Native TDM Connection from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) If the upstream port is an E1 port, set the parameters as follows:
 - Name: FTTx
 - Network Interface Type: E1
 - Network Interface Info: 0/6/0
 - User Interface Info: 0/2/1/1/1
- (4) If the upstream port is an STM-1 port, set the parameters of the VC12 tributary as follows:
 - Name: FTTx
 - Network Interface Type: VC12
 - Network Interface Info: 0/6/0
 - User Interface Info: 0/2/1/1/1
- (5) Click OK.
- 3. Configure a clock source.

In the case of the TDM service, ensure that the clock source is unique in the entire SDH network. Otherwise, error codes are generated and affect service quality, and services may be interrupted if a large number of error codes are generated.

- On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- (2) On the **Frequency Clock Source(8K)** tab page, right-click and choose **Add Clock Source** from the shortcut menu.
- (3) In the information list, click the **Frequency Clock Source(8K)** tab, right-click and choose **Add Clock Source** from the shortcut menu.
 - Clock Type: Line clock
 - Working Mode: SYSLINE
 - Index: 0
 - Frame: 0
 - Slot: 6
 - Port: 0
- (4) Click OK.
- (5) Repeat the preceding operations to add a BITS clock (provided by the BIUA card).
 - Clock Type: Bit clock
 - BITS Type: 2MHz
 - BITS Impedance: 750hm
 - Index: 1
 - Frame: 0
 - Slot: 0
 - Port: 0

----End

Result

The mobile terminals (such as mobile phones) near the base station gain the information about the network that they belong to and make calls or send short messages successfully.

21.3.4 Configuring the Ethernet Mobile Bearer Service

In this configuration example, the OT928G is connected to the 3G NodeB base station through an FE or a GE port and the data is transmitted by the OLT to the packet switch network (PSN), which implements IP-based wireless network.

Context

For details of the data plan, see **21.3.1 Data Plan for the GPON Private Line Access and FTTO Services (OLT+OT928G)**.

The OT928G need not be configured directly and all configurations are completed on the OLT and applied to the OT928G through the OMCI protocol.

Example Network



Figure 21-4 Configuring the Ethernet mobile bearer service

The data of the 3G base station is transmitted to the OT928G through an FE or a GE port and encapsulated to GEM frames on the OT928G. Then, the GEM frames are transmitted upstream to the OLT through a GPON port, and the data is restored by the OLT and then transmitted to the PSN network through an FE, a GE, or a 10GE port.

- Add the ONT to the U2000 in profile mode.
 - 1. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT Type: Assured Bandwidth/Maximum Bandwidth
 - Assured Bandwidth: 20480
 - Maximum Bandwidth: 51200
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click \mathbf{OK} .
 - 2. Configure a line profile. For details, see 20.1.1 Configuring a GPON Line Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the **GPON Line Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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
- 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
- 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: 0
- 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 parameters.
 - GEM Connection Index: 0 (default value)
 - VLAN ID: 10 (user-side VLAN ID)
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a service profile. For details, see 20.1.2 Configuring a GPON Service Profile.

The service profile must match the ONT type. This section considers the OT928G as an example to describe how to configure a service profile. The OT928G has five Ethernet ports, eight E1 ports, and eight POTS ports.

- (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the GPON Service Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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: 8
 - Number of ETH Ports: 5
 - Number of TDM Ports: 8
 - TDM Port Type: E1
 - Choose UNI Port from the navigation tree. In the window that is displayed, right-click the record where Port Type is ETH Port and Port ID is 1, and choose UNI Port Configuration Properties from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - Default VLAN ID: 10 (user-side VLAN ID)

- 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 (user-side VLAN ID)
 - C-VLAN: 3000 (user VLAN ID of the ONT)
- (5) Click **OK**.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Confirm the ONT. For details, see 20.1.3 Confirming an ONT.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose Enable ONU Auto Find from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 32303131B39FD641, and then choose **Confirm ONU** from the shortcut menu.
 - Set Name to ONT.
 - Set ONU ID to 0.
 - Set ONU Type to ONT.
 - On the **Base Info** 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: SmartAX OT928G
 - Software Version: V1R3C03B062
 - (6) Click OK.
- Configure the Ethernet mobile bearer service on the OLT.

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. For details, see 19.2.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.

- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN
- (4) Click **Next**. Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- (5) Click Finish.
- 2. Add a service virtual port on the OLT. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select VLAN 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: Eth_Fttm
 - Connection Type: LAN-GPON
 - VLAN ID: 2000 (service VLAN ID)
 - Interface Selection: 0/2/1/0/1
 - Service Type: Multi-Service VLAN
 - User VLAN: 10 (user-side VLAN ID)
 - Keep the upstream and downstream settings the same: selected
 - Upstream/Downstream Traffic Name: ip-traffic-table_6 (The OLT does not restrict the rate of service streams in the management VLAN. Therefore, it is recommended that you use the default profile ip-traffic-table_6.)
 - (4) Click OK.
- 3. Set queue scheduling parameters. For details, see 21.2.1 Setting Queue Scheduling Parameters.

You need to set the queue scheduling parameters on the OLT only once. Then, the parameters are globally valid.

The WRR mode is used for queues 0-4 and their weights are 10, 10, 20, 20, and 40 respectively. The PQ mode is used for queues 5-7.

- (1) Choose Configuration > Access Profile Management > System Parameter Profile from the main menu.
- (2) On the **System Parameter Profile** tab page, select the required OLT type from the **Device Type** drop-down list.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the name of the system parameter profile to FTTx. Choose QoS > 802.1p PRI queue and QoS > Queue scheduler mode from the Parameters for Selection navigation tree, click is to add the parameters to the Selected Parameters navigation tree, and then click Next.
- (5) Choose **802.1p PRI queue** from the navigation tree and configure the mapping between queues and 802.1p priorities. It is recommended that you use the default values. Choose **Queue scheduler mode** from the navigation tree and configure the queue scheduling mode.

- Queue scheduler mode: WRR
- Queue0-weight: 10
- Queue1-weight: 10
- Queue2-weight: 20
- Queue3-weight: 20
- Queue4-weight: 40
- (6) Click Finish.
- (7) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (8) In the dialog box that is displayed, select the required NE(s), and click **OK**.

----End

Result

The mobile terminals (such as mobile phones) near the 3G base station gain the information about the network that they belong to and make calls or send short messages successfully.

22 Configuring xPON Private Line Access and FTTO Services (MA5612)

About This Chapter

The deployment of an optical line terminal (OLT) and MA5612 in a network provides the private line access and fiber to the office (FTTO) solutions.

Context

- In the private line access solution, a cellular backhaul unit (CBU) is connected to the OLT in PON mode to implement private line access.
- In the FTTO solution, a single business unit (SBU) is connected to the OLT in PON mode to implement FTTO. In this way, the TDM PBX, IP PBX, and private line services of enterprise Intranets are provided.

22.1 Adding an MDU to the U2000 When the OLT Works in Profile Mode

This topic describes how to add the MA5612 to the U2000 when the OLT works in profile mode. After the MA5612 is successfully added to the U2000, you can configure the private line access service for the MA5612 on the U2000.

22.2 Configuring Services on an OLT

A private line access network with an OLT and MA5612 provides various services for users.

22.3 Configuring Services on an MDU

A private line access network with an OLT and the MA5612 provides various services for users.

22.4 Configuring Clock Synchronization

This topic describes how to configure clock synchronization, which ensures that data is transmitted and processed correctly in a communications network and a telecommunications network runs efficiently with high quality.

22.5 Configuration Examples of xPON Private Line Access and FTTO Services (MA5612) This topic provides examples for configuring various services in an xPON private line access or FTTO network.

22.1 Adding an MDU to the U2000 When the OLT Works in Profile Mode

This topic describes how to add the MA5612 to the U2000 when the OLT works in profile mode. After the MA5612 is successfully added to the U2000, you can configure the private line access service for the MA5612 on the U2000.

Procedure

- Adding a GPON MDU
 - 1. 19.1.1 Configuring an MDU SNMP Profile
 - 2. 19.1.2 Configuring a DBA Profile
 - 3. 20.1.1 Configuring a GPON Line Profile
 - 4. 19.1.4 Confirming an MDU
 - 5. 19.1.5 Configuring a VLAN
 - 6. 19.1.6 Adding a Service Virtual Port
 - 7. 19.1.7 Checking the Communication Between the OLT and MDU
- Adding an EPON MDU
 - 1. 19.1.1 Configuring an MDU SNMP Profile
 - 2. 23.1.2 Configuring a DBA Profile
 - 3. 23.1.3 Configuring a Line Profile
 - 4. 23.1.4 Confirming an MDU
 - 5. 19.1.5 Configuring a VLAN
 - 6. 23.1.6 Adding a Service Virtual Port
 - 7. 23.1.7 Verifying the Interoperability Between an OLT and an MDU

----End

22.2 Configuring Services on an OLT

A private line access network with an OLT and MA5612 provides various services for users.

Context

Several operations are required to configure a service. The following table lists the services configured and the steps for configuring the services.

Services	Steps
TDM PWE3 private line access	• 19.2.1 Configuring a VLAN
service	• 19.2.3 Adding a Service Port
	• 21.2.1 Setting Queue Scheduling Parameters
	• 22.2.1 Configuring the Attributes of a TOPA Card
	• 22.2.2 Configuring a CESoP Connection

Services	Steps
Router access service of an enterprise	 19.2.1 Configuring a VLAN 19.2.3 Adding a Service Port
	• 21.2.1 Setting Queue Scheduling Parameters

22.2.1 Configuring the Attributes of a TOPA Card

This topic describes how to set the IP address of a TOPA card. The CESoP connection can be created only on a TOPA card that is configured with an IP address.

22.2.2 Configuring a CESoP Connection

After a CESoP connection and the service virtual port of the CESoP connection are added successfully, the CESoP E1 line can be used for communication.

22.2.1 Configuring the Attributes of a TOPA Card

This topic describes how to set the IP address of a TOPA card. The CESoP connection can be created only on a TOPA card that is configured with an IP address.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose NE Panel from the navigation tree.
- 3 Right-click the TOPA card and choose Config Board from the shortcut menu.
- 4 In the dialog box that is displayed, set IP Address.

Key Parameter	Description
IP Address	Indicates the IP address of a TOPA card. The TOPA card supports two types of daughter cards: CSSA and EH1A.

5 Click OK.

----End

Command Reference

То	Run the Command	In
Set the IP address of a TOPA card	set ip-address	TOP interface configuration mode
Set the IP address of a TOPA card	ip-address	TOPA STM-1 mode

22.2.2 Configuring a CESoP Connection

After a CESoP connection and the service virtual port of the CESoP connection are added successfully, the CESoP E1 line can be used for communication.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose E1/T1 > CES E1/T1 Port from the navigation tree.
- 3 On the CES E1 Port tab page, select a port and click the CESoP Info tab in the lower pane.
- 4 In the information list, right-click and choose Add CESoP Connection from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

A	dd CESoP Service			×
	Location Info			
	Device Name:	10.78.217.216	Name:	Frame:0/Slot:12/Port:
	Service Info			
	Remote MAC:	00-E0-FC-01-04-50	Remote IP:	5.5.5.
	Remote UDP Label: (0-65535)	50050	Local UDP Label: (0-65535)	50050
	VLAN:(1-4095)	500		
			ок	Cancel <u>A</u> pply

Key Parameter	Description
Remote MAC	Indicates the remote MAC address of a CESoP connection.
Remote IP	Indicates the destination IP address of a CESoP connection.
Remote UDP Label	Indicates the UDP label of the local address of a CESoP connection.
Local UDP Label	Indicates the UDP label of the remote address of a CESoP connection. This parameter is used to set up mapping between UDP labels and E1 ports. Therefore, the CESoP connections of a TOPA card (with the EH1A daughter card) must be configured with different UDP port numbers.

- 6 Click OK.
 - ----End

Command Reference

То	Run the Command	In
Add a CESoP connection	cesop-connect	Global config mode

22.3 Configuring Services on an MDU

A private line access network with an OLT and the MA5612 provides various services for users.

Context

Several operations are required to configure a service. The following table lists the services configured and the steps for configuring the services.

Services	Steps
TDM PWE3 private line access	• 19.3.1 Configuring a VLAN
service	• 19.3.3 Adding a Service Port
	• 22.3.3 Configuring the MPLS Capability
	• 22.3.4 Configuring an MPLS Tunnel
	• 22.3.5 Configuring a Static LSP Segment
	• 19.3.8 Configuring a Static Route
	• 22.3.6 Configuring a PW Profile
	• 22.3.7 Adding a TDM VCL
	• 22.3.8 Configuring the PWE3
	• 21.2.5 Configuring a Clock Source
Router access service of an	• 21.2.2 Configuring a VLAN Service Profile
enterprise	• 22.3.1 Configuring a VLAN
	• 19.3.3 Adding a Service Port

22.3.1 Configuring a VLAN

Virtual local area network (VLAN) is a technology used to form virtual workgroups by grouping the devices of a LAN logically.

22.3.2 Setting Telnet/STelnet Parameters

The U2000 communicates with devices successfully based on the preset Telnet or STelnet parameters.

22.3.3 Configuring the MPLS Capability

This topic describes how to configure a label switch router (LSR) ID for a device and enable the multiprotocol label switching (MPLS) capability of the device.

22.3.4 Configuring an MPLS Tunnel

This topic describes how to configure the name, ID, and destination of an MPLS TE tunnel.

22.3.5 Configuring a Static LSP Segment

This topic describes how to configure a static label switched path (LSP). LSP is a unidirectional path from an ingress node to egress node, in which each node is an LSR. When you need to create an LSP on an ingress node to identify the path in the MPLS network that a forwarding equivalence class (FEC) passes, perform this operation.

22.3.6 Configuring a PW Profile

A pseudo wire (PW) profile is a set of feature parameters related to the PW and can be bound to PWs of the same type. A PW profile can be bound to a PW only after the PW type and the peer address are set, and the PW profile that is bound to a PW cannot be deleted.

22.3.7 Adding a TDM VCL

The TDM virtual channel link (VCL) is an attachment circuit (AC). When creating a TDM PW service, you need to set up a communication channel between ACs to implement transparent transmission of Layer 2 data of users.

22.3.8 Configuring the PWE3

This topic describes how to set up PWs of different types to emulate end-to-end services.

22.3.1 Configuring a VLAN

Virtual local area network (VLAN) is a technology used to form virtual workgroups by grouping the devices of a LAN logically.

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose VLAN from the navigation tree.
- 3 On the VLAN tab page, set the filter criteria or click [♥] to display the VLANs.
- 4 In the information list, right-click and choose Add from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.
| Add VLAN | | X |
|----------------|---|---|
| Configure VLAN | VLAN ID(1-4095):
Name:
Alias:
Type:
Attribute:
802.1 Priority: | 2001 *
VLANID_2001 *
Smart VLAN *
Common *
Unconfigured * |
| | | |
| | Ē | ack <u>N</u> ext <u>D</u> one <u>C</u> ancel |
| Add VLAN | 1 | × |
| Configure VLAN | Sub Port | 3 Interface Extended Info Port List 🕞 🗊 SubPort List |
| | | e:0
ot00
Port:01 |

Add VLAN		×
Base Info Configure VLAN	Sub Port L3 Interface Extended Info	
	Back Next Done Cancel]

Key Parameter	Description	
Start ID	Indicates the start and end IDs when you add VLANs in batches	
End ID		
Туре	Indicates the VLAN type.	
Attribute	Indicates the VLAN attribute.	

6 Click Done.

----End

Command Reference

То	Run the Command	In
Query the information about the VLAN	display vlan	Privilege mode
Add one VLAN or more VLANs of a same type in batches	vlan	Global config mode
Set the VLAN attribute	vlan attrib	Global config mode

22.3.2 Setting Telnet/STelnet Parameters

The U2000 communicates with devices successfully based on the preset Telnet or STelnet parameters.

Procedure

- 1 In **Main Topology**, right-click the required MA5612 in the **Physical Root** navigation tree and choose **MPLS Management** > **Telnet Configuration** from the shortcut menu.
- 2 In the dialog box that is displayed, set the parameters.

Dev	rice Telnet/STel	net Parameter N	lanagement						×
٢D	evice Telnet/STeln	et Parameter Infori	mation						
	Device Name 🛆 Pi	rotocol Name 🛆	Port 🗠	Authenticatio 🔿	User Name 🗠	Enable Privil	e 🛆 Privilege Level 🛆	Login Timeou 🗠	Respons
10	.78.217.148 Te	lnet	23	User Authentica	tester			60	
<	[]]	Þ
_					~				
Γ	etails-[Device 10.7	78.217.148]							
		Tainat		Auth Mode:	Lleer Auth	-			
	Protocol Name:	Teinet	* I	Auth. Moue.	OserAdin	*	🗌 Enable Privilege		
	Port:	23	*	User Name:	tester				
		· · · · ·		o con ritanio.	100101		Privilege Level:	1	-
	Login Timeout(s):	60	*	Password:	•••••				
	Response Timeo	ut(s):					Privilege Password:		
		60	^	Private Key:					
						Test	ОК[Cancel	Apply

Key Parameter	Description	
Auth. Mode	Indicates the authentication mode. The options are No Auth, Password Auth, and User Auth.	
User Name	Indicates the user name for login. It consists of letters (A to Z and a to z), numbers, and symbols.	

3 Click OK.

----End

Result

After the parameters are set, click **Test**. If a dialog box is displayed indicating that the operation is successful, the U2000 can communicate with devices successfully based on the Telnet parameters.

22.3.3 Configuring the MPLS Capability

This topic describes how to configure a label switch router (LSR) ID for a device and enable the multiprotocol label switching (MPLS) capability of the device.

Prerequisite

The Telnet parameters must be set to ensure that the U2000 communicates with devices successfully. For details, see **22.3.2 Setting Telnet/STelnet Parameters**.

Procedure

- 1 In the Main Topology, right-click the required NE in the **Physical Root** navigation tree and choose **MPLS Management** > **MPLS Configuration** from the shortcut menu.
- 2 On the tab page that is displayed, click the MPLS Capability Configuration tab and set the parameters.

MPLS Capability Configuration	×			
MPLS				
LSR ID:	5.5.5.5			
Enable MPLS				
PHP:	Implicit-null			•
cl.DP				
Enable LDP				
LSP Trigger:	Host			•
IP Address Prefix:				
LDF	P Peer A	IP Address 🗠	Status 🗠	<u>C</u> reate
				Modify
				Delete
MPLS L2VPN				
Enable MPLS L2VPN	Enable L2VPN and OAM D	etecting for PSN Tunnel		

Key Parameter	Description
LSR ID	Indicates an LSR ID. It can be the IP address of a loopback interface on an LSR. The LSR ID is an IPv4 address and must be unique in the MPLS domain.
Enable MPLS	Enables MPLS. You can enable MPLS only after setting the LSR ID.
Enable MPLS L2VPN	Enables MPLS L2VPN of a device. You can enable MPLS L2VPN of a device only after enabling the MPLS capability of the device.

3 Click Apply.

----End

Command Reference

То	Run the Command	In
Configure the ID of an LSR	mpls lsr-id	Global config mode
Enable MPLS	mpls	Global config mode, VLANIF mode
Enable MPLS L2VPN	mpls l2vpn	Global config mode

22.3.4 Configuring an MPLS Tunnel

This topic describes how to configure the name, ID, and destination of an MPLS TE tunnel.

Procedure

- 1 In the Main Topology, right-click the required NE in the **Physical Root** navigation tree and choose **MPLS Management** > **Tunnel Configuration** from the shortcut menu.
- 2 On the tab page that is displayed, click the **Tunnel Configuration** tab. In the information list, right-click and choose **Create** from the shortcut menu.

C	reate Tunnel						×
	Basic Proper	ty Application F					
	Device Name:	10.78.217.148					1 —
	Tunnel Name:	Tunnel 10		Tunnel ID:	10		Auto-Allocation
	Encap. Protocol:	MPLS TE	-	Destination:	20	. 20	. 20 . 20
	Signal Protocol:	RSVP TE	-	Resv. Style:	SE		~
	Reverse LSP:		-				
	Reverse LSR-ID:			Reverse Tunnel ID:			
						<u>ОК</u>	Cancel
	Key Parameter	Descri	ption				
	Tunnel ID	Indicate same de	es the ID c evice.	of a tunnel. The t	unnel	ID must	be unique on the
	Destination	Indicate	es the LSR	R ID of an egress	node.		

3 Click OK.

----End

Command Reference

То	Run the Command	In
Enter the tunnel mode from the global config mode	interface tunnel	Global config mode
Configure the encapsulation protocol at the data link layer for a tunnel interface	tunnel-protocol	Tunnel mode
Configure the destination IP address of an MPLS TE tunnel	destination	Tunnel mode

22.3.5 Configuring a Static LSP Segment

This topic describes how to configure a static label switched path (LSP). LSP is a unidirectional path from an ingress node to egress node, in which each node is an LSR. When you need to create an LSP on an ingress node to identify the path in the MPLS network that a forwarding equivalence class (FEC) passes, perform this operation.

Procedure

- 1 In the Main Topology, right-click the required NE in the **Physical Root** navigation tree and choose **MPLS Management** > **Static LSP Segment** from the shortcut menu.
- 2 On the tab page that is displayed, click the **Static LSP Segment Configuration** tab, right-click, and choose **Create** from the shortcut menu. In the dialog box that is displayed, set the parameters of the ingress node in the static LSP.

Protocol Type:	STATIC 🔻	LSR Type:	Ingress
🖌 Configure Tunnel Interface	Tunnel ID: 10	LSP Name:	Tunnel10
Destination:	30 . 30 . 30 . 30	Mask:	
nbound Interface:		Inbound Label:	
⊖ Outbound Interface:		Outbound Label:	
Next Hop:	10 . 60 . 60 . 60		
Bandwidth Type:	~	Bandwidth(Kbps):	

Key Parameter	Description	
Protocol Type	Indicates the protocol type of the static LSP service.	
Destination	Indicates the LSR ID of an egress node.	
Next Hop	Indicates the IP address of the next-hop interface of an ingress node.	

3 Click OK.

----End

Command Reference

То	Run the Command	In
Configure the LSP where the ingress LSR is located	static-lsp ingress	Global config mode
Configure the LSP where the egress LSR is located	static-lsp egress	Global config mode

22.3.6 Configuring a PW Profile

A pseudo wire (PW) profile is a set of feature parameters related to the PW and can be bound to PWs of the same type. A PW profile can be bound to a PW only after the PW type and the peer address are set, and the PW profile that is bound to a PW cannot be deleted.

Procedure

- 1 In the Main Topology, right-click the required NE in the **Physical Root** navigation tree and choose **MPLS Management** > **PW Template Configuration** from the shortcut menu.
- 2 On the tab page that is displayed, right-click and choose Create from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

Create PW Template		×
Name:	pwt	*
TDM Encapsulation Number:	32 💌	*
Control Word:	control-word 💌	*
Tunnel Policy:	Tunnel10]
Peer IP Address:	30 . 30 . 30 . 30]
Check Used Channel:	(Null)]
Check Used Mode:	-	*
Max. ATM Cells:	28	*
ATM Cell Packing Timeout (us):	1000]
Detection Time Multiple:		
Min. Receiving Interval (ms):		
Min. Sending Interval (ms):		
🗷 Rtp Header Enable		
Enable ATM Serial		
PW Type:	ATM Nto1 VCC -	*
MTU:	1500	*
Load Time(us):	1000]
Time Slot Number:	32]
ОК	Cancel <u>A</u> pply	

Key Parameter	Description
Control Word	Indicates a control word. Packets may be out of order when load balancing is adopted. In this case, you can use the control word to reorder the packets.
	You must enable the control word of a PW profile if the PW type is set to TDM .
Peer IP Address	Indicates the IP address of the peer PW.
Rtp Header Enable	Specifies whether an RTP header is added during encapsulation for TDM transparent transmission.

4 Click OK.

----End

Command Reference

То	Run the Command	In
Create a PW profile	PW-para	Global config mode

22.3.7 Adding a TDM VCL

The TDM virtual channel link (VCL) is an attachment circuit (AC). When creating a TDM PW service, you need to set up a communication channel between ACs to implement transparent transmission of Layer 2 data of users.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose Connection > TDM VCL from the navigation tree.
- 3 In the information list, right-click and choose Add from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

Add TDM VCL				×
ID(0-1023):	1	*	Name:	TDMVCL_1 *
Connection Type:	SATOP 🔻]	Port Type:	UDT
Interface Selection:	0/3/0 👻]*	Timeslot:	*
			ок	Cancel <u>A</u> pply

Key Parameter	Description
Connection Type	Indicates the PW type. You need to set this parameter when data packets are transmitted over a TDM network.
	When data packets are transmitted over a TDM network, a TDM connection ID identifies a service stream. In the case of unstructured TDM data, set the PW type to TDM SATOP . In the case of structured TDM data, set the PW type to TDM CESoP .

5 Click OK.

----End

Command Reference

То	Run the Command	In
Bind a TDM connection and a PW and create the PW service of the TDM type	pw-ac-binding tdm	Global config mode
Configure the type of a PW	pw-type	PW-template mode

22.3.8 Configuring the PWE3

This topic describes how to set up PWs of different types to emulate end-to-end services.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose PW Management from the navigation tree.
- 3 In the information list, right-click and choose Add from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

Add PW						×
PW ID(1-4294967294):	1	*	Name:	PWID_	1	*
PW Type:	TDM	•	PW Profile:	pwt		*
Port Type:	UDT	•	Port:	0/3/7		*
Deployment Status:	O Undeploy 💿 Deploy	y .	Signal Protocol:	🔿 ldp	⊖ static	🖲 udp
In Label(8448-9343):		*	Out Label(16-1048575	j):		*
SRC UDP:		*	DST UDP(50048-5011	1): 50050		*
AUTO VCCV_PING				🖌 sec	ondary	
Please select AC:TDM	VCL					
ID(0-1023) ^	Name 🗠	Co	nnection Type 🗠	Interfac	e Informati	on \land 👘
0	TDMVCL_0	SAToP	F	'rame: 0/Slot	: 3/Port: 7	
					ancel	Apply

Key Parameter	Description	
PW Type	Create a PW service of the ETH, TDM, or ATM type	
Signal Protocol	• Idp : Indicates that a PW is set up through the signaling protocol.	
	• static or udp : Indicates that parameters are not negotiated through the signaling protocol and but are specified manually to set up a PW.	
AC	Indicates the AC that is used for forwarding Layer 2 packets. Select different ACs according to PW types.	

5 Click OK.

----End

Command Reference

То	Run the Command	In
Bind a TDM connection and a PW and create the PW service of the TDM type	pw-ac-binding tdm	Global config mode
Bind a VLAN and a PW and create the PW service of the ETH type	pw-ac-binding vlan	Global config mode
Bind a PVC and a PW and create the PW service of the ATM type	pw-ac-binding pvc	Global config mode
Create a PW profile	pw-template	Global config mode

22.4 Configuring Clock Synchronization

This topic describes how to configure clock synchronization, which ensures that data is transmitted and processed correctly in a communications network and a telecommunications network runs efficiently with high quality.

Context

In a private line access network, the system clock of an OLT is transmitted to an ONU through an xPON line. Then, the system clock of the ONT is synchronized with the system clock of the OLT. The ONU transmits the clock to a base transceiver station (BTS) through an E1 or Ethernet port.

22.4.1 Configuring E1/STM-1 Line Clock Synchronization

This topic describes how to configure clock synchronization. After the line clock synchronization is configured, the clock is synchronized to the E1/STM-1 line clock when the OLT accesses the SDH network through an upstream E1 or STM-1 port.

22.4.2 Configuring Ethernet Clock Synchronization

This topic describes how to configure Ethernet clock synchronization. After Ethernet clock synchronization is configured, the technology of recovering the clock from bit streams on the Ethernet link is applied to implement synchronization between Ethernets when the OLT accesses the packet switched network (PSN) through a GE port.

22.4.3 Configuring BITS Clock Synchronization

This topic describes how to configure Building Integrated Timing Supply (BITS) clock synchronization. After the BITS clock synchronization is configured, the OLT receives the clock through BITS and transmits the clock signals to the cellular backhaul unit (CBU) through the PON line and then to the base transceiver station (BTS). In this manner, the clock synchronization is achieved for the entire network.

22.4.4 Configuring IEEE 1588v2 Clock Synchronization

This topic describes how to configure IEEE 1588v2 clock synchronization. After this configuration is complete, the OLT obtains the IEEE 1588v2 clock signals from the upper-layer network and transmits the signals to the CBU through the GPON line and then to the base

transceiver station (BTS). In this manner, the clock synchronization is achieved for the entire network.

22.4.1 Configuring E1/STM-1 Line Clock Synchronization

This topic describes how to configure clock synchronization. After the line clock synchronization is configured, the clock is synchronized to the E1/STM-1 line clock when the OLT accesses the SDH network through an upstream E1 or STM-1 port.

Prerequisite

The SCU control card must be configured with the clock daughter card CKMC.

Context

The configuration concept is as follows:

- 1. The OLT traces the upstream E1/STM-1 line clock of the TOPA card as the system clock.
- 2. Signals of the system clock are transmitted to the MA5612 through the optical channel provided by the GPON service card.
- 3. The MA5612 uses the line clock of the GPON upstream port as the system clock.
- 4. The transmit clock of the E1 port of the MA5612 is synchronized to the system clock of the MA5612.

To configure clock synchronization for an NE, you need to navigate to the NE Explorer of the NE. For details, see In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.

Procedure

• Configure the clock on the OLT.

Set the line clock of the upstream E1 or STM-1 port on the TOPA card as the system clock source with the highest priority.

- 1. On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- 2. On the **Frequency Clock Source(8K)** tab page, right-click and choose **Add Clock Source** from the shortcut menu.
- 3. In the dialog box that is displayed, set the parameters as follows:
 - Index: 0
 - Frame: 0
 - Slot: 5
 - Port: 0
- 4. Click **OK**.
- 5. In the information list, right-click the new clock source and choose **Set Clock Source Priority** from the shortcut menu.
- 6. In the dialog box that is displayed, set **Priority** to **0**.
- 7. Click **OK**.

- Configure the clock on the MA5612.
 - 1. Configure the system clock and its priority.

Set the clock recovered from the GPON upstream port as the system clock of the MA5612 with the highest priority.

- On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- (2) On the Frequency Clock Source(SYSCLK) tab page, right-click and choose Add Clock Source from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters as follows:
 - Index: 0
 - Frame: 0
 - Slot: 0
 - Port: 0
- (4) Click OK.
- (5) In the information list, right-click the new clock source and choose **Set Clock Source Priority** from the shortcut menu.
- (6) In the dialog box that is displayed, set **Priority** to **0**.
- (7) Click OK.
- 2. Set the system clock as the transmit clock of the E1 port.
 - (1) Choose E1/T1 > CES E1/T1 Port from the navigation tree.
 - (2) In the information list, right-click the record whose name is Frame:0/Slot:1/ Port:0 and choose Modify from the shortcut menu.
 - (3) In the dialog box that is displayed, set **Working Mode** to **UDT** and **Clock Type** to **System**.
 - (4) Click **OK**.

----End

22.4.2 Configuring Ethernet Clock Synchronization

This topic describes how to configure Ethernet clock synchronization. After Ethernet clock synchronization is configured, the technology of recovering the clock from bit streams on the Ethernet link is applied to implement synchronization between Ethernets when the OLT accesses the packet switched network (PSN) through a GE port.

Prerequisite

The SCU control card must be configured with the clock daughter card CKMC.

The GIU upstream card must be the GICK or GSCA card with GE ports.

The upstream MAN PSN network of the OLT must have the capability of synchronizing the Ethernet clock.

Context

The configuration concept is as follows:

- 1. The OLT uses the synchronous Ethernet clock of the upstream slot as the system clock.
- 2. Signals of the system clock are transmitted to the MA5612 through the optical channel provided by the GPON service card.
- 3. The MA5612 uses the line clock of the GPON upstream port as the system clock.
- 4. The transmit clock of the E1, FE, or GE port of the MA5612 is synchronized to the system clock of the MA5612.

To configure clock synchronization for an NE, you need to navigate to the NE Explorer of the NE. For details, see In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.

Procedure

• Configure the clock on the OLT.

Set the line clock of the GE port on the GIU card as the system clock source with the highest priority.

- 1. On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- 2. On the **Frequency Clock Source(8K)** tab page, right-click and choose **Add Clock Source** from the shortcut menu.
- 3. In the dialog box that is displayed, set the parameters as follows:
 - Index: 0
 - Frame: 0
 - Slot: 19
 - Port: 0
- 4. Click OK.
- 5. In the information list, right-click the new clock source and choose **Set Clock Source Priority** from the shortcut menu.
- 6. In the dialog box that is displayed, set **Priority** to **0**.
- 7. Click **OK**.
- Configure the clock on the MA5612.
 - 1. Configure the system clock and its priority.

Set the clock recovered from the GPON upstream port as the system clock of the MA5612 with the highest priority.

- On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- (2) On the **Frequency Clock Source(SYSCLK)** tab page, right-click and choose **Add Clock Source** from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters as follows:
 - Index: 0
 - Frame: 0
 - Slot: 0

- Port: 0
- (4) Click OK.
- (5) In the information list, right-click the new clock source and choose **Set Clock Source Priority** from the shortcut menu.
- (6) In the dialog box that is displayed, set **Priority** to **0**.
- (7) Click OK.
- 2. (Optional) Set the system clock as the transmit clock of the E1 port.

This operation is required only when the base transceiver station (BTS) accesses the MA5612 through an E1 port. When the BTS accesses the MA5612 through an FE or GE port, you can skip this step. By default, the system clock is irreplaceably set as the transmit clock of the E1 port.

- (1) Choose E1/T1 > CES E1/T1 Port from the navigation tree.
- (2) In the information list, right-click the record whose name is Frame:0/Slot:1/ Port:0 and choose Modify from the shortcut menu.
- (3) In the dialog box that is displayed, set **Working Mode** to **UDT** and **Clock Type** to **System**.
- (4) Click OK.

----End

22.4.3 Configuring BITS Clock Synchronization

This topic describes how to configure Building Integrated Timing Supply (BITS) clock synchronization. After the BITS clock synchronization is configured, the OLT receives the clock through BITS and transmits the clock signals to the cellular backhaul unit (CBU) through the PON line and then to the base transceiver station (BTS). In this manner, the clock synchronization is achieved for the entire network.

Prerequisite

The SCU control card must be configured with the clock daughter card CKMC.

The OLT must have the BITS clock input resource.

The CITD card must be configured with the BITS clock daughter card and work in the normal state.

Context

The configuration concept is as follows:

- 1. The OLT uses the BITS line clock as the system clock.
- 2. Signals of the system clock are transmitted to the MA5612 through the optical channel provided by the GPON service card.
- 3. The MA5612 uses the line clock of the GPON upstream port as the system clock.
- 4. The transmit clock of the E1 port of the MA5612 is synchronized to the system clock of the MA5612.

To configure clock synchronization for an NE, you need to navigate to the NE Explorer of the NE. For details, see In the Main Topology, double-click the required NE in the **Physical Root**

navigation tree; or right-click the required NE and choose $\ensuremath{\textbf{NE}}$ and choose $\$

Procedure

• Configure the clock on the OLT.

Set the line clock of two BITS_IN ports on the CITD card as the system clock with the highest priority.

- 1. On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- 2. On the **Frequency Clock Source(8K)** tab page, right-click and choose **Add Clock Source** from the shortcut menu.
- 3. In the dialog box that is displayed, set the parameters as follows:
 - Index: 0
 - Frame: 0
 - Slot: 0
 - Port: 0
- 4. Click **OK**.
- 5. In the information list, right-click the new clock source and choose **Set Clock Source Priority** from the shortcut menu.
- 6. In the dialog box that is displayed, set **Priority** to **0**.
- 7. Click OK.
- 8. Repeat the preceding steps to add a clock source whose **Frame** is **0**, **Slot** is **0**, and **Port** is **1** and set its **Priority** to **1**.
- Configure the clock on the MA5612.
 - 1. Configure the system clock and its priority.

Set the clock recovered from the GPON upstream port as the system clock of the MA5612 with the highest priority.

- On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- (2) On the **Frequency Clock Source**(**SYSCLK**) tab page, right-click and choose **Add Clock Source** from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters as follows:
 - Index: 0
 - Frame: 0
 - Slot: 0
 - Port: 0
- (4) Click **OK**.
- (5) In the information list, right-click the new clock source and choose **Set Clock Source Priority** from the shortcut menu.
- (6) In the dialog box that is displayed, set **Priority** to **0**.
- (7) Click OK.

2. (Optional) Set the system clock as the transmit clock of the E1 port.

This operation is required only when the base transceiver station (BTS) accesses the MA5612 through an E1 port. When the BTS accesses the MA5612 through an FE or GE port, you can skip this step. By default, the system clock is irreplaceably set as the transmit clock of the E1 port.

- (1) Choose E1/T1 > CES E1/T1 Port from the navigation tree.
- (2) In the information list, right-click the record whose name is Frame:0/Slot:1/ Port:0 and choose Modify from the shortcut menu.
- (3) In the dialog box that is displayed, set **Working Mode** to **UDT** and **Clock Type** to **System**.
- (4) Click OK.

----End

22.4.4 Configuring IEEE 1588v2 Clock Synchronization

This topic describes how to configure IEEE 1588v2 clock synchronization. After this configuration is complete, the OLT obtains the IEEE 1588v2 clock signals from the upper-layer network and transmits the signals to the CBU through the GPON line and then to the base transceiver station (BTS). In this manner, the clock synchronization is achieved for the entire network.

Prerequisite

The SCU control card must be configured with the clock daughter card CKMC.

The GICK card must exist.

The GPON service card must be the GPBD card.

Context

The configuration concept is as follows:

- 1. The OLT uses the clock recovered from IEEE 1588v2 packets as the system clock.
- 2. Signals of the system clock are transmitted to the MA5612 through the optical channel provided by the GPON service card.
- 3. The MA5612 uses the line clock of the GPON upstream port as the system clock.
- 4. The transmit clock of the E1 or FE/GE port of the MA5612 is synchronized to the system clock of the MA5612.

To configure clock synchronization for an NE, you need to navigate to the NE Explorer of the NE. For details, see In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu. .

Procedure

- Configure the clock on the OLT.
 - 1. Set the IEEE 1588v2 clock source and its priority.

- On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- (2) On the **Frequency Clock Source(8K)** tab page, right-click and choose **Add Clock Source** from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters as follows:
 - Working Mode: 1588
 - Index: 0
 - Frame: 0
 - Slot: 19
 - Port: 0
- (4) Click OK.
- (5) In the information list, right-click the new clock source and choose **Set Clock Source Priority** from the shortcut menu.
- (6) In the dialog box that is displayed, set **Priority** to **0**.
- (7) Click OK.
- (8) Repeat the preceding steps to add a clock source whose Frame is 0, Slot is 19, and Port is 1 and set its Priority to 1.

• Configure the clock on the MA5612.

1. Configure the system clock and its priority.

Set the clock recovered from the GPON upstream port as the system clock of the MA5612 with the highest priority.

- On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- (2) On the Frequency Clock Source(SYSCLK) tab page, right-click and choose Add Clock Source from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters as follows:
 - Index: 0
 - Frame: 0
 - Slot: 0
 - Port: 0
- (4) Click OK.
- (5) In the information list, right-click the new clock source and choose **Set Clock Source Priority** from the shortcut menu.
- (6) In the dialog box that is displayed, set **Priority** to **0**.
- (7) Click OK.
- 2. (Optional) Set the system clock as the transmit clock of the E1 port.

This operation is required only when the base transceiver station (BTS) accesses the MA5612 through an E1 port. When the BTS accesses the MA5612 through an FE or GE port, you can skip this step. By default, the system clock is irreplaceably set as the transmit clock of the E1 port.

(1) Choose E1/T1 > CES E1/T1 Port from the navigation tree.

- (2) In the information list, right-click the record whose name is **Frame:0/Slot:1**/ **Port:0** and choose **Modify** from the shortcut menu.
- (3) In the dialog box that is displayed, set **Working Mode** to **UDT** and **Clock Type** to **System**.
- (4) Click OK.

----End

22.5 Configuration Examples of xPON Private Line Access and FTTO Services (MA5612)

This topic provides examples for configuring various services in an xPON private line access or FTTO network.

22.5.1 Data Plan for xPON Private Line Access Services

This topic describes the data plan for the configuration examples of xPON private line access services. You can configure the services according to the data plan.

22.5.2 Configuring the TDM PWE3 Private Line Access Service (Based on the SDH Network) In this configuration example, the MA5612 is connected to a 2G or 3G base transceiver station (BIS) through an E1 port to carry traditional circuit switching services over an xPON network. This topic considers a GPON network as an example.

22.5.3 Configuring the TDMoGEM Private Line Access Service (Based on the SDH Network) In this configuration example, the MA5612 is connected to a 2G or 3G base transceiver station (BIS) through an E1 port to carry traditional circuit switching services over a GPON network.

22.5.4 Configuring the TDMoGEM-to-TDM PWE3 Conversion Private Line Access Service (Based on the MPLS Network)

In this configuration example, the MA5612 is connected to a 2G or 3G base transceiver station (BIS) through an E1 port to carry traditional circuit switching services over a GPON network.

22.5.5 Configuring the ETH PWE3 Private Line Access Service

In this configuration example, the MA5612 is connected to a 2G or 3G base transceiver station (BIS) through an Ethernet port to carry Ethernet services over an xPON network. This topic considers a GPON network as an example.

22.5.6 Configuring the QinQ Private-Line Private Line Access Service

In this configuration example, the MA5612 is connected to an IP base transceiver station (BIS) through an FE or a GE port and the OLT transmits QinQ private line services to Metro equipment to implement the private line access service. This topic considers a GPON network as an example.

22.5.7 Data Plan for xPON FTTO Services

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

22.5.8 Configuring the TDM PBX Access Service

In this configuration example, the MA5612 is connected to the TDM PBX of an enterprise through an E1 port and the OLT transmits signals upstream to the SDH or PSN network.

22.5.9 Configuring the IP PBX Access Service

In this configuration example, the MA5612 is connected to the IP PBX of an enterprise through an FE or a GE port and the OLT transmits signals upstream to the PSN network.

22.5.10 Configuring the Router Access Service of an Enterprise

In this configuration example, the MA5612 is connected to the router or Layer 3 switch of an enterprise through an FE or a GE port and the OLT transmits signals upstream to the IP network.

22.5.1 Data Plan for xPON Private Line Access Services

This topic describes the data plan for the configuration examples of xPON private line access services. You can configure the services according to the data plan.

Data Plan

Service Type	Item	Settings	Remarks
Device managemen t	Upstream port of an OLT	0/19/0	-
	Management VLAN	VLAN ID: 4000Type: Smart VLAN	-
	MDU	 Name: MDU ONU Type: MDU ONU ID: 0 Authentication Mode: SN SN: 32303131B39FD641 Manager VLAN: 4000 IP Address: 192.168.50.2 IP Address Mask: 255.255.255.0 	-
	DBA profile	 Name: FTTx T-CONT type: Fixed Bandwidth Fixed Bandwidth: 32768 Bandwidth Compensation: Yes 	-
	MDU SNMP Profile	 Name: snmpprofile SNMP Version: v1 Read Name: public Write Name: private Trap Host IP: 192.168.50.3 Trap UDP Port: 162 SNMP Security Name: public 	-

Table 22-1 xPON private line access services - device management

Service Type	Item	Settings	Remarks
	Line profile	 Name: FTTx Mapping Mode: VLAN Qos Mode: Priority Queue T-CONT Index: 1 DBA Profile: FTTx GEM Port Index: 1, 2 Priority Queue: 1 VLAN ID: 4000, 500 	-
	Service virtual port (based on the management VLAN)	 VLAN ID: 4000 Interface Selection: 0/2/1/0/0 Service Type: Multi- Service VLAN User VLAN: 4000 	-

Table 22-2 GPON private line access services - TDM PWE3 private line access service (based on the SDH network)

Service Type	Item	Settings	Remarks
Data of an	TOPA card	• Port: 0/6/0	-
OLI		• IP Address: 20.20.20.20	
	Service VLAN	• VLAN ID: 500	-
		• Type: Smart VLAN	
	Service virtual port	• Name: tdmpwe3	-
		 Connection Type: LAN- GPON 	
		• VLAN ID: 500	
		• Interface Selection: 0/2/1/0/0	
		 Service Type: Multi- Service VLAN 	
		• User VLAN: 500	
		• Keep the upstream and downstream settings the same: selected	
		 Upstream/Downstream Traffic Name: ip-traffic- table_6 	

Service Type	Item	Settings	Remarks
	Queue scheduling mode	• Queue scheduler mode: WRR	-
		• Queue0-weight: 10	
		• Queue1-weight: 10	
		• Queue2-weight: 20	
		• Queue3-weight: 20	
		• Queue4-weight: 40	
	CESoP connection	• Remote MAC: 00-e0- fc-01-04-50	-
		• Remote IP: 5.5.5.5	
		• Remote UDP Label: 50050	
		• Local UDP Label: 50050	
		• VLAN: 500	
Data of the MA5612	GPON upstream port	0/0/0	-
	Service VLAN	• VLAN ID: 500	-
		• Type: Smart VLAN	
		• IP Address of L3 Interface: 10.50.50.50	
		• IP Mask of L3 Interface: 255.255.255.0	
	MPLS capability	• LSR ID: 5.5.5.5	-
		• Enable MPLS: selected	
		• Enable MPLS L2VPN: selected	
	MPLS tunnel	• Tunnel Name: Tunnel10	-
		• Tunnel ID: 10	
		• Encap. Protocol: MPLS TE	
		• Destination: 20.20.20.20	
	Static route	• IP Address: 20.20.20.20	-
		• IP Address Mask: 255.255.255.255	
		 Next Hop IP Address: 10.50.50.1 	

Service Type	Item	Settings	Remarks
	PW profile	• Name: pwt	-
		 Control Word: control- word 	
		• Tunnel Policy: Tunnel10	
		• Peer IP Address: 20.20.20.20	
		• Rtp Header Enable: selected	
		• Load Time: 125	
	PWE3	• PW ID: 1	-
		• Name: pw1	
		• PW Type: TDM	
		• PW Profile: pwt	
		• Port Type: UDT	
		• Port: 0/3/0	
		• Signal Protocol: udp	
		• DST UDP: 50050	
		TDM VCL	
		• ID: 10	
		• Connection Type: SAToP	
		• Interface Selection: 0/3/0	
	Clock source	Adaptive clock	-
		• Working mode: Adapt	
		• Index: 0	
		• Frame: 0	
		• Slot: 0	
		Line clock	
		• Working mode: SYSLINE	
		• Index: 1	
		• Frame: 0	
		• Slot: 0	
		• Port: 0	

22.5.2 Configuring the TDM PWE3 Private Line Access Service (Based on the SDH Network)

In this configuration example, the MA5612 is connected to a 2G or 3G base transceiver station (BIS) through an E1 port to carry traditional circuit switching services over an xPON network. This topic considers a GPON network as an example.

Context

For details of the data plan, see 22.5.1 Data Plan for xPON Private Line Access Services.

This topic is applicable to the scenario wherein an OLT terminates the data of the MA5612 and then transmits signals to the SDH network.

If you need to configure clock synchronization of the entire network, see 22.4.1 Configuring E1/STM-1 Line Clock Synchronization.

Example Network

Figure 22-1 Configuring the TDM PWE3 private line access service (based on the SDH network)



The MA5612 receives the TDM service data of the 2G or 3G BTS through an E1 port and then transmits the data upstream to the GPON service card on the OLT through a GPON port after SAToP emulation. The OLT terminates the emulated data and restores TDM signals, and then transmits the signals to the SDH network through the E1 port provided by the EH1A daughter card on the TOPA card. In this way, the 2G or 3G mobile bearer service is implemented between the MA5612 and the OLT in TDM PW mode.

Procedure

- Add the MA5612 to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT. For details, see 19.1.5 Configuring a VLAN.

A management VLAN is the VLAN through which an OLT manages an MDU. The OLT manages the MDU by using the SNMP protocol. The IP address of the L3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 4000
 - Type: Smart VLAN
- (5) Click Next.
 - Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- (6) Click Finish.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Fixed bandwidth
 - Fixed Bandwidth: 32768
 - Bandwidth Compensation: Yes
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON Line Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the **GPON Line Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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
 - 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

- 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
- 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 parameters.
 - GEM Connection Index: 0 (default value)
 - VLAN ID: 4000 (management VLAN ID)
 - Priority: 1
- 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 parameters.
 - GEM Connection Index: 1 (default value)
 - VLAN ID: 500 (service VLAN ID)
 - Priority: 2
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.

- OLT sets network management channel parameters: selected
- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

Affiliated Port:	0/2/0		*	Splitter:		Splitter(L1)	•
Name:	MDU		*	Alias:			
ONU ID(0-127):	0		*	Splitter Port ID(1	-128):	1	
ONU Type:	MDU		*				
Basic Paramet	ters	Network Man	agement Ch	nannel Parameters]		
Line Profile:	FTTx		*	Service Profile:			*
Alarm Profile:				ONU VAS Profile:			
Authenticatio	in Info						
Authenticati	ion Mode:	SN	•	 Timeout Dura (h)(1-168): 	tion 🔓	🛛 No Limit	*
SN:		485754438E1	ICDE42	Password:	s	henzhen	*
Verdes ID:		UTC/2014)		Terminel Tuner	MINU		
Verdur ID.		///////////////////////////////////////		reminai type.			
Sonware ve	insion:						
				🔲 Locate to 🤇	ONU lis	t after operatio	n succeeds
				ОК		Cancel	Apply
opfirm ONU							
Affiliated Port:	0/2/0		*	Splitter:		Splitter(L1)	•
Name:	MDU		*	Alias:			
ONU ID(0-127)	0		*		-128)	1	
				Splitter Port ID(1			
UNU IVDE:	MDU		*	Splitter Port ID(1	1207.		
ONU Type:	MDU	atwork Manana	▼*	Splitter Port ID(1	1207.		
Basic Paramet	MDU ters No	etwork Manage	▼ *	Splitter Port ID(1			
Basic Paramet	MDU ters Ne network n parameter	etwork Manage nanagement S	▼ *	Splitter Port ID(1 hel Parameters SNMP Profile Name	e: snm	pprofile	
Basic Paramet	MDU ters Ne s network n parameter ns Info	etwork Manage nanagement S	▼ *	Splitter Port ID(1 nel Parameters SNMP Profile Name	a: snm	approfile	*
Basic Paramet Basic Paramet CLT sets channel SNMP Param Manager VL	MDU ters Ne s network n parameter ns Info .AN(1-409	etwork Manage nanagement s 5): 8	* ment Chanr	Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7):	:: snm	npprofile	*
Basic Paramet Basic Paramet CLT sets channet SNMP Param Manager VL IP Address:	MDU ters Network n parameter ns Info AN(1-409	atwork Manage nanagement S 5): 8 192.168.50	<pre>ment Chanr 0.2</pre>	Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address Ma	n snm	pprofile 55.255.255.0	*
Basic Paramet	MDU ters Ni s network m parameter ns Info AN(1-409: Address:	etwork Manage nanagement s 5): 8 192.168.50	ment Chanr	Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address Ma	e: snm	55.255.255.0	····*
Basic Paramet Basic Paramet U OLT sets channel -SNMP Param Manager VL IP Address: Gateway IP -Static Parite	MDU ters Ni s network n parameter ns Info AN(1-409: Address:	etwork Manage nanagement S 5): 8 192.168.50	<pre>************************************</pre>	Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address Ma	nsk 2	55.255.255.0	
Basic Paramet Basic Paramet OLT sets channel SNMP Param Manager VL IP Address: Gateway IP Static Route IP Address	MDU ters Ni s network n parameter ns Info AN(1-409: Address: Parameter	etwork Manage nanagement s 5): 8 192.168.50 s	e ment Chanr	Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Ma	nsk: 2	55.255.255.0	
OND Type: Basic Paramel OLT sets channel SNMP Param Manager VL IP Address: Gateway IP Static Route IP Address:	MDU ters Ni s network ri parameter ns Info AN(1-409: Address: Parameter	etwork Manage nanagement s 5): 8 192.168.50 s	• • ment Chanr	Splitter Port ID(1 Hel Parameters SNMP Profile Name Priority(0-7): IP Address Mas IP Address Mas	r: snm rsk: 2:	55.255.255.0	•••
ONO Type: Basic Paramet OLT sets channel -SNMP Param Manager VL IP Address: Gateway IP -Static Route IP Address: Next Hop IP	MDU ters N s network r parameter ns Info AN(1-409: Address: Parameter	etwork Manage nanagement s 5): 8 192.168.51 's	• • ment Chanr	Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address Mas	:: snm		
Basic Paramet	MDU ters N s network r parameter ns Info AN(1-409: Address: Parameter Address:	etwork Manage nanagement S 5): 8 192.168.51 S	• • ment Chanr	Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address Mas IP Address Mas IP Address Mas	2: snm	t after operatio	

- (6) Click **OK**.
- 5. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

Basic Info Attributes ID(1-32769): 2 Name: FTTx_MDU Alias: Connection Type: LAN-GPON ▼ Alias: User Side User Side User Side VLAN Choice: Smart VLAN Tag-Transform: - ✓ Vian ID(1-4095): 8 - Cos value(0-7): * Very Keep the upstream and downstream settings the same Downstream Traffic Name: Up-traffic-table_6 Downstream Traffic Name: p-traffic-table_6	service Po						
ID(1-32766): 2 Name: FTTx_MDU Allas: Network Side User Side Transform:	Basic Info				Attributes		
Name: FTTx_MDU * Allas: Connection Type: LAN-GPON Allas: User Side Network Side User Side VLAN Choice: Smart VLAN Tag-Transform: - - Vian ID(1-4095): 8 - Cos value(0-7): - raffic Profile Info Ir' Keep the upstream and downstream settings the same Upstream Traffic Name: Ip-traffic-table_6 Downstream Traffic Name: Ip-traffic-table_6	ID(1-32768):	2					
Alias:	Name:	FTTX_MD	J	*	Connection Type:	LAN-GPON	•
Network Side User Side Is Bundle ID(1-8192): Interface Selection: VLAN Choice: Smart VLAN Tag-Transform: Interface Selection: Vian ID(1-4095): 8 Cos value(0-7): Vertice VLAN(1-4095): Irafic Profile Info Irafic Profile Info Irafic Profile Info Downstream Traffic Name: Ip-traffic-table_6 Downstream Traffic Name: Interface Selection:	Alias:						
Bundle ID(1-8192): Interface Selection: 0/2/1/0/0 VLAN Choice: Smart VLAN Interface Selection: 0/2/1/0/0 Tag-Transform: - - Service Type: Multi-Service VLAN Vian ID(1-4095): 8 - - Cos value(0-7): - - - raffic Profile Info - - - V/ Keep the upstream and downstream settings the same - - - Upstream Traffic Name: ip-traffic-table_6 - Downstream Traffic Name: ip-traffic-table_6	letwork Side				User Side		
■ Bundle ID(1-8192): VLAN Choice: Smart VLAN ▼ Tag-Transform: - ▼ Vian ID(1-4095): 8 Cos value(0-7): Van Choile Info F ² Keep the upstream and downstream settings the same Upstream Traffic Name: [p-traffic-table_6]							
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ULAN Choice: Smart VLAN Tag-Transform: - Vian ID(1-4095): 8 Cos value(0-7): - Traffic Profile Info - Ykeep the upstream and downstream settings the same Upstream Traffic Name: ip-traffic-table_6 Downstream Traffic Name: ip-traffic-table_6							
VLAN Choice: Smart VLAN • Tag-Transform: - • Yian ID(1-4095): 8 • Cos value(0-7): • • Variantic Profile Info • • Very the upstream and downstream settings the same Upstream Traffic Name: • Upstream Traffic Name: • •	Bundle ID	(1-8192):					
Tag-Transform: - Image: Service Type: Multi-Service VLAN Image: Service Type: Multi-Service Type: Image: Service Type: Multi-Service VLAN Image: Service Type: Image: Serv	VLAN Choice:		Smart VLAN	▼ *	Interface Selection:	0/2/1/0/0	•
Vlan ID(1-4095): 8 Cos value(0-7): • raffic Profile Info • Very the upstream and downstream settings the same Upstream Traffic Name: Ip-traffic-table_6	Tag-Transform	n:		•	Service Type:	Multi-Service VLAN	-
Cos value(0-7):	Vian ID(1-409	5):	8		User VLAN(1-4095):	8	•
Traffic Profile Info Fr Keep the upstream and downstream settings the same Upstream Traffic Name: [p-traffic-table_6	Coo voluo/0_7	\					
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Traffic Profile Info V Keep the upstream and downstream settings the same Upstream Traffic Name: [p-traffic-table_6							
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Keep the upstream and downstream settings the same Upstream Traffic Name: [p-traffic-table_6							
Upstream Traffic Name: Ip-traffic-table_6 Downstream Traffic Name: Ip-traffic-table_6	🗹 Keep the	upstream a	nd downstream setti	ngs the same			
	Upstream Tra	ffic Name:	ip-traffic-table_6		Downstream Traffic Na	me: ip-traffic-table_6	

(7) Click OK.

• Configure the TDM PWE3 private line access service on the OLT.

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. For details, see 19.1.5 Configuring a VLAN.

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 500
 - Type: Smart VLAN
- (4) Click **Next**. Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- (5) Click Finish.
- 2. Add a service virtual port on the OLT. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select VLAN 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose **Add** from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: tdmpwe3
 - Connection Type: LAN-GPON
 - VLAN ID: 500
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 500
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name/Downstream Traffic Name: ip-traffic-table_6 (It is recommended that you use the default profile ip-traffic-table_6.)
 - (4) Click **OK**.
- 3. Set queue scheduling parameters. For details, see 21.2.1 Setting Queue Scheduling Parameters.

You need to set the queue scheduling parameters on the OLT only once. Then, the parameters are globally valid.

The WRR mode is used for queues 0-4 and their weights are 10, 10, 20, 20, and 40 respectively. The PQ mode is used for queues 5-7.

- (1) Choose Configuration > Access Profile Management > System Parameter Profile from the main menu.
- (2) On the **System Parameter Profile** tab page, select the required OLT type from the **Device Type** drop-down list.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the name of the system parameter profile to FTTx. Choose QoS > 802.1p PRI queue and QoS > Queue scheduler mode from the Parameters for Selection navigation tree, click is to add the parameters to the Selected Parameters navigation tree, and then click Next.
- (5) Choose **802.1p PRI queue** from the navigation tree and configure the mapping between queues and 802.1p priorities. It is recommended that you use the default values. Choose **Queue scheduler mode** from the navigation tree and configure the queue scheduling mode.

- Queue scheduler mode: WRR
- Queue0-weight: 10
- Queue1-weight: 10
- Queue2-weight: 20
- Queue3-weight: 20
- Queue4-weight: 40
- (6) Click Finish.
- (7) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (8) In the dialog box that is displayed, select the required NE(s), and click OK.
- 4. **Configure the attributes of the TOPA card.** For details, see **22.2.1 Configuring the Attributes of a TOPA Card**.
 - (1) Choose **NE Panel** from the navigation tree.
 - (2) Right-click the TOPA card and choose Config Board from the shortcut menu.
 - (3) In the dialog box that is displayed, set IP Address to 20.20.20.20.
 - (4) Click OK.
- 5. Configure a CESoP connection. For details, see 22.2.2 Configuring a CESoP Connection.

Perform this step only after configuring the MA5612 because certain parameters are obtained from the MA5612.

- (1) Choose E1/T1 > CES E1/T1 Port from the navigation tree.
- (2) On the **CES E1 Port** tab page, select port 0/6/0 and click the **CESoP Info** tab in the lower pane.
- (3) In the information list, right-click and choose Add CESoP Connection from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Remote MAC: 00-e0-fc-01-04-50 (MAC address of VLAN interface 500 of the MA5612)
 - Remote IP: 5.5.5.5 (IP address of the loopback interface that the LSR ID of the MA5612 corresponds to)
 - Remote UDP Label: 50050
 - Local UDP Label: 50050
 - VLAN: 500 (service VLAN ID)
- (5) Click OK.
- Configure the TDM PWE3 private line access service on the ONU.
 - 1. Configure an MPLS VLAN. For details, see 19.3.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) In the informational list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 500
 - Type: Smart VLAN

- (4) Click Next.
 - Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - Management Status: UP
 - IP Address: 10.50.50.50 (next-hop IP address of the ingress node)
 - IP Mask: 255.255.255.0
 - Click the **Sub Port** tab and add upstream port 0/0/0 as the upstream port of the VLAN.
- (5) Click Done.
- 2. Configure the MPLS capability. For details, see 22.3.3 Configuring the MPLS Capability.
 - In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > MPLS Configuration from the shortcut menu.
 - (2) On the tab page that is displayed, click the **MPLS Capability Configuration** tab and set the parameters.
 - LSR ID: 5.5.5.5 (ID of the local LSR)
 - Enable MPLS: selected
 - Enable MPLS L2VPN: selected
 - (3) Click Apply.
- 3. Configure an MPLS tunnel. For details, see 22.3.4 Configuring an MPLS Tunnel.
 - In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > Tunnel Configuration from the shortcut menu.
 - (2) Click the **Tunnel Configuration** tab. In the information list, right-click and choose **Create** from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - Tunnel Name: Tunnel10
 - Tunnel ID: 10
 - Encap. Protocol: MPLS TE
 - Destination: 20.20.20.20 (LSR ID of the egress node in the LSP)
 - (3) Click OK.
- 4. Configure a static route. For details, see 19.3.8 Configuring a Static Route.
 - (1) Choose **Route** from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - IP Address: 20.20.20.20 (IP address of the TOPA card on the OLT)
 - IP Address Mask: 255.255.255.255
 - Next Hop IP Address: 10.50.50.1
 - (4) Click **OK**.
- 5. Configure a PW profile. For details, see 22.3.6 Configuring a PW Profile.

- In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > PW Template Configuration from the shortcut menu.
- (2) On the tab page that is displayed, right-click and choose **Create** from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - Name: pwt
 - Control Word: control-word
 - Tunnel Policy: Tunnel10
 - Peer IP Address: 20.20.20 (IP address of the TOPA card on the peer device)
 - Rtp Header Enable: selected
 - PW Type: TDM Satop
 - Load Time: 125
- (4) Click OK.
- 6. Configure the PWE3. For details, see 22.3.8 Configuring the PWE3 and 22.3.7 Adding a TDM VCL.
 - (1) Choose **PW Management** from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - PW ID: 1
 - Name: pw1
 - PW Type: TDM
 - PW Profile: pwt
 - Port Type: UDT
 - Port: 0/3/0
 - Signal Protocol: udp
 - DST UDP: 50050
 - In the **Please Select AC:TDM VCL** area, right-click and choose **Add** from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - ID: 10
 - Connection Type: SAToP
 - Interface Selection: 0/3/0
 - (4) Click OK.

----End

22.5.3 Configuring the TDMoGEM Private Line Access Service (Based on the SDH Network)

In this configuration example, the MA5612 is connected to a 2G or 3G base transceiver station (BIS) through an E1 port to carry traditional circuit switching services over a GPON network.

Example Network

For details of the data plan, see 22.5.1 Data Plan for xPON Private Line Access Services.

If you need to configure clock synchronization of the entire network, see 22.4.1 Configuring E1/STM-1 Line Clock Synchronization.

Figure 22-2 Configuring the TDMoGEM private line access service (based on the SDH network)



The MA5612 receives the TDM service data of the 2G or 3G BTS through an E1 port and then transmits the data upstream to the GPON service card on the OLT in TDMoGEM mode. The OLT terminates the emulated data and restores TDM signals, and then transmits the signals to the SDH network through the E1 port provided by the NH1A daughter card on the TOPA card. In this way, the 2G or 3G mobile bearer service is implemented between the MA5612 and the OLT in TDMoGEM mode.

Procedure

• Add the MA5612 to the U2000 in profile mode.

1. Configure a management VLAN on the OLT. For details, see 19.1.5 Configuring a VLAN.

A management VLAN is the VLAN through which an OLT manages an MDU. The OLT manages the MDU by using the SNMP protocol. The IP address of the L3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 4000
 - Type: Smart VLAN
- (5) Click Next.
 - Click the Sub Port tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- (6) Click **Finish**.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.

- Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the **DBA Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Fixed bandwidth
 - Fixed Bandwidth: 32768
 - Bandwidth Compensation: Yes
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON Line Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the **GPON Line Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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
 - 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
 - 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
 - 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 parameters.
 - GEM Connection Index: 0 (default value)
 - VLAN ID: 4000 (management VLAN ID)
 - Priority: 1
 - 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 parameters.

- GEM Connection Index: 1 (default value)
- VLAN ID: 500 (service VLAN ID)
- Priority: 2
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected
 - SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
 - Manager VLAN: 8
 - IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
 - IP Address Mask: 255.255.255.0
| Affiliated Port: 0/2/0 Splitter. Splitter(L1) Name: MDU Alias: Image: Comparison of the synthesis of the synthesyntemes of the synthesis of the synthesis of |
|--|
| Name: MDU Alias: ONU ID(0-127): 0 Splitter Port ID(1-128): 1 ONU Type: MDU * Basic Parameters Network Management Channel Parameters Line Profile: FTTX * Service Profile: ************************************ |
| ONU ID(0-127): 0 • Splitter Port ID(1-128): 1 ONU Type: MDU • • • Basic Parameters Network Management Channel Parameters Line Profile: FTTX * Service Profile: * Alarm Profile: * ONU VAS Profile: * Authentication Info * Timeout Duration No Limit * SN: 485754438E1CDE42 Password: shenzhen * |
| ONU Type: MDU Basic Parameters Network Management Channel Parameters Line Profile: * Alarm Profile: * Alarm Profile: * Authentication Info * Authentication Mode: SN SN: 485754438E1CDE42 Password: shenzhen |
| Basic Parameters Network Management Channel Parameters Line Profile: * Alarm Profile: * Authentication Info Authentication Mode: SN SN: 486754438E1CDE42 Password: shenzhen |
| Line Profile: FTTx* Service Profile:*
Alarm Profile: ONU VAS Profile:
Authentication Info
Authentication Mode: SN Timeout Duration
(h)(1-168): No Limit |
| Alarm Profile: ONU VAS Profile:
Authentication Info
Authentication Mode: SN Timeout Duration
(h)(1-168): No Limit
SN: 485754438E1CDE42 Password: shenzhen |
| Authentication Info Authentication Mode: SN Timeout Duration (h)(1-168): SN: 485754438E1CDE42 Password: shenzhen |
| Authentication Mode: SN * Timeout Duration (h)(1-168): SN: 486754438E1CDE42 Password: shenzhen |
| Authentication Mode: SN Image: SN Image: SN Image: SN SN: 485754438E1CDE42 Password: shenzhen |
| SN: 485754438E1CDE42 Password: shenzhen * |
| |
| ONU Type |
| Verdor ID: HWTC(2011) |
| Software Version: |
| |
| |
| Locate to ONU list after operation succeeds |
| OK Cancel Apply |
| |
| Affiliated Part 0/2/0 |
| |
| |
| ONO ID(0-127): 0 |
| ONU Type: MDU |
| |
| Basic Parameters Network Management Channel Parameters |
| Basic Parameters Network Management Channel Parameters OLT sets network management channel parameters SNMP Profile Name: snmpprofile Image: Channel parameters SNMP Profile Name: snmpprofile |
| Basic Parameters Network Management Channel Parameters Image: OLT sets network management channel parameters SNMP Profile Name: snmpprofile SNMP Params Info SNMP Params Info |
| Basic Parameters Network Management Channel Parameters Image: OLT sets network management channel parameters SNMP Profile Name: snmpprofile SNMP Params Info Image: VLAN(1-4095): Manager VLAN(1-4095): 8 |
| Basic Parameters Network Management Channel Parameters OLT sets network management SNMP Profile Name: snmpprofile Channel parameters SNMP Profile Name: snmpprofile SNMP Params Info * Manager VLAN(1-4095): 8 * Priority(0-7): IP Address: 192.168.50.2 |
| Basic Parameters Network Management Channel Parameters OLT sets network management SNMP Profile Name: snmpprofile Image: channel parameters SNMP Profile Name: snmpprofile SNMP Params Info manager VLAN(1-4095): Image: Parameters Priority(0-7): IP Address: 192.168.50.2 Gateway IP Address: . |
| Basic Parameters Network Management Channel Parameters ✓ OLT sets network management channel Parameters SNMP Profile Name: snmpprofile SNMP Params Info * Manager VLAN(1-4095): 8 * Priority(0-7): IP Address: 192.168.50.2 * IP Address Mask: 255.255.255.0 Static Route Parameters |
| Basic Parameters Network Management Channel Parameters OLT sets network management
channel parameters SNMP Profile Name: snmpprofile SNMP Params Info Manager VLAN(1-4095): 8 * Priority(0-7): IP Address: 192.168.50.2 Gateway IP Address: Static Route Parameters IP Address Mask: IP Address: |
| Basic Parameters Network Management Channel Parameters OLT sets network management
channel parameters SNMP Profile Name: snmpprofile SNMP Params Info Manager VLAN(1-4095): 8 * Priority(0-7): IP Address: 192.168.50.2 * IP Address Mask: 255.255.255.0 * Gateway IP Address: IP Address Mask: Static Route Parameters IP Address Mask: Next Hop IP Address: IP Address Mask: |
| Basic Parameters Network Management Channel Parameters OLT sets network management
channel parameters SNMP Profile Name: snmpprofile SNMP Params Info Manager VLAN(1-4095): 8 • Priority(0-7): IP Address: 192.168.50.2 * IP Address Mask: 256.255.255.0 Static Route Parameters IP Address Mask: IP Address: IP Address: |
| Basic Parameters Network Management Channel Parameters OLT sets network management
channel parameters SNMP Profile Name: snmpprofile SNMP Params Info Manager VLAN(1-4095): 8 * Priority(0-7): IP Address: 192.168.50.2 * IP Address Mask: 255.255.0 Gateway IP Address: Static Route Parameters IP Address Mask: IP Address: Locate to ONU list after operation succeeds |

- (6) Click **OK**.
- 5. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.

- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

r service Purt			
lasic Info		Attributes	
ID(1-32768): 2			
Name: FTTx_	MDU *	Connection Type: LAN-GPON	▼
Alias:			
letwork Side		User Side	
Bundle ID(1-819	Z):		
VLAN Choice:	Smart VLAN 💌 *	Interface Selection: 0/2/1/0/0	· ·
Tag-Transform:	🔻	Service Type: Multi-Se	rvice VLAN 🗸 🔻
Vlan ID(1-4095):	8*	User VLAN(1-4095): 8	
Cos value(0-7):	*		
raffic Profile Info			
🗵 Keep the upstrea	m and downstream settings the same		
Upstream Traffic Na	me: ip-traffic-table_6	Downstream Traffic Name: ip-tra	ffic-table_6
		OK I	Cancel Apph

• Configure the TDMoGEM private line access service on the OLT.

- 1. **Configure a TDM E1 connection.** For details, see **21.2.4 Configuring a TDM Connection**.
 - (1) Choose Connection > Native TDM Connection from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Network Interface Type: E1
 - E1 Port: Frame: 00, Slot: 06, and Port: 00 are selected
 - GPON Port: Frame: 00, Slot: 02, Port: 00, ONT: 01, GEM Port: 01, and E1 Port: 00 are selected

----End

22.5.4 Configuring the TDMoGEM-to-TDM PWE3 Conversion Private Line Access Service (Based on the MPLS Network)

In this configuration example, the MA5612 is connected to a 2G or 3G base transceiver station (BIS) through an E1 port to carry traditional circuit switching services over a GPON network.

Example Network

For details of the data plan, see 22.5.1 Data Plan for xPON Private Line Access Services.

If you need to configure Ethernet clock synchronization of the entire network, see **22.4.2 Configuring Ethernet Clock Synchronization**.

If you need to configure BITS clock synchronization of the entire network, see **22.4.3 Configuring BITS Clock Synchronization**.

If you need to configure IEEE 1588v2 clock synchronization of the entire network, see **22.4.4 Configuring IEEE 1588v2 Clock Synchronization**.

Figure 22-3 Configuring the TDMoGEM-to-TDM PWE3 conversion private line access service (based on the MPLS network)



The MA5612 receives the TDM service data from the 2G/3G BTS through an E1 port, encapsulates the TDM service packets into GEM frames in TDMoGEM mode, and then sends them to the OLT. The OLT restores the TDM signals, starts the TDM PWE3, and then sends the TDM signals to the MPLS network and peer PTN NE through a GE port. Finally, the PTN NE terminates the emulation data and restores the TDM signals.

Procedure

• Add the MA5612 to the U2000 in profile mode.

1. Configure a management VLAN on the OLT. For details, see 19.1.5 Configuring a VLAN.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 4000
 - Type: Smart VLAN
- (5) Click Next.
 - Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- (6) Click Finish.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Fixed bandwidth
 - Fixed Bandwidth: 32768
 - Bandwidth Compensation: Yes
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON Line Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the **GPON Line Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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
 - 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

- 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
- 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 parameters.
 - GEM Connection Index: 0 (default value)
 - VLAN ID: 4000 (management VLAN ID)
 - Priority: 1
- 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 parameters.
 - GEM Connection Index: 1 (default value)
 - VLAN ID: 500 (service VLAN ID)
 - Priority: 2
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.

- OLT sets network management channel parameters: selected
- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

Affiliated Port:	0/2/0		*	Splitter:		Splitter(L1)	•
Name:	MDU		*	Alias:			
ONU ID(0-127):	0		*	Splitter Port ID(1	-128):	1	
ONU Type:	MDU		•				
Basic Paramet	ters	Network Manaj	gement Ch	nannel Parameters			
Line Profile:	FTTx		*	Service Profile:			·
Alarm Profile:				ONU VAS Profile:			
Authenticatio	n Info						
Authenticati	ion Mode:	SN	•	 Timeout Dura (h)(1-168); 	tion	🛛 No Limit	*
SN:		485754438E10	DE42	Password:	s	henzhen	×
ONU Type							
Verdor ID:	H	WTC(2011)	-	Terminal Type:	MDU		
Software Ve	ersion:		-				
				🔲 Locate to	ONU lis	t after operatio	n succeeds
				OK		Cancel	Apply
confirm ONU							
Affiliated Port:	0/2/0		*	Splitter:		Splitter(L1)	•
Affiliated Port: Name:	0/2/0 MDU		*	Splitter: Alias:		Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127):	0/2/0 MDU		*	Splitter: Alias: Splitter Port ID(1	-128):	Splitter(L1)	ح
Affiliated Port: Name: ONU ID(0-127): ONU Type:	0/2/0 MDU 0 MDU		*	Splitter: Alias: Splitter Port ID(1	-128):	Splitter(L1)	•
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame:	0/2/0 MDU 0 MDU ters N	etwork Managem	* * * * * * * *	Splitter: Alias: Splitter Port ID(1 nel Parameters	I-128):	Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): DNU Type: Basic Parame OLT sets	0/2/0 MDU 0 MDU ters No s network r	atwork Managem nanagement	× * * * ent Chanr	Splitter: Alias: Splitter Port ID(1 nel Parameters SNMP Profile Nami	I-128):	Splitter(L1)	· · · · · · · · · · · · · · · · · · ·
Affiliated Port Name: ONU ID(0-127): ONU Type: Basic Parame Channel - SNIME Param	0/2/0 MDU 0 MDU ters Ni s network r parameter	etwork Managem nanagement s	▼* * • • • • •	Splitter: Alias: Splitter Port ID(1 hel Parameters SNMP Profile Name	I-128): e: snm	Splitter(L1) 1 pprofile	····*
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame Coll Sett SNMP Param	0/2/0 MDU 0 MDU ters No s network r parameter ns Info	etwork Managem nanagement s	▼ * × • • • • •	Splitter: Alias: Splitter Port ID(1 nel Parameters SNMP Profile Name	I-128): a: snm	Splitter(L1) 1 pprofile	
Affiliated Port Name: ONU ID(0-127): ONU Type: Basic Parame OLT sets channel -SNMP Paran Manager VL	0/2/0 MDU 0 ters Nr s network r parameter ns Info AN(1-409	etwork Managem nanagement s 5): 8	<pre>* * * * * * * * * * * * * * * * * * *</pre>	Splitter: Alias: Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7):	I-128): e: snm	Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame Channel SNMP Paran Manager VL IP Address:	0/2/0 MDU 0 MDU ters Ni s network r parameter ns Info AN(1-409) :	etwork Managem nanagement s 5): 8 192.168.50	ent Chanr	Splitter: Alias: Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address M:	I-128): e: snm	Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame Contraction SNMP Paran Manager VL IP Address: Gateway IP	0/2/0 MDU 0 MDU ters Nu s network r parameter ns Info 	etwork Managem nanagement s 5): 8 192.168.50 	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address M:	1-128): e: snm	Splitter(L1) 1 pprofile 55.255.255.0	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet OLT sets Channel SNMP Paran Manager VL IP Address: Gateway IP Static Route	0/2/0 MDU 0 MDU ters NM s network r parameter ns Info AN(1-409 : Address: Parameter	etwork Managem nanagement s 5): 8 192.168.50 s	 * * * ent Channel 2 	Splitter: Alias: Splitter Port ID(1 nel Parameters SNMP Profile Name Priority(0-7): IP Address M:	1-128): e: snm	Splitter(L1) 1 pprofile 55.255.255.0	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Cont Setter Channel SNMP Paran Manager VL IP Address: Gateway IP Static Route IP Address:	0/2/0 MDU 0 MDU ters N s network r parameter ns Info AN(1-409: : Address: Parameter :	etwork Managem nanagement s 5): 8 192.168.50 s	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address Materials	e: snm	Splitter(L1) 1 55.255.255.0	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame OLT sets channel - SNMP Paran Manager VL IP Address: Gateway IP - Static Route IP Address: Next Hop IF	0/2/0 MDU 0 MDU ters Ni s network r parameter ns Info AN(1-409) : Address: Parameter : Address:	etwork Managem nanagement s 5): 8 192.168.50 s	ent Chann	Splitter: Alias: Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address Mate	a: snr	Splitter(L1) 1 pprofile 55.255.255.0	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Paran Manager VL IP Address: Gateway IP Static Route IP Address: Next Hop IF	0/2/0 MDU 0 MDU ters Nu s network r parameter ns Info AN(1-409 : Address: Parameter : Parameter	etwork Managem nanagement s 5): 8 192.168.50 s 	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address Mas IP Address Mas	a: snn	Splitter(L1) Splitter(L1)	
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet OLT sets Channel SNMP Paran Manager VL IP Address: Gateway IP Static Route IP Address: Next Hop IF	0/2/0 MDU 0 MDU ters NM s network r parameter ns Info AN(1-409 : Address: Parameter : Address:	etwork Managem nanagement S 5): 8 192.168.50 s 	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 hel Parameters SNMP Profile Name Priority(0-7): IP Address Mas IP Address Mas		Splitter(L1) Splitter(L1)	• • • • • • • • • • • • • • • • • • •

- (6) Click **OK**.
- 5. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

ld Service Port		_			
Basic Info			Attributes		
ID(1-32768): 2					
Name: FTTx_ME	۰.		Connection Type:	LAN-GPON	•
Alias:					
Network Side			User Side		
E Pupello ID/1 9183):					
Bunule (0(1-01-32).				0/0// (0/0	
VLAN Choice:	Smart VLAN *		Interface Selection:	0/2/1/0/0	•
Tag-Transform:			Service Type:	Multi-Service VLAN	-
Vlan ID(1-4095):	8*		User VLAN(1-4095)	8	•
Cos value(0-7):	*				
Traffic Profile Info					
Keep the upstream	and downstream settings the same				
Linetroom Traffic blance	in Anaffic Anthla	_	aun aine ann Tae®a bla	mar in traffic table. C	
opstream Traffic Name:	ib-tranic-tania_p	U	uwnstream Traπic Na	me. [ip-maffic-table_6	[]
				OK Cancel	Apply

- (7) Click OK.
- Configure the TDMoGEM-to-TDM PWE3 conversion private line access service on the OLT.

- 1. Configure a service VLAN on the OLT. For details, see 19.1.5 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 500
 - Type: Smart VLAN
 - (4) Click **Next**. Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
 - (5) Click Finish.
- 2. Add a service virtual port on the OLT. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select VLAN 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: tdmpwe3
 - Connection Type: LAN-GPON
 - VLAN ID: 500
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 500
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name/Downstream Traffic Name: ip-traffic-table_6 (It is recommended that you use the default profile ip-traffic-table_6.)
 - (4) Click OK.
- 3. Set queue scheduling parameters. For details, see 21.2.1 Setting Queue Scheduling Parameters.

You need to set the queue scheduling parameters on the OLT only once. Then, the parameters are globally valid.

The WRR mode is used for queues 0-4 and their weights are 10, 10, 20, 20, and 40 respectively. The PQ mode is used for queues 5-7.

- (1) Choose Configuration > Access Profile Management > System Parameter Profile from the main menu.
- (2) On the **System Parameter Profile** tab page, select the required OLT type from the **Device Type** drop-down list.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the name of the system parameter profile to FTTx. Choose QoS > 802.1p PRI queue and QoS > Queue scheduler

mode from the **Parameters for Selection** navigation tree, click to add the parameters to the **Selected Parameters** navigation tree, and then click **Next**.

- (5) Choose **802.1p PRI queue** from the navigation tree and configure the mapping between queues and 802.1p priorities. It is recommended that you use the default values. Choose **Queue scheduler mode** from the navigation tree and configure the queue scheduling mode.
 - Queue scheduler mode: WRR
 - Queue0-weight: 10
 - Queue1-weight: 10
 - Queue2-weight: 20
 - Queue3-weight: 20
 - Queue4-weight: 40
- (6) Click Finish.
- (7) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (8) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure an MPLS VLAN. For details, see 19.3.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) In the informational list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 500
 - Type: Smart VLAN
 - (4) Click Next.
 - Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - Management Status: UP
 - IP Address: 10.50.50.50 (next-hop IP address of the ingress node)
 - IP Mask: 255.255.255.0
 - Click the Sub Port tab and add upstream port 0/0/0 as the upstream port of the VLAN.
 - (5) Click Done.
- 5. Configure the MPLS capability. For details, see 22.3.3 Configuring the MPLS Capability.
 - In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > MPLS Configuration from the shortcut menu.
 - (2) In the window that is displayed, click the **MPLS Capability Configuration** tab and set the parameters.
 - LSR ID: 5.5.5.5 (ID of the local LSR)
 - Enable MPLS: selected
 - Enable MPLS L2VPN: selected
 - (3) Click Apply.

- (4) In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > MPLS TE Configuration from the shortcut menu.
- (5) On the MPLS TE Capability Configuration tab page, set the parameters.
 - Enable MPLS TE: selected
 - Enable CSPF: selected
 - Enable RSVP-TE: selected
- (6) Click Apply.
- 6. Configure an MPLS tunnel. For details, see 22.3.4 Configuring an MPLS Tunnel.
 - In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > Tunnel Configuration from the shortcut menu.
 - (2) Click the **Tunnel Configuration** tab. In the information list, right-click and choose **Create** from the shortcut menu. In the dialog box that is displayed, set the parameters.

On the **Basic** tab page, set the parameters as follows:

- Tunnel Name: Tunnel10
- Tunnel ID: 10
- Encap. Protocol: MPLS TE
- Destination: 30.30.30 (The destination address of the tunnel is the sink LSR ID of the tunnel. If there are no other LSRs between the MA5612 and the PTN NE, the destination address is the LSR ID of the PTN NE.)
- Signal Protocol: RSVP TE

On the Application tab page, select Reserved for binding.

- (3) Click OK.
- 7. Configure a PW profile. For details, see 22.3.6 Configuring a PW Profile.
 - In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > PW Template Configuration from the shortcut menu.
 - (2) On the tab page that is displayed, right-click and choose **Create** from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: pwt
 - Control Word: control-word
 - Tunnel Policy: Tunnel10
 - Peer IP Address: 30.30.30.30 (LSR ID of the PTN NE)
 - Rtp Header Enable: selected
 - PW Type: Tdm Satop
 - Load Time: 125
 - (4) Click **OK**.
- 8. Configure the PWE3. For details, see 22.3.8 Configuring the PWE3 and 22.3.7 Adding a TDM VCL.

- (1) Choose **PW Management** from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - PW ID: 1
 - Name: pw1
 - PW Type: TDM
 - PW Profile: pwt
 - Port Type: GPON
 - Port: 0/2/0
 - Deployment Status: Deploy
 - Signal Protocol: static
 - In Label: 8848
 - Out Label: 8849
 - In the Please Select AC:TDM Connection area, right-click and choose Add from the shortcut menu. In the dialog box that is displayed, set the parameters.
 - ID: 1
 - CSPA Board: Frame: 00 and Slot: 06 are selected
 - GPON Port: Frame: 00, Slot: 02, Port: 00, ONT: 01, and GEM Port: 01 are selected
- (4) Click OK.

----End

22.5.5 Configuring the ETH PWE3 Private Line Access Service

In this configuration example, the MA5612 is connected to a 2G or 3G base transceiver station (BIS) through an Ethernet port to carry Ethernet services over an xPON network. This topic considers a GPON network as an example.

Example Network

For details of the data plan, see 22.5.1 Data Plan for xPON Private Line Access Services.

If you need to configure Ethernet clock synchronization of the entire network, see 22.4.2 Configuring Ethernet Clock Synchronization.

If you need to configure BITS clock synchronization of the entire network, see **22.4.3 Configuring BITS Clock Synchronization**.

If you need to configure IEEE 1588v2 clock synchronization of the entire network, see **22.4.4 Configuring IEEE 1588v2 Clock Synchronization**.



Figure 22-4 Configuring the ETH PWE3 private line access service

The MA5612 receives the Ethernet service data from the 3G BTS through an Ethernet port, encapsulates the Ethernet service packets into GEM frames, and then sends them to the OLT through a GPON upstream port. The OLT restores the Ethernet signals, starts the ETH PWE3, and then sends the Ethernet signals to the MPLS network and peer PTN NE through an Ethernet port. Finally, the PTN NE terminates the emulation data and restores the Ethernet signals.

Procedure

• Add the MA5612 to the U2000 in profile mode.

1. Configure a management VLAN on the OLT. For details, see 19.1.5 Configuring a VLAN.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 4000
 - Type: Smart VLAN
- (5) Click Next.
 - Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- (6) Click Finish.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

- Name: FTTx
- T-CONT type: Fixed bandwidth
- Fixed Bandwidth: 32768
- Bandwidth Compensation: Yes
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON Line Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the GPON Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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
 - 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
 - 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
 - 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 parameters.
 - GEM Connection Index: 0 (default value)
 - VLAN ID: 4000 (management VLAN ID)
 - Priority: 1
 - 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 parameters.
 - GEM Connection Index: 1 (default value)
 - VLAN ID: 500 (service VLAN ID)
 - Priority: 2
 - (5) Click OK.

- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected
 - SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
 - Manager VLAN: 8
 - IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
 - IP Address Mask: 255.255.255.0

Confirm ONU						×
Affiliated Port:	0/2/0		*	Splitter:	Splitter(L1) 🔻
Name:	MDU		*	Alias:		
ONU ID(0-127):	0		*	Splitter Port ID(1	-128): 1	
ONU Type:	MDU		*			
Basic Paramet	ers	Network Man	agement Ch	annel Parameters		
Line Profile:	FTTX			Service Profile:		*
Alarm Profile:				ONU VAS Profile:		
Authenticatio	n Info					
				Timeout Dura	ition —	
Authenticati	on Mode:	SN	•	(h)(1-168):	No Limit	*
SN:		485754438E	1CDE42	Password:	shenzhen	*
ONU Type						
Verdor ID:	н	MTC(2011)	-	Terminal Type:	MDU	_
Software Ve	rsion:			ronniar rypo.	1	
Soltware ve						
				Locate to	ONU list after opera	tion succeeds
				OK	Cancel	Apply
0						v
Confirm ONU	0(2)0		~ *	Colittor	Colittor/L1	×
Confirm ONU Affiliated Port:	0/2/0		*	Splitter:	Splitter(L1	× • • (
Confirm ONU Affiliated Port: Name:	0/2/0 MDU		*	Splitter: Alias:	Splitter(L1	× >
Confirm ONU Affiliated Port: Name: ONU ID(0-127):	0/2/0 MDU 0		*	Splitter: Alias: Splitter Port ID(1	Splitter(L1	× •
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type:	0/2/0 MDU 0 MDU		*	Splitter: Alias: Splitter Port ID(1	Splitter(L1	×
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/0 MDU 0 MDU ters N	etwork Manage	× * * * *	Splitter: Alias: Splitter Port ID(1 el Parameters	Splitter(L1	×) •
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet I OLT sette Channel	0/2/0 MDU 0 MDU ters No	etwork Manage nanagement	* * * * * *	Splitter: Alias: Splitter Port ID(1 iel Parameters SNMP Profile Nami	Splitter(L1	× • • (
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramel © OLT setts channel SNMP Param	0/2/0 MDU 0 MDU ters Ni s network r parameter ns Info	etwork Manage nanagement s	▼* * * • * ment Chann	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name	Splitter(L1	× • • (
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Sasic Paramet OLT sets channet SNMP Paran Manager VI	0/2/0 MDU 0 MDU ters Ni s network r parameter ns Info AN/1-409	etwork Manage nanagement 'S	v = + v = rment Chann	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Nami	Splitter(L1	× • • • (
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Sasic Paramet Channel SNMP Param Manager VL	0/2/0 MDU 0 MDU ters Nu e network r parameter ns Info AN(1-409)	etwork Manage nanagement 'S 5): <u>8</u> 192 168 5	The second seco	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7):	Splitter(L1	× • • • •
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet SIMP Param Manager VL IP Address: Octower IP	0/2/0 MDU 0 MDU ters Ni s network r parameter ns Info AN(1-409	etwork Manage nanagement 's 5): 8 192.168.5	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address M:	Splitter(L1	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramel Saste Paramel OLT sets Channel SNMP Paran Manager VL IP Address: Gateway IP	0/2/0 MDU 0 MDU ters Ni e network r parameter ns Info AN(1-409 Address:	etwork Manage nanagement S 5): 8 192.168.5 	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(1 el Parameters SNMP Profile Name Priority(0-7): IP Address Ma	Splitter(L1	
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- (6) Click **OK**.
- 5. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.

- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

s Service Pon							
Basic Info					Attributes		
ID(1-32768):	2						
Name:	FTTX_MDU	J	*		Connection Type:	LAN-GPON	•
Alias:							
Network Side					User Side		
Rundle ID/	01021						
	-0192).				laterfere Oelection.	0/2/1/0/0	_
VLAN Choice:		Smart VLAN			intenace selection.	0/2/1/0/0	•
Tag-Transform			•		Service Type:	Multi-Service VLAN	-
Vlan ID(1-4095	i:	8			User VLAN(1-4095):	8	•
Cos value(0-7)			*				
raffic Profile Inf	j						
🖌 Keep the u	istream ai	nd downstream si	ettings the same				
Upstream Trafi	ic Name:	ip-traffic-table_6		D	ownstream Traffic Nar	me: ip-traffic-table_6	

• Configure the ETH PWE3 private line access service on the OLT.

- 1. Configure a service VLAN on the OLT. For details, see 19.1.5 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 500
 - Type: Smart VLAN
 - (4) Click **Next**. Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

- (5) Click Finish.
- 2. Add a service virtual port on the OLT. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select VLAN 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: tdmpwe3
 - Connection Type: LAN-GPON
 - VLAN ID: 500
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 500
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name/Downstream Traffic Name: ip-traffic-table_6 (It is recommended that you use the default profile ip-traffic-table_6.)
 - (4) Click OK.
- 3. Set queue scheduling parameters. For details, see 21.2.1 Setting Queue Scheduling Parameters.

You need to set the queue scheduling parameters on the OLT only once. Then, the parameters are globally valid.

The WRR mode is used for queues 0-4 and their weights are 10, 10, 20, 20, and 40 respectively. The PQ mode is used for queues 5-7.

- (1) Choose Configuration > Access Profile Management > System Parameter Profile from the main menu.
- (2) On the **System Parameter Profile** tab page, select the required OLT type from the **Device Type** drop-down list.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the name of the system parameter profile to FTTx. Choose QoS > 802.1p PRI queue and QoS > Queue scheduler mode from the Parameters for Selection navigation tree, click is to add the parameters to the Selected Parameters navigation tree, and then click Next.
- (5) Choose **802.1p PRI queue** from the navigation tree and configure the mapping between queues and 802.1p priorities. It is recommended that you use the default values. Choose **Queue scheduler mode** from the navigation tree and configure the queue scheduling mode.
 - Queue scheduler mode: WRR
 - Queue0-weight: 10
 - Queue1-weight: 10
 - Queue2-weight: 20
 - Queue3-weight: 20
 - Queue4-weight: 40

- (6) Click Finish.
- (7) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (8) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure an MPLS VLAN. For details, see 19.3.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) In the informational list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 500
 - Type: Smart VLAN
 - (4) Click Next.
 - Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - Management Status: UP
 - IP Address: 10.50.50.50 (next-hop IP address of the ingress node)
 - IP Mask: 255.255.255.0
 - Click the **Sub Port** tab and add upstream port 0/0/0 as the upstream port of the VLAN.
 - (5) Click Done.
- 5. Configure the MPLS capability. For details, see 22.3.3 Configuring the MPLS Capability.
 - In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > MPLS Configuration from the shortcut menu.
 - (2) In the window that is displayed, click the **MPLS Capability Configuration** tab and set the parameters.
 - LSR ID: 5.5.5.5 (ID of the local LSR)
 - Enable MPLS: selected
 - Enable MPLS L2VPN: selected
 - (3) Click Apply.
 - (4) In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > MPLS TE Configuration from the shortcut menu.
 - (5) On the MPLS TE Capability Configuration tab page, set the parameters.
 - Enable MPLS TE: selected
 - Enable CSPF: selected
 - Enable RSVP-TE: selected
 - (6) Click Apply.
- 6. **Configure an MPLS tunnel.** For details, see **22.3.4 Configuring an MPLS Tunnel**.

- In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > Tunnel Configuration from the shortcut menu.
- (2) Click the **Tunnel Configuration** tab. In the information list, right-click and choose **Create** from the shortcut menu. In the dialog box that is displayed, set the parameters.

On the **Basic** tab page, set the parameters as follows:

- Tunnel Name: Tunnel10
- Tunnel ID: 10
- Encap. Protocol: MPLS TE
- Destination: 30.30.30.30 (The destination address of the tunnel is the sink LSR ID of the tunnel. If there are no other LSRs between the MA5612 and the PTN NE, the destination address is the LSR ID of the PTN NE.)
- Signal Protocol: RSVP TE

On the Application tab page, select Reserved for binding.

- (3) Click OK.
- 7. Configure a PW profile. For details, see 22.3.6 Configuring a PW Profile.
 - In the Main Topology, right-click the required NE in the Physical Root navigation tree and choose MPLS Management > PW Template Configuration from the shortcut menu.
 - (2) On the tab page that is displayed, right-click and choose **Create** from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: pwt
 - Tunnel Policy: Tunnel10
 - Peer IP Address: 30.30.30.30 (LSR ID of the PTN NE)
 - PW Type: Ethernet Tagged
 - (4) Click OK.
- 8. Configure the PWE3. For details, see 22.3.8 Configuring the PWE3 and 22.3.7 Adding a TDM VCL.
 - (1) Choose **PW Management** from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - PW ID: 1
 - Name: pw1
 - PW Type: ETH
 - PW Profile: pwt
 - Deployment Status: Deploy
 - Signal Protocol: static
 - In Label: 8848
 - Out Label: 8849
 - Please Select AC:VLAN: VLAN 500 selected

- (4) Click OK.
- Configure the ETH PWE3 private line access service on the ONU.
 - 1. Add an Ethernet access service VLAN. For details, see 19.3.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 800
 - Type: Smart VLAN
 - (4) Click Finish.
 - 2. Add a service virtual port on the ONU. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select VLAN 500 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: FTTM
 - Connection Type: LAN-ETHER
 - VLAN Choice: Smart VLAN
 - VLAN ID: 800 (service VLAN ID)
 - Interface Selection: 0/4/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 20
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name/Downstream Traffic Name: ip-traffic-table_6
 - (4) Click OK.

----End

22.5.6 Configuring the QinQ Private-Line Private Line Access Service

In this configuration example, the MA5612 is connected to an IP base transceiver station (BIS) through an FE or a GE port and the OLT transmits QinQ private line services to Metro equipment to implement the private line access service. This topic considers a GPON network as an example.

Example Network

For details of the data plan, see 22.5.1 Data Plan for xPON Private Line Access Services.



Figure 22-5 Configuring the QinQ private-line private line access service

The MA5612 receives the Ethernet service data from the 3G BTS through an FE or a GE port, encapsulates the Ethernet service packets into GEM frames, and then sends them to the OLT through a GPON upstream port. The OLT restores the Ethernet signals and configures the QinQ VLAN encapsulation mode so that the BTS data can be transparently transmitted to the peer PTN NE through the public network. Finally, the PTN NE restores the original Ethernet signals.

Procedure

• Add the MA5612 to the U2000 in profile mode.

1. Configure a management VLAN on the OLT. For details, see 19.1.5 Configuring a VLAN.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 4000
 - Type: Smart VLAN
- (5) Click Next.
 - Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- (6) Click Finish.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

- Name: FTTx
- T-CONT type: Fixed bandwidth
- Fixed Bandwidth: 32768
- Bandwidth Compensation: Yes
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON Line Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the GPON Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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
 - 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
 - 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
 - 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 parameters.
 - GEM Connection Index: 0 (default value)
 - VLAN ID: 4000 (management VLAN ID)
 - Priority: 1
 - 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 parameters.
 - GEM Connection Index: 1 (default value)
 - VLAN ID: 500 (service VLAN ID)
 - Priority: 2
 - (5) Click OK.

- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected
 - SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
 - Manager VLAN: 8
 - IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
 - IP Address Mask: 255.255.255.0

Confirm ONU							×
Affiliated Port:	0/2/0		*	Splitter:	8	Splitter(L1)	•
Name:	MDU		*	Alias:			
ONU ID(0-127):	0		*	Splitter Port ID(1-128): 1		
ONU Type:	MDU		*				
(Basic Paramet	tere	Network Man:	nement Ct	annel Parametere			
Line Drofile:	CTTV	Notwork Mark		Convice Drofile:			
Line Profile:	FIIX			Service Profile:			
Alarm Profile:				UNU VAS Profile:			
Authenticatio	in Info						
Authenticati	ion Mode:	SN	•	 Timeout Dura (h)(1-168): 	ation _🖂	No Limit	*
SN:		485754438E1	CDE42	Password:	she	nzhen	*
01/11/7-01-0							
-UNU Type	_						
Verdor ID:	H	NTC(2011)	▼	Terminal Type:	MDU		
Software Ve	ersion:		•				
				📃 Locate to	ONU list a	fter operati	ion succeeds
				OK		ancel	Apply
Confirm ONU							×
Confirm ONU Affiliated Port:	0/2/0		*	Splitter:	5	Splitter(L1)	× •
Confirm ONU Affiliated Port: Name:	0/2/0 MDU		*	Splitter: Alias:	5	Splitter(L1)	× •
Confirm ONU Affiliated Port: Name: ONU ID(0-127):	0/2/0 MDU		*	Splitter: Alias: Splitter Port ID()	[-128): 1	3plitter(L1)	× •
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type:	0/2/0 MDU 0		*	Splitter: Alias: Splitter Port ID(1	5 -128): 1	Splitter(L1)	× •
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/0 MDU 0 MDU	atwork Manager	* * * *	Splitter: Alias: Splitter Port ID(1-128): 1	3plitter(L1)	×
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Confirm ONU Affiliated Port Name: ONU ID(0-127): ONU Type: Basic Parame SNUP Paran	0/2/0 MDU 0 MDU ters Ne s network n parameter ns Info	etwork Manager nanagement S	× *	Splitter: Alias: Splitter Port ID(tel Parameters SNMP Profile Name	(1-128): 1 e: snmp	Splitter(L1)	× •
Confirm ONU Affiliated Port Name: ONU ID(0-127): ONU Type: Basic Parame Channel SNMP Paran Manager VL	0/2/0 MDU 0 MDU ters Ne s network n parameter ns Info AN(1-409:	etwork Manager nanagement s 5): 8	• • • • • • • •	Splitter: Alias: Splitter Port ID(nel Parameters SNMP Profile Name Priority(0-7):	<u>s</u> 1-128): <u>1</u> e: snmp	Splitter(L1)	× •
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Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame SIMP Paran Manager VL IP Address: Gateway IP Static Route IP Address: Next Hop IF	0/2/0 MDU 0 MDU ters Ne s network n parameter ns Info AN(1-409: Address: Parameter 2 Address:	etwork Manager nanagement s 5): 8 192.168.50 s	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(nel Parameters SNMP Profile Nam Priority(0-7): IP Address Ma IP Address Ma	sk: .	Splitter(L1)	
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- (6) Click **OK**.
- 5. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.

- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

s Service Pon							
Basic Info					Attributes		
ID(1-32768):	2						
Name:	FTTX_MDU	J	*		Connection Type:	LAN-GPON	•
Alias:							
Network Side					User Side		
Rundle ID/	01021						
	-0192).				luterfere Oelection.	0/2/1/0/0	_
VLAN Choice:		Smart VLAN			intenace selection.	0/2/1/0/0	•
Tag-Transform			•		Service Type:	Multi-Service VLAN	-
Vlan ID(1-4095	i:	8			User VLAN(1-4095):	8	•
Cos value(0-7)			*				
raffic Profile Inf	j						
🖌 Keep the u	istream ai	nd downstream si	ettings the same				
Upstream Trafi	ic Name:	ip-traffic-table_6		D	ownstream Traffic Nar	me: ip-traffic-table_6	

• Configure the QinQ private-line private line access service on the OLT.

- 1. Configure a service VLAN on the OLT. For details, see 19.1.5 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 500
 - Type: Smart VLAN
 - (4) Click **Next**. Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

- (5) Click Finish.
- 2. Add a service virtual port on the OLT. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select VLAN 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: tdmpwe3
 - Connection Type: LAN-GPON
 - VLAN ID: 500
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 500
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name/Downstream Traffic Name: ip-traffic-table_6 (It is recommended that you use the default profile ip-traffic-table_6.)
 - (4) Click OK.
- Configure the QinQ private-line private line access service on the ONU.
 - 1. Add a service VLAN. For details, see 19.3.1 Configuring a VLAN.

- If the MA5612 transparently transmits BTS data, the service VLAN is the same as the VLAN of the BTS.
- If the MA5612 adds a VLAN tag to BTS data, the service VLAN is different from the VLAN of the BTS.
- The service VLAN of the MA5612 must be the same as the user-side VLAN on the OLT.
- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 800
 - Type: Smart VLAN
- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/0/0 as the upstream port of the VLAN.
- (6) Click Finish.
- 2. Add a service virtual port on the ONU. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select VLAN 500 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: FTTM
 - Connection Type: LAN-ETHER

- Interface Selection: 0/4/0
- Service Type: Multi-Service VLAN
- User VLAN: 20
- VLAN Choice: Transparent VLAN (BTS packets received by the Ethernet port are transparently transmitted to the OLT)
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name/Downstream Traffic Name: ip-traffic-table_4
- (4) Click OK.

```
----End
```

22.5.7 Data Plan for xPON FTTO Services

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

Data Plan

	_		
Service Type	ltem	Settings	Remarks
Device managemen t	Upstream port of an OLT	0/19/0	-
	Management	• VLAN ID: 4000	-
	VLAN	• Type: Smart VLAN	
	MDU	• Name: MDU	-
		• ONU Type: MDU	
		• ONU ID: 0	
		• Authentication Mode: SN	
		• SN: 32303131B39FD641	
		• Manager VLAN: 4000	
		• IP Address: 192.168.50.2	
		• IP Address Mask: 255.255.255.0	
	DBA profile	• Name: FTTx	-
		• T-CONT type: Fixed Bandwidth	
		• Fixed Bandwidth: 32768	
		• Bandwidth Compensation: Yes	

Table 22-3 xPON FTTO services - device management

Service Type	Item	Settings	Remarks
	MDU SNMP profile	 Name: snmpprofile SNMP Version: v1 Read Name: public Write Name: private Trap Host IP: 192.168.50.3 Trap UDP Port: 162 SNMP Security Name: public 	-
	Line profile	 Name: FTTx Mapping Mode: VLAN Qos Mode: Priority Queue T-CONT Index: 1 DBA Profile: FTTx GEM Port Index: 1, 2 Priority Queue: 1 VLAN ID: 4000, 500 	-
	Service virtual port (based on the management VLAN)	 VLAN ID: 4000 Interface Selection: 0/2/1/0/0 Service Type: Multi- Service VLAN User VLAN: 4000 	-

 Table 22-4 GPON FTTO services - router access service of an enterprise

Service Type	Item	Settings	Remarks
Data of an	Service VLAN	• VLAN ID: 500	-
OLT		• Type: Smart VLAN	
		• Attribute: QinQ	

Service Type	Item	Settings	Remarks
	Service Port	 Name: intranet Connection Type: LAN-GPON VLAN ID: 500 Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN: 500 Keep the upstream and downstream settings the same: selected Upstream/Downstream Traffic Name: ip-traffic- 	-
	Queue scheduling mode	 Queue scheduler mode: WRR Queue0-weight: 10 Queue1-weight: 10 Queue2-weight: 20 Queue3-weight: 20 Queue4-weight: 40 	-
Data of the MA5612	GPON upstream port	0/0/0	-
	VLAN service profile	 Name: FTTx Enable BPDU Tunnel: selected 	-
	Service VLAN	 VLAN ID: 500 Type: Smart VLAN Attribute: QinQ 	-

Service Type	Item	Settings	Remarks
	Service Port	 Name: intranet1 Connection Type: LAN- ETHER VI AN ID: 500 	-
		 Interface Selection: 0/4/0 	
		• Service Type: Multi- Service VLAN	
		 User VLAN: 50 Keep the upstream and downstream settings the same: selected 	
		 Upstream/Downstream Traffic Name: ip-traffic- table_6 	
		• Name: intranet2	
		• Connection Type: LAN- ETHER	
		• VLAN ID: 500	
		• Interface Selection: 0/4/1	
		 Service Type: Multi- Service VLAN 	
		• User VLAN: 60	
		• Keep the upstream and downstream settings the same: selected	
		• Upstream/Downstream Traffic Name: ip-traffic- table_6	

22.5.8 Configuring the TDM PBX Access Service

In this configuration example, the MA5612 is connected to the TDM PBX of an enterprise through an E1 port and the OLT transmits signals upstream to the SDH or PSN network.

Example Network



The MA5612 is connected to the TDM PBX of the enterprise through an E1 port and then is connected to the OLT through a GPON upstream port. The OLT provides E1 or STM-1 ports to transmit the TDM service to the SDH or PSN network.

The TDM PBX access service can be transmitted upstream to the SDH or PSN network. In these two networking scenarios, service configurations are different.

Procedure

The MA5612 is connected to the PBX and the OLT transmits the service upstream to the SDH network through an E1 or STM-1 port. For details about the configuration, see 22.5.2 Configuring the TDM PWE3 Private Line Access Service (Based on the SDH Network).

----End

22.5.9 Configuring the IP PBX Access Service

In this configuration example, the MA5612 is connected to the IP PBX of an enterprise through an FE or a GE port and the OLT transmits signals upstream to the PSN network.

Example Network



Figure 22-7 Configuring the IP PBX access service

The MA5612 is connected to the IP PBX of the enterprise through an FE or a GE port and then connected to the OLT through a GPON upstream port. The OLT transmits signals upstream to the IP or MPLS network.

The IP PBX access service can be transmitted upstream to the IP or MPLS network. In these two networking scenarios, service configurations are different.

IP PBX is an IP network-based company telephone system. It can integrate voice communication into the data network of a company, thereby setting up an integrated voice and data network that connects all offices and employees in different areas in the world. For example, the SoftCo series IP voice integrated switch of Huawei can function as a mini NGN system and an IP PBX.

Procedure

 The MA5612 is connected to the IP PBX and the OLT transmits data transparently to the IP network through a QinQ VLAN. For details about the configuration, see 22.5.10 Configuring the Router Access Service of an Enterprise. • The MA5612 is connected to the IP PBX and the OLT transmits data transparently to the MPLS network through the ETH PWE3. For details about the configuration, see 22.5.5 Configuring the ETH PWE3 Private Line Access Service.

----End

22.5.10 Configuring the Router Access Service of an Enterprise

In this configuration example, the MA5612 is connected to the router or Layer 3 switch of an enterprise through an FE or a GE port and the OLT transmits signals upstream to the IP network.

Context

For details of the data plan, see 22.5.7 Data Plan for xPON FTTO Services.

Example Network



Figure 22-8 Configuring the router access service of an enterprise

The data on the enterprise intranet is transmitted to the MA5612 through a Layer 3 switch or router of the enterprise. Therefore, configure the QinQ VLAN private lines on both MA5612_1 and MA5612_2. Then, the service data and BPDU packets between enterprise intranets can be transmitted transparently over the public network. This provides a transparent and secure data channel for the enterprise intranets in different areas.

Procedure

- Add the MA5612 to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT. For details, see 19.1.5 Configuring a VLAN.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 4000
 - Type: Smart VLAN
- (5) Click Next.
 - Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- (6) Click Finish.
- 2. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **GPON Profile** from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Fixed bandwidth
 - Fixed Bandwidth: 32768
 - Bandwidth Compensation: Yes
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 20.1.1 Configuring a GPON Line Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.
 - (2) Click the **GPON Line Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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
 - 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

- 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
- 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 parameters.
 - GEM Connection Index: 0 (default value)
 - VLAN ID: 4000 (management VLAN ID)
 - Priority: 1
- 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 parameters.
 - GEM Connection Index: 1 (default value)
 - VLAN ID: 500 (service VLAN ID)
 - Priority: 2
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.

- OLT sets network management channel parameters: selected
- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

					×
Affiliated Port:	0/2/0	-	* Splitter:	Splitter(L1)	
Name:	MDU		* Alias:		
ONU ID(0-127):	0		* Splitter Port ID(1	-128): 1	
ONU Type:	MDU	-	•		
Basic Paramet	ers	Network Management	Channel Parameters]	
Line Profile:	FTTx	*	Service Profile:	*	
Alarm Profile:			ONU VAS Profile:		
Authenticatio	n Info				
Authenticati	on Mode:	SN	Timeout Dura (h)(1-168):	tion 🕜 No Limit 📃 *	
SN:		485754438E1CDE42	Password:	shenzhen *	
- ONLL Type-					
Verdor ID:		ATTC(2011)	Terminal Type:	MDU	
Coffware Via	rcion:	•	remmartype.		
Johnware ve		•			
			Locate to C	NU list after operation succeeds	-
			ОК	Cancel <u>A</u> pply	
Confirm ONU					×
Affiliated Port:	0.00.00				
	0/2/0	~	* Splitter:	Splitter(L1) 🗸	
Name:	MDU		* Splitter: * Alias:	Splitter(L1)	
Name: ONU ID(0-127):	MDU 0	· · · · · · · · · · · · · · · · · · ·	* Splitter: * Alias: * Splitter Port ID(1	Splitter(L1)	
Name: ONU ID(0-127): ONU Type:		• 	* Splitter: * Alias: * Splitter Port ID(1 *	Splitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet	MDU 0 MDU MDU	▼ ↓ ↓ etwork Management Cha	Splitter: Alias: Splitter Port ID(1 nnel Parameters	Spiitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet	MDU 0 MDU ters Ni s network r parameter	 Image: Second sec	Splitter: Alias: Splitter Port ID(1 nnel Parameters SNMP Profile Name	Spitter(L1) Spitter(L1) Spitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet I OLT sets channet SNMP Param	MDU 0 MDU ters No s network r parameter	▼ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■	Splitter: Alias: Splitter Port ID(1 nnel Parameters SNMP Profile Name	Spitter(L1) Spitter(L1) Spitter(L1) Spitter(L1) Spitter(L1) Spitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet OLT sets Channel SNMP Param Manager VL	MDU MDU MDU MDU ters Nr e network r parameter ns Info AN(1-409	▼ stwork Management Cha nanagement s 5): 8	Splitter: Alias: Splitter Port ID(1 Nnel Parameters SNMP Profile Name Priority(0-7):	Spitter(L1) Spitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet Mainet SNMP Paran Manager VL IP Address:	MDU MDU MDU ters Nu s network r parameter ns Info AN(1-409	etwork Management Cha nanagement s 5): 8 192.168.50.2	Splitter: Alias: Splitter Port ID(1 SNMP Profile Name Priority(0-7): IP Address Ma	Spitter(L1) Spitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param Manager VL IP Address: Gateway IP	MDU MDU MDU ters Ni s network r parameter ns Info AN(1-409) Address:	etwork Management Cha nanagement 5): 8 192.168.50.2 	Splitter: Alias: Splitter Port ID(1 SNMP Profile Name Priority(0-7): IP Address Ma	Spitter(L1) Spitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param Manager VL IP Address: Gateway IP	MDU MDU MDU ters Ni s network r parameter ns Info AN(1-409) Address: Parameter	atwork Management Chanagement S 5): 8 192.168.50.2	Splitter: Alias: Splitter Port ID(1 SNMP Profile Name NMP Profile Name Priority(0-7): IP Address Ma	Spitter(L1) Spitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet Manager VL IP Address: Gateway IP Static Route	MDU MDU MDU ters Ni a network r parameter AN(1-409 Address: Parameter	s	Splitter: Alias: Splitter Port ID(1 Splitter Port ID(1 SNMP Profile Name Priority(0-7): IP Address Ma	Spitter(L1) Spitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet Manager VL IP Address: Gateway IP - Static Route IP Address: New Hen IP	MDU MDU MDU ters Nu s network r parameter ns Info AN(1-409: Parameter		Splitter: Alias: Splitter Port ID(1 Solution Parameters SNMP Profile Name Priority(0-7): IP Address Mas IP Address Mas	Spitter(L1) Spitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param Manager VL IP Address: Gateway IP Static Route IP Address: Next Hop IP	MDU MDU MDU ters NM s network r parameter ns Info AN(1-409: Address: Parameter Parameter	etwork Management Cha nanagement s 5): 8 192.168.50.2 's	Splitter: Alias: Splitter Port ID(1 Sinther Port ID(1 Sinther Port ID(1 Sinther Port ID(1 Priority(0-7): Priority(0-7): IP Address Mas IP Address Mas	Spitter(L1)	
Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param Manager VL IP Address: Gateway IP Static Route IP Address: Next Hop IP	MDU MDU MDU MDU MDU MDU MOU MOU MADU MADU MADU MADU MADU MADU MADU MADU MADU MDU MDU MDU MDU MDU MDU MDU M	etwork Management Cha nanagement s 5): 8 192.168.50.2 's	Splitter: Alias: Splitter Port ID(1 Shifter Port ID(1 Shifter Port ID(1 Shifter Port ID(1 Priority(0-7): Priority(0-7): IP Address Mas IP Ad	Spitter(L1)	3

- (6) Click **OK**.
- 5. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

r Service Po						
Basic Info				Attributes		
ID(1-32768):	2					
Name:	FTTX_MD	J	*	Connection Type:	LAN-GPON	•
Alias:						
letwork Side				User Side		
Bundle ID	(1-8192):					
VLAN Choice:		Smart VLAN	▼*	Interface Selection:	0/2/1/0/0	•
Tag-Transforr	n:		•	Service Type:	Multi-Service VLAN	-
Vlan ID(1-409	5):	8	 _	User VLAN(1-4095):	8	•
Coc volue/0-7	Ŋ.		*			
Cos value(0-7	<i>).</i>					
raffic Profile In	ifo					
🖌 Keep the	upstream a	nd downstream sett	ings the same			
Upstream Tra	ffic Name:	ip-traffic-table 6		Downstream Traffic Na	me: ip-traffic-table 6	
					OK Cancel	Apply

• Configure the router access service of the enterprise on the OLT.

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. For details, see 19.1.5 Configuring a VLAN.
- (1) Choose VLAN from the navigation tree.
- (2) In the informational list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 500
 - Type: Smart VLAN
 - Attribute: QinQ
- (4) Click **Next**. Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- (5) Click Finish.
- 2. Add a service virtual port on the OLT. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select VLAN 500 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose **Add** from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: intranet
 - Connection Type: LAN-GPON
 - VLAN ID: 500 (service VLAN ID)
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 500 (service VLAN ID of the ONU)
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name/Downstream Traffic Name: ip-traffic-table_6 (The OLT does not restrict the rate of service streams in the management VLAN. Therefore, it is recommended that you use the default profile ip-traffic-table_6.)
 - (4) Click OK.
- 3. Set queue scheduling parameters. For details, see 21.2.1 Setting Queue Scheduling Parameters.

You need to set the queue scheduling parameters on the OLT only once. Then, the parameters are globally valid.

The WRR mode is used for queues 0-4 and their weights are 10, 10, 20, 20, and 40 respectively. The PQ mode is used for queues 5-7.

- (1) Choose Configuration > Access Profile Management > System Parameter Profile from the main menu.
- (2) On the **System Parameter Profile** tab page, select the required OLT type from the **Device Type** drop-down list.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the name of the system parameter profile to FTTx. Choose QoS > 802.1p PRI queue and QoS > Queue scheduler

mode from the **Parameters for Selection** navigation tree, click is to add the parameters to the **Selected Parameters** navigation tree, and then click **Next**.

- (5) Choose **802.1p PRI queue** from the navigation tree and configure the mapping between queues and 802.1p priorities. It is recommended that you use the default values. Choose **Queue scheduler mode** from the navigation tree and configure the queue scheduling mode.
 - Queue scheduler mode: WRR
 - Queue0-weight: 10
 - Queue1-weight: 10
 - Queue2-weight: 20
 - Queue3-weight: 20
 - Queue4-weight: 40
- (6) Click Finish.
- (7) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (8) In the dialog box that is displayed, select the required NE(s), and click OK.
- Configure the router access service of the enterprise on the ONU.

This section considers MA5612_1 as an example to describe how to configure the router access service of the enterprise on the ONU. The configuration process on MA5612_2 is similar to the configuration process on MA5612_1.

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 VLAN service profile. For details, see 21.2.2 Configuring a VLAN Service Profile.
 - Choose Configuration > Access Profile Management > VLAN Service Profile from the main menu.
 - (2) Right-click and choose Add Global Profile from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Set Name to FTTx.
 - Enable BPDU Tunnel: selected
 - (4) Click **OK**.
 - (5) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (6) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a service VLAN on the ONU. For details, see 19.1.5 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) In the informational list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 500
 - Type: Smart VLAN
 - Attribute: QinQ

- (4) Click Next.
 - Click the **Sub Port** tab and add upstream port 0/0/0 as the upstream port of the VLAN.
 - Click the **Extended Info** tab and select the VLAN service profile named FTTx.
- (5) Click Finish.
- 3. Add a service virtual port on the ONU. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select VLAN 500 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: intranet1
 - Connection Type: LAN-ETHER
 - VLAN ID: 500 (service VLAN ID)
 - Interface Selection: 0/4/0 (GE port through which the router or Layer 3 switch of enterprise A is connected to the MA5612)
 - Service Type: Multi-Service VLAN
 - User VLAN: 50 (VLAN tag carried in the packets on the intranet of enterprise A)
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name/Downstream Traffic Name: ip-traffic-table_6 (The OLT does not restrict the rate of service streams in the management VLAN. Therefore, it is recommended that you use the default profile ip-traffic-table_6.)
 - (4) Click OK.
 - (5) Repeat the preceding operations to add another service virtual port.
 - Name: intranet2
 - Connection Type: LAN-ETHER
 - VLAN ID: 500 (service VLAN ID)
 - Interface Selection: 0/4/1 (GE port through which the router or Layer 3 switch of enterprise B is connected to the MA5612)
 - Service Type: Multi-Service VLAN
 - User VLAN: 60 (VLAN tag carried in the packets on the intranet of enterprise B)
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name/Downstream Traffic Name: ip-traffic-table_6 (The OLT does not restrict the rate of service streams in the management VLAN. Therefore, it is recommended that you use the default profile ip-traffic-table_6.)

----End

Result

The communications between intranets in two different areas are successful, implementing various services between the intranets.

23 Configuring the EPON FTTB Services

About This Chapter

An FTTB network consisting of an OLT and a number of MDUs provides users with Internet, multicast, and voice services.

23.1 Adding an MDU to the U2000 (OLT in Profile Mode)

This topic describes how to add an MDU to the U2000 when the OLT is in the profile mode. After an MDU is added successfully, you can configure FTTB services for the MDU on the U2000.

23.2 Configuring Services on the OLT

An FTTB network consisting of OLTs and MDUs provides users with Internet services, multicast services, and voice services.

23.3 Configuring Services on the MDU

An FTTB network consisting of OLTs and MDUs provides users with Internet services, multicast services, and voice services.

23.4 Configuration Examples of the EPON FTTB Services

This topic provides examples to describe how to configure the Internet, voice, and multicast services in an EPON FTTB network.

23.1 Adding an MDU to the U2000 (OLT in Profile Mode)

This topic describes how to add an MDU to the U2000 when the OLT is in the profile mode. After an MDU is added successfully, you can configure FTTB services for the MDU on the U2000.

Context

After an MDU is added on the NE side, it supports online confirmation and offline deployment. The information about the profile bound to an MDU and the authentication information on the U2000 must be the same as those configured for the actual MDU on the user side.

- Online confirmation: If you add an MDU after the MDU is powered on, it goes online immediately. This topic considers MDU online confirmation as an example.
- Offline deployment: If an MDU is not online, you need to add it offline and configure services for the MDU. After the MDU goes online, the configuration is applied to the MDU through the optical network termination management and control interface (OMCI). Then, service configuration for the MDU is complete.

23.1.1 Configuring an MDU SNMP Profile

The MDU Simple Network Management Protocol (SNMP) profile is a collection of SNMP parameters. You can configure the information about an MDU management channel to OLT to implement the remote deployment and maintenance for the MDU.

23.1.2 Configuring a DBA Profile

An EPON DBA profile contains the traffic parameters of LLID. DBA is used to control the upstream bandwidth of ONU services. A DBA profile is bound with an LLID, and different bandwidth assurance types are provided based on different LLID plans. After an EPON DBA profile is configured and bound with an LLID, the system controls the traffic of the LLID according to the traffic parameters contained in the DBA profile. This provides flexible schemes for dynamic bandwidth allocation and improves the usage of upstream bandwidth.

23.1.3 Configuring a Line Profile

An EPON line profile contains the parameters relevant to the EPON line. The parameters are required for setting up channels for the EPON line.

23.1.4 Confirming an MDU

This topic describes how to confirm an automatically discovered ONU connected to an EPON port. Only after the ONU is confirmed, it can work in the normal state.

23.1.5 Configuring a VLAN

The MDU is connected to the xPON port of the OLT through an optical fiber. You can perform the service configuration only after adding an MDU successfully on the OLT. To configure the MDU from the U2000, you must configure the inband management VLAN and IP address for the OLT and the MDU on the OLT.

23.1.6 Adding a Service Virtual Port

After an ONU is successfully added, the control channel is already set up but the data channel is not set up. In this case, you need to add a service virtual port on the OLT to manage ONU data.

23.1.7 Verifying the Interoperability Between an OLT and an MDU

After configuring the relevant parameters on the U2000, you need to verify whether an ONU can be managed and maintained on the U2000.

23.1.1 Configuring an MDU SNMP Profile

The MDU Simple Network Management Protocol (SNMP) profile is a collection of SNMP parameters. You can configure the information about an MDU management channel to OLT to implement the remote deployment and maintenance for the MDU.

Context

You can configure the SNMP parameter profile of the MDU on the U2000, and configure the information about an MDU management channel to the OLT. Then, the OLT manages the MDU through the SNMP mode so that the remote deployment and maintenance for the MDU can be implemented.

Procedure

- 1 Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
- 2 Right-click and choose Add Global Profile from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

Ad	d MDU SNMP Profile				×
	Profile Parameter				
	Name:	SNMP *	Alias:		
	SNMP Version:	v1 •	Read Name:	public *	
	Write Name:	private *	Trap Host IP:	10.71.227.234 *	
	Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *	
			ОК Са	ancel <u>A</u> pply	

Key Parameter	Description
SNMP Version	Ensure that the SNMP version of the U2000 server is the same as the corresponding SNMP version configured on the device. Generally, the SNMP Version of the U2000 server is set to v1.
Trap Host IP	Specifies the IP address of the destination device for traps. The trap packets of the device are sent to the U2000 server that maps the IP address. NOTE Generally, the IP address of the U2000 server is set to the IP address of the destination device for traps.
Trap UDP Port	Specifies the ID of the UDP port that is used to receive the traps that the device reports to the U2000.

4 Click OK.

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

The MDU SNMP profile that is generated by the U2000 can be referenced by the OLT only after the profile is applied to the corresponding OLT.

----End

Command Reference

То	Run the Command	In
Add an MDU SNMP managemen t profile	snmp-profile add	Global config mode

23.1.2 Configuring a DBA Profile

An EPON DBA profile contains the traffic parameters of LLID. DBA is used to control the upstream bandwidth of ONU services. A DBA profile is bound with an LLID, and different bandwidth assurance types are provided based on different LLID plans. After an EPON DBA profile is configured and bound with an LLID, the system controls the traffic of the LLID according to the traffic parameters contained in the DBA profile. This provides flexible schemes for dynamic bandwidth allocation and improves the usage of upstream bandwidth.

Context

The EPON DBA profile added through the U2000 exists only in the database of the U2000, but is not applied to the device. The EPON DBA profile can be created on the device only when the EPON DBA profile is bound with an LLID.

- The EPON DBA profiles with **Name** ranging from **dba-profile_1** to **dba-profile_9** are default profiles of the system. These profiles provide typical traffic parameters. You can query the default EPON DBA profiles but cannot modify or delete them.
- Usually, the services with higher priority use fixed bandwidth or assured bandwidth but the services with lower priority use maximum bandwidth or a combination of bandwidth assurance types.

Procedure

- 1 Choose Configuration > Access Profile Management > EPON Profile from the main menu.
- 2 Click the DBA Profile tab. Right-click and choose Add Global Profile from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.

0	reate DBA Profile			×
	Profile Parameters			
	Name:	DBA	÷	
	Alias:			
	DBA type:	Fixed bandwidth 💌	÷	
	Fixed bandwidth rate (Kbit/s) (128 to 1235456):	128	*	
	Assured bandwidth rate (Kbit/s) (128 to 1235456):	128		
	Maximum bandwidth rate (Kbit/s) (128 to 1235456):	128		
	Bandwidth compensation:	No	*	
		OK Cancel Apply		1

Key Parameter	Description
Name	Indicates the name of the EPON DBA profile. It uniquely identifies an EPON DBA profile and cannot be the same as an existing profile name.
DBA type	Indicates the type of the EPON DBA profile. EPON DBA profiles are classified according to the bandwidth requirement of the services distinguished by LLIDs. You can configure bandwidth for different LLID types to control the traffic based on LLIDs.
Fixed bandwidth rate Assured bandwidth rate Maximum bandwidth rate	Usually, the services with higher priority use fixed bandwidth or assured bandwidth but the services with lower priority use maximum bandwidth. VoIP services have the highest priority.

4 Click OK.

----End

Command Reference

То	Run the Command	In
Query DBA profiles in the system	display DBA-profile	Privilege mode
Add a DBA profile	DBA-profile add	Global config mode

23.1.3 Configuring a Line Profile

An EPON line profile contains the parameters relevant to the EPON line. The parameters are required for setting up channels for the EPON line.

Prerequisite

The DBA profile must be already configured in the system. For details, see **23.1.2 Configuring a DBA Profile**.

Procedure

- 1 Choose Configuration > Access Profile Management > EPON Profile from the main menu.
- 2 Click the **EPON Line Profile** tab. Right-click and choose **Add Global Profile** from the shortcut menu.
- 3 In the dialog box that is displayed, set Name and relevant parameters of the line profile.
 - 1. Choose **Base Info.** from the navigation tree and configure the basic parameters of the profile.

Add EPON Line Profile		×
Name: line_profile	* Alias:	
Configuration ⊢ Base Info. ⊕ DBA Threshold	Name FEC Switch CAR Profile DBA Profile Encrypt Type	Value ON ip-traffic-table_2 dba-profile_2 OFF
	ОК	Cancel Apply

Key Paramete r	Description
FEC Switch	Indicates the status of upstream forward error correction (FEC) switch of the ONU line profile. To ensure the reliability of data transmission between the OLT and ONU, enable the FEC function. After the FEC function is enabled, the system inserts redundancy data into normal packets. In this way, the line has the error tolerance function, but certain bandwidth resources are wasted.

2. Choose **DBA Threshold** from the navigation tree and set the relevant parameters.

me: line_profile	* Alias:		
Configuration — Base Info. — DBA Threshold — Threshold1 — Threshold2	Name Threshold of Queue0(0-65535) Threshold of Queue1(0-65535) Threshold of Queue2(0-65535)	Value 2 6 8	
└─ Threshold3	Threshold of Queue3(0-65535) Threshold of Queue4(0-65535) Threshold of Queue5(0-65535) Threshold of Queue6(0-65535)	12 22 222 6	
	Threshold of Queue7(0-65535)	9	

- 4 Click OK.
- 5 In the information list, right-click a record and choose **Download to NE** from the shortcut menu.
- 6 In the dialog box that is displayed, select the required OLT, and click **OK**.

----End

Command Reference

То	Run the Command	In
Enter the ONU line profile mode	ONU-lineprofile EPON	Global config mode

23.1.4 Confirming an MDU

This topic describes how to confirm an automatically discovered ONU connected to an EPON port. Only after the ONU is confirmed, it can work in the normal state.

Prerequisite

The Line profile must be already configured in the system. For details, see **23.1.3 Configuring a Line Profile**.

The MDU SNMP profile must be already configured in the system. For details, see **23.1.1 Configuring an MDU SNMP Profile**.

Context

After the function of automatically discovering an ONU is enabled, the OLT periodically detects whether a new ONU is online. When an ONU is online, the OLT reports a group of information about the ONU to the U2000 for confirmation.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose EPON > EPON UNI Port from the navigation tree.
- 3 On the **EPON UNI Port** tab page, set the filter criteria or click ≥ to display the EPON UNI ports.
- **4** Select the EPON UNI port for which you want to enable the function of automatically discovering an ONU, right-click and choose **Enable Auto Find ONU Switch** from the shortcut menu.
- 5 In the information list, select the required EPON UNI port and click the **AutoFind ONU Info.** tab in the lower pane.
- **6** In the information list, right-click an ONT to be confirmed and choose **Confirm ONU** from the shortcut menu.
- 7 In the dialog box that is displayed, set the basic parameters and NMS management channel parameters of the ONU, and then click **OK**.

Confirm ONU				X
Affiliated Port:	0/15/0	•	* Splitter ID:	Splitter(L1) <
Name:	Frame0/Slot15/Po	rt0 t	* Alias:	
ONU ID(0-127):	🗌 Auto Assign	4	* Splitter Port ID(I-128): 1
ONU Type:	MDU	•		
Basic Paramete	ers Networl	(Management Ch	annel Parameters	
Line Profile:	line-profile_2		Service Profile:	
Optic Alarm Pro	ofile:		ONU VAS Profile	
-Auth Info				
Auth Wav:	MAC Address	▼ * MAC Ac	idress: 00 -	18 - 82 - 64 - FF - 8E
Kevr		* Time O	ut/b)(1-168): 🔽 Dis	ahle *
-Extend Inform	nation			
	Status		PITP Statu	s
-ONU Type-				
Terminal Ty	ne: MDU		Software Version:	M45600V800P305
Terrinian Ty	pc			MA300070001(303
			Locate -	to ONU list after operation succeeds
			Ok	Cancel <u>A</u> pply

Key Parameter	Description
ONU ID	Indicates the ID that identifies an ONU. Usually, it starts from 0.
ONU Type	Specifies MDUs.
Line Profile	Indicates the line profile bound to the port to which the ONU belongs. You can bind a port with the line profile. When the port is activated, it can reference the profile. According to the upstream and downstream line rates and the noise tolerance set in the profile, the port detects the line distance and line status, negotiates between the local and remote devices, and determines whether it can work under the conditions.
Service Profile	Indicates the service profile bound to the ONU. A service profile contains the parameters relevant to the ONU service. For FTTB services, a service profile is not required.
Auth Way	Indicates the mode used when the OLT authenticates an ONU. By default, the EPON ONU uses the SN-based authentication mode.

When you add an ONU in the SNMP management mode, the management mode and line profile are mandatory. When you add an ONU in the OAM management mode, the parameters of management mode, line profile, and service profile are mandatory.

----End

Command Reference

То	Run the Command	In
Confirm an ONU in the auto- discovery state	ont confirm	EPON mode
Enter the EPON mode from the global config mode	interface EPON	Global config mode
Enable the function of auto- discovery ONU	ont-auto-find enable	EPON mode
Query the current ONUs automatically discovered or time for automatically discovering ONUs from the system	display ont autofind	Privilege mode, EPON mode

23.1.5 Configuring a VLAN

The MDU is connected to the xPON port of the OLT through an optical fiber. You can perform the service configuration only after adding an MDU successfully on the OLT. To configure the MDU from the U2000, you must configure the inband management VLAN and IP address for the OLT and the MDU on the OLT.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose VLAN from the navigation tree.
- 3 On the VLAN tab page, set the filter criteria or click 💌 to display the VLANs.
- 4 In the information list, right-click and choose Add from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

Add VLAN		×
 Base Info Configure VLAN 		
	VLAN ID(1-4095): Name: Alias:	10 * VLANID_10 *
	Type: Attribute: VLAN Priority:	Standard VLAN
	Back	<u>N</u> ext <u>D</u> one <u>C</u> ancel

Add VLAN			X
Add VLAN Base Info Configure VLAN	Sub Port L3 Interface Physical Port List Frame:0 Slot13 Slot14 Slot17 Slot19	Extended Info	×
	⊡ ∰ Port:01 ⊕	> >> < <<	
	<u>B</u> ack	Next Done Cancel	

Key Parameter	Description
VLAN ID	Indicates the VLAN ID. The VLAN ID uniquely identifies a VLAN. NOTE Add VLANs according to data plan.
Туре	Indicates the VLAN type. NOTE Usually, Smart is selected.
Attribute	Indicates the VLAN attribute. NOTE For xPON FTTB, QinQ is usually selected.
VLAN Priority	Indicates the VLAN priority. This parameter is applicable to the VLANs for an OLT.

6 Click Done.

----End

Command Reference

То	Run the Command	In
Query the information about the VLAN	display vlan	Privilege mode

То	Run the Command	In
Add one VLAN or more VLANs of a same type in batches	vlan	Global config mode
Set the VLAN attribute	vlan attrib	Global config mode

23.1.6 Adding a Service Virtual Port

After an ONU is successfully added, the control channel is already set up but the data channel is not set up. In this case, you need to add a service virtual port on the OLT to manage ONU data.

Prerequisite

The management VLAN where the service virtual port belongs must be configured. The upstream port of the VLAN must be configured. For details, see **23.1.5 Configuring a VLAN**.

Procedure

- 1 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.
- 2 Choose EPON > EPON ONU from the navigation tree.
- **3** On the **EPON ONU** tab page, set the filter criteria or click is to display the EPON ONUs.
- **4** In the information list, select an EPON ONU and click the **ServicePort Info.** tab in the lower pane.
- 5 On the ServicePort Info. tab page, right-click and choose Add from the shortcut menu.
- 6 In the dialog box that is displayed, set the parameters as follows.

Add Service Port	×
Basic Info ID(1-32768): Name: 4000/0_3_0/0/Multi-Service VLAN/3000 * Alias:	Attributes Connection Type: LAN-EPON
Network Side Bundle ID(1-8192): VLAN Choice: Smart VLAN Tag-Transform: Default Vlan ID(1-4095): 4000 * Cos value(0-7):	User Side Create Bulk Service Port Interface Selection: Service Type: User VLAN(1-4095): 3000 •
Traffic Profile Info	
Upstream Traffic Name: ip-traffic-table_6	Downstream Traffic Name: ip-traffic-table_6
	OK Cancel <u>Apply</u>

Key Parameter	Description
User VLAN	Indicates the management VLAN ID of the ONU.
Service Type	Indicates the type of the services carried on the service virtual port. Usually, the multi-service VLAN mode is selected. Each service virtual port can carry multiple types of service streams. You need to set the user VLAN to distinguish the service streams. The services are distinguished based on the VLAN ID contained in the user packets. The user packets are labeled with different upstream VLAN IDs, and the original VLAN IDs in the user packets are removed.

7 Click OK.

----End

Command Reference

То	Run the Command	In
Add a service virtual port	service-port	Global config mode

23.1.7 Verifying the Interoperability Between an OLT and an MDU

After configuring the relevant parameters on the U2000, you need to verify whether an ONU can be managed and maintained on the U2000.

Procedure

- **1** Query the status of the ONU.
 - 1. In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
 - 2. Choose **EPON** > **EPON ONU** from the navigation tree.
 - 3. On the **EPON ONU** tab page, set the filter criteria or click 💌 to display the EPON ONUs.
 - 4. In the information list, select an EPON ONU with the required shelf/slot/port and ONT ID. If the indicator of **Status** is in green, it indicates that the ONU is in the activated and online state.

ľ	GPON ONU						
	Status 🛆	Operation Status 🗠	Configurati 🗠	Frame 🗠	Slot 🔿	Port 🗠	ONU ID 🛆
ľ		Activate	Normal	0	8	0	0
10	<u> </u>	Activate	Normal	0	8	0	1
10	<u> </u>	Activate	Normal	0	8	0	2
I	0	Activate	Initial	0	8	0	3

- 2 Check whether the ONU can ping through the OLT.
 - 1. On the **Physical Root** navigation tree in **Main Topology**, right-click the ONU and choose **Tool** > **Ping** from the shortcut menu.
 - 2. In the dialog box that is displayed, click **Ping** to view the result. If the reply information is displayed, it indicates that the connection between the OLT and the ONU is successfully set up.

Ping		×
e Ping	 Continual ping 	
Result		_
Reply from	10.71.227.12: bytes=32 time=26ms TTL=64	ĩ
Reply from	10.71.227.12: bytes=32 time=56ms TTL=64	1
Reply from	10.71.227.12: bytes=32 time=17ms TTL=64	1
Reply from	10.71.227.12: bytes=32 time=22ms TTL=64	
Ping stati:	stics for 10.71.227.12:	
Packets: Se	ent = 4, Received = 4, Lost = 0 (0% loss	
Approximate	e round trip times in milli-seconds:	
Minimum = 3	17ms, Maximum = 56ms, Average = 30ms	
	.	
	<u>S</u> tart Close	

----End

Command Reference

То	Run the Command	In
Query the information about the device when it is used as an ONT	display ont info	GPON mode, EPON mode

23.2 Configuring Services on the OLT

An FTTB network consisting of OLTs and MDUs provides users with Internet services, multicast services, and voice services.

Context

Several operations are required when you configure a service. The following lists the services configured at the OLT side and the service configuration steps.

Services	Steps	
Internet access service	• 19.2.1 Configuring a VLAN	
	• 23.2.1 Adding a Service Virtual Port	
Multicast service	• 19.2.1 Configuring a VLAN	
	• 23.2.1 Adding a Service Virtual Port	
	• 19.2.7 Configuring the Multicast VLAN	
	• 19.2.5 Configuring the Virtual Multicast Upstream Port	
	• 19.2.6 Configuring a Preview Profile	
	• 19.2.8 Configuring a Program Profile	
	• 19.2.10 Configuring a Multicast User	
Voice service	• 19.2.1 Configuring a VLAN	
	• 23.2.1 Adding a Service Virtual Port	

23.2.1 Adding a Service Virtual Port

After a service virtual port is successfully added, it can carry various types of service streams.

23.2.1 Adding a Service Virtual Port

After a service virtual port is successfully added, it can carry various types of service streams.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose Connection > Service Port from the navigation tree.
- 3 In the information list, right-click and choose Add from the shortcut menu.
- 4 In the dialog box that is displayed, set the parameters.

Add Service Po	rt		X
Basic Info ID(1-32768): Name: Alias:	1001/0_3_0/0/Multi-Service VLAN/3000 *	Attributes Connection Type: LAN-EF	20N ▼*
Network Side Bundle ID VLAN Choice: Tag-Transform Vlan ID(1-409 Cos value(0-7	(1-8192): Smart VLAN ▼* n: Default ▼ 5): 1001*	User Side Create Bulk Service Por Interface Selection: Service Type: User VLAN(1-4095):	t 0/3/0/0 ▼ * Multi-Service VLAN ▼ * 3000 ▼ *
Traffic Profile In	fo upstream and downstream settings the same ffic Name: ip-traffic-table_5	Downstream Traffic Name:	o-traffic-table_5
		ОК	Cancel <u>A</u> pply

Key Parameter	Description
VLAN ID	Indicates the VLAN ID of the service virtual port. The VLAN ID uniquely identifies a VLAN.

You can select only the traffic profiles that exist on devices. Otherwise, the system reports an error.

- 5 Click OK.
 - ----End

Command Reference

То	Run the Command	In
Query the 802.1x configuratio n of a service virtual port	display dot1x service-port	Privilege mode
Bind a service virtual port with 802.1x authenticati on	dot1x service-port	Global config mode

23.3 Configuring Services on the MDU

An FTTB network consisting of OLTs and MDUs provides users with Internet services, multicast services, and voice services.

Context

Several operations are required when you configure a service. The following lists the services configured at the MDU side and the service configuration steps.

Services	Steps
Internet access service	• 19.2.1 Configuring a VLAN
	• 19.3.3 Adding a Service Port
	• 19.3.4 Configuring an ADSL Line Profile
	• 19.3.5 Configuring an ADSL Alarm Profile
	• 19.3.6 Configuring the Attributes of an ADSL Port
	• 19.3.7 Activating an ADSL Port
Multicast service	• 19.2.1 Configuring a VLAN
	• 19.3.3 Adding a Service Port
	• 19.2.7 Configuring the Multicast VLAN
	• 19.2.5 Configuring the Virtual Multicast Upstream Port
	• 19.2.6 Configuring a Preview Profile
	• 19.2.8 Configuring a Program Profile
	• 19.2.10 Configuring a Multicast User

Services	Steps
Voice service	• 19.2.1 Configuring a VLAN
	• 19.3.2 Configuring an IP Interface
	• 23.3.1 Configuring a Static Route
	• 19.3.9 Adding an MGC Profile
	• 19.3.10 Configuring a UAS Profile
	• 19.3.12 Adding an MG
	• 19.3.13 Binding an MGC Profile
	• 19.3.14 Starting an MG
	• 19.3.15 Configuring a VoIP PSTN Port

23.3.1 Configuring a Static Route

This topic describes how to configure a static route to the U2000 for an ONU. When the management mode of the ONU is SNMP, to maintain or manage an ONU, configure a static route to the U2000 for the ONU.

23.3.1 Configuring a Static Route

This topic describes how to configure a static route to the U2000 for an ONU. When the management mode of the ONU is SNMP, to maintain or manage an ONU, configure a static route to the U2000 for the ONU.

Prerequisite

The management mode of the ONU must be SNMP.

Context

When the IP addresses of the VLAN interface and the MGC are in different network segments, you need to configure a route from the MG to the MGC.

Procedure

- 1 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.
- 2 Choose **EPON** > **EPON ONU** from the navigation tree.
- 3 On the **EPON ONU** tab page, set the filter criteria or click 🖄 to display the EPON ONUs.
- 4 In the information list, select a record and click the **Static Route Info.** tab in the lower pane. Right-click the information list and choose **Add** from the shortcut menu.
- 5 In the dialog box that is displayed, set the parameters.

Add a Static Route		×
Target IP Address:	10.71.10.146	*
Target Mask:	255.255.255.0	*
Next Hop IP Address:	10.78.10.1	*
	OK Cancel <u>Apply</u>)

Key Parameter	Description
IP Address	Indicates the destination IP address. It identifies the destination IP address or destination network of the IP packet.
IP Address Mask	Indicates the subnet mask of the IP address. A subnet mask consists of consecutive 1s and can be represented in dotted decimal notation when written in the text format. The subnet mask and the destination IP address together identify the address of the network segment where the destination host or router is located. To be specific, you can get the address of this network segment by performing the logical AND operation on the destination IP address and the subnet mask.
Next Hop IP Address	Indicates the next hop address. It is used to identify the next router that the IP packet passes. Latest configuration for the next hop address will automatically overwrite the previous configuration and become the next hop address in the current route information.

To configure the static route, you can also perform operations on the NE Explorer of the MDU. The first two steps are as follows:

- 1. In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or rightclick the required MDU and choose **NE Explorer** from the shortcut menu.
- 2. Choose Static Route from the navigation tree.

The other steps are the same as the corresponding steps in the procedure for performing operations on the NE Explorer of the OLT.

6 Click OK.

----End

Command Reference

То	Run the Command	In
Query static routes to the U2000 from the ONT	display ont snmp-route	EPON mode
Configure a static route to the U2000 for the ONT	ont snmp-route	Privilege mode, BTV mode, MVLAN mode

23.4 Configuration Examples of the EPON FTTB Services

This topic provides examples to describe how to configure the Internet, voice, and multicast services in an EPON FTTB network.

Issue 03 (2010-11-19)

23.4.1 Data Plan for the EPON FTTB Services

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

23.4.2 Configuring the EPON FTTB Internet Service (LAN Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in LAN access mode and the MDU is connected to an OLT through an EPON port.

23.4.3 Configuring the EPON FTTB Internet Service (ADSL2+ Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in ADSL2+ access mode and the MDU is connected to an OLT through an EPON port.

23.4.4 Configuring the EPON FTTB Internet Service (VDSL2 Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in VDSL2 access mode and the MDU is connected to an OLT through an EPON port.

23.4.5 Configuring the EPON FTTB Multicast Service

This topic describes how to configure the multicast service when an MDU is connected to an OLT through an EPON port.

23.4.6 Configuring the EPON FTTB Voice Service (H.248 Protocol)

This topic describes how to configure the voice service when an MDU is connected to an OLT through an EPON port.

23.4.7 Configuring the EPON FTTB Voice Service (SIP Protocol) This topic describes how to configure the voice service when an MDU is connected to an OLT through an EPON port.

23.4.8 Configuring the EPON FTTB Service by Using a Service Provisioning Profile This topic describes how to configure various services when a user is connected to an MDU in LAN access mode and the MDU is connected to an OLT through an EPON port.

23.4.1 Data Plan for the EPON FTTB Services

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

Data Plan

Service Type	Item	Settings	Remarks
Device managemen t	Management VLAN of an OLT	VLAN ID: 8 Type: Smart VLAN	The management VLAN of an OLT is the management VLAN between the OLT and an MDU.
	Upstream port of the OLT	0/19/0	-

 Table 23-1 Data plan for the EPON FTTB services

Service Type	Item	Settings	Remarks
	Layer 3 interface	IP Address: 192.168.50.4	The IP address of the Layer 3 interface of the management VLAN of the OLT functions as the IP address of the OLT for inband network management.
	EPON port of the OLT	0/2/1	-
	Upstream port of the MDU	0/0/1	-
	Service port of the MDU	0/1/1	-
	MDU	 Name: MDU ONU ID: 0 ONU Type: MDU Authentication Mode: MAC MAC Address: 001E- E3F4-0471 Manager VLAN: 4000 IP Address: 192.168.50.2 IP Address Mask: 255.255.255.0 	To configure the MDU on the OLT in Telnet mode, ensure that the management VLANs of the OLT and the MDU are the same and the management IP addresses of the OLT and the MDU are in the same network segment. When the MDU is connected to the OLT through an EPON port, the MDU uses the SNMP protocol as the network management protocol and does not require service profiles.

Service Type	Item	Settings	Remarks
	MDU SNMP profile	 Name: snmpprofile SNMP Version: v1 Read Name: public Write Name: private Trap Host IP: 192.168.50.3 Trap UDP Port: 162 SNMP Security Name: public 	-
	Service virtual port (based on the management VLAN)	 VLAN ID: 8 Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN: 8 Upstream Traffic Name: FTTx 	After the MDU is added to the U2000 successfully, a control channel has been established but no data channel is established. In this case, you need to create a service virtual port on the OLT to help the OLT manage the MDU.
	MEF IP traffic profile	 Name: FTTx CIR: 20480 Outer Priority: 1 	The MEF IP traffic profile is used on the OLT or MDU to control upstream and downstream traffic.
	DBA profile	 Name: FTTx DBA type: Maximum Bandwidth Maximum Bandwidth: 32768 	-
	Line profile	Name: FTTx DBA Profile: FTTx	-

Service Type	Item	Settings	Remarks
Internet service	VLAN	 VLAN ID: 1001 Type: Smart VLAN Attribute: QinQ 	 In the case of the Internet service, users are identified by QinQ VLANs. A CVLAN is allocated to each user on the MDU and an SVLAN is allocated to each slot, port, or OLT according to networking scenarios. Plan VLANs for the MDUs that are connected to the same OLT in a centralized manner and ensure that each VLAN is unique to an MDU.
	Service virtual port on the OLT side	 Name: HSI VLAN ID: 1001 Interface Selection: 0/2/1/0 Service Type: Multi-Service VLAN User VLAN: 1001 Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-
	Service virtual port on the MDU side	 Name: HSI Vlan ID: 1001 Interface Selection: 0/1/1 User VLAN: untagged Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-

Service Type	Item	Settings	Remarks
IPTV service	VLAN	 VLAN ID: 1000, 3000 Type: Smart VLAN 	-
	Service virtual port on the OLT side	 Name: IGMP Vlan ID: 1000 Interface Selection: 0/2/1/0 Service Type: Multi-Service VLAN User VLAN: 1000 Keep the upstream and downstream settings the same: selected 	-
		 Upstream Traffic Name: FTTx 	
	Multicast VLAN on the OLT side	 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 	-
	Multicast VLAN on the MDU side	 IGMP Version: IGMP V3 Work Mode: igmp_snooping VLAN ID: 1000 	-

Service Type	Item	Settings	Remarks
	Service virtual port on the MDU side	 Name: multicast Vlan ID: 1000 Interface Selection: 0/1/1 Service Type: Multi-Service VLAN User VLAN: untagged Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-
VoIP service	VLAN on the OLT side	VLAN ID: 2000Type: Smart VLAN	-
	Service virtual port on the OLT side	 Name: VOIP Vlan ID: 2000 Interface Selection: 0/2/1/0 Service Type: Multi-Service VLAN User VLAN: 2000 Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-
	Signaling IP address Media IP address	17.10.10.10	The H.248 and SIP protocols support separation of media and signaling streams. The media and signaling IP addresses can be the same or different.
	Gateway	17.10.10.1	-

Service Type	Item	Settings	Remarks
	Parameters of the MG interface (H. 248 protocol) NOTE The parameters of the MG interface must be the same as the parameters on the MGC. There are many negotiation parameters in the H. 248 protocol. This table provides the mandatory parameters in the H. 248 protocol.	 MG ID: 0 Name: mg1 Signaling IP Address: 17.10.10.10 Media IP Address 1: 17.10.10.10 	The ID of the MG interface used for the VoIP service determines the VAG that a service user is assigned to.
	MGC profile	 Name: mgcprofile1 Protocol Type: H.248 IP Address 1: 200.200.200.200 Port Number: 2944 	-
	Parameters of the SIP interface (SIP protocol) NOTE The parameters of the SIP interface must be the same as the parameters on the IMS. There are many negotiation parameters in the SIP protocol. This table provides the mandatory parameters in the SIP protocol.	 MG ID: 0 Name: mg1 Signaling IP Address: 17.10.10.10 Signaling Port No.: 5060 Media IP Address 1: 17.10.10.10 Transmission Mode: UDP MG Domain Name: huawei.com Active NMS UAS Profile: uasprofile1 Name: uasprofile1 	The ID of the SIP interface used for the VoIP service determines the VAG that a service user is assigned to.
	UAS prome	 Name: uasprofile1 Address Mode: Fix mode IP Address 1: 200.200.200.200 Proxy Port: 5060 	-
	PSTN user	Phone 1-Phone2: 83110000-83110001	-

23.4.2 Configuring the EPON FTTB Internet Service (LAN Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in LAN access mode and the MDU is connected to an OLT through an EPON port.

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 23.4.1 Data Plan for the EPON FTTB Services.

Example Network

MA5620, MA5626, MA5610, and MA5612 support LAN access. The configuration procedure in this topic is applicable to the MA5620 V800R308, MA5626 V800R308, MA5612 V800R308, and MA5610 V800R308.

- The PC that gains access to the network by means of PPPoE dialup is connected to an FE port on the MDU and the MDU is connected to the OLT and then to the upper layer network through a GPON port. In this case, the high-speed Internet service is available for the PC.
- The high-speed Internet service is identified by two VLANs that are accurately bound. A user VLAN is allocated to each user on the MDU and a service VLAN is allocated to each slot on the OLT.
- The following two profiles are used for the high-speed Internet service:
 - DBA profile in which **T-CONT type** is set to **Assured Bandwidth/Maximum Bandwidth** and **Maximum Bandwidth** is set to **32768Kbit/s**
 - MEF IP traffic profile in which CIR is set to 20480Kbit/s



Figure 23-1 Configuring the EPON FTTB Internet service (LAN access)

Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.

- VLAN ID: 8
- Type: Smart VLAN

Add VLAN		×
Add VLAN	VLAN ID(1-4095): Name: Alias: Type: Attribute: VLAN Priority:	VLANID_8 Smart VLAN ✓ Common Unconfigured ✓
		3ack Done Cancel

- (5) Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN				
🔯 Base Info	Sub Port L3 Interface	Extended Info		
Configure VLAN				
	Configure L2 Interface			
	Conligure L3 Intenace			
	Management Status:	LIP		*
	IP Address:	192.168.50.4		*
	-			
	IP Mask:	255.255.255.0		*
	A	- 11		
	Acceptable Frame Type:	ethernetii		^
				<u></u>
	Back	Next	Done	<u>C</u> ancel

- (6) Click **Done**.
- 2. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - Choose Configuration > Access Profile Management > Traffic Profile from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure an MDU SNMP profile. For details, see 23.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

Add MDU	J SNMP Profile					×
- Drofilo	Deremeter					
Prome	Parameter					
Nam	e:	snmpprofile	*	Alias:		
SNM	P Version:	v1 💌	*	Read Name:	public *	
Write	Name:	private	*	Trap Host IP:	10.71.210.71 *	
Trap	UDP Port (1-65535):	162	÷	SNMP Security Name:	public *	
				~		
				ок 🛛	Cancel <u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

С	reate DBA Profile		×	1
	Profile Parameters			
	Name:	FTTx	*	
	Alias:			
	DBA type:	Maximum bandwidth 👻	*	
	Fixed bandwidth rate (Kbit/s) (128-1235456):	128		
	Assured bandwidth rate (Kbit/s) (128-1235456):	128		
	Maximum bandwidth rate (Kbit/s) (128-1235456):	32768	*	
	Bandwidth compensation:	No		
		OK Cancel Apply	5	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. Configure a line profile. For details, see 23.1.3 Configuring a Line Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Profile: FTTx

a EPON Line Profile		
ame: FTTx	* Alias:	
Configuration	Name	Value
■ Base Into. ■ DBA Threshold	CAR Profile	ON
	DBA Profile	FTTX
	Encrypt Type	OFF

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 6. Confirm the MDU on the OLT side. For details, see 23.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose EPON > EPON UNI Port from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click is to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with the MAC address 0018-8256-3E47, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: MAC
 - On the Network Management Channel Parameters tab page, set the parameters.
 - OLT sets network management channel parameters: selected
 - SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)

-	IP	Address	Mask:	255	.255	.255.	0
---	----	---------	-------	-----	------	-------	---

Confirm ONU		<u>></u>
Affiliated Port:	0/2/1	Splitter ID:
Name:	MDU *	Alias:
ONU ID(0-127):	🗌 Auto Assign 🛛 🚺	Splitter Port ID(1-128):
ONU Type:	MDU 💌 *	
Basic Paramet	ers Network Management Chann	el Parameters
Line Profile:	FTTX*	Service Profile:
ONU VAS Profi	le:	
Auth Info		
Auth Way:	MAC Address 💌 * MAC Addre	ess: 00 - 18 - 82 - 56 - 3E - 47
Key:	00000000000000000000 * Time Out(n)(1-168): 🗹 Disable 👘 👘 👘
Extend Inform	nation	
	Status	PITP Status
ONU Type		
Vendor ID:	HWTC(2011)	Terminal Type: MDU 🔽
Software Ve	rsion:	
		Locate to ONU list after operation succeeds
		OK Cancel Apply
onfirm ONU		2
Affiliated Port:	*	Splitter ID:
Name:		Alias:
ONU ID(0-127):	Auto Assign U	Splitter Port ID(1-128):
ONU Type:	MDU •	
Basic Paramet	ers Network Management Channel P	arameters
🗹 OLT Sets	Network Management Channel Parame	ters EPON SNMP Profile: snmpprofile
Not Para		
Noti ala		
Manager VL	AN(1-4095): 8 *	Gateway IP Address:
P Address:	192.168.50 .2 *	IP Address Mask: 255.255.255.0 *
Priority(0-7):		
-Static Route F	Parameters	
Target IP Ad	dress:	Target Mask:
Next Hop IP	Address:	
		Locate to ONU list after operation succeeds
		OK Cancel Apply

- (6) Click OK.
- 7. Add a service virtual port on the OLT side. For details, see 23.1.6 Adding a Service Virtual Port and 23.1.7 Verifying the Interoperability Between an OLT and an MDU.

- (1) 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.
- (2) Choose **EPON** > **EPON ONU** from the navigation tree.
- (3) On the **EPON ONU** tab page, set the filter criteria or click is to display the EPON ONUs.
- (4) In the information list, select the record where the shelf, slot, port, and ONU IDs are 0, 2, 1, and 0 respectively and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-EPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

sasicinio				Attributes		
ID(1-32768):	2					
Name:	FTTX_MDU	1	*	Connection Type:	AN-EPON	•
letwork Side				User Side		
Bundle ID	(1-8192):	Omorth 6 ANI		Create Bulk Servi	ce Port	•
Tag-Transform	n: [- -	Service Type:	Multi-Service VLAN	-
Vlan ID(1-409 Cos value(0-7	i):):	8	t	User VLAN(1-4095):	8	•
raffic Profile In	fo					
raffic Profile In	fo ipstream an	ıd downstream set	tings the same			

• Configure the Internet service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN
 - Attribute: QinQ

Add VLAN					×
 Base Info Configure VLAN 					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Type:	Smart VLAN			*
	Attribute:	QinQ			*
	VLAN Priority:	Unconfigured			-
	E	lack 📄 📩	Next	Done	<u>C</u> ancel

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



- (5) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.

- (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - VLAN ID: 1001
 - Service Type: Multi-Service VLAN
 - User VLAN: 1001
 - 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)

d Service Port			
lasic Info		Attributes	
ID(1-32768): 1			
Name: HSI	*	Connection Type: LAN-G	PON -
Alias		LAN-EF	PON
Internet Olde		LAN-GE	PON
Jetwork Side		User Side	
Bundle ID(1-8192):			
VLAN Choice:	Smart VLAN 🔻	Interface Selection: 0/2/	0/0/0
Tog Transform:		Service Type: Mult	i-Senrice VI AN
rag-rransionn.		Man	
Vlan ID(1-4095):	1001	User VLAN(1-4095): 1001	
Cos value(0-7):	*		
vette Dvetile Infe			
rainc Prome into			
Keep the upstream	and downstream settings the same		
Lingtroom Troffic blome	in traffic toble. 6	Downstream Troffic Nome:	n traffic table. 6
oporeann rianic Name.	ib.name.table_o	Downstream francistarie.	p-traine-table_0
		OK	Cancel Apply

• Configure the Internet service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

1. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN

dd VLAN					1
S Base Info Configure VLAN					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Type:	Smart VLAN			*
	Attribute:	Common			*
	802.1 Priority:	Unconfigured	1		•
I		Back	Next	Done	Cancel

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

Add VLAN			×
Base Info	Sub Port L3 Interface	Extended Info	SubPortList Gran Frame:0 Gran Slot00 Gran Port01
	<u>B</u> ack	Next	Done Cancel

- (6) Click Done.
- 2. Add a service virtual port on the MDU side. For details, see 19.3.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:HSI
 - Connection Type: LAN-ADSL (when the physical port is an ADSL port) or LAN-VDSL2 (when the physical port is a VDSL2 port) or LAN-ETHER (when the physical port is an Ethernet port)
 - Vlan ID: 1001
 - Interface Selection: 0/1/1
 - VPI: 0 (when the physical port is an ADSL or VDSL2 port)

- VCI: 0 (when the physical port is an ADSL or VDSL2 port)
- User VLAN: untagged
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

Name: HSI	Basic Info	Attributes
Network Side Jser Side Jser Side VLAN Choice: Smart VLAN ✓ Vian ID(1-4095): 1001 * VCI(32-255): 0 Service Type: Multi-Service VLAN	Name: HSI Alias:	Connection Type: LAN-VDSL2 LAN-ADSL LAN-ASHDSL
VLAN Choice: Smart VLAN Vian ID(1-4095): 1001 VIAN Choice: Smart VLAN Vian ID(1-4095): 1001 VIAN Choice: Multi-Sensing VPI(0-255): 0 VCI(32-255): 35 Service Type: Multi-Service VLAN	Network Side	User Side LAN-VDSL2
User VLAN(1-4095): untagged	VLAN Choice: Smari VLAN Vlan ID(1-4095): 1001	Interface Selection: 0/1/1 Channel Mode: ATM Atto-sensing VPI(0-255): 0 VCI(32-255): 35 Service Type: Multi-Service VLAN User VLAN(1-4095): unfagged
	Traffic Profile Info	
Traffic Profile Info	✓ Keep the upstream and downstream settings the same Upstream Traffic Name: FTTx	Downstream Traffic Name: FTTx
Traffic Profile Info Image: Seep the upstream and downstream settings the same Upstream Traffic Name: FTTX		

(4) Click OK.

----End

Result

The user gains access to the Internet after the dialup is performed successfully by the PPPoE dialup software on the PC.

23.4.3 Configuring the EPON FTTB Internet Service (ADSL2+ Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in ADSL2+ access mode and the MDU is connected to an OLT through an EPON port.

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 23.4.1 Data Plan for the EPON FTTB Services.

Example Network

The MA5616 supports ADSL2+ access. The configuration procedure in this topic is applicable to the MA5616 V800R308.

• The PC is connected to an ADSL2+ port on the MDU. The data frames from the PC are transmitted to separate service channels according to user-side VLANs. Then, the OLT

switches VLAN tags (that is, switches user-side VLANs to upstream VLANs) and transmits the data frames through an upstream port.

• The PC gains access to the Internet in PPPoE access mode. If the access mode is set to IPoA or PPPoA, you need to configure protocol conversion and encapsulation modes.

Figure 23-2 Configuring the EPON FTTB Internet service (ADSL2+ access)



Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3

interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8
 - Type: Smart VLAN

Add VLAN Base Info Configure VLAN			×
	VLAN ID(1-4095):	8 *	
	Name:	VLANID_8	
	Alias:		
	Туре:	Smart VLAN 👻 *	
	Attribute:	Common 💌	
	VLAN Priority:	Unconfigured	

- (5) Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN	<u></u>
Add VLAN Base Info Configure VLAN	Sub Port L3 Interface Extended Info
	Eack Next Cancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN				2
😧 Base Info Sonfigure VLAN	Sub Port L3 Interface	Extended Info		
	Management Status:	UP		*
	IP Mask:	255.255.255.0		*
	Acceptable Frame Type:	ethernetii		*
	Back	Next	Done	<u>C</u> ancel

- (6) Click **Done**.
- 2. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure an MDU SNMP profile. For details, see 23.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

Add MDU SNMP Profile				×
Profile Parameter				
Name:	snmpprofile *	Alias:		
SNMP Version:	v1 •	Read Name:	public *	
Write Name:	private *	Trap Host IP:	10.71.210.71 *	
Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *	
		ОК	Cancel <u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 4. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Create D	BA Profile			×
Profile	Parameters			
Name		FTTx		*
Alias:				
DBAt	/pe:	Maximum bandwidth		*
Fixed	bandwidth rate (Kbit/s) (128-1235456):	128		
Assur	ed bandwidth rate (Kbit/s) (128-1235456):	128		
Maxim	um bandwidth rate (Kbit/s) (128-1235456)	32768		*
Bandy	vidth compensation:	No		•
		ОК	Cancel	Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 5. Configure a line profile. For details, see 23.1.3 Configuring a Line Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Profile: FTTx

	* Alias:	
onfiguration Recolution	Name Name	Value
- DBA Threshold	FEC Switch	UN
	CAR Profile	
	DBA Profile	FTTX
	Encrypt Type	OFF

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 6. Confirm the MDU on the OLT side. For details, see 23.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose EPON > EPON UNI Port from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click ≥ to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with the MAC address 0018-8256-3E47, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: MAC
 - On the Network Management Channel Parameters tab page, set the parameters.
 - OLT sets network management channel parameters: selected
 - SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)

- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

Confirm ONU					×
Affiliated Port:	0/2/1	*	Splitter ID:		•
Name:	MDU	*	Alias:		
ONU ID(0-127):	🗌 Auto Assign 🛛 0	*	Splitter Port ID(1-128)	:	
ONU Type:	MDU	*			
Basic Parame	ters Network Manageme	ent Channe	el Parameters		
Line Profile:	FTTx	*	Service Profile:		.
ONU VAS Pro	file:				
Auth Info					
Auth Way:	MAC Address 💌 * N	/AC Addre	ss: 00 - 18 -	82 - 56 - 3E - 47	
Key:	0000000000000000000	Fime Out(hi)(1-168): 📝 Disable	*	
-Extend Infor	mation				
	P Status		DITE Status		
	r otatus				
ONU Type					
Vendor ID:	HWTC(2011)	-	Terminal Type: MDU	•	
Software V	ersion:	-			
			🗌 Locate to ON	J list after operation succ	eeds
			ОК	Cancel Appl	v)
					<u> </u>
Confirm ONU					×
Affiliated Port:	0/2/1	*	Splitter ID:		•
Name:	MDU	*	Alias:		
ONU ID(0-127):	Auto Assign 0	*	Splitter Port ID(1-128)	:	
ONU Type:	MDU	*			
Basic Parame	ters Network Management C	bannel Pa	arameters		
🖌 OLT Set	s Network Management Channe	el Paramete	ers EPON SNMP F	Profile: snmpprofile .	
NetPara					
Manager VI	_AN(1-4095): 8	*	Gateway IP Address:		
IP Address	192.168.50 .2	*	IP Address Mask:	255.255.255.0 *	
Priority(0-7)):				
Static Route	Parameters				
Target IP A	ddress:		Target Mask		
Next Hon IF	P Address:				
			🗌 Locate to ONU	J list after operation succe	eeds
			ОК	Cancel Appl	y]

- (6) Click OK.
- 7. Add a service virtual port on the OLT side. For details, see 23.1.6 Adding a Service Virtual Port and 23.1.7 Verifying the Interoperability Between an OLT and an MDU.

- (1) 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.
- (2) Choose **EPON** > **EPON ONU** from the navigation tree.
- (3) On the **EPON ONU** tab page, set the filter criteria or click is to display the EPON ONUs.
- (4) In the information list, select the record where the shelf, slot, port, and ONU IDs are 0, 2, 1, and 0 respectively and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-EPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

asic Info			Attributes		
ID(1-32768); 2			Allibules		
Name: FTTx_MD	U		Connection Type:	AN-EPON	-
letwork Side			User Side		
Bundle ID(1-8192):			Create Bulk Servi	ce Port	
VLAN Choice:	Smart VLAN	•	Interface Selection:	0/2/1/0/0	•
Tag-Transform:		•	Service Type:	Multi-Service VLAN	•
Vlan ID(1-4095):	8	*	User VLAN(1-4095):	8	-
Cos value(0-7):		*			
raffic Profile Info					
🖉 Keep the upstream a	and downstream setting	gs the same			
Upstream Traffic Name:	ip-traffic-table_6		Downstream Traffic Nar	ne: ip-traffic-table_6	

• Configure the Internet service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN
 - Attribute: QinQ

Add VLAN					×
 Base Info Configure VLAN 					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Type:	Smart VLAN			*
	Attribute:	QinQ			*
	VLAN Priority:	Unconfigured			-
	E	ack 🚺 📩 📐	lext	Done	<u>C</u> ancel

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

Add VLAN			X
Base Info	Sub Port L3 Interface	Extended Info	
	□ 1000 □ 1000 <t< th=""><th>></th><th>Di SubPort List Frame:0 Di Slot19 □ Slot19 □ Port00</th></t<>	>	Di SubPort List Frame:0 Di Slot19 □ Slot19 □ Port00
	Back	<u>N</u> ext	Done <u>C</u> ancel

- (5) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.

- (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - VLAN ID: 1001
 - Service Type: Multi-Service VLAN
 - User VLAN: 1001
 - 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)

d Service Port			
asic Info		Attributes	
ID(1-32768): 1			
Name: HSI	*	Connection Type:	N-GPON 🔻
Alias:		LA	N-EPON
latuari: Cida		Llaar Cida	N-GPUN
letwork Side		User Side	
Bundle ID(1-8192):			
VI AN Choice:	Smart VI AN	Interface Selection:	0/2/0/0/0
		Occurrent Trans	
Tag-Transform:		Service Type:	Multi-Service VLAN
Vlan ID(1-4095):	1001	User VLAN(1-4095):	1001 💌
Cos value(0-7):	*		
raffic Profile Info			
 Keep the upstream 	and downstream settings the same		
Upstream Traffic Name	ip-traffic-table_6	Downstream Traffic Name	e: ip-traffic-table_6
			K Consel I Analy
			K Cancel Apply

• Configure the Internet service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

1. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN

Add VLAN					2
Configure VLAN					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Туре:	Smart VLAN			*
	Attribute:	Common			*
	802.1 Priority:	Unconfigured			•
	B	lack 🔰 📐	Next	Done	<u>C</u> ancel

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

Add VLAN			×
Base Info	Sub Port L3 Interface	Extended Info	SubPort List Grame:0 Grame:
	<u>B</u> ack	Next	Done Cancel

- (6) Click Done.
- 2. Add a service virtual port on the MDU side. For details, see 19.3.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:HSI
 - Connection Type: LAN-ADSL (when the physical port is an ADSL port) or LAN-VDSL2 (when the physical port is a VDSL2 port) or LAN-ETHER (when the physical port is an Ethernet port)
 - Vlan ID: 1001
 - Interface Selection: 0/1/1
 - VPI: 0 (when the physical port is an ADSL or VDSL2 port)

- VCI: 0 (when the physical port is an ADSL or VDSL2 port)
- User VLAN: untagged
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

Basic Info	Attributes
Name: HSI	Connection Type: LAN-VDSL2
letwork Side	User Side LAN-VDSL2
	Interface Selection: 0/1/1 Channel Mode: ATM
VLAN Choice: Smart VLAN Vlan ID(1-4095): 1001	VPI(0-255): 0 * VCI(32-255): 35 *
	Service Type: Multi-Service VLAN * User VLAN(1-4095): untagged *
raffic Profile Info	
✓ Keep the upstream and downstream settings the same Upstream Traffic Name: FTTx	Downstream Traffic Name: FTTx
	OK Cancel Apply

- (4) Click OK.
- 3. Configure an ADSL line profile. For details, see 19.3.4 Configuring an ADSL Line Profile.
 - (1) Choose Configuration > Access Profile Management > ADSL Profile from the main menu.
 - (2) Click the **ADSL Line Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: adsl_profile
 - Other parameters: default settings
 - (5) Click **OK**.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE and click **OK**.
- 4. Configure the attributes of an ADSL port and activate the ADSL port. For details, see 19.3.6 Configuring the Attributes of an ADSL Port and 19.3.7 Activating an ADSL Port.
 - (1) Choose DSL > ADSL from the navigation tree.
 - (2) On the **ADSL** tab page, enter the filter criteria or click 🖄 to display the required ADSL ports.
 - (3) In the information list, right-click port 0/1/1 and choose **Configure Attributes** from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

- Line Profile: adsl_profile
- Other parameters: default settings
- (5) Click OK.
- (6) In the information list, right-click port 0/1/1 and choose Activate from the shortcut menu.

----End

Result

The user gains access to the Internet after the dialup is performed successfully by the PPPoE dialup software on the PC.

23.4.4 Configuring the EPON FTTB Internet Service (VDSL2 Access)

This topic describes how to configure the high-speed Internet service when a user is connected to an MDU in VDSL2 access mode and the MDU is connected to an OLT through an EPON port.

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 23.4.1 Data Plan for the EPON FTTB Services.

Example Network

The MA5616 and MA5652 support VDSL2 access. The configuration procedure in this topic is applicable to the MA5616 V800R308 and MA5652 V800R308.

- The PC is connected to a VDSL2 port on the MDU. The data frames from the PC are transmitted to separate service channels according to user-side VLANs. Then, the OLT switches VLAN tags (that is, switches user-side VLANs to upstream VLANs) and transmits the data frames through an upstream port.
- The PC gains access to the Internet in PPPoE access mode. If the access mode is set to IPoA or PPPoA, you need to configure protocol conversion and encapsulation modes.



Figure 23-3 Configuring the EPON FTTB Internet service (VDSL2 access)

Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

(1) 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.

- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8
 - Type: Smart VLAN

Add VLAN		2
🚳 Base Info 🔊 Configure VLAN		
	VLAN ID(1-4095):	8
	Name:	VLANID_8
	Alias:	
	Туре:	Smart VLAN *
	Attribute:	Common *
	VLAN Priority:	Unconfigured 💌
	E	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

- (5) 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
	Back Next Done Cancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

dd VLAN				×
3) Base Info 3) Configure VLAN	Sub Port L3 Interface	Extended Info)	
	Management Status:	UP 192.168.50.4		*
	nr wask. Acceptable Frame Type:	ethernetii		*
	Back	Next	Done	<u>C</u> ancel

- (6) Click **Done**.
- 2. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure an MDU SNMP profile. For details, see 23.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

Add MDU SNMP Profile				×
Profile Parameter				
Name:	snmpprofile *	Alias:		
SNMP Version:	v1 •	Read Name:	public *	
Write Name:	private *	Trap Host IP:	10.71.210.71 *	
Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *	
		ОК	Cancel <u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 4. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Create D	BA Profile			×
Profile	Parameters			
Name		FTTx		*
Alias:				
DBAt	/pe:	Maximum bandwidth		*
Fixed	bandwidth rate (Kbit/s) (128-1235456):	128		
Assur	ed bandwidth rate (Kbit/s) (128-1235456):	128		
Maxim	um bandwidth rate (Kbit/s) (128-1235456)	32768		*
Bandy	vidth compensation:	No		•
		ОК	Cancel	Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 5. Configure a line profile. For details, see 23.1.3 Configuring a Line Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Profile: FTTx

	* Alias:	
onfiguration Recolution	Name Name	Value
- DBA Threshold	FEC Switch	UN
	CAR Profile	
	DBA Profile	FTTX
	Encrypt Type	OFF

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 6. Confirm the MDU on the OLT side. For details, see 23.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose EPON > EPON UNI Port from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click ≥ to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with the MAC address 0018-8256-3E47, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: MAC
 - On the Network Management Channel Parameters tab page, set the parameters.
 - OLT sets network management channel parameters: selected
 - SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)

- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

Affiliated Port:	0/2/1	*	Splitter ID:	
Name:	MDU	*	Alias:	
ONU ID(0-127):	🗌 Auto Assign 🛛 🛛	*	Splitter Port ID(1-12	28):
ONU Type:	MDU	*		
Basic Parame	ers Network Manag	ement Chann	el Parameters	
Line Profile:	FTTX	*	Service Profile:	
ONU VAS Prof	ile:			
Auth Info				
Auth Way:	MAC Address 💌 *	MAC Addre	ss: 00 - 18	82 - 56 - 3E - 47
Key:	000000000000000000000	Time Out(h)(1-168): Disabl	*
Extend Inform	nation			
	9 Status		PITP Status	
ONU Type				
Vendor ID:	HWTC(2011)	-	Terminal Type: M	DU
Software Ve	ersion:	-		
			🗌 Locate to C	ONU list after operation succeeds
			OK	Cancel Apply
onfirm ONU				
Milliote d Deut	0/2/4	- +	Onlittee ID:	
Affiliated Port:	0/2/1	*	Splitter ID:	
Affiliated Port: Name:	0/2/1 MDU	*	Splitter ID: Alias:	· · · · · · · · · · · · · · · · · · ·
Affiliated Port: Name: ONU ID(0-127):	0/2/1 MDU Auto Assign 0	*	Splitter ID: Alias: Splitter Port ID(1-1)	28):
Affiliated Port: Name: ONU ID(0-127): ONU Type:	0/2/1 MDU Auto Assign 0	*	Splitter ID: Alias: Splitter Port ID(1-1)	28):
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame	0/2/1 MDU Auto Assign 0 MDU Network Manageme	× * * * ent Channel Pa	Splitter ID: Alias: Splitter Port ID(1-1) arameters	28):
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame	0/2/1 MDU Auto Assign 0 MDU ers Network Management S Network Management Cha	* * * * * * * * * * * * * * * * * * *	Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM	28):
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame V OLT Sets Net Para	0/2/1 MDU Auto Assign 0 MDU ers Network Management Cha	* * * * * * * * * * * * * * * * * * *	Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM	28):
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame I OLT Sets Net Para	0/2/1 MDU Auto Assign 0 MDU ers Network Management Cha	ent Channel Paramete	Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM	P Profile: snmpprofile)*
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame V OLT Sets Net Para Manager VL	0/2/1 MDU Auto Assign 0 MDU ers Network Management Cha s Network Management Cha AN(1-4095): 8		Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Addres	28):*
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame V OLT Sets Net Para Manager VI IP Address:	0/2/1 MDU Auto Assign 0 MDU ers Network Management Network Management Cha AN(1-4095): 8 192.168.50.2		Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Addres IP Address Mask:	28): P Profile: snmpprofile]* s:*
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame III OLT Sets Net Para III Address: Priority(0-7)	0/2/1 MDU Auto Assign MDU MDU Important Assign Network Management Cha AN(1-4095): 192.168.60.2		Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Address IP Address Mask:	28): P Profile: snmpprofile] * s: 255.255.255.0 *
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame ✓ OLT Sets Net Para Manager VL IP Address: Priority(0-7)	DI2/1 MDU Auto Assign Auto Assign MDU Auto Assign MDU Anton Assign Anton Assign Anton Assign Anton Assign Anton Assign As	<pre></pre>	Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Address IP Address Mask:	28): P Profile: snmpprofile) + s: 255.255.255.0 +
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame V OLT Sets Net Para Net Para Priority(0-7) Static Route	0/2/1 MDU Auto Assign Auto Assign MDU Auto Assign	<pre> * </pre>	Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Address IP Address Mask:	P Profile: snmpprofile]+ s: 255.255.255.0 +
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame V OLT Sets Net Para Net Para Net Para Priority(0-7) Static Route Target IP Ad	0/2/1 MDU Auto Assign Auto Assign MDU Auto Assign	<pre></pre>	Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Addres IP Address Mask:	28): P Profile: snmpprofile] * s: 255.255.265.0 *
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame ✓ OLT Sets Vet Para IP Address: Priority(0-7) Static Route Target IP Ad	0/2/1 MDU Auto Assign 0 MDU ers Network Management Cha SNetwork Management Cha AN(1-4095): 8 192.168.50.2 : <t< td=""><td><pre></pre></td><td>Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Addres IP Address Mask: Target Mask:</td><td>P Profile: snmpprofile * s: * *</td></t<>	<pre></pre>	Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Addres IP Address Mask: Target Mask:	P Profile: snmpprofile * s: * *
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame ♥ OLT Sets Net Para Manager VI P Address: Priority(0-7) Static Route Target IP A(Next Hop IF	0/2/1 MDU Auto Assign MDU Import Import </td <td></td> <td>Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Addres IP Address Mask: Target Mask:</td> <td>28): P Profile: snmpprofile] * s: 255.255.255.0 *</td>		Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Addres IP Address Mask: Target Mask:	28): P Profile: snmpprofile] * s: 255.255.255.0 *
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame ☑ OLT Sets Net Para ☑ PAddress: Priority(0-7) Static Route Target IP Ac Next Hop IF	0/2/1 MDU Auto Assign MDU Import Import </td <td></td> <td>Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Address IP Address Mask: Target Mask:</td> <td>28): P Profile: snmpprofile] * s: 255.255.255.0 *</td>		Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Address IP Address Mask: Target Mask:	28): P Profile: snmpprofile] * s: 255.255.255.0 *
Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Parame ✓ OLT Sets Net Para Manager VL P Address: Priority(0-7) - Static Route Target IP Ac Next Hop IF	0/2/1 MDU Auto Assign MDU ers Network Management Cha AN(1-4095): 8 192.168.50.2 : Parameters Idress: .		Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Address IP Address Mask: Target Mask:	P Profile: snmpprofile

- (6) Click OK.
- 7. Add a service virtual port on the OLT side. For details, see 23.1.6 Adding a Service Virtual Port and 23.1.7 Verifying the Interoperability Between an OLT and an MDU.

- (1) 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.
- (2) Choose **EPON** > **EPON ONU** from the navigation tree.
- (3) On the **EPON ONU** tab page, set the filter criteria or click is to display the EPON ONUs.
- (4) In the information list, select the record where the shelf, slot, port, and ONU IDs are 0, 2, 1, and 0 respectively and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-EPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

asic Info			Attributes		
ID(1-32768); 2			Autoutes		
Name: FTTx_MD	U		Connection Type:	AN-EPON	-
letwork Side			User Side		
Bundle ID(1-8192):			Create Bulk Servi	ce Port	
VLAN Choice:	Smart VLAN	•	Interface Selection:	0/2/1/0/0	•
Tag-Transform:		•	Service Type:	Multi-Service VLAN	•
Vlan ID(1-4095):	8	*	User VLAN(1-4095):	8	-
Cos value(0-7):		*			
raffic Profile Info					
🖉 Keep the upstream a	and downstream setting	gs the same			
Upstream Traffic Name:	ip-traffic-table_6		Downstream Traffic Nar	ne: ip-traffic-table_6	

• Configure the Internet service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN
 - Attribute: QinQ

Add VLAN					×
 Base Info Configure VLAN 					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Type:	Smart VLAN			*
	Attribute:	QinQ			*
	VLAN Priority:	Unconfigured			-
	E	ack 🚺 📩 📐	lext	Done	<u>C</u> ancel

(4) 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 Prame:0 Pr	>	
	Back	Next	Done Cancel

- (5) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.

- (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - VLAN ID: 1001
 - Service Type: Multi-Service VLAN
 - User VLAN: 1001
 - 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)

Service Port			
lasic Info		Attributes	
ID(1-32768): 1		·	
Name: HSI		Connection Type: LAN-GPON	•
Aliac		LAN-EPON	
Alido.		LAN-GPON	
letwork Side		User Side	
Bundle ID(1-8192):			
VLAN Choice:	Smart VLAN 🔻	Interface Selection: 0/2/0/0/0	•
Tag-Transform:		Service Type: Multi-Servi	ce VLAN 🔻
ray manoronn.		· · · · · · · · · · · · · · · · · · ·	
Vlan ID(1-4095):	1001	User VLAN(1-4095): 1001	
Cos value(0-7):			
raffic Profile Info			
🗹 Keep the upstream	and downstream settings the sam	e	
Linetroom Traffic Marrie	in traffic toble 6	Downstroom Troffis Nome:	table 6
opsalearn manic Name		Downstream traincreame: ip-traini	-table_0

• Configure the Internet service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

1. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN

Add VLAN					2
Configure VLAN					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001			*
	Alias:				
	Туре:	Smart VLAN			*
	Attribute:	Common			*
	802.1 Priority:	Unconfigured			-
	B	lack 🔰 📐	Next	Done	<u>C</u> ancel

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

Add VLAN				×
Base Info	Sub Port L3 Interface	Extended info	SubPort List →	
	Back	Next	<u>D</u> one <u>C</u> ancel	

- (6) Click Done.
- 2. Add a service virtual port on the MDU side. For details, see 19.3.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:HSI
 - Connection Type: LAN-ADSL (when the physical port is an ADSL port) or LAN-VDSL2 (when the physical port is a VDSL2 port) or LAN-ETHER (when the physical port is an Ethernet port)
 - Vlan ID: 1001
 - Interface Selection: 0/1/1
 - VPI: 0 (when the physical port is an ADSL or VDSL2 port)

- VCI: 0 (when the physical port is an ADSL or VDSL2 port)
- User VLAN: untagged
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

dd Service Port Basic Info	Attributes
Name: HSI	Connection Type: LAN-VDSL2 LAN-ADSL LAN-6.8HDSL LAN-6.8HDSL
Network Side	User Side LAN-VDSL2
	Interface Selection: 0/1/1 💌
	Channel Mode: ATM 🔷 *
	Auto-sensing
	VPI(0-255): 0 *
Vian ID(1-4095): 1001	VCI(32-255): 35 *
	Service Type: Multi-Service VLAN
	User VLAN(1-4095): untagged
Traffic Profile Info	
Keen the upstream and downstream settings the same	
Upstream Traffic Name: FTTx	Downstream Traffic Name: FTTx
	OK Cancel Apply

3. Configure a VDSL2 line profile.

The VDSL2 line profile needs to be bound to a line configuration profile and channel configuration profile, and the line configuration profile needs to be bound to a line spectrum configuration profile.

- (1) Choose Configuration > Access Profile Management > VDSL2 Profile from the main menu.
- (2) Click the VDSL2 Line Profile tab.
- (3) Click the Line Spectrum Configuration Profile tab, and select the required device type from the Device Type drop-down list.
- (4) Right-click and choose Add Global Profile from the shortcut menu.
- (5) In the dialog box that is displayed, set the parameters.
 - Name: vdsl_profile1
 - Other parameters: default settings
- (6) Click OK.
- (7) Click the **Line Configuration Profile** tab, and select the required device type from the **Device Type** drop-down list.
- (8) Right-click and choose Add Global Profile from the shortcut menu.
- (9) In the dialog box that is displayed, set the parameters.
 - Name: vdsl_profile2
 - Transmission Mode: G.992.5 POTS overlapped, G.992.5 Annex I All-Digital overlapped
 - Line Spectrum Configuration Profile: vdsl_profile1

- Other parameters: default settings
- (10) Click Finish.
- (11) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (12) In the dialog box that is displayed, select the required MDU and click OK.
- (13) Click the **Channel Configuration Profile** tab, and select the required device type from the **Device Type** drop-down list.
- (14) Right-click and choose Add Global Profile from the shortcut menu.
- (15) In the dialog box that is displayed, set the parameters.
 - Name: vdsl_profile3
 - Other parameters: default settings
- (16) Click **OK**.
- (17) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (18) In the dialog box that is displayed, select the required MDU and click OK.
- (19) Click the Line Template tab, and select the required device type from the Device Type drop-down list.
- (20) Right-click and choose Add Global Profile from the shortcut menu.
- (21) In the dialog box that is displayed, set the parameters.
 - Name: vdsl_profile
 - Line Configuration Profile: vdsl_profile2
 - Channell Configuration Profile: vdsl_profile3
 - Other parameters: default settings
- (22) Click OK.
- (23) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (24) In the dialog box that is displayed, select the required MDU and click **OK**.
- 4. Configure the attributes of a VDSL2 port and activate the VDSL2 port.
 - (1) Choose **DSL** > **VDSL2** from the navigation tree.
 - (2) On the **VDSL2** tab page, enter the filter criteria or click to display the required VDSL2 ports.
 - (3) In the information list, right-click port 0/2/1 and choose **Configure Attributes** from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Line Profile: vdsl_profile
 - Other parameters: default settings
 - (5) Click OK.
 - (6) In the information list, right-click port 0/2/1 and choose Activate from the shortcut menu.

----End

Result

The user gains access to the Internet after the dialup is performed successfully by the PPPoE dialup software on the PC.

23.4.5 Configuring the EPON FTTB Multicast Service

This topic describes how to configure the multicast service when an MDU is connected to an OLT through an EPON port.

Prerequisite

- The OLT must be added to the U2000.
- The licenses of multicast programs or users must have been applied for and installed.

Context

For details of the data plan, see 23.4.1 Data Plan for the EPON FTTB Services.

Example Network

- The STB is connected to port 0/0/1 on the MDU, and data frames are transmitted through an upstream port of the MDU to the OLT. The OLT transmits the data frames to separate service channels according to user-side VLANs, switches VLAN tags (that is, switches user-side VLANs to upstream VLANs), and then transmits the data frames through an upstream port.
- The OLT uses IGMP proxy, and the MDU uses IGMP snooping. IGMP proxy and IGMP snooping are Layer 2 multicast protocols.
- Multicast programs are configured statically.
- Multicast logs are reported to the log server as CDR files.



Figure 23-4 Configuring the EPON FTTB multicast service

Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8
 - Type: Smart VLAN

Add VLAN		×
 Base Info Configure VLAN 		
	VLAN ID(1-4095):	8
	Name:	VLANID_8
	Alias:	
	Type:	Smart VLAN 👻 *
	Attribute:	Common 💌 *
	VLAN Priority:	Unconfigured
	B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

- (5) Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN	<u>×</u>
Add VLAN Base Info Configure VLAN Configure VLAN	Sub Port L3 Interface Extended Info
	<u>Back</u> <u>N</u> ext <u>D</u> one <u>C</u> ancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN			
Base Info	Sub Port L3 Interface	Extended Info	
	Imic Configure L3 Interface Management Status: IP Address:	UP 192.168.50.4	
	IP Mask:	255.255.255.0	*
	Acceptable Frame Type:	ethernetii	*
	Back	Next	one <u>C</u> ancel

- (6) Click **Done**.
- 2. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - Choose Configuration > Access Profile Management > Traffic Profile from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure an MDU SNMP profile. For details, see 23.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

Add MDU SNMP Profile				×
- Drofilo Doromotor				
Profile Parameter				
Name:	snmpprofile *	Alias:		
SNMP Version:	<u>v1</u> *	Read Name:	public *	
Write Name:	private *	Trap Host IP:	10.71.210.71 *	
Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *	
		<u> </u>		
		ок 🗌	Cancel <u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

С	reate DBA Profile		×	1
	Profile Parameters			
	Name:	FTTx	*	
	Alias:			
	DBA type:	Maximum bandwidth 👻	•	
	Fixed bandwidth rate (Kbit/s) (128-1235456):	128		
	Assured bandwidth rate (Kbit/s) (128-1235456):	128		
	Maximum bandwidth rate (Kbit/s) (128-1235456):	32768	*	
	Bandwidth compensation:	No		
		OK Cancel Apply	5	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. Configure a line profile. For details, see 23.1.3 Configuring a Line Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Profile: FTTx

a EPON Line Profile		
ame: FTTx	* Alias:	
Configuration	Name	Value
Base Info. ⊡- DBA Threshold	CAR Profile	
	DBA Profile	FTTX
	Encrypt Type	OFF

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 6. Confirm the MDU on the OLT side. For details, see 23.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose EPON > EPON UNI Port from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click is to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with the MAC address 0018-8256-3E47, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: MAC
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected
 - SNMP Profile: snmpprofile (click in next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)

-	IP	Address	Mask:	255	.255	.255.	0
---	----	---------	-------	-----	------	-------	---

onfirm ONU				
Affiliated Port:	0/2/1	*	Splitter ID:	
Name:	MDU	*	Alias:	
ONU ID(0-127):	Auto Assign 0	*	Splitter Port ID(1-1)	28):
ONU Type:	MDU	*		
Basic Paramet	ers Network Manager	ment Channi	el Parameters	
Line Profile:	FTTx	*	Service Profile:	
ONU VAS Prof	le:			
Auth Info				
Auth Way:	MAC Address 💌 *	MAC Addre	ss: 00 - 18	- 82 - 56 - 3E - 47
Key:	0000000000000000000 *	Time Out(h)(1-168): 📝 Disabl	le *
-Extend Inform	aation			
	' Status		PITP Status	
ONU Type				
Vendor ID:	HWTC(2011)	-	Terminal Type: M	DU
Software Ve	rsion:	-		
			🗌 Locate to C	DNU list after operation succeed
			Locate to C	DNU list after operation succeed
			C Locate to C	DNU list after operation succeed
Donfirm ONU			C Locate to C	DNU list after operation succeed
onfirm ONU miliated Port:	0/2/1	×.	Cocate to C	DNU list after operation succeed
onfirm ONU viilliated Port. Jame:	0/2/1 MDU	▼ *	Locate to C OK Splitter ID: Alias:	DNU list after operation succeed
mfirm ONU ffiliated Port lame:)NU ID(0-127):	0/2/1 MDU	*	C Locate to C OK Splitter ID: Alias: Splitter Port ID(1-1:	DNU list after operation succeed
Infirm ONU miliated Port: lame: INU ID(0-127): INU Type:	0/2/1 MDU Auto Assign 0 MDU	* * *	Cocate to C OK Splitter ID: Alias: Splitter Port ID(1-1)	DNU list after operation succeed
onfirm ONU miliated Port lame: DNU ID(0-127): DNU Type: Basic Paramet	0/2/1 MDU Auto Assign 0 MDU ers Network Managemen	× × × × × t Channel Pa	Cocate to C OK Splitter ID: Alias: Splitter Port ID(1-1) arameters	DNU list after operation succeed
onfirm ONU miliated Port: Jame: DNU ID(0-127): DNU Type: Basic Paramet	0/2/1 MDU Auto Assign 0 MDU ers Network Managemen	■ * • • • • • • • • • • • • •	Cocate to C OK Splitter ID: Alias: Splitter Port ID(1-1) arameters	DNU list after operation succeed
mfirm ONU miliated Port. Iame: INU ID(0-127): INU Type: Basic Paramet	0/2/1 MDU Auto Assign 0 MDU ers Network Management Network Management Chan	• • • • • • • • • • • • • • • • • • •	Cocate to C OK Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM	DNU list after operation succeed
onfirm ONU williated Port. Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/1 MDU Auto Assign 0 MDU ers Network Management Network Management Chan	• • • • • • • • • • • • • • • • • • •	Cocate to C OK Splitter ID: Alias: Splitter Port ID(1-1: arameters ers EPON SNM	DNU list after operation succeed
onfirm ONU Miliated Port. Name: DNU ID(0-127): DNU Type: Basic Paramet I⊇ OLT Sets Net Para	0/2/1 MDU Auto Assign 0 MDU ers Network Management Network Management Chan	▼ * * * * * * * * * *	Cotoport ID (1-1):	DNU list after operation succeed
onfirm ONU miliated Port lame: NU ID(0-127): NU Type: Basic Paramet IZI OLT Sets Net Para Manager VL	0/2/1 MDU Auto Assign 0 MDU ers Network Management Network Management Chan AN(1-4095): 8 400.400.00.00	t Channel Parametr	Content of	DNU list after operation succeed Cancel Apply 28): P Profile: snmpprofile*
onfirm ONU Miliated Port Name: NU ID(0-127): NU Type: Basic Paramet III OLT Sete Net Para Manager VL P Address: Descrive T	0/2/1 MDU Auto Assign 0 MDU ers Network Management Network Management Chan AN(1-4095): 8 192.168.50.2	t Channel Parametr	Control Contr	DNU list after operation succeed Cancel Apply 28):
onfirm ONU wfiliated Port: Name: DNU ID(0-127): DNU Type: Basic Paramet INU OLT Sets Net Para Manager VL P Address: Priority(0-7)	0/2/1 MDU Auto Assign 0 MDU ers Network Management Network Management Chan AN(1-4095): 8 192.168.50.2 :		Cocate to C Coc Coc Coc Coc Coc Coc Coc Coc Coc Co	DNU list after operation succeed Cancel Apply Cancel Apply PProfile: snmpprofile
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onfirm ONU Affiliated Port. Varme: DNU ID(0-127): DNU Type: Basic Paramet I OLT Sets Net Para Manager VL IP Address: Priority(0-7) Static Route	0/2/1 MDU Auto Assign 0 MDU ers Network Management Chan Network Management Chan AN(1-4095): 8 192.168.50.2 - Parameters	t Channel Paramete	Locate to O OK OK Splitter ID: Alias: Splitter Port ID(1-1: arameters ers EPON SNM Gateway IP Address IP Address Mask:	DNU list after operation succeed
onfirm ONU Milliated Port Name: DNU ID(0-127): DNU Type: Basic Paramet IZI OLT Sets Net Para Manager VL P Address: Priority(0-7) Static Route Target IP Ad	0/2/1 MDU Auto Assign 0 MDU ers Network Management Network Management Chan AN(1-4095): 8 192.168.50.2 : Parameters tdress:	t Channel Parametr	Cocate to C OK Splitter ID: Alias: Splitter Port ID(1-1: arameters ers EPON SNM Gateway IP Address IP Address Mask: Target Mask:	DNU list after operation succeed Cancel Apply Cancel Apply Cancel Profile: snmpprofile*
DATIFY ONU Milliated Port NU ID(0-127): DNU ID(0-127): DNU Type: Basic Paramet I OLT Sets Net Para Manager VL IP Address: Priority(0-7) Static Route Target IP Ac Next Hop IP	0/2/1 MDU Auto Assign Auto Assign MDU ers Network Management Network Management Network Management Network Management AN(1-4095): Parameters Address:	<pre></pre>	Locate to C OK Splitter ID: Alias: Splitter Port ID(1-1): arameters ers EPON SNM Gateway IP Address IP Address Mask: Target Mask:	DNU list after operation succeed Cancel Apply Cancel Apply Profile: snmpprofile* S:
onfirm ONU Milliated Port. Name: DNU ID(0-127): DNU Type: Basic Paramet I OLT Sets Net Para Manager VL IP Address: Priority(0-7) Static Route Target IP Ac Next Hop IP	0/2/1 MDU Auto Assign Auto Assign MDU ers Network Management Chan AN(1-4095): 8 192.168.50.2 1 9arameters dress:	t Channel Paramete	Locate to C OK Splitter ID: Alias: Splitter Port ID(1-1): arameters ers EPON SNM Gateway IP Address IP Address Mask: Target Mask:	DNU list after operation succeed Cancel Apply Cancel Apply Profile: snmpprofile
onfirm ONU Miliated Port: Name: DNU ID(0-127): DNU Type: Basic Paramet I OLT Sets Net Para Manager VL P Address: Priority(0-7) Static Route Target IP Ac Next Hop IP	0/2/1 MDU Auto Assign Auto Assign Network Management Network Management Chan Network Management Chan Network Management Network	t Channel Paramete	Locate to C OK Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Address IP Address Mask: Target Mask: Locate to C Locate to C	DNU list after operation succeed Cancel Apply 28): P Profile: Snmpprofile 255.255.255.0
onfirm ONU wfiliated Port: Name: DNU ID(0-127): DNU Type: Basic Parametric IN OLT Sets Net Para Manager VL P Address: Priority(0-7) -Static Route Target IP Ac Next Hop IP	0/2/1 MDU Auto Assign Auto Assig	t Channel Paramete	Locate to C OK Splitter ID: Alias: Splitter Port ID(1-1) arameters ers EPON SNM Gateway IP Address IP Address Mask: Target Mask: Locate to C Locate to C	DNU list after operation succeed

- (6) Click OK.
- 7. Add a service virtual port on the OLT side. For details, see 23.1.6 Adding a Service Virtual Port and 23.1.7 Verifying the Interoperability Between an OLT and an MDU.

- (1) 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.
- (2) Choose **EPON** > **EPON ONU** from the navigation tree.
- (3) On the **EPON ONU** tab page, set the filter criteria or click is to display the EPON ONUs.
- (4) In the information list, select the record where the shelf, slot, port, and ONU IDs are 0, 2, 1, and 0 respectively and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-EPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

Basic Info		Attributes
ID(1-32768): 2		
Name: FTTx_ME		Connection Type: LAN-EPON
letwork Side		User Side
Bundle ID(1-8192):		Create Bulk Service Port
VLAN Choice:	Smart VLAN 💌 *	Interface Selection: 0/2/1/0/0
Taq-Transform:		Service Type: Multi-Service VLAN
Vian ID(1-4095):	8*	User VLAN(1-4095): 8
Cos value(0-7):	*	
raffic Profile Info		
🗹 Keep the upstream	and downstream settings the same	
	ip-traffic-table 6	Downstream Traffic Name: ip-traffic-table_6
Upstream Traffic Name:		

(7) Click OK.

• Configure the multicast service on the OLT side.

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. Add a VLAN. For details, see 19.2.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Type: Smart VLAN
 - (4) Click Done.
- 2. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

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

A	dd VLAN		X
	Base Info Configure VLAN		
		VLAN ID(1-4095):	1000 *
		Name:	VLANID_1000
		Alias:	
		Type:	Smart VLAN 👻 *
		Attribute:	Common 💌 *
		VLAN Priority:	Unconfigured
		B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

(4) 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 Frame:0 Slot09 Slot19 Slot20 > <
	Back Next Done Cancel

- (5) Click Done.
- 3. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:IGMP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 1000
 - Service Type: Multi-Service VLAN
 - User VLAN: 1000
 - 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 Po	rt						
Basic Info				Attr	butes		
ID(1-32768):	1						
Name:	IGMP		*	C	onnection Type:	AN-GPON	•
Alias:					L	AN-EPON AN-GPON	
letwork Side				Us	er Side		
🔲 Bundle ID	(1-8192):						
VLAN Choice:		Smart VLAN		In	erface Selection:	0/2/1/0/0	•
Tan-Transform	m .	-		Se	ervice Type:	Multi-Service VLAN	•
	- D					4000	
Vian ID(1-409	5): []	000		0	ser villani(1-4095).	1000	
Cos value(0-7	'): 		*				
raffic Profile In	nfo						
🗹 Keep the	upstream an	d downstream setti	ngs the same				
Upstream Tra	iffic Name:	p-traffic-table_6		Dowr	nstream Traffic Nan	ne: ip-traffic-table_6] [
							Innlu
							26613

- (4) Click **OK**.
- 4. Add a multicast VLAN on the OLT side. For details, see 19.2.7 Configuring the Multicast VLAN.
 - (1) Choose **Multicast** > **Multicast** VLAN from the navigation tree.
 - (2) On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3
 - Work Mode: igmp_proxy
 - VLAN ID: 3000

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

d Multicast V	LAN				
Default Up Por	t Info				
Frame: 0		Slot: 19		Port: 0	
Parameter Info					
IGMP Report (0-7):	Priority 6		Report Interv (10-5000):	al(S) 10	
Law Orvitale			Olehel Leev	. Outrituitu	
Lug switch.	Obe	n O Ciuse	Global-Leavi	e Switch. 🔍 C	pen O Close
			<u>_</u>		
	(< <u>B</u> ack	<u>N</u> ext>	<u> </u>	Cancel
d Multicast	VLAN				
Select VLAN					
VI AN Attrik	ute=Common'		*	Find	No. 31 Total:32
	blama		▼▼	Otherite at	Our an VI ANUE
	Name	Allas	CmortVL 001		
31 22	VLANID 22		Smart VLAN	Common	
32 33	VLANID 33		Smart VLAN	Common	
34	VLANID 34		Smart VLAN	Common	
35	VLANID 35		Smart VLAN	Common	
36	VLANID 36		Smart VLAN	Common	
37	VLANID_37		Smart VLAN	Common	
38	VLANID_38		Smart VLAN	Common	
39	VLANID_39		Smart VLAN	Common	
40	VLANID_40		Smart VLAN	Common	
77	VLANID_77		Smart VLAN	Common	
101	VLANID_101		Smart VLAN	Common	
102	VLANID_102		Smart VLAN	Common	
103	VLANID_103		Smart VLAN	Common	
234	VLANID_234		Standard V	Common	
235	VLANID_235		Standard V	Common	
2000	VLANID_20		Smart VLAN	Common	
3000	VEANIE_30		Smart VLAN	Common	
4001	VLANID_40		Smart VLAN	Common	•
<u>NI</u>					
	- Po	ck	Nevta	Finish	Cancel
			INGVIA	Lunsu	

- (5) Click Finish.
- 5. Add a virtual upstream port for the multicast service on the OLT side. For details, see 19.2.5 Configuring the Virtual Multicast Upstream Port.
 - (1) Choose Multicast > Virtual Uplink Port from the navigation tree.
 - (2) On the **Virtual Uplink Port** tab page, set the filter criteria to display the required virtual upstream ports.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Frame: 0
 - Slot: 19
 - Port: 0

Add Virtual Uplink Port	×
Location Info Device Name: 10.71.227.35	•
Multicast VLAN Info VLAN ID(1-4095): 3000 +	Uplink Port Info Frame: 0 * Slot: 19 * Port: 0 *
	OK Cancel Apply

- (5) Click Done.
- 6. Configure a program profile on the OLT side. For details, see 19.2.8 Configuring a Program Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **IGMP Profile** from the main menu.
 - (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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)

dd Program Profile				
Description Info Configure the desir When the program can not have a sourd program must have	ed parameters. Is provisioned, if the IGN re IP address.If the IGMI a source IP	1P ve P ver	rsion of the multicast VLAN i sion of the multicast VLAN is	s V2, the program V3, address.the
Name: Alias:	program1			
Profile Index (1-1024):	1			
Begin IP Address:	224.0 .1 .1	E	nd IP Address:	224.0 .1 .1
Source IP Address:	10.10.10.20	н	ost IP:	0.0.0.0
Priority (0-7):	7	в	andwidth (Kbit/s) (0-65534):	5000
Grade:	no-grade 💌	M	ulticast VLAN(1-4095):	
Preview Parameter				
Preview Profile: 0				···· •
Attribute Parameter				
🗌 Prejoin Attribute			🗾 Host Attribute	
🔲 Unsolicited Attribu	te		🖌 Log Attribute	
Across VLAN Attrit	oute			
			ОКСС	ancel Apply

(5) Click OK.

- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required OLT and click Next. Then, set VLAN ID to 3000.
- (8) Click OK.
- 7. Configure a multicast user on the OLT side. For details, see 19.2.10 Configuring a Multicast User.

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.

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

Select Device Device Name: 10.71.227.35 Parameters Name: 4/56/uservlan/untagged Max. Programs NO (1-32): 8 # Enable Log Switch Quick Leave Mode: mac-based Imac-based Enable Authorization # Enable Authorization Imac-based User Max Band Width(Koll/S) Imac-based # Unlimited Band Width Imac-based # Unlimited Band Width Imac-based # Unlimited Band Width Imac-based # Select Service Port Imac-based # If Imac-based # Find No. 3, Total: Name - Alias - Connection Type - Interface Information # Mas - Connection Type - # If Imac-based # Imac-based Frame: OSlot 12/ # Service Para User VLAN Ip+infil-table 2 # Imac-base Frame: OSlot 12/ # Imac-base Frame: OSlot 13/ # Imac-base Frame: OSlot 13/ # Imac-base Frame: OSlot 13/ # Imac-base Frame: OSlot 13/ <th>d User</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	d User									
Device Name: 10.71.227.35 Parameters Name: 4/56/uservlan/untagged Max Programs NO.(1-32): 8 # Programs NO.(1-32): 9	Select Device									
Parameters Name: 4/56/uservlan/untagged Alias: IGMPUserA Max Programs NO.(1-32): 8 ✓ Enable Log Switch Ouick Leave Mode: mac-based Enable Authorization ✓ Default Video Flow User Max Band Width(Kbit/S) ✓ Unlimited Band Width ✓ Receive Global-Leave 0.4294967294): ✓ Unlimited Band Width ✓ Receive Global-Leave Select Service Port ✓ Find No. 3, Total: Name Alias Connection Type Interface Information Service Type 11 ✓ Find No. 3, Total: Single ~ Ip-traffic-table_6 20/0_12_0/ LAN-6PON Frame: ONIot 12/ Single ~ Ip-traffic-table_6 10_13_0/1 LAN-6PON Frame: ONIot 13/ Single ~ Ip-traffic-table_6 10_13_0/1 LAN-ADSL Frame: ONIot 13/ Single ~ Ip-traffic-table_6 10_13_0/1 LAN-ADSL Frame: ONIot 13/ Single ~ Ip-traffic-table_6 10_13_1/1 LAN-ADSL Frame: ONIot 13/ Single ~ Ip-traffic-table_6	Device Name:	10.71.227.3	5							
Parameters Name: 4/58/uservlan/untagged Alias: IGMPUserA Max: Programs NO.(1-32): 8 IF Enable Log Switch Quick Leave Mode: mac-based Enable Authorization IF Default Video Flow User Max Band Width(kbit/S) IF Unlimited Band Width IF Connection Type ∧ Interface Information Select Service Port IF Mame ∧ Alias ∧ Connection Type ∧ Interface Information Service Para Upsteam Traffic Table_5 Story C. P. Service Para Upsteam Traffic Table_5 Story C. J. Single IF Unlimited Band Width (kbit/S) LAN-ADSL Frame: O/Slot 12/ Single IF Ind No. 3, Total: Jongla LAN-GPON Frame: O/Slot 12/ Single IF Ind No. 3, Total: Jongla LAN-GPON Frame: O/Slot 13/ Single IF Ind IF Ind										
Name: 4/56/uservlan/untagged Nias: IOMPUserA Max Programs NO.(1-32): 8 + IF Enable Log Switch Ouick Leave Mode: mac-based Enable Authorization IF Default Video Flow User Max Band Width(Kbil/S) IF Unlimited Band Width IF Default Video Flow User Max Band Width(Kbil/S) IF Unlimited Band Width IF Default Video Flow Select Service Port IF Unlimited Band Width IF Receive Global-Leave 11 Alias - Connection Type - Interface Information Service Type - Service Para Upsteam Traffictable 2 100_11_2_06 LAN-ADSL Frame: OiSlot 12/ Single - Ip-traffic-table 2 100_11_2_07 LAN-ADSL Frame: OiSlot 13/ Single - Ip-traffic-table 2 100_11_3_07 LAN-ADSL Frame: OiSlot 13/ Single - Ip-traffic-table 2 100_11_3_17 LAN-ADSL Frame: OiSlot 13/ Single - Ip-traffic-table 2 100_11_3_17 LAN-ADSL Frame: OiSlot 13/ Single - Ip-traffic-table 2 100_11_3_17 LAN-ADSL Frame: OiSlot 13/ Single - Ip-traffic-table 2 100_11_3_17 LAN-ADSL Frame: OiSlot 13/ Single - Ip-traffic-table 2 100_1	-arameters									
Max Programs NO (1-32): 8 Pier Enable Log Switch Quick Leave Mode: mac-based Pier Enable Authorization Pier Default Video Flow User Max Band Width(/GNU4) Quick Leave Mode: Pier Unlimited Band Width Pier Receive Global-Leave (-4.294967294): Select Service Port I I I I I I I I I I I I I I I I I I I	Name:		4/56/uservlan/u	ntagged	Alias:			IGMPUserA		
Quick Leave Mode: mac-based Enable Authorization IP Default Video Flow User Max Band Width(kbit/s) IP Unlimited Band Width IP Receive Global-Leave Select Service Port IP Unlimited Band Width IP Receive Global-Leave 11 ✓ Find No. 3, Total: Name ^ Alias ^ Connection Type ^ Interface Information Service Type ^ Service Para Upsteam Traffic-Table_5 100_11_2.0m. LAN-ADSL Frame: O/Slot 12/ Single - Ip-traffic-table_5 100_11_2.0m. LAN-GPON Frame: O/Slot 12/ Single - Ip-traffic-table_5 100_13_0/1 LAN-ADSL Frame: O/Slot 13/ Single - Ip-traffic-table_5 100_13_2/1 LAN-ADSL Frame: O/Slot 13/ Single - Ip-traffic-table_5 100_13_3/1 LAN-ADSL Frame: O/Slot 13/ Single - Ip-traffic-table_5 100_13_6/1 LAN-ADSL Frame: O/Slot 13/ Single - Ip-traffic-table_5 100_13_6/1 LAN-ADSL Frame: O/Slot 13/ Single - Ip-traffic-table_5 100_13_6/1 LAN-ADSL Frame: O/Slot 1	Max. Program	ns NO.(1-32):	8		🗹 Enabl	e Log Sv	vitch			
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Select Service Port ✓ Find No. 3, Total: Name ∧ Alias ∧ Connection Type ∧ Interface Information Service Type ∧ Service Para Upsteam Traffit //0_14_2/6 LAN-ADSL Frame: 0/Slot 14/ Single - Ip-traffic-table_5 30/0_12_0/ LAN-ADSL Frame: 0/Slot 12/ Single - Ip-traffic-table_5 21/0_2_1/3 LAN-GPON Frame: 0/Slot 12/ Single - Ip-traffic-table_5 21/0_2_1/3 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 1/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 1/0_13_1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 1/0_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-	User Max Bai (0-42949672	nd Width(Kbit/s 94):	5)		🗹 Unlim	ited Ban	d Width	🖌 Receive	Global-Leave	
II ✓ Find No. 3, Total: Name ∧ Alias ∧ Connection Type ∧ Interface Information Service Type ∧ Service Para Upsteam Traffi //0_14_2/6 LAN-ADSL Frame: 0/Slot 14/ Single - Ip-traffic-table_5 0/0_14_2/6 LAN-ADSL Frame: 0/Slot 12/ Single - Ip-traffic-table_5 0/0_12_0/ LAN-APSL Frame: 0/Slot 12/ Single - Ip-traffic-table_5 0/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 0/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 0/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 0/13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 0/13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 0/13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_	Select Service	Port								
Name Alias Connection Type Interface Information Service Type Service Para Opstream Traffi //l_12/2/L. LAN-ADSL Frame: 0/Slot 14/ Single - Ip-traffic-table_5 0//l_12/2/L. LAN-OPON Frame: 0/Slot 12/ Single - Ip-traffic-table_5 0//l_2/13_ LAN-OPON Frame: 0/Slot 12/ Single - Ip-traffic-table_5 0/l_12_0/L. LAN-OPON Frame: 0/Slot 13/ Single - Ip-traffic-table_5 0/l_13_0/L. LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 0/l_13_0/L. LAN-ADSL Frame: 0/Slot 13/ Single - Etst_1 0/l_13_0/L. LAN-ADSL Frame: 0/Slot 13/ Single - Etst_1 0/l_13_0/L. LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 0/l_13_0/L. LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_5 0/l_13_0/L. LAN-ADSL Frame: 0/Slot 13/ Single	11			_		_		/ Find	No. 3, Total:	14-
ID ID <thid< th=""> ID ID ID<!--</td--><td>Name 🛆</td><td>Alias 🛆 🛛</td><td>Connection Type 🗠</td><td>Interface</td><td>Information</td><td>Service</td><td>Туре 🔿</td><td>Service Para</td><td>Upstrearn Traffi</td><td>c</td></thid<>	Name 🛆	Alias 🛆 🛛	Connection Type 🗠	Interface	Information	Service	Туре 🔿	Service Para	Upstrearn Traffi	c
U00_12_0/ LAN-GPON Frame: 0/Slot 12/ Single - Ip-traffic-table_6 00_13_0/1 LAN-GPON Frame: 0/Slot 12/ Single - Ip-traffic-table_6 00_13_0/1 LAN-ADSL Frame: 0/Slot 12/ Single - - 00_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 00_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 00_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - E_test_1 00_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - E_test_1 00_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 00_13_0/1 LAN-ADSL	/0_14_2/6	L	AN-ADSL	Frame: 0	/Slot: 14/	Single			ip-traffic-table_3	3
I/0_2_1/3 LAN-GPON Frame: 0/Slot 2/P Multi-Service V User VLAN Ip-traffic-table_E 0_13_0/f LAN-ADSL Frame: 0/Slot 13/ Single - - 0_13_0/f LAN-ADSL Frame: 0/Slot 13/ Single - - 0_13_0/f LAN-ADSL Frame: 0/Slot 13/ Single - - 0_13_0/f LAN-ADSL Frame: 0/Slot 13/ Single - E_test_1 0_13_0/f LAN-ADSL Frame: 0/Slot 13/ Single - - 0_13_0/f LAN-ADSL Frame: 0/Slot 13/ Single - - 0_13_0/f LAN-ADSL Frame: 0/Slot 13/ Single - - 0_13_6/f LAN-ADSL Frame: 0/Slot 13/ Single - - 0_13_6/f LAN-ADSL Frame: 0/Slot 13/ Single - - 0_13_7/f LAN-ADSL Frame: 0/Slot 13/ Single - - - 0_13_0/f LAN-ADSL	0/0_12_0/	L	AN-GPON	Frame: 0	/Slot: 12/	Single			ip-traffic-table_6	i i
IDL13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single IDL13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single <td>1/0_2_1/3</td> <td>L</td> <td>AN-GPON</td> <td>Frame: 0</td> <td>/Slot: 2/P</td> <td>Multi-Sei</td> <td>rvice V</td> <td>User VLAN:</td> <td>ip-traffic-table_6</td> <td>5</td>	1/0_2_1/3	L	AN-GPON	Frame: 0	/Slot: 2/P	Multi-Sei	rvice V	User VLAN:	ip-traffic-table_6	5
M0_13_1/1 LAN-ADSL Frame: 0/Slot 13/ Single M0_13_2/1 LAN-ADSL Frame: 0/Slot 13/ Single E_test_1 M0_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single E_test_1 M0_13_S/1 LAN-ADSL Frame: 0/Slot 13/ Single	/0_13_0/1	L	AN-ADSL	Frame: 0	/Slot: 13/	Single				1
ID ID <thid< th=""> ID ID ID<!--</td--><td>/0_13_1/1</td><td>L</td><td>AN-ADSL</td><td>Frame: 0</td><td>/Slot: 13/</td><td>Single</td><td></td><td></td><td></td><td>1</td></thid<>	/0_13_1/1	L	AN-ADSL	Frame: 0	/Slot: 13/	Single				1
ID_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single ID_13_4/1 LAN-ADSL Frame: 0/Slot 13/ Single ID_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single ID_10_11 LAN-ADSL Frame: 0/Slot 13/ Single	/0_13_2/1	L	AN-ADSL	Frame: 0	/Slot: 13/	Single			E_test_1	1
10_13_4/1 LAN-ADSL Frame: 0/Slot 13/ Single 10_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single 0_13_7/1 LAN-ADSL Frame: 0/Slot 13/ Single 2 12.01 LAN-ADSL Frame: 0/Slot 13/ Single	/0_13_3/1	L	AN-ADSL	Frame: 0	/Slot: 13/	Single				1
ID_13_6/1 LAN-ADSL Frame: 0/Slot: 13/ Single IO_13_6/1 LAN-ADSL Frame: 0/Slot: 13/ Single IO_13_7/1 LAN-ADSL Frame: 0/Slot: 13/ Single IO_13_7/1 LAN-ADSL Frame: 0/Slot: 13/ Single IO_13_7/1 LAN-ADSL Frame: 0/Slot: 13/ Single	/0_13_4/1	L	AN-ADSL	Frame: 0	/Slot: 13/	Single				1
J0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single J0_13_7/1 LAN-ADSL Frame: 0/Slot 13/ Single 21_2_7/1 LAN-ADSL Frame: 0/Slot 13/ Single	/0_13_5/1	L	AN-ADSL	Frame: 0	/Slot: 13/	Single				1
10_13_7/1 LAN-ADSL Frame: 0/Slot 13/ Single	/0_13_6/1	L	AN-ADSL	Frame: 0	/Slot: 13/	Single				1
	/0_13_7/1	L	AN-ADSL	Frame: 0	/Slot: 13/	Single				1
	<		AN 450	o	01-6.4.02	0:			3	2
«Back Nevt» Finish Cance					«Back		Javts	Finish	Cance	-

- (4) Click Finish.
- (5) Select the multicast user, click the User Multicast VLAN tab in the lower pane, right-click, and then choose Add from the shortcut menu.
- (6) In the dialog box that is displayed, select the record where Multicast VLAN ID is set to 3000 and click OK.

dd Multica _E Select Mu	ast VLAN to use Iticast VLAN	ər				X
Please	input query condi	tion		•	Find	No. 2, Total:2
	Name	Alias	Multicast VLAN	ID 🛆 👘	IGMP Versio	n
	dd Multicast VL	AN			×	tv_off
IGMPV	Total : 1, Succee	eded : 1, Failed : 0				igmp_(
			100%			
			<u>D</u> etails <<		<u>C</u> lose	
	No. Device	Name Name	Result	Fai	lure Cause	
	1 10.71.227		Soon Succeeded			
	<					
<)		>
			1	OK	Cancel	Apply

• Configure the multicast service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

1. Add a VLAN. For details, see 19.2.1 Configuring a VLAN.

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Type: Smart VLAN
- (4) Click Done.
- 2. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

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

Add VLAN					2
Base Info Configure VLAN					
	VLAN ID(1-4095):	1000			*
	Name:	VLANID_1000			*
	Alias:				
	Type:	Smart VLAN			*
	Attribute:	Common			*
	802.1 Priority:	Unconfigured			•
	E	lack 📄 🚺	<u>N</u> ext	<u>D</u> one	<u>C</u> ancel

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

- (6) Click Done.
- 3. Add a service virtual port on the MDU side. For details, see 19.3.3 Adding a Service Port.

If the access port of MDU is xDSL port, ensure that the xDSL port is activated.

- (1) On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - Name: IGMP
 - Connection Type: LAN-ADSL (when the physical port is an ADSL port) or LAN-VDSL2 (when the physical port is a VDSL2 port) or LAN-ETHER (when the physical port is an Ethernet port)
 - Vlan ID: 1000

- Interface Selection: 0/1/1
- VPI: 0 (when the physical port is an ADSL or VDSL2 port)
- VCI: 0 (when the physical port is an ADSL or VDSL2 port)
- Service Type: Multi-Service VLAN
- User VLAN: untagged
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

d Service Port					
Basic Info		Attributes			
La lava					
Name: IGMP		Connection Type:	LAN-VDSL2		•
Alias:			LAN-ADSL		
			LAN-G.SHDSL		
Network Side		User Side	LAN-VDSL2		
		Interface Selection:	Unn		•
		Channel Mode:	ATM		•
VLAN Choice: Smart VLAN	* *	Auto-sensing			
		VPI(0-255):	0		
Vian ID(1-4095): 1000		VCI(32-255):	35		
		Service Type:	Multi-Service	VLAN	•
		Licer\/LAN/1-4095\;	1000		-
		USBI VEAU(1-4095).	1000		
raffic Profile Info					
Keep the upstream and downstream settings the	e same				
Upstream Traffic Name: FTTx	<u> </u>	Downstream Traffic Na	me: FTTx		
			au		
			UK Ca	ancei	Apply

- (4) Click OK.
- 4. Add a multicast VLAN on the MDU side. For details, see 19.2.7 Configuring the Multicast VLAN.
 - (1) Choose Multicast > Multicast VLAN from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3
 - Work Mode: igmp_snooping
 - VLAN ID: 1000

Add Multicast VLA	N	x
Base Information		
Name:		Alias:
IGMP Version:	IGMP V3	▼
-Autogeneration Pr	ogram IP Address	-Work Mode
-	-	
Program Match M	lode: 🖲 Enable 🔿 Disable	Work Mode: igmp_snooping 💌
Start IP Address:		Snooping Report Switch: Open Oclose
End IP Addrose:		Snooping Leave Switch: O Open Cloce
Enu la Aduress.		Shooping Leave Switch. O Open @ Close
	<u>B</u> ack	<u>N</u> ext <u>D</u> one <u>C</u> ancel

Default Up Port I	nfo				
Frame: 0		Slot: 0		Port: 1	
Parameter Info					
IGMP Report P	riority(0-7): 6	*	Report Interval	(S)(10-5000): 1	0
Log Switch:	🖲 Ope	en 🔾 Close	Global-Leave S	Switch:	Open O Close
			_ `		
		Back	Nevt	Done	Cancel
d Multicast VL	AN	Tanı			
d Multicast VL Select VLAN	AN)
d Multicast VL Belect VLAN	AN	<u> </u>	×	√ Find	No. 7, Total:2
d Multicast VL Select VLAN All VLAN ID ^	AN	Alias	 _	✓ Find Attribute ∧	No. 7, Total:2 Super VLAN ID
d Multicast VL Select VLAN All VLAN ID ^	AN Name VLANID_1	Alias	Type ^ Smart VLAN	✓ Find Attribute ∧ Common	No. 7, Total:2
d Multicast VI Belect VLAN All VLAN ID A	AN Name VLANID_1 VLANID_66	Alias	Type ^ Smart VLAN Smart VLAN	✓ Find Attribute ∧ Common Common	No. 7, Total:2 Super VLAN ID
d Multicast VL Select VLAN All VLAN ID ~ 1 566 500	AN Name VLANID_1 VLANID_86 VLANID_500	Alias	Type ^ Smart VLAN Smart VLAN Smart VLAN	✓ Find Attribute ∧ Common Common	No. 7, Total:2 Super VLAN ID
d Multicast VL Select VLAN	AN VLANID_1 VLANID_66 VLANID_500 VLANID_502	Alias	Type ^ Smart VLAN Smart VLAN Smart VLAN	✓ Find Attribute ∧ Common Common Common Common	No. 7, Total:2 Super VLAN ID
d Multicast VL Select VLAN All VLAN ID ~ 1 366 500 500 502 504	AN VLANID_1 VLANID_66 VLANID_600 VLANID_502 VLANID_504	Alias	Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	✓ Find Attribute ← Common Common Common Common	No. 7, Total:2 Super VLAN ID
d Multicast VL Select VLAN All VLAN ID ~ 1 36 500 500 502 504 789	AN VLANID_1 VLANID_66 VLANID_500 VLANID_502 VLANID_504 VLANID_504	Alias	Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN MUX VLAN	✓ Find Attribute ∧ Common Common Common Common Common	No. 7, Total:2 Super VLAN ID
d Multicast VL Select VLAN All VLAN ID ~ 1 36 500 500 500 504 789 1000	AN VLANID_1 VLANID_66 VLANID_500 VLANID_502 VLANID_504 VLANID_789 VLANID_1000	Alias	Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN MUX VLAN Smart VLAN	✓ Find Attribute ∧ Common Common Common Common Common Common	No. 7, Total:2 Super VLAN ID
d Multicast VL Select VLAN All VLAN ID ~ 1 36 500 502 504 789 1000 1301	AN VLANID_1 VLANID_66 VLANID_500 VLANID_502 VLANID_789 VLANID_1000 VLANID_1010	Alias	Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	✓ Find Attribute ∼ Common Common Common Common Common Common Common	No. 7, Total:2 Super VLAN ID
d Multicast VL Select VLAN All VLAN ID ~ 1 560 500 500 504 789 1000 1301 1601	AN VLANID_1 VLANID_66 VLANID_602 VLANID_500 VLANID_502 VLANID_504 VLANID_709 VLANID_1000 VLANID_1301 VLANID_1601	Alias	Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN MUX VLAN	✓ Find Attribute ∼ Common Common Common Common Common Common Common Common	No. 7, Total:2 Super VLAN ID
d Multicast VL Select VLAN All VLAN ID ~ 1 565 500 502 504 789 1000 1301 1601 < (AN VLANID_1 VLANID_66 VLANID_500 VLANID_502 VLANID_504 VLANID_789 VLANID_1000 VLANID_1301 VLANID_1601	Alias	Type ~ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN MUX VLAN	✓ Find Attribute ∼ Common Common Common Common Common Common Common Common	No. 7, Total:2 Super VLAN ID
d Multicast VL Select VLAN Ali VLAN ID ~ 1 36 500 502 504 789 1000 1301 1601 < (AN VLANID_1 VLANID_66 VLANID_500 VLANID_502 VLANID_504 VLANID_1000 VLANID_1301 VLANID_1601	Alias	Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	✓ Find Attribute ∼ Common Common Common Common Common Common Common Common	No. 7, Total:2 Super VLAN ID

- (4) Click Done.
- 5. Add a virtual upstream port for the multicast service on the MDU side. For details, see 19.2.5 Configuring the Virtual Multicast Upstream Port.
 - (1) Choose Multicast > Virtual Uplink Port from the navigation tree.
 - (2) On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1000
 - Frame: 0
 - Slot: 0
 - Port: 1

Add Virtual Uplink Port	×
IGMP VLAN	Parameters Frame: 0 * Slot: 0 * Port: 1 *
ок	Cancel Apply

- (5) Click OK.
- 6. Configure a program profile on the MDU side. For details, see 19.2.8 Configuring a Program Profile.

- (1) Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
- (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
- (3) Right-click the program profile whose **IP Address** is set to **224.0.1.1** and choose **Download to NE** from the shortcut menu.
- (4) In the dialog box that is displayed, select the required MDU and click **Next**. Then, set **VLAN ID** to **1000**.
- (5) Click OK.
- 7. Configure a multicast user on the MDU side. For details, see 19.2.10 Configuring a Multicast User.
 - (1) Choose Multicast > Multicast User from the navigation tree.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Alias: IGMPUserA
 - Unlimited Band Width: selected
 - Select Service Port: service virtual port named IGMP

d User											
Location Info											
Name:			IGMPUs	er_0_2	1_11		1 [Alias:		IGMPUserA	
Max Program I	NO.(1-16):		8				•	🗹 Enabi	le Log Switch		
Quick Leave M	lode:		mac-ba	sed		•	- +	🗹 Defau	ult Video Flow		
User Max Ban	d Width(0-42)	34967294):					*	Unlim	nited Band Wid	ith	
Receive O	labal Laava							- Enabl	lo Authorizatio		
Receive 0	IODal-Leave								ie Autronzatio	n	
Belect ServiceP	ort										
											- -
11							,			V Find	No. 9, Total:9
Name 🛆	Alias 🛆	Connectio	n Type 🛆	interfac	e Infor	matior	1 Servi	се Туре 🗠	Service Para	a Upstream Traffic	: NameDownstre:
1601/0_2		LAN-VDSL2		Frame:	0/Slot	2/P	Single			ip-traffic-table_1	ip-traffic-ta
1611/0_2		LAN-VDSL2		Frame	0/Slot	2/P	Multi-	Service V	User VLAN:	. ip-traffic-table_1	ip-traffic-ta
66/0_1_0/6		LAN-ADSL		Frame:	0/Slot	: 1/P	Multi-	Service V	User VLAN:	.ip-traffic-table_1	ip-traffic-ta
1606/0_2		LAN-VDSL2		Frame	0/Slot	2/P	Multi-	Service V	User VLAN:	ip-traffic-table_1	ip-traffic-ta
1605/0_2		LAN-VDSL2		Frame:	0/Slot	2/P	Multi-	Service V	User VLAN:	.ip-traffic-table_1	ip-traffic-ta
1615/0_2		LAN-VDSL2		Frame	0/Slot	2/P	Multi-	Bervice E	User-Side	ip-traffic-table_1	ip-traffic-ta
1616/0_2		LAN-VDSL2		Frame:	0/Slot	2/P	Multi-	Service E	User-Side	ip-traffic-table_1	ip-traffic-ta
1301/0_2		LAN-VDSL2		Frame	0/Slot	: 2/P	Multi-	Bervice V	User VLAN:1	aaaa	bbbb
1000/0_2		LAN-VDSL2	:	Frame:	0/Slot	: 2/P	Multi-	Service V	. User VLAN:	. FTTx	FTTX
<					11						د
							Ba	ck	Next	Done	<u>C</u> ancel

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

Add Multicast VL/	AN to user			×
Ba	atch Add Multicast VLAN	1		X D Totali
	Count\Succeeded\Failed:1		. 3, TOTALS	
IOMEVilan 504				
IGIMPVIan_504		100%		
IGMPVIan_500				
IGMPVIan_100		Detail	<< <u>C</u> lose	
IGMPVIan_130				
IGMPVIan_100	Name	Result	Description	
	IGMPVIan_1000	Succeeded		
			OK II Concol I	Annly
			Cancer	

----End

Result

The user can watch program1 on TV.

23.4.6 Configuring the EPON FTTB Voice Service (H.248 Protocol)

This topic describes how to configure the voice service when an MDU is connected to an OLT through an EPON port.

Prerequisite

- The OLT must be added to the U2000.
- The data of the MGC interface and PSTN user corresponding to the MG interface must be configured on the MGC.

Context

H.248 is the Media Gateway Control Protocol. In the MG separation architecture, H.248 is the communication protocol between an MGC and an MG, and it is used for the MGC to control the MG.

The MDU functions as an MG and the SoftX3000 functions as an MGC if the softswitch that matches the MDU is SoftX3000.

For details of the data plan, see 23.4.1 Data Plan for the EPON FTTB Services.

Example Network

MA5620, MA5626, MA5616, and MA5612 support H.248 Protocol. The configuration procedure in this topic is applicable to the MA5620 V800R308, MA5626 V800R308, MA5612 V800R308, and MA5616 V800R308.

The MDU is connected to an EPON port on the OLT, and phone 1 and phone 2 are connected to voice service ports on the MDU.



Figure 23-5 Configuring the EPON FTTB voice service (H.248 protocol)

Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8

- Type: Smart VLAN

Add VLAN					×
Base Info Configure VLAN					
	VLAN ID(1-4095):	8			*
	Name:	VLANID_8			*
	Alias:				
	Type:	Smart VLAN			*
	Attribute:	Common			*
	VLAN Priority:	Unconfigured	1		•
	B	ack 📄 📩	Next	Done	<u>C</u> ancel

- (5) 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	► SubPort List
		>>	
	Back	Next	Done Cancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN				2
😧 Base Info Sonfigure VLAN	Sub Port L3 Interface	Extended Info		
	Management Status:	UP		*
	IP Mask:	255.255.255.0		*
	Acceptable Frame Type:	ethernetii		*
	Back	Next	Done	<u>C</u> ancel

- (6) Click **Done**.
- 2. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure an MDU SNMP profile. For details, see 23.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

Add MDU SNMP Profile				×
Profile Parameter				
Name:	snmpprofile *	Alias:		
SNMP Version:	v1 •	Read Name:	public *	
Write Name:	private *	Trap Host IP:	10.71.210.71 *	
Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *	
		ОК	Cancel Apply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 4. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

С	reate DBA Profile		X
	Profile Parameters		
	Name:	FTTx	*
	Alias:		
	DBA type:	Maximum bandwidth	*
	Fixed bandwidth rate (Kbit/s) (128-1235456):	128	
	Assured bandwidth rate (Kbit/s) (128-1235456):	128	
	Maximum bandwidth rate (Kbit/s) (128-1235456):	32768	*
	Bandwidth compensation:	No	
		OK Cancel Apply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 5. Configure a line profile. For details, see 23.1.3 Configuring a Line Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Profile: FTTx

	* Alias:	
onfiguration Recolution	Name Name	Value
- DBA Threshold	FEC Switch	UN
	CAR Profile	
	DBA Profile	FTTX
	Encrypt Type	OFF

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 6. Confirm the MDU on the OLT side. For details, see 23.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose EPON > EPON UNI Port from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click ≥ to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with the MAC address 0018-8256-3E47, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: MAC
 - On the Network Management Channel Parameters tab page, set the parameters.
 - OLT sets network management channel parameters: selected
 - SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)

- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

Confirm ONU					×
Affiliated Port:	0/2/1	*	Splitter ID:		•
Name:	MDU	*	Alias:		
ONU ID(0-127):	🗌 Auto Assign 🛛 0	*	Splitter Port ID(1-128)	:	
ONU Type:	MDU	*			
Basic Parame	ters Network Manageme	ent Channe	el Parameters		
Line Profile:	FTTx	*	Service Profile:		.
ONU VAS Pro	file:				
Auth Info					
Auth Way:	MAC Address 💌 * N	/AC Addre	ss: 00 - 18 -	82 - 56 - 3E - 47	
Key:	0000000000000000000	Fime Out(hi)(1-168): 📝 Disable	*	
-Extend Infor	mation				
	P Status		DITE Status		
	r otatus				
ONU Type					
Vendor ID:	HWTC(2011)	-	Terminal Type: MDU	•	
Software V	ersion:	-			
			🗌 Locate to ON	J list after operation succ	eeds
			ОК	Cancel Appl	v)
					<u> </u>
Confirm ONU					×
Affiliated Port:	0/2/1	*	Splitter ID:		•
Name:	MDU	*	Alias:		
ONU ID(0-127):	Auto Assign 0	*	Splitter Port ID(1-128)	:	
ONU Type:	MDU	*			
Basic Parame	ters Network Management C	bannel Pa	arameters		
🖌 OLT Set	s Network Management Channe	el Paramete	ers EPON SNMP F	Profile: snmpprofile .	
NetPara					
Manager VI	_AN(1-4095): 8	*	Gateway IP Address:		
IP Address	192.168.50 .2	*	IP Address Mask:	255.255.255.0 *	
Priority(0-7)):				
Static Route	Parameters				
Target IP A	ddress:		Target Mask		
Next Hon IF	P Address:				
			🗌 Locate to ONU	J list after operation succe	eeds
			ОК	Cancel Appl	y]

- (6) Click OK.
- 7. Add a service virtual port on the OLT side. For details, see 23.1.6 Adding a Service Virtual Port and 23.1.7 Verifying the Interoperability Between an OLT and an MDU.

- (1) 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.
- (2) Choose **EPON** > **EPON ONU** from the navigation tree.
- (3) On the **EPON ONU** tab page, set the filter criteria or click is to display the EPON ONUs.
- (4) In the information list, select the record where the shelf, slot, port, and ONU IDs are 0, 2, 1, and 0 respectively and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-EPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

I Service Port		
asic into	1	Attributes
ID(1-32768): 2		
Name: FTTx_ME	۰U	Connection Type: LAN-EPON
Alias:		
letwork Side		User Side
Bundle ID(1-8192):		Create Bulk Service Port
VLAN Choice:	Smart VLAN 🔻 ᡟ	Interface Selection: 0/2/1/0/0
Tag-Transform:		Service Type: Multi-Service VLAN
rag-rransionn.		
Vian ID(1-4095):	8	USEI VLAN(1-4035). 0
Cos value(0-7):	*	
raffic Profile Info		
🗹 Keep the upstream	and downstream settings the same	
Upstream Traffic Name:	ip-traffic-table_6	Downstream Traffic Name: ip-traffic-table_6
		UK Cancel Apply

(7) Click OK.

• Configure the voice service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

				2
VLAN ID(1-4095):	2000			*
Name:	VLANID_2000			*
Alias:				
Type:	Smart VLAN			*
Attribute:	Common			*
VLAN Priority:	Unconfigured	I		-
	`			
	VLAN ID(1-4095): Name: Alias: Type: Attribute: VLAN Priority:	VLAN ID(1-4095): 2000 Name: VLANID_2000 Alias: Type: Smart VLAN Attribute: Common VLAN Priority: Unconfigured	VLAN ID(1-4095): 2000 Name: VLANID_2000 Alias:	VLAN ID(1-4095): 2000 Name: VLANID_2000 Alias:

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.



- (6) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.

- (3) In the dialog box that is displayed, set the parameters.
 - Name: VOIP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 2000
 - Service Type: Multi-Service VLAN
 - User VLAN: 2000
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: FTTx

dd Service Po	irt					
Basic Info ID(1-32768):	1			Attributes		
Name:	VOIP		*	Connection Type:	LAN-GPON AN-EPON	-
Network Side	1			User Side	AN-GPON	
Bundle ID VLAN Choice Tag-Transfor Vlan ID(1-409 Cos value(0-7)(1-8192): : m: 95): 7):	Smart VLAN 2000		Interface Selection: Service Type: User VLAN(1-4095):	0/2/1/0/0 Multi-Service VLAN 2000	• •
Traffic Profile In	nfo upstream a affic Name:	nd downstream setti ip-traffic-table_6	ings the same	Downstream Traffic Nar	me: [ip-traffic-table_6	
					OK Cancel	Apply

- (4) Click OK.
- Configure the voice service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

- 1. Add an MGC profile. For details, see 19.3.9 Adding an MGC Profile.
 - (1) Choose Configuration > Access Profile Management > MGC Profile from the main menu.
 - (2) Right-click and choose Add Global Profile from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: mgcprofile1
 - Protocol Type: H.248
 - IP Address 1: 200.200.200 (IP address of the MGC)
 - Port Number: 2944

N	ew MGC Profile	2	<
	Profile Parameter		
	Name:	mgcprofile1 *	
	Alias:		
	Protocol Type:	H.248 💌	
	DNS Name:		
	IP Address 1:	200.200.200.200	
	IP Address 2:		
	UDP/SCTP Port Number(1-65534):	2944	
	OK	Cancel <u>Apply</u>	ļ

- (4) Click **OK**.
- 2. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

*
*
*
*
•
Cancel

- (4) Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

Add VLAN		×
Add VLAN	Sub Port L3 Interface Extended Info	bPortList Frame:0 Slot00 Port01
	>>> < <<	
	Back Next Do	ne <u>C</u> ancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 17.10.10.10

Add VLAN		
Base Info Configure VLAN	Sub Port L3 Interface Extended Info Image: Configure L3 Interface Management Status: DHCPOption60: DHCPOption60: Obtain the IP address in the DHCP mode IP Address: IP Mask: Acceptable Frame Type:	UP * 17.10.10.10 * 265.265.265.0 * ethernetii *
	Back Next	Done Cancel

(5) Click Done.

3. Add an IP interface on the MDU side. For details, see 19.3.2 Configuring an IP Interface.

The procedure for adding a signaling IP interface is similar to the procedure for adding a media IP interface. The IP interface of the VLAN can be configured only when the L3 interface of the VLAN is configured with an IP address. According to the networking plan, the media IP address and the signaling IP address can be different.

- (1) In the information list, select the record where VLAN ID is set to 2000 and click the IP Interface tab in the lower pane.
- (2) On the **IP Interface** tab page, right-click and choose **Add** from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - IP Address: 17.10.10.10
 - IP Type: Media
 - Gateway: 17.10.10.1

Add IP Inter	face		×
IP Address:	17.10.10.10)*
IP Type	● Media	🔿 Signal	
Gateway:	17.10.10.1		*
	(OK Cancel Apply	

(4) Click OK.

4. Configure a static route. For details, see 19.3.8 Configuring a Static Route.

If the IP address of the VLAN IP interface is not in the same network segment as the IP address of the MGC, you need to configure a static route.

- (1) Choose Static Route from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - Target IP Address: 200.200.200 (IP address of the MGC or IMS)
 - Target Mask: 255.255.255.0
 - Next Hop IP Address: 17.10.10.1
- (4) Click OK.
- 5. Configure the MG. For details, see 19.3.12 Adding an MG, 19.3.13 Binding an MGC Profile, and 19.3.14 Starting an MG.
 - (1) Choose Voice Gateway > Media Gateway from the navigation tree.
 - (2) On the **Media Gateway** tab page, set the filter criteria to display the required MGs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - MG ID: 0
 - Name: mg1
 - Signaling IP Address: 17.10.10.10
 - Signaling Port No.: 2944
 - Media IP Address 1: 17.10.10.10

MG ID: (0.16777215)	0		Name:	mg1
Alias:			MG Message MID Type:	Signaling IP Ad 🔻
MG Device Name:			MG Domain Name:	
Signaling IP Address: 🔲 DHCP	17.10.10.10	•	Signaling Port No.: (2900-2999)	2944
Media IP Address 1: 📃 DHCP	17.10.10.10	-	Media IP Address 2:	
Protocol Type:	H248	Ŧ	Transmission Mode:	UDP -
Coding Type:	Text	Ŧ	Profile Name:	
Support Profile Negotiation:	Disable	•	Start Negotiate H248 Version:	V3 -
Count of Heartbeat Retransmission(0~20):	3		Interval of Heartbeat Retransmission(s)(0-655):	60
Heartbeat Initiation	60		2833 Encryption Key:	

- (5) Click OK.
- (6) In the information list, select the record where **MG ID** is set to **0**, and click the **MGC Attribute Info** tab in the lower pane. In the list, right-click the record where **MGC Index** is set to **0** and choose **Bind Profile** from the shortcut menu.
- (7) In the dialog box that is displayed, set NMS MGC Profile to mgcprofile1 and click OK.

Media Gateway DSP Channel	Ringing Mapping				
All					
MG Status 🔺 MG ID 🔺 Name 🔺	Alias 🛆 🛛 MG Domain Name 🛆 🛛 Signaling IP Address 🛆				
O mg1	17.10.10.10				
<					
·					
Authentication Parameter Details	Online User Details TID Profile Reference Details				
Terminal ID Prefix Details	DMM Timer Details Standalone Paramete				
MG Details MGC A	MG Details MGC Attribute Info MG Software Parameter				
MGC Status MGC Index	Modify MGC				
<u> </u>	MGC Attributes				
Bind Profile(M)					
Delete Profile Reference	MG ID: 0				
Acțivate	MGC Index: 0				
Internet					
	NMS MGC Profile: macprofile1				
<u>File</u>					

- (8) In the information list, right-click the record where **MG ID** is set to **0** and choose **Cold Start** from the shortcut menu.
- (9) In the dialog box that is displayed, click Yes.
- 6. Configure the attributes of a VoIP PSTN port. For details, see 19.3.15 Configuring a VoIP PSTN Port.
 - (1) Choose **ASL** > **POTS Port** from the navigation tree.
 - (2) Click the **VoIP PSTN Port** tab, and set the filter criteria to display the required VoIP PSTN ports.
 - (3) In the information list, select ports 0/1/0 and 0/1/1 by holding down the **Shift** key, right-click, and then choose **Configure Attributes** from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

Parameter	Value	Step
MG ID	0	-
Terminal ID	0	1
Telephone No.	83110000	1

			Record Number:
Field Name	Field Value	Step	2
MGID	0		
Terminal ID	1	1	
Telephone No.	83110000	1	
			Delete
			Delete All
Ineration Type			
speration type			
Field Name:	Field Value:	Step:	
Telephone No.	▼ 83110000	1	Add to List

(5) Click OK.

----End

Result

Phone 1 and phone 2 can communicate with each other after the configuration is complete.

- 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 ringback tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

23.4.7 Configuring the EPON FTTB Voice Service (SIP Protocol)

This topic describes how to configure the voice service when an MDU is connected to an OLT through an EPON port.

Prerequisite

- The OLT must be added to the U2000.
- The PSTN user data corresponding to the SIP interface must be configured on the IMS.

Context

The IMS is an IP-based subsystem for controlling multimedia sessions on the NGN. The IMS includes all the core network elements that control multimedia services such as audio, video, text, and instant message services.

The SIP protocol is a control-layer protocol of the IMS and it is one of the framework protocols designed by the IETF for the multimedia communication system. The SIP protocol is also an

application-layer protocol for creating, modifying, and terminating multimedia sessions. It is used with other protocols, such as RTP, RTCP, SDP, RTSP, and DNS, to complete session establishment and media negotiation.

For details of the data plan, see 23.4.1 Data Plan for the EPON FTTB Services.

Example Network

MA5620, MA5626, MA5616, and MA5612 support SIP Protocol. The configuration procedure in this topic is applicable to the MA5620 V800R308, MA5626 V800R308, MA5612 V800R308, and MA5616 V800R308.

The MDU is connected to an EPON port on the OLT, and phone 1 and phone 2 are connected to voice service ports on the MDU.



Figure 23-6 Configuring the EPON FTTB voice service (SIP protocol)

Procedure

• Add the MDU to the U2000 in profile mode.

1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 8
 - Type: Smart VLAN

Add VLAN		×
 Base Info Configure VLAN 		
	VLAN ID(1-4095): Name:	****
	Alias: Type:	Smart VLAN
	Attribute: VLAN Priority:	Common
	E	Back <u>Done</u> <u>Cancel</u>

- (5) Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

- Click the L3 Interface tab and set the parameters.

- Configure L3 Interface: selected
- IP Address: 192.168.50.4

A	dd VLAN		X
	S Base Info Configure VLAN	Sub Port L3 Interface	Extended Info
		Management Status:	*
		IP Address:	192.168.50 .4
		IP Mask:	255.255.255.0 *
		Acceptable Frame Type:	ethernetii 💌 *
		Back	Next Done Cancel

- (6) Click **Done**.
- 2. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - Choose Configuration > Access Profile Management > Traffic Profile from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 3. Configure an MDU SNMP profile. For details, see 23.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the **MDU SNMP Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)

- Trap UDP Port: 162
- SNMP Security Name: public

Ad	d MDU SNMP Profile					X
	Profile Parameter					
	Name:	snmpprofile	*	Alias:		
	SNMP Version:	v1 •	*	Read Name:	public *	
	Write Name:	private	*	Trap Host IP:	10.71.210.71 *	
	Trap UDP Port (1-65535):	162	*	SNMP Security Name:	public *	
				<u> </u>		
				ОК	Cancel <u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

С	reate DBA Profile		×
	Profile Parameters		
	Name:	FTTx *	
	Alias:		
	DBA type:	Maximum bandwidth 🔹 🔹	
	Fixed bandwidth rate (Kbit/s) (128-1235456):	128	
	Assured bandwidth rate (Kbit/s) (128-1235456):	128	
	Maximum bandwidth rate (Kbit/s) (128-1235456):	32768 *	
	Bandwidth compensation:	No	
		OK Cancel Apply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. Configure a line profile. For details, see 23.1.3 Configuring a Line Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

- Name: FTTx
- DBA Profile: FTTx

Add EPON Line Profile		×
Name: FTTx	* Alias:	
Configuration Base Info	Name EEC Switch	Value
DBA Threshold	CAR Profile	
	DBA Profile	FTTX
	Encrypt Type	OFF
	ОК	Cancel <u>A</u> pply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 6. Confirm the MDU on the OLT side. For details, see 23.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose **EPON** > **EPON** UNI Port from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click [™] to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with the MAC address 0018-8256-3E47, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: MAC
 - On the Network Management Channel Parameters tab page, set the parameters.
 - OLT sets network management channel parameters: selected

- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

Confirm ONU	×							
Affiliated Port:	0/2/1 V Splitter ID:							
Name:	MDU * Alias:							
ONU ID(0-127):	Auto Assign 0 * Splitter Port ID(1-128):							
ONU Type:	MDU *							
Basic Paramet	ers Network Management Channel Parameters							
Line Profile:	FTTX Service Profile:							
ONU VAS Profi	le:							
Auth Info								
Auth Way:	MAC Address 🔻 MAC Address: 00 - 18 - 82 - 56 - 3E - 47							
Key:	00000000000000000 * Time Out(h)(1-168): Disable *							
- Estendurfaur								
	Istatus							
-ONU Type								
Vendor ID:	HWTC(2011) Terminal Type: MDU							
Software Ve	rsion							
Contrare ve								
	Locate to UNU list after operation succeeds							
	OK Cancel Apply							
Confirm ONU	ix.							
Affiliated Port:	0/2/1 Splitter ID:							
Name:	MDU * Alias:							
ONU ID(0-127):	Auto Assian 0 * Splitter Port ID(1-128):							
ONU Type:	MDU V							
Basic Paramet	are Notwork Management Channel Parameters							
Dasici aramet								
🗹 OLT Sets	Network Management Channel Parameters EPON SNMP Profile: snmpprofile							
Net Para								
Manager VL	AN(1-4095): 8 Gateway IP Address:							
IP Address:	192.168.50.2 * IP Address Mask: 255.255.255.0 *							
Priority(0-7):								
Otatia Davita (
-Static Route F	ranameters							
Target IP Ad	dress:							
Next Hop IP	Address:							
	Locate to ONU list after operation succeeds							
	OK Cancel Apply							

- (6) Click **OK**.
- 7. Add a service virtual port on the OLT side. For details, see 23.1.6 Adding a Service Virtual Port and 23.1.7 Verifying the Interoperability Between an OLT and an MDU.

- (1) 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.
- (2) Choose **EPON** > **EPON ONU** from the navigation tree.
- (3) On the **EPON ONU** tab page, set the filter criteria or click is to display the EPON ONUs.
- (4) In the information list, select the record where the shelf, slot, port, and ONU IDs are 0, 2, 1, and 0 respectively and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-EPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

asic Info			Attributes		
ID(1-32768); 2			Allibules		
Name: FTTx_MD	U		Connection Type:	AN-EPON	-
letwork Side			User Side		
Bundle ID(1-8192):			Create Bulk Servi	ce Port	
VLAN Choice:	Smart VLAN	•	Interface Selection:	0/2/1/0/0	•
Tag-Transform:		•	Service Type:	Multi-Service VLAN	•
Vlan ID(1-4095):	8	*	User VLAN(1-4095):	8	-
Cos value(0-7):		*			
raffic Profile Info					
🖉 Keep the upstream a	and downstream setting	gs the same			
Upstream Traffic Name:	ip-traffic-table_6		Downstream Traffic Nar	ne: ip-traffic-table_6	

(7) Click OK.

• Configure the voice service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

				2
VLAN ID(1-4095):	2000			*
Name:	VLANID_2000			*
Alias:				
Type:	Smart VLAN			*
Attribute:	Common			*
VLAN Priority:	Unconfigured	I		-
	`			
	VLAN ID(1-4095): Name: Alias: Type: Attribute: VLAN Priority:	VLAN ID(1-4095): 2000 Name: VLANID_2000 Alias: Type: Smart VLAN Attribute: Common VLAN Priority: Unconfigured	VLAN ID(1-4095): 2000 Name: VLANID_2000 Alias:	VLAN ID(1-4095): 2000 Name: VLANID_2000 Alias:

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.



- (6) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - Name: VOIP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 2000
 - Service Type: Multi-Service VLAN
 - User VLAN: 2000
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: FTTx

dd Service Port			
Basic Info ID(1-32768): 1		Attributes	
Name: VOIP	*	Connection Type:	AN-GPON
Alias:		User Side	AN-GPON
Bundle ID(1-8192): VLAN Choice: Sr Tag-Transform: - Vlan ID(1-4095): 20 Cos value(0-7):	nat VLAN	Interface Selection: Service Type: User VLAN(1-4095):	0/2/1/0/0 Multi-Service VLAN 2000
Traffic Profile Info	downstream settings the same		
Upstream Traffic Name: ip-	traffic-table_6	Downstream Traffic Nar	ne: ip-traffic-table_6
			OK Cancel Apply

- (4) Click OK.
- Configure the voice service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

1. Configure a service VLAN on the MDU side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

Add VLAN					1
Base Info Configure VLAN					
	VLAN ID(1-4095):	2000			*
	Name:	VLANID_2000			*
	Alias:				
	Type:	Smart VLAN			*
	Attribute:	Common			*
	802.1 Priority:	Unconfigured			▼
I]	I	lack	Next	Done	Cancel

- (4) Click Next.
 - Click the **Upstream Port** tab and add upstream port 0/0/1 as the upstream port of the VLAN.

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

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 17.10.10.10

dd VLAN		2
Base Info Configure VLAN	Sub Port L3 Interface Extended Info Ir/ Configure L3 Interface Management Status: DHCPOption60: Obtain the IP address in the DHCP mode IP Address: IP Address: IP Mask: Acceptable Frame Type:	UP • 17.10.10.10 • 265.255.255.0 • ethermetii •
· / ,	<u>B</u> ack <u>N</u> ext	Done Cancel

(5) Click Done.

2. Add an IP interface on the MDU side. For details, see 19.3.2 Configuring an IP Interface.

The procedure for adding a signaling IP interface is similar to the procedure for adding a media IP interface. The IP interface of the VLAN can be configured only when the L3 interface of the VLAN is configured with an IP address. According to the networking plan, the media IP address and the signaling IP address can be different.

- (1) In the information list, select the record where VLAN ID is set to 2000 and click the IP Interface tab in the lower pane.
- (2) On the **IP Interface** tab page, right-click and choose **Add** from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - IP Address: 17.10.10.10
 - IP Type: Media
 - Gateway: 17.10.10.1

ļ	Add IP Inter	face		×
	IP Address:	17.10.10.10		*
	ІР Туре	● Media	🔘 Signal	
	Gateway:	17.10.10.1		*
			OK Cancel	Apply

- (4) Click OK.
- 3. Configure a static route. For details, see 19.3.8 Configuring a Static Route.

If the IP address of the VLAN IP interface is not in the same network segment as the IP address of the MGC, you need to configure a static route.

- (1) Choose Static Route from the navigation tree.
- (2) In the information list, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - Target IP Address: 200.200.200 (IP address of the MGC or IMS)

- Target Mask: 255.255.255.0
- Next Hop IP Address: 17.10.10.1
- (4) Click OK.
- 4. Add a UAS profile. For details, see 19.3.10 Configuring a UAS Profile.
 - (1) Choose **Configuration** > **Access Profile** > **UAS Profile** from the main menu.
 - (2) Right-click and choose Add Global Profile from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: uasprofile1
 - Address Mode: Fix mode
 - IP Address 1: 200.200.200 (IP address of the IMS)
 - Proxy Port: 5060

Add UAS Profile	×
Profile Parameter	
Name:	uasprofile1 *
Alias:	
Address Mode:	Fix mode 💌
IP Address 1:	200.200.200.200 *
IP Address 2:	<u></u>
Proxy Port(1-65535):	5060 *
Domain Name:	
ОК Са	ancel <u>A</u> pply

- (4) Click OK.
- 5. Add a SIP interface. For details, see 19.3.12 Adding an MG.
 - (1) Choose Voice Gateway > Media Gateway from the navigation tree.
 - (2) On the **Media Gateway** tab page, set the filter criteria to display the required MGs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - MG ID: 0
 - Name: mg1
 - Signaling IP Address: 17.10.10.10
 - Signaling Port No.: 5060

- Media IP Address 1: 17.10.10.10
- Transmission Mode: UDP
- MG Domain Name: huawei.com
- Active NMS UAS Profile: uasprofile1

NOID			
(0~16777215)	0	Name:	mg1
Alias:		MG Domain Name:	
Signaling IP Address: 🔲 DHCP	17.10.10.10	Signaling Port No.: (5000~5999)	5060
Media IP Address 1: 📃 DHCP	17.10.10.10	Protocol Type:	SIP
Transmission Mode:	UDP -	Profile Name:	Default 🔻
Conference Factory URI:	<u></u>	Gateway Telephone Context :	
Homing Domain Name:	huawei.com	Registration Server URI:	
Authentication User Name:		Authentication Password:	
Active NMS UAS Profile :	uasprofile1	Standby NMS UAS Profile:	
Service Logic Name:	Default 👻]	

- (5) Click OK.
- 6. Configure the attributes of a VoIP PSTN port. For details, see 19.3.15 Configuring a VoIP PSTN Port.
 - (1) Choose **ASL** > **POTS Port** from the navigation tree.
 - (2) Click the **VoIP PSTN Port** tab, and set the filter criteria to display the required VoIP PSTN ports.
 - (3) In the information list, select ports 0/1/0 and 0/1/1 by holding down the **Shift** key, right-click, and then choose **Configure Attributes** from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

Parameter	Value	Step
MG ID	0	-
Telephone No.	83110000	1

Config			×
Multi-field Batch Ope	ration		
			Record Number:
Field Name	Field Value	Step	2
MGID	0		
Terminal ID	1	1	
Telephone No.	83110000	1	- Dalata
			Delete
			Delete All
Operation Type			
Field Name:	Field Value:	Step:	
Telephone No	▼ 83110000	1	Add to List
		ОК	Cancel <u>A</u> pply

(5) Click OK.

----End

Result

Phone 1 and phone 2 can communicate with each other after the configuration is complete.

- 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 ringback tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

23.4.8 Configuring the EPON FTTB Service by Using a Service Provisioning Profile

This topic describes how to configure various services when a user is connected to an MDU in LAN access mode and the MDU is connected to an OLT through an EPON port.

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 23.4.1 Data Plan for the EPON FTTB Services.

Example Network

A service provisioning profile provides common parameters that need to be set for services. To provision a service quickly, set a service provisioning profile, bind it to a service port, and customize service parameters.



Figure 23-7 Configuring the EPON FTTB service by using a service provisioning profile

Procedure

- Add the MDU to the U2000 in profile mode.
 - 1. Configure a management VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

A management VLAN is the VLAN through which the OLT manages the MDU. The OLT manages the MDU through the SNMP protocol. The IP address of the Layer 3 interface of the management VLAN must be in the same network segment as the management IP address of the MDU.

- (1) 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.
- (2) Choose VLAN from the navigation tree.
- (3) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.

- VLAN ID: 8
- Type: Smart VLAN

Α	dd VLAN 88 Base Info 89 Configure VLAN		×
		VLAN ID(1-4095):	8
		Name:	VLANID_8
		Alias:	
		Туре:	Smart VLAN 👻 *
		Attribute:	Common 💌 *
		VLAN Priority:	Unconfigured
		B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

- (5) 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
Configure VLAN	Sub Port Biol Port List Frame:0 Slot 19 Slot 19 Slot 20 Slot
	Back Next Done Cancel

- Click the L3 Interface tab and set the parameters.
 - Configure L3 Interface: selected
 - IP Address: 192.168.50.4

Add VLAN				2
 Base Info Configure VLAN 	Sub Port L3 Interface	Extended Info		
	Management Status:	UP 192.168.50 .4		*
	IP Mask:	255.255.255.0		*
	Acceptable Frame Type:	ethernetii		*
	Back	Next	Done	<u>C</u> ancel

- (6) Click **Done**.
- 2. Configure an MDU SNMP profile. For details, see 23.1.1 Configuring an MDU SNMP Profile.
 - Choose Configuration > Access Profile Management > MDU SNMP Profile from the main menu.
 - (2) Click the MDU SNMP Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: snmpprofile
 - SNMP Version: v1
 - Read Name: public
 - Write Name: private
 - Trap Host IP: 192.168.50.3 (IP address of the U2000 server)
 - Trap UDP Port: 162
 - SNMP Security Name: public

Add MDU	SNMP	Profile

Name:	snmpprofile *	Alias:	
SNMP Version:	v1 •	Read Name:	public *
Write Name:	private *	Trap Host IP:	10.71.210.71 *
Trap UDP Port (1-65535):	162 *	SNMP Security Name:	public *

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a DBA profile. For details, see 19.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > GPON Profile from the main menu.

- (2) Click the **DBA Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

A	dd 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	
		OK Cancel Apply	

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

4. Configure a line profile. For details, see 20.1.1 Configuring a GPON 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, multicast, and voice services.

- Choose Configuration > Access Profile Management > GPON Profile from the main menu.
- (2) Click the Line Profile tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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

GPUN Line Profile		
ame: <u> FTTx</u>	* Alias:	
Configuration	Name	Value
Base Info.	Upstream FEC Switch	OFF
±- Line	Mapping Mode	VLAN
	Qos Mode	Priority Queue
	OMCC Encryption	Off

- 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	<u>(</u>
Name: FTTx	* Alias:
Configuration Base Info. E Line T-CONT Info ADD T-CONT	ADD T-CONT T-CONT Parameters T-CONT Index(0-127): 1 DBA Profile: FTTX 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

Add GPON Line Profile		
Name: FTTx	* Alias:	
Configuration Base Info. Ethernet port binding group T-CONT Info. ADD GEM Port DEL T-CONT	ADD GEM Port -GEM Port Parameters T-CONT Index(0-127): GEM Port Index(0-1023): Priority Queue: CAR Profile: Service Type: Encryption Switch: Cascade Switch:	X 1 1 1 1 0 0 FF V
		OK Cancel
	ОК	Cancel Apply

- 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: 8

Add GPON Line Profile			×
Name: FTTx	*	Alias:	
	A	DD GEM Connection	>
Configuration Base Info. Line	GEM Port In	GEM Connection Parameters	
Ethernet port binding group	CAR Profile	GEM Port Index(0-1023):	1
GEM P ADD GEM	Connection Port	VLAN ID(1-4094):	8
		Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
	I		OK Cancel
		OK Cancel	Apply

- 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: 1001

Name: FTTx ADD GEM Connection GEM Port Inde Configuration Base Info. Ethernet port binding group T-CONT Info. GEM ADD GEM Connection Index(0-1023): GEM Connection Index(0-1023):	Add GPON Line Profile		×
Configuration Base Info. DEM Port Ind CAR Profile GEM Connection Index(0-1023): DEL GEM Port OFT CONTINC DEL GEM Port Swi CAR Profile CAR	Name: FTTx	ADD GEM Connection	
CAR Profile:	Configuration Base Info. Line Ethernet port binding group T-CONT Info. T-CONTING. CAR Profile Service Type GEL GEM Port	GEM Connection GEM Connection Parameters GEM Port Index(0-1023): 1 GEM Connection Index(0-1023): 0 VLAN ID(1-4094): 100 Priority: Port Type: Port ID(1-8): BindGroup ID:	1
	< <u>()</u>	CAR Profile:	

- 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: 1000

Add GPON Line Profile			×
Name: FTTx	*	Allos:	
Configuration ├─ Base Info. ▷─ Line ├─ Ethernet port binding group	GEM Port Ind Priority Quepe	GEM Connection Parameters GEM Port Index(0-1023):	1
T-CONT Info. T-CONT1	CAR Profile Service Type	GEM Connection Index(0-1023):	2
ADD GEM Cor	nnection / 1 SV	VLAN ID(1-4094):	1000
DEL GEM Port	<u>Swi</u>	Priority:	
		Port Type:	
		Port ID(1-8):	
		BindGroup ID:	
		CAR Profile:	
			ок
	_	OK Cancel	Apply

- 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: 3 (this parameter is set to **3** automatically)
 - VLAN ID: 2000

Add GPON Line Profile					×
Name: FTTx	*		CEM Connection		_
Configuration	GEM Port Ind	GE	EM Connection Parameters		
⊢ Line ⊢ Ethernet port binding group	Priority Que		GEM Port Index(0-1023):	1	
E⊢ T-CONT Info. E⊢ T-CONT1	CAR Profile Service Type		GEM Connection Index(0-1023):	3	
ADD GEM Co	nnection <mark>/ <u>1 Sv</u></mark>	Γ	VLAN ID(1-4094):	2000	
DEL GEM Por	t Swi		Priority:		
			Port Type:		
			Port ID(1-8):		
			BindGroup ID:		
			CAR Profile:		_
				0K	
			OK Cancel	<u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 5. Confirm the MDU on the OLT side. For details, see 19.1.4 Confirming an MDU.
 - (1) 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.
 - (2) Choose GPON > GPON UNI Port from the navigation tree.
 - (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
 - (4) In the information list, right-click GPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 485754438E1CDE42, and then choose **Confirm ONU** from the shortcut menu.
 - Name: MDU
 - ONU ID: 0
 - ONU Type: MDU
 - 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)
 - Authentication Mode: SN
 - SN: 485754438E1CDE42
 - On the **Network Management Channel Parameters** tab page, set the parameters.
 - OLT sets network management channel parameters: selected

- SNMP Profile: snmpprofile (click next to **SNMP Profile** and select the MDU SNMP profile named snmpprofile in the dialog box that is displayed)
- Manager VLAN: 8
- IP Address: 192.168.50.2 (this IP address is in the same network segment as the IP address of the L3 interface of the management VLAN)
- IP Address Mask: 255.255.255.0

Confirm ONU						×
Affiliated Port:	0/2/0		*	Splitter:	Splitter(L1)	•
Name:	MDU		*	Alias:		
ONU ID(0-127):	0		*	Splitter Port ID(1-128): 1	
ONU Type:	MDU		*			
Basic Paramet	ers	Network Manag	ement Cha	annel Parameters		
Line Profile:	FTTx		*	Service Profile:	 	
Alarm Profile:				ONU VAS Profile:		
Authenticatio	n Info					
Authenticati	on Mode:	SN	•	Timeout Dura	ation 🔽 No Limit	
ONL		4057544205401	2542	(h)(1-168):	akanakan	
SN:		485/54438E1CI	JE42	Password:	snenznen	
ONU Type						
Verdor ID:	H	WTC(2011)	-	Terminal Type:	MDU	
Software Ve	rsion:		-			
				🗌 Locate to	ONU list after operation succee	ds
				014	Cancel	
Confirm ONU						×
Confirm ONU Affiliated Port:	0/2/0		*	Splitter:	Splitter(L1)	×
Confirm ONU Affiliated Port: Name:	0/2/0 MDU		*	Splitter: Alias:	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127):	0/2/0 MDU		*	Splitter: Alias: Splitter Port ID(*	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type:	0/2/0 MDU 0 MDU		× * *	Splitter: Alias: Splitter Port ID(Splitter(L1)	×
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/0 MDU 0 MDU rers N	etwork Manageme	× * * ent Channe	Splitter: Alias: Splitter Port ID(Parameters	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet	0/2/0 MDU 0 MDU ers No	etwork Manageme nanagement	× × × × ent Channe	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet CLT sets channel SNMP Param	0/2/0 MDU 0 MDU ters Ni ters Ni ters network r	etwork Manageme nanagement 'S	▼ * * ent Channe	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param	0/2/0 MDU 0 MDU ers No eres No eretwork riparameter hs Info	etwork Manageme nanagement s	ent Channe	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param Manager VL	0/2/0 MDU 0 MDU erers No enetwork r parameter ns Info AN(1-409	etwork Management s 5): 8 100460505	* *	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7):	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet ☑ OLT sets channel SNMP Param Manager VL IP Address:	0/2/0 MDU MDU mers Ni enetwork r parameter ns Info AN(1-409	etwork Management s 5): [8 192.168.50.2	ent Channe	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address M	Splitter(L1)	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel SNMP Param Manager VL IP Address: Gateway IP	0/2/0 MDU 0 MDU ers Nr parameter ns Info AN(1-409 Address:	etwork Management s 5): 8 192.168.50.2	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address M	Splitter(L1) 1-128): e: snmpprofile ask: 255.255.255.0	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet I OLT sets channel SNMP Param Manager VL IP Address: Gateway IP Static Route I	0/2/0 MDU 0 MDU ers NM enetwork r parameter ns Info AN(1-409 Address: Parameter	etwork Management 's 5): 8 192.168.50.2	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address M	Splitter(L1) I-128): e: snmpprofile ask: 255.255.255.0	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet IC OLT sets channel µ SNMP Param Manager VL IP Address: Gateway IP Static Route I IP Address:	0/2/0 MDU eres Ni enetwork r parameter hs Info AN(1-409 Address: Parameter	etwork Management s 5): 8 192.168.50.2 rs		Splitter: Alias: Splitter Port ID(al Parameters SNMP Profile Nam Priority(0-7): IP Address Mat	Splitter(L1) 1-128). e: snmpprofile ask: 255.255.255.0	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet ☑ OLT sets channel I SNMP Param Manager VL IP Address: Gateway IP Static Route I IP Address: Next Hop IP	0/2/0 MDU erers Nu enetwork r parameter ns Info AN(1-409: Address: Parameter	etwork Management s 6): [8 192.168.50.2 rs	Image: Channel of the second secon	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address Ma IP Address Ma	Splitter(L1) I I e: snmpprofile ask: 255.255.0 sk:	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet I OLT sets Channel SNMP Param Manager VL IP Address: Gateway IP Static Route I IP Address: Next Hop IP	0/2/0 MDU 0 MDU ers Ne retwork r parameter ns Info AN(1-409 Address: Parameter Address:	etwork Management s 5): 8 192.168.50.2 	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address Ma IP Address Ma	Splitter(L1) I-128): 1 e: snmpprofile ask: 255.255.255.0 sk:	
Confirm ONU Affiliated Port: Name: ONU ID(0-127): ONU Type: Basic Paramet Channel J SNMP Param Manager VL IP Address: Gateway IP Static Route I IP Address: Next Hop IP	0/2/0 MDU 0 MDU ers No ers No ers No network r parameter hs Info AN(1-409 Parameter Address:	etwork Management nanagement (s 5): 8 192.168.50.2 rs	• • • • • • • • • • • • • • • • • • •	Splitter: Alias: Splitter Port ID(el Parameters SNMP Profile Nam Priority(0-7): IP Address Ma IP Address Ma	Splitter(L1) I-128): I e: snmpprofile ask: 255.255.255.0 sk:	ds

- (6) Click OK.
- 6. Add a service virtual port on the OLT side. For details, see 19.1.6 Adding a Service Virtual Port and 19.1.7 Checking the Communication Between the OLT and MDU.

- (1) 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.
- (2) Choose GPON > GPON UNI Port from the navigation tree.
- (3) On the **GPON UNI Port** tab page, set the filter criteria to display the required GPON UNI ports.
- (4) In the information list, right-click GPON UNI port 0/2/1 and click the **ServicePort Info** tab in the lower pane.
- (5) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
- (6) In the dialog box that is displayed, set the parameters.
 - Name: FTTx_MDU
 - Connection Type: LAN-GPON
 - VLAN ID: 8
 - Interface Selection: 0/2/1/0/0
 - Service Type: Multi-Service VLAN
 - User VLAN: 8
 - 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)

r Service Po						
Basic Info				Attributes		
ID(1-32768):	2					
Name:	FTTX_MD	J	*	Connection Type:	LAN-GPON	•
Alias:						
letwork Side				User Side		
Bundle ID	(1-8192):					
VLAN Choice:		Smart VLAN	▼*	Interface Selection:	0/2/1/0/0	•
Tag-Transforr	n:		•	Service Type:	Multi-Service VLAN	-
Vlan ID(1-409	5):	8	 _	User VLAN(1-4095):	8	•
Coc volue/0-7	Ŋ.		*			
Cos value(o-r	<i>).</i>					
raffic Profile In	ifo					
🖌 Keep the	upstream a	nd downstream sett	ings the same			
Upstream Tra	ffic Name:	ip-traffic-table 6		Downstream Traffic Na	me: ip-traffic-table 6	
					OK Cancel	Apply

(7) Click OK.

• Configure the Internet service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN
 - Attribute: QinQ

A	dd VLAN					×
	Base Info Configure VLAN					
		VLAN ID(1-4095):	1001			*
		Name:	VLANID_1001			*
		Alias:				
		Туре:	Smart VLAN			*
		Attribute:	QinQ			*
		VLAN Priority:	Unconfigured			-
		B	lack 📄 📩	Next	Done	<u>C</u> ancel

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

Add VLAN			2
Add VLAN Base Info Configure VLAN	Sub Port L3 Interface	Extended Info	SubPort List
	<u>B</u> ack	<u>N</u> ext	Done Cancel

- (5) Click **Done**.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI

- 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- VLAN ID: 1001
- Service Type: Multi-Service VLAN
- User VLAN: 1001
- 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)

d Service Port					
Basic Info			Attributes		
ID(1-32768): 1					
Name: HSI		*	Connection Type:	AN-GPON	-
Alias:				AN-EPON AN-GPON	
Network Side	100v		-User Side		
VLAN Choice:	Smart VLAN	┈ ╺	Interface Selection:	0/2/0/0/0	-
Tag-Transform:		-	Service Type:	Multi-Service VLAN	-
Vian ID(1-4095):	1001		User VLAN(1-4095):	1001	-
Cos value(0-7):		*			
Traffic Profile Info					
🖌 Keep the upstr	eam and downstream settings the	same			
Upstream Traffic N	lame: ip-traffic-table_6	(Downstream Traffic Nan	ne: ip-traffic-table_6	
				OK Cancel	Apply

(4) Click OK.

• Configure the multicast service on the OLT side.

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. Add a VLAN. For details, see 19.2.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Type: Smart VLAN
 - (4) Click **Done**.
- 2. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

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

Add VLAN		X
 Base Info Configure VLAN 		
	VLAN ID(1-4095):	1000
	Name:	VLANID_1000
	Alias:	
	Type:	Smart VLAN 👻 *
	Attribute:	Common
	VLAN Priority:	Unconfigured
	B	ack <u>D</u> one <u>C</u> ancel

(4) 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 Base Info Configure VLAN Configure VLAN	Sub Port L3 Interface	Extended Info	SubPortList
	<u>B</u> ack	Next	Done Cancel

- (5) Click **Done**.
- 3. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:IGMP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- Vlan ID: 1000
- Service Type: Multi-Service VLAN
- User VLAN: 1000
- 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)

asic Info			Attributes		
ID(1-32768): 1					
Name: IGM	1P	*	Connection Type:	AN-GPON	•
Alias:				AN-EPON AN-GPON	
letwork Side			User Side		_
Bundle ID(1-8	192):				
/LAN Choice:	Smart VLAN	•	Interface Selection:	0/2/1/0/0	•
Tag-Transform:		-	Service Type:	Multi-Service VLAN	•
Vlan ID(1-4095):	1000		User VLAN(1-4095):	1000	•
Cos value(0-7):		*			
raffic Profile Info					
🗹 Keep the upst	ream and downstream setti	ngs the same			
Upstream Traffic N	lame: ip-traffic-table_6		Downstream Traffic Nam	ne: ip-traffic-table_6] [

- (4) Click **OK**.
- 4. Add a multicast VLAN on the OLT side. For details, see 19.2.7 Configuring the Multicast VLAN.
 - (1) Choose **Multicast** > **Multicast** VLAN from the navigation tree.
 - (2) On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3
 - Work Mode: igmp_proxy
 - VLAN ID: 3000

asic Info					
Device Name:	10.71.227.35				•
Name:			Alias:		
	10110				
IGMP Version:	IGMP V3		▼ *	ault VLAN	
utogeneration Pr	ogram IP Address		Work Mode		
Program Match I	vlode: 💿 Enable	O Disable	IGMP Work	Mode:	igmp_proxy 🗸
Start IP Address			Snooning F	enort Switch:	O Onen
End ID Addroce:			- · · · · ·		
Enan Maarcoo.	<u></u>		Shooping L	eave Switch:	Upen O Close
			IGMP Video	Mode:	Multicast 💌
			IGMP Inner	VLAN(1~4095):	
			< <u>B</u> ack	<u>l</u> ext> <u>E</u> ir	nish Cance
d Multicast V	'LAN				
Default I in Por	tinfo				
	11110	0		Dett. 0	
Frame: U		SIOT. <u>19</u>		Port: U	
Parameter Info					
IGMP Report	Priority		Report Interv	al(S)	
(0-7):	<u>b</u>		* (10-5000):	10	
Log Switch:	Oper	n 🔿 Close	Global-Leave	e Switch: 🔘 C	Open O Close
ld Multicast	VLAN	< <u>B</u> ack) (<u>N</u> ext>	<u>E</u> inish	Cancel
Id Multicast Select VLAN	VLAN	< <u>B</u> ack) <mark>N</mark> ext>	Einish	Cancel
Id Multicast Select VLAN VLAN Attril	VLAN	< <u>B</u> ack	Next≥	<u>Einish</u>	Cancel No. 31, Total:3
Id Multicast Select VLAN VLAN Attril VLAN ID ^	VLAN oute=Common \ Name	< <u>B</u> ack /LAN	Next> Next> ✓ ✓ Type ^	<u>Einish</u>	Cancel No. 31, Total:3 Super VLAN II
Id Multicast Select VLAN VLAN Attril VLAN ID ^ 31	VLAN oute=Common \ Name VLANID_31	< <u>B</u> ack /LAN	Next> ✓ ✓ Type ∧ Smart VLAN	Find Attribute A	Cancel No. 31, Total:3: Super VLAN II
Id Multicast Select VLAN VLAN Attril VLAN ID ^ 31 32	VLAN aute=Common V Name VLANID_31 VLANID_32	< <u>B</u> ack /LAN	Next> ∑ √ Type ∧ Smart VLAN Smart VLAN	Einish Find Attribute A Common Common	No. 31, Total:3: Super VLAN II
Id Multicast Select VLAN VLAN Attril VLAN ID ^ 31 32 33	VLAN aute=Common V Name VLANID_31 VLANID_32 VLANID_33	< <u>B</u> ack /LAN	Next> ▼ ✓ Type ∧ Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Einish Find Attribute A Common Common Common	No. 31, Total:3 Super VLAN II
Id Multicast Select VLAN VLAN Attril VLAN ID ^ 31 32 33 34	VLAN Aute=Common V Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34	< <u>B</u> ack /LAN		Find Attribute ^ Common Common Common Common	No. 31, Total:3 Super VLAN II
Id Multicast Select VLAN VLAN Attril VLAN ID ^ 31 32 33 34 35	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35	< <u>B</u> ack /LAN		Find Attribute ~ Common Common Common Common Common	No. 31, Total:3 Super VLAN II
Id Multicast Select VLAN VLAN Attril VLAN ID ^ 31 32 33 34 35 36	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_35 VLANID_36	< <u>B</u> ack /LAN		Find Attribute ~ Common Common Common Common Common Common	No. 31, Total:3 Super VLAN II
Id Multicast Select VLAN VLAN Attril VLAN ID ~ 31 32 33 34 35 36 37	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_35 VLANID_36 VLANID_37	< <u>B</u> ack /LAN		Find Attribute ~ Common Common Common Common Common Common Common Common	Cancel No. 31, Total:3: Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38	< <u>B</u> ack /LAN		Find Attribute ~ Common Common Common Common Common Common Common Common Common	Cancel No. 31, Total:3: Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_35 VLANID_36 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39	< <u>B</u> ack		Find Attribute ~ Common Common Common Common Common Common Common Common Common	Cancel No. 31, Total:3: Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39 40	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39	< <u>B</u> ack	Next> Next> Type ~ Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common Common Common Common	Cancel No. 31, Total:3: Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39 40 77	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_39 VLANID_39 VLANID_39 VLANID_39 VLANID_77	< <u>B</u> ack	Next> Next> Type ~ Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common Common Common Common Common	Cancel No. 31, Total:3 Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39 40 77 101	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_77 VLANID_77 VLANID_101	< <u>B</u> ack	Next> Next> Type ~ Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common Common Common Common Common Common	Cancel No. 31, Total:3 Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39 40 77 101 102	VLAN Name VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_102	< <u>B</u> ack		Find Attribute ~ Common Common Common Common Common Common Common Common Common Common Common Common Common Common	Cancel No. 31, Total:3 Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39 40 77 101 102 103	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_102 VLANID_103	< <u>B</u> ack		Find Attribute ~ Common	Cancel No. 31, Total:3 Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234	VLAN Name VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_103 VLANID_103 VLANID_234	< <u>B</u> ack		Find Find Common Commo	Cancel No. 31, Total:3: Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_102 VLANID_234 VLANID_235	< <u>Back</u> /LAN		Find Find Common Commo	Cancel No. 31, Total:3: Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_30 VLANID_101 VLANID_101 VLANID_102 VLANID_234 VLANID_235 VLANID_20	< <u>B</u> ack		Find Find Common Commo	Cancel No. 31, Total:3: Super VLAN II
Id Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_30 VLANID_32 VLANID_32 VLANID_101 VLANID_101 VLANID_102 VLANID_234 VLANID_235 VLANID_20	< <u>Back</u>		Find Attribute Attribute Common Commo Common Common Common Common Common Common Common Comm	Cancel No. 31, Total:3: Super VLAN II
Id Multicast Select VLAN VLAN Attril VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_234 VLANID_235 VLANID_23.	< <u>Back</u>		Find Find Common Commo	Cancel No. 31, Total:3 Super VLAN II

- (5) Click Finish.
- 5. Add a virtual upstream port for the multicast service on the OLT side. For details, see 19.2.5 Configuring the Virtual Multicast Upstream Port.
 - (1) Choose **Multicast** > **Virtual Uplink Port** from the navigation tree.

- (2) On the **Virtual Uplink Port** tab page, set the filter criteria to display the required virtual upstream ports.
- (3) In the information list, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Frame: 0
 - Slot: 19
 - Port: 0

Add Virtual Uplink Port	X
Location Info	
Device Name: 10.71.227.35	•
Multicast VLAN Info	Uplink Port Info
	Frame: 0 *
VLAN ID(1-4095): 3000 *	Slot: 19 *
	Port: 0 *
	OK Cancel <u>Apply</u>

- (5) Click Done.
- 6. Configure a program profile on the OLT side. For details, see 19.2.8 Configuring a Program Profile.
 - (1) Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
 - (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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 ise 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	te	🗾 Log Attribute	
🗌 Across VLAN Attrik	oute		
		ОКСС	ancel <u>A</u> pply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required OLT and click Next. Then, set VLAN ID to 3000.
- (8) Click OK.
- 7. Configure a multicast user on the OLT side. For details, see 19.2.10 Configuring a Multicast User.

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.

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

Device Name: 10.71.227.35 Parameters Name: 4/56/uservian/untagged Alias: ICMPUserA Max Programs NO.(1-32): 6 Øuick Leave Mode: mac-based Vas Band Width (Kbit/S) Enable Authorization Øuick Leave Mode: mac-based Ver Max Band Width (Kbit/S) If Unlimited Band Width Øuick Leave Mode: mac-based Ver Max Band Width (Kbit/S) If Unlimited Band Width Øuick Leave Mode: mac-based								
Parameters Name: 4/56/uservlan/untagged Alias: IGMPUserA Max. Programs NO.(1-32): @ Image: Comparison of the second of th	Device Name	: 10.71.227.35						
Name: 4/56/uservian/untagged Alias: ICMPUserA Max. Programs NO.(1-32): 8 • If Enable Log Switch Ouick Leave Mode: mac-based • Enable Authorization • Default Video Flow User Max Band Width(Kolt/S) • Unlimited Band Width • Receive Global-Leave Select Service Port • Unlimited Band Width • Find No. 3, Total14 Name Alias Connection Type Interface Information Service Type Service Para Upstream Traffic 10.14_2.6 LAN-ADSL Frame: 0/Slot 12/ Single - Ip-traffic-table_3 200.12_0 LAN-ADSL Frame: 0/Slot 12/ Single - Ip-traffic-table_3 10.13_2/1 LAN-ADSL Frame: 0/Slot 13/ Single - Ip-traffic-table_6 10.13_2/1 LAN-ADSL Frame: 0/Slot 13/ <th>Parameters</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	Parameters							
Max. Programs NO.(1-32): B ✓ Enable Log Switch Ouick Leave Mode: mac-based Enable Authorization ✓ Default Video Flow User Max Band Width (Kbit/S) ✓ Unlimited Band Width ✓ Receive Global-Leave Select Service Port ✓ Find No. 3, Total 14 Name Alias Connection Type Interface Information Service Type Service Para Upstream Traffic 10_14_266. LAN-ADSL Frame: 0/Slot 14/ Single - Ip-traffic-table_3 2100_2_120 LAN-ADSL Frame: 0/Slot 12/ Multh Service V User VLAN (p-traffic-table_6) 10_13_011 LAN-ADSL Frame: 0/Slot 13/ Single - 10_13_211 LAN-ADSL Frame: 0/Slot 13/ Singl	Name:		4/56/uservlan/u	ntagged	Alias:		IGMPUser/	A
Quick Leave Mode: mac-based Enable Authorization I Default Video Flow User Max Band Width (kbit/s) Image: Unlimited Band Width Image: Receive Global-Leave 0.4284967284): Image: Unlimited Band Width Image: Receive Global-Leave Select Service Port Image: Vision Transmittion Service Para Upstream Traffic 11 Image: Vision Transmittion Service Para Upstream Traffic Name - Alias - Connection Type - Interface Information Service Type - Service Para Upstream Traffic 10_14_2.26. LAN-ADSL Frame: 0/Slot 14/ Single - Ip-traffic-table_3 21/0_2_13. LAN-OPON Frame: 0/Slot 13/ Single - Ip-traffic-table_3 10_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - Im-traffic-table_3 10_13_2/1 LAN-ADSL Frame: 0/Slot 13/ Single - Im-traffic-table_3	Max. Program	ms NO.(1-32):	8		🔹 🗹 Enabl	e Log Switch		
User Max Band Width(kbit/s) Image: Connection Type Image: Con	Quick Leave	Mode:	mac-based	•	🔲 Enabl	e Authorization	🗹 Default	Video Flow
Select Service Port 11 ✓ Find No. 3, Total:14 Name ^ Alias ^ Connection Type ^ Interface Information Service Type ^ Service Para Upsteam Traffic 10_14_26 LAN-ADSL Frame: 0/Slot:14/ Single - Ip-traffic-table_3 3000_12_0/ LAN-OPON Frame: 0/Slot:12/ Single - Ip-traffic-table_6 210_2_13 LAN-OPON Frame: 0/Slot:12/ Nulth-Service V User VLAN(bpfraffic-table_6) 10_13_01 LAN-ADSL Frame: 0/Slot:13/ Single - 10_13_21 LAN-ADSL Frame: 0/Slot:13/ Single - 10_13_21 LAN-ADSL Frame: 0/Slot:13/ Single - 10_13_3 LAN-ADSL Frame: 0/Slot:13/ Single - 10_13_61 LAN-ADSL Frame: 0/Slot:13/ Single - 10_13_61 LAN-ADSL Frame: 0/Slot:13/ Single - 10_13_61 LAN-ADSL Frame: 0/Slot:13/ Single -	User Max Ba (0-4294967)	and Width(Kbit/s) 294):			🗹 Unlim	ited Band Widt	th 🗹 Receive	e Global-Leave
II ✓ Find No. 3, Total 14 Name ∧ Alias ∧ Connection Type ∧ Interface Information Service Type ∧ Service Para Upstream Traffic 10, 14, 26, 1/0_14_2/6 LAN-ADSL Frame: 0/Slot 14/ Single - ip-traffic-table_3 3/00_12_0/ LAN-OPON Frame: 0/Slot 12/ Single - ip-traffic-table_6 21/0_2_1/3 LAN-OPON Frame: 0/Slot 12/ Single - ip-traffic-table_6 1/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_11 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_11 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_11 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_6/1 LAN-ADSL F	Select Service	Port						
Name Alias Connection Type Interface Information Service Type Service Para Upstream Traffic Inp_14_26 1/0_14_26 LAN-ADSL Frame: 0/Slot 14/ Single	11						🗸 Find	No. 3, Total:144
1/0_14_2/6 LAN-ADSL Frame: 0/Slot 14/ Single - Ip-traffic-table_3 3/00_12_0/ LAN-OPON Frame: 0/Slot 12/ Single - Ip-traffic-table_6 21/0_2_1/3 LAN-OPON Frame: 0/Slot 12/ Single - Ip-traffic-table_6 21/0_2_1/3 LAN-OPON Frame: 0/Slot 12/ Single - Ip-traffic-table_6 1/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - Im-traffic-table_6 1/0_13_2/1 LAN-ADSL Frame: 0/Slot 13/ Single - E_test_1 1/0_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single - E_test_1 1/0_13_5/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - -	Name 🗠	Alias \land 🛛 Co	nnection Type 🗠	Interface	Information	Service Type	 Service Para 	a Upstream Traffic
3000_12_0/ LAN-GPON Frame: 0/Slot 12/ Single - ip-traffic-table_6 2100_2_173 LAN-GPON Frame: 0/Slot 12/ MUID:Service V User VLAN ip-traffic-table_6 1/0_13_0/1 LAN-GPON Frame: 0/Slot 12/ MUID:Service V User VLAN ip-traffic-table_6 1/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_2/1 LAN-ADSL Frame: 0/Slot 13/ Single - E_test_1 1/0_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single - E_test_1 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - -	1/0_14_2/6	LAN	-ADSL	Frame:	0/Slot: 14/	Single		ip-traffic-table_3 🗖
2110_2_113 LAN-OPON Frame: 0/8/ot 2/P Multi-Service V User VLAN (p-traffic-table_6) 100_13_0/m LAN-ADSL Frame: 0/8/ot 13/ Single - - 100_13_0/m LAN-ADSL Frame: 0/8/ot 13/ Single - - 100_13_2/m. LAN-ADSL Frame: 0/8/ot 13/ Single - - 100_13_2/m. LAN-ADSL Frame: 0/8/ot 13/ Single - E 100_13_2/m. LAN-ADSL Frame: 0/8/ot 13/ Single - E 100_13_2/m. LAN-ADSL Frame: 0/8/ot 13/ Single - - 100_13_6/m. LAN-ADSL Frame: 0/8/ot 13/ Single - - 100_13_0/m. LAN-ADSL Frame:	30/0_12_0/	LAN	-GPON	Frame:	0/Slot: 12/	Single		ip-traffic-table_6
1/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - 1/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - Etest_1 1/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - Etest_1 1/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - Etest_1 1/0_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single - Etest_1 1/0_13_0/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_5/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_7/1 LAN-ADSL Frame: 0/Slot 13/ Single - - 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single - -	21/0_2_1/3	LAN	-GPON	Frame: I	0/Slot: 2/P	Multi-Service V	User VLAN:	. ip-traffic-table_6
1/0_13_1/1 LAN-ADSL Frame: 0/Slot 13/ Single 1/0_13_2/1 LAN-ADSL Frame: 0/Slot 13/ Single E_test_1 1/0_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single E_test_1 1/0_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single	1/0_13_0/1	LAN	-ADSL	Frame:	0/Slot: 13/	Single		
1/0_13_2/1 LAN-ADSL Frame: 0/Slot 13/ Single E_test_1 1/0_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single 1/0_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single	1/0_13_1/1	LAN	-ADSL	Frame:	0/Slot: 13/	Single		
1/0_13_3/1 LAN-ADSL Frame: 0/Slot 13/ Single 1/0_13_4/1 LAN-ADSL Frame: 0/Slot 13/ Single 1/0_13_5/1 LAN-ADSL Frame: 0/Slot 13/ Single 1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single 1/0_13_7/1 LAN-ADSL Frame: 0/Slot 13/ Single 1/0_13_7/1 LAN-ADSL Frame: 0/Slot 13/ Single		LAN	-ADSL	Frame:	0/Slot: 13/	Single		E_test_1
I/0_13_4/1 LAN-ADSL Frame: 0/Slot 13/ Single I/0_13_5/1 LAN-ADSL Frame: 0/Slot 13/ Single I/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single I/0_13_7/1 LAN-ADSL Frame: 0/Slot 13/ Single I/0_13_7/1 LAN-ADSL Frame: 0/Slot 13/ Single I/0_14_7/1 LAN-ADSL Frame: 0/Slot 13/ Single	1/0_13_2/1	LAN	-ADSL	Frame:	0/Slot: 13/	Single		
I/0_13_5/1 LAN-ADSL Frame: 0/Slot: 13/ Single I/0_13_6/1 LAN-ADSL Frame: 0/Slot: 13/ Single I/0_13_7/1 LAN-ADSL Frame: 0/Slot: 13/ Single I/0_13_7/1 LAN-ADSL Frame: 0/Slot: 13/ Single	1/0_13_2/1 1/0_13_3/1							
1/0_13_6/1 LAN-ADSL Frame: 0/Slot 13/ Single	1/0_13_2/1 1/0_13_3/1 1/0_13_4/1	LAN	-ADSL	Frame:	0/Slot: 13/	Single		
1/0_13_711 LAN-ADSL Frame: 0/Slot 13/ Single	1/0_13_2/1 1/0_13_3/1 1/0_13_4/1 1/0_13_5/1	LAN	-ADSL -ADSL	Frame: Frame:	0/Slot 13/ 0/Slot 13/	Single Single		
	1/0_13_2/1 1/0_13_3/1 1/0_13_4/1 1/0_13_5/1 1/0_13_6/1	LAN LAN LAN	-ADSL -ADSL -ADSL	Frame: Frame: Frame:	0/Slot 13/ 0/Slot 13/ 0/Slot 13/	Single Single Single		
	1/0_13_2/1 1/0_13_3/1 1/0_13_4/1 1/0_13_5/1 1/0_13_6/1 1/0_13_7/1	LAN LAN LAN LAN	-ADSL -ADSL -ADSL -ADSL	Frame: Frame: Frame: Frame:	0/Slot 13/ 0/Slot 13/ 0/Slot 13/ 0/Slot 13/	Single Single Single Single		
	1/0_13_2/1 1/0_13_3/1 1/0_13_4/1 1/0_13_5/1 1/0_13_6/1 1/0_13_7/1	LAN LAN LAN LAN	-ADSL -ADSL -ADSL -ADSL	Frame: Frame: Frame: Frame:	0/Slot 13/ 0/Slot 13/ 0/Slot 13/ 0/Slot 13/	Single Single Single Single	•• •• ••	

- (4) Click Finish.
- (5) Select the multicast user, click the User Multicast VLAN tab in the lower pane, right-click, and then choose Add from the shortcut menu.
- (6) In the dialog box that is displayed, select the record where **Multicast VLAN ID** is set to **3000** and click **OK**.

id Multicas Select Multi	st VL# castV	N to user						ļ
Please in	iput qu	ery condition			•	F	ind	No. 2, Total:2
N	lame		Alias	Multicast VLA		10	MP Version	1
IGMPV Add	d Mul	ticast VLAN					×	tv_off
IGMPV	Total :	1, Succeeded : 1,	Failed : O					igmp_
			100	%				
				<u>D</u> etails <<		<u>C</u> lose		
	blo	Douise Nome	Nomo	Booult		oiluro Co		
	1	10.71.227.35	IGMPVIan 3000	Succeeded		allure ca	use	
	<							
						,		
<u> </u>						J		2
					Ok		Cancel	Apply

• Configure the voice service on the OLT side.

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. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

1	dd VLAN		X
	 Base Info Configure VLAN 		
		VLAN ID(1-4095):	2000 *
		Name:	VLANID_2000 *
		Alias:	
		Type:	Smart VLAN 👻 *
		Attribute:	Common 💌 \star
		VLAN Priority:	Unconfigured
		B	Back <u>N</u> ext <u>D</u> one <u>C</u> ancel

- (4) Click Next.
- (5) 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 Ex Physical Port List B Physical Port List	tended Info	×
	Back	< Next Done Qancel	

- (6) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: VOIP

- 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- Vlan ID: 2000
- Service Type: Multi-Service VLAN
- User VLAN: 2000
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

Basic Info				Attributes	
ID(1-32768):	1 VOIP		*	Connection Type:	LAN-GPON
Allas: Network Side				User Side	LAN-GPON
ULAN Choice: Tag-Transform	:-8192):	Smart VLAN	••••	Interface Selection: Service Type:	0/2/1/0/0 Multi-Service VLAN
Vlan ID(1-4095 Cos value(0-7)): [2000	*	User VLAN(1-4095):	2000
raffic Profile Inf					
I veep the u	ostream an ic Name:	d downstream setti ip-traffic-table_6	ngs the same	Downstream Traffic Na	me: ip-traffic-table_6)
					OK Cancel Annix

- (4) Click **OK**.
- Configure the service on the MDU side.

The prerequisite for performing operations in the navigation tree is to navigate to the NE Explorer of the MDU. To navigate to the NE Explorer of the MDU, do as follows: In the Main Topology, double-click the required MDU in the **Physical Root** navigation tree; or right-click the required MDU and choose **NE Explorer** from the shortcut menu.

- 1. Add a service provisioning profile.
 - (1) Choose Configuration > Access Profile Management > Service Provisioning Profile from the main menu.
 - (2) Click the **xPON FTTB Service Provisioning Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Set Name to serviceprofile.
 - Right-click **ServicePort** in the navigation tree and choose **Add serviceport** from the shortcut menu. In the right pane, set the parameters of the service virtual port.
 - In the case of the Internet service:
 - ServicePort Name: pppoe
 - Service Priority: 1

- VLAN Attribute: Common
- Network Side VLAN: 1001
- VPI: auto
- Service Type: Multi-service VLAN
- User VLAN: untagged
- Keep traffic the same: selected
- Upstream Traffic Name: FTTx
- Downstream Traffic Name: FTTx

In the case of the multicast service:

- ServicePort Name: multicast
- Service Priority: 4
- VLAN Attribute: Common
- Network Side VLAN: 1000
- VPI: auto
- Service Type: Multi-service VLAN
- User VLAN: untagged
- Keep traffic the same: selected
- Upstream Traffic Name: FTTx
- Downstream Traffic Name: FTTx
- Right-click Multicast User in the navigation tree and choose Add multicast user from the shortcut menu. In the right pane, set the parameters of the multicast user.
 - IGMP Flow Channel: multicast
 - Multicast VLAN: 1000
- (5) Click OK.

2. Add a service.

The steps for configuring an xDSL port are similar to the steps for configuring an Ethernet port.

- (1) Choose **ETH** from the navigation tree.
- (2) Click the **Ethernet Port** tab, and set the filter criteria or click [™] to display the Ethernet ports.
- (3) In the information list, right-click port 0/1/1 and choose **Add Service** from the shortcut menu.
- (4) In the dialog box that is displayed, click mext to Service Provisioning Profile. In the dialog box that is displayed, select the service provisioning profile whose Name is set to serviceprofile.
- (5) Click OK.

----End

Result

The user gains access to the Internet after the dialup is performed successfully by the PPPoE dialup software on the PC.

The user can watch program1 on TV.

Phone 1 and phone 2 can communicate with each other after the configuration is complete.

- 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 ringback tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

24 Configuring the EPON FTTH Services

About This Chapter

An FTTH network consisting of an OLT and a number of MDUs provides users with Internet, multicast, and voice services.

24.1 Adding an ONT to the U2000 (OLT in Profile Mode)

This topic describes how to add an ONT to the U2000 when the OLT is in the profile mode. After the ONT is added successfully to the U2000, the U2000 uses the OLT as an agent to manage the ONT (the OLT manages the ONT in OAM mode). In this case, you can configure the FTTH service for the ONT on the U2000.

24.2 Configuring Services

An FTTH network consisting of an OLT and a number of ONTs provides users with Internet, multicast, and voice services.

24.3 Configuration Examples of the EPON FTTH Services

This topic provides examples to describe how to configure the Internet, voice, and multicast services in an EPON FTTH network.

24.1 Adding an ONT to the U2000 (OLT in Profile Mode)

This topic describes how to add an ONT to the U2000 when the OLT is in the profile mode. After the ONT is added successfully to the U2000, the U2000 uses the OLT as an agent to manage the ONT (the OLT manages the ONT in OAM mode). In this case, you can configure the FTTH service for the ONT on the U2000.

Context

You can add an ONT on the device side in the following two scenarios: online ONT confirmation and offline ONT deployment. The profile bound to an ONT and the authentication information of the ONT must be the same as those configured on the ONT on the user side.

- Online ONT confirmation: When an ONT is online, the ONT can be managed immediately after it is added to the U2000. This topic considers the online ONT confirmation as an example to describe how to add an ONT to the U2000.
- Offline ONT deployment: When an ONT is offline, you need to add the ONT and configure the FTTH service for the ONT offline. After the ONT goes online, the configuration data is applied to the ONT through the OAM extension protocol. The service configuration on the ONT is complete.

24.1.1 Configuring a Line Profile

An EPON line profile contains the parameters relevant to the EPON line. The parameters are required for setting up channels for the EPON line.

24.1.2 Configuring a Service Profile

The service profile is a collection of parameters associated with the ONT service.

24.1.3 Confirming an Auto-Discovered ONT

This topic describes how to confirm the auto-discovered ONU that is connected to an EPON port. The auto-discovered ONU can work in the normal state only after it is confirmed.

24.1.1 Configuring a Line Profile

An EPON line profile contains the parameters relevant to the EPON line. The parameters are required for setting up channels for the EPON line.

Prerequisite

The DBA profile must be already configured in the system. For details, see **23.1.2 Configuring a DBA Profile**.

Procedure

- 1 Choose Configuration > Access Profile Management > EPON Profile from the main menu.
- 2 Click the **EPON Line Profile** tab. Right-click and choose **Add Global Profile** from the shortcut menu.
- 3 In the dialog box that is displayed, set Name and relevant parameters of the line profile.
 - 1. Choose **Base Info.** from the navigation tree and configure the basic parameters of the profile.

Name: line_profile * Alias: Configuration Base Info ON Base Info ON CAR Profile DBA Threshold CAR Profile dba-profile_2 DBA Profile OFF	dd EPON Line Profile		
Configuration Name Value Base Info FEC Switch ON CAR Profile Ip-traffic-table_2 DBA Threshold DBA Profile dba-profile_2 Encrypt Type OFF	Name: line_profile	* Alias:	
	Configuration Base Info B- DBA Threshold	Name FEC Switch CAR Profile DBA Profile Encrypt Type	Value ON ip-traffic-table_2 dba-profile_2 OFF

Key Paramete r	Description
FEC Switch	Indicates the status of upstream forward error correction (FEC) switch of the ONU line profile. To ensure the reliability of data transmission between the OLT and ONU, enable the FEC function. After the FEC function is enabled, the system inserts redundancy data into normal packets. In this way, the line has the error tolerance function, but certain bandwidth resources are wasted.

2. Choose **DBA Threshold** from the navigation tree and set the relevant parameters.

Configuration	Name	Value
— Base Info.	Threshold of Queue0(0-65535)	2
DBA Threshold	Threshold of Queue1 (0-65535)	6
- Threshold2	Threshold of Queue2(0-65535)	8
- Threshold3	Threshold of Queue3(0-65535)	12
	Threshold of Queue4(0-65535)	22
	Threshold of Queue5(0-65535)	222
	Threshold of Queue6(0-65535)	6
	Threshold of Queue7(0-65535)	9

- 4 Click OK.
- 5 In the information list, right-click a record and choose **Download to NE** from the shortcut menu.
- 6 In the dialog box that is displayed, select the required OLT, and click **OK**.

----End

Command Reference

То	Run the Command	In
Enter the ONU line profile mode	ONU-lineprofile EPON	Global config mode

24.1.2 Configuring a Service Profile

The service profile is a collection of parameters associated with the ONT service.

Procedure

- 1 Choose Configuration > Access Profile Management > EPON Profile from the main menu.
- 2 Click the **EPON Service Profile** tab. Right-click and choose **Add Global Profile** from the shortcut menu.
- 3 In the dialog box that is displayed, set the parameters.
 - 1. Choose **Basic Info** from the navigation tree, and then set the basic parameters of the profile.

me: epon_serviceprofile	* Alias:	
Configuration	Name	Value
Base Info.	Number of POTS Ports(0-8)	2
- UNI POR	Number of ETH Ports(0-8)	4
	Number of TDM Ports(0-8)	0
	TDM Port Type	E1
	Multicast Mode	стс
	Multicast Fast Leave Switch	ON

The parameter settings must be the same as the actual settings on the port of the ONT.

2. Choose UNI Port from the navigation tree. Select a record from the UNI port list in the right pane, right-click, and then choose Config UNI Port from the shortcut menu. In the dialog box that is displayed, set the parameters.

Add EPON Service Profile		×
Name: epon_serviceprofile	* Alias:	
Configuration Base Info. UNI Port	Port Type ETH Port ETH Pt Config UNI Port	Port ID 1
Config UNI Port		×
Port Type:	ETH	_
Port ID:	1	
Upstream CAR Profile:		
Downstream CAR Profile:		
Maximum Number of Learnable MAG	Addresses(0-1023):	
Traffic Classification Profile:		
Default VLAN ID(1-4094):	1000	
	ОК	Cancel
	ОК	Cancel Apply

4 Click OK.

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

----End

Command Reference

То	Run the Command	In
Query the information about the ONT service profile	display ont-srvprofile	Privilege mode
Enter the ONT line profile mode	ont-srvprofile	Global config mode

24.1.3 Confirming an Auto-Discovered ONT

This topic describes how to confirm the auto-discovered ONU that is connected to an EPON port. The auto-discovered ONU can work in the normal state only after it is confirmed.

Context

When the ONU auto-discovery function is enabled, the OLT can periodically check whether there are new online ONUs. If new online ONUs are discovered, the OLT reports a group of ONUs to be confirmed to the U2000 for user confirmation.

Procedure

- 1 In the Main Topology, double-click the required NE in the **Physical Root** navigation tree; or right-click the required NE and choose **NE Explorer** from the shortcut menu.
- 2 Choose EPON > EPON UNI Port from the navigation tree.
- 3 On the **EPON UNI Port** tab page, set the filter criteria or click is to display the EPON UNI ports. It is a set of the terminal of terminal
- **4** Select a record from the EPON UNI list, and click the **AutoFind ONU Info** tab in the lower pane.
- 5 Select a record from the ONU list, right-click, and then choose **Confirm ONU** from the shortcut menu.
- 6 In the dialog box that is displayed, set the basic parameters for confirming the ONT and network management channel parameters, and then click **OK**.

Confirm ONU	
Affiliated Port:	0/6/0
Name:	17.113/Frame0/Slot6/Port0/OnuID2 * Alias:
ONU ID(0-127):	Auto Assign 0 * Splitter Port ID(1-128):
ONU Type:	ONT
Basic Paramet	ters Network Management Channel Parameters
Line Profile:	lineprofile_3
ONU VAS Profi	ile:
Auth Info	
Auth Way:	MAC Address * MAC Address: 00 - 1E - E3 - FB - A9 - 53
Key:	* Time Out(h)(1-168): 🗹 Disable *
- Extend Inform	
Extend mom	nauon
	P Status
ONU Type	
Terminal Ty	vpe: 850e 💌 Software Version: V100R001C05B031 💌
	OK Cancel Apply

Key Parameter	Description
ONU ID	Indicates the ONU ID. It always ranges from 0.
ONU Type	Indicates the ONU type and needs to be set to ONT .

Key Parameter	Description
Line Profile	Indicates the line profile bound to the port to which the ONU is connected. After a line profile is bound to a port, the system can directly reference the line profile when activating a port. During the activation, the system checks the line distance and status and performs a negotiation between the CO and CPE to determine whether the port can work under the conditions as preset in the line profile, such as upstream and downstream line rates and noise margin.
Service Profile	Indicates the service profile bound to the ONU. The service profile is a collection of parameters that are associated with the ONU service. You need not configure the service profile for the FTTB service.
Authenticat ion Mode	Indicates the mode in which the OLT authenticates the ONU. The OLT authenticates the EPON ONU in the MAC authorization mode by default.

When adding the ONU of the SNMP management mode, you must set the **Authentication Mode** and **Line Profile** parameters. When adding the ONU of the OAM management mode, you must set the **Authentication Mode**, **Line Profile**, and **Service Profile** parameters.

----End

Command Reference

То	Run the Command	In
Confirm the ONT that is in the auto-discovery mode	ont confirm	EPON mode
Enter the EPON mode from the global configuration mode	interface EPON	Global config mode
Enable the ONT auto-discovery function of an EPON port	port ont-auto-find enable	EPON mode
Query the auto-discovered ONTs in the system or the settings for the ONT auto-discovery time	display ont autofind	Privilege mode, EPON mode

24.2 Configuring Services

An FTTH network consisting of an OLT and a number of ONTs provides users with Internet, multicast, and voice services.

Context

Several operations are required when you configure a service. The following lists the services configured at the OLT side and the service configuration steps.

Services	Steps
Internet access service	• 19.3.1 Configuring a VLAN
	• 23.2.1 Adding a Service Virtual Port
Multicast service	• 19.3.1 Configuring a VLAN
	• 23.2.1 Adding a Service Virtual Port
	• 19.2.7 Configuring the Multicast VLAN
	• 19.2.5 Configuring the Virtual Multicast Upstream Port
	• 19.2.6 Configuring a Preview Profile
	• 19.2.8 Configuring a Program Profile
	• 19.2.10 Configuring a Multicast User
Voice service	• 19.3.1 Configuring a VLAN
	• 23.2.1 Adding a Service Virtual Port
	• 20.2.1 Configuring the ONT Value-Added Service Configuration Profile
	• 20.2.2 Configuring the Voice Value-Added Service of an ONT

24.3 Configuration Examples of the EPON FTTH Services

This topic provides examples to describe how to configure the Internet, voice, and multicast services in an EPON FTTH network.

24.3.1 Data Plan for the EPON FTTH Services

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

24.3.2 Configuring the EPON FTTH Internet Service

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

24.3.3 Configuring the EPON FTTH Multicast Service

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

24.3.4 Configuring the EPON FTTH Voice Service (H.248 Protocol)

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

24.3.5 Configuring the EPON FTTH Voice Service (SIP Protocol)

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

24.3.1 Data Plan for the EPON FTTH Services

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

Service Type	Item	Settings	Remarks
Device managemen t	Upstream port of an OLT	0/19/0	-
	Layer 3 interface	IP Address: 192.168.50.4	The IP address of the Layer 3 interface of the management VLAN of the OLT functions as the IP address of the OLT for inband network management.
	EPON port of the OLT	0/2/1	-
	ONT	MAC: 001E-E3F4-0471	-
		Name: ONT	
		ONU Type: ONT	
		ONU ID: 0	
		Authentication Mode: MAC	
		Terminal Type: 850e	
		Software Version: V100R001C05B031	
	MEF IP traffic	• Name: FTTx	The MEF IP traffic
	profile	• CIR: 20480	profile is used on the
		• Outer Priority: 1	upstream and downstream traffic.
	DBA profile	• Name: FTTx	-
		 DBA type: Maximum Bandwidth 	
		 Maximum Bandwidth: 32768 	
	Line profile	Name: FTTx	-
		DBA Profile: FTTx	

 Table 24-1 Data plan for the EPON 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: 1001,1000 S-VLAN: 1001,1000	-
Internet service	VLAN	 VLAN ID: 1001 Type: Smart VLAN Attribute: QinQ 	-
	Service virtual port	 Name: HSI VLAN ID: 1001 Interface Selection: 0/2/1/0 Service Type: Multi-Service VLAN User VLAN: 1001 Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-
IPTV service	VLAN	VLAN ID: 1000, 3000Type: Smart VLAN	-
	Service virtual port	 Name: IGMP Vlan ID: 1000 Interface Selection: 0/2/1/0/0 Service Type: Multi-Service VLAN User VLAN: 1000 Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-
	Multicast VLAN	 IGMP Version: IGMP V3 Work Mode: igmp_proxy VLAN ID: 3000 	-

Service Type	Item	Settings	Remarks
	Program profile Multicast user	 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) Alias: IGMPUserA Unlimited Band Width: selected Select Service Port: service 	-
VoIP service	VLAN	 virtual port named IGMP VLAN ID: 2000 Type: Smart VLAN 	-
	Service virtual port	 Name: VOIP Vlan ID: 2000 Interface Selection: 0/2/1/0 Service Type: Multi-Service VLAN User VLAN: 2000 Keep the upstream and downstream settings the same: selected Upstream Traffic Name: FTTx 	-
	ONT VAS configuration profile (H.248 protocol)	 Profile Name: VOIP850e Vendor ID: HWTC(2011) Terminal Type: 850e Version: V100R001C02B010~Later Signal Protocol: H248 Digitmap: x.T MGC Port: 2944 MGC domain name: MGC.com 	-

Service Type	Item	Settings	Remarks
	ONT VAS configuration profile (SIP protocol)	 Profile Name: VOIP850e Vendor ID: HWTC(2011) Terminal Type: 850e Version: V100R001C02B010~Later Signal Protocol: SIP SIP server port: 5060 SIP server IP: 200.200.200.200 SIP digitmap: x.T Voice service VLAN ID: 2000 IP get mode: dhcp WAN Service Type: VOIP User1 phone number: 87650001, User1 password: test1234 User2 phone number: 87650002, User1 password: test1234 	

24.3.2 Configuring the EPON FTTH Internet Service

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

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 24.3.1 Data Plan for the EPON FTTH Services.

Example Network

This topic considers the ONT whose **Terminal Type** is set to **HG850e** as an example. The configuration procedure of the ONTs of other types is similar to the configuration procedure described in this topic.

- The PC gains access to the Internet in PPPoE dialup mode.
- The ONT is connected to the EPBD card of the OLT through an optical fiber.
- The BRAS provides the AAA functions.



Figure 24-1 Configuring the EPON FTTH Internet service

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
 - (5) Click OK.

- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Create DBA Profile	<mark>ر</mark>
Name:	*
Alias:	
DBA type:	Maximum bandwidth 🔹
Fixed bandwidth rate (Kbit/s) (128-1235456):	128
Assured bandwidth rate (Kbit/s) (128-1235456):	128
Maximum bandwidth rate (Kbit/s) (128-1235456):	32768 *
Bandwidth compensation:	No
	OK Cancel Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 24.1.1 Configuring a Line Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Profile: FTTx

ame: FTTx	* Alias:	
Configuration	Name	Value
Base Info.	FEC Switch	ON
∃ DBA Threshold	CAR Profile	
	DBA Profile	FTTX
	Encrypt Type	OFF

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile. For details, see 24.1.2 Configuring a Service Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Service Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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

Add EPON Service Profile		×
Name: FTTx	* Alias:	
Configuration	Name	Value
- UNI Port	Number of POTS Ports(0-8)	2
	Number of ETH Ports(0-8)	4
	Number of IDM Ports(0-8)	
	IDM Port Type	E1
	Multicast Mode	
	Multicast Fast Leave Switch	ON
	ļ	
	OK OK	Cancel Apply

- 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 Config VLAN Switch of UNI Port 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: 1001
 - C-VLAN: 1001

Add EPON Service Profile	×
Name: FTTx	* Alias:
Configuration Base Info.	Port Type Port ID Config UNI Port Config VLAN Switch of UNI Port Config Multicast VLAN of UNI Port TO TOP
	Config VLAN Switch of UNI Port Port Type: ETH Port ID: 1 VLAN Type: Translation
	SVLAN(1-4094) CVLAN(1-409
	ADD VLAN Switch X SVLAN(1-4094): 1001 * CVLAN(1-4094): 1001 * 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 2, and choose Config VLAN Switch of UNI Port 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: 1000
 - C-VLAN: 1000

Add EPON Service Profile						×
Name: FTTx		* Alias:				
Configuration Base Info. UNI Port	E Config U Config V Config V Config V	ort Type JNI Port /LAN Switch of /ulticast VLAN	f UNI Port of UNI Port	Port ID		
	Config VLAN Port Type:	Switch of U	NI Port			
	Port ID:	1				
	VLAN Type:	Translation				
		SVLAN(1-4094	4)		CVLAN(1	409
	ADD	ADD	VLAN Swite	h	×	
		CVL	AN(1-4094): AN(1-4094):	1000	*	
			ОК		ancel	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 5. Confirm the ONT. For details, see 24.1.3 Confirming an Auto-Discovered ONT.
 - (1) 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.
 - (2) Choose **EPON** > **EPON** UNI Port from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click ≥ to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with the MAC address 001E-E3F4-0471, and then choose **Confirm ONU** from the shortcut menu.
 - Set Name to ONT.
 - Set ONU ID to 0.
 - Set ONU Type to 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: MAC
 - Terminal Type: 850e
 - Software Version: V100R001C05B031

Confirm ONU				X
Affiliated Port:	0/2/1	*	Splitter ID:	Splitter(L1)
Name:	ONT	*	Alias:	
ONU ID(0-127):	Auto Assign 0	*	Splitter Port ID(1-128):	
ONU Type:	ONT	*		
Basic Paramet	ers Network Mana	igement Chann	el Parameters	
Line Profile:	FTTx)*	Service Profile: FTTx	
ONU VAS Profi	le:			
Auth Info				
Auth Way:	MAC Address 💌 *	MAC Addre	ss: 00 1E 1	E3 - F4 - 04 - 71
Key:	*	Time Out(h)(1-168): 🗹 Disable	*
- Evtend Inform	ation			
	Status		PHP Status	
ONU Type				
Vendor ID:	HWTC(2011)	▼	Terminal Type: 850e	•
Software Ve	rsion: V100R001C05B0	31 💌		
			Locate to ONU	list after operation succeeds
			ОК	Cancel Apply

(6) 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 an EPON ONU

- (1) Choose **EPON** > **EPON ONU** from the navigation tree.
- (2) On the **EPON ONU** tab page, set the filter criteria or click to display the EPON ONUs.
- (3) 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.
- (4) 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.
- (5) In the dialog box that is displayed, set **Default VLAN ID** to 1001.
- (6) Click OK.
- 2. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 1001
 - Type: Smart VLAN

- Attribute: QinQ

Add VLAN					×
 Base Info Configure VLAN 					
	VLAN ID(1-4095):	1001			*
	Name:	VLANID_1001	·		*
	Alias:				
	Туре:	Smart VLAN			*
	Attribute:	QinQ			*
	VLAN Priority:	Unconfigured			•
	<u>B</u>	аск	Next	Done	Cancel

(4) 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	Extended Info		
	Physical Port List Frame:0 P-Slot19 Slot19 Slot20 Slot20	>> < <	SubPort List Frame:0 Solution Port 00 Port 00	
	Back	Next	Done Cancel	

- (5) Click Done.
- 3. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1001 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: HSI
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - VLAN ID: 1001
 - Service Type: Multi-Service VLAN

- User VLAN: 1001
- 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)

Basic Info			Attributes		
ID(1-32768): 1					
Name: HSI)+	Connection Type:	AN-GPON	•
Alias:				AN-EPON AN-GPON	
Network Side			User Side		
		9			
VLAN Choice:	Smart VLAN •	1	Interface Selection:	0/2/0/0/0	
Tag-Transform:]	Service Type:	Multi-Service VLAN	-
Vlan ID(1-4095):	1001	.)•	User VLAN(1-4095):	1001	-
Cos value(0-7):]*			
Fraffic Profile Info					
✓ Keep the upstream a	ind downstream settings the sa	me			
Upstream Traffic Name:	ip-traffic-table_6	D	ownstream Traffic Nan	ne: ip-traffic-table_6	

(4) Click OK.

----End

Result

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

- 1. The FE 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.

24.3.3 Configuring the EPON FTTH Multicast Service

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

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 24.3.1 Data Plan for the EPON FTTH Services.

Example Network

This topic considers the ONT whose **Terminal Type** is set to **850e** as an example. The configuration procedure of the ONTs of other types is similar to the configuration procedure described in this topic.

- 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 24-2 Configuring the EPON FTTH multicast service



- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **Traffic Profile** from the main menu.

- (2) Click the **MEF IP Traffic Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - CIR: 20480
 - Outer Priority: 1
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

Cre	ate DBA Profile	×
F	Profile Parameters	
	Name:	FTTX *
	Alias:	
	DBA type:	Maximum bandwidth 🔹 🔹
	Fixed bandwidth rate (Kbit/s) (128-1235456):	128
	Assured bandwidth rate (Kbit/s) (128-1235456):	128
	Maximum bandwidth rate (Kbit/s) (128-1235456):	32768 *
	Bandwidth compensation:	No
		OK Cancel Apply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 24.1.1 Configuring a Line Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Profile: FTTx

ame: FTTx	* Alias:	
Configuration	Name	Value
- Base Into.	FEC Switch	ON
DDA Infestiona	CAR Profile	
	DBA Profile	FTTX .
	Encrypt Type	OFF

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile. For details, see 24.1.2 Configuring a Service Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Service Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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

Add EPON Service Profile		×
Name: FTTx	* Alias:	
Oranfammetica	hlama	Value
Base Info.	Name Number of POTS Ports(0-8)	2 Value
UNI Port	Number of ETH Ports(0-8)	4
	Number of TDM Ports(0-8)	0
	TDM Port Type	E1
	Multicast Mode	
	Multicast Fast Leave Switch	UN
	ОК	Cancel <u>A</u> pply

- 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 Config VLAN Switch of UNI Port 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: 1001
 - C-VLAN: 1001

Add EPON Service Profile		×
Name: FTTx	* Alias:	
Configuration Base Info. UNI Port	Port Type P Config UNI Port Config VLAN Switch of UNI Port Config Multicast VLAN of UNI Port	ort ID
	Config VLAN Switch of UNI Port Port Type: ETH Port ID: 1 VLAN Type: Translation	
	SVLAN(1-4094) ADD ADD ADD SVLAN(1-4094): 100 CVLAN(1-4094): 100	CVLAN(1-4094
	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 2, and choose Config VLAN Switch of UNI Port 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: 1000
 - C-VLAN: 1000

Add EPON Service Profile						×
Name: FTTx		* Alias:				
Configuration Base Info. UNI Port	E Config U Config V Config V Config V	ort Type JNI Port /LAN Switch of /ulticast VLAN	f UNI Port of UNI Port	Port ID		
	Config VLAN Port Type:	Switch of U	NI Port			
	Port ID:	1				
	VLAN Type:	Translation				
		SVLAN(1-4094	4)		CVLAN(1	409
	ADD	ADD	VLAN Swite	h	×	
		CVL	AN(1-4094): AN(1-4094):	1000	*	
			ОК		ancel	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 5. Confirm the ONT. For details, see 24.1.3 Confirming an Auto-Discovered ONT.
 - (1) 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.
 - (2) Choose **EPON** > **EPON** UNI Port from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click ≥ to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with the MAC address 001E-E3F4-0471, and then choose **Confirm ONU** from the shortcut menu.
 - Set Name to ONT.
 - Set ONU ID to 0.
 - Set ONU Type to 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: MAC
 - Terminal Type: 850e
 - Software Version: V100R001C05B031

Confirm ONU				X
Affiliated Port:	0/2/1	*	Splitter ID:	Splitter(L1)
Name:	ONT	*	Alias:	
ONU ID(0-127):	Auto Assign 0	*	Splitter Port ID(1-128):	
ONU Type:	ONT	*		
Basic Paramet	ers Network Manage	ement Chann	el Parameters	
Line Profile:	FTTX	*	Service Profile: FTTx	*
ONU VAS Profi	le:			
Auth Info				
Auth Way:	MAC Address 💌 *	MAC Addre	ss: 00 - 1E -	E3 - F4 - 04 - 71
Key:	*	Time Out(h)(1-168): 🗹 Disable	*
Extend Inform	nation			
	' Status		PITP Status	
-ONU Type		;		
Vendor ID:	HWTC(2011)		Terminal Type: 850e	
Software Ve	rsion: V100R001C05B031	•		
			🗌 Locate to ONU	list after operation succeeds
			ОК	Cancel Apply

(6) 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 an EPON ONU

- (1) Choose **EPON** > **EPON ONU** from the navigation tree.
- (2) On the **EPON ONU** tab page, set the filter criteria or click ≥ to display the EPON ONUs.
- (3) 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.
- (4) 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 **2**, and choose **Modify**from the shortcut menu.
- (5) In the dialog box that is displayed, set **Default VLAN ID** to 1000.
- (6) Click OK.
- 2. Add a VLAN. For details, see 19.2.1 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Type: Smart VLAN
 - (4) Click Done.
- 3. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

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

Add VLAN		X
Base Info Configure VLAN		
	VLAN ID(1-4095):	1000 *
	Name:	VLANID_1000 *
	Alias:	
	Туре:	Smart VLAN 👻 *
	Attribute:	Common
	VLAN Priority:	Unconfigured
	B	ack <u>N</u> ext <u>D</u> one <u>C</u> ancel

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



- (5) Click Done.
- 4. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 1000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name:IGMP

- 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
- Vlan ID: 1000
- Service Type: Multi-Service VLAN
- User VLAN: 1000
- 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 Po	rt			
Basic Info			_	Attributes
ID(1-32768):	1			
Name:	IGMP		•	Connection Type: LAN-GPON
Alias:				LAN-EPON LAN-GPON
Network Side				User Side
Bundle ID	(1-8192):	Smart Vil AN]	Interface Selection 0/2/1/0/0
VERN CHOICE		omait vDAN *	_	
Tag-Transfor	m:	- •		Service Type: Multi-Service VLAN
Vlan ID(1-409	15):	1000	.]•	User VLAN(1-4095): 1000 -
Cos value(0-	7):		*	
'raffic Profile Ir	nfo			
🖌 Keep the	upstream a	nd downstream settings the sa	me	
Upstream Tra	iffic Name:	ip-traffic-table_6) I	Downstream Traffic Name: [ip-traffic-table_6
				OK Cancel Apply

- (4) Click OK.
- 5. Add a multicast VLAN on the OLT side. For details, see 19.2.7 Configuring the Multicast VLAN.
 - (1) Choose Multicast > Multicast VLAN from the navigation tree.
 - (2) On the **Multicast VLAN** tab page, set the filter criteria to display the required multicast VLANs.
 - (3) In the information list, right-click and choose Add from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - IGMP Version: IGMP V3
 - Work Mode: igmp_proxy
 - VLAN ID: 3000

Basic Info						
Device Name	10.71.227.35					*
	10.11.221.00					
Name:			Allas:			
IGMP Version:	IGMP V3		💌 * 🗌 Defa	ault VLAN		
utogeneration Pr	ogram IP Address		Work Mode			
Program Match I	Mode: 💿 Enable	O Disable	IGMP Work	Mode:	igmp_pro	xy 🔻
Start IP Address			Snooping F	Report Switch:		Clos
End IP Address:			Snooping L	.eave Switch:	🖲 Open	
			IGMP Video	Mode:	Multicast	
			IGMP Inner	VI AN(1~4095):		
			IOMI IIIIIEI	VEXIV(1~4035).		
			< <u>B</u> ack	lext>	inish	Cance
d Multicast V	'LAN					
Default Up Por	t Info					
Frame: 0		Slot: 19	3	Port: 0		
Parameter Info						
IOMD Depent	Delevite		- Depert Intern	al/0)		
(0-7):	Priority 6		(10-5000):	ai(S) 10		
Les Orritales	• Once		o Clobal Loow	- Owitala: 🖷	Onon	
	 Ober 		e Giupal-Leave	e awitch. 💌	Open	O Cluse
d Multicast	(VLAN	< <u>B</u> ack	<u>N</u> ext>		h] [Cancel
d Multicast	(VLAN	< <u>B</u> ack	Next>	<u> </u>	h) (Cancel
d Multicast Select VLAN VLAN Attril	(VLAN bute=Common ¹	< <u>B</u> ack	Next>	<u>Einis</u>	h No. 31	Cancel
d Multicast Select VLAN VLAN Attril VLAN ID ^	VLAN bute=Common ^N Name	< <u>B</u> ack VLAN	Next> ▼ Type ∧	Find	h Do. 31	Cancel , Total:3 VLAN II
d Multicast Select VLAN VLAN Attril VLAN ID ^ 31	t VLAN	< <u>B</u> ack VLAN	Next> ▼ Type ^ Smart VLAN	Find Common	h No. 31	Cancel , Total:3 VLAN II
d Multicast Select VLAN VLAN Attril VLAN ID ^ 31 32	ULAN Name VLANID_31 VLANID_32	< <u>B</u> ack VLAN	▼ Vext> ▼ Vpe へ Smart VLAN Smart VLAN	Find Attribute ~ Common Common	h No. 31	Cancel , Total:3 VLAN II
d Multicast Select VLAN VLAN Attril VLAN ID ^ 31 32 33	VLAN Name VLANID_31 VLANID_32 VLANID_33	< <u>B</u> ack VLAN	Next> ▼ Type ^ Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common	No. 31	Cancel , Total:3 VLAN II
d Multicast Select VLAN VLAN Attril VLAN ID ~ 31 32 33 34	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34	< <u>B</u> ack VLAN	Next> ▼ Type ∧ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common	No. 31	Cancel , Total:3 VLAN II
d Multicast Select VLAN VLAN Attril VLAN ID ~ 31 32 33 34 35	VLAN bute=Common V Name VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35	< <u>B</u> ack	Next> ▼ Type ∧ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common	No. 31	Cancel , Total:3 VLAN II
d Multicast Select VLAN VLAN Attril VLAN ID ^ 31 32 33 34 35 36 27	VLAN Name VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_36 VLANID_36	< <u>B</u> ack	Next> ▼ Type ^ Smart VLAN	Find Attribute ~ Common Common Common Common Common	No. 31 Super 	Cancel , Total:3 VLAN II
d Multicast Select VLAN VLAN Attril VLAN ID ^ 31 32 33 34 35 36 37 38	VLAN Name VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_33 VLANID_35 VLANID_36 VLANID_37 VLANID_32	< <u>B</u> ack	× Next> Type ∧ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Einis Find Attribute ~ Common Common Common Common Common Common	No. 31 Super	Cancel , Total:3 VLAN II
d Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39	VLAN VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_39	< <u>B</u> ack	▼ Next> Type ^ Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common	No. 31	Cancel
d Multicast Select VLAN VLAN Attril 31 32 33 34 35 36 37 38 39 40	VLAN VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_40	< <u>B</u> ack	Next> Next>	Find Attribute ~ Common Common Common Common Common Common Common Common Common	No. 31 Super	Cancel
d Multicast Select VLAN VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77	VLAN VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_40 VLANID_77	< <u>Back</u>	Next>	Find Attribute ~ Common Common Common Common Common Common Common Common Common Common	No. 31 Super	Cancel
d Multicast Select VLAN VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101	VLAN VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_37 VLANID_39 VLANID_40 VLANID_77 VLANID_101	< <u>Back</u>	Next> Type ∧ Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common Common Common Common	No. 31 Super	Cancel
d Multicast Select VLAN VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102	VLAN VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_35 VLANID_37 VLANID_37 VLANID_39 VLANID_39 VLANID_40 VLANID_77 VLANID_101 VLANID_102	< <u>Back</u>	Next> Type ∧ Smart VLAN	Find Attribute A Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31 Super	Cancel
d Multicast Select VLAN VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103	VLAN Name VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_103	< <u>B</u> ack	Next> Type △ Smart VLAN	Find Attribute A Common	No. 31 Super	Cancel
d Multicast Select VLAN VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_103 VLANID_103 VLANID_234	< <u>B</u> ack	Next> Type △ Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31 Super	Cancel
d Multicast Select VLAN VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_103 VLANID_103 VLANID_234	< <u>B</u> ack	Next> Type △ Smart VLAN	Find Attribute ~ Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31 Super	Cancel
d Multicast Select VLAN VLAN ID ~ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_40 VLANID_77 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_234 VLANID_235 VLANID_20	< <u>Back</u>	Next> Type △ Smart VLAN	Find Attribute & Common Common Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31 Super	Cancel
d Multicast Select VLAN VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000	VLAN VLANID_31 VLANID_31 VLANID_32 VLANID_32 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_36 VLANID_37 VLANID_38 VLANID_38 VLANID_39 VLANID_39 VLANID_40 VLANID_77 VLANID_101 VLANID_101 VLANID_102 VLANID_235 VLANID_20	< <u>Back</u>	Next> Type ∧ Smart VLAN	Einis Find Attribute & Common Common Common Common Common Common Common Common Common Common Common Common Common Common	No. 31 Super 	Cancel
d Multicast Select VLAN VLAN Attril VLAN Attril VLAN ID ^ 31 32 33 34 35 36 37 38 39 40 77 101 102 103 234 235 2000 3000 4001	VLAN Name VLANID_31 VLANID_31 VLANID_32 VLANID_33 VLANID_33 VLANID_34 VLANID_35 VLANID_36 VLANID_36 VLANID_37 VLANID_38 VLANID_39 VLANID_39 VLANID_39 VLANID_101 VLANID_101 VLANID_101 VLANID_102 VLANID_103 VLANID_235 VLANID_20 VLANID_30 VLANID_40	< <u>B</u> ack	Next> Type ∧ Smart VLAN	Find Attribute ~ Common	No. 31 Super	Cancel

- (5) Click Finish.
- 6. Add a virtual upstream port for the multicast service on the OLT side. For details, see 19.2.5 Configuring the Virtual Multicast Upstream Port.
 - (1) Choose **Multicast** > **Virtual Uplink Port** from the navigation tree.

- (2) On the **Virtual Uplink Port** tab page, set the filter criteria to display the required virtual upstream ports.
- (3) In the information list, right-click and choose Add from the shortcut menu.
- (4) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 3000
 - Frame: 0
 - Slot: 19
 - Port: 0

dd Virtual Uplink Port	<u>(</u>
-Location Info	
Device Name: 10.71.227.35	*
Multicast VLAN Info	Uplink Port Info
	Frame: 0 *
VLAN ID(1-4095): 3000 *	Slot: 19 *
	Port: 0 *
	OK Cancel <u>A</u> pply

- (5) Click Done.
- 7. Configure a program profile on the OLT side. For details, see 19.2.8 Configuring a Program Profile.
 - (1) Choose Configuration > Access Profile Management > IGMP Profile from the main menu.
 - (2) Click the **Program Profile** tab, and select the required device type from the **Device Type** drop-down list.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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			X
Description Info Configure the desir When the program can not have a sourd program must have	ed parameters. is provisioned, if the IGMP re IP address.If the IGMP a source IP	version of the multicast VLAN is 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):	*	Bandwidth (Kbit/s) (0-65534):	5000 *
Grade:	no-grade 💌 *	Multicast VLAN(1-4095):	
Preview Parameter			
Preview Profile: 0			*
Attribute Parameter			
🗌 Prejoin Attribute		🖌 Host Attribute	
🗌 Unsolicited Attribu	te	🗾 Log Attribute	
🗌 Across VLAN Attrik	oute		
		ок с	ancel <u>A</u> pply

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required OLT and click Next. Then, set VLAN ID to 3000.
- (8) Click OK.
- 8. Configure a multicast user on the OLT side. For details, see 19.2.10 Configuring a Multicast User.

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.

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

d User							
Select Device							
Device Name:	10.71.227.35						
Parameters							
Name:		4/56/uservlan/u	ntaggec	Alias:		IGMPUserA]
Max. Program	ns NO.(1-32):	8		🔹 🗹 Enabl	e Log Switch		
Quick Leave	Mode:	mac-based	•	🗌 Enabl	e Authorization	🗹 Default V	video Flow
User Max Ba (0-42949672	nd Width(Kbit/s) !94):			🗹 Unlim	ited Band Width	🗹 Receive	Global-Leave
Select Service	Port						
11						🗸 Find	No. 3, Total:144
Name 🔿	Alias 🗠 🛛 Cor	nnection Type 🗠	Interfac	e Information	Service Type 🗠	Service Para	Upstream Traffic
1/0_14_2/6	LAN	ADSL	Frame:	0/Slot 14/	Single		ip-traffic-table_3 🗹
30/0_12_0/	LAN	GPON	Frame:	0/Slot 12/	Single		ip-traffic-table_6
21/0_2_1/3	LAN	-GPON	Frame:	0/Slot: 2/P	Multi-Service V	User VLAN:	ip-traffic-table_6
1/0_13_0/1	LAN	ADSL	Frame:	0/Slot 13/	Single		
1/0_13_1/1	LAN	ADSL	Frame:	0/Slot: 13/	Single		
1/0_13_2/1	LAN	ADSL	Frame:	0/Slot: 13/	Single		E_test_1
1/0_13_3/1	LAN	ADSL	Frame:	0/Slot 13/	Single		
1/0_13_4/1	LAN	ADSL	Frame:	0/Slot 13/	Single		
1/0_13_5/1	LAN	ADSL	Frame:	0/Slot 13/	Single		
1/0_13_6/1	LAN	ADSL	Frame:	0/Slot 13/	Single		
1/0_13_7/1	LAN	ADSL	Frame:	0/Slot: 13/	Single		
10 10 04	1.051	400	F	0/01-4-4-0/	Oin at a		
							<u>د</u>
				< <u>B</u> ack	<u>N</u> ext>	<u><u> </u></u>	Cancel

- (4) Click Finish.
- (5) Select the multicast user, click the User Multicast VLAN tab in the lower pane, right-click, and then choose Add from the shortcut menu.
- (6) In the dialog box that is displayed, select the record where Multicast VLAN ID is set to 3000 and click OK.

OMPL/	Name		Alias	Multicast VLAN II		IGMP Version	1
IGMPV /	dd Mul	ticast VLAN				×	tv_οπ
IGMPV	Total :	1, Succeeded	: 1, Failed : O				igmp_
				10%			
				04.01			
				Details <<		ose	
	No	Device Nar	ne Name	Result	Failure	Cause	
	1	10.71.227.35	IGMPVIan_30	00 Succeeded			
			<u> </u>				
	<u><</u>						



Result

The user can watch program1 on TV.

24.3.4 Configuring the EPON FTTH Voice Service (H.248 Protocol)

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

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 24.3.1 Data Plan for the EPON FTTH Services.

Example Network

This topic considers the ONT whose **Terminal Type** is set to **850e** as an example. The configuration procedure of the ONTs of other types is similar to the configuration procedure described in this topic.

- Phone 1 and phone 2 are connected to TEL ports on the ONT separately and can communicate with each other.
- The ONT obtains an IP address in DHCP mode.



Figure 24-3 Configuring the EPON FTTH voice service (H.248 protocol)

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - Choose Configuration > Access Profile Management > Traffic Profile from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx

- CIR: 20480
- Outer Priority: 1
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

С	reate DBA Profile		×
	Profile Parameters		
	Name:	FTTx	*
	Alias:		
	DBA type:	Maximum bandwidth 🗸 🗸	*
	Fixed bandwidth rate (Kbit/s) (128-1235456):	128	
	Assured bandwidth rate (Kbit/s) (128-1235456):	128	
	Maximum bandwidth rate (Kbit/s) (128-1235456):	32768	*
	Bandwidth compensation:	No	
		OK Cancel <u>A</u> pply	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 24.1.1 Configuring a Line Profile.
 - (1) Choose **Configuration** > **Access Profile Management** > **EPON Profile** from the main menu.
 - (2) Click the Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Profile: FTTx

	* Aliae:		
	^ Alias		
Configuration	Name	Value	
Base Info.	FEC Switch	ON	
±- DBA Threshold	CAR Profile		
	DBA Profile	FTTx	
	Encrypt Type	OFF	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile. For details, see 24.1.2 Configuring a Service Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Service Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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

Add EPON Service Profile		×
Name: FTTx	* Alias:	
Name: FTTX Configuration Base Info UNI Port	Alias: Name Number of POTS Ports(0-8) Number of TDM Ports(0-8) Number of TDM Ports(0-8) TDM Port Type Multicast Mode Multicast Fast Leave Switch	Value 2 4 0 E1
	ОК	Cancel <u>A</u> pply

- 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 Config VLAN Switch of UNI Port 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: 1001
 - C-VLAN: 1001

Add EPON Service Profile	X
Name: FTTx	* Alias:
Configuration Base Info.	Port Type Port ID Config UNI Port Config VLAN Switch of UNI Port Config VLAN Switch of UNI Port TO From Weitcast VLAN of UNI Port
	Config VLAN Switch of UNI Port Port Type: ETH Port ID: 1 VLAN Type: Translation
	SVLAN(1-4094) CVLAN(1-4094
	ADD VLAN Switch X SVLAN(1-4094): 1001 CVLAN(1-4094): 1001 * 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 2, and choose Config VLAN Switch of UNI Port 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: 1000
 - C-VLAN: 1000

Add EPON Service Profile					×
Name: FTTx]	* Alias:			
Configuration Base Info.	E Config I E Config I E Config I E Config I	'ort Type JNI Port JLAN Switch of UN Multicast VLAN of U	II Port JNI Port	Port ID	
	Config VLAN Port Type:	ETH	Port		
	Port ID:	1			
	VLAN Type:	Translation			
		SVLAN(1-4094)		C	VLAN(1-409
	ADD	ADD VL SVLAN(CVLAN(AN Switch 1-4094): (1-4094):	1000 1000	× *
			ОК	Can	cel

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 5. Confirm the ONT. For details, see 24.1.3 Confirming an Auto-Discovered ONT.
 - (1) 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.
 - (2) Choose **EPON** > **EPON** UNI Port from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click ≥ to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with the MAC address 001E-E3F4-0471, and then choose **Confirm ONU** from the shortcut menu.
 - Set Name to ONT.
 - Set ONU ID to 0.
 - Set ONU Type to 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 in next to Service Profile and select the service profile named FTTx in the dialog box that is displayed)
 - Authentication Mode: MAC
 - Terminal Type: 850e
 - Software Version: V100R001C05B031

Confirm ONU				×
Affiliated Port:	0/2/1	*	Splitter ID:	Splitter(L1)
Name:	ONT	*	Alias:	
ONU ID(0-127):	Auto Assign 0	*	Splitter Port ID(1-128):	
ONU Type:	ONT	*		
Basic Paramet	ers Network Manage	ement Chann	el Parameters	
Line Profile:	FTTX	*	Service Profile: FTTx	*
ONU VAS Profi	le:			
Auth Info				
Auth Way:	MAC Address 💌 *	MAC Addre	ss: 00 - 1E - E	E3 F4 04 71
Key:	*	Time Out(h)(1-168): 🗹 Disable	*
Extend Inform	nation			
	' Status		PITP Status	
ONU Type				
Vendor ID:	HWTC(2011)	-	Terminal Type: 850e	•
Software Ve	rsion: V100R001C05B031	-		
			Locate to ONU	list after operation succeeds
			ОК	Cancel Apply

(6) 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.

1. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

Add VLAN		2
Sase Info Configure VLAN		
	VLAN ID(1-4095):	2000 *
	Name:	VLANID_2000 *
	Alias:	
	Туре:	Smart VLAN
	Attribute:	Common 💌 *
	VLAN Priority:	Unconfigured 💌
	E	Back <u>N</u> ext <u>D</u> one <u>C</u> ancel

- (4) Click Next.
- (5) Click the **Upstream Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.

Add VLAN	2	5
Sease Info Configure VLAN	Sub Port L3 Interface Extended Info Image: Sub Port List Image: Sub Port List Image: Sub Port List Image: Sub Port 1 Image: Sub Port 1 Image: Sub Port 1 Image: Sub Port 1 Image: Sub Port 1 Image: Sub Port 1 Image: Sub Port 1 Image: Sub Port 1 Image: Sub Port 1 Image: Sub Port 1 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2 Image: Sub Port 2<	
	Back Next Done Cancel	

- (6) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: VOIP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 2000
 - Service Type: Multi-Service VLAN

- User VLAN: 2000
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

Service Port					
asic Info		Attri	outes		
ID(1-32768): 1					
Name: VOIP		* Co	nnection Type:	LAN-GPON	-
aliaa.			Ĺ	AN-EPON	
Allas.			L	AN-GPON	
letwork Side		Use	r Side		
Bundle ID(1-8192):					
VI AN Choice:	Smart VI AN	T Int	erface Selection:	0/2/1/0/0	-
VEAN CHOICE.				012111010	
Tag-Transform:	-	▼ Se	rvice Type:	Multi-Service VLAN	
Vlan ID(1-4095):	2000	• Us	er VLAN(1-4095):	2000	-
Cocycluo(0.7):		=			
Cos value(0-7).					
raffic Profile Info					
Keep the upstream	and downstream settings the s	ame			
Upstream Traffic Name	a: ip-traffic-table_6	Down	stream Traffic Nar	me: ip-traffic-table_6	

- (4) Click **OK**.
- 3. Configure the VAS configuration profile of the ONT.
 - Choose Configuration > Access Profile Management > ONT VAS Profile from the main menu.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Set Profile Name to VOIP850e.
 - Set Vendor ID to HWTC(2011).
 - Set Terminal Type to 850e.
 - Set Version to V100R001C02B010~Later.
 - Choose **IP configure** > **IP property configure** from the navigation tree and set **IP get mode** to **DHCP**.
 - Choose Country code and signaling protocol from the navigation tree and set Signal Protocol to H248.
 - Choose H.248 protocol basic configure > H.248 Global digitmap configure > Global digitmap configure 1 from the navigation tree and set Digitmap to x.T.
 - Choose Voice > Voice service VLAN and priority configure from the navigation tree and set Voice service VLAN ID to 2000.
 - Choose H.248MGC > H.248 MGC configure 1 from the navigation tree and set MGC port to 2944 and MGC domain name to MGC.com.
 - (4) Click OK.
- 4. **Bind the VAS profile.**
 - (1) Choose **EPON** > **EPON ONU** from the navigation tree.

- (2) On the **EPON ONU** tab page, set the filter criteria or click [™] to display the EPON ONUs.
- (3) 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 choose **Bind VAS Profile** from the shortcut menu.
- (4) In the dialog box that is displayed, select the VAS profile whose **Profile Name** is set to **VOIP850e** and click **OK**.

----End

Result

The user can watch program1 on TV.

24.3.5 Configuring the EPON FTTH Voice Service (SIP Protocol)

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

Prerequisite

The OLT must be added to the U2000.

Context

For details of the data plan, see 24.3.1 Data Plan for the EPON FTTH Services.

Example Network

This topic considers the ONT whose **Terminal Type** is set to **850e** as an example. The configuration procedure of the ONTs of other types is similar to the configuration procedure described in this topic.

- Phone 1 and phone 2 are connected to TEL ports on the ONT separately and can communicate with each other.
- The ONT obtains an IP address in DHCP mode.



Figure 24-4 Configuring the EPON FTTH voice service (SIP protocol)

- Add the ONT to the U2000 in profile mode.
 - 1. Configure an MEF IP traffic profile. For details, see 19.2.2 Configuring an MEF IP Traffic Profile.
 - Choose Configuration > Access Profile Management > Traffic Profile from the main menu.
 - (2) Click the **MEF IP Traffic Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx

- CIR: 20480
- Outer Priority: 1
- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 2. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Type: Maximum Bandwidth
 - Maximum Bandwidth: 32768

С	reate DBA Profile		>
	Profile Parameters		
	Name:	FTTx	*
	Alias:		
	DBA type:	Maximum bandwidth 🔹	*
	Fixed bandwidth rate (Kbit/s) (128-1235456):	128	
	Assured bandwidth rate (Kbit/s) (128-1235456):	128	
	Maximum bandwidth rate (Kbit/s) (128-1235456):	32768	*
	Bandwidth compensation:	No	
		OK Cancel Apply	5

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 3. Configure a line profile. For details, see 24.1.1 Configuring a Line Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Line Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Profile: FTTx
| Configuration
Base Info
DBA Threshold
CAR Profile
DBA Profile
FTTx
Encrypt Type
OFF | |
|--|--|
| Configuration Base Info Base Info CAR Profile DBA Threshold DBA Profile FTTx Encrypt Type OFF | |
| FEC Switch ON B- DBA Threshold CAR Profile DBA Profile FTTx Encrypt Type OFF | |
| CAR Profile CAR Profile FTTx Encrypt Type OFF | |
| DBA Profile FTTx
Encrypt Type OFF | |
| Encrypt Type OFF | |
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- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
- 4. Configure a service profile. For details, see 24.1.2 Configuring a Service Profile.
 - Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the Service Profile tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) 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

Add EPON Service Profile				
Name: FTTx	* Alias:			
Configuration	Name	Value		
UNI Port	Number of POTS Ports(U-8)	2		
	Number of ETH Ports(U-8)	4		
	Number of TDM Ports(U-8)			
	IDM Port Type	<u>E1</u>		
	Multicast Mode			
	Multicast Fast Leave Switch	ON		
	UK	Cancer Apply		

- 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 Config VLAN Switch of UNI Port 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: 1001
 - C-VLAN: 1001

Add EPON Service Profile		×
Name: FTTx	* Alias:	
Configuration Base Info. UNI Port	Port Type P Config UNI Port Config VLAN Switch of UNI Port Config Multicast VLAN of UNI Port	ort ID
	Config VLAN Switch of UNI Port Port Type: ETH Port ID: 1 VLAN Type: Translation	
	SVLAN(1-4094) ADD ADD ADD SVLAN(1-4094): 100 CVLAN(1-4094): 100	CVLAN(1-4094
	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 2, and choose Config VLAN Switch of UNI Port 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: 1000
 - C-VLAN: 1000

Add EPON Service Profile						×
Name: FTTx		* Alias:				
Configuration Base Info. UNI Port	E Config U Config V Config V Config V	ort Type JNI Port /LAN Switch of /ulticast VLAN	f UNI Port of UNI Port	Port ID		
	Config VLAN Port Type:	Switch of U	NI Port			
	Port ID:	1				
	VLAN Type:	Translation				
		SVLAN(1-4094	4)		CVLAN(1	409
	ADD	ADD	VLAN Swite	h	×	
		CVL	AN(1-4094): AN(1-4094):	1000	*	
			ОК		ancel	

- (5) Click OK.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 5. Confirm the ONT. For details, see 24.1.3 Confirming an Auto-Discovered ONT.
 - (1) 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.
 - (2) Choose **EPON** > **EPON** UNI Port from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click ≥ to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with the MAC address 001E-E3F4-0471, and then choose **Confirm ONU** from the shortcut menu.
 - Set Name to ONT.
 - Set ONU ID to 0.
 - Set ONU Type to 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: MAC
 - Terminal Type: 850e
 - Software Version: V100R001C05B031

Confirm ONU				×
Affiliated Port:	0/2/1	*	Splitter ID:	Splitter(L1)
Name:	ONT	*	Alias:	
ONU ID(0-127):	🗌 Auto Assign 🛛 🛛	*	Splitter Port ID(1-128):	
ONU Type:	ONT	*		
Basic Paramet	ers Network Mana	igement Chann	el Parameters	
Line Profile:	FTTX	*	Service Profile: FTTx	 *
ONU VAS Profi	le:			
Auth Info				
Auth Way:	MAC Address 💌 *	MAC Addre	ss: 00 - 1E -	E3 - F4 - 04 - 71
Key:	*	Time Out(h)(1-168): 🗹 Disable	*
-Extend Inform	nation			
	Otatua			
	, status		PHP Status	
ONU Type				
Vendor ID:	HWTC(2011)	•	Terminal Type: 850e	•
Software Ve	rsion: V100R001C05B0	31 🔻		
			🗌 Locate to ONU	list after operation succeeds
			OK	Cancel Apply

(6) 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.

1. Configure a service VLAN on the OLT side. For details, see 19.2.1 Configuring a VLAN.

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

- (1) Choose VLAN from the navigation tree.
- (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 2000
 - Type: Smart VLAN

Add VLAN				2
 Base Info Configure VLAN 		2000		+
	Name:	VLANID 2000		
	Alias:			
	Type:	Smart VLAN		*
	Attribute:	Common		*
	VLAN Priority:	Unconfigured		•
I			 	

- (4) Click Next.
- (5) 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	- ∰ SubPort List - ∰ Frame:0 - ← Slot 19 - ← ♥ Port:00	
	<u>B</u> ack	<u>N</u> ext	Done Cancel	

- (6) Click Done.
- 2. Add a service virtual port on the OLT side. For details, see 19.2.3 Adding a Service Port.
 - (1) On the VLAN tab page, select the record where VLAN ID is set to 2000 and click the ServicePort tab in the lower pane.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Name: VOIP
 - 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: 0/2/1/0/0 (when the connection type is LAN-GPON) or 0/2/1/0 (when the connection type is LAN-EPON)
 - Vlan ID: 2000
 - Service Type: Multi-Service VLAN

- User VLAN: 2000
- Keep the upstream and downstream settings the same: selected
- Upstream Traffic Name: FTTx

Add Service Port	X
Basic Info	Attributes
ID(1-32768): 1	
Name: VOIP *	Connection Type: LAN-GPON
Alias:	LAN-EPON LAN-GPON
Network Side	User Side
VLAN Choice: Smart VLAN	Interface Selection: 0/2/1/0/0
Tag-Transform:	Service Type: Multi-Service VLAN
Vian ID(1-4095): 2000	User VLAN(1-4095): 2000
Cos value(0-7):	
Traffic Profile Info	
V Keep the upstream and downstream settings the same	Downstream Traffic Name: [p-traffic-table_6
	OK Cancel Apply

- (4) Click OK.
- 3. Configure the VAS configuration profile of the ONT.
 - Choose Configuration > Access Profile Management > ONT VAS Profile from the main menu.
 - (2) In the information list, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - Set Profile Name to VOIP850e.
 - Set Vendor ID to HWTC(2011).
 - Set Terminal Type to 850e.
 - Set Version to V100R001C02B010~Later.
 - Choose IP configure > IP property configure from the navigation tree and set IP get mode to DHCP.
 - -
 - Choose **Country code and signaling protocol** from the navigation tree and set **Signal Protocol** to **SIP**.
 - Choose Voice > Voice service VLAN and priority configure from the navigation tree and set Voice service VLAN ID to 2000.
 - Choose SIP protocol configure > SIP protocol configure 1 from the navigation tree and set SIP server port to 5060 and SIP server IP to 200.200.200.200.
 - Choose SIP digitmap configure > Digit Map 1 from the navigation tree and set SIP digitmap to x.T.
 - (4) Click OK.
- 4. Bind the VAS profile.
 - (1) Choose **EPON** > **EPON ONU** from the navigation tree.

- (2) On the **EPON ONU** tab page, set the filter criteria or click is to display the EPON ONUs.
- (3) 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 choose **Bind VAS Profile** from the shortcut menu.
- (4) In the dialog box that is displayed, select the VAS profile whose **Profile Name** is set to **VOIP850e** and click **OK**.
- 5. Configure Value-Added Service.
 - (1) Choose **EPON** > **EPON ONU** from the navigation tree.
 - (2) On the **EPON ONU** tab page, set the filter criteria or click is to display the EPON ONUs.
 - (3) 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 choose **Configure Value**-Added Service from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.

Choose **SIP user configure** from the navigation tree and choose **Add** from the shortcut menu.

- Choose User 1 from the navigation tree and set User phone number to 87650001 and User password to test1234.
- Choose User 2 from the navigation tree and set User phone number to 87650002 and User password to test1234.
- (5) Click OK.

----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 ringback tone.
- The caller and the callee communicate with each other successfully.
- After the callee hangs up, the caller hears the busy tone.

25 Configuring the EPON FTTO Services (OT925E)

About This Chapter

The deployment of an OLT and OT925E in a network provides the fiber to the office (FTTO) solutions.

25.1 Adding an ONT to the U2000 (OLT in Profile Mode)

This topic describes how to add an ONT to the U2000 when the OLT is in the profile mode. After an ONT is added successfully, you can configure private line access or FTTO services for the ONT on the U2000.

25.2 Configuring Services on the OLT

A private line access network with an OLT and MA5612 provides various services for users.

25.3 Configuring Services on the OT925E

This topic describes how to set parameters related to CESoP on the OT925E to maintain consistency between these parameters and the corresponding data on the OLT.

25.4 Configuration Examples of the EPON FTTO Services (OLT+OT925E)

This topic provides examples to describe how to configure various services in an EPON FTTO network.

25.1 Adding an ONT to the U2000 (OLT in Profile Mode)

This topic describes how to add an ONT to the U2000 when the OLT is in the profile mode. After an ONT is added successfully, you can configure private line access or FTTO services for the ONT on the U2000.

Context

The OT925E supports five ETH ports and four E1 portss.

Procedure

- **1** 24.1.1 Configuring a Line Profile.
- 2 24.1.2 Configuring a Service Profile.
- 3 24.1.3 Confirming an Auto-Discovered ONT.

----End

25.2 Configuring Services on the OLT

A private line access network with an OLT and MA5612 provides various services for users.

Context

Several operations are required when you configure a service. The following lists the services configured at the OLT side and the service configuration steps.

Services	Steps
TDM PWE3 Private Line Access Service	 19.2.1 Configuring a VLAN 23.2.1 Adding a Service Virtual Port 21.2.1 Setting Queue Scheduling Parameters 22.2.1 Configuring the Attributes of a TOPA Card 22.2.2 Configuring a CESoP Connection 21.2.5 Configuring a Clock Source
ATM PWE3 Private Line Access Service ETH PWE3 Private Line Access Service Router Access Service of an Enterprise	 19.2.1 Configuring a VLAN 23.2.1 Adding a Service Virtual Port 21.2.1 Setting Queue Scheduling Parameters

25.3 Configuring Services on the OT925E

This topic describes how to set parameters related to CESoP on the OT925E to maintain consistency between these parameters and the corresponding data on the OLT.

Context

- You can log in to the OT925E through the serial port or in Web mode. This topic considers the login through the serial port as an example. For information on how to log in to the OT925E in Web mode, see the operation manual of the OT925E.
- Set the baud rate to 115200 bit/s if you log in to the OT925E through the serial port.

Procedure

```
• To log in to the OT925E through the serial port, run the following commands:
```

```
PAS6ONU > //Prompt that is displayed after the OT925E is successfully started
PAS6ONU > exit //To enter the /# mode
/ # elshell //To enter the CLI mode
CLI#
CLI# config //To enter the config mode
CLI(config)#
CLI(config) # zlset //To enter the zarlink chip
port ID, IP address, and MAC address
CLI(source)# mac //To guery or configure the MAC address (if you do not enter
a value, the MAC address is queried; if you enter a MAC address, the MAC
address is set to the entered value)
Source mac address: 8E:C0:A8:02:8E:08
CLI(source)# ip //To query or configure the local IP address (if you do not
enter a value, the local IP address is queried; if you enter a value, the local
IP address is set to the entered value)
Source ip address: 20.20.20.10
CLI(source) # port //To query local UDP port IDs (if you do not enter values,
the local UDP port IDs are queried; if you enter values, the local UDP port IDs
are set to the entered values)
source udp port[1] = 6010
source udp port[2] = 5002
source udp port[3] = 5003
source udp port[4] = 5004
CLI(source) # exit
CLI(zlset)# dest //To query or configure the parameters on the peer end,
including the UDP port ID, IP address, and MAC address (the parameters must be
the same as the corresponding parameters on the OLT)
CLT (dest) # mac
Destination mac address[1]: 00:E0:FC:10:00:03
Destination mac address[2]: 08:00:3E:32:53:10
Destination mac address[3]: 08:00:3E:32:53:10
Destination mac address[4]: 08:00:3E:32:53:10
CLI(dest) # ip
Destination ip address[1]: 20.20.20.20
Destination ip address[2]: 192.168.2.142
Destination ip address[3]: 192.168.2.142
Destination ip address[4]: 192.168.2.142
CLI(dest) # port
destination udp port[1] = 6001
destination udp port[2] = 6002
destination udp port[3] = 6003
destination udp port[4] = 6004
CLI(dest)# exit
CLI(zlset) # vlanid //To query and configure VLANs
E1[1] vlan id = 500
E1[2] vlan id = 200
```

```
E1[3] vlan id = 200
E1[4] vlan id = 200
```

```
----End
```

25.4 Configuration Examples of the EPON FTTO Services (OLT+OT925E)

This topic provides examples to describe how to configure various services in an EPON FTTO network.

25.4.1 Data Plan for the EPON FTTO Services (OLT+OT925E)

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

25.4.2 Configuring the TDM PBX Access Service

In this configuration example, the OT925E is connected to the TDM PBX of an enterprise through an E1 port to carry the PBX fixed-line telephone service in an EPON network.

25.4.1 Data Plan for the EPON FTTO Services (OLT+OT925E)

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

Data Plan

Service Type	Item	Settings	Remarks
Device managemen t	Upstream port of the OLT	0/19/0	-
	EPON port of the OLT	0/2/1	-
	DBA profile	 Name: FTTx T-CONT Type: Fixed Bandwidth Fixed Bandwidth: 44800 Bandwidth Compensation: Yes 	-
	EPON line profile	Name: FTTxDBA Profile: FTTx	-
	EPON service profile	 Name: FTTx Number of ETH Ports: 5 Number of TDM Ports: 4 TDM Port Type: E1 	-

Table 25-1 Data plan for the EPON FTTO services

Service Type	Item	Settings	Remarks
	ONT	Name: ONT	-
		ONU Type: ONT	
		ONU ID: 0	
		Authentication Mode: MAC Address	
		MAC: 001E-E3F4-0471	
		Terminal Type: 925e	
		Software Version: V100R001C01B025	
TDM PBX	Service VLAN	• VLAN ID: 500	-
access service		• Type: Smart VLAN	
	Service virtual port	 Connection Type: LAN- EPON 	-
		• VLAN ID: 500	
		• Interface Selection: 0/2/1/0/0	
		 Service Type: Multi- Service VLAN 	
		• User VLAN: 500	
		 Keep the upstream and downstream settings the same: selected 	
		 Upstream/Downstream Traffic Name: ip-traffic- table_6 	
	CESoP Connection	 Remote MAC: 8e-c0- a8-02-8e-08 	-
		• Remote IP: 20.20.20.10	
		• Remote UDP Label: 6010	
		• Local UDP Label: 6001	
		• VLAN: 500	

Service Type	Item	Settings	Remarks
	Clock source	• Clock Type: Line clock	-
		• Working Mode: SYSLINE	
		• Index: 0	
		• Frame: 0	
		• Slot: 6	
		• Port: 0	
		• Clock Type: Bit clock	
		• BITS Type: 2MHz	
		• BITS Impedance: 750hm	
		• Index: 1	
		• Frame: 0	
		• Slot: 0	
		• Port: 0	

25.4.2 Configuring the TDM PBX Access Service

In this configuration example, the OT925E is connected to the TDM PBX of an enterprise through an E1 port to carry the PBX fixed-line telephone service in an EPON network.

Context

For details of the data plan, see **25.4.1 Data Plan for the EPON FTTO Services (OLT +OT925E)**.

Example Network

Figure 25-1 Configuring the TDM PBX access service



The OT925E is connected to the TDM PBX of the enterprise through an E1 port and then is connected to the OLT through an EPON upstream port. The OLT provides E1 ports to transmit the TDM service to the SDH network.

Procedure

- Add the ONT to the U2000 in profile mode.
 - 1. Configure a DBA profile. For details, see 23.1.2 Configuring a DBA Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **DBA Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - T-CONT Type: Fixed Bandwidth
 - Fixed Bandwidth: 44800
 - Bandwidth Compensation: Yes
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click **OK**.
 - 2. Configure a line profile. For details, see 24.1.1 Configuring a Line Profile.
 - (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
 - (2) Click the **EPON Line Profile** tab.
 - (3) Right-click and choose Add Global Profile from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Name: FTTx
 - DBA Profile: FTTx
 - (5) Click OK.
 - (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
 - (7) In the dialog box that is displayed, select the required NE(s), and click OK.
 - 3. Configure a service profile. For details, see 24.1.2 Configuring a Service Profile.

The service profile must match the ONT type. This section considers the OT925E as an example to describe how to configure a service profile. The OT925E has five Ethernet ports, eight E1 ports, and eight POTS ports.

- (1) Choose Configuration > Access Profile Management > EPON Profile from the main menu.
- (2) Click the **EPON Service Profile** tab.
- (3) Right-click and choose Add Global Profile from the shortcut menu.
- (4) 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 ETH Ports: 5
 - Number of TDM Ports: 4

- TDM Port Type: E1
- (5) Click **OK**.
- (6) In the information list, right-click the record and choose **Download to NE** from the shortcut menu.
- (7) In the dialog box that is displayed, select the required NE(s), and click OK.
- 4. Confirm the ONT. For details, see 24.1.3 Confirming an Auto-Discovered ONT.
 - (1) 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.
 - (2) Choose **EPON** > **EPON UNI Port** from the navigation tree.
 - (3) On the **EPON UNI Port** tab page, set the filter criteria or click is to display the EPON UNI ports.
 - (4) In the information list, right-click EPON UNI port 0/2/1 and choose **Enable ONU Auto Find** from the shortcut menu.
 - (5) Click the **Auto-Discovered ONU Info** tab in the lower pane, right-click the ONU with SN 32303131B39FD641, and then choose **Confirm ONU** from the shortcut menu.
 - Set Name to ONT.
 - Set ONU ID to 0.
 - Set ONU Type to ONT.
 - On the **Base Info** 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: MAC Address
 - Terminal Type: 925e
 - Software Version: V100R001C01B025
 - (6) Click OK.

• Configure the TDM PBX service on the OLT.

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. For details, see 23.1.5 Configuring a VLAN.
 - (1) Choose VLAN from the navigation tree.
 - (2) On the VLAN tab page, right-click and choose Add from the shortcut menu.
 - (3) In the dialog box that is displayed, set the parameters.
 - VLAN ID: 500
 - Type: Smart VLAN

- (4) Click **Next**. Click the **Sub Port** tab and add upstream port 0/19/0 as the upstream port of the VLAN.
- (5) Click Finish.
- 2. Add a service virtual port on the OLT side. For details, see 23.1.6 Adding a Service Virtual Port and 23.1.7 Verifying the Interoperability Between an OLT and an MDU.
 - (1) Choose **EPON** > **EPON ONU** from the navigation tree.
 - (2) On the **EPON ONU** tab page, set the filter criteria or click is to display the EPON ONUs.
 - (3) In the information list, select the record where the shelf, slot, port, and ONU IDs are 0, 2, 1, and 0 respectively and click the **ServicePort Info** tab in the lower pane.
 - (4) On the **ServicePort Info** tab page, right-click and choose **Add** from the shortcut menu.
 - (5) In the dialog box that is displayed, set the parameters.
 - Vlan ID: 500
 - Interface Selection: 0/2/1
 - Service Type: Multi-Service VLAN
 - User VLAN: 500
 - Keep the upstream and downstream settings the same: selected
 - Upstream Traffic Name: ip-traffic-table_6
 - (6) Click OK.
- 3. Configure a CESoP connection. For details, see 22.2.2 Configuring a CESoP Connection.
 - (1) Choose E1/T1 > CES E1/T1 Port from the navigation tree.
 - (2) On the **CES E1 Port** tab page, select a port and click the **CESoP Info** tab in the lower pane.
 - (3) In the information list, right-click and choose Add CESoP Connection from the shortcut menu.
 - (4) In the dialog box that is displayed, set the parameters.
 - Remote MAC: 8e-c0-a8-02-8e-08
 - Remote IP: 20.20.20.10
 - Remote UDP Label: 6010
 - Local UDP Label: 6001
 - VLAN: 500
 - (5) Click OK.
- 4. **Configure a clock source.**

In the case of the TDM service, ensure that the clock source is unique in the entire SDH network. Otherwise, error codes are generated and affect service quality, and services may be interrupted if a large number of error codes are generated.

- On the tab page that is displayed, choose NE Properties > Clock Management > Frequency Clock from the navigation tree.
- (2) On the **Frequency Clock Source(8K)** tab page, right-click and choose **Add Clock Source** from the shortcut menu.
- (3) In the dialog box that is displayed, set the parameters to add a line clock (provided by the TOPA card).
 - Clock Type: Line clock
 - Working Mode: SYSLINE
 - Index: 0
 - Frame: 0
 - Slot: 6
 - Port: 0
- (4) Click OK.
- (5) Repeat the preceding operations to add a BITS clock (provided by the BIUA card).
 - Clock Type: Bit clock
 - BITS Type: 2MHz
 - BITS Impedance: 750hm
 - Index: 1
 - Frame: 0
 - Slot: 0
 - Port: 0
- Configure the TDM PBX service on the ONU. For details, see 25.3 Configuring Services on the OT925E.

----End

Result

PBX users of the enterprise can make phone calls successfully by dialing internal or external numbers.

26 Remote MDU Acceptance

About This Chapter

This topic describes the application scenarios, working principles, and operations of remote MDU acceptance.

26.1 Overview of Remote Acceptance

This topic describes the background, PnP function and benefits of remote acceptance.

26.2 Application Scenario

This topic describes the application scenario of remote acceptance.

26.3 Configuring a Remote Emulation Test for Broadband Services

This topic describes how to create a task for broadband remote acceptance and how to query the acceptance results.

26.4 Configuring a Remote Emulation Test for Narrowband Services

This topic describes how to create a task for narrowband remote acceptance and how to query the acceptance results.

26.1 Overview of Remote Acceptance

This topic describes the background, PnP function and benefits of remote acceptance.

Background

A huge number of ONUs work in FTTx networks. To accept the ONUs, software commissioning engineers have to carry commissioning equipment and travel to a site for several times. As a result, the acceptance is not efficient.

The U2000 provides a remote acceptance function for the MDU.

PnP Function

After FTTx services are deployed and MDUs are powered on, the MDUs and service configuration are accepted remotely so that only one visit to a site is required and the O&M costs are reduced, thus implementing one site visit and reducing the O&M costs.

The following items are accepted remotely:

• Configuring the equipment

Check whether cards are in the normal state and whether the device version is correct. The remote acceptance also allows you to query equipment alarms.

• Broadband service

Check whether the links of Internet access services work in the normal state by performing a PPPoE emulation test.

• Narrowband service

Check whether voice links work in the normal state by performing a voice emulation test.

Benefits

- Remote acceptance is automatic. Specifically, the result is automatically reported after you create an acceptance task.
- MDUs are accepted in batches.
- Acceptance efficiency increases and the O&M costs decrease.

Process of Remote Acceptance

Figure 26-1 shows the flowchart for accepting MDUs remotely.



Figure 26-1 Flowchart of MDU remote acceptance

(the construction and configuration of the SoftSwitch and BRAS Select the test object and create an acceptance task Check the acceptance result

26.2 Application Scenario

This topic describes the application scenario of remote acceptance.

In the engineering acceptance period, software commissioning engineers do not need to visit the site again because MDUs, Internet services, and voice service configuration are accepted remotely.

26.3 Configuring a Remote Emulation Test for Broadband Services

This topic describes how to create a task for broadband remote acceptance and how to query the acceptance results.

Procedure

- 1 Choose Configuration > Fttx Service Pre-Deployment > Create Remote Acceptance Task from the main menu.
- 2 In the NE Remote Acceptance dialog box, choose the required object from the Physical Root navigation tree and specify the test items to create a remote acceptance task.

NE Remote Acceptance				
Net Remote Acceptance Node Search: 10.144.73.201 >> □ □ Physical Root	Ta	ask Name: NE Remote Acc evice Manager ☑ Board Status Query ☑ Implement broadband r	eptance Device Alarm Query emote emulation test	*
 □ 10.144.73.70 □ 10.144.79.151 □ 10.144.79.211 □ 10.144.79.212 □ 10.144.79.47 □ 10.144.79.49 	P P A ↓ T S	PPOE User Name: PPOE Password: Authentication Mode Fest Object Service Parameter Profile	test CHAP 0/1/1, Please select V	+ * ▼* Advantage>
 □ 0.71.212.111/tter □ 0.71.212.112 □ 0.71.212.115 ⊕ □ 0.71.212.115 ⊕ □ 0.71.212.120 □ 0.71.212.124 ⊕ □ 0.71.212.184 ⊕ □ 0.71.212.184 		Implement narrowband Auto switch emulation te Service Emulation Test	remote call test st Test Port: Caller port: Callee port:	▼* ▼*
<u> </u>	J			DK Cancel

- Select the **Implement broadband remote emulation test** check box for a remote PPPoE emulation test.
- Service Parameter Profile is used to filter service streams. If you specify a service parameter profile, the PPPoE emulation test will be performed on the service streams that are filtered out according to the parameter settings defined in the service parameter profile. If you do not specify a service parameter profile, the PPPoE emulation test will be performed on all service streams of specified ports. If the test is successful on one service stream, the operation is considered successful.
- You can select a service parameter profile from the **Service Parameter Profile** drop-down list, and click **Advantage** to edit the profile. As shown in the following figure. Then, click **OK**.

User Parameter	×
Service Parameter Profile	temp_profile
Port Type	ADSL,VDSL2-ATM,G.SHDSL-ATM
Service Type	Multi-Service VLAN+Encapsulation 💌
VPI(0-255):	32 VCI(32-255): 33
User VLAN (1-4095):	untagged 💌 802.1p Priority (0-7):
User Encapsulation Type	PPPoE
ETH/PTM Mode	
Port Type	ETH,VDSL2-PTM,G.SHDSL-PTM
Service Type	Multi-Service VLAN+Encapsulation
User VLAN (1-4095):	other-all 🗸
User Encapsulation Type	PPPoE \$802.1p Priority (0-7):
	OK Cancel

Parameter	Description	Settings
PPPoE User Name	Definition: Indicates the name of the user that is used in PPPoE access.	Range: Character string type. It consists of up to 65 characters.
PPPoE Password	Definition: Indicates the password of the user in PPPoE access.	Range: Character string type. It consists of up to 16 characters.
Authentication Mode	Definition: Indicates the mode in which the OLT authenticates the ONU.	 Range: Enumerated type. The options are as follows: CHAP: Challenge-Handshake Authentication Protocol (the security is high) PAP: Password Authentication Protocol (the security is low because user names and passwords are transmitted in plain texts over networks)
Test Object	Definition: Indicates the test object of the remote acceptance.	Setting method: Enter a value or select a software version from the drop-down list.
Service Parameter Profile	Definition: Service Parameter Profile is used to filter service streams. If you specify a service parameter profile, the PPPoE emulation test will be performed on the service streams that are filtered out according to the parameter settings defined in the service parameter profile. If you do not specify a service parameter profile, the PPPoE emulation test will be performed on all service streams of specified ports. If the test is successful on one service stream, the operation is considered successful.	Setting method: Select a service parameter profile from the Service Parameter Profile drop-down list, and click Advantage to edit the profile.
Advantage		
ATM Mode and ET	TH/PTM Mode	

Table 26-1 Parameters required for configuring a remote emulation test for broadband services

Parameter	Description	Settings
Service Parameter Profile	Definition: Indicates the name of the service parameter profile.	Character string type. It consists of up to 255 characters.
Port Type	Definition: Indicates the type of the port.	-

Parameter	Description	Settings
Service Type	Definition:	Range: Enumerated type. The options are as follows:
		• Single: Each service port maps a traffic stream. Different traffic streams can be distinguished by service ports.
		 Multi-Service VLAN: Each service port bears multiple traffic streams. You need to set User-Side VLAN to distinguish the traffic streams. The services are distinguished based on the VLAN ID contained in the user packets. The user packets are labeled with different upstream VLAN IDs, and the original VLAN IDs in the user packets are removed.
		 Multi-Service Encapsulation: Each service port bears multiple traffic streams. You need to set User-Side Encapsulation to distinguish the traffic streams. The services are distinguished based on the encapsulation types (IPoE/PPPoE) of the user packets. You can label the user packets with different upstream VLAN IDs.
		 Multi-Service VLAN +802.1p: Each service port bears multiple traffic streams. You need to

Parameter	Description	Settings
	Indicates the upstream service type of the service stream.	 set User-Side VLAN and 802.1p Priority to distinguish the traffic streams. The services are distinguished according to the VLAN IDs and the 802.1p priorities of the packets from the service ports. Multi-Service VLAN +Encapsulation: Each service port bears multiple traffic streams. You need to set User-Side VLAN and User- Side Encapsulation to distinguish the traffic streams
VPI	Definition:	Range.
VPI VCI	 Definition: Indicates the VPI/VCI of the service virtual port. The VPI/VCI values are used to identify a user. VPI: It is located in the header of an ATM cell. The VPI occupies 8 bits in a UNI header and 12 bits in an NNI header. VCI: It occupies 16 bits and identifies a virtual channel in the VP. The VPI/VCI values are used to identify a virtual connection. The VPI and the VCI in the header of an ATM cell provide the routing information about the cell. NOTE This parameter is available only for the ATM mode. 	 Kange: Numeral type. The VPI ranges from 0 to 4095. The VCI ranges from 32 to 65535.

- **3** After that, click **OK** in the **NE Remote Acceptance** dialog box. The **Information** dialog box is displayed, indicating that the task is created successfully.
- 4 In the Scheduling Center window, view the acceptance task.

- You can also choose **Configuration** > **Fttx Service Pre-Deployment** > **View Remote Acceptance Task** from the main menu. The **Scheduling Center** window is displayed.
- In the **Scheduling Center** window, you can see that the task is always in the running state if an NE is offline. The task can be performed only when the NE is online.

Scheduling Center						
Task Classification	Task Classification = NE Remote Acceptance Task					
	Task Status 🛆	Result 🛆	Task Name 🛆	Execution Type 🛆	Execution Progress	User Name 🛆
Deployment Task D		The task had execute	NE Remote Acceptanc	Immediate task	100%	admin
NE Remote Acceptance Task						
	•					
-						
	Detail Info Log Inf	•				
	01-11 0-11	Ohred Times	End Data	En el Time e	Desult	No. 0,Total: 0
	Start Date	star(Time	Ena Date	Ena rime	result	Description

5 In the Scheduling Center window, select the new acceptance task, click the Detail Info, Log Info, or Task Info tab to view information about the task.

Scheduling Center						
Task Classification Global Profile Task Deployment Task T.1 Offline Configuration Service NE Remote Acceptance Task	Task Classification =	NE Remote Acceptar	ice Task		• [Find No. 0,Total: 8
	Task Status	Result 🛆	Task Name 🛆	Execution Type 🛆	Execution Progress	💧 User Name 🛆
		The task had execut	ed failed. NE Remote Ac	ceptan Immediate task		admin
	•					
				•		
	Detail Info Log I	nfo Task info				
	State	Result	Test type	Frame	Slot	Port Rer
	Finished	Succeeded	Query Device Version	-		MA5616V

----End

26.4 Configuring a Remote Emulation Test for Narrowband Services

This topic describes how to create a task for narrowband remote acceptance and how to query the acceptance results.

Procedure

- 1 Choose Configuration > Fttx Service Pre-Deployment > Create Remote Acceptance Task from the main menu.
- 2 In the NE Remote Acceptance dialog box, choose the required object from the Physical Root navigation tree, specify the test items, and create a remote acceptance task.

lode Search: 10.144.73.201 >>		
 Physical Root 	e Acceptance ery Device Alarm Query Device Version and remote emulation test CHAP Ile Please select Advanta band remote call test fest Caller port: Callee port: Calle	* in Query ge> ge>

Table 26-2 Parameters required for configuring a remote emulation test for narrowband services

Parameter	Description	Settings
-----------	-------------	----------

- Select the **Implement narrowband remote call test** check box for a narrowband remote call test.
- Select the **Auto switch emulation test** check box. Then, you can set **Test Port** for a hardware connectivity test.
- Select the Service Emulation Test, Caller port and Callee port check boxes for a call emulation test.
- **3** After that, click **OK** in the **NE Remote Acceptance** dialog box. The **Information** dialog box is displayed, indicating that the task is created successfully.
- 4 In the Scheduling Center window, view the acceptance task.
 - You can also choose **Configuration** > **Fttx Service Pre-Deployment** > **View Remote Acceptance Task** from the main menu. The **Scheduling Center** window is displayed.
 - In the **Scheduling Center** window, you can see that the task is always in the running state if an NE is offline. The task can be performed only when the NE is online.

Scheduling Center								
Task Classification	Task Classification = NE Remote Acceptance Task							
- D Global Profile Task	Task Status 🛆	Result 🛆	Task Name 🛆	Execution Type 🛆	Execution Progress	User Name 🛆		
Deployment Task TL1 Offline Configuration Service NE Remote Acceptance Task		The task had execute	NE Remote Acceptanc	Immediate task	100%	admin		
	Detail Info Log Inf	2 Start Time	End Date	End Time	Result	No. 0,Total: 0 Description		

5 In the Scheduling Center window, select the new acceptance task, click the Detail Info, Log Info, or Task Info tab to view the information about the task.

Scheduling Center								
Task Classification	Task Classification :	Task Classification = NE Remote Acceptance Task						
 Global Profile Task Deployment Task 	Task Status 🛆	Result 🛆 The task had execu	Task Name A	Execution Type / Acceptan Immediate tas	Execution Progr k 100%	ess 🛆 User N admin	lame 📐	
DEployment rask TLI Offine Configuration Service NE Remote Acceptance Task								
	Detail Info Log I	nfo Task info		•				
				_				
	State Finished	Result Succeeded	Query Device Version	Frame	Slot	Port	Ret MA5616V	

----End

27 FTTx Redundancy Protection

About This Chapter

This topic describes the redundancy protection including the FTTx control card protection, uplink protection, PON port protection, and dual-homing protection.

27.1 Configuring Control Card Protection

This topic describes how to configure redundancy backup for control cards. When control cards are switched over in a redundancy backup system due to the control card fault or upgrade, services are not affected.

27.2 Configuring Uplink Protection

This topic describes how to configure the uplink aggregation group or uplink protection group to enhance the reliability of service transmission.

27.3 Configuring PON Port Protection

This topic describes how to configure PON ports as a protection group. A protection group is used to manage members who have protection switching relationship with others. In a protection group, you can manage the relationship between the members involved in the protection switching, record the status of members, and manage the configuration data and status that are relevant to the protection relationship between members.

27.4 Type B Dual-Homing Protection

This topic describes the GPON type B dual-homing protection and how to configure dual-homing switching.

27.5 GPON Type C Protection

This topic describes GPON type C protection and how to configure the protection.

27.6 EPON Type D Protection

This topic describes EPON type D protection and how to configure the protection.

27.1 Configuring Control Card Protection

This topic describes how to configure redundancy backup for control cards. When control cards are switched over in a redundancy backup system due to the control card fault or upgrade, services are not affected.

Configuring Active and Standby GIU Control Cards for Services to Go Upstream

The SCUB, SCUN and SCUI control cards support redundancy backup.

Control cards control service cards, and converge and process broadband and narrowband services. They are classified into active control cards and standby control cards. The control cards support HA hot backup and they are hot swappable.

When the active control card is faulty whereas the standby control card is normal, the active and standby GIU control cards are switched for services to go upstream, thus ensuring uninterrupted services.

Procedure

- 1. In the Main Topology, double-click the required device in the **Physical Root** navigation tree, or right-click the required device and choose **NE Explorer** from the shortcut menu.
- 2. Choose **NE Panel** from the navigation tree.
- 3. In the information list, right-click the required card and choose **GIU Protect Group** from the shortcut menu.
- 4. In the dialog box that is displayed, click Add.
- 5. In the dialog box that is displayed, set the parameters.
- 6. Click **OK**.

Configuring the Active and Control Cards as a Protection Group

Only the GE upstream interface cards can be configured as a protection group.

A protection group is used to manage members who have protection switching relationship with others. In a protection group, you can manage the relationship between the members involved in the protection switching, record the status of members, and manage the configuration data and status that are relevant to the protection relationship between members.

You are required to back up the important card recourses and port recourses to enhance the system reliability. If a fault occurs on the working member, perform the protection switching to transfer services to the protection member that can afford the services. After the protection switching, the services are switched from the working member to the protection member.

Procedure

- 1. In the Main Topology, double-click the required device in the **Physical Root** navigation tree, or right-click the required device and choose **NE Explorer** from the shortcut menu.
- 2. Choose Protection Group Management from the navigation tree..
- 3. In the information list, right-click and choose Add from the shortcut menu.
- 4. In the dialog box that is displayed, set the parameters. Set **Protection Object** to **Active main board and standby main board**.

5. Click OK.

27.2 Configuring Uplink Protection

This topic describes how to configure the uplink aggregation group or uplink protection group to enhance the reliability of service transmission.

Context

Uplink protection covers two aspects:

• Uplink aggregation group: Aggregate multiple Ethernet ports as an aggregation group to expand the bandwidth and balance the input and output load among member ports. In addition, the ports in an aggregation group back up each other, which enhances the link security.

- The ETH and SCU boards support the configuration of the aggregation group.
- The ETH board and the GIU slot support the aggregation group.
- An aggregation group can implement inter-board aggregation between two GIU slots.
- An aggregation group can implement inter-board aggregation between two SPUA boards.
- When only one control board is configured, inter-board aggregation is supported between the SCUN board and the GIU slot.
- Upstream port protection group: An upstream port protection group contains a working port and a protection port. In the normal state, the working port carries services. When the link of the working port fails, the system automatically switches the service on the working port to the protection port to ensure normal service transmission, thus protecting the uplink.

Configuring an Uplink Aggregation Group

- 1. In the Main Topology, double-click the required device in the **Physical Root** navigation tree, or right-click the required device and choose **NE Explorer** from the shortcut menu.
- 2. Choose **ETH** from the navigation tree.
- 3. On the Aggregation Group tab page, right-click and choose Add from the shortcut menu.
- 4. In the dialog box that is displayed, set the parameters.
- 5. Click OK.

Configuring an Upstream Port Protection Group

- 1. In the Main Topology, double-click the required device in the **Physical Root** navigation tree, or right-click the required device and choose **NE Explorer** from the shortcut menu.
- 2. Choose Protection Group Management from the navigation tree.
- 3. In the information list, right-click and choose Add from the shortcut menu.
- 4. In the dialog box that is displayed, set the parameters. Set **Protection Object** to **Port of ETH NNI**.
- 5. Click **OK**.

27.3 Configuring PON Port Protection

This topic describes how to configure PON ports as a protection group. A protection group is used to manage members who have protection switching relationship with others. In a protection group, you can manage the relationship between the members involved in the protection switching, record the status of members, and manage the configuration data and status that are relevant to the protection relationship between members.

Procedure

- 1. In the Main Topology, double-click the required device in the **Physical Root** navigation tree, or right-click the required device and choose **NE Explorer** from the shortcut menu.
- 2. Choose **Protection Group Management** from the navigation tree.
- 3. In the information list, right-click and choose Add from the shortcut menu.
- 4. In the dialog box that is displayed, set the parameters.

Basic Information								
Group ID(0-63): 1		*	Protection Object:	EPON ONU				•
Description:			Working Mode:	Status Detection				*
Working ONU Frame: 0 Protected ONU	*	Slot: 15	*	Port: 3	*)	_*
Frame: 0	*	Slot: 15	*	Port: 5	*	ONU ID:		Ť
							ancel	Apply

5. Click **OK**.

Parameter Description

 Table 27-1 Key parameters required for adding a protection group

Parameter	Description	Settings
Basic Information		
Group ID	Definition: Indicates the ID of the PG. It is used to uniquely identify a PG.	Range: Numeral type. It ranges from 0 to 63.

Parameter	Description	Settings
Protection Object	Definition: Indicates the type of protection objects in a protection group.	 Range: Enumerated type. The options are as follows: Active main board and standby main board LAG of active main board and standby main board Port of active main board and standby main board Port of active main board Port of ETH NNI LAG member of ETH NNI Port of EPON UNI Port of GPON UNI STM-1 network port EPON ONU GPON ONU
Description	Definition: Specifies the descriptions for a PG. It is easy to understand and remember.	Range: Character string type. It consists of up to 64 characters.
Working Mode	Definition: Indicates the working mode for PG testing. Relation to other parameters: When Protection Object is Port of active main board and standby main board or Port of ETH NNI, Working Mode can be set.	 Range: Enumerated type. The options are as follows: Status Detection Time Delay Detection Undirection Detection Smart link Smart link load-balance
Working ONU		
Frame/Slot/Port	Definition: Indicates the shelf number, slot number, and port number on the device, to which the working ONU is connected.	-
ONU ID	Definition: Indicates the ID of the working ONU. It is used to identify an ONU.	-

Parameter	Description	Settings
Protection ONU		
Frame/Slot/Port	Definition:	-
	Indicates the shelf number, slot number, and port number on the device, to which the protection ONU is connected.	
ONU ID	Definition:	-
	Indicates the ID of the protection ONU. It is used to identify an ONU.	

27.4 Type B Dual-Homing Protection

This topic describes the GPON type B dual-homing protection and how to configure dual-homing switching.

27.4.1 Introducing GPON Type B Dual-Homing

This topic describes the GPON type B dual-homing protection.

27.4.2 Configuring GPON Type B Dual-Homing Automatic Switching This topic describes how to configure GPON type B dual-homing automatic switching.

27.4.3 Configuring GPON Type B Dual-Homing Forcible Switching This topic describes how to configure GPON type B dual-homing forcible switching.

27.4.1 Introducing GPON Type B Dual-Homing

This topic describes the GPON type B dual-homing protection.

Definition

Type B protection refers to the protection implemented by the system when the optical fiber between the OLT and the ODN is faulty or the card hardware of the OLT is faulty.

• Type B protection switching mode of GPON ports

Two GPON ports on the same OLT protect each other. When one of the GPON ports fails, the system automatically switches the services to the other GPON port. Based on this protection mode, the protection in case of failure of the active port on one OLT is implemented.

• Type B dual-homing protection switching mode of GPON ports

GPON ports on two different OLTs protect each other. When the GPON port on one OLT fails, the system automatically switches the services to the GPON port on the other OLT. Based on this protection mode, the protection in case of failure of the active port on two OLTs is implemented.
Purpose

A large number of users can be connected to one GPON port because of the high access bandwidth provided by the GPON technology. GPON ports need to be protected to improve the security of the OLT so that services can be recovered quickly in the case of failure of backbone optical fibers.

Type B dual-homing protection switching can improve the disaster recovery capability of the OLT. In the Type B dual-homing protection switching mode, the active and standby upstream optical fibers of the ODN are connected to two OLTs respectively, and the two OLTs can be distributed in two regions. When the OLT connected to the active optical fiber fails, the system automatically switches services to the OLT connected to the standby optical fiber.

Principles

Type B dual-homing protection refers to the protection between two GPON ports on two OLTs. When the GPON port on one OLT fails, the system automatically switches the services to the GPON port on the other OLT. Figure 27-1 shows the implementation model.



Figure 27-1 Type B dual-homing protection switching mode

The implementation of the Type B dual-homing protection switching of GPON ports includes the automatic switching mode and the forced switching mode.

• 1. Working principles of automatic switching

Automatic switching is determined and initiated by the OLT.

During the protection switching, the OLT initiates automatic detection, determines whether to perform switching according to the actual status of the PON port, and updates the protection status of the members in the protection group by reporting alarms.

Figure 27-2 shows the implementation model.





• 2. Working principles of forced switching

Forced switching is initiated by the U2000.

When the U2000 issues the forced switching command, the active OLT serves as the standby OLT whereas the standby OLT serves as the active OLT.

Figure 27-3 shows the implementation model.

Figure 27-3 Working principle of type B dual-homing forced switching



Topology View

Figure 27-4 shows the topology view of type B dual-homing.

Figure 27-4 Topology view of type B dual-homing



27.4.2 Configuring GPON Type B Dual-Homing Automatic Switching

This topic describes how to configure GPON type B dual-homing automatic switching.

Prerequisite

Member ports that can be configured as dual-homing protection groups must meet the following requirements:

- The device version is later than V800R007C00.
- The device uses the template mode.
- The device types of two OLTs must be the same.
- The types of cards where the member ports are located must be the same. Only GPON cards are supported.
- The active and standby GPON ports are connected to the same optical splitter.

Context

To implement dual-homing protection of two GPON ports, you need to only create a dualhoming protection group on the U2000. After the creation, the two members in the dual-homing protection group support the protection switching function.

The implementation of the Type B dual-homing protection switching of GPON ports includes the automatic switching mode and the forced switching mode. The differences between the two modes are as follows:

• Automatic switching is determined and initiated by the OLT. During the protection switching, the OLT initiates automatic detection (detects the availability of optical signals on the optical fiber), determines whether to perform switching according to the actual status of the PON port, and updates the protection status of the members in the protection group by reporting alarms.

• Forced switching is initiated by the U2000. The U2000 issues the forced switching command to both the active and standby OLTs. Then, the active OLT changes to the standby OLT, and the standby OLT changes to the active OLT.

Procedure

- **1** Add a dual-homing protection group.
 - 1. Choose **Configuration** > **Access Service Management** > **Dual Homing** from the main menu.
 - 2. In the information list, right-click and choose Add from the shortcut menu.
 - 3. In the Adding Dual Homing Protection Group dialog box, enter the name and description in the Name and Description fields respectively, and choose the working member and protection member from the Work Member and Protection Member drop-down list.

Add Dual Homing Pr	otection Group	×
Name:	dul_port_1 *	
Description:	11	
Work Member:	10.78.217.217/0/1/6	
Protection Member:	10.78.217.112/0/13/2	
	OK Cancel	

Table 27-2 Parameters required for adding a dual homing protection group

Parameter	Description	Settings
Name	Definition:	Range:
	Indicates the name of the dual homing protection group.	Character string type. It consists of up to 32 characters.
Description	Definition:	Range:
	Indicates the brief description of the dual homing protection group.	Character string type. It consists of up to 64 characters.
Work Member	Definition:	Setting method:
	Indicates the protection member that is being used.	Select the active OLT PON port for connecting to the ONU from the Work Member drop-down list.

Parameter	Description	Settings
Protection Member	Definition: Indicates the standby protection group member.	Setting method: Select the standby OLT PON port for connecting to the ONU from the Protection Member drop- down list.

4. Click OK.

After a dual-homing protection group is created successfully,

- the GPON port that serves as **Work Member** is in the forcible active state. The GPON port that serves as **Protection Member** is in the forcible standby state and the automatic detection is disabled.
- In the Main Topology, a connection to the standby port is added for the active port of the OLT. After the optical splitter is disconnected from the standby port, you can double-click the standby port to switch to the active port.
- **2** Enable automatic detection for the dual-homing protection group.

Right-click the new dual-homing protection group and choose **Enable Automatic Detection** from the shortcut menu.

In this case, **Work Status** is set to **Automatic Switchover** and **Automatic Detection** is set to **Enable**.

When **Automatic Detection** is enabled for a protection group, **Freeze** and **Unfreeze** are available. In normal cases, a protection group is in the **Unfrozen** state. A protection group can also be set to the **Frozen** mode according to the requirements. In this case, automatic switching is disabled. After automatic detection is enabled for the dual-homing protection group, the protection group function is enabled at the same time.

3 Query the details of the protection group. Select the created dual-homing protection group, and click the **Member** tab in the lower part of the window to view the details.

----End

27.4.3 Configuring GPON Type B Dual-Homing Forcible Switching

This topic describes how to configure GPON type B dual-homing forcible switching.

Prerequisite

Member ports that can be configured as dual-homing protection groups must meet the following requirements:

- The device version is later than V800R007C00.
- The device uses the template mode.
- The device types of two OLTs must be the same.
- The types of cards where the member ports are located must be the same. Only GPON cards are supported.
- The active and standby GPON ports are connected to the same optical splitter.

Context

To implement dual-homing protection of two GPON ports, you need to only create a dualhoming protection group on the U2000. After the creation, the two members in the dual-homing protection group support the protection switching function.

The implementation of the Type B dual-homing protection switching of GPON ports includes the automatic switching mode and the forcible switching mode. The differences between the two modes are as follows:

- Automatic switching is determined and initiated by the OLT. During the protection switching, the OLT initiates automatic detection (detects the availability of optical signals on the optical fiber), determines whether to perform switching according to the actual status of the PON port, and updates the protection status of the members in the protection group by reporting alarms.
- Forcible switching is initiated by the U2000. The U2000 issues the forcible switching command to both the active and standby OLTs. Then, the active OLT changes to the standby OLT, and the standby OLT changes to the active OLT.

Procedure

- **1** Add a dual-homing protection group.
 - 1. Choose **Configuration** > **Access Service Management** > **Dual Homing** from the main menu.
 - 2. In the information list, right-click and choose Add from the shortcut menu.
 - 3. In the Adding Dual Homing Protection Group dialog box, enter the name and description in the Name and Description fields respectively, and choose the working member and protection member from the Work Member and Protection Member drop-down lists.

Add Dual Homing Pr	otection Group	×
Name:	dul_port_1 *	
Description:	11	
Work Member:	10.78.217.217/0/1/6 💌 *	
Protection Member:	10.78.217.112/0/13/2	
	OK Cancel	

Table 27-3 Parameters required for adding a dual homing protection group

Parameter	Description	Settings
Name	Definition:	Range:
	Indicates the name of the dual homing protection group.	Character string type. It consists of up to 32 characters.

Parameter	Description	Settings
Description	Definition: Indicates the brief description of the dual homing protection group.	Range: Character string type. It consists of up to 64 characters.
Work Member	Definition: Indicates the protection member that is being used.	Setting method: Select the active OLT PON port for connecting to the ONU from the Work Member drop-down list.
Protection Member	Definition: Indicates the standby protection group member.	Setting method: Select the standby OLT PON port for connecting to the ONU from the Protection Member drop- down list.

4. Click **OK**.

- 2 The attributes of the dual-homing protection group that you added are as follows: the working GPON port is in the forcible active state, the protection GPON port is in the forcible standby state, **Automatic Detection** is **Disable**, and **Work Status** is **Non Automatic Switchover**. To switch the GPON port forcibly, right-click the protection group and choose **Switchover** from the shortcut menu.
- 3 In the information list, right-click the dual-homing protection group and choose **Compare Member Configuration** from the shortcut menu to compare the data configuration of **Work Member** and **Protection Member** in the dual-homing protection group.

- The data configuration can be compared only when **Configure Status** of a dual-homing protection group is **Normal**.
- Before comparing the data configuration of the members in a dual-homing protection group, ensure that the data on the U2000 is the same as the data on the NE. Otherwise, synchronize the data of the NE first.
- You can view the data comparison result and the difference details in the data comparison window.

Before replicating data from the active port to the standby port, ensure that the resources such as templates and VLANs exist on the standby port and these resources are the same as the resources on the active port. Otherwise, data replication fails.

- **5** To switch the GPON port forcibly, right-click the protection group and choose **Switchover** from the shortcut menu.
- 6 In the Confirm dialog box, click OK.



7 Query the details of the protection group. Select the created dual-homing protection group, and click the **Member** tab in the lower part of the window to view the details.

----End

27.5 GPON Type C Protection

This topic describes GPON type C protection and how to configure the protection.

27.5.1 GPON Type C Protection

This topic describes the definition, purpose, unique benefits, and principles of GPON type C protection.

27.5.2 Configuring GPON Type C Protection

This topic describes how to configure GPON type C protection.

27.5.1 GPON Type C Protection

This topic describes the definition, purpose, unique benefits, and principles of GPON type C protection.

Definition

The GPON type C protection is implemented through the redundancy configuration of the PON ports on the OLT, PON ports on the ONU, backbone optical fibers, optical splitters, and tributary optical fibers. That is, each item is in a dual configuration.

Purpose

Type C protection switching ensures higher reliability of devices. The PON ports on the OLT, PON ports on the ONU, backbone optical fibers, optical splitters, and tributary optical fibers are in redundancy protection. When a component is faulty, the system can automatically switch the service to the other optical path, thus implementing automatic or manual protection switching.

Unique Benefits

- GPON type C protection ensures higher reliability. When any part on the line fails, the system can automatically detect the fault and switch to the other optical fiber, thus implementing automatic service recovery.
- It serves as a basic for implementing load balancing in the future, which achieves better bandwidth usage of the lines and at the same time the ONU can provide higher upstream bandwidth.

Principles

GPON type C protection switching is implemented through the redundancy configuration of the PON ports on the OLT, PON ports on the ONU, backbone optical fibers, optical splitters, and tributary optical fibers. That is, each item is in a dual configuration. The protection of two PON ports on the OLT can be implemented in two modes: between two PON MAC chips of the same PON card and between two PON ports on two PON cards.

Figure 27-5 shows the implementation model.

Figure 27-5 GPON type C protection switching model



- OLT: The active and standby PON ports on the OLT are both in the working state. The
 OLT ensures that the service information of the active PON port can be synchronized and
 backed up to the standby PON port. Thus, during the protection switching, the standby
 PON port can retain the service attributes for the ONU.
- Optical splitter: Two 1:N optical splitters are used.
- ONU: The ONU uses different PON MAC chips and different optical transceivers. The ONU ensures that the service information of the active PON port can be synchronized and backed up to the standby PON port. Thus, during the protection switching of the PON ports, the ONU can retain the local service attributes.

The switching process is as follows:

- The active and standby PON ports on the OLT are both in the working state. That is, the ONU registers with both PON ports on the OLT and processes the standard and extended PLOAM messages. During the protection switching of the PON ports, the initialization parameters and the service attributes of the ONU are not configured on the standby PON port.
- The ONU and OLT check the link status, and determine whether to perform the switching according to the link status. If the OLT detects that the uplink of the active PON port is faulty, the OLT automatically switches to the standby optical link and sends the PST message through the standby optical link to inform the ONU and request the ONU to switch.

If the ONU detects that the downlink of the active PON port is faulty, the ONU automatically switches to the standby optical link and sends a PST message to inform the OLT of the switching and cause of switching and requests the OLT to switch.

G.984.1 specifies two types of conditions for triggering the switching of a protection group:

- 1. External commands
- 2. Automatic switching

The conditions triggering an automatic switching include the quality degradation alarm on the upstream/downstream line, hardware fault, or the LOS, LOF, SF, SD, LCDG, or TF alarm on the ONU. The protection group supports automatic recovery and automatic recovery hold time. Automatic recovery means that the system automatically switches back to the original working member line after the original working member line recovers from the fault.

27.5.2 Configuring GPON Type C Protection

This topic describes how to configure GPON type C protection.

Prerequisite

- The ONU that is connected to the GPON port in the protection group must provide two PON ports for upstream transmission.
- The cards that support inter-card type C protection switching are H801GPBC and H802GPBD.
- PON ports in a protection group can reside in the cards of different types. For example, when one PON port is configured on the H801GPBC card, the other can be configured on the H802GPBD card. The features supported by the ONU, however, must be supported by both of the two cards.
- The MA5600T functions as an OLT and supported ONUs are the MA5620 with the H822EPUB control card, MA5626 with H822EPUB control card, MA5612 with the H832CCFE control card, MA5616 with the H832CCUB control card, and MA5628 of the R308 version. Currenctly, other devices do not support GPON type C protection switching.
- After an ONU connected to a GPON port is added to a type C protection group, the GPON port cannot be added to a type B protection group or a type B dual-homing protection group. If an ONU connected to a GPON port is added to a type B protection group or a type B dual-homing protection group, the GPON port cannot be added to a type B protection group.

Context

The OLT needs to work with the ONU to implement the GPON type C protection switching.

The two members of a protection group can be in the intra-card protection or the inter-card protection. A maximum of 64 protection groups can be configured.

Procedure

- **1** Configure the working ONU.
 - 1. In the Main Topology, double-click the required NE in the **Physical Root** navigation tree, or right-click the required device and choose **NE Explorer** from the shortcut menu.
 - 2. Choose **GPON** > **GPON ONU** from the navigation tree.

- 3. On the **GPON ONU** tab page, specify the filter criteria or click to display GPON ONU records.
- 4. In the information list, right-click and choose **Add** from the shortcut menu.
- 5. In the dialog box that is displayed, configure the required ONT parameters and bind Line **Profile** and **Service Profile**. Clear **Protection Role** so that the ONU works as a working ONU.

Add ONU	×
Affiliated Port: 0/3/0	
Name: ONU * Alias:	
ONU ID(0-127): Auto Assign Splitter Port ID(1-128): 1	
ONU Type: MDU	
Protection Role	
Regis Recomptore Notwork Management Channel Perspectare	
	1
Alarm Profile: ONU VAS Profile:	
Optic Alarm Profile: ONU Capacity Profile:*	
Authentication Info	
Authentication Mode: SN Timeout Duration 🕢 No Limit	
SN: 11111111111 Password: *	
Verdor ID: HWIC(2011) Terminal Type:	
Software Version:	
OK Cancel <u>A</u> pply	
OK Cancel Apply)
Ada OXV) ×
OK Cancel Apply Add OXU) ×I
OK Cancel Apply Add OWU) ×1
OK Cancel Apply Add OXU Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Name: ONU * Alias:) ×1
OK Cancel Apply Add ONU Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Name: ONU * Alias: □	
OK Cancel Apply Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Name: ONU * Alias:) ×1
Add OK Cancel Apply Add ONU ▲ Splitter: Splitter(L1) ✓ Name: ONU ★ Alias: ○ ONU ID(0-127): ✓ Auto Assign ★ Splitter Port ID(1-128): 1 ONU Type: MDU ✓ ● ● ■ Protection Role ■ ■ ■ ■ Basic Parameters Network Management Channel Parameters ■)
OK Cancel Apply Add OXU Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Name: 0NU * Alias: □ □ ONU ID(0-127): ✓ Auto Assign * Splitter Port ID(1-128): 1 □ ONU Type: MDU ▼ ■	
Add OKU Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Name: ONU * Alias: □ □ ▼ ONU ID(0-127): ✓ Auto Assign * Splitter Port ID(1-128): 1 □ ONU Type: MDU ▼ ■	
OK Cancel Apply Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Name: 0NU * Alias: □ □ ▼ ONU ID(0-127): ✓ Auto Assign * Splitter Port ID(1-128): 1 □ ONU Type: MDU ▼ ● ■ <t< td=""><td></td></t<>	
Add OXU Affiliated Port: 0/3/0 * Splitter: Splitter(L1) Name: ONU * Alias: ONU ID(0-127): ✓ Auto Assign * Splitter Port ID(1-128): 1 ONU Type: MDU ✓ Protection Role Easic Parameters Network Management Channel Parameters OLT sets network management SNMP Profile Name: * SNMP Params Info Manager VLAN(1-4095): 1 * Priority(0-7): 1 IP Address: 10.10.10.6 * IP Address Mask: 255.255.255.0 *	
Add ONU Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) Name: ONU ▼ Alias: ONU ID(0-127): ✓ Auto Assign * Splitter Port ID(1-128): 1 ONU Type: MDU ▼ Protection Role Basic Parameters NMP Profile Name:	
Add OXU Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Name: ONU ▼ Alias: □ □ ▼ ONU ID(0-127): ✓ Auto Assign * Splitter Port ID(1-128): 1 □ ONU Type: MDU ▼ I □	
Add ONU Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Name: ONU * Alias: □ □ ▼ ONU ID(0-127): ✓ Auto Assign * Splitter Port ID(1-128): 1 □ □ ONU Type: MDU ▼ Splitter Port ID(1-128): 1 □ □ ONU Type: MDU ▼ ■ <td>×</td>	×
OK Cancel Apply Add OXU Affiliated Port: 0/3/0 ◆ Splitter: Splitter(L1) ✓ Name: ONU ◆ Alias: ○ ● ● ONU ID(0-127): ✓ Auto Assign ◆ Splitter Port ID(1-128): 1 ○ ONU Type: MDU ✓ ● <t< td=""><td>×</td></t<>	×
OK Cancel Apply Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) ▼ Name: ONU ▼ Alias: □ □ ▼ ONU ID(0-127): ✓ Auto Assign * Splitter Port ID(1-128): 1 □ ONU Type: MDU ▼ Splitter Port ID(1-128): 1 □ □ Protection Role ■ <td< td=""><td>×1</td></td<>	×1
OK Cancel Apply Affiliated Port: 0/3/0 ▼ Splitter: Splitter(L1) Name: ONU * Alias: ONU ONU ID(0-127): ✓ Auto Assign * Splitter Port ID(1-128): 1 ONU Type: MDU ▼ Splitter Port ID(1-128): 1 ONU Type: MDU ▼ Splitter Port ID(1-128): 1 ONU Type: MDU ▼ OLT sets network management SNMP Profile Name: IP Address: 10.10.10.6 * IP Address Mas	

Parameter	Description	Settings
Affiliated Port	Definition: Indicates the shelf number, slot number, and port number on the device to which the ONU is connected.	Setting method: Select an affiliated port from the drop-down list.
Splitter	Definition: Indicates the splitter to which the ONU is connected. A splitter is a passive device connecting the OLT and ONU. It is mainly used to distribute downstream data and gather upstream data.	Setting method: Select a splitter ID from the drop-down list.
Name	Definition: Indicates the name of the ONU. The name is used to identify the ONU.	Range: Character string type. It consists of up to 255 characters.
Alias	Definition: Indicates the alias of the ONU. You can customize an alias, which is easy to understand and remember. The alias is used to identify the ONU.	 Range: Character string type. It consists of up to 32 characters. NOTE If you do not set this parameter, the U2000 obtains the system name of the ONU and considers the system name as the ONU alias. You can set this parameter to non-English characters only when the device supports all non- English characters. Enter only English characters when the device does not support all non-English characters.
ONU ID	Definition: Indicates the ID of the ONU. The ONU ID is used to identify the ONU.	Range: Numeral type. It ranges from 0 to 127.

Table 27-4 Parameters required for adding an ONU

Parameter	Description	Settings
Auto Assign	Definition: Indicates the ONU ID that is automatically allocated by the device.	Setting method: Select Auto Assign.
Splitter Port ID	Definition: Indicates the number of the port on the splitter to which the ONU is connected.	Range: Numeral type. It ranges from 1 to 128.
ONU Type	Definition: Indicates the type of the ONU.	Setting method: Select a terminal type from the drop-down list.
Protection Role	Definition: Specifies whether to add a protection ONU. If the Protection Role check box is selected, it indicates that a virtual ONU is added on the OLT. Relation to other parameters: If the Protection Role check box is selected, the parameters on the Basic Parameters and Network Management Channel Parameters tab pages are unavailable.	Setting method: Select the Protection Role check box.
Basic Parameters		
Line Profile	Definition: Indicates the line profile bound to the ONU. The line profiles contain the parameters required for setting up channels for the GPON lines. NOTE This parameter is displayed in the profiles of the profile mode.	Setting method: Click next to Line Profile, and then select the required line profile in the dialog box that is displayed.

Parameter	Description	Settings
Service Profile	Definition: Indicates the traffic profile bound to the ONU. The traffic profiles contain the parameters related to the ONU service. NOTE This parameter is displayed in the profiles of the profile mode.	Setting method: Click next to Service Profile, and then select the required line profile in the dialog box that is displayed.
Alarm Profile	Definition: Indicates the GPON alarm profile bound to the ONU. The GPON alarm profile contains a series of alarm threshold parameters that are used for performance measurement and monitoring of the activated ONU lines.	Setting method: Click next to Alarm Profile, and then select the required alarm profile in the dialog box that is displayed.
ONU VAS Profile	Definition: Indicates the ONU value- added service profile bound to the ONU. The purpose of the ONU value-added service is to support the function of provisioning the VoIP service on the ONU, and to set the parameters for the value-added services on the ONU, such as the VoIP service.	Setting method: Click next to ONU VAS Profile, and then select the required alarm profile in the dialog box that is displayed.
Optic Alarm Profile	Definition: Indicates the optical power alarm template that is bound to the ONU. The ONU optical power alarm template is used to manage the alarm thresholds of the optical transceiver in a centralized manner.	Setting method: Click next to Optic Alarm Profile, and then select the required alarm profile in the dialog box that is displayed.

Parameter	Description	Settings
Authentication Method	Definition:	Range:
	Indicates the mode in which the OLT authenticates the	Enumerated type. The options are as follows:
	 the OLT authenticates the ONU. Relation to other parameters: Password is available if the authentication mode is set to SN+Password, Password(Once_on), or Password. SN is available if the authentication mode is set to SN+Password or SN. 	 Inductated type. The options are as follows: SN: Indicates that the ONU authentication mode is the serial number (SN) authentication mode. In the SN authentication mode, the OLT determines whether the SN reported by an ONU is the same as the SN that is configured. If they are the same, the ONU passes the authentication and gets online normally. SN+Password: Indicates that the ONU authentication mode. In the SN+Password authentication mode, the OLT determines whether the SN+Password authentication mode, the OLT determines whether the SN and password reported by an ONU are the same as the configured SN and password. If they are the same, the ONU passes the authentication and gets online normally. Password(Once_on): Indicates that the ONU
		authentication mode is a password authentication mode. In
		this mode, the ONU is allowed to get online only once. After the ONU gets online, the ONU cannot be replaced. In addition,
		the timeout duration is specified, if the ONU does not get online within the duration, the

Parameter	Description	Settings
	Time Out is available if the authentication mode is set to Password(Once_on).	 ONU is not allowed to get online. Password: Indicates that the ONU authentication mode is a password authentication mode. In this mode, the OLT determines whether the password reported by the ONU is the same as the configured password. If the passwords are the same, the ONU passes the authentication and gets online normally. You can replace the ONU with another ONU. If the passwords of the two ONUs are the same, the ONU can get online.
Timeout Duration	Definition: Indicates the timeout period for the ONU to be online. If the authentication mode of the ONU is set to Password (Once_on), the ONU is required to pass the password authentication within the specified timeout period. After timeout, the authentication is not allowed. Relation to other parameters: This parameter can be configured if the authentication mode is set to Password(Once_on).	Range: Numeral type. It ranges from 1 to 168. Unit: h. Setting Method: If you click No Limit, the ONU can start password authentication at any time. In this case, the timeout period cannot be set.

Parameter	Description	Settings
SN	Definition:	Range:
	Indicates the SN of the ONU for authentication. The value of the parameter must be the same as the actual SN of the ONU.	Character string type. It consists of up to 16 characters. The following characters are supported:
	Relation to other parameters:	• English letters: A-F and a-f
	This parameter can be configured if the authentication mode is set to SN or SN+Password .	• Numbers: 0-9
Password	Definition:	Range:
	Indicates the password of the ONU for authentication.	Character string type. It consists of up to 10 characters.
	Relation to other parameters:	
	This parameter can be configured if the authentication mode is SN + Password .	
ONU Type	•	
Verdor ID	Definition:	Setting method:
	Indicates the ID of the vendor.	Enter a value or select a terminal type from the drop-down list.
Terminal Type	Definition:	Setting method:
	Indicates the equipment type, and especially refers to the terminal type of the third-party GPON ONT and EPON ONT.	Enter a value or select a terminal type from the drop-down list. NOTE If the third-party GPON ONT and EPON ONT comply with the CTC 2.1 standard, you can enter the terminal type and software version to manage the third-party GPON ONT and EPON ONT.

Parameter	ameter Description	
Software Version	Definition:	Setting method:
	Indicates software version of the ONU, and especially refers to the software version of the third-party GPON ONT and EPON ONT. Relation to other parameters:	Enter a value or select a software version from the drop-down list. NOTE If the third-party GPON ONT and EPON ONT comply with the CTC 2.1 standard, you can enter the terminal type and software version to manage
	Corresponding software version is displayed based on the specified terminal type.	the third-party GPON ONT and EPON ONT.
Network Management Chan	nel Parameters	
OLT sets network	Definition:	Setting method:
management channel parameters	Indicates the mode adopted by the ONU to control and manage ONUs in a centralized manner.	Select OLT sets network management channel parameters.
	Relation to other parameters:	
	This parameter can be configured if the Terminal Type is set to MDU .	
SNMP Profile Name	Definition:	Setting method:
	After the SNMP profile is added and issued to ONUs, the ONUs are managed in a centralized manner. Relation to other	Click next to the SNMP Profile Name parameter. In the dialog box that is displayed, select the required SNMP profile.
	This parameter can be configured if the Terminal	

Parameter	Description	Settings
Manager VLAN	Definition: Indicates the VLAN adopted by the ONU to control and manage ONUs in a centralized manner. Relation to other parameters: This parameter can be configured if the Terminal Type is set to MDU and the OLT sets network management channel parameters check box is selected.	Range: Numeral type. It ranges from 1 to 4095.
Priority	Definition: Indicates the priority of the VLAN. Relation to other parameters: This parameter can be configured if the Terminal Type is set to MDU and the OLT sets network management channel parameters check box is selected.	Range: Numeral type. It ranges from 0 to 7.
IP Address	Definition: Indicates the management IP address of the ONU. It is usually set to the IP address of the Layer 3 interface of the VLAN. Relation to other parameters: This parameter can be configured if the Terminal Type is set to MDU.	Range: It is an IPv4 address in dotted decimal notation.

Parameter	Description	Settings
IP Address Mask	Definition:	Range:
	Indicates the subnet mask of the IP address. It consists of multiple consecutive 1s and can be represented in dotted decimal notation when written in the text format. This parameter and the destination IP address identify the address of the network segment where a destination host or router is located. To implement this function, set the destination IP address and the subnet mask in the logical conjunction (AND) relation. Then, you can obtain the address of the network segment where a destination host or router is located. Relation to other parameters: This parameter can be configured if the Terminal Type is set to MDU and the OLT sets network management channel parameters :	It is an IPv4 address in dotted decimal notation.
Gateway IP Address	Definition:	Range:
	Indicates the gateway IP address of the network segment where the ONU is located.	It is an IPv4 address in dotted decimal notation.
	Relation to other parameters:	
	This parameter can be configured if the Terminal Type is set to MDU and the OLT sets network management channel parameters check box is selected	
Static Route Parameters	Servera.	

Parameter	Description	Settings
IP Address	Definition: Indicates the destination IP address. It identifies the destination IP address or destination network of an IP packet. Relation to other parameters: This parameter can be configured if the Terminal Type is set to MDU and the OLT sets network management channel parameters check box is selected.	Range: It is an IPv4 address in dotted decimal notation.
IP Address Mask	Definition: Indicates the subnet mask of the IP address. It consists of multiple consecutive 1s and can be represented in dotted decimal notation when written in the text format. This parameter and the destination IP address identify the address of the network segment where a destination host or router is located. To implement this function, set the destination IP address and the subnet mask in the logical conjunction (AND) relation, and then you can obtain the address of the network segment where a destination host or router is located. Relation to other parameters: This parameter can be configured if the Terminal Type is set to MDU and the OLT sets network management channel parameters check box is	Range: It is an IPv4 address in dotted decimal notation.

Parameter	Description	Settings
Next Hop IP Address	Definition:	Range:
	the next hop of the route.	dotted decimal notation.
	Relation to other parameters:	
	This parameter can be configured if the Terminal	
	OLT sets network management channel	
	parameters check box is selected.	

- 6. Click **OK**.
- **2** Configure the protection ONU.

The procedure for configuring the protection ONU is similar to the procedure for configuring the working ONU. The difference is that **Protection Role** must be selected so that ONU works as a protection ONU.

- 3 Add the working ONU and protection ONU to the same protection group.
 - 1. In the Main Topology, double-click the required device in the **Physical Root** navigation tree, or right-click the required device and choose **NE Explorer** from the shortcut menu.
 - 2. Choose Protection Group Management from the navigation tree.
 - 3. In the information list, right-click and choose Add from the shortcut menu.
 - 4. In the dialog box that is displayed, set the parameters.



Table 27-5 Kev	parameters re	equired for	adding a	protection	group

Parameter	Description	Settings
Basic Information		

Parameter	Description	Settings
Group ID	Definition:	Range:
	Indicates the ID of the PG. It is used to uniquely identify a PG.	Numeral type. It ranges from 0 to 63.
Protection Object	Definition:	Range:
	Indicates the type of protection objects in a protection group.	Enumerated type. The options are as follows:
		standby main board
		• LAG of active main board and standby main board
		• Port of active main board and standby main board
		• Port of ETH NNI
		 LAG member of ETH NNI
		• Port of EPON UNI
		• Port of GPON UNI
		• STM-1 network port
		• EPON ONU
		• GPON ONU
Description	Definition:	Range:
	Specifies the descriptions for a PG. It is easy to understand and remember.	Character string type. It consists of up to 64 characters.
Working Mode	Definition:	Range:
	Indicates the working mode for PG testing.	Enumerated type. The options are as follows:
	Relation to other	• Status Detection
	parameters:	• Time Delay Detection
	When Protection Object is Port of active main board	• Undirection Detection
	and standby main board	• Smart link
	or Port of ETH NNI , Working Mode can be set.	• Smart link load-balance
Working ONU	•	

Parameter	Description	Settings
Frame/Slot/Port	Definition: Indicates the shelf number, slot number, and port number on the device, to which the working ONU is	-
ONU ID	connected. Definition:	-
	Indicates the ID of the working ONU. It is used to identify an ONU.	
Protection ONU		
Frame/Slot/Port	Definition: Indicates the shelf number, slot number, and port number on the device, to which the protection ONU is connected.	-
ONU ID	Definition: Indicates the ID of the protection ONU. It is used to identify an ONU.	-

5. Click OK.

----End

27.6 EPON Type D Protection

This topic describes EPON type D protection and how to configure the protection.

27.6.1 EPON Type D Protection

This topic describes the definition, purpose, unique benefits, and principles of EPON type D protection.

27.6.2 Configuring EPON Type D Protection

This topic describes how to configure EPON type D protection.

27.6.1 EPON Type D Protection

This topic describes the definition, purpose, unique benefits, and principles of EPON type D protection.

Definition

The EPON type D protection switching is implemented through the redundancy configuration of the PON ports on the OLT, PON ports on the ONU, backbone optical fibers, optical splitters, and tributary optical fibers. That is, each item is in a dual configuration.

Purpose

With the increasingly wider application of the EPON technology, FTTB, FTTC, FTTH, and especially FTTM raise a higher requirement for system reliability. Full protection is required for PON optical lines. Type B protection covers only the backbone optical fiber, but type D protection covers the backbone optical fiber, optical splitter, and tributary optical fiber. When any part of the PON line is faulty, the system can automatically switch to the other optical fiber. The protection switching can be implemented automatically or manually.

Unique Benefits

- It ensures higher reliability. When any part on the line fails, the system can automatically detect the fault and switch the service to the other optical path, thus implementing automatic service recovery.
- It serves as a basic for implementing load balancing in the future, which achieves better bandwidth usage of the lines and at the same time the ONU can provide higher upstream bandwidth.

Principles

The EPON type D protection switching is implemented through the redundancy configuration of the PON ports on the OLT, PON ports on the ONU, backbone optical fibers, optical splitters, and tributary optical fibers. That is, each item is in a dual configuration.

Figure 27-6 shows the implementation model.

Figure 27-6 EPON type D protection switching model



On the OLT, the implementation has two modes:

- 1. Protection between two PON MAC chips of the same PON card
- 2. Protection between two PON ports of two PON cards

To implement the protection, each device works in the following status:

- OLT: The active and standby PON ports on the OLT are both in the working state. The OLT ensures that the service information of the active PON port can be synchronized and backed up to the standby PON port. Thus, during the protection switching, the standby PON port can retain the service attributes for the ONU.
- Optical splitter: Two 1:N optical splitters are used.
- ONU: The ONU uses different PON MAC chips and different optical transceivers. The ONU ensures that the service information of the active PON port can be synchronized and backed up to the standby PON port. Thus, during the protection switching of the PON ports, the ONU can maintain the same local service attributes.

The switching process is as follows:

- The active and standby PON ports on the OLT are both in the working state (the ONU registers with both PON ports on the OLT, and the OLT and the ONU can negotiate through the standard and extended PLOAM messages). During the protection switching of the PON ports, the initialization parameters and the service attributes of the ONU are not configured on the standby PON port.
- The ONU and the OLT check the link status, and determine whether to perform the switching according to the link status.
- If the OLT detects that the uplink of the active PON port is faulty, the OLT automatically switches to the standby optical link and sends the extended OAM message (with the Active PON_IF Administrate attribute) through the standby optical link to configure the active PON port of the ONU.
- If the ONU detects that the downlink of the active PON port is faulty, the ONU automatically switches to the standby optical link and sends the extended OAM message (with Alarm ID = 0x000C and PON_IF Switch attribute) through the standby optical link to inform the OLT of the switching on the ONU PON port and the cause of switching.

When any of the following conditions occurs in a protection group, the optical link protection switching is triggered:

- Loss of optical signal (LOS)
- Input channel degradation
- Over low or over high input optical signal power
- BER threshold violation

During the device running, a hardware fault can also trigger the protection switching. In addition, the protection switching can also be performed forcibly through commands.

27.6.2 Configuring EPON Type D Protection

This topic describes how to configure EPON type D protection.

Prerequisite

- Cards that support inter-card type D protection switching are H801EPBA, H802EPBA, and H802EPBD.
- The members of an inter-card protection group must reside in the cards of the same type. For example, when one member is configured on the H801EPBD card, the other member must also be configured on the H801EPBD card.
- Currently, the ONUs of version R308, such as the MA5620 with the H822EPUB control card, MA5626 with H822EPUB control card, MA5612 with the H832CCFE control card, MA5616 with the H832CCUB control card, and MA5628 support the EPON type D protection switching.
- If an ONU connected to an EPON port is added to a type D protection group, the EPON port cannot be added to a type B protection group or a type B dual-homing protection group. If an ONU connected to an EPON port is added to a type B protection group or a type B dual-homing protection group, the EPON port cannot be added to a type B protection group.

Context

The OLT needs to work with the ONU to implement the GPON type D protection switching.

The two members of a protection group can be in the intra-card protection or the inter-card protection. A maximum of 64 protection groups can be configured.

Procedure

- **1** Configure the working ONU.
 - 1. In the Main Topology, double-click the required device in the **Physical Root** navigation tree, or right-click the required device and choose **NE Explorer** from the shortcut menu.
 - 2. Choose **EPON** > **EPON ONU** from the navigation tree.
 - 3. On the **EPON ONU** tab page, specify the filter criteria or click to display EPON ONU records.
 - 4. In the information list, right-click and choose Add from the shortcut menu.
 - 5. In the dialog box that is displayed, configure the required ONT parameters and bind Line **Profile** and **Service Profile**. Clear **Protection Role** so that the ONU works as a working ONU.

👋 🕹 dd ONU Inf	0				×
Affiliated Port:	0/6/0		*	Splitter ID:	Splitter(L1)
Name:	ONU		*	Alias:	
ONU ID(0-127):	🖌 Auto Assi	gn	*	Splitter Port ID(1-128):	1
ONU Type:	MDU		•		
Protection	Role				
Basic Parame	ters Ne	etwork Managemer	nt Channe	I Parameters	
Line Profile:				Service Profile:	
Optic Alarm Pi	rofile:			ONU VAS Profile:	
Auth Info					
Auth Way:	MAC Add	Iress	*		
MAC Addre	ss: 45 - 61	- 61 - 16 - 11	- 11	Key:	*
LOID:			*	CHECKCODE:	*
Auth Mode:	Always O	in	-	Time Out(h)(1-168):	✓ Disable *
Estandurf	mation				
Extend Infor	nation				
	P Status	PITP St	tatus	IGMP Mode: CT	<u> </u>
ONU Type					
Vendor ID:	HWTO	0(2011)	•	Terminal Type:	~
Software V	ersion:		-		
≫ Add OHU Inf	0				
₩Add ONV Inf Affiliated Port:	•		*	Splitter ID:	Splitter(L1)
≫Add ONV Inf Affiliated Port: Name:	• 0/6/0 ONU		*	Splitter ID: Alias:	Splitter(L1)
Mad ONU Inf Affiliated Port: Name: ONU ID(0-127):	O/6/0 ONU ✓ Auto Assi	gn	*	Splitter ID: Alias: Splitter Port ID(1-128):	Splitter(L1)
Miliated OHU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type:	o 0/6/0 ONU I Auto Assi MDU	gn	*	Splitter ID: Allas: Splitter Port ID(1-128):	Splitter(L1)
Add ONU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection	o D/6/0 ONU I Auto Assi MDU Role	gn	× * *	Splitter ID: Alias: Splitter Port ID(1-128):	Splitter(L1)
Made OFU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame	o ONU ⊘Auto Assi MDU Role ters Networ	gn	▼* * • •	Splitter ID: Alias: Splitter Port ID(1-128): rameters	Splitter(L1)
Add ONU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame	o D/6/0 ONU Auto Assi MDU Role ters Netwo	gn	▼* * *	Splitter ID: Alias: Splitter Port ID(1-128): rameters	Splitter(L1)
Made OFU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame	o O/6/0 ONU P Auto Assi MDU Role ters Network Man	gn	▼* * * Paramete	Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr	Splitter(L1)
Mad OBU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame	● O/6/0 ONU ■ Auto Assi MDU Role ters Network Man	gn	▼* * ▼ Paramete	Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr	Splitter(L1)
Made OFU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame	o O/6/0 ONU P Auto Assi MDU Role ters Network Man	gn Drk Management Cl agement Channel	▼* * ▼ Paramete	Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr	Splitter(L1)
Mad OFU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI	OVE/O ONU ONU Auto Assi MDU Role ters Network Man _AN(1-4095):	gn	Annel Paramete	Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr Gateway IP Address:	Splitter(L1)
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI IP Address	OV6/0 ONU ✓ Auto Assi MDU Role ters Network Man AN(1-4095): :	gn ork Management Cl agement Channel 1 10 .10 .10 .6	▼* * * Paramete	Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr Gateway IP Address: [IP Address Mask:	Splitter(L1)
Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame V OLT Set Net Para Manager VI IP Address Priority(0-7	OV6/0 ONU ONU Auto Assi MDU Role ters Network Man AN(1-4095): : : : : : :	gn ork Management Cl agement Channel 1 10.10.10.6 1		Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr Gateway IP Address: [IP Address Mask:]	Splitter(L1)
Made OBU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI IP Address Priority(0-7)	O/6/0 ONU ONU I Auto Assi MDU Role ters Network Man _AN(1-4095): : :	gn ork Management Cl agement Channel 1 10.10.10.6 1	▼* * • hannel Pa Paramete	Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr Gateway IP Address: [IP Address Mask:]	Splitter(L1)
Add OFU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI IP Address Priority(0-7) Static Pointe	OU6/0 ONU ONU Auto Assi MDU Role ters Network Man LAN(1-4095): : : : Parameters	gn Drk Management Cl agement Channel 1 10.10.10.6 1		Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr Gateway IP Address: [IP Address Mask: [Splitter(L1)
Mad OBU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI IP Address Priority(0-7) Static Route	o O/6/0 ONU ✓ Auto Assi MDU Role ters Network Man _AN(1-4095): : : :	gn ork Management Cl agement Channel 1 10.10.10.6 1	Annel Paramete	Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr Gateway IP Address: [IP Address Mask: [Splitter(L1)
Made OBU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI IP Address Priority(0-7) - Static Route Target IP A	o O/6/0 ONU I Auto Assi MDU Role ters Network Man AN(1-4095): :): Parameters - ddress: .	gn	▼* * • • • • • • •	Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr Gateway IP Address: [IP Address Mask:]	Splitter(L1)
 Add OPU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame IP rotection Basic Parame Net Para Manager VI IP Address Priority(0-7) Static Route Target IP A Next Hop IF 	OV6/0 ONU ONU Nuto Assi MDU Role ters Network Man AN(1-4095): : : Parameters ddress: Address:	gn		Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr Gateway IP Address: [IP Address Mask:] Target Mask:]	Splitter(L1)
Made OBU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Nanager VI IP Address Priority(0-7) - Static Route Target IP A Next Hop IF	o O/6/0 ONU I Auto Assi MDU Role ters Network Man AN(1-4095): : : : Parameters ddress: . Address: .	gn agement Channel	<pre> * * * * * * * * * * * * *</pre>	Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr Gateway IP Address: IP Address Mask: Target Mask:	Splitter(L1)
Made OFU Inf Affiliated Port: Name: ONU ID(0-127): ONU Type: Protection Basic Parame OLT Set Net Para Manager VI IP Address Priority(0-7) Static Route Target IP A Next Hop IF	o O/6/0 ONU ✓ Auto Assi MDU Role ters Network Man AN(1-4095): : : Parameters Address: .	gn prk Management Cl agement Channel 1 10.10.10.6 1		Splitter ID: Alias: Splitter Port ID(1-128): rameters rs EPON SNMP Pr Gateway IP Address: [IP Address Mask:] Target Mask:]	Splitter(L1)

Parameter	Description	Settings
Affiliated Port	Definition: Indicates the shelf number, slot number, and port number of the port to which the ONU is connected.	Range: Numeral type. Its range varies with the shelf type and the board type.
Splitter ID	Definition: Indicates the splitter to which the ONU is connected. A splitter is a passive device connecting the OLT and ONU. It is mainly used to distribute downstream data and gather upstream data.	Setting method: Select a splitter ID from the drop-down list.
Name	Definition: Indicates the ONU ID. The ID uniquely identifies an ONU.	Range: Character string type. It consists of up to 255 characters.
Alias	Definition: Indicates the ONU alias, which is easy to understand and remember.	 Range: Character string type. It consists of up to 32 characters. NOTE If you do not set this parameter, the U2000 obtains the system name of the ONU and considers the system name as the ONU alias. You can set this parameter to non-English characters only when the device supports all non-English characters. Enter only English characters when the device does not support all non-English characters.
ONU ID	Definition: Indicates the ID of the ONU. The ID is used to identify an ONU.	Range: Numeral type. It ranges from 0 to 127.
Auto Assign	Definition: Indicates the ONU ID that is automatically allocated by the device.	Setting method: Select Auto Assign.

Table 27-6 Parameters required for adding an ONU

Parameter	Description	Settings
Splitter Port ID	Definition: Indicates the number of the port on the splitter to which the ONU is connected.	Range: Numeral type. It ranges from 1 to 128.
ONU Type	Definition: Indicates the type of the ONU.	Setting method: Select a terminal type from the drop-down list.
Protection Role	Definition: Specifies whether to add a protection ONU. If the Protection Role check box is selected, it indicates that a virtual ONU is added on the OLT. Relation to other parameters: If the Protection Role check box is selected, the parameters on the Basic Parameters and Network Management Channel Parameters tab pages are unavailable.	Setting method: Select the Protection Role check box.
Basic Parameters		1
Line Profile	Definition: Indicates the line profile bound to the ONU. The line profiles contain the parameters required for setting up channels for the EPON lines. NOTE This parameter is displayed in the profiles of the profile mode.	Setting method: Click next to Line Profile, and then select the required line profile in the dialog box that is displayed.
Service Profile	Definition: Indicates the service profile bound to the ONU. The service profiles contain the parameters related to the ONU service. NOTE This parameter is displayed in the profiles of the profile mode.	Setting method: Click — next to Service Profile, and then select the required service profile in the dialog box that is displayed.

Parameter	Description	Settings
ONU VAS Profile	Definition:	Setting method:
	Indicates the ONU value- added service profile bound to the ONU. The purpose of the ONU value-added service is to support the function of provisioning the VoIP service on the ONU, and to set the parameters for the value-added services on the ONU, such as the VoIP service.	Click next to ONU VAS Profile , and then select the required alarm profile in the dialog box that is displayed.
EPON ONU	Definition:	Setting method:
Capacity Profile	Indicates the capacity profile bound to the ONU. NOTE This parameter is displayed in the profiles of the distributed mode.	Click next to EPON ONU Capacity Profile , and then select the required alarm profile in the dialog box that is displayed.
EPON DBA Profile	Definition:	Setting method:
	Indicates the DBA profile bound to the ONU. NOTE This parameter is displayed in the profiles of the distributed mode.	Click next to EPON DBA Profile , and then select the required alarm profile in the dialog box that is displayed.
Optic Alarm Profile	Definition:	Setting method:
	Indicates the optical power alarm template that is bound to the ONU. The ONU optical power alarm template is used to manage the alarm thresholds of the optical transceiver in a centralized manner.	Click next to Optic Alarm Profile , and then select the required alarm profile in the dialog box that is displayed.
Auth Info.		

Parameter	Description	Settings
Auth Way	Definition:	Range:
	Indicates the mode in which the OLT authenticates the ONU.	Enumerated type. The options are as follows:
		• MAC Address: Specifies the ONU authentication mode as the MAC address authentication mode. In this mode, the OLT determines whether the MAC address reported by the ONU is the same as the configuration. If yes, the ONU passes the authentication and gets online.
		• Key: Specifies the ONU authentication mode as the key authentication mode.
		 LOID: Specifies the ONU authentication mode as the LOID authentication mode. This mode can be used in the FTTB application scenario.
		 LOID+CHECKCODE: Specifies the ONU authentication mode as the LOID+CHECKCODE authentication mode. In the FTTH application scenario, the random character string CHECKCODE is added to the LOID character string to enable the OLT to authenticate the ONU. Default: MAC Address.
MAC Address	Definition:	Range:
	Indicates the MAC address used by the ONU for authentication.	Character string type. The format is FF-FF-FF-FF-FF. Where, F represents a
	Relation to other	hexadecimal number.
	parameters:	
	When Auth Way is set to MAC Address , this parameter is mandatory.	

Parameter	Description	Settings
KEY	Definition:	Range:
	Indicates the password used by the ONU for authentication.	Character string type. It consists of up to 32 characters.
	Relation to other parameters:	The following characters are supported:
	When Auth Way is set to Key , this parameter is	• English letters: case sensitive.
	mandatory.	 Numbers: 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.
		• Symbols: symbols on the keyboard of a PC.
		• All the non-English characters, including Chinese, Korean, Japanese, and French characters.
LOID	Definition:	Range:
	Indicates the password used by the ONU for authentication.	Character string type. It consists of up to 24 characters.
	Relation to other parameters:	The following characters are supported:
	When Auth Way is set to LOID or LOID	• English letters: case sensitive.
	+CHECKCODE, this parameter is mandatory.	 Numbers: 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.
		 Symbols: symbols on the keyboard of a PC.
		• All the non-English characters, including Chinese, Korean, Japanese, and French characters.

Parameter	Description	Settings
CHECKCODE	Definition: Indicates the password used by the ONU for authentication. Relation to other parameters: When Auth Way is set to LOID+CHECKCODE, this parameter is mandatory.	 Range: Character string type. It consists of up to 12 characters. The following characters are supported: English letters: case sensitive. Numbers: 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. Symbols: symbols on the keyboard of a PC. All the non-English characters, including Chinese, Korean, Japanese, and French characters.
Auth Mode	Definition: Indicates the mode in which the OLT authenticates the ONU.	 Range: Enumerated type. The options are as follows: Always_on: Specifies the ONU authentication mode as the password authentication mode. In this mode, the OLT determines whether the password reported by the ONU is the same as the configuration. If yes, the ONU passes the authentication and gets online. Once On: Specifies the ONU authentication mode as the password authentication mode. In this mode, the ONU can get online only once. After the ONU gets online, the ONU cannot be replaced. After the timeout time is set, if the ONU does not get online within the timeout time, the ONU is forbidden to get online.

Parameter	Description	Settings
Time Out ONU Type	Definition: Indicates the timeout time for the ONU to be online. Relation to other parameters: When Auth Way is set to Once On, this parameter is mandatory.	Range: Numeral type. It ranges from 1 to 168. Unit: h.
Verdor ID	Definition: Indicates the ID of the vendor.	Setting method: Enter a value or select a terminal type from the drop- down list.
Terminal Type	Definition: Indicates the equipment type, and especially refers to the terminal type of the third-party GPON ONT and EPON ONT.	Setting method: Enter a value or select a terminal type from the drop- down list. NOTE If the third-party GPON ONT and EPON ONT comply with the CTC 2.1 standard, you can enter the terminal type and software version to manage the third-party GPON ONT and EPON ONT.
Software Version	Definition: Indicates software version of the ONU, and especially refers to the software version of the third-party GPON ONT and EPON ONT. Relation to other parameters: Corresponding software version is displayed based on the specified terminal type.	Setting method: Enter a value or select a terminal type from the drop- down list. NOTE If the third-party GPON ONT and EPON ONT comply with the CTC 2.1 standard, you can enter the terminal type and software version to manage the third-party GPON ONT and EPON ONT.
Extended Info.		

Parameter	Description	Settings
DHCP Status	Definition: Enables the ONU to dynamically request the configuration information from the Dynamic Host Configuration Protocol (DHCP) server, or disables the ONU from dynamically request the configuration information from the DHCP server. DHCP works in the client- server mode. The DHCP client dynamically sends configuration requests to the DHCP server, and the DHCP server provides configuration information to the DHCP client.	Setting method: Select the DHCP Status check box.
PITP Status	Definition: Enables or disables Policy Information Transfer Protocol (PITP) of the ONU. After PITP is enabled, the system binds the user account to the ONU port for authentication. This prevents theft and roaming of the user account. PITP is used to provide the physical port information of the access subscriber. After a BRAS obtains the ONU port information, the BRAS authenticates the binding between the user account and ONU port. This prevents theft and roaming of the user account.	Setting method: Select the PITP Status check box.
Parameter	Description	Settings
--	--	---
Multicast Mode	Definition: Indicates the multicast mode of the ONU.	Setting method: Enumerated type. The options are as follows: CTC: Uses the China
		 For the constant of the constant
Network Managemer	t Channel Parameters	
OLT sets network management channel parameters	Definition: Indicates the mode adopted by the ONU to control and manage ONUs in a centralized manner.	Setting method: Select OLT sets network management channel parameters.
EPON SNMP Profile	Definition: After the SNMP profile is added and issued to ONUs, the ONUs are managed in a centralized manner.	Setting method: Click — next to the EPON SNMP Profile parameter. In the dialog box that is displayed, select the required SNMP profile.
Net Para		
Manager VLAN	Definition: Indicates the VLAN adopted by the ONU to control and manage ONUs in a centralized manner.	Range: Numeral type. It ranges from 1 to 4095.
Gateway IP Address	Definition: Indicates the gateway IP address of the network segment where the ONU is located.	Range: It is an IPv4 address in dotted decimal notation.

Parameter	Description	Settings
IP Address	Definition: Indicates the management IP address of the ONU. It is usually set to the IP address of the Layer 3 interface of the VLAN.	Range: It is an IPv4 address in dotted decimal notation.
IP Address Mask	Definition: Indicates the subnet mask of the IP address. It consists of multiple consecutive 1s and can be represented in dotted decimal notation when written in the text format. This parameter and the destination IP address identify the address of the network segment where a destination host or router is located. To implement this function, set the destination IP address and the subnet mask in the logical conjunction (AND) relation. Then, you can obtain the address of the network segment where a destination host or router is located	Range: It is an IPv4 address in dotted decimal notation.
Priority	Definition: Indicates the priority of the VLAN.	Range: Numeral type. It ranges from 0 to 7.
Static Route Paramet	ers	-
Target IP Address	Definition: Indicates the destination IP address. It identifies the destination IP address or destination network of an IP packet.	Range: It is an IPv4 address in dotted decimal notation.

Parameter	Description	Settings
Target Mask	Definition: Indicates the subnet mask of the IP address. It consists of multiple consecutive 1s and can be represented in dotted decimal notation when written in the text format. This parameter and the destination IP address identify the address of the network segment where a destination host or router is located. To implement this function, set the destination IP address and the subnet mask in the logical conjunction (AND) relation, and then you can obtain the address of the network segment where a destination host or router is located.	Range: It is an IPv4 address in dotted decimal notation.
Next Hop IP Address	Definition: Indicates the IP address of the next hop of the route.	Range: It is an IPv4 address in dotted decimal notation.

- 6. Click **OK**.
- **2** Configure the protection ONU.

The procedure for configuring the protection ONU is similar to the procedure for configuring the working ONU. The difference is that **Protection Role** must be selected so that the ONU works as a protection ONU.

- 3 Add the working ONU and protection ONU to the same protection group.
 - 1. In the Main Topology, double-click the required NE in the **Physical Root** navigation tree, or right-click the required NE and choose **NE Explorer** from the shortcut menu.
 - 2. Choose Protection Group Management from the navigation tree.
 - 3. In the information list, right-click and choose Add from the shortcut menu.
 - 4. In the dialog box that is displayed, set the parameters.

asic information						
Group ID(0-63):	1	*	Protection Object:	EPON ONU		•
Description:			Working Mode:	Status Detection		
lember Infomation						
-Working ONU-						
Frame: 0	*	Slot: 15	*	Port: 3	ONU ID: 0	*
Protected ONU						
Frame: 0	*	Slot: 15	*	Port: 5	ONU ID: 1	*

Parameter	Description	Settings		
Basic Information				
Group ID	Definition: Indicates the ID of the PG. It is used to uniquely identify a PG.	Range: Numeral type. It ranges from 0 to 63.		
Protection Object	Definition: Indicates the type of protection objects in a protection group.	 Range: Enumerated type. The options are as follows: Active main board and standby main board LAG of active main board and standby main board Port of active main board and standby main board Port of active main board and standby main board Port of ETH NNI LAG member of ETH NNI LAG member of ETH NNI Port of EPON UNI Port of GPON UNI STM-1 network port EPON ONU GPON ONU 		
Description	Definition: Specifies the descriptions for a PG. It is easy to understand and remember.	Range: Character string type. It consists of up to 64 characters.		
Working Mode	Definition: Indicates the working mode for PG testing. Relation to other parameters: When Protection Object is Port of active main board and standby main board or Port of ETH NNI, Working Mode can be set.	 Range: Enumerated type. The options are as follows: Status Detection Time Delay Detection Undirection Detection Smart link Smart link load-balance 		
Working ONU	working Mode can be set.			

 Table 27-7 Key parameters required for adding a protection group

Parameter	Description	Settings
Frame/Slot/Port	Definition: Indicates the shelf number, slot number, and port number on the device, to which the working ONU is connected.	-
ONU ID	Definition: Indicates the ID of the working ONU. It is used to identify an ONU.	-
Protection ONU		
Frame/Slot/Port	Definition: Indicates the shelf number, slot number, and port number on the device, to which the protection ONU is connected.	-
ONU ID	Definition: Indicates the ID of the protection ONU. It is used to identify an ONU.	-

5. Click **OK**.

----End

28 Replacing an MDU Quickly

In the FTTX network, a large number of optical network units (ONUs) work. If a faulty ONU is replaced with a new one, you need to only enter the authentication information, after which the previous configuration data will be applied automatically. The following considers the MA5620E as an example to describe how to quickly replace an MDU.

Context

When a faulty ONU is replaced with a new one, you need to connect the new ONU to the relevant port of the OLT through an optical fiber and bind the authentication information of the new ONU. After the new ONU goes online, the U2000 automatically applies service configuration data to the new ONU. Therefore, you need not reconfigure the data.

Advantages:

- An MDU is replaced easily and the OSS need not reapply configuration data.
- The MAC address and SN of the MDU are displayed only on the OLT and U2000. MDUs are differentiated according to their IP addresses in the OSS.
- The on-site construction is simple and no configuration data is required.
- The version and configuration data can be restored automatically.

Figure 28-1 shows the flowchart for quickly replacing an MDU.



Figure 28-1 Flowchart for quickly replacing an MDU



Procedure

1 Set the automatic backup policy.

- 1. Choose Administration > NE Software Management > User-Defined Policy from the main menu.
- 2. In the User-Defined Policy dialog box, set NE Type and NE Version, and click Next, as shown in Figure 28-2.

₩User-Defined Polic y		×
NE Tree	NE Table	
NE Type : MA5620E(V800) 👻	Sno. Resource Na IP/LAN Ad Version	×
NE Version : All Version 💌		
a 🕼 🛃 🖉		
L 2017 10.78.217.236(10.78.217.		
	Next Cancel Einish	

3. In the User-Defined Policy dialog box, set parameters on the Backup Policy and Save Policy tab pages as required, and click Finish, as shown in Figure 28-3.

👋 User-Defined Polic	y 🛛 🗙
Backup Policy	Save Policy
Period :	Weekly
Day:	Sunday 💌
Time :	08:00
Content Type :	Data File 💌
Policy Status :	 Running Suspended
🗌 Save before ta	king Backup
Previous	Cancel <u>F</u> inish

Figure 28-3 User-defined policy (2)

2 (Optional) Set the automatic upgrade policy.

For details, see 17.3.1 Upgrading MDUs in Batches Automatically.

- 3 On-site engineers replace the ONU.
- 4 In the U2000 window, right-click the new ONU that is used to replace the faulty ONU, such as MA5620E, and choose **EPON Option** > **Replace ONU** from the shortcut menu.
- 5 In the **Replace ONU** dialog box, click the **Basic Info** tab, set **Auth Way** to **MAC Address** in the **Auth Info** field, and then click next to **MAC**.
- 6 In the MAC Address List dialog box, select a record and click OK.
- 7 In the Replace ONU dialog box, click the Basic Info tab and click OK.

After the MDU is powered on, the U2000 automatically registers the MDU, and restores the version and configuration data of the MDU.

----End

29 Fault Locating Based on Alarms

About This Chapter

This topic describes how to mask a large number of correlative alarms of low severity, and discard or combine invalid intermittent alarms or repeated events by means of alarm correlation analysis in FTTx scenarios. In this way, you can focus on root alarms and locate faults quickly and accurately.

29.1 Introduction to the Alarm Correlation Analysis of FTTx Services This topic describes the background and means of alarm correlation analysis.

29.2 Correlative Relationship Between FTTx Alarms

This topic considers the diagram of the correlative relationship between GPON FTTx alarms as an example to describe the relationship between root alarms and correlative alarms.

29.3 Alarm Locating

This topic describes the alarm locating flow and how to analyze alarms according to alarm correlation rules.

29.1 Introduction to the Alarm Correlation Analysis of FTTx Services

This topic describes the background and means of alarm correlation analysis.

Background

A large number of ONTs are widely distributed in harsh environments in FTTx scenarios. As a result, many alarms are generated and most of them are insignificant alarms that users do not concern. Therefore, how to effectively report faults and accurately rectify the faults is a top concern of carriers.

The U2000 provides various analysis means including alarm/event correlation analysis, intermittent alarm analysis, repeated event analysis, alarm/event frequency analysis, and time analysis of acknowledged and uncleared alarms. These means can analyze and suppress alarms from different aspects to help users focus on root alarms and locate faults quickly.

Alarm Correlation Analysis

According to configured correlation rules, the U2000 automatically handles relevant alarms or events, thus improving the handling efficiency. For information on how to configure correlation rules, choose **Working with the NMS** > **Alarm Management** > **Analyzing the Root Alarm of a Fault** from the navigation tree in the Help and view relevant contents in the right pane.

• Correlation analysis

In relevant alarms, the causes of the alarms are associated with each other and one alarm is the root cause of other alarms. **Table 29-1** provides relevant alarms predefined for FTTx services.

Service Type	Root Alarm	Correlative Alarm
GPON	The communication between the service board and the control board fails.	The feed fiber is broken or OLT can not receive any expected optical signals(LOS).
	The feed fiber is broken or OLT can not receive any expected optical	The distribute fiber is broken or OLT can not receive expected optical signals from ONT(LOSi).
	signals(LOS).	The GPON ONT gets offline.
	The distribute fiber is	The GPON ONT gets offline.
	broken of OL1 can not receive expected optical signals from ONT (LOSi).	The loss of GEM channel delineation (LCDGi) occurs.

 Table 29-1 Relevant alarms

Service Type	Root Alarm	Correlative Alarm		
	The dying-gasp of ONTi (DGi) is generated.	The distribute fiber is broken or OLT can not receive expected optical signals from ONT(LOSi).		
		The feed fiber is broken or OLT can not receive any expected optical signals(LOS).		
EPON	The communication between the service board and the control board fails.	The feed fiber is broken or OLT can not receive any expected optical signals(LOS).		
	The feed fiber is broken or OLT can not receive any expected optical	The distribute fiber is broken or OLT can not receive expected optical signals from ONT(LOSi).		
	signals(LOS).	The EPON ONT gets offline.		
	The distribute fiber is broken or OLT can not receive expected optical signals from ONT (LOSi).	The EPON ONT gets offline.		
	The dying-gasp of ONTi (DGi) is generated.	The distribute fiber is broken or OLT can not receive expected optical signals from ONT(LOSi).		
		The feed fiber is broken or OLT can not receive any expected optical signals(LOS).		

You can define more relevant alarms by using the correlation analysis function.

Maintenance engineers cannot locate and analyze a fault quickly if too many correlative alarms of low severity exist. Thus, you can configure correlation rules on the U2000 so that the U2000 directly discards non-root alarms that match the correlation rules, marks alarms as correlative alarms (saves them to the suppression library) or lowers their severity levels, and raises the severity levels of root alarms to draw the attention of maintenance engineers.

• Intermittent alarm/repeated event analysis

According to configured intermittent alarm/repeated event analysis rules, the U2000 discards intermittent alarms or repeated events that match the rules, and displays only the first repeated event or cleared intermittent alarm.

If intermittent alarms are reported continuously within a short period of time, the cause may be that an NE or a service switches between the normal state and the abnormal state repeatedly. To handle these alarms in time, you can configure intermittent alarm analysis rules to raise their severity levels, thus drawing the attention of maintenance engineers.

In addition, if you double-click the required OLT device on the **Physical Root** navigation tree on the **Main Topology** tab page, choose **NE Properties** > **Security** > **Trap** from the

navigation tree, enable the **Alarm anti-jitter switch** and set **Alarm anti-jitter interval**, intermittent alarms are periodically masked on NEs.

• Alarm/Event frequency analysis

According to configured alarm/event frequency analysis rules, when the number of different alarms or events that are generated within a period of time exceeds the threshold, it is considered that these alarms or events are related to each other. Then, the U2000 redefines the alarm severity level, generates a local U2000 alarm, or masks these alarms and generates a local U2000 alarm according to the configured rules.

• Time analysis of acknowledged and uncleared alarms

For acknowledged alarms that are not cleared for a long time, the U2000 can raise the alarm severity level by using the acknowledged and uncleared alarm analysis function. In this way, maintenance engineers pay attention to and handle these alarms in time.

29.2 Correlative Relationship Between FTTx Alarms

This topic considers the diagram of the correlative relationship between GPON FTTx alarms as an example to describe the relationship between root alarms and correlative alarms.

Figure 29-1 shows the diagram of the correlative relationship between GPON FTTx alarms.



Figure 29-1 Diagram of the correlative relationship between GPON FTTx alarms

Figure 29-1 shows a group of relevant alarms identified in different colors of lines. For example, in the diagram, the correlative alarms connected in red lines indicate that the root alarm "The feed fiber is broken or OLT can not receive any expected optical signals(LOS)" will be generated when the backbone optical fiber is broken, the optical port is disabled, or the only online ONT connected to the PON port goes offline. This root alarm will trigger a correlative alarm "The distribute fiber is broken or OLT cannot receive expected optical signals from ONT(LOSi)", and the correlative alarm will trigger another correlative alarm "The GPON ONT gets offline". The alarm triggers another correlative alarm and functions as the root alarm of the correlative alarm.

One correlative alarm may be triggered by different root alarms. When a root alarm is cleared, the correlative alarm will not be cleared. For example, the alarms "The feed fiber is broken or

OLT can not receive any expected optical signals(LOS)" and "The dying-gasp of ONTi (DGi) is generated" trigger the alarm "The distribute fiber is broken or OLT can not receive expected optical signals from ONT(LOSi). When the alarm "The feed fiber is broken or OLT can not receive any expected optical signals(LOS)" is cleared, the alarm "The distribute fiber is broken or OLT can not receive expected optical signals from ONT(LOSi)" may not be cleared.

If the check box next to **Display correlative alarms** is selected during alarm filtering on the U2000, A is displayed in the first line of the root alarm list and a is displayed in the first line of the correlative alarm list in the **Browse Current Alarm** window. Right-click a root or correlative alarm and choose **Query Correlative Alarms/Query Root Alarms** from the shortcut menu to view the correlative alarm or root alarm of the selected alarm.

You can focus on only root alarms during alarm analysis and handle major alarms to locate and rectify faults quickly.

29.3 Alarm Locating

This topic describes the alarm locating flow and how to analyze alarms according to alarm correlation rules.

29.3.1 Alarm Locating Flow

This topic describes the alarm locating flow and related handling policies.

29.3 Alarm Locating

This topic describes the alarm locating flow and how to analyze alarms according to alarm correlation rules.

Alarm Locating

This topic describes how to locate an alarm according to the alarm correlation rules.

29.3.1 Alarm Locating Flow

This topic describes the alarm locating flow and related handling policies.

Figure 29-2 shows the alarm locating flowchart.



Figure 29-2 Alarm locating flowchart

(1) Configure automatic alarm synchronization rules. These rules enable the U2000 to automatically synchronize alarms after the communication between the U2000 and an NE resumes or the U2000 is restarted. The synchronization ensures that alarms on the U2000 and NEs are the same.

(2) Set alarm handling policies by means of alarm masking and correlation rules.

- Alarm masking: Masks unimportant alarms to prevent a large amount of redundant information.
- Correlation analysis: Sets the policies of handling root alarms and correlative alarms, such as raising the severity levels of root alarms, and discarding correlative alarms, marking alarms as correlative alarms (saving to the suppression library) or reducing their severity levels.
- Intermittent alarm/event analysis: Reserves only the first repeated alarm or discards intermittent alarms.
- Alarm/Event frequency analysis: Sets the policy of handling alarms when the number of alarms that are generated within a certain period of time exceeds the threshold.
- Time analysis of acknowledged and uncleared alarms: Raises the severity level of acknowledged alarms that are not cleared for a long time so that the alarms can be handled in time.

(3) View important alarms that are filtered by alarm source, alarm severity, type, or status. You can query correlative alarms only after you select the check box next to **Display correlative alarms**.

(4) and (5) Focus on the root alarm. According to configured rules, correlative alarms are discarded or marked as correlative alarms (saved to the suppression library), or their severity levels are lowered.

(6) Determine whether the fault that triggers the alarm can be rectified according to the alarm details. If yes, properly handle and acknowledge this alarm.

(7) In the **Browse Current Alarm** window, select the alarm and view the **Details** area and **Reason**, **Alarm Description**, and **Experience** in the **Handling Suggestion** area in the lower pane to analyze the cause of the alarm. In the case of the MA5600T or MA5680T, click **Click here to show detail Information**. The alarm reference window in the Help is displayed and you can view the alarm details in this window.

(8) Rectify the fault according to the handling suggestions and experience in the Handling Suggestion area. In the case of the MA5600T or MA5680T, click Click here to show detail Information. The alarm reference window in the Help is displayed and you can view the alarm handling process in this window.

(9) Manually clear the alarm if the U2000 cannot automatically clear the alarm or this alarm does not exist on an NE. If the alarm is cleared, it indicates that the fault that triggers the alarm is rectified.

(10) Record the handling process of the alarm or event in the maintenance experience library so that other engineers can refer to the handling process when handling alarms or events of the same type.

29.3.2 Alarm Locating

This topic describes the alarm locating flow and how to analyze alarms according to alarm correlation rules.

Alarm Locating

This topic describes how to locate an alarm according to the alarm correlation rules.

Prerequisite

When configuring alarm correlation rules by importing a configuration file, make sure that the **CorRuleForNemgrAccess.xml** configuration file that stores alarm correlation rules is saved in the **\U2000\server\etc\conf** directory.

Context

You can import the configuration file or configure **Correlation Analysis** on the U2000 client to configure alarm correlation rules. By importing a configuration file, you can configure correlation rules in batches.

Procedure

- **1** Do as follows to configure alarm correlation rules.
 - Method 1: Importing a configuration file
 - 1. Do as follows to import the configuration file that stores alarm correlation rules:
 - On a Windows-based U2000 server, run the >svc_fm_import_internal_corRule
 CorRuleForNemgrAccess.xml command in the command line interface (CLI).
 - On a Solaris- or Linux-based U2000 server, log in to the OS as user **root** and run the following commands:

#. /export/home/nmsuser/.profile

#svc_fm_import_internal_corRule CorRuleForNemgrAccess.xml

- These commands take effect only when Fault Process is running.
- The imported configuration file, **CorRuleForNemgrAccess.xml**, defines relevant alarms provided in **Table 29-1**.
- 2. Do as follows to enable the default correlation analysis function of the U2000 server:
 - On a Windows-based U2000 server, run the >SettingTool -cmd setparam -path / imap/ifms/UsingHeatMan -value "true" command in the CLI.
 - On a Solaris- or Linux-based U2000 server, run the **#SettingTool-cmd setparam** -path /imap/ifms/UsingHeatMan -value "true" command.
- 3. Log in to the System Monitor client and restart Fault Process.
- 4. Log in to the U2000 client and choose Fault > Settings > Correlation from the main menu.
- 5. Click the **Default Correlation** tab. Clear the **Enable** check box next to a correlation rule that does not need to be enabled.

Alarm/Event Frequency Analysis	Intermittent Alarm	Repeat Eve	ent Analysis	Acknowledged and Uncleared Alarm Time Analys	is	
	Default Correlation			c	Correlation Analysis	
Name 🗠		Enable 🗠		Description		
nemgr_access_GPON_board_fault_1		The communi	ication between the service board and the control bo	pard fails	4	
nemgr_access_GPON_boar	d_fault_1_for_MA56	•	The communi	ication between the service board and the control bo	pard fails	
nemgr_access_GPON_boar	d_fault_1_for_MA58	•	The communi	ication between the service board and the control bo	oard fails	
nemgr_access_GPON_boar	d_fault_1_for_MA58		The communi	ication between the service board and the control bo	pard fails	
nemgr_access_GPON_boar	d_fault_1_for_MA56		The communi	ication between the service board and the control bo	pard fails	
nemgr_access_GPON_LOS_1		~	The loss of si	gnal (LOS) occurs at the OLT		
nemgr_access_GPON_LOS	_1_for_MA5600TV8		The loss of si	gnal (LOS) occurs at the OLT		L
nemgr_access_GPON_LOS	_1_for_MA5680	•	The loss of si	gnal (LOS) occurs at the OLT		l
nemgr_access_GPON_LOS	_1_for_MA5606	•	The loss of si	gnal (LOS) occurs at the OLT		
nemgr_access_GPON_LOS	_1_for_MA5603	•	The loss of si	gnal (LOS) occurs at the OLT		
nemgr_access_EPON_board_fa	ault_1	•	The communi	ication between the service board and the control bo	pard fails	l
nemgr_access_EPON_boan	d_fault_1_for_MA56	•	The communi	ication between the service board and the control bo	pard fails	l
nemgr_access_EPON_boan	d_fault_1_for_MA56	•	The communi	ication between the service board and the control bo	oard fails	
nemgr_access_EPON_boan	d_fault_1_for_MA56	•	The communi	ication between the service board and the control bo	oard fails	1
nemgr_access_EPON_boan	d_fault_1_for_MA56	•	The communi	ication between the service board and the control bo	pard fails	1
□ nemgr_access_GPON_LOS_2		•	The loss of si	gnal (LOS) occurs at the OLT		
nemgr_access_GPON_LOS	_2_for_MA5600TV8	•	The loss of si	gnal (LOS) occurs at the OLT		l
nemgr_access_GPON_LOS	_2_for_MA5680	•	The loss of si	gnal (LOS) occurs at the OLT		l
nemgr_access_GPON_LOS	_2_for_MA5606	•	The loss of si	gnal (LOS) occurs at the OLT		1
nemgr_access_GPON_LOS	_2_for_MA5603	•	The loss of si	gnal (LOS) occurs at the OLT		L
nemar access EPON LOS 1			The loss of si	onals (LOS) occurs at the PON port		è
< <u>(</u>						

- Method 2: Configuring correlation analysis on the U2000 client
 - 1. Choose Fault > Settings > Correlation from the main menu.
 - 2. In the Correlation window, click the Correlation Analysis tab.
 - 3. On the Correlation Analysis tab page, click Add to set relevant parameters.
 - a. Configure root or relevant alarms and their handling policies. For example, select **Import to suppressed library** for a relevant alarm to define the alarm as the correlative alarm of a root alarm.

Create a Correlation Rule			×
	Please set a root/c	orrelative alarm and its action.	
Procedure	Root alarm:	inication between the service board	d and the control board fails36765696-(root) 🛄
TIVEGuile	Action:	None	▼
>> Alarm Options			
>> Conditions	Correlative alarm:	OLT can not receive any expected o	optical signals(LOS)772907009-(correlative) 🛄
>> Others	Action:	Import to suppressed library	▼
	Value:	Critical	▼
251			
7			
7			
			Previous Next Cancel

You can select any of the following handling policies for relevant alarms from the Action drop-down list:

- Redefine Level: Redefines the severity levels of relevant alarms to lower the severity levels of alarms that do not need to be concerned.
- Import to suppressed library: Defines a relevant alarm as the correlative alarm of a root alarm.
- Discard: Discards relevant alarms.
- b. Click **Next** to set the attributes of root alarms and correlative alarms. Specifically, set the generation time of correlative alarms to be later than that of root alarms and set the locating information of correlative alarms to be the same as that of root alarms.

Create a Correlation Rule				×
	Please set co	nditions for the correlation rule.		
Procedure	Property.		Operator:	Value
	The feed fibe	r is broken or OLT can not receiv	O =	The communication between the service boa
	The feed fibe	r is broken or OLT can not receiv	⊖⊨	The communication between the service boa
>> Alarm Options	The feed fibe	r is broken or OLT can not receiv	<u> </u>	The communication between the service boa
>>> Conditions	The feed fibe	r is broken or OLT can not receiv	0 <	The communication between the service boa
	The commun	ication between the service boa	• >	MA5680T V800
>> Others	The commun	ication between the service boa		10.71.227.61
	The commun	ication between the service boa		0/15/2
	Condition des	scription:		
	OLT can not	receive any expected optical sigr	nals(LOS)	772907009-(correlative).NE type = The com 🛆 👘
	OLT can not	receive any expected optical sigr	nals(LOS)	772907009-(correlative).NE = The commun
and the second s	OLT can not	receive any expected optical sigr	nals(LOS)	772907009-(correlative).Generation time > 1
	OLT can not	receive any expected optical sigr	nals(LOS)	772907009-(correlative).Location = The cor
	en the servic	e board and the control board fai	ls367656	96-(root).NE type = MA5680T V800
	en the servic	e board and the control board fai	ls367656	96-(root).NE = 10.71.227.61
y	en the servic	e board and the control board fai	ls367656	96-(root).Location = 0/15/2
F	<			>
				Previous <u>N</u> ext Cancel

c. Click **Next**. Then, set the analysis period and priority, and select the check box next to **Enable the correlation rule**.

	Please set the correlation a	analysis period, priority, and n	nemo.	
Procedure	Analysis period (Seconds):	10		÷
Treeduite	Priority:	0		•
>> Alarm Options	Memo:			
Conditions	Enable the correlation	rule		
>> Others				
			Previous Finish	Cancel

- d. Click Finish.
- **2** Query relevant alarms.
 - 1. Choose Fault > Browse Current Alarm from the main menu.
 - 2. In the dialog box that is displayed, specify the filter criteria and select the check box next to **Display correlative alarms** on the **Basic Setting** tab page. Click the **Alarm Source** tab page to select required alarm sources.

👋 Filter				×
Basic Setting	Alarm Source			
🗹 Alarm name The	e communication between t	he board and	d the control board fails367	65696
Severity Critical Major Minor Warning	Status Unacknowledged and I Unacknowledged and I Acknowledged and Uni Acknowledged and Cle	Uncle Cleared cleared ared	All None 	
Last Occurrence Time Segment Start time: 07/05/2010 23:32:21		DST	Clearance Time Segment Start time: 07/05/2010 23:32:21 End time: 07/05/2010 23:32:21	÷ DST
□ Duration smaller than or equal to ▼ 0				
Copy from Templa	ite <u>S</u> ave Template	. <u>R</u> es	set (OK Cancel

- 3. Right-click a root or correlative alarm and choose **Query Correlative Alarms/Query Root Alarms** from the shortcut menu. The correlative or root alarm of this alarm is displayed.
- **3** Handle relevant alarms.
 - Perform any of the following operations to handle root alarms in the **Browse Current** Alarm window.
 - Right-click a root alarm and choose **Details** from the shortcut menu. The information about the generation cause, handling suggestions, and additional information of this alarm is displayed.
 - View information in the **Handling Suggestion** area in the lower pane and locate a fault according to the handling suggestions and experience.
 - In the case of the MA5600T or MA5680T, click Click here to show detail Information to view the information about alarm reference in the Help. Rectify the fault in a step by step manner.

	Severity ~	Name 🗠		Alarm Source 🔿	Location ~
	Major	The communication between the service board and the control board fa	ails	MA5606T	Frame=0, Slot=2, Board Name=H802SHLB Board de
	Major	The communication between the service board and the control board fails		10.71.62.8	Frame=0, Slot=4, Board Name=H801EPBA
	Major	The communication between the service board and the control board fa	ails	10.71.62.8	Frame=0, Slot=7, Board Name=H801AIUG
	Major	The communication between the service board and the control board fa	ails	10.71.62.8	Frame=0, Slot=16, Board Name=H801CITB
<u>_</u>	Major	The communication between the service board and the control board fa	ails	10.71.62.8	Frame=0, Slot:15,Subslot=65535, Port=2,
23	Major	The feed fiber is broken or OLT can not receive any expected optical sig	gnals(LOS)	10.71.62.8	Frame=0, Slot=15,Subslot=65535, Port=2
	Major	The communication between the service board and the control board fa	ails	MA5606T	Frame=0, Slot=3, Board Name=VDM Board descriptio.
	Major	The communication between the service board and the control board fa	ails	MA5606T	Frame=0, Slot=3, Board Name=H802SHLB Board de
	Major	The communication between the service board and the control board fa	ails	MA5606T	Frame=0, Slot=3, Board Name=ADL Board descriptio
ci Image: Control in the contred in the control in the control in the contrel in the c					
₽ Dis	play latest alarm	s Scroll lock Template A Eliter	< <u>(</u> (11 Synchronize] [2] Refresh Açknowledge Cijear

• Do as follows to handle correlative alarms.

- Right-click a correlative alarm and choose **Modify Severity** from the shortcut menu. Then, change the severity level of the alarm to a lower severity level.
- If a large number of insignificant alarms are generated, choose Fault > Settings > Mask Rule from the main menu. Then, set alarm masking policies to reduce redundant alarms.

----End

$30_{\rm FTTx\ Remote\ Fault\ Diagnosis}$

About This Chapter

This topic describes the scheme of FTTx remote fault diagnosis implemented through the fault diagnosis platform of the U2000.

30.1 Diagnosing a Service Fault Through the Fault Diagnosis Platform

This topic describes how to diagnose a service fault through the fault diagnosis platform of the U2000.

30.1 Diagnosing a Service Fault Through the Fault Diagnosis Platform

This topic describes how to diagnose a service fault through the fault diagnosis platform of the U2000.

30.1.1 Fault Diagnosis Platform This topic introduces the fault diagnosis platform.

30.1.2 Application Scope of Fault Diagnosis This topic provides information about the application scope of the fault diagnosis platform.

30.1.3 Objects of Fault Diagnosis This topic provides information about the diagnosed objects supported by the fault diagnosis platform.

30.1.4 Diagnosing the Faults of All Broadband Services This topic describes how to diagnose the faults of all broadband services.

30.1.5 Performing a Health Check on Broadband Services This topic describes how to perform a health check on broadband services.

30.1.6 Diagnosing the Faults of All Voice Services This topic describes how to diagnose the faults of all voice services.

30.1.7 Performing a Health Check on Voice Services This topic describes how to perform a health check on voice services.

30.1.1 Fault Diagnosis Platform

This topic introduces the fault diagnosis platform.

In the case of a fault, you need to locate the fault point. To make it, you need to check relevant parts one by one to locate the fault in the past. Locating a particular fault is implemented in a particular function module. Therefore, you need to switch between GUIs since these GUIs are not logically organized but independent of each other.

As the FTTx is applied in more and more situations, diagnosing access faults plays a crucial role.

The fault diagnosis platform is a U2000-based platform for locating and diagnosing the faults in access devices. The platform depends on the service modules of the U2000, including the test module, alarm management module, and performance measurement module.

This topic considers the fault diagnosis for broadband services as an example to describe the functions of the fault locating topology view and the service topology, as shown in **Figure 30-1** and **Figure 30-2**.

Device Name:

Service flag:

<

Diagnosed object: 0/2/1

All

No.

Start Diagnosis



OLT

Result: The service port is deactived.

Suggestion: Active the service port manually

Diagnosis result and suggestion

30 FTTx Remote Fault Diagnosis

Figure 30-1 Fault locating topology view and its functions for broadband services

MDU

Diagnosis process

Details:



Step

task start:2010-7-7 18:48:25

Check the connectivity of equipment ask stop:2010-7-7 18:48:28



Fault locating topology view: It directly displays the location of a fault, that is, OLT or MDU. The icon indicates the fault and helps you to quickly and accurately locate the fault source. You can perform the following operations in this view:

- Right-click the fault source and choose **Locate** from the shortcut menu to switch to the NE Explorer to locate and rectify the fault further.
- Click **Switch View** to switch to the service topology view.

Service topology view: It directly displays the information about the diagnosed object, such as the service streams, VLANs, and physical resources. Red indicates that an object is faulty and green indicates that an object is in the normal state. Therefore, you can quickly and accurately locate the faulty object. You can perform the following operations in this view:

- Right-click the faulty port and choose **Locate** from the shortcut menu to switch to the related port in the NE Explorer. Then, check the port information to locate and rectify the fault further.
- Click **Switch View** to switch to the fault locating topology view.

Diagnosed object: A port of the MDU, service flag, and diagnosis type are selected in this area to reduce the diagnosis scope and improve diagnosis efficiency.

Diagnosis process: The start time and description of each operation in the diagnosis process are provided in this area.

Diagnosis result and suggestion: You can query the diagnosis result in this area and rectify faults according to the suggestion. To check whether the fault is rectified, click **Restart**.

30.1.2 Application Scope of Fault Diagnosis

This topic provides information about the application scope of the fault diagnosis platform.

The fault diagnosis platform can locate and diagnose the faults of the following services:

- Diagnosing the faults of all broadband services
- Performing a health check on broadband services
- Diagnosing the faults of all voice services
- Performing a health check on voice services

Broadband services also support dual ended loop testing (DELT) and single ended loop testing (SELT).

- SELT is used to locating the faults of a CO, line, or terminal separately and to provide reliable data for rectifying the faults. SELT is applicable to the scenario wherein the line quality needs to be simply tested and analyzed when a terminal is not installed but the line is available.
- DELT is used to locate performance problems of a line, such as low rate, noise, and attenuation. DELT is used for fault location after services are provisioned or used as a means of evaluating line quality to check whether the line quality meets the upgrade requirements during equipment upgrade.

Voice services also support call emulation. Performing tests on voice lines of remote MDUs at a CO facilitates maintenance on the voice lines. Call emulation is applicable to the following two scenarios:

- During service provisioning, the call test is performed on all ports to check whether all ports are in the normal state.
- During fault location, the call or callee emulation test is performed on the test port to locate the port fault.

30.1.3 Objects of Fault Diagnosis

This topic provides information about the diagnosed objects supported by the fault diagnosis platform.

The fault diagnosis platform can locate and diagnose the faults in the FTTB networks.

- OLT supported: MA5600T, MA5680T, and MA5603T
- MDU supported: all MDUs supported by NMSs

30.1.4 Diagnosing the Faults of All Broadband Services

This topic describes how to diagnose the faults of all broadband services.

Procedure

- 1 Choose Fault > FTTx Fault Diagnosis from the main menu.
- 2 In the left pane of the Fault Diagnosis window, set Device Name, Diagnosed object, and Service flag. In addition, choose the corresponding fault symptom from the navigation tree.

Device Name:	10.144.73.58
Diagnosed object:	0/3/1 💌 *
Service flag:	All
Select the fault sym the diagnosis. In thi scope is narrowed a efficiency is improve P III Service heat Broadba P III Broadband a Full cheat	ptom and then perform s manner, the diagnosis and the diagnosis ed. Ith check ind service health check service diagnosis ck on broadband services
	Start Diagnosis

3 Click Start Diagnosis.

----End

Result

The diagnosis result is displayed after the diagnosis is complete.

moood object: 0/3/4 🛛 🗮 🕇	Switch vi	w Stop	Restart	DELT SELT
nosed object: W3/1				
ce flag: 🛛 🔍 💌				
t the fault comptom and then				
rm the diagnosis. In this manner				
iagnosis scope is parrowed and				
iagnosis efficiency is improved.				
rvice health check				
Broadband service health check				
adband service diagnosis				
Full check on broadband services		la se	21	
	Terminal 10.144.7	3.58	10 144 72 25	
			10.144.75.55	
	<]		
Start Diagnosis	lo Ston	Ba	sult	Details:
Start Diagnosis	lo. Step	Re	sult	Details: Result: Normal.
Start Diagnosis	lo. Step task start:2010-7-7 18:48:25	Re:	sult	Details: Result: Normal. Suggestion: None

30.1.5 Performing a Health Check on Broadband Services

This topic describes how to perform a health check on broadband services.

Procedure

- 1 Choose Fault > FTTx Fault Diagnosis from the main menu.
- 2 In the left pane of the Fault Diagnosis window, set Device Name, Diagnosed object, and Service flag. In addition, choose the corresponding fault symptom from the navigation tree.

Device Name:	10.144.73.58
Diagnosed object:	0/3/1 *
Service flag:	All
Select the fault sym the diagnosis. In thi scope is narrowed efficiency is improve for the service hea Broadband for the Broadband for the Full chea	ptom and then perform is manner, the diagnosis and the diagnosis ed. Ith check and service health check service diagnosis ck on broadband services
	Start Diagnosis

3 Click Start Diagnosis.

----End

Result

The diagnosis result is displayed after the diagnosis is complete.

A health check on broadband services is to collect data. During the check, the diagnosis continues even if a fault is detected.



30.1.6 Diagnosing the Faults of All Voice Services

This topic describes how to diagnose the faults of all voice services.

Procedure

- 1 Choose Fault > FTTx Fault Diagnosis from the main menu.
- 2 In the left pane of the Fault Diagnosis window, set Device Name, Diagnosed object, and Service flag. In addition, choose the corresponding fault symptom from the navigation tree.

Device Name:	10.144.73.58*
Diagnosed object:	0/2/1 💌 *
Service flag:	•
Select the fault sym perform the diagnosis the diagnosis scop the diagnosis efficie P- III Service heal Control Se	ptom and then sis. In this manner, e is narrowed and ency is improved. Ith check vice health check e diagnosis ck on voice services
	Start Diagnosis

3 Click Start Diagnosis.

----End

Result

The diagnosis result is displayed after the diagnosis is complete.



30.1.7 Performing a Health Check on Voice Services

This topic describes how to perform a health check on voice services.

Procedure

- 1 Choose Fault > FTTx Fault Diagnosis from the main menu.
- 2 In the left pane of the Fault Diagnosis window, set Device Name, Diagnosed object, and Service flag. In addition, choose the corresponding fault symptom from the navigation tree.

Device Name:	10.144.73.58*
Diagnosed object:	0/2/1 💌 *
Service flag:	
Select the fault symp perform the diagnosis the diagnosis efficient the diagno	otom and then sis. In this manner, e is narrowed and ency is improved. th check wice health check e diagnosis sk on voice services
	Start Diagnosis

3 Click Start Diagnosis.

----End

Result

The diagnosis result is displayed after the diagnosis is complete.



A health check on voice services is to collect data. During the check, the diagnosis continues even if a fault is detected.

	10.144.73 58, 0/2/1. VoIP service health check × 10.144.73 58, 0/2/1. Full check on voice services ×
Device Name: 10.144.73.58 *	
Diagnosed object: 0/2/1 💌 *	Switch view Stop Restart Call Emulation
Service flag:	
Select the fault symptom and then	
perform the diagnosis. In this manner,	
the diagnosis scope is narrowed and	
the diagnosis efficiency is improved.	
E- m Service health check	
Voice service diagnosis	
Full check on voice services	
	Terminal 10.144.72.59
	10.144.73.35
Start Diagnosis	Sten Details:
	tecketert2040.7.7.4.0.4.2.1 Result: Online.
	Suggestion: None
	Check the connectivity of the ONU.
	Check the connectivity of the OLT.
	task stop:2010-7-7 18:12:26

31 Monitoring Real-Time Performance

This topic describes how to view real-time performance data and comprehensively manage performance, thus monitoring the real-time performance of each NE.

Context

The following considers the EPON UNI port as an example to describe how to monitor the realtime performance.

Procedure

- 1 In the **Main Topology**, double-click the required device in the **Physical Root** navigation tree, or right-click the required device and choose **NE Explorer** from the shortcut menu.
- 2 Choose EPON > EPON UNI Port from the navigation tree.
- **3** In the dialog box that is displayed, click **Find** to display the records of specified EPON UNI ports.
- **4** Right-click an EPON UNI port and choose **Performance** > **Real time monitoring** from the shortcut menu.
- 5 In the **Configure Real Time Performance** window, select the indicator to be collected and click **OK**.

A maximum of 20 indicators can be selected at a time.

31 Monitoring Real-Time Performance

Configure Real Time Performance	×		
Show Type: Single Resource Graph 🔻 Ur	nit All 🔻		
Selected Resource Count-1 - 10.71.62.134 10.71.62.134/Frame:0/Slot:5/Port.3	Selected Indicator Count-5		
OK Cancel			

6 In the window that is displayed, view the real-time performance statistics of the EPON UNI port.

----End

32 Quick Cutover of FTTx Services

About This Chapter

This topic describes the solution to quick cutover of FTTx services.

Background

xPON ports on the existing network are not pluggable. When an xPON port or xPON card is faulty, or the network is adjusted, batch migration is implemented only by deleting the xPON port or adding all MDU data to the new xPON port (or new xPON card). This results in complex configuration data and long interruption of services.

To deal with this problem, the U2000 provides a service cutover mode, where MDUs connected to the faulty xPON port of a device are cut over to another xPON port of the same device in batches. This implements simple and quick cutover.

Unique Benefits

- The service cutover is simple and quick. User services can be recovered rapidly after an interruption.
- The on-site construction is simple. Only the optical fiber connected to the source xPON port needs to be migrated to the destination xPON port.

Range and Restrictions

- 1. Only the service cutover inside a device is supported.
- 2. Only the port-level service cutover is supported and the card-level service cutover is not supported.
- 3. Different cards support different service configurations. Therefore, make sure that the cards where the source port and destination port reside are of the same type before the service cutover.
- 4. The service port ID changes after cutover.
- 5. The configuration of the source port is cleared after cutover.

32.1 Cutting Over Services on a GPON Port

This topic describes the flowchart and procedure for cutting over services on a GPON port.

32.2 Cutting Over Services on EPON Ports

This topic describes the flowchart and procedure for cutting over services on EPON ports.
32.1 Cutting Over Services on a GPON Port

This topic describes the flowchart and procedure for cutting over services on a GPON port.

Guideline

When backing up a GPON port on the OLT, you need to cut over services on the GPON port. If the working GPON port is faulty, you can cut over ONU services to a specified backup GPON port.

- The service cutover menu is not required for an activated and online GPON port.
- A particular service card may support a particular service. Hence, the source port and destination port in service cutover must be on the cards of the same type. In addition, you need to ensure that card configuration such as the CAR mode must be the same.
- Multicast services of cascading ports can be cut over.
- ONU names can be cut over. Rules for cutting over an ONU name are as follows:
 - 1. If a source ONU name is generated by default, do not copy the name. The destination ONU name is also generated by default.
 - 2. If a source ONU name is not generated by default or you add characters to a source ONU name generated by default, copy the source ONU name in cutover.

Cutover Flowchart

Figure 32-1 shows the flowchart for cutting over GPON port services.



Figure 32-1 Flowchart for cutting over GPON port services

Procedure

- 1. Insert one end of an optical fiber into the destination GPON port. The other end of the fiber is connected to the source GPON port.
- 2. In the Main Topology, double-click the required device in the **Physical Root** navigation tree, or right-click the required device and choose **NE Explorer** from the shortcut menu.
- 3. Choose GPON > GPON UNI Port from the navigation tree.
- 4. On the **GPON UNI Port** tab page, specify the filter criteria or click it to display the required GPON UNI ports.
- 5. In the information list, right-click the required port and choose **Service Handover** from the shortcut menu.
- 6. In the **Service Handover** dialog box, select the destination port, to which services are cut over.

Service Handove	r X
Name:	Frame:0/Slot:15/Port:2
Destination Port:	Frame:0/Slot:15/Port:0 💌 *
	OK Cancel <u>A</u> pply

Table 32-1 Parameters required for modifying the attributes of a GPON UNI port

Parameter	Description	Settings
Name	Definition: Indicates the name of the device to which the port belongs.	-
Destination Port	Definition: Indicates the backup GPON port.	-

This operation is irreversible. The operation is successful only when the data on the NE is the same as the NE data on the U2000. It is recommended that you synchronize the NE data before performing this operation.

- 7. Click OK.
- 8. In the **Confirm** dialog box, click **Yes**.

9.

Confirm	X	
?	Are you sure to handover the selected port?	
	Yes <u>N</u> o	
Wait unti	l service data replication is complete.	
👋 Dupli	icate Data	×
Dupli	cating the service dataplease wait	_
	Cancel	

32.2 Cutting Over Services on EPON Ports

This topic describes the flowchart and procedure for cutting over services on EPON ports.

Guideline

When backing up an EPON port on the OLT, you need to cut over services on the EPON port. If the working EPON port is faulty, you can cut over ONU services to a specified backup EPON port.

- The service cutover menu is not required for an activated and online EPON port.
- A particular service card may support a particular service. Hence, the source port and destination port in service cutover must be on the cards of the same type. In addition, you need to ensure that card configuration such as the CAR mode must be the same.
- Multicast services of cascading ports can be cut over.
- ONU names can be cut over. Rules for cutting over an ONU name are as follows:
 - 1. If a source ONU name is generated by default, do not copy the name. The destination ONU name is also generated by default.
 - 2. If a source ONU name is not generated by default or you add characters to a source ONU name generated by default, copy the source ONU name in cutover.

Cutover Flowchart

Figure 32-2 shows the flowchart for cutting over EPON services.



Figure 32-2 Flowchart for cutting over EPON services

Procedure

- 1. Insert one end of an optical fiber into the destination EPON port. The other end of the fiber is connected to the source EPON port.
- 2. In the Main Topology, double-click the required device in the **Physical Root**, or right-click the required device and choose **NE Explorer** from the shortcut menu.
- 3. Choose **EPON** > **EPON UNI Port** from the navigation tree.
- 4. On the **EPON UNI Port** tab page, enter the query condition or click to display the required EPON UNI ports.
- 5. In the information list, right-click the required port and choose **Service Handover** from the shortcut menu.
- 6. In the Service Handover dialog box, select the destination port for service cutover.

Service Handover		×				
Name:	Frame:0/Slot:15/Port:2]				
Destination Port:	Frame:0/Slot:15/Port:0 🔹					
	OK Cancel <u>A</u> pply					

Parameter	Description	Settings
Name	Definition: Indicates the name of the device to which the port belongs.	-
Destination Port	Definition: Indicates the standby EPON port.	-

Table 32-2 Parameters required for modifying the parameters of an EPON UNI port

Service cutover is irreversible. Ensure the consistency in the NE data and the U2000 data so that you can cut over services successfully. It is recommended that you synchronize NEs before service cutover.

- 7. Click OK.
- 8. In the **Confirm** dialog box, click **Yes**.

Confirm	×
?	Are you sure to handover the selected port?
	Yes <u>N</u> o

9. Wait until the duplication of service data is complete.



33 Bulk Configuring in Command Line Script Files and Sending the Script Files to NEs

During the maintenance of NEs, the NMS supports the bulk configuration of NE services in a command line script file. In this manner, service data of multiple NEs can be modified quickly, which improves the operation and maintenance efficiency. The bulk configuration of services in a command line script can be achieved with two methods: importing the command line configuration script sheet or using the configuration script management function. With the former method, you need to import the **Command Line Configuration Script Sheet Profile.xls** to the NMS. With the latter 2, you need to add configuration scripts on the NMS and send the scripts to NEs.

Context

- The command script profiles transferred in the File mode and Telnet mode have the same format but different contents.
- The File mode is preferred when lots of commands are contained in the command line script profiles. In this manner, the interactions between the NMS and NEs is reduced, which improves the execution efficiency.
- Currently, the MA5600V800R008 and MxUV800R308 support the File mode.

Procedure

• Method 1: Importing configuration script sheet.

The path to the sheet is as follows:

- Windows-based server: X:\U2000\client\template\MDU Pre-Deploy\zh\Command Line Configuration Script Sheet Profile.xls, where x indicates the disk name, such as D, E, and F.
- Solaris-based server: /opt/U2000/client/template/MDU Pre-Deploy/zh/Command Line Configuration Script Sheet Profile.xls

When the NEs need to load different script files, do as follows:

1. Fill in Command Line Configuration Script Sheet Profile.xls, including Device IP Address, Execute Mode, User Name, Password, and Command Line Configuration Script Filename.

	🖳 Command Line Configuration Script Sheet Profile.xls							
[A	В	C	D	Е	F	
[1	Device IP Address	Excute M	User Name	Password	Command Line Configuration Script Filename		
	2	10.144.73.163	Telnet	root1	admin1	E:\u2000v1r2c01b02f\client\template\MDU Pre-Dep	loy\zh\a.cfg	
l	3	10.144.73.184	Telnet	root2	admin2	E:\u2000v1r2c01b03f\client\template\MDU Pre-Dep	loy\zh\b.cfg	
[4	10.144.73.202	Telnet	root3	admin3	E:\u2000v1r2c01b04f\client\template\MDU Pre-Dep	loy\zh\c.cfg	
1	-							

- 2. Choose Configuration > FTTx Service Pre-Deployment > Import Configuration Script Sheet from the main menu.
- 3. In the dialog box that is displayed, select **Command Line Configuration Script Sheet Profile.xls** and click **OK**.

		ок in: en en	e Configurati	on Scrij	ot Sheet Pro	file.xls		
port Configura	ation Script SI	heet	-			×		
Total : 3, Succe	eded : 1, Failed	: 2						
		100%						
			etails <<		<u>C</u> lose			
Device IP 🗠	Execute m A	Configurati <	Import resul	t 🛆 🛛 R	emarks 🛆	t Prot	îla vie	_
10.144.73.163	Telnet	E:\u2000v1r2	Succeeded				116.215	
10.144.73.184	Teinet	E:\u2000v1r2	Succeeded					
10.144.73.202	Teinet	E:\u2000v1r2	Succeeded				OK	Cance
								,

• Method 2: Using the configuration script management function.

When the same script profiles are loaded to NEs with the same user name and password, or when **Execute** is set to **SSH**, you are recommended to do as follows:

- 1. Choose Configuration > FTTx Service Pre-Deployment > Configuration Script Management from the main menu.
- 2. In the information list, right-click and choose Add from the shortcut menu.
- 3. In the Add Configuration Script dialog box, click add. In the Select Configuration Script dialog box, select the required command line script profile and click OK.

1 0	<u>.</u>		
Add Configuration	Script		×
Name:	cfg_NE*	Alias:	
Execute mode:	Telnet 🔻		
E3u2000v1x2x01	Configuration Script		
E.(020000112001		-Te-Depioy21	add
			delete
			up
			down
<u><</u>			
		ОК	Cancel

- 4. Click **OK**.
- 5. Right-click a configuration script and choose **Send To Device** from the shortcut menu.
- 6. In the dialog box that is displayed, select the required NEs and click Next.
- 7. In the dialog box that is displayed, enter the user name and password of the NEs.

Ge	t User Info				>
	Login Info				
		Clear	all 🤤	Same as fri	ist line
	Device Name	Device IP	User Name*	Pass	sword
	10.144.73.163	10.144.73.163	root	•••••	
	10.144.73.184	10.144.73.184	root	•••••	
		Ba		×	Cancel

8. Click OK.

----End

Result

On the **Scheduling Center** tab page, select a task and click the **Job Information** tab. On the **Job Information** tab page, right-click the result of the task and choose **Show Config Data** from the shortcut menu. The configuration data is displayed.

		The task had	executed su	Issue Config	guration Script Sheet(1
		The task had	executed su	Deliver confi	guration script to device
Detail I	nfo Log Info	Job Informat	on		
	State	R	esult		Device Name
Finished	!	Rucceeded			10.144.73.163
	Delete Subltem				
	<u>S</u> how Config Da	ta			
	<u>F</u> ile	•			

34 Remote Maintenance Guide

About This Chapter

This topic describes the tasks of maintaining the ONU software through the U2000, and the reference standard, operation guide, exception handling, and command reference of the tasks.

34.1 Monitoring Critical and Major Alarms of NEs

It is recommended that you check whether unhandled critical and major alarms persist in the system every day. This operation helps timely detect and solve the problems that may occur when the NEs are running.

34.2 Measuring the CPU Usage of a Board

It is recommended that you measure the CPU usage rat of each board once ever week to rectify the fault of the board whose CPU usage is not in the normal range. This helps you to learn the running status of the boards in time, rectify the capacity fault, and prevent the potential security risks (such as the DoS attack) during the running of the boards.

34.3 Measuring the Performance of an Upstream Ethernet Port

It is recommended that you measure the performance of the upstream Ethernet port once every week. This operation ensures that the services on the upstream Ethernet port are normal and reliable.

34.4 Measuring the Usage of NE Resources

This topic describes how to measure the resource usage of the NE. You can query the NE information, such as the number, software version, type, MAC address, physical location, and running status.

34.5 Checking the NE User Level

It is recommended that you check whether the allocation of the level of the user who configures NEs is correct once every month. This operation ensures that the allocated user level can be the same as the user level that is planned and deployed, and that the user level meets the requirement of NE maintenance.

34.6 Changing the Password of an NE User

To ensure the security of an account, it is recommended that you change the password of an NE user periodically instead of using the same password for a long period during maintenance.

34.7 Saving, Backing Up, and Restoring NE Data

The topic describes how to save and back up NE data and restore NE data when an NE fails to be upgraded.

34.1 Monitoring Critical and Major Alarms of NEs

It is recommended that you check whether unhandled critical and major alarms persist in the system every day. This operation helps timely detect and solve the problems that may occur when the NEs are running.

Prerequisite

The hardware for monitoring NE alarms must be configured, such as an environment monitoring unit (EMU) and sensors.

Context

- After setting the default profile, choose **Fault** > **Browse Current Alarm** from the main menu to display the required alarm information directly. For information on how to set and change the default profile, see Setting the Default Profile.
- You can set the policies for defining alarms according to the extent that the alarms are concerned and the actual requirement, including setting alarm names, function classifications, and alarm severity. For details, see Configuring the Policy of Redefining Alarms and Events.
- A great number of alarms may be generated during the repair, test, and deployment of devices. In this case, you can mask the alarms that are irrelevant. In this manner, the alarms are not displayed or saved on the U2000. For details, see Configuring the Policy of Masking Alarms and Events.

Reference Standard

You can determine the alarm severity according to colors of the alarm legends. Generally, the critical and major alarms should not persist in the system. The following table lists the alarm legends and provides the meanings of the legends.

Legend	Color	Alarm Severity
Critical	Red	Critical
Major	Orange	Major
Minor	Yellow	Minor
Warning	Blue	Warning

Procedure

1 Choose Fault > Browse Current Alarm from the main menu. Then, the Filter dialog box is displayed.

- If you already set the default template for the current alarms, the alarms that meet the default template criteria are directly displayed, without the displaying of the **Filter** dialog box.
- You can choose **Template** > **New** in the lower pane to create an alarm profile and set the device alarm parameters. You can also choose **Template** > **Open** to query the device alarms by selecting the new alarm profile.
- 2 On the **Basic Setting** tab, set the parameters required for querying alarms, such as the alarm name, severity, status, and type. These parameters are optional.

₩ Filter	×	
Basic Setting Alarm Source		
🗌 Alarm name		
Severity Status Image: Critical Image: Unacknowledged and Uncle Image: Major Image: Unacknowledged and Cleared Image: Minor Image: Acknowledged and Uncleared Image: Warning Acknowledged and Cleared	Type All None ✓ Communication ✓ Environment ✓ Equipment ✓ Service	
Last Occurrence Time Range Start time: 06/12/2010 00:04:23 End time: 06/12/2010 00:04:23 Latest Latest 1 0 Days O Hours O Minutes	Clearance Time Range Start time: 06/12/2010 00:04:23 End time: 06/12/2010 00:04:23 Clearance Time Range 06/12/2010 00:04:23 Clearance Time Range DST	
□ Duration smaller than or equal to ▼ 0 ♀ O Days O Hours ● Minutes □ Memo Contains ▼ □ Display correlative alarms Advanced		
Copy From Template	Reset OK Cancel	

- 3 On the Alarm Source tab, set the alarm source information for querying alarms. In the Select Mode area, set the mode for filtering alarms.
 - If **All objects** is selected, it indicates that alarms are not filtered and all alarms of the alarm source are queried.
 - If Custom is selected, click Add to filter the concerned alarm source according to Object below NE and Object Group.
- 4 Click **OK** to display the required critical and major alarms.

----End

Exception Handling

• Select a fault alarm that is not recovered. The alarm information is displayed in **Alarm Details** in the lower pane and the cause of the alarm and handling suggestions are displayed in **Handling Suggestion**. Handle the alarm according to the suggestions.

- Record the critical alarms that occur frequently at recent time and their recovery information. Handle the alarms according to the cause and handling suggestions, and analyze potential risks that may exist in the system.
- If the fault persists, contact Huawei technical support engineers. For details, see How to Obtain Technical Support from Huawei.

For an alarm that is handled successfully, it is recommended that you record the detailed handling measures, which helps locate and troubleshoot the similar faults that occur. To enter the maintenance experience, select the alarm, right-click, and then choose **Experience**.

Related Commands

То	Run the Command	In
Query the alarm history	display alarm history	User mode
Query the basic information about alarms	display alarm list	User mode
Query the alarm configuratio n	display alarm configuration	User mode
Query the alarm statistics	display alarm statistics	User mode
Query the information about the existing alarms in the system	display alarm active	Privilege mode

34.2 Measuring the CPU Usage of a Board

It is recommended that you measure the CPU usage rat of each board once ever week to rectify the fault of the board whose CPU usage is not in the normal range. This helps you to learn the running status of the boards in time, rectify the capacity fault, and prevent the potential security risks (such as the DoS attack) during the running of the boards.

Prerequisite

- You must have Create a Performance Measurement Task.
- If the attributes of NE resources change, you need to perform synchronize to keep the data of the NE and performance management module the same and then perform query . Otherwise, the collection of performance data is abnormal. The procedure of synchronizing information is as follows:

- 1. On the **Main Topology** tab, select an NE from the **Physical Root** navigation tree, right-click, and then choose **Synchronize NE Data**.
- 2. Choose **Performance > Performance Monitor Management** from the main menu. In the **Performance Monitoring Management** tab, right-click the monitoring instance, and select **Synchronization Resource**.

Context

Only the control boards and service boards support this operation.

Reference Standard

- The CPU usage ranges from 0% to 100%. The CPU usage of a board that runs normally does not exceed 70%.
- The high CPU usage of a board occurs only when the board data is being written to the flash memory of the control board or is being saved. The high CPU usage usually lasts less than 60s.

Procedure

- 1 Choose **Performance** > **Browse History Performance Data** from the main menu.
- 2 Choose Performance Management > Card > Access NE Card > Board Health from the navigation tree.
- 3 Click Filter. The dialog is displayed. The resources and the corresponding indicators associated with the selected resources is displayed.

If the query profile is created, click **Template** > **Query by Template**. In the dialog box that is displayed, select the required profile, and then import the profile to query the performance statistics.

- 4 In the Show Type drop-down list, select the graph type as Single Resource Graph.
- 5 In the area, select the NE type. In the **Available Resources** area in the right pane, select the resource name.
- 6 Click , to move the resources to the Selected Resources area.
- 7 Click \blacksquare in the right side of the window to expand the **Option** area box.
- 8 In the buttom of the pane, select the indicators for the selected resources.

Maximum 10 indicators can be selected at a time.

9 Select the **Option** check box and in the **Time** drop-down list, select the time period.

Time period can be set as Recent 1 hour, Recent 12 hours, Recent 1 day, Recent 1 week, Recent 1 month, Recent 1 year, or Custom Define.

- 1. Select **Custom Define**, and click to select the start and end time period. The maximum time period can be 1 year.
- 2. Click OK.

Start time period should be earlier than end time period.

- 10 In the Granularity drop-down list, select the granularity period.Based on the time period, granularity can be one of the following:
 - Recent 1 hour: 5 minutes, 10 minutes, 15 minutes, and 30 minutes.
 - Recent 12 hours: 5 minutes, 10 minutes, 15 minutes, and 30 minutes, 1 hour.
 - Recent 1 day: 5 minutes, 10 minutes, 15 minutes, and 30 minutes, 1 hour.
 - Recent 1 week: 1 hour, 1 day.
 - Recent 1 month: 1 day.
 - Recent 1 year: 1 day.
 - Custom Define: 5 minutes, 10 minutes, 15 minutes, 30 minutes, 1 hour and 1 day.

For custom define, the granularity can be selected based on the time period selected.

- 11 Optional: Click Advance, and set the filter conditions for the indicators.
 - 1. In the Logic Type drop-down list, select the logic type as AND or OR.
 - 2. Select the **Operator** and set the **Value** for the corresponding indicators. Operator can be set as =, <, >, <=, >=, or !=.
 - 3. Click **OK**.
- **12 Optional:** Click **Save as Query Template** to save a new or an existing template as a new template.
- 13 Optional: Click Cancel to cancel the operation.
- 14 Click **OK** to get the performance data based on the filter conditions set for one graph one resource.

----End

Exception Handling

- If the CPU usage of a board is temporarily over-high, there is no need to proceed.
- If the CPU usage of a board is frequently over-high, check the following items:
 - Whether the data configuration of the device is proper. If the data configuration is improper, it is recommended that you decrease the number of users or increase the capacity of the system.
 - Whether the networking is proper and whether a larger number of broadcast packets are generated due to the existing loop networks.
 - Whether the DoS attack exists, which may lead to the high CPU usage. The solution is to enable the anti-DoS attack function.
- If the fault persists, contact Huawei technical support engineers. For details, see How to Obtain Technical Support from Huawei.

Related Commands

То	Run the Command	In
Query the CPU usage of a board	display cpu	Privilege mode

34.3 Measuring the Performance of an Upstream Ethernet Port

It is recommended that you measure the performance of the upstream Ethernet port once every week. This operation ensures that the services on the upstream Ethernet port are normal and reliable.

Prerequisite

- You must have Create a Performance Measurement Task.
- If the attributes of NE resources change, you need to perform synchronize to keep the data of the NE and performance management module the same and then perform query . Otherwise, the collection of performance data is abnormal. The procedure of synchronizing information is as follows:
 - 1. On the **Main Topology** tab, select an NE from the **Physical Root** navigation tree, right-click, and then choose **Synchronize NE Data**.
 - 2. Choose **Performance > Performance Monitor Management** from the main menu. In the **Performance Monitoring Management** tab, right-click the monitoring instance, and select **Synchronization Resource**.

Reference Standard

In the statistics of the upstream Ethernet port, a small number of frames with cyclical redundancy check (CRC) errors and a few packet loss errors exist and the traffic transmission is stable.

Procedure

- 1 Choose **Performance** > **Browse History Performance Data** from the main menu.
- 2 Choose Performance Management > Port > Access Ethernet Port > Ethernet Port from the navigation tree.
- 3 Click Filter. The dialog is displayed. The resources and the corresponding indicators associated with the selected resources is displayed.

If the query profile is created, click **Template** > **Query by Template**. In the dialog box that is displayed, select the required profile, and then import the profile to query the performance statistics.

4 In the Show Type drop-down list, select the graph type as Single Resource Graph.

•

- 5 Click in the right side of the window to expand the **Available Resources** area box.
- 6 In the area, select the NE type. In the **Available Resources** area in the right pane, select the resource name.
- 7 Click , to move the resources to the **Selected Resources** area.



- 8 Click in the right side of the window to expand the **Option** area box.
- 9 In the buttom of the pane, select the indicators for the selected resources.

Maximum 10 indicators can be selected at a time.

10 Select the **Option** check box and in the **Time** drop-down list, select the time period.

Time period can be set as Recent 1 hour, Recent 12 hours, Recent 1 day, Recent 1 week, Recent 1 month, Recent 1 year, or Custom Define.

- 1. Select **Custom Define**, and click to select the start and end time period. The maximum time period can be 1 year.
- 2. Click OK.

Start time period should be earlier than end time period.

11 In the Granularity drop-down list, select the granularity period.

Based on the time period, granularity can be one of the following:

- Recent 1 hour: 5 minutes, 10 minutes, 15 minutes, and 30 minutes.
- Recent 12 hours: 5 minutes, 10 minutes, 15 minutes, and 30 minutes, 1 hour.
- Recent 1 day: 5 minutes, 10 minutes, 15 minutes, and 30 minutes, 1 hour.
- Recent 1 week: 1 hour, 1 day.
- Recent 1 month: 1 day.
- Recent 1 year: 1 day.
- Custom Define: 5 minutes, 10 minutes, 15 minutes, 30 minutes, 1 hour and 1 day.

For custom define, the granularity can be selected based on the time period selected.

- 12 Optional: Click Advance, and set the filter conditions for the indicators.
 - 1. In the Logic Type drop-down list, select the logic type as AND or OR.
 - 2. Select the **Operator** and set the **Value** for the corresponding indicators. Operator can be set as =, <, >, <=, >=, or !=.
 - 3. Click OK.
- **13 Optional:** Click **Save as Query Template** to save a new or an existing template as a new template.
- 14 Optional: Click Cancel to cancel the operation.

15 Click **OK** to get the performance data based on the filter conditions set for one graph one resource.

----End

Exception Handling

- If a large number of frames with CRC errors exist or the traffic on an Ethernet port is low in a certain period, check whether the line quality is poor or whether any Ethernet port of the device is faulty.
- If a large number of packets are lost, check whether the traffic suppression function is enabled.
- If the fault persists, replace the port to prevent the communication failure caused by the port fault.
- If the fault persists, contact Huawei technical support engineers. For details, see How to Obtain Technical Support from Huawei.

Related Commands

То	Run the Command	In
Query the statistics of an Ethernet port	display port statistics	ETH mode, GIU mode, SCU mode

34.4 Measuring the Usage of NE Resources

This topic describes how to measure the resource usage of the NE. You can query the NE information, such as the number, software version, type, MAC address, physical location, and running status.

Prerequisite

The NE must be added to the U2000 successfully.

Procedure

- 1 Choose Inventory > Physical Inventory > NE from the main menu.
- 2 Click the NE Statistics tab. Select NE Type, Software Version, NE Type+Software Version, or Customize from the Statistics Type drop-down list.
 - 1. Select **NE Type** from the **Statistics Type** drop-down list and click **Count**. The number of NEs of different types is displayed in the information list in the lower pane.
 - 2. Select **Software Version** from the **Statistics Type** drop-down list, and click **Count**. The number of NEs of different software versions is displayed in the information list in the lower pane.
 - 3. Select **NE Type+Software Version** from the **Statistics Type** drop-down list and click **Count**. The number of NEs of different software versions corresponding to different NE types is displayed in the information list in the lower pane.
 - 4. Select Customize. In the Customize NE Statistics Type dialog box, click New. In the New Customize NE Statistics Type dialog box, enter the name of the measurement item

to be customized in the Custom Name text box in the Customize NE Statistics Type area.

In the **Basic Item** area, select the measurement item to be customized, click to add the selected measurement item to the **Combined Item** area. Then, click **OK**.

- 5. Click OK.
- 3 Click next to **Statistics Scope**. In the dialog box that is displayed, select the NE to be measured, and then click **OK**.
- 4 Select the required record from the NE list, and then you can perform the following operations:
 - Choose Save As. In the dialog box that is displayed, set Start Row and End Row, and then click a next to File Name. In the dialog box that is displayed, set File Name, File Type and Encoding, and then click Save. Click OK in the Save Options dialog box to save the report to the specified path.

The reports can be saved as txt, xls, html and xls files.

• Choose **Print**. In the dialog box that is displayed, set **Start Row** and **End Row**, and then click **OK** to print the report.

----End

Command Reference

То	Run the Command	In
Query the details of a board (After performing an operation on a board, you can query the details of the board, such as the slot number, name, status, daughter board information, port information and online status.)	display board	User mode

34.5 Checking the NE User Level

It is recommended that you check whether the allocation of the level of the user who configures NEs is correct once every month. This operation ensures that the allocated user level can be the same as the user level that is planned and deployed, and that the user level meets the requirement of NE maintenance.

Context

Users are divided into four levels by rights, that is, the common user, operator, administrator, and superuser.

- A common user can perform basic system operations and simple query operations.
- An operator can perform basic configurations for the device and services.

- An administrator can perform all configurations. The administrator is responsible for maintaining the device, user account, and rights to manage devices.
- The superuser is unique in the system. Being the top-level user in the system, the superuser can add an administrator and has all the rights of the administrator.

Reference Standard

The level of the user who configures NEs is the same as the level that is planned and deployed, and can meet the requirement of NE maintenance. The user rights are allocated properly.

Procedure

- 1 Choose Administration > NE Security Management > LCT User Management from the main menu.
- 2 In the LCT Management window, click the NE User tab.
- 3 Select the required device type from the **Device Type** drop-down list. The information about all the users of the selected device type is displayed in the list. Then, click **Filter** to display the NE users that meet the filtering criteria.
- 4 Query the level of the NE user in the Level column in the list.

----End

Exception Handling

If the allocation of the NE user level is improper, right-click the record to be queried in the list on the NE User tab, and then select Configure to modify the NE user level.
 NOTE

Only the user with the administrator or higher-level right can modify the NE user level.

• If the fault persists, contact Huawei technical support engineers. For details, see How to Obtain Technical Support from Huawei.

Related Commands

То	Run the Command	In
Query the NE user level	display terminal user	User mode
Modify the NE user level	terminal user level	Privilege mode

34.6 Changing the Password of an NE User

To ensure the security of an account, it is recommended that you change the password of an NE user periodically instead of using the same password for a long period during maintenance.

Prerequisite

You must be an NMS user with the Security Manager User authority or higher.

Reference Standard

You can log in to an NE by using the new password.

Procedure

- 1 Choose Administration > NE Security Management > LCT User Management from the main menu.
- 2 Click the **NE User** tab, and then select the required device type from the **Device Type** dropdown list. All the users on this type of devices are displayed in the user list. Click **Find** to display the required users.
- 3 Select one or more records from the user list, right-click, and then choose Set Password.
- 4 In the Set Password dialog box as shown in the following figure, set a new password.

Set Passwoi	rd	×
New Pas	sword:	•••••
Password	d Again: 🛛 🗕	•••••
		OK Cancel

The password consists of 1 to 15 characters.

5 Click OK.

----End

Exception Handling

- If the password fails to be changed, the U2000 displays a message indicating the failure. In this case, check whether the password is correct according to the message.
- If the problem persists, contact Huawei technical support engineers. For information on how to contact Huawei technical support engineers, see How to Obtain Technical Support from Huawei.

Related Commands

То	Run the Command	In
Change the password of an NE user	terminal user password	Privilege mode

34.7 Saving, Backing Up, and Restoring NE Data

The topic describes how to save and back up NE data and restore NE data when an NE fails to be upgraded.

34.7.1 Saving and Backing Up the NE Data Periodically

The DC saves and backs up data periodically according to the default policy or user-defined policy and thus helps to restore and load the data in future.

34.7.2 Saving and Backing Up NE Data Immediately

The DC can save and back up NE data periodically or immediately to meet the requirements in different scenarios.

34.7.3 Checking the Backup of the NE Configuration Data

It is recommended that you check whether the NE configuration data is backed up successfully once every week. This operation helps you to restore the recent system data in time in the case that an expected fault occurs in the system. Thus, the impact on users is minimized.

34.7.4 Restoring the NE Data Immediately

The DC can restore the history backup data after a NE is selected. This operation ensures that the NE data can be restored if the system upgrade fails or any problems occur. Thus, the system can be restored to the normal state.

34.7.1 Saving and Backing Up the NE Data Periodically

The DC saves and backs up data periodically according to the default policy or user-defined policy and thus helps to restore and load the data in future.

Saving and Backing Up the NE Data by Using the Default Policy

This topic describes how to save and back up the NE data periodically by using the default policy. Hence, you can save and back up the NE data at a fixed time, which facilitates the restoring and loading of the NE data.

Impact on the System

The backup has certain impact on the running rate of the NE. Therefore, it is recommended that you back up the NE data when the NE carries minimum traffic, for example, at 2:00 a.m.

Prerequisite

- The **DCServer** process runs in the normal state.
- The communication between the NE and the U2000 must be in the normal state.
- The TFTP/FTP/SFTP service must be configured and run in the normal state. For details, see 1.1.1 Configuring the FTP, SFTP, or TFTP Service (Windows), 1.1.2 Configuring the FTP, SFTP, or TFTP Service (Solaris) and 1.1.3 Configuring the FTP, SFTP, or TFTP Service (Linux).

Procedure

1 Choose Administration > NE Software Management > Default Policy from the main menu.

2 Click the **Backup Policy** tab, and then configure the backup policy of the NE, as shown in the following figure.

Default Policy Configuration 🛛 🛛 🔀		
Backup Policy	Save Policy	
Period :	Daily	
Day:		
Time :	02:00	
Policy Status :	Running Suspended	
	OK Cancel	

- If **Policy Status** is set to **Running**, the DC backs up NEs at the specified time.
- If **Policy Status** is set to **Suspended**. the DC does not back up NEs even if the policy period reaches the specified time, and the policy is still suspended.
- 3 Click the **Save Policy** tab, and then configure the save policy of the NE, as shown in the following figure.

De	fault Policy Configu	ration	×
ſ	Backup Policy Sav	/e Policy	
	Period :	Daily	
	Day :	-	
	Time :	08:00	
	Policy Status :	Running Suspended	
		OK Cancel	

- If **Policy Status** is set to **Running**, the DC saves NEs at the specified time.
- If **Policy Status** is set to **Suspended**, the DC does not save NEs even if the policy period reaches the specified time, and the policy is still suspended.
- 4 Click **OK** to complete the configurations of the save and backup policies.
- 5 In the **Operation Result** dialog box, click **OK**.

----End

Related Commands

То	Run the Command	In
Configure the conditional backup function of the automatic backup	auto-backup condition	Global config mode
Configure the periodical backup function of the automatic backup	auto-backup period	Global config mode

Saving and Backing Up the NE Data by Using the Customized Policy

This topic describes how to save and back up the NE data periodically by using the customized policy. Hence, you can save and back up the required NE data at a fixed time, which facilitates the restoring and loading of the NE data.

Impact on the System

The backup has certain impact on the running rate of the NE, therefore, it is recommended that you back up the NE data when the NE carries minimum traffic, for example, at 2:00 a.m.

Prerequisite

- The **DCServer** process runs in the normal state.
- The communication between the NE and the U2000 must be in the normal state.
- The TFTP/FTP/SFTP service must be configured and run in the normal state. For details, see 1.1.1 Configuring the FTP, SFTP, or TFTP Service (Windows), 1.1.2 Configuring the FTP, SFTP, or TFTP Service (Solaris) and 1.1.3 Configuring the FTP, SFTP, or TFTP Service (Linux).

Context

You can configure the save and backup policies for a single NE or for multiple NEs simultaneously.

Procedure

- 1 Choose Administration > NE Software Management > User-Defined Policy from the main menu. The User-Defined Policy dialog box is displayed.
- 2 Select the NE type and NE version to be configured with the save and backup policies as required.
 - 1. Select the required NE type from the NE Type drop-down list.
 - 2. **Optional:** Select the required NE version from the **NE Version** drop-down list.
 - 3. Choose one or multiple NEs to be configured with the save and backup policies from the navigation tree under the **NE Version** drop-down list.
- 3 Click Next and the User-Defined Policy dialog box is displayed.
- **4** Click the **Backup Policy** tab, and then configure the backup policy of the NE, as shown in the following figure.

89	👋 User-Defined Policy 🛛 🛛 🔀		
	Backup Policy	Save Policy	
	Period :	Daily 🔻	
	Day:		
	Time :	02:00	
	Content Type :	Data File 🔻	
	Policy Status :	Running Suspended	
	Save before ta	king Backup	
	Previous	Cancel <u>F</u> inish	

- If **Policy Status** is set to **Running**, the DC backs up NEs at the specified time.
- If **Policy Status** is set to **Suspended**, the DC does not back up NEs even if the policy period reaches the specified time, and the policy is still suspended.
- 5 Click the **Save Policy** tab, and then configure the save policy of the NE, as shown in the following figure.

8	🗏 User-Defined Policy		
	Backup Policy Sav	ve Policy	
	Period :	Daily	
	Day :		
	Time :	08:00	
	Content Type :	Configuration File 🔻	
	Policy Status :	 Running Suspended 	
	Previous	Cancel	
	<u></u>		

- If **Policy Status** is set to **Running**, the DC save NEs at the specified time.
- If **Policy Status** is set to **Suspended**, the DC does not save NEs even if the policy period reaches the specified time, and the policy is still suspended.
- 6 Click Finish to complete the configurations of the save and backup policies.
- 7 In the Operation Result dialog box, click OK.

----End

Related Commands

То	Run the Command	In
Configure the conditional backup function of the automatic backup	auto-backup condition	Global config mode

То	Run the Command	In
Configure the periodical backup function of the automatic backup	auto-backup period	Global config mode

34.7.2 Saving and Backing Up NE Data Immediately

The DC can save and back up NE data periodically or immediately to meet the requirements in different scenarios.

Saving the NE Data Immediately

Through the DC, you can save the related NE data periodically. You can also save the NE data immediately. This meets the requirements of different application scenarios.

Prerequisite

- The communication between the NE and the U2000 must be in the normal state.
- The **DCServer** process runs in the normal state.

Context

The manual saving task cannot be interrupted after it is started.

Procedure

- 1 Choose Administration > NE Software Management > NE Data Backup/Restoration from the main menu.
- 2 Click , and expand the ONU NE node from the NE navigation tree.
 - If a certain NE type is selected, all the NEs of this type are displayed in the NE list in the **NE View** window in the right pane.
 - If a NE version is selected in a certain NE type node, all the NEs of this version are displayed in the NE list in the **NE View** window in the right pane.
- 3 Optional: To locate a specific NE, click Find in the NE View window in the right pane.
- 4 Select one or multiple records from the NE list in the NE View window in the right pane, rightclick, and then choose Save.

You can save the NE data for only one or multiple NEs of the same type at a time.

- 5 In the dialog box that is displayed, select one or multiple records need to be saved, and then click **Start** to save the NE data.
- 6 The saving process and the operation results are displayed in the **Operation Status** of the list.

----End

Related Commands

То	Run the Command	In
Save the current database file and configuration file of the system	save	Privilege mode
Save the current database file of the system	save data	Privilege mode
Save the current configuration file of the system	save configuration	Privilege mode

Backing Up the NE Data Immediately

Through the DC, you can back up the NE data periodically. You can also back up the NE data immediately. This meets the requirements of different application scenarios.

Impact on the System

The backup has certain impact on the running rate of the NE. Therefore, it is recommended that you back up the NE data when the device carries minimum traffic, for example, at 2:00 a.m.

Prerequisite

- The **DCServer** process runs in the normal state.
- The communication between the device and the U2000 must be in the normal state.
- The TFTP/FTP/SFTP service must be configured and run in the normal state. For details, see 1.1.1 Configuring the FTP, SFTP, or TFTP Service (Windows), 1.1.2 Configuring the FTP, SFTP, or TFTP Service (Solaris) and 1.1.3 Configuring the FTP, SFTP, or TFTP Service (Linux).
- To back up the NE data to the U2000 client, the SFTP server must be configured and the SFTP service must be in the running state.

Context

After a manual backup task is started, it cannot be stopped.

Procedure

- 1 Choose Administration > NE Software Management > NE Data Backup/Restoration from the main menu.
- 2 Click , and expand the ONU NE node from the NE navigation tree.
 - If a certain NE type is selected, all the NEs of this type are displayed in the NE list in the **NE View** window in the right pane.

- If a NE version is selected in a certain NE type node, all the NEs of this version are displayed in the NE list in the **NE View** window in the right pane.
- 3 Optional: To locate a specific NE, click Find in the NE View window in the right pane.
- 4 Select one or more records from the NE list in the **NE View** window in the right pane, rightclick, and then choose **Backup** or click **Backup** in the lower pane.

You can back up the NE data for only one or multiple NEs of the same type at a time.

5 In the dialog box as shown in the following figure, set the parameters related to backing up the NE data immediately.

Bą	ackup			×
E	Backup To : 💿 NMS S	<u>e</u> rver () NMS <u>C</u> lient	Sam	e as firs <u>t</u> Content Type
	NE Name	IP Address	Content Type	Save Before Backup
	10.78.217.106	10.78.217.106	Data File 🛛 🔻	
ŀ	10.78.217.107	10.78.217.107	Data File 🛛 🔻	
				Start Close

To back up the data for multiple NEs of the same type, click **Same as first Content Type** in the upper right corner of the **Backup** dialog box. In this manner, you can configure the backup file with the same content for multiple NEs at a time rather than configure the backup files one by one.

- 6 Click Start to back up the NE data.
- 7 The backup process and the operation results are displayed in the **Operation Status** of the list. If the backup is successful, the information about the backup file is displayed on the **Backup Information** tab.

----End

Related Commands

То	Run the Command	In
Back up the database file manually	backup data	Privilege mode

То	Run the Command	In
Back up the configuratio n file manually	backup configuration	Privilege mode
Back up the data to the backup server manually	auto-backup manual	Global config mode

34.7.3 Checking the Backup of the NE Configuration Data

It is recommended that you check whether the NE configuration data is backed up successfully once every week. This operation helps you to restore the recent system data in time in the case that an expected fault occurs in the system. Thus, the impact on users is minimized.

Prerequisite

The parameters for periodically backing up the NE data must be set.

After the backup policy is configured successfully, you need not manually back up data every day and need only to check the backup once every week.

Context

- The ONU supports the saving and backing up of the database file. This ensures that the system can be restored in the case that an expected fault occurs in the system. For information on how to restore the NE data, see **Restoring the NE Data Immediately**.
- The U2000 supports the function of transferring the database file of the ONU in the FTP/ TFTP/SFTP mode. To back up the data, you can upload the file saved on the ONU to a specified file server. To restore the data, you can download the file saved on the specified file server to the ONU.

Reference Standard

No backup failure is recorded in the log, and the backup database file exists in the specified path.

Procedure

- 1 Choose Administration > NE Software Management > NE Software Log Management from the main menu.
- 2 In the NE Software Log Management window, click Filter. The Filter Log dialog box is displayed.
- 3 In the **Filter Log** dialog box, select **Backup** from the **Operation Type** drop-down list, and then set other filtering criteria to display the required log that records backup operations (the filtering criteria items are optional), as shown in the following figure.

Filter Log	x
птегсод	•• •
NE Type :	ALL
NE Options	User Options
	User Name :
IP Address	10.71.210.3 Client IP : 10.71.210.3
Advanced Options	
Result :	🗹 Success 🗹 Failure
Operation Type :	3ackup 🗸
From :	[he First Log
То:	[he Last Log
	OK Cancel

4 Click **OK**. The information about the backup operation logs is displayed in the information list. You can determine whether the database is backed up successfully by viewing the **Result** column in the information list. If **Success** is displayed in the **Result** column, view the directory for saving backup files in the **File Path** column.

----End

Exception Handling

- If **Failure** is displayed in the **Result** column, take measures according to the information displayed in the **Details** column. If the data is backed up in the FTP/TFTP/SFTP mode, check the following items:
 - Whether you can ping through the IP address of the maintenance network port on the control board or the IP address of a layer 3 interface of a VLAN from the FTP/TFTP/ SFTP server. That is, check whether the communication between the ONU and the U2000 is normal.
 - Whether the entered IP address of the FTP/TFTP/SFTP server is correct.
 - Whether the FTP/TFTP/SFTP program is running on the backup server.
 - Whether the path in the FTP/TFTP/SFTP program is set correctly.
- If the automatic backup fails, back up the data manually. In addition, locate the cause of the backup failure and modify the settings according to the cause.
- If the fault persists, contact Huawei technical support engineers. For details, see How to Obtain Technical Support from Huawei.

Related Commands

То	Run the Command	In
Query user logs	display log	User mode

То	Run the Command	In
Query the file server	display file-server	Privilege mode
Configure the file server	file-server	Privilege mode

34.7.4 Restoring the NE Data Immediately

The DC can restore the history backup data after a NE is selected. This operation ensures that the NE data can be restored if the system upgrade fails or any problems occur. Thus, the system can be restored to the normal state.

Prerequisite

- The **DCServer** process runs in the normal state.
- The communication between the NE and the U2000 must be in the normal state, and there must be no packet loss in the network.
- The TFTP/FTP/SFTP service must be configured and run in the normal state. For details, see 1.1.1 Configuring the FTP, SFTP, or TFTP Service (Windows), 1.1.2 Configuring the FTP, SFTP, or TFTP Service (Solaris) and 1.1.3 Configuring the FTP, SFTP, or TFTP Service (Linux).
- The NE data must be backed up to the NMS server.

To copy the backup files that contain the NE data to another path, copy the directory where the backup files exist. If you copy only a certain backup file, the file is invalid when the NE data is recovered.

• To restore the NE data by selecting the history file on the U2000 client, the SFTP server must be configured and the SFTP service must be in the running state.

Context

After a manual restoring task is started, it cannot be stopped.

Procedure

- 1 Choose Administration > NE Software Management > NE Data Backup/Restoration from the main menu.
- 2 Click , and expand the ONU NE node from the NE navigation tree.
 - If a certain NE type is selected, all the NEs of this type are displayed in the NE list in the **NE View** window in the right pane.
 - If a NE version is selected in a certain NE type node, all the NEs of this version are displayed in the NE list in the **NE View** window in the right pane.
- 3 Optional: To locate a specific NE, click Find in the NE View window in the right pane.
- 4 Select one or multiple records from the NE list in the **NE View** window in the right pane, rightclick, and then choose **Recover** or click **Recover** in the lower pane.

You can restore the NE data for only one or multiple NEs of the same type at a time.

5 In the dialog box that is displayed, set the parameters related to restoring the NE data immediately.

- The activation types are **No Reboot** and **With Service Interruption**.
 - No Reboot: Start the recover operation without rebooting the NE.
 - With Service Interruption: If the operation is successful, the service of the selected NE(s) is interrupted.
 - The activation types of the SRG devices are No Reboot, Immediate Reboot and Scheduled Reboot With Service Interruption.
- To restore the data for multiple NEs of the same type, click **Same as first Activate Type** in the upper right corner of the **Recover** dialog box. In this manner, you can configure multiple NEs with the same activation type at a time rather than restore the NE data one by one.
- 6 Click Start to restore the history backup data of the selected NE.
- 7 In the Operation Confirmation dialog box, click Yes.
- 8 In the **Operation Status** column of the NE list, the restoring process and result are displayed.

----End

Related Commands

То	Run the Command	In
Load the configuratio n file	load configuration	Privilege mode
Load the database file	load data	Privilege mode
A Acronyms and Abbreviations

The following table describes the acronyms and abbreviations used in the ONU Configuration Guide.

Α	
AAA	Authentication, Authorization and Accounting
AAL1	ATM Adaptation Layer Type 1
AAL5	ATM Adaptation Layer Type 5
ABR	Available Bit Rate
ADSL	Asymmetric Digital Subscriber Line
ANSI	American National Standard Institute
ATM	Asynchronous Transfer Mode
ATU-C	ADSL Transceiver Unit, Central office end
ATU-R	ADSL Transceiver Unit, Remote end

B

BRAS	Broadband Remote Access Server
BRA	Basic Rate Access
BRI	Basic Rate Interface

C CAR Committed Access Rate CAS Channel Associated Signaling CBR Constant Bit Rate CES Circuit Emulation Service

CDVT	Cell Delay Variation Tolerance
CLP	Cell Loss Priority
CLR	Cell Loss Rate
CS	Convergence Sub layer
СТС	Common Transmit Clock
СТД	Cell Transfer Delay
D	
DCE	Data Communications Equipment
DDN	Digital Data Network
DSLAM	Digital Subscriber Line Access Multiplexer
DTE	Digital Terminal Equipment
Ε	
EMU	Environment Monitor Unit
EPD	Early Packet Discard
ESC	Environment Supervision Circuit
F	
FE	Far End
FEBE	Far End Bit Error
FR	Frame Relay
FTP	File Transfer Protocol
G	
GMII	Gigabit Media Independent Interface
Н	
HDLC	Highspeed Data link Control
HEC	Header Error Control

IAD	Integrated Access Device
ICMP	Internet Control Message Protocol
IMA	Inverse Multiplexing over ATM
IPoA	Internet Protocols Over ATM
ISDN	Integrated Service Digital Network
ISP	Internet Service Provider
IWF	Inter working function

τΑΝ

LAN	Local Area Network
LOF	Loss Of Frame
LOS	Loss Of Signal

Μ

L

Media Service Access
Media Access Control
Maximum Burst Size
Management Information Base
Main Multiplexer Card
Maximum Transmission Unit

Ν

NE	Network Element
NMS	Network Management Station
NNI	Network Node Interface
nrt-VBR	non-real time Variable Bit Rate

0

OAM	Operations And Maintenance
OC-3	Optical Carrier Level 3
OLT	Optical Line Terminal
ONU	Optical Network Unit

Р	
PBX	Private Branch Exchange
РСМ	Pulse Code Modulation
PCR	Peak Cell Rate
POTS	Plain Old Telephone Service
PPD	Partial Packet Discard
PPP	Point-to-Point Protocol
PPPoE	PPP Over Ethernet
PRA	Primary Rate Access
PRI	Primary Rate Interface
PSTN	Public Switched Telephone Network
PVC	Permanent Virtual Connection
PVP	Permanent Virtual Path
Q	
QoS	Quality of Service
R	
RADIUS	Remote Authentication Dial In User Service
RTU	Remote Terminal Unit
rt-VBR	real time Variable Bit Rate
S	
SAR	Segmentation And Reassembly
SCR	Sustainable Cell Rate
SDH	Synchronous Digital Hierarchy
SNMP	Simple Network Management Protocol
SRA	Seamless Rate Adaptive
STM-1	Synchronous Transmission Module Data Rates:155.52Mbit/s
STM-4	Synchronous Transmission Module Data Rates:622.08Mbit/s
STS-3	Synchronous Transport Signal Level 3

Τ	
TDM	Time Division Multiplex
TFTP	Trivial File Transfer Protocol
U	
UBR	Unspecified Bit Rate
UDT	Unstructured Data Transfer
UNI	User Network Interface
UPC	Usage Parameter Control
UTOPIA	Universal Test&Operations PHY Interface for ATM
V	
VBR	Variable Bit Rate
VCI	Virtual Channel Identifier
VCL	Virtual Channel Link
VLAN	Virtual Local Area Network
VPDN	Virtual Private Data Network
VPI	Virtual Path Identifier