

GPON OLT CLI User Manual

V2.1

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1. Connect OLT

There are 3 ways to connect and manage the OLT

- 1) Console interface
- 2) Outband management interface, login through telnet or ssh protocol
- 3) Inband management interface, login through telnet or ssh protocol

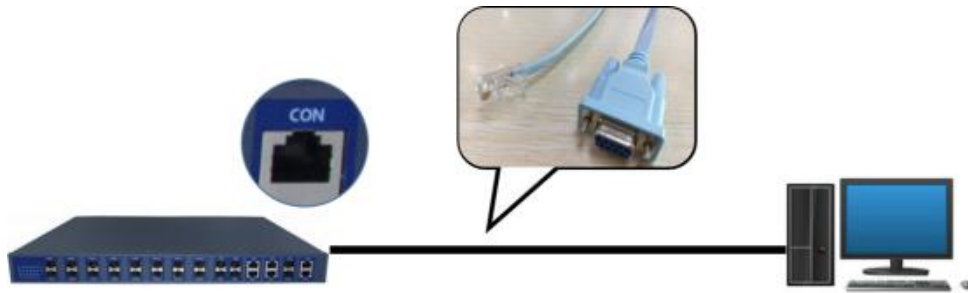
The default root account for logging in above three ways:

- Default user name: root
- Default password: 123456

You can create other management accounts after logging in. For details, please refer to the OLT Account Management section.

1.1. Console Interface

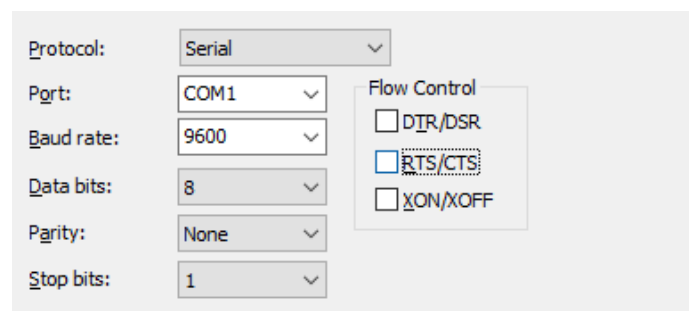
- 1) As shown in the picture below, use the RS232 to RJ45 cable (this cable is provided with the OLT) to connect the console interface of the OLT to the serial port of the computer.



Picture 1 Though console interface connect OLT

[Note]: Some computers do not have a serial port and need to use USB to RS232.

- 2) Open the terminal tools on the computer, such as PuTTY, Xshell, SecureCRT, etc., create a serial connection, the parameters are as follows,



Picture 2 Parameter settings for serial connection

- 3) Enter the account password to log in

1.2. Outband Management Interface

- 1) As shown below, use cable to connect with manage interface of OLT



- 2) Use the telnet client to access the OLT's out-of-band management IP on the computer. The default management IP is 192.168.0.100.

1.3. Inband Management Interface

- 1) As the shown below, use cable to connect with GE/XGE interface of OLT (this doc. use GE1 as an example)



- 2) Configure the in-band management IP of the OLT

```
OLT(config)# interface vlan 100
OLT(config-if-vlan-100)# ip address 10.10.10.100 255.255.255.0
OLT(config-if-vlan-100)# exit
OLT(config-if-vlan-100)# port ge 1 untagged
OLT(config-if-ge-0/1)# port default-vlan 100
```

The VLAN value is adjusted according to the actual situation.

2. CLI Basis Configuration

2.1.Command View

OLT provide command view as shown in table 1

TABLE 1 COMMAND VIEW

View	Prompt	Enter Command
View	OLT>	
Enable view\privileged mode	OLT#	Enter the enable command from the view view to enter
System view	OLT(system)#	Enter the system command from the enable view or the config view.
Config view	OLT(config)#	Enter configure from the enable view to enter
XGE interface view	OLT(config-if-xge-0/1)#	Enter interface xge x in the config view or several other interface views.
GE interface view	OLT(config-if-ge-0/1)#	Enter interface ge x in the config view or several other interface views.
GPON interface view	OLT(config-if-gpon-olt_0/1)#	You can enter interface gpon-olt x in the config view or several other interface views.
ONU interface view	OLT(config-if-gpon-onu_0/1:1)#	You can enter interface gpon-onu x in the config view or several other interface views.
Vlan view	OLT(config-if-vlan-100)#	You can enter interface vlan x in the config view.
Acl view	OLT(config-acl-base-1)#	You can enter acl in the config view.
Btv view	OLT(config-btv)#	You can enter btv in the config view.

2.2. Command Input

- 1) Enter the command, you can use the Tab key to complete the command. When the command is not used clearly, is it available? Key to see the command prompt help.
- 2) Use the ↑ and ↓ keys to scroll through history commands
- 3) When you log in via telnet, if no man-machine command is entered for a certain period of time, the connection with the system will be lost.

2.3. Terminal Interface Command

2.3.1. Help Command

Command:

help

View:

View view、enable view、system view、config view ect.,

Parameters:

None

Descriptions:

Terminal help command, introduced the usage of “?”

Examples:

```
(config)# help
OLT VTY provides advanced help feature. When you need help,
anytime at the command line please press '?'.
If nothing matches, the help list will be empty and you must backup
until entering a '?' shows the available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a
command argument (e.g. 'show ?') and describes each possible
argument.
2. Partial help is provided when an abbreviated argument is entered
and you want to know what arguments match the input
(e.g. 'show me?!')
```

2.3.2. View History Command

Command:

show history

View:

View view、enable view、config view ect.,

Parameters:

None

Descriptions:

View the history command entered.

Examples:

```
OLT(config)# show history
enable
exec-timeout 0
configure
```

```

exit
show history
configure
show history
interface gpon-olt 0/1
interface gpon-onu 0/1:1
exit
interface ge 0/1
exit

```

2.3.3. View Connected Host

Command:

who

View:

View view、 enable view

Parameters:

None

Descriptions:

Displays all terminal and host IP addresses currently connected.

Examples:

```

OLT# who
vty[17] connected from 192.168.0.116.

```

2.3.4. Configure Terminal Protection Timeout

Command:

- 1) **exec-timeout {TIME}**
- 2) **no exec-timeout**

View:

Enable view

Parameters:

- **TIME:** Timeout, in minutes, range 0-35791

Descriptions:

Configure terminal protect timeout period. When the connection is automatically disconnected after the time has elapsed, 0 means no timeout.

no exec-timeout: Restore default terminal protect timeout period. The default value is 10 minutes.

Examples:

```

OLT# exec-timeout 20

```

2.4. View And View Switching

2.4.1. Enter Config View

Command:

configure

View:

Enable view

Parameters:

None

Descriptions:

Enter the config view from the enable view.

Examples:

```
OLT# configure
OLT(config)#
```

2.4.2. Enter System View

Command:

system

View:

Enable view、config view

Parameters:

None

Descriptions:

Enter system view

Examples:

```
OLT(config)#system
OLT(system)#

OLT#system
OLT(system)#
```

2.4.3. Enter Enable View

Command:

enable

View:

View view

Parameters:

None

Descriptions:

Enter the enable view from the view view.

Examples:

```
OLT> enable
OLT#
```


2.4.4. Exit Enable View

Command:

disable

View:

Enable view

Parameters:

None

Descriptions:

You can use the disable command to exit from the enable view to the view show. When the user leaves the terminal for a long time, you should run the disable command to exit to the view show, or execute the exit command to exit the enable view to prevent unauthorized users from intruding.

Examples:

```
OLT# disable
OLT>
```

2.4.5. Return to Previous View

Command:

exit

View:

All views

Parameters:

None

Descriptions:

The user exits from the current view to the upper-level view using the exit command. If the command is entered in the normal user view or the privileged user view (enable), the re-login screen is displayed or broken.

Examples:

```
OLT(config)# exit
OLT#
```

2.4.6. Return to View

Command:

end

View:

All views except view view

Parameters:

None

Descriptions:

Exit the current view and return to the view view. The difference between end and exit is: no matter in any view, the end command exits to the view view. Exit is exited to the previous view.

Examples:

```
OLT(config-if-ge-0/1)# end
OLT>
```

2.4.7. Enter ge/xge/gpon/onu View

Command:

- 1) interface ge {INTERFACE_NUM}
- 2) interface xge {INTERFACE_NUM}
- 3) interface gpon-olt {INTERFACE_NUM}
- 4) interface gpon-onu {INTERFACE_NUM}

View:

Config view、ge view、pon view、xe view 和 onu view

Parameters:

- INTERFACE_NUM:
 - 1) For the GE interface, the shape is 0/1-4;
 - 2) For the XGE interface, the shape is 0/1-2;
 - 3) For the GPON interface, the shape is 0/1-16;
 - 4) For the ONU interface, the shape is 0/1-16:0-127, Indicates the first ONUs under the first few PON ports of the 0th slot, such as 0/1:31;

Descriptions:

Switch to the interface view corresponding to the command in the config view and several interface views.

Examples:

```
OLT(config)# interface ge 0/1
OLT(config)# interface gpon-olt 0/1
OLT(config-if-gpon-olt_0/1)# interface gpon-onu 0/1:1
OLT(config-if-gpon-onu_0/1:1)#
```

3. OLT System Management

3.1. OLT Device Management

3.1.1. View OLT Version

Command:

show version buildtime

View:

Enable view、 config view、 system view

Parameters:

None

Descriptions:

View OLT software version information

Examples:

```
OLT(system)# show version buildtime
-----
Product Name      : GPON-OLT-16P
App Version       : V101R024N190924
App BuildTime     : 2019-09-24 21:46:16
FileSystem Version : T16V1.0.1
FileSystem BuildTime : 2019-07-26 16:42:36
-----
```

3.1.2. View OLT Device SN

Command:

show dev_sn

View:

Enable view、 config view

Parameters:

None

Descriptions:

Display device SN of OLT.

Examples:

```
OLT(config)# show dev_sn
-----
Serial Number     : SDTOLT1620190002
```

3.1.3. Configure Host Name

Command:

- 1) hostname {HOSTNAME}
- 2) no hostname

View:

Config view

Parameters:

HOSTNAME: host name

Descriptions:

Configure system name, No command restores the default host name, different models with different default value

Examples:

```
OLT(config)# hostname GPON16
GPON16 (config)# no hostname
OLT(config)#
```

3.1.4. Reboot OLT

Command:

reboot

View:

Enable view、systemview、config view

Parameters:

None

Descriptions:

Restart the device, after entering reboot, you will be prompted to restart, enter y and press Enter to restart.

Examples:

```
OLT(system)# reboot
WARNING: System will reboot!! Continue? (y/n) y
```

3.1.5. Upgrade OLT

Command:

upgrade app {FILENAME}

View:

System view

Parameters:

- **FILENAME:** the name of upgrade file app's file name

Descriptions:

Upgrade OLT app software

The app file upgraded and used here needs to be transferred from the computer to the /tmp directory of the OLT through the ftp protocol.

[Note] This command only upgrades the OLT app and does not support upgrading the kernel and file system.

Examples:

First use the ftp command download the gpon16_app file to the OLT

```
OLT(system)# ftp get 192.168.0.116 admin 123 gpon16_app gpon16_app
```

```
admin login successful
```

```
Getting gpon16_app from 192.168.0.116 get over!
```

Upgrade OLT

```
OLT(system)# upgrade app gpon16_app
```

3.2. OLT Configuration Management

3.2.1. View Current Configuration

Command:

```
show running-config
```

View:

config、ge/xge、gpon、onu ect.

Parameters:

None

Descriptions:

View current configuration

Examples:

```
OLT(config)# show running-config
```

```
Current configuration:
```

```
!
```

```
!
```

```
![VLAN configuration]
```

```
!
```

```
!
```

```
![dba-profile]
```

```
!
```

```
!
```

```

![onu-line-profile]
onu-line-profile profile-id 0 profile-name Def_line-profile_0
tcont 1 dba-profile-id 0
commit
exit
!
!
![onu-service-profile]
onu-service-profile profile-id 0 profile-name Def_srv-profile_0
port-num eth adaptive
port-num pots adaptive
port-num veip adaptive
commit
exit
!
!
![interface-gpon-olt]
interface gpon-olt 0/1
exit
interface gpon-olt 0/2
exit
interface gpon-olt 0/3
exit

```

3.2.2. Save Configuration

Command:

save

View:

enable、system、config ect.

Parameters:

None

Descriptions:

Save the current configuration.

Examples:

```
OLT(config)# save
```

3.2.1. Back Up Configuration

Command:

backup config-file to tftp {SERVER_IP}

View:

system、 config ect.

Parameters:

- **SERVER_IP**: tftp server IP

Descriptions:

Back up the olt configuration file to the PC through the tftp protocol. The PC needs to open the tftp server.

Examples:

Back up the olt configuration file to the PC with the IP address 192.168.0.116 through the tftp protocol.

```
OLT(system)# backup config-file to tftp 192.168.0.116
Success.
```

3.2.2. Import Configuration

Command:

load config-file {CONFIG_FILENAME} tftp {SERVER_IP}

View:

system、 config ect.

Parameters:

- **CONFIG_FILENAME**: SERVER_IP: tftp server IP

Descriptions:

Back up the olt configuration file to the PC through the tftp protocol. The PC needs to open the tftp server.

Examples:

Back up the olt configuration file to the PC with the IP address 192.168.0.116 through the tftp protocol.

```
OLT(system)# backup config-file to tftp 192.168.0.116
Success.
```

3.2.3. Restore Factory Configuration

Command:

erase startup-config

View:

system、 config ect.

Parameters:

None

Descriptions:

Clear the boot configuration and restore the factory configuration.

Examples:

```
OLT(config)# erase startup-config
```

3.3. OLT Account Management

3.3.1. Add Account

Command:

```
user add {USER-NAME} { USER-PASSWORD} {admin|common|operator} reenter
{REENTER_TIMES} [USERINFO]
```

View:

Config view

Parameters:

- USER-NAME, 4-16 characters
PASSWORD, 5-16 characters
characters admin|common|operator
- REENTER_TIMES, The number of times users log in at the same time, ranging from 1 to 8.
- USERINFO, User instructions

Descriptions:

Add an account and set account related information

Examples:

Add an account, the user name is test, the password is 12345, the user group is admin, and 5 terminals are allowed to log in at the same time. The user description information is test_user.

```
OLT(config)# user add test 12345 admin reenter 5 test_user
```

3.3.2. Delete Account

Command:

```
user delete {USER-NAME}
```

View:

Config view

Parameters:

- USER-NAME, User name, 4-16 characters

Descriptions:

Delete the account specified by user name

Delete account test


```
OLT(config)# user delete test
Info: Delete user test success!
```

3.3.3. Modify Account Password

Command:

- 1) user password {OLD-PASSWORD} {NEW-PASSWORD}
- 2) user password [USER-NAME] {OLD-PASSWORD} {NEW-PASSWORD}

View:

Config view

Parameters:

- The USER-NAME of the account need to be modified. If the username is not specified, change the password of the currently logged in user.,
- OLD-PASSWORD,account old password
- NEW-PASSWORD,account new password

Descriptions:

Change the password of the account specified by the username.

Examples:

```
User test old password is test123, change it to 123456
OLT(config)# user password test test123 123456
```

3.3.4. Force Users Offline

Command:

```
user offline {USER-NAME}
```

View:

Config view

Parameters:

- USER-NAME,account user name

Descriptions:

Force the account specified by the user name to go offline.

Examples:

```
Force user test offline.
OLT(config)# user offline test
```

3.3.5. Save Account Configuration

Command:

user save

View:

Config view

Parameters:

None

Descriptions:

Save account's configuration

Examples:

```
OLT(config)# user save
```

3.4. OLT Time Management

3.4.1. Configure System Time

Command:

```
time {YEAR/MONTH/DAY-HOUR:MINUTE:SECOND}
```

View:

Enable View 、 system view 、 config view

Parameters:

- YEAR: Value 2000-2099.
- MONTH: Value 1-12.
- DAY: Value 1-31
- HOUR: Value 0-23
- MINUTE: Value 0-59
- SECOND: Value 0-59

Descriptions:

Configure equipment time

Examples:

```
OLT(system)# time 2018/10/10-10:10:10
```

3.4.2. View System Time

Command:

```
show system time
```

View:

System view

Parameters:

None

Descriptions:

Display device time, time zone information.

Examples:

```
OLT(system)# show system-time
Wed Oct 10 10:16:19 UTC 2018
```

3.5. NTP Management

3.5.1. Enable/Disable NTP

Command:

`ntp client {enable | disable}`

View:

`config view`

Parameters:

- **enable:** Enable the NTP function.
- **disable:** Disable the NTP function.

Descriptions:

Configure to enable or disable the NTP function.

Examples:

Enable NTP

```
OLT(config)# ntp client enable
```

3.5.2. Configure NTP Synchronization Interval

Command:

`ntp client interval {TIME_INTERVAL}`

View:

`Config view`

Parameters:

- **TIME_INTERVAL:** Synchronization time interval, ranging from 300 to 86400

Descriptions:

Configure the NTP synchronization time interval

Examples:

Configure the NTP synchronization time interval to 300 seconds.

```
OLT(config)# ntp client interval 300
```

3.5.3. Configure NTP Server Address

Command:

`ntp server {IP-ADDRESS }`

View:

`Config view`

Parameters:

- **IP-ADRESS:** NTP server IP address

Descriptions:

Configure the NTP server IP address.

Examples:

\$Configure the IP address of the NTP server is 192.168.10.190

```
OLT(config)# ntp server ip-address 192.168.10.190
```

3.5.4. View NTP Configuration

Command:

show ntp info

View:

Config view

Parameters:

None

Descriptions:

View the current NTP configuration.

Examples:

```
OLT(config)# show ntp info
ntp client          : Disable
ntp server ip      : 192.168.10.100
ntp client sync interval : 2000
```

3.6. System Configuration Monitor

3.6.1. View CPU Usage

Command:

show cpu rate

View:

System view

Parameters:

None

Descriptions:

Show cpu's occupation rate.

Examples:

```
OLT(system)# show cpu rate
Cpu Id   Usage
-----
1        17.61%
```

3.6.2. View Memory Usage

Command:

show ddr rate

View:

System view

Parameters:

None

Descriptions:

Query memory usage rate.

Examples:

```
OLT(system)# show ddr rate
  Type      Usage
-----
  Memory    63.60%
```

3.6.3. View Memory Size

Command:

show memory statistics

View:

System view

Parameters:

None

Descriptions:

Query memory usage status.

Examples:

```
OLT(system)# show memory statistics
  Storage Type  Storage Size  Storage Used
-----
  Memory        256860 kB    163444 kB
```

3.6.4. View System Workspace Information

Command:

show work-space

View:

System view

Parameters:

None

Descriptions:

Query system workspace information

Examples:

```
OLT(system)# show work-space
  Work Space: Active (Expected)
  |-Product Name: OLT
  |-Software Version: V100R001D180322
  |-Linux Kernel Version: 3.6.5
  |-DBA: G.988
```

3.7.Environmental Monitor and Fan Control

3.7.1.View Temperature

Command:

show temperature status

View:

System view

Parameters:

None

Descriptions:

Query the temperature of the board.

Examples:

```
OLT(system)# show temperature status
Temperature1: 49.0 °C
Temperature2: 64.0 °C
```

3.7.2.Configure Temperature Threshold

Command:

temperature limit high {HIGH_VALUE} low {LOW_VALUE}

View:

System view

Parameters:

- **HIGH_VALUE:** The temperature reaches this value and the fan rotates at full speed, the range is 65-100.
- **LOW_VALUE:** The temperature drops to this value and the fan stops rotating. The range is 0-30.

Descriptions:

Configure the temperature threshold for automatic fan start/stop/full speed rotation

Examples:

```
OLT(system)# temperature limit high 70 low 20
```

3.7.3.Enable/Disable Fan

Command:

fan {start|stop} {fan1|fan2|fan3|all}

View:

System view

Parameters:

start: Turn on

stop: Turn off fan

fan1|fan2|fan3|all: Select a fan or all fans

Descriptions:

Turn on or off fan 1/fan 2/fan 3/all fan rotation function

Examples:

```
OLT(system)# fan start fan1
OLT(system)# fan start fan2
OLT(system)# fan start all
OLT(system)# fan stop fan1
OLT(system)# fan stop fan2
```

3.7.4. Configure Fan Speed

Command:

fan ctrl {fan|fan2|fan3|all} {0%|25%|50%|75%|100%}

View:

System view

Parameters:

- **0%|25%|50%|75%|100%:**
- **fan1|fan2|fan3|all:** Select a fan or all fans

Descriptions:

Control fan 1 / fan 2 / fan 3 / all fan speed

Examples:

```
OLT(system)# fan ctrl fan1 100%
OLT(system)# fan ctrl fan2 100%
OLT(system)# fan ctrl fan3 100%
OLT(system)# fan ctrl all 100%
```

3.8. Network Tool Related Configuration

3.8.1. Ping Diagnosis

Command:

ping {IPADDRESS}

View:

Config view、 system view

Parameters:

- **IPADDRESS:** IP address of server, such as A.B.C.D

Descriptions:

ping Command, use to detect the other party's IP is reachable or not.

Examples:

```
OLT(system)# ping 192.168.1.57
PING 192.168.1.57(192.168.1.57): 56 data bytes.
64 byte from 192.168.1.57: icmp_seq=1 ttl=64 rtt=0.595 ms
64 byte from 192.168.1.57: icmp_seq=2 ttl=64 rtt=0.296 ms
64 byte from 192.168.1.57: icmp_seq=3 ttl=64 rtt=0.299 ms
64 byte from 192.168.1.57: icmp_seq=4 ttl=64 rtt=0.315 ms
-----PING statistics-----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 0.343/0.419/0.503 ms
```

3.8.2. Telnet Client

Command:

telnet {SERVER_IP} [PORT]

View:

System view

Parameters:

- **SERVER_IP:** telnet IP address of server, such as A.B.C.D
- **PORT :** telnet The port number of the server.

Descriptions:

Remote login to the telnet server.

Examples:

```
OLT(system)# telnet 192.168.0.117
```

3.8.3. FTP Get

Command:

ftp get {IPADDRESS} {USERNAME} {PASSWORD} {REMOTE_NAME}
[LOCAL_NAME]

View:

System view

Parameters:

- **IPADDRESS:** FTP IP address of server, such as A.B.C.D

- **USERNAME:** FTP User name
- **PASSWORD:** FTP Password
- **REMOTE_NAME:** The name of the file to be downloaded.
- **LOCAL_NAME (optional) :** The name of the file stored after downloading.
The file is located in the /tmp/ path.

Descriptions:

ftp Client command, use to download files from the ftp server. The downloaded files are saved in the /tmp/ path.

Examples:

Download the file test.txt on the ftp server 192.168.1.126 to the OLT and save it as gpon.txt.

```
OLT(system)# ftp get 192.168.1.126 admin 12345 test.txt gpon.txt
```

3.8.4. FTP Put

Command:

```
ftp put {IPADDRESS} {USERNAME} {PASSWORD} {LOCAL_NAME}
```

View:

System view

Parameters:

- **IPADDRESS:** FTP IP address of server, such as A.B.C.D
- **USERNAME:** FTP User name
- **PASSWORD:** FTP Password
- **LOCAL_NAME:** The name of the file to be uploaded. The file must be located in the /tmp/ path.

Descriptions:

FTP Client command for uploading.

Examples:

Upload the gpon.txt file in the /tmp/ directory to the FTP server.

```
OLT(system)# ftp put 192.168.1.126 admin 12345 gpon.txt
```

3.8.5. Tftp Get

Command:

```
tftp get {NAME} {IPADDRESS}
```

View:

System view

Parameters:

- IPADDRESS:** TFTP IP address of server, such as A.B.C.D
- NAME:** The name of the file to be downloaded, downloading to the current directory.

Descriptions:

TFTP The client command, it is used to download the file. The file is downloaded to the current directory of the OLT. The current directory is viewed in the system view using `pwd`.

Examples:

```
OLT(system)# tftp get ts 192.168.1.126
```

3.8.6. Tftp Put

Command:

```
tftp put {NAME} {IPADDRESS}
```

View:

System view

Parameters:

- **IPADDRESS**: TFTP IP address of server, such as A.B.C.D
- **NAME**: The name of the file to be uploaded, upload the file in the current directory. The current directory is viewed in the system view using `pwd`.

Descriptions:

TFTP Client command for uploading.

Examples:

```
OLT(system)# tftp put ts 192.168.1.126
```

4. Port Management

4.1. Port Attribute

4.1.1. View Port Status

Command:

- 1) `show port state all`
- 2) `show port state { ge | xge | gpon } all`
- 3) `show port state gpon-olt all`

View:

Config view

Parameters:

- **ge | xge | gpon** : Port type

Descriptions:

View the status information of the port.
`show port state gpon all` : the status of the switch port corresponding to the gpon is displayed.
`show port state gpon-olt all` : Viewing the status related to pon.

Examples:

View the status of all ge ports

```
OLT(config)# show port state ge all
OLT (config)# show port state ge all
Port Speed Auto Duplex Flow Mtu State Status
      Neg      ctrl
-----
GE01 - yes full on 12284 enable down
GE02 - yes full on 12284 enable down
GE03 - yes full on 12284 enable down
GE04 - yes full on 12284 enable down
```

View all states of gpon-olt

```
OLT(config)# show port state gpon-olt all
-----
PON-ID Admin-State Optical-Module-Status Link-State
-----
0/1 working up up
0/2 working down down
0/3 working down down
0/4 working down down
0/5 working down down
0/6 working down down
0/7 working down down
0/8 working down down
0/9 working down down
0/10 working down down
0/11 working down down
0/12 working down down
0/13 working down down
0/14 working down down
0/15 working down down
0/16 working down down
-----
```

4.1.2. View Port Details

Command:

`show state`

View:

`ge、 xge and gpon view`

Parameters:

None

Descriptions:

View the details of the port.

Examples:

View details of GPON1

```
OLT(config-if-gpon-olt_0/1)# show state
```

```
-----
```

Attribute	Value
Port Name	: PON01
Port State	: Enabled
Medium	: None
Link speed	: Force speed(- Mbps full)
Flow ctrl	: ON
MTU	: 12284
Link status	: DOWN

```
-----
```

Port vlan configuration:

```
Port type      : hybrid
Port default vlan : 1
```

Port mirror configuration:

```
Mirror type   : All traffic
Destination port: (null)
```

```
-----
```

4.1.3.View Port Statistics

Command:

show statistic

View:

ge、 xge and gpon view

Parameters:

None

Descriptions:

View traffic packet statistics on GPON ports

Examples:

View statistics for GE1 packets

```
OLT(config-if-ge-0/1)# show statistic
```

```
-----
```

```

port : GE01
-----
IfInOctets          : 0
IfInUcastPkts      : 0
IfInNUcastPkts     : 0
IfInDiscards       : 0
IfInErrors         : 0
IfInUnknownProtos  : 0
IfOutOctets        : 0
IfOutUcastPkts     : 0
IfOutNUcastPkts    : 0
IfOutDiscards      : 0
IfOutErrors        : 0
IfOutQLen          : 0
IpInReceives       : 0
IpInHdrErrors      : 0
IpForwDatagrams    : 0
IpInDiscards       : 0
Dot1dBasePortDelayExceededDiscards : 0
Dot1dBasePortMtuExceededDiscards   : 0
Dot1dTpPortInFrames : 0
Dot1dTpPortOutFrames : 0
Dot1dPortInDiscards : 0
EtherStatsDropEvents : 0
EtherStatsMulticastPkts : 0
EtherStatsBroadcastPkts : 0
EtherStatsUndersizePkts : 0
EtherStatsFragments : 0
EtherStatsPkts64Octets : 0
EtherStatsPkts65to127Octets : 0
EtherStatsPkts128to255Octets : 0
EtherStatsPkts256to511Octets : 0
EtherStatsPkts512to1023Octets : 0
EtherStatsPkts1024to1518Octets : 0
EtherStatsOversizePkts : 0
EtherRxOversizePkts : 0
EtherTxOversizePkts : 0
EtherStatsJabbers : 0
EtherStatsOctets : 0
EtherStatsPkts : 0
EtherStatsCollisions : 0

```

```

EtherStatsCRCAlignErrors      :    0
EtherStatsTXNoErrors          :    0
EtherStatsRXNoErrors          :    0
IfInBroadcastPkts             :    0
IfInMulticastPkts             :    0
IfOutBroadcastPkts            :    0
IfOutMulticastPkts            :    0

```

4.1.4. Enable/Disable Port State

Command:

```
port {enable | disable}
```

View:

```
ge、xge、gpon-olt
```

Parameters:

- **enable:** Enable port admin State.
- **disable:** disable port admin State.

Descriptions:

None

Examples:

Set ge 1 to disable

```
OLT(config)#interface ge 0/1
```

```
OLT(config-if-ge-0/1)# port disable
```

flow

4.2. Speed And Duplex

4.2.1. Speed

Command:

```
port speed {10 | 100 | 1000}
```

View:

```
ge、xge
```

Parameters:

- **10 | 100 | 1000:** 10M, 100M, 1000M.

Descriptions:

None

Examples:

```
Set ge 1 speed 100M
OLT(config)#interface ge 0/1
OLT(config-if-ge-0/1)# port speed 100
```

4.2.2. Duplex

Command:

```
port duplex {full | half}
```

View:

```
ge、 xge
```

Parameters:

- full: full duplex.
- half: half duplex.

Descriptions:

None

Examples:

```
Set ge 1 to full duplex
OLT(config)#interface ge 0/1
OLT(config-if-ge-0/1)# port duplex full
```

4.2.3. Auto Negotiation

Command:

```
port auto-negotiation {enable | disable}
```

View:

```
ge、 xge
```

Parameters:

- enable: Enable port auto negotiation.
- disable: disable port auto negotiation.

Descriptions:

None

Examples:

```
Set ge 1 to disable auto negotiatioin
OLT(config)#interface ge 0/1
OLT(config-if-ge-0/1)# port auto-negotiation disable
```


4.2.4. Flow Control

Command:

```
port flow-control {enable | disable }
```

View:

```
ge、 xge
```

Parameters:

- **enable:** enable flow control
- **disable:** disable flow control

Descriptions:

None

Examples:

```
enable ge 1 flow control
OLT(config)#interface ge 0/1
OLT(config-if-ge-0/1)# port flow-control enable
```

4.3. Port Rate Limit

4.3.1. Egress Rate Limit

Command:

- 1) port rate-limit egress {RATE}
- 2) no rate-limit all

View:

```
ge、 xge and gpon view
```

Parameters:

- **RATE:** The limited bandwidth, in Kbps, ranges from 64 to 1000000.

Descriptions:

port rate-limit egress:Used to set the exit speed limit value of the current port.
no rate-limit all: The egress speed limit used to restore the port is the default value, that is, the speed limit.

Examples:

```
Set the outlet speed limit of port GE1 to 10M.
OLT(config-if-ge-0/1)# port rate-limit egress 10000
OLT(config-if-ge-0/1)# show rate-limit
Port  Type  sec(kbps)  burst(kbits)
```

```

GE01 ingress    0    0
GE01 egress    10000  100

```

```
OLT(config-if-ge-0/1)# no rate-limit all
```

```
OLT(config-if-ge-0/1)# show rate-limit
```

```

Port  Type  sec(kbps)  burst(kbits)
GE01 ingress    0    0
GE01 egress    0    0

```

4.3.2. Ingress Rate Limit

Command:

- 1) port rate-limit ingress {RATE}
- 2) no rate-limit all

View:

ge、xge and gpon view

Parameters:

- **RATE:** Limit bandwidth, in Kbps, ranging from 64 to 1000000.

Descriptions:

port rate-limit ingress : Used to set the import speed limit value of the current port.

no rate-limit all : The import speed limit used to restore the port is the default value, that is, the speed limit.

Examples:

Set the port import speed limit of the current port to 10M.

```
OLT(config-if-ge-1/1)# port rate-limit ingress 10000
```

```
OLT(config-if-ge-0/1)# show rate-limit
```

```

Port  Type  sec(kbps)  burst(kbits)
GE01 ingress    10000  100
GE01 egress    0    0

```

```
OLT(config-if-ge-1/1)# no rate-limit all
```

```
OLT(config-if-ge-1/1)# show rate-limit
```

```

Port  Type  sec(kbps)  burst(kbits)
GE01 ingress    0    0
GE01 egress    0    0

```

4.3.3. View Port Rate Limit

Command:

show rate-limit

View:

ge、xge and gpon view

Parameters:

None

Descriptions:

Displays the current and inbound speed limits of the interface.

Examples:

```
OLT(config-if-ge-0/1)# show rate-limit
Port  Type  sec(kbps)  burst(kbits)
GE01  ingress  0          0
GE01  egress   0          0
```

4.4. Storm Control

4.4.1. Broadcast Storm Control

Command:

port storm-control broadcast pps {PPS_VALUE}

View:

ge、xge 和 gpon view

- **PPS_VALUE**:Limit the broadcast packet traffic received by the current port. The unit is the number of packets per second, ranging from 2-33554368.

Descriptions:

port storm-control broadcast pps :The command is used to limit the broadcast packet traffic received by the port.

Examples:

Set the current port to receive up to 1000 broadcast packets per second

```
OLT(config-if-ge-0/3)# port storm-control broadcast pps 1000
```

4.4.2. Multicast Storm Control

Command:

port storm-control multicast pps {PPS_VALUE}

View:

ge、xge and gpon view

Parameters:

- **PPS_VALUE**: Limit the traffic of multicast packets received by the current port. The unit is the number of packets per second. The range of GE and GPON interfaces is 2-33554368.

Descriptions:

port storm-control multicast pps :The command is used to limit the multicast packet traffic received by the port.

Examples:

```
Set the current port to receive up to 10,000 multicast packets per second
OLT(config-if-ge-0/3)# port storm-control multicast pps 10000
```

4.4.3.DLF Storm Control

Command:

```
port storm-control unicast pps {PPS_VALUE}
```

View:

ge、**xge** and **gpon** view

Parameters:

- **PPS_VALUE**:Limit the unknown unicast packet (DLF) traffic received of the current port. The unit is the number of packets per second, ranging from 2 to 33554368.

Descriptions:

port storm-control unicast pps : The port storm-control unicast pps command is used to limit the unknown unicast packet traffic received by the port.

Examples:

```
Set the current port to receive up to 1000 unknown unicast packets per second.
OLT(config-if-ge-0/3)# port storm-control unicast pps 1000
```

4.4.4.View Storm Control

Command:

```
show strom-control
```

View:

ge、**xge** and **gpon** view

Parameters:

None

Descriptions:

Displays the current interface storm suppression information.

Examples:

```
Display the status and configuration information of the current interface.
OLT(config-ge-0/1)# show storm-control
Port GE01 storm control:
Bulticast pps: 0
Multicast pps: 0
```

```
Unicast pps: 0
```

4.5. Port Mirroring

4.5.1. Port Mirror

Command:

```
mirror dst-port ge {PORT-ID} {all| egress| ingress}
```

View:

```
ge、 pon and xge view
```

Descriptions:

None

Parameters:

- **PORT-ID:** Port mirroring port ID, in the range of 1-4.
- **ingress:** Monitor the packets received by the port.
- **egress:** Monitor packets sent by the port (outbound port)
- **all:** Monitor both messages in both directions.

Examples:

Add the monitored port PON 4 to port mirroring group 1, monitoring the received packets.

```
OLT(config-if-ge-0/4)# mirror dst-port ge 2 egress
```

4.5.2. View Port Mirror

Command:

```
show state
```

View:

```
ge、 pon and xge view
```

Descriptions:

None

Parameters:

None

Examples:

```
OLT(config-if-ge-0/4)# show state -----
Attribute          Value
-----
Port Name          : GE01
Port State         : Enabled
```

```

Medium      : Copper
Link speed  : Auto-negotiation(- Mbps -)
Flow ctrl   : ON
MTU         : 12284
Link status : DOWN

```

Port vlan configuration:

```

Port type      : hybrid
Port default vlan : 1

```

Port mirror configuration:

```

Mirror type      : Egress
Destination port : GE03

```

4.6. MAC Address Table Management

4.6.1. Add Static Mac

Command:

- 1) `mac address-table static {MAC-ADDRESS} vlan {VLAN-ID} port {ge|xge|gpon} {INTERFACE_NUM}`
- 2) `no mac address-table static {MAC-ADDRESS} vlan {VLAN-ID} port {ge|xge|gpon} {INTERFACE_NUM}`

Parameters:

- **MAC-ADDRESS:** MAC address, expressed as AA:BB:CC:DD:EE:FF
- **ge|xge|gpon:** Port type
- **INTERFACE_NUM:** Port number
- **VLAN-ID:** VLAN ID value in 1-4094.

Descriptions:

`mac address-table static` command use to add a MAC address entry.
`no mac address-table static` command use to delete a MAC address entry.

Examples:

Add a static MAC entry to the PON1 port.

```
OLT(config)#mac address-table static 00:00:3d:09:04:05 vlan 10 port gpon 1
```

Delete the static MAC address entry of VLAN 10 on the PON1 port.

```
OLT(config)#no mac address-table static 00:00:3d:09:04:05 vlan 10 port gpon 1
```

4.6.2. View Mac Table

Command:

- 1) show mac-address all
- 2) show mac-address black-hole
- 3) show mac-address dynamic
- 4) show mac-address static

View:

Config view

Parameters:

None

Descriptions:

- 1) show mac-address all: show all mac-address
- 2) show mac-address black-hole: show black-hole mac-address
- 3) show mac-address dynamic: show dynamic mac-address
- 4) show mac-address static: show static mac-address

Examples:

Display all address entries in the MAC address table.

```
OLT(config)# show mac-address all
```

```
Total mac address learning: 2
```

```
-----
```

MAC	VLAN	Port	MAC-Type
50:7b:9d:44:98:f5	1	GE03	dynamic
08:10:7a:3c:2e:88	1	GE03	dynamic

```
-----
```

4.6.3. Clean Mac Table

Command:

- 1) mac address-table flush all
- 2) mac address-table flush dynamic
- 3) mac address-table flush static
- 4) mac address-table flush black-hole
- 5) mac address-table flush port {ge|xge|gpon} {INTERFACE_NUM}
- 6) mac address-table flush vlan {VLAN-ID} all

View:

Config view

Parameters:

- ge|xge|gpon: port type

- INTERFACE_NUM: port number
- VLAN-ID: VLAN ID value in 1-4094.

Descriptions:

- 1) mac address-table flush all,clean all mac-address
- 2) mac address-table flush dynamic,clean dynamic mac-address
- 3) mac address-table flush static ,clean static mac-address
- 4) mac address-table flush black-hole,clean black-hole mac-address
- 5) mac address-table flush port {ge|xge|gpon} {INTERFACE_NUM},Clear the MAC address entry of the specified port.
- 6) mac address-table flush vlan {VLAN-ID} all,clear the MAC address entry of the specified VLAN.

Examples:

```
Clear the dynamic MAC address learned by the current device.
OLT(config)# mac address-table flush dynamic
```

4.6.4. Configure Aging Time

Command:

- 1) mac address-table age {AGE_TIME}
- 2) no mac address-table age

View:

Config view

Parameters:

- AGE_TIME The aging time of the dynamic entry in the MAC address table is in the range of { 10-1000000 }, in seconds. By default, the aging time is 300s.

Descriptions:

The mac address-table age command is used to set the aging time of dynamic entries in the MAC address table.

Examples:

```
Configure the aging time of dynamic entries in the MAC address table to be 600s.
OLT(config)# mac address-table age 600
```

【Descriptions】

If the aging time is too short, the address will be deleted prematurely. **When olt received the package which send to the deleted mac address**, it will broadcast the packet to all ports in the same VLAN. This unnecessary broadcast will affect the running performance.

If the aging time is too long, the no longer used address will be Long-term existence in the address table, affecting the address table of the Ethernet switch refreshed in time. In this case, when the workstation moves from one port to another, the time delay will occur. By learning the MAC address of added to the MAC address table, aging will be completed in the second cycle of its aging cycle.

4.6.5. View Aging Time

Command:

```
show mac address-table age
```

View:

Config view

Parameters:

None

Descriptions:

Displays the aging time of dynamic entries in the MAC address table.

Examples:

Display the aging time of dynamic entries in the MAC address table.

```
OLT(config)# mac address-table age
MAC address age time(s): 300
```

4.6.6. Configure Mac Limit

Command:

```
mac address-table limit {ge|xge|gpon} {INTERFACE_NUM} {LIMIT_NUM}
```

View:

Config view

Parameters:

- ge|xge|gpon: Port type
- INTERFACE_NUM: Port number
- LIMIT_NUM: mac limit number

Descriptions:

Configure the limit number of port MAC address.

Examples:

Configure the MAC address limit number of the GE1 port as 1000.

```
OLT(config-if-ge-1/3)# mac address-table max-mac-count 1 1000
```

4.6.1. View Mac Limit

Command:

- 1) show mac-address limit {ge|xge|gpon} {INTERFACE_NUM}
- 2) show mac-address limit all

View:

Config view

Parameters:

- ge|xge|gpon: Port type
- INTERFACE_NUM: Port number

Descriptions:

Displays the limit number of port MAC address.

Examples:

```
Display the limit number of MAC address for GE 1
OLT(config-if-ge-1/3)# show mac-address limit 1
Mac address learning limit : 70
```

4.7. Loop Detection

4.7.1. Enable/Disable Loop Detection

Command:

```
loopback {enable| disable}
```

View:

Config view

Parameters:

- **enable:** Enable function of loop detection
- **disable:** Disable function of loop detection

Descriptions:

Turn on/off the function of loop detection.

Examples:

```
OLT(config)# loopback enable
```

4.7.2. Polling Interval.

Command:

```
loopback polling-interval {POLLING_INTERVAL}
```

View:

Config view

Parameters:

- **POLLING_INTERVAL:** Detect the polling interval time of the loop, in seconds, in the range of 1-10.

Descriptions:

Set the polling interval time of loop detection .

Examples:

```
OLT(config)# loopback polling-interval 2
```

4.7.3. Recovery Interval

Command:

```
loopback recovery-interval {RECOVERY_INTERVAL}
```

View:

Config view

Parameters:

RECOVERY_INTERVAL: Renew restore the interval time of port up after the loop port is down detected. The unit is in seconds and the range is 1-6000.

Descriptions:

Renew restore the interval time of port up after set the loop port down detected

Examples:

```
OLT(config)# loopback recovery-interval 60
```

4.7.4. View Loop Detection Configuration

Command:

```
show loopback-info
```

View:

Config view

Parameters:

None

Descriptions:

View loop detection information.

Examples:

```
OLT (config)# show loopback-info
-----
Loopback detection status : Disable
Polling interval(S)      : 1
Recovery interval(S)     : 60
-----
```

5. VLAN Management

5.1. VLAN Configuration

5.1.1. Create/Delete VLAN

Command:

- 1) interface vlan {VLANID} [END_VLANID]
- 2) no vlan {FIRST-ID} [LAST-ID]

View:

Config view

Parameters:

- VLANID、END_VLANID: The range of the VLAN need to be created, ranging from 1 to 4094. If you do not specify END_VLANID, create a VLAN ID and enter its view or enter the view of the VLAN already exists directly .

Descriptions:

Use the vlan command to enter the VLAN view or create a VLAN and enter the view when the VLAN does not exist. This command enables batch create VLANs. no vlan command can be used to delete or delete VLANs in batches.

Examples:

Create VLAN 2, enter VLAN 2 configuration view.

```
OLT(config)# interface vlan 2
OLT(config-vlan-2)#
```

Create VLANs 20 to 30 in batches.

```
OLT(config)# interface vlan 20 30
OLT(config-vlan-{20-30})#
```

5.1.2. View VLAN Configuration

Command:

- 1) show vlan all
- 2) show vlan {VLAN-ID}

View:

vlan、 config view

Parameters:

- VLAN-ID: VLAN number, ranging from 1-4094.

Descriptions:

This command is used to display information about a VLAN.

Examples:

Display information about VLAN 7

```
OLT(config)# show vlan 7
```

Attribute	Value
VLAN ID	: 100
Tagged Ports	: GE01,GE03,GE04
Untagged Ports	:

5.2. Port VLAN Configuration

5.2.1. Configure VLAN Mode

Command:

```
vlan mode {access | trunk | hybrid}
```

View:

```
ge、 xge and gpon view
```

Parameters:

- access | trunk | hybrid : vlan mode

Descriptions:

Set the VLAN mode of the port. The default is hybrid.

Examples:

```
ccOLT(config-if-ge-0/1)# vlan mode access
```

5.2.2. Configure QinQ VLAN

Command:

```
vlan qinq {CVLAN_LIST} svlan {SVLAN_ID} priority {PRI}
```

View:

```
ge、 xge and gpon view
```

Parameters:

- CVLAN_LIST: Cvlan list, multiple vlan separated by ","
- SVLAN_ID: The outer vlan need to be added
- PRI: The outer priority need to be added.

Descriptions:

Add a vlan to the packet in the CVLAN_LIST. The outer vlan value is SVLAN_ID and the priority is PRI.

Examples:

The packet with vlan 100 and 200 on port 1 add to the outer vlan 301, priority is 1.

```
OLT(config-if-ge-0/1)# vlan qinq 100,200 svlan 301 priority 1
```

5.2.3. Configure Translation VLAN

Command:

```
vlan translation {CVLAN_LIST} svlan {SVLAN_ID} priority {PRI}
```

View:

ge、xge and gpon view

Parameters:

- CVLAN_LIST: Cvlan list, multiple vlans are separated by ",";
- SVLAN_ID: The outer vlan to be added
- PRI: The outer priority to be added.

Descriptions:

Convert the vlan of the packet in the CVLAN_LIST to SVLAN_ID, the priority is PRI.

Examples:

```
Convert the packet with vlan 100 and 200 of port 1 to vlan301 with a priority of 1.
OLT(config-if-ge-0/1)# vlan translation 100,200 svlan 301, priority is 1
```

5.2.4. Add Port to VLAN

Command:

- 1) port {gpon | ge | xge} {PORT_LIST} {tagged | untagged}
- 2) no port {gpon | ge | xge} {PORT_LIST}

View:

Vlan view

Parameters:

- ge|xge|gpon: Port type
- PORT_LIST: Port number

Descriptions:

Use the port command to add the specified port to the current VLAN.

port

Use the no port command to remove the specified port from the current VLAN.

no port

Examples:

Add a single member port for the current VLAN

```
OLT(config-vlan-7)# port gpon 4 untagged
```

Add 3-7gpon member ports to the current VLAN.

```
OLT(config-vlan-7)# port gpon 3-7 tagged
```

Remove member ports from the current VLAN

```
OLT(config-vlan-7)# no port gpon 1
```

5.2.5. Configure Default VLAN

Command:

```
port default-vlan {PVID}
```

View:

```
ge、 xge and gpon view
```

Parameters:

- **PVID:** The default VLAN ID, in the range of 1-4094.

Descriptions:

Use the port default-vlan command to configure the default VLAN ID of a port.
port default-vlan

Examples:

Configure PVID of port ge 3 to be 2

```
OLT(config)# interface ge 0/3
OLT(config-if-ge-0/3)#port default-vlan 2
```

【Descriptions】

According to the port type, the PVID has different uses.

For the hybrid port, the entry untagged packet will be tagged with the default tag, using the default PVID;

For transparent ports, untagged packets or packets with cvlan, if do not configure vlan conversion, the packet will be forwarded when vlan is equal to the domain of the PVID

5.2.6. View Port VLAN Configuration

Command:

```
show port vlan
```

View:

```
ge、 xge and gpon view
```

Parameters:

None

Descriptions:

Displays port VLAN information, including port type, port TPID, PVID, default priority, which VLANs belong to, and the entry translation table when the port is a transparent type port.

Examples:

Display VLAN information of GE port 1.

```
OLT(config-if-ge-0/1)# show port vlan
```

```
-----
Port      : GE01
-----
```

```
Tagged
VLAN ID   : 100,
Untagged
VLAN ID   :
-----
```

6. Management Interface

6.1. Outband Management Interface

6.1.1. Configure Outband IP

Command:

```
outband ip-address {IPADDRESS} {NETMASK}
```

View:

Config view

Parameters:

- **IPADDRESS:** IP address, expressed as a.b.c.d
- **NETMASK:** Subnet mask, expressed as a.b.c.d.

Descriptions:

Configure the IP and subnet mask of the outband network management Ethernet interface.

Examples:

```
Configure the IP address of the outband network port.
```

6.1.2. View Outband IP

Command:

```
show outband ip-address
```

View:

Config view

Parameters:

None

Descriptions:

Displays the IP address subnet mask and gateway information of the outband network management Ethernet interface.

Examples:

```
Display IP address information of the outband Ethernet port
```

```
OLT(config)# show outband ip-address
```

```
-----
IP address    : 192.168.0.118
IP netmask    : 255.255.255.0
Gateway address : 0.0.0.0
-----
```

6.2. Inband Management Interface

6.2.1. Inband IP

Command:

- 1) ip address {IP4ADDRESS} {NETMASK}
- 2) ip address {IP6ADDRESS} {PREFIX_LEN}
- 3) no ip address

View:

Vlan view

Parameters:

- IP4ADDRESS: Inband network management interface IPV4 address, dotted decimal format.
- NETMASK: The corresponding subnet mask, in dotted decimal format.
- IP6ADDRESS: Inband network management interface IPV6 address.
- PREFIX_LEN: The prefix length of the IPV6 address.

Descriptions:

The ip address command use to configure the inband network management interface and enable it. Modify it in enable this situation.

ip adresno ip address command used to disable the in-band network management interface.

no ip address

Examples:

Configure the inband interface in vlan1000, ip as 10.10.10.100, subnet mask 255.255.255.0

```
OLT(config)# vlan 1000
```

```
OLT(config-vlan-1000)# ip address 10.10.10.100 255.255.255.0
```

【Descriptions】

The IP address of the inband network management interface and the outband network management interface cannot be on the same subnet. After enabling the in-band network management interface, in order to make the in-band management data take effect, there are two other configurations need to be processed: The port that receives the in-band management data is divided into the VLAN, The TAG mode of the egress needs to be determined based on the actual networking. If connecte the PC directly, the configuration is UNTAG, and the PVID of the port that receives the inband management data is configured as the ID of the VLAN where the inband interface is locate, port PVID configuration for receiving in-band management data is the ID corresponding to the VLAN in the Internal interface; If the entire network is managed through a dedicated management VLAN, it is generally configured as TAG mode.

6.2.2. Default Gateway

Command:

- 1) gateway {IPADDRESS}
- 2) no gateway

View:

Config view

Parameters:

- **IPADDRESS:** The default gateway address of the system, expressed as a.b.c.d.

Descriptions:

Configure the default gateway address of this system.

Examples:

```
OLT(config)# gateway 192.168.1.1
```

6.2.3. Arp Proxy

Command:

- 1) ip proxy-arp
- 2) no ip proxy-arp

View:

Vlan view

Parameters:

none

Descriptions:

ip proxy-arp command enable arp proxy;
no ip proxy-arp command disable arp proxy.

Examples:

Enable arp proxy for inband interface vlan 100

```
OLT(config)# interface vlan 100
```

```
OLT(config-if-vlan-100)# ip proxy-arp
```

6.2.4. Static Route

Command:

- 1) ip proxy-arp
- 2) no ip proxy-arp

View:

Vlan view

Parameters:

none

Descriptions:

ip proxy-arp command enable arp proxy;
no ip proxy-arp command disable arp proxy.

Examples:

Enable arp proxy for inband interface vlan 100

```
OLT(config)# interface vlan 100
```

```
OLT(config-if-vlan-100)# ip proxy-arp
```

6.2.5. View Inband IP

Command:

- 1) `show ip address`
- 2) `show ip6 address`

View:

`Vlan view`

Parameters:

`None`

Descriptions:

Display inband interface information with the current vlan, ipv4 or ipv6.

Examples:

```
OLT(config-if-vlan-100)# show ip address
-----
VLAN   : 100
IP     : 192.168.10.11
Mask   : 255.255.255.0
MAC    : ec:79:f2:00:00:03
Arp Proxy : disable
-----
```

6.2.6. View All Inband IP

Command:

- 1) `show ip address all`
- 2) `show ip6 address all`

View:

`Vlan view, config view`

Parameters:

`None`

Descriptions:

Display all inband interface information, ipv4 or ipv6.

Examples:

```
OLT(config)# show ip address all
-----
VLAN   : 100
IP     : 192.168.10.11
Mask   : 255.255.255.0
MAC    : ec:79:f2:00:00:03
Arp Proxy : disable
-----
```

6.3. Route

6.3.1. Add Static Route

Command:

- 1) ip route-static {DST_IP4ADDR} {DST_MASK} {NEXTHOP_IP4ADDR}
- 2) ip route-static {DST_IP6ADDR} {PREFIX_LEN} {NEXTHOP_IP6ADDR}

View:

config view

Parameters:

- DST_IP4ADDR: destination ip4 address
- DST_MASK: destination ip4 address netmask
- NEXTHOP_IP4ADDR: next hop ip4 address
- DST_IP6ADDR: destination ip6 address
- PREFIX_LEN: destination ip6 address prefix length
- NEXTHOP_IP6ADDR: next hop ip6 address

Descriptions:

Add a ipv4 or ipv6 static route.

The next hop ipaddress should be the same subnet with one of the existing inband IP.

Examples:

add static route, 192.168.20.0, the next hop ip is 192.168.100.1

```
OLT(config)# ip route-static 192.168.20.0 255.255.255.0 192.168.100.1
```

6.3.2. View Static Route

Command:

- 1) show ip route-static
- 2) show ip6 route-static

View:

config view

Parameters:

none

Descriptions:

show all ipv4 or ipv6 static route

Examples:

show all ipv4 static route

```
OLT(config)# show ip route-static all
```

```
-----
Index  Dest-IP      Mask          Next-Hop      IF-VLAN  Status
-----
1     192.168.20.0 255.255.255.0 192.168.100.1 100     inactive
-----
```

7. DBA Profile Management

7.1. Add DBA Profile

Command:

- 1) dba-profile add profile-name {PROFILE_NAME} type1 fix {BW_VALUE}
- 2) dba-profile add profile-name {PROFILE_NAME} type2 assure {BW_VALUE}
- 3) dba-profile add profile-name {PROFILE_NAME} type3 assure {BW_VALUE} max {BW_VALUE}
- 4) dba-profile add profile-name {PROFILE_NAME} type4 max {BW_VALUE}
- 5) dba-profile add profile-name {PROFILE_NAME} type5 fix {BW_VALUE} assure {BW_VALUE} max {BW_VALUE}
- 6) dba-profile add profile-id {PROFILE_ID} type1 fix {BW_VALUE}
- 7) dba-profile add profile-id {PROFILE_ID} type2 assure {BW_VALUE}
- 8) dba-profile add profile-id {PROFILE_ID} type3 assure {BW_VALUE} max {BW_VALUE}
- 9) dba-profile add profile-id {PROFILE_ID} type4 max {BW_VALUE}
- 10) dba-profile add profile-id {PROFILE_ID} type5 fix {BW_VALUE} assure {BW_VALUE} max {BW_VALUE}

View:

Config view

Parameters:

- PROFILE_NAME: DBA Profile name, up to 32 characters;
- PROFILE_ID: DBA Profile ID, or index;
- BW_VALUE: Bandwidth rate, in kbps, in the range of 1-1000000.

Descriptions:

Create a DBA Profile that can be created based on ID, name, or ID+ name.

There are five types of DBA types: type1, type2, type3, type4, and type5.

DBAtype1: Only contains fix (fixed bandwidth);

type2: Only contains assure (guaranteed bandwidth) ;

type3: Contains assure+max (guaranteed bandwidth + maximum bandwidth);

type4: Only contains max (maximum bandwidth);

type5: Contains fix+assure+max (fixed bandwidth + guaranteed bandwidth + maximum bandwidth)

Examples:

Create a DBA Profile named UP-1G, type 4, and maximum bandwidth 1G:

```
OLT(config)# dba-profile add profile-name UP-1G type4 max 1024000
```

Create a DBA Profile with ID 20, type 1 and fixed bandwidth 1M:

```
OLT(config)# dba-profile add profile-id 20 type1 fix 1024
```

7.2. View DBA Profile

Command:

show dba-profile all

View:

Config view

Parameters:

None

Descriptions:

View the configuration information of the created DBA Profile, including the Profile ID, name, DBA type, rate, number of TCONT bindings,ect.,

Examples:

```
OLT(config)# show dba-profile all
```

7.3. Delete DBA Profile

Command:

- 1) **dba-profile delete profile-name {PROFILE_NAME}**
- 2) **dba-profile delete profile-id {PROFILE_ID}**

View:

Config view

Parameters:

- **PROFILE_NAME:** DBA Template name, up to 32 characters.
- **PROFILE_ID:** DBA Profile ID, or index.

Descriptions:

Delete the DBA Profile, delete it according to the ID or name.

Note: If the DBA Profile has been bound by TCONT, it cannot be deleted. It can be deleted after it has been untied.

Examples:

Delete the DBA Profile with ID 20:

```
OLT(config)# dba-profile delete profile-id 20
```

Delete the DBA Profile named UP-1G:

```
OLT(config)# dba-profile delete profile-name UP-1G
```

8. ONU Line Profile Management

8.1. ONU Line Profile Configuration

8.1.1. Create/Configure Line Profile

Command:

```
onu-line-profile {profile-name PROFILE_NAME | profile-id PROFILE_ID}
```

View:

```
config view
```

Parameters:

- PROFILE_NAME: Line Profile name, up to 32 characters.
- PROFILE_ID: Line Profile ID, or index.

Descriptions:

After the command is executed, it will enter the corresponding line Profile node, node name: config-line-profile-plus PROFILE_NAME or PROFILE_ID.

If the Profile does not exist before, you need to use the commit submit command to create the Profile and save the current configuration. If you do not execute the commit command, you can exit the Profile directly. The Profile will not be created and the configuration will not be saved.

If the Profile exists before, you need to use the commit submit command to save the current configuration. If you do not execute the commit command, you can exit directly, and the currently modified configuration will not be saved.

Note: If the line profile has been bound by the ONU, you cannot enter the Profile node or modify the Profile configuration. Only after unbinding, can you enter the Profile and modify the Profile configuration.

Examples:

Create a line Profile named HGU:

```
OLT(config)# onu-line-profile profile-name HGU
OLT(config-line-profile-HGU)#commit
OLT(config-line-profile-HGU)#exit
```

Create a line Profile with ID 1:

```
OLT(config)# onu-line-profile profile-id 1
OLT(config-line-profile-1)#commit
OLT(config-line-profile-1)#exit
```

8.1.2. Delete Line Profile

Command:

```
no onu-line-profile { profile-name PROFILE_NAME | profile-id PROFILE_ID}
```

View:

```
Config view
```

Parameters:

- PROFILE_NAME: Delete according to name.
- PROFILE_ID: Delete according to ID.

Descriptions:

Delete line Profile.

Note: If the line profile is bound by the ONU, it cannot be deleted. It can be deleted after it is untied.

Examples:

Delete the line Profile named HGU:

```
OLT(config)# no onu-line-profile profile-name HGU
```


8.1.3. Configure Profile Mapping Mode

Command:

```
mapping-mode {vlan | priority | vlan-priority}
```

View:

Line Profile node view

Parameters:

None

Descriptions:

Mapping mode, supports 3 mapping modes:

Vlan mapping mode: mean gempport mapping to the bridge through vlan;

priority mapping mode: mean gempport mapping to the bridge through priority;

Vlan-priority mapping mode: mean gempport mapping to the bridge through vlan-priority;

The default is vlan mapping mode.

Examples:

Configured as vlan mapping mode:

```
OLT(config-line-profile-HGU)#mapping-mode vlan
```

Configured as priority mapping mode:

```
OLT(config-line-profile-HGU)#mapping-mode priority
```

Configured as vlan-priority mapping mode:

```
OLT(config-line-profile-HGU)#mapping-mode vlan-priority
```

8.1.4. Create/Delete Tcont

Command:

- 1) tcont {TCONT_INDEX} {dba-profile-name PROFILE_NAME | dba-profile-id PROFILE_ID}
- 2) no tcont {0-7}

View:

Line Profile node view

Parameters:

- TCONT_INDEX: tcont ID or index
- PROFILE_NAME: DBA mode name
- PROFILE_ID: DBA mode ID

Descriptions:

Create tcont and bind the DBA Profile; you can create 8 tcont.

Note: If tcont has been bound by gempport, it cannot be deleted. It can be deleted after it has been unbind.

Examples:

Create tcont 1, bind DBA UP-1G:

```
OLT(config-line-profile-HGU)#tcont 1 dba-profile-name UP-1G
```

Delete tcont 1

```
OLT(config-line-profile-HGU)#no tcont 1
```

8.1.5.Create/Delete Gempport

Command:

- 1) gem add {GEMINDEX} eth tcont {TCON_ID}
- 2) gem delete { GEMINDEX }

View:

Line Profile node view

Parameters:

- GEMINDEX: gempport index ;
- TCON_ID: tcont ID.

Descriptions:

Create a gempport and bind tcont; You can create 8 gempports;

Note: If the gempport has been configured for mapping, it cannot be deleted. You can delete the gempport after delete the mapping configuration.

Examples:

Create a gempport with index 1 and bind to tcont 1:

```
OLT(config-line-profile-HGU)# gem add 1 eth tcont 1
```

Delete gempport 1:

```
OLT(config-line-profile-HGU)#gem delete 1
```

8.1.6.Configure Gempport Mapping

Command:

- 1) gem mapping {GEMINDEX } {MAPPINGINDEX} vlan { VID | transparent}
- 2) gem mapping {GEMINDEX } {MAPPINGINDEX} priority { PRI | all}
- 3) gem mapping {GEMINDEX } {MAPPINGINDEX} vlan { VID | transparent }
priority { PRI | all}
- 4) no gem mapping {GEMINDEX } {MAPPINGINDEX}

View:

Line Profile node view

Parameters:

- GEMINDEX: gempport index
- MAPPINGINDEX: gempport mapping index gempport mapping index;
gempport mapping index gempport mapping 索引;
- VID: vlan ID, which means that the gempport allows the vlan to pass;
- PRI: Priority, in the range of 0 to 7, indicating that the gempport allows priority message to pass. transparent:
- Vlan transparent, means that the gempport allows all vlans to pass;
- all: Mean the gempport allows all priority packet to pass.

Descriptions:

Configure gempport mapping. Each gempport can be configured with 8 mappings.
 The above 3 commands are associated with mapping mode
 In vlan mapping mode, only the (1) command can be used;
 In priority mapping mode, only the (2) command can be used;
 In vlan-priority mapping mode, only the (3) command can be used;

Examples:

In vlan mapping mode, configure a mapping index 0 mapping for gem index 1, allow all vlans to pass:

```
OLT(config-line-profile-HGU)# gem mapping 1 0 vlan transparent
```

In the priority mapping mode, configure a mapping index 0 mapping for gem index 1, allow all priorities to pass:

```
OLT(config-line-profile-HGU)# gem mapping 1 0 priority all
```

In the vlan-priority mapping mode, configure a mapping index 0 mapping for gem index 1, allow all vlans and all priorities to pass:

```
OLT(config-line-profile-HGU)# gem mapping 1 0 vlan transparent priority all
```

Delete the mapping of gempport 1's mapping index to 0:

```
OLT(config-line-profile-HGU)#no gem mapping 1 0
```

8.1.7. Submit Line Profile Configuration

Command:

commit

View:

Line Profile node view

Parameters:

None

Descriptions:

Submit, save the current configuration.
Only after the commit, the line Profile will take effect .

Examples:

Save the current configuration:

```
OLT(config-line-profile-HGU)# commit
```

8.2. View ONU Line Profile

8.2.1. View Current Line Profile

Command:

show current-config

View:

Line Profile node view

Parameters:

None

Descriptions:

View the current configuration (including the modified);

Note: If the configuration is modified, you need to submit the commit, the currently modified configuration will be saved.

Examples:

View current configuration

```
OLT(config-line-profile-HGU)#show current-config
```

```
-----
mapping-mode vlan
tcont 1 dba-profile-id 11
gem add 1 eth tcont 1
gem mapping 1 0 vlan transparent
-----
```

8.2.2. View Line Profile

Command:

show onu-line-profile {all | profile-name PROFILE_NAME | profile-id PROFILE_ID}

View:

Config view

Parameters:

- **all:** View all line profile information, including: Profile ID, Profile name, and number of onu bindings;
- **PROFILE_NAME:** View the configuration information of a single line profile by name;
- **PROFILE_ID:** View configuration information for a single line Profile based on the ID.

Descriptions:

View line Profile configuration information.

Examples:

View all created route templates:

```
OLT(config)# show onu-line-profile all
```

View the line Profile configuration named HGU:

```
OLT(config)# show onu-line-profile profile-name HGU
```


9. ONU Service Profile Management

9.1. Service Profile Configuration

9.1.1. Create/Configure Service Profile

Command:

```
onu-service-profile {profile-name PROFILE_NAME | profile-id PROFILE_ID}
```

View:

Config view

Parameters:

- PROFILE_NAME: Business Profile name, up to 32 characters.
- PROFILE_ID: Business Profile ID, or index.

Descriptions:

After the command is executed, it will enter the corresponding service Profile node. The node name is config-service-profile-plus NAME or ID.

If the Profile does not exist before, you need to use the commit submit command to create the Profile and save the current configuration.

If you do not execute the commit command, you can exit directly, the Profile will not be created, and the configuration will not be saved.

If the Profile exists before, you need to use the commit submit command to save the current configuration. If you do not execute the commit command, you can exit directly, and the currently modified configuration will not be saved.

Note: If the service Profile is bound by the ONU, the Profile node cannot be entered and the Profile configuration cannot be modified. Only after unbinding, can the Profile be entered and the Profile configuration be modified.

Examples:

Create a service Profile named HGU:

```
OLT(config)# onu-service-profile profile-name HGU
OLT(config-service-profile-HGU)#commit
OLT(config-service-profile-HGU)#exit
```

Create a service Profile with ID 1:

```
OLT(config)# onu-service-profile profile-id 1
OLT(config-service-profile-1)#commit
OLT(config-service-profile-1)#exit
```

9.1.2. Delete Service Profile

Command:

`no onu-service-profile {profile-name PROFILE_NAME | profile-id PROFILE_ID}`

View:

Config view

Parameters:

- PROFILE_NAME: Delete according to the name;
- PROFILE_ID: Delete according to the ID

Descriptions:

Delete the service template
Note: If the service Profile is bound by the ONU, it cannot be deleted. It can be deleted after being unbind.

Examples:

Delete the service Profile named HGU:

```
OLT(config)# no onu-service-profile profile-name HGU
```

9.1.3. Submit Service Profile Configuration

Command:

`commit`

View:

Business Profile node view

Parameters:

None

Descriptions:

Submit, save current configuration
Only commit, service Profile can take effect

Examples:

Save current configuration

```
OLT(config-service-profile-HGU)# commit
```

9.2. View Service Profile

9.2.1. View Current Service Profile

Command:

`show current-config`

View:

Business Profile node view

Parameters:

None

Descriptions:

View the current configuration (including the modified);

Note: If the configuration is modified, you need to submit the commit, the currently modified configuration will be saved.

Examples:

View current configuration

```
OLT(config-service-profile-HGU)#show current-config
```

```
-----
port-num eth 0
port-num pots 0
port-num veip 0
-----
```

9.2.2. View Service Profile

Command:

```
show onu-service-profile {all |profile-name PROFILE_NAME|profile-id PROFILE_ID}
```

View:

Config view

Parameters:

- All: View all service Profile information, including: Profile ID, Profile name, and number of onu bindings;
- PROFILE_NAME: View configuration information of a single service Profile according to the name;
- PROFILE_ID: View configuration information of a single service Profile according to ID

Descriptions:

View configuration information of service Profile

Examples:

View all created service templates:

```
OLT(config)# show onu-service-profile all
```

View the service Profile configuration named HGU:

```
OLT(config)# show onu- service -profile profile-name HGU
```

9.3. ONU Port Configuration

9.3.1. Port Number

Command:

```
port-num {eth | pots| veip} {NUM | adaptive}
```

View:

Business Profile node view

Parameters:

- eth | pots| veip: Represents the Ethernet port, voice port, and VEIP port respectively;
- adaptive: **The number of ports is adaptive;** 端口个数自适应;
- NUM: Indicate the port number, which can support up to 8 voice ports. The VEIP is 0 or 1, and the Ethernet port is 1~24.

Descriptions:

Port number configuration.
The default eth/pots/veip number is 0.

Examples:

Configure 4 eth ports, 2 pots ports, and veip number adaptive:

```
OLT(config-service-profile-HGU)#port-num eth 4
OLT(config-service-profile-HGU)# port-num pots 2
OLT(config-service-profile-HGU)# port-num veip adaptive
```

9.3.2.Port VLAN Mode

Command:

- 1) port eth {PORT_ID} vlan mode {transparent | tag | translation | trunk}
- 2) no port eth {PORT_ID} vlan mode

View:

Business Profile node view

Parameters:

- PORT_ID: Ethernet port ID, ranging from 1 to 24;
- transparent: transparent mode;
- tag: tag mode;
- translation: translation mode
- trunk: trunk mode

Descriptions:

Configure the vlan mode of an Ethernet interface.
Currently supports 4 modes: transparent, tag, translation, trunk mode.

Examples:

Configure eth 1 as the transparent mode:

```
OLT(config-service-profile-HGU)#port eth 1 vlan mode transparent
```

Delete the vlan mode of eth 1:

```
OLT(config-service-profile-HGU)#no port eth 1 vlan mode
```

9.3.3.Port Tag Mode

Command:

- 1) port eth { PORT_ID } tag vlan {VID} priority {PRI}
- 2) no port eth { PORT_ID } tag vlan

View:

Business Profile node view

Parameters:

- PORT_ID: Ethernet port ID;
- VID: vlan ID;
- PRI: Vlan priority;

Descriptions:

Configure the default vlan of the eth interface. The uplink packet will be marked with that vlan. The packet carrying the vlan will be stripped and other packet will be discarded.

[Note]: This command can be configured only when the vlan mode of the eth port is tag mode.

Examples:

Configure the default vlan of eth 1 as 100, the priority as 0:

```
OLT(config-service-profile-HGU)#port eth 1 tag vlan 100 priority 0
```

Delete default vlan of eth 1

```
OLT(config-service-profile-HGU)#no port eth 1 tag vlan
```

9.3.4.Port Translation Mode

Command:

- 1) port eth { PORT_ID } translation default vlan {VID} {PRI}
- 2) port eth { PORT_ID } translation {INDEX} {CVID} [CPRI] to {SVID} [SPRI]
- 3) no port eth { PORT_ID } translation default vlan
- 4) no port eth { PORT_ID } translation {INDEX}

View:

Business Profile node view

Parameters:

- PORT_ID: Ethernet port ID
- VID: default vlan ID;
- PRI: default vlan priority
- INDEX: Conversion entry index, maximum can support to 8 conversion entries;
- CVID: User side vlan ID;
- CPRI: User side vlan priority, optional ;
- SVID: Network side vlan ID;
- SPRI: Network side vlan priority, optional;

Descriptions:

Configure the default vlan of the eth interface. The uplink packet will be marked with the vlan. The packet carrying the vlan will be stripped and other packet will be discarded.

Configure the conversion entry of the eth interface, and change the direction: the packet carrying the CVID [CPRI] on the uplink is converted to carry the SVID [SPRI]; the packet carrying the SVID [SPRI] on the downlink is converted to carry the CVID [CPRI];

[Note]: This command can be configured only when the vlan mode of the eth port is in the translation mode.

Examples:

Configure the default vlan of eth 1 as 100, the priority as 0:

```
OLT(config-service-profile-HGU)#port eth 1 translation default vlan 100 0
```

Configure eth 1 a conversion entry: vlan 20 to vlan 200:

```
OLT(config-service-profile-HGU)#port eth 1 translation 1 20 to 200
```

Delete the default vlan of eth 1:

```
OLT(config-service-profile-HGU)# no port eth 1 translation default vlan
```

Delete the conversion entry with eth 1 index is 1:

```
OLT(config-service-profile-HGU)#no port eth 1 translation 1
```

9.3.5.Port Trunk Mode

Command:

- 1) port eth { PORT_ID } trunk default vlan {VID} {PRI}
- 2) port eth { PORT_ID } trunk vlan {VID} [PRI]
- 3) no port eth { PORT_ID } trunk default vlan
- 4) no port eth { PORT_ID } trunk vlan {VID} [PRI]

View:

Business Profile node view

Parameters:

- PORT_ID: Ethernet port ID;
- VID: vlan ID;
- PRI: vlan priority;
- trunk vlan VID: Indicate the transparent vlan as the packet of VID.
- trunk vlan VID PRI: Indicate the transparent vlan is VID, priority is packet of PRI.

Descriptions:

Configure the default vlan of the eth interface. The uplink packet will be marked with the vlan. The packet carrying the vlan will be stripped and other packets will be discarded.

Configure the trunk vlan table of the eth interface,maximum can support up to eight configurations.

[Note]: This command can be configured only when the vlan mode of the eth port is trunk mode.

Examples:

Configure the default vlan of eth 1 as 100 , priority as 0:

```
OLT(config-service-profile-HGU)# port eth 1 trunk default vlan 100 0
```

Configure eth 1 to transparent vlan 200:

```
OLT(config-service-profile-HGU)# port eth 1 trunk vlan 200
```

Delete the default vlan of eth 1:

```
OLT(config-service-profile-HGU)# no port eth 1 trunk default vlan
```

Delete eth 1 transparent vlan 200:

```
OLT(config-service-profile-HGU)# no port eth 1 trunk vlan 200
```

9.4. ONU Multicast Configuration

9.4.1. Multicast VLAN

Command:

- 1) `multicast vlan add vlanlist {VID}`
- 2) `multicast vlan delete vlanlist {VID}`
- 3) `multicast vlan delete all`

View:

Business Profile node view

Parameters:

- **VID:** Multicast vlan, format: VID or VID-VID or VID,

Descriptions:

Configure multicast vlan, indicate vlan carried in a downlink multicast stream. Up to configured eight multicast vlans.

The default does not care about the downlink multicast vlan.

Examples:

Configuration adjunction allows to pass which the multicast vlan to be 100:

```
OLT(config-service-profile-HGU)#multicast vlan add vlanlist 100
```

Delete multicast vlan 100:

```
OLT(config-service-profile-HGU)# multicast vlan delete vlanlist 100
```

Clear all multicast vlans and restore them to the default do not care about multicast vlan:

```
OLT(config-service-profile-HGU)#multicast vlan delete all
```

9.4.2. IGMP Fast Leave

Command:

```
igmp {eth { PORT_ID } | veip 1} fast-leave {enable | disable}
```

View:

Business Profile node view

Parameters:

- **PORT_ID:** Ethernet port port id;
- **enable:** Turn on the fast leave function;

- **disable:** Turn off the fast leave function.

Descriptions:

Configure the fast leave function of eth or veip; the default fast leave function is turned on.

Examples:

Turn off the fast leave feature of eth 1:

```
OLT(config-service-profile-HGU)# igmp eth 1 fast-leave disable
```

9.4.3.IGMP Packet Forwarding Mode

Command:

- 1) igmp {eth { PORT_ID }}|veip 1} igmp-forward add VID PRI
- 2) igmp {eth { PORT_ID }}|veip 1} igmp-forward translationVID [PRI]
- 3) igmp {eth { PORT_ID }}|veip 1} igmp-forward transparent
- 4) no igmp {eth { PORT_ID }}|veip 1} igmp-forward

View:

Business Profile node view

Parameters:

- **PORT_ID:** Ethernet port ID;
- **VID PRI:** Putting the uplink igmp packet with the VID and priority PRI;
- **translation VID:** Replace the vlan ID of the uplink igmp packet with the VID.
- **translation VID PRI:** Replace the vlan ID of the uplink igmp packet with the VID and the priority with the PRI.
- **transparent:** Refers to transparent of igmp packets.

Descriptions:

Configure the uplink igmp packet forwarding function of eth or veip. The default is to transparent uplink igmp packets.

Examples:

Configure eth 1 to match the uplink igmp packet with vlan 100, priority 7:

```
OLT(config-service-profile-HGU)#igmp eth 1 igmp-forward add 100 7
```

Delete the uplink igmp packet function of eth 1 and restore it to the default:

```
OLT(config-service-profile-HGU)#no igmp eth 1 igmp-forward
```

9.4.4.IGMP/MLD Version

Command:

```
igmp {eth { PORT_ID }}|veip 1} igmp-version {v1 | v2| v3| mld_v1| mld_v2}
```

View:

Business Profile node view

Parameters:

- **PORT_ID:**Ethernet port ID;
- **v1:** igmp version 1
- **v2:** igmp version 2

- v3: igmp version 3
- mld_v1: mld version 1
- mld_v2: mld version 2

Descriptions:

Configure the igmp version of eth or veip; the default is igmp v2.

Examples:

Configure the igmp version of eth 1 as igmp v3:

```
OLT(config-service-profile-HGU)# igmp eth 1 igmp-version v3
```

9.4.5. Maximum Multicast Bandwidth

Command:

```
igmp {eth { PORT_ID }}veip 1} max-bandwidth {BW_VALUE| no-limit}
```

View:

Business Profile node view

Parameters:

- PORT_ID: Ethernet port id
- BW_VALUE: Maximum multicast bandwidth limit, in kbps.
- no-limit: No limited.

Descriptions:

Configure the maximum multicast bandwidth of eth or veip; the default is unlimited.

Examples:

Configure the maximum multicast bandwidth of eth 1 to be 1 Mbps:

```
OLT(config-service-profile-HGU)# igmp eth 1 max-bandwidth 1024
```

9.4.6. Maximum Multicast Group

Command:

```
igmp {eth { PORT_ID }}veip 1} max-groups {GROUP_NUM| no-limit}
```

View:

Business Profile node view

Parameters:

- PORT_ID: Ethernet port id
- GROUP_NUM: Maximum number of multicast groups;
- no-limit: No limited .

Descriptions:

Configure the maximum number of multicast groups for eth or veip; the default is unlimited.

Examples:

Set the maximum number of multicasts for eth 1 to eight:

```
OLT(config-service-profile-HGU)# igmp eth 1 max-groups 8
```

9.4.7.Multicast Stream Forwarding Mode

Command:

- 1) igmp {eth { PORT_ID }}veip 1} multicast-forward add VID PRI
- 2) igmp {eth { PORT_ID }}veip 1} multicast-forward translationVID [PRI]
- 3) igmp {eth { PORT_ID }}veip 1} multicast-forward transparent
- 4) igmp {eth { PORT_ID }}veip 1} multicast-forward vlan-strip
- 5) no igmp {eth { PORT_ID }}veip 1} multicast-forward

View:

Business Profile node view

Parameters:

- PORT_ID: Ethernet port id
- add VID PRI: Mark a VID and a priority PRI to the downlink multicast packet.
- translation VID: Replace the vlan ID of the downlink multicast packet with the VID.
- translation VID PRI: Replace the vlan ID of the downlink multicast packet with the VID, the priority with the
- PRI. transparent: Refers to transparent of downlink multicast packets;
- vlan-strip: Stripping the multicast vlan of downlink multicast packets

Descriptions:

Configure the forwarding function of downlink multicast packets of eth or veip. The default is to transparently transmit downlink multicast packets.

Examples:

Configure eth 1 performs vlan stripping on downlink multicast packets:

```
OLT(config-service-profile-HGU)# igmp eth 1 multicast-forward vlan-strip
```

Delete the downlink multicast forwarding function of eth 1 and restore it to the default:

```
OLT(config-service-profile-HGU)#no igmp eth 1 multicast-forward
```

9.4.8.Multicast Working Mode

Command:

```
igmp {eth { PORT_ID }}veip 1} work-mode {snooping|proxy|spr}
```

View:

Business Profile node view

Parameters:

- PORT_ID:Ethernet port port id
- snooping: Configure igmp to work in snooping mode.
- proxy: Configure igmp to work in proxy mode.
- spr: Configure igmp to work in snooping with proxy reporting mode

Descriptions:

Configure the igmp working mode of eth or veip;

The default is snooping mode.

Examples:

Configure the igmp working mode of eth 1 as proxy:

```
OLT(config-service-profile-HGU)# igmp eth 1 work-mode proxy
```

9.4.9.IGMP Non-Match-Group

Command:

```
igmp {eth { PORT_ID }}veip 1} non-match-group {forward|discard}
```

View:

Business Profile node view

Parameters:

- PORT_ID: Ethernet port port id;
- forward: **Forwarding an igmp request message whose uplink is not in the dynamic control list;**
- discard: Discarding the igmp request packet whose uplink is not in the dynamic control list .

Descriptions:

Configure the igmp request packet processing behavior of eth or veip whose uplink is not in the dynamic control list.The default is forward.

Examples:

Configure eth 1 to discard igmp request packets that are not in the dynamic control list.

```
OLT(config-service-profile-HGU)# igmp eth 1 non-match-group discard
```


10. Service Port Management

10.1. Create **Service** Port

Command:

- 1) `service-port {INDEX} gpon {SLOT_ID/PON_ID} onu {ONU_ID} gempport {GEM_ID} user-vlan {CVLAN_ID} vlan {VLAN_ID} svlan {SVLAN_ID}`
- 2) `service-port {INDEX} gpon {SLOT_ID/PON_ID} onu {ONU_ID} gempport {GEM_ID} user-vlan {CVLAN_ID} vlan {VLAN_ID}`
- 3) `service-port {INDEX} gpon {SLOT_ID/PON_ID} onu {ONU_ID} gempport {GEM_ID} user-vlan untag vlan {VLAN_ID}`
- 4) `service-port {INDEX} gpon {SLOT_ID/PON_ID} onu {ONU_ID} gempport {GEM_ID} transparent`

View:

Config view

Descriptions:

None

Parameters:

- **INDEX:** Service port index number in the range {0-32767}.
- **SLOT_ID/PON_ID:** Slot number / PON port number.
- **ONU_ID:** ONU index number.
- **GEM_ID:** GEM index number.
- **CVLAN_ID,VLAN_ID, SVLAN_ID:** The VLAN value range is {1-4095}.

Examples:

Add a service port for ONU 1 under PON 1

```
OLT(config)# service-port 0 gpon 0/1 onu 1 gempport 1 user-vlan 1 vlan 1 svlan 1
```

10.2. Down Stream Bandwidth

Command:

```
service-port {INDEX} ds-traffic min {MIN_BANDWIDTH} max { MAX_BANDWIDTH }
```

View:

Config view

Descriptions:

set down stream bandwidth of the service-port, this can achieve the down stream bandwidth of ONU.

Parameters:

- **INDEX:** Service port index number, in the range {0-32767}.

- **MIN_BANDWIDTH:** Minimum bandwidth, in kbps
- **MAX_BANDWIDTH:** Maximum bandwidth, in kbps

Examples:

```
set service-port 1 down stream bandwidth to max bandwidth 100Mbps
OLT(config)# service-port 1 ds-traffic min 64 max 100000
```

10.3. Delete Service Port

Command:

```
no service-port {INDEX}
```

View:

Config view

Descriptions:

None

Parameters:

- **INDEX:** Service port index number, in the range {0-32767}.

Examples:

```
Delete service port 0
OLT(config)# no service-port 0
```

10.4. Delete All Service Port

Command:

```
no service-port all
```

View:

Config view

Descriptions:

None

Parameters:

None

Examples:

```
Delete all service port
OLT(config)# no service-port all
```

10.5. View Service Port

Command:

```
show service-port all
```

View:

Config view

Descriptions:

None

Parameters:

None

Examples:

Display all service ports

```
OLT(config)# show service-port all
```

```
-----  
ID GPON Onu GEM User-vlan Cvlan Svlan  
0 0/01 1 1 1000 - 1000
```

11. IPV4 Multicast Management

11.1. IGMP Configuration Command

11.1.1. Enable/Disable IGMP

Command:

```
igmp {enable|disable}
```

View:

Btv view

Parameters:

- **enable:** enable multicast function
- **disable:** disable multicast function

Descriptions:

Enable/disable multicast function

Examples:

```
OLT(config-btv)# igmp enable
```

11.1.2. View IGMP Configuration

Command:

```
show igmp configuration
```

View:

Btv view

Parameters:

None

Descriptions:

Display current multicast function status

Examples:

```
OLT(config-btv)# show igmp configuration
IGMP status: Enable
```

11.1.3. Create IGMP Multicast Vlan

Command:

```
igmp multicast-vlan {MVLAN_ID}
```

View:

Btv view

Parameters:

MVLAN_ID: Multicast vlan id in the range 2-4094

Descriptions:

Create multicast vlan

Examples:

```
OLT(config-btv)# igmp multicast-vlan 256
OLT(config-mvlan-256)#
```

11.1.4. Configure IGMP Mode

Command:

igmp mode {snooping | proxy | disable}

View:

config-mvlan view

Parameters:

- **snooping:** snooping mode
- **proxy:** proxy mode
- **disable:** disable mode

Descriptions:

Configure igmp mode to snooping mode

Examples:

```
OLT(config-mvlan-100)# igmp mode snooping
```

11.1.5. Configure IGMP Uplink Port

Command:

igmp port {ge | pon | xge} {PORT_ID}

View:

config-mvlan view

Parameters:

- **PORT_ID:** Port port number

Descriptions:

Configure igmp uplink port

Examples:

```
OLT(config-mvlan-256)# igmp port ge 0/1
```

11.1.6. View IGMP Configuration

Command:

show igmp configuration

View:

config-mvlan view

Parameters:

None

Descriptions:

Display the configuration under the current multicast vlan

Examples:

```
OLT(config-mvlan-100)# show igmp configuration
Mode: IGMP Proxy
Host IP address: 10.11.12.13
Router IP address: 10.12.13.14
Protocol version: V2
Robust variant: 2
Query interval: 60
Query reponse interval: 10(s)
Last member query interval: 1(s)
```

11.2. IGMP Channel Configuration

11.2.1. Create IGMP Channel

Command:

```
igmp channel {CHANNEL_ID} group {START_IP} to {END_IP} name {NAME}
```

View:

```
config-mvlan view
```

Parameters:

- CHANNEL_ID: Channel id in the range 1-4094
- START_IP: Starting IP
- END_IP: Ending IP
- NAME: Multicast channel name

Descriptions:

Configure the channel id of igmp and the start address, end address, and channel name.

Examples:

```
OLT(config-mvlan-256)# igmp channel 1 group 224.15.15.15 to 224.19.19.19 name tv
```

11.2.2. Delete IGMP Channel

Command:

- 1) no igmp channel all
- 2) no igmp channel id {CHANNEL_ID}
- 3) no igmp channel name {CHANNEL_NAME}

View:

```
config-mvlan view
```

Parameters:

- CHANNEL_ID: Channel id number
- CHANNEL_NAME: Channel name

Descriptions:

Delete the channel by channel id/name, or delete all, mean delete all channels under the current multicast vlan

Examples:

```
OLT(config-mvlan-100)# no igmp channel id 77
```

```
OLT(config-mvlan-100)# no igmp channel all
```

```
OLT(config-mvlan-100)# no igmp channel name tv1
```

11.2.3. View IGMP Channel

Command:

```
show igmp channel
```

View:

```
btv view,config-mvlan view
```

Parameters:

None

Descriptions:

View all or one multicast vlan multicast channel

Examples:

View all igmp multicast channels

```
OLT(config-btv)# show igmp channel
```

Vlan	Channel	Start IP	End IP	Channel Name
100	1	224.15.15.15	224.16.16.16	tv1
200	3	224.19.19.19	224.20.20.20	tv2

View the igmp multicast channel belonging to mvlan 200

```
OLT(config-btv)#igmp multicast-vlan 200
```

```
OLT(config-mvlan-200)# show igmp channel
```

Vlan	Channel	Start IP	End IP	Channel Name
200	3	224.19.19.19	224.20.20.20	tv2

11.3. IGMP Proxy Configuration

11.3.1. Configure Proxy Host-IP

Command:

```
igmp proxy host-ip {IP_ADDR}
```

View:

```
config-mvlan view
```

Parameters:

- IP_ADDR: IP address

Descriptions:

Configure host-ip of igmp proxy

Examples:

```
OLT(config-mvlan-100)# igmp proxy host-ip 10.11.12.13
```


11.3.2. Configure Proxy Router-Ip

Command:

```
igmp proxy router-ip {IP_ADDR}
```

View:

```
config-mvlan view
```

Parameters:

- **IP_ADDR:** IP address

Descriptions:

Configure router-ip

Examples:

```
OLT(config-mvlan-100)# igmp proxy router-ip 10.11.12.13
```

11.3.3. Configure Query Interval

Command:

```
igmp proxy query interval {INTERVAL}
```

View:

```
config-mvlan view
```

Parameters:

INTERVAL: Interval of sending queries at regular intervals, ranging from 1-65535

Descriptions:

Configure the query interval under the proxy.

Examples:

```
OLT(config-mvlan-100)# igmp proxy query interval 200
```

11.3.4. Configure Query Response

Command:

```
igmp proxy query response {RESPONSE}
```

View:

```
config-mvlan view
```

Parameters:

RESPONSE: Maximum response time of the packet, range 1-25

Descriptions:

Configure the maximum response time of packets on the proxy.

Examples:

```
OLT(config-mvlan-100)# igmp proxy query response 20
```

11.3.5. Configure Robust-Variant

Command:

```
igmp proxy robust-variant {ROBUST}
```

View:

```
config-mvlan view
```

Parameters:

ROBUST: Robust variable value of the packet querier

Descriptions:

Configure robust-variant in proxy mode

Examples:

```
OLT(config-mvlan-100)# igmp proxy robust-variant 3
```

11.3.6. Restore Proxy Default Configuration

Command:

- 1) no igmp proxy query {response | interval}
- 2) no igmp proxy robust-variant

View:

```
config-mvlan view
```

Parameters:

None

Descriptions:

interval: Restore default query interval

response: Restore the default maximum response time of the packet

robust-variant: Robust variable value of the packet querier

Examples:

```
OLT(config-mvlan-100)# no igmp proxy query interval
OLT(config-mvlan-100)# no igmp proxy query response
OLT(config-mvlan-100)# no igmp proxy robust-variant
```

12. IPV6 Multicast Management

12.1. MLD Configuration

12.1.1. Turn On/Off MLD Multicast

Command:

```
mld {enable|disable}
```

View:

Btv view

Parameters:

- **enable:** Enable multicast function
- **disable:** Turn off multicasting

Descriptions:

Enable/disable multicast

Examples:

```
OLT(config-btv)# mld enable
```

12.1.2. View MLD Configuration

Command:

show mld configuration

View:

Btv view

Parameters:

None

Descriptions:

Display current multicast function status

Examples:

```
OLT(config-btv)# show mld configuration
IGMP status: Enable
```

12.1.3. Create MLD Multicast VLAN

Command:

mld multicast-vlan {MVLAN_ID}

View:

Btv view

Parameters:

MVLAN_ID: Multicast vlan id in the range 2-4094

Descriptions:

Create multicast vlan

Examples:

```
OLT(config-btv)# mld multicast-vlan 256
OLT(config-mld-mvlan-256)#
```

12.1.4. Create MLD Mode

Command:

`mld mode {snooping | proxy | disable}`

View:

`config-mld-mvlan view`

Parameters:

- `snooping`: snooping mode
- `proxy`: proxy mode
- `disable`: disable mode

Descriptions:

Configure igmp mode to snooping mode

Examples:

```
OLT(config-mld-mvlan-100)# mld mode snooping
```

12.1.5. Configure MLD Uplink Port

Command:

`mld port {ge | pon | xge} {PORT_ID}`

View:

`config-mld-mvlan view`

Parameters:

- `PORT_ID`: port port number

Descriptions:

Configure mld upstream port

Examples:

```
OLT(config-mld-mvlan-256)# mld port ge 0/1
```

12.1.6. View MLD Configuration

Command:

`show mld configuration`

View:

`config-mld-mvlan view`

Parameters:

None

Descriptions:

Display the configuration under the current multicast vlan

Examples:

```
OLT(config-mld-mvlan-100)# show mld configuration
Mode: MLD Proxy
Host IP address: 2002::01::02
Protocol version: mldv2
```

```

Robust variant: 2
Query interval: 60
Query reponse interval: 10(s)
Last member query interval: 1(s)

```

12.2. MLD Channel Configuration

12.2.1. Create MLD Channel

Command:

```
mld channel {CHANNEL_ID} group {START_IP} to {END_IP} name {NAME}
```

View:

```
config-mld-mvlan view
```

Parameters:

- CHANNEL_ID: Channel id, in the range 1-4094
- START_IP: starting IP
- END_IP: ending IP
- NAME: Multicast channel name

Descriptions:

Configure the channel id of igmp and the start address, end address, and channel name.

Examples:

```
OLT(config-mvlan-256)# igmp channel 1 group ff02::16 to ff02::20 name ch1
```

12.2.2. Delete MLD Channel

Command:

- 4) no mld channel all
- 5) no mld channel id {CHANNEL_ID}
- 6) no mld channel name {CHANNEL_NAME}

View:

```
config- mld-mvlan view
```

Parameters:

- CHANNEL_ID: channel id number
- CHANNEL_NAME: channel name

Descriptions:

Delete the channel by channel id/name, or delete all, mean delete all channels under the current multicast vlan

Examples:

```
OLT(config- mld-mvlan-100)# no mld channel id 77
```

```
OLT(config- mld-mvlan-100)# no mld channel all
```

```
OLT(config- mld-mvlan-100)# no mld channel name tv1
```

12.2.3. View MLD Channel

Command:

```
show mld channel
```

View:

```
Btv view, config-mld-mvlan view
```

Parameters:

None

Descriptions:

View all or one multicast vlan multicast channel

Examples:

View MLD Multicast Channel of mvlan 100

```
OLT (config-mld-mvlan-100)# show mld channel
```

ID	Channel Name	Vlan	Start IP	End IP
1	ch1	100	ff02::16	ff02::20

12.3. MLD Proxy Configuration

12.3.1. Configure Proxy Host-IP

Command:

```
mld proxy host-ip {IP_ADDR}
```

View:

```
config-mld-mvlan view
```

Parameters:

- IP_ADDR: IP address

Descriptions:

Configure the host-ip of the mld proxy

Examples:

```
OLT(config-mld-mvlan-100)# mld proxy host-ip 2002:01::02
```

12.3.2. Configure Query Interval

Command:

```
mld proxy query interval {INTERVAL}
```

View:

```
config-mld-mvlan view
```

Parameters:

- **INTERVAL:** Time interval of sending queries at regular intervals, range 1-65535

Descriptions:

Configure the query interval under the proxy.

Examples:

```
OLT(config-mld-mvlan-100)# mld proxy query interval 200
```

12.3.3. Configure Query Response

Command:

```
mld proxy query response {RESPONSE}
```

View:

```
config- mld-mvlan view
```

Parameters:

- **RESPONSE:** Maximum response time of the packet, range 1-25

Descriptions:

Configure the maximum response time of packets on the proxy.

Examples:

```
OLT(config- mld-mvlan-100)# mld proxy query response 20
```

12.3.4. Configure Robust-Variant

Command:

```
mld proxy robust-variant {ROBUST}
```

View:

```
config- mld-mvlan view
```

Parameters:

ROBUST: The robust variable value of the packet finder

Descriptions:

Configure robust-variant in proxy mode

Examples:

```
OLT(config- mld-mvlan-100)# mld proxy robust-variant 3
```

12.3.5. Restore Proxy Default Configuration

Command:

- 1) no mld proxy query {response | interval}
- 2) no mld proxy robust-variant

View:

config- mld-mvlan view

Parameters:

None

Descriptions:

interval: Restore default query interval

response: Restore the default maximum response time of the packet

robust-variant: Robust variable value of the packet finder

Examples:

```
OLT(config-mld-mvlan-100)# no mld proxy query interval
OLT(config-mld-mvlan-100)# no mld proxy query response
OLT(config-mld-mvlan-100)# no mld proxy robust-variant
```

13. Qos Configuration

13.1. Configure Schedule

Command:

qos sched {sp | wrr | sp-wrr}

View:

Ge and xge view

Parameters:

- sp: Strict priority scheduling.
- wrr: Weighted scheduling, the scheduling weight of each queue is determined by the following parameters.
- sp-wrr: sp+wrr.

Descriptions:

qos sched configure the queue scheduling mode of the current port.

Examples:

```
Display the QoS policy of the current port
OLT(config-if-ge-1/1)# show qos sched
Current port schedule is : weighted round robin
Current port weight : 0 0 0 0
```

Configure the queue scheduling mode of the current port as sp, that is strict scheduling.

```
OLT(config-if-ge-1/1)# qos sched sp
```


Display QoS policy information of the current port

```
OLT(config-if-ge-1/1)# show qos sched
```

```
Current port schedule is : strict priority.
```

13.2. Configure Weight

Command:

```
qos weight {QUE0-WEIGHT} {QUE1-WEIGHT} {QUE2-WEIGHT} {QUE3-WEIGHT} {QUE4-WEIGHT}
{QUE5-WEIGHT} {QUE6-WEIGHT} {QUE7-WEIGHT}
```

View:

Ge and xge view

Parameters:

- **QUE0-WEIGHT~QUE7-WEIGHT**: The weight of queue 0-7, in the range of 0-15.

Descriptions:

Qos weight Configures the weight of the current port.

Examples:

Configure the queue scheduling mode of the current port as wrr.

```
OLT(config-if-ge-1/1)# qos sched wrr
```

Configure the weight value of the current port

```
OLT(config-if-ge-1/3)# qos weight 1 2 3 4 5 6 7 8
```

Display information about the current port

```
OLT(config-if-ge-1/1)# show qos sched
```

```
Current port schedule is : weighted round robin
```

```
Current port weight : 1 2 3 4 5 6 7 8
```

13.3. View Schedule

Command:

```
show qos sched
```

View:

Ge and xge view

Parameters:

None

Descriptions:

Displays the QoS policy information of the current port, including the scheduling mode of the queue and the weight of the queue during weighted scheduling.

Examples:

Display QoS policy information of the current port

```
OLT(config-if-ge-1/1)# show qos sched
```

```
Current port schedule is : weighted round robin
```

Current port weight : 0 0 0 0

13.4. Configure Queue Mapping

Command:

qos map-queue

View:

Ge and xge view

Parameters:

None

Descriptions:

Configure the current port queue priority mapping relationship

Examples:

Configure the priority mapping relationship of the queues on the uplink interface of GE 1/1.

```
OLT(config-if-ge-1/1)# qos map-queue 1 0 2 3
```

13.5. View Queue Mapping

Command:

show qos map-queue

View:

Ge and xge view

Parameters:

None

Descriptions:

Displays the QoS queue information of the current port, including the mapping relationship between 802.1p priorities and queues.

Examples:

Display QoS queue information of the current port

```
OLT(config-if-ge-1/1)# show qos map-queue
```

Current port qos mapping parameter is :

priority{---}COSQ

0	1
1	0
2	2
3	3

14. ACL Configuration

14.1. ACL List

14.1.1. Create/Delete ACL

Command:

- 1) `acl {ACLID} [END_ACLID]`
- 2) `no acl { ACLID } [END_ACLID]`
- 3) `no acl all`

View:

Config view

Parameters:

- **ACLID**: Indicates the created listid, which ranges from 2000 to 5999.
- **END_ACLID**: When there are two parameters, create the START_LISTID ~ END_LISTID ACL. The value range is 2001~5999.

Descriptions:

When `acl` with only one parameter, if the ACL listid does not exist, create an ACL listid and ente;

If the ACL already exists, enter the existing ACL listid.

When there are two parameters, create END_LISTID ACLs in batches. If listid is same with END_LISTID (| When START_LISTID and END_LISTID are the same, the value ranges from 2001 to 5999, that is, 1 cannot be taken at the same time.), and the processing method is the same as taking one parameter.

No `acl` when taking a parameter,delete the ACL of that listid

Delete END_LISTID ACLs in bulk when taking two parameters. If listidSame as END_LISTID (when listid and END_LISTID are the same, the value ranges from 2001 to 5999, that is, 1 cannot be taken at the same time), and the processing method is the same as one parameter.

No `acl all` is used to delete all ACLs at once.

Examples:

Create ACL list 2:

```
OLT(config)# acl 2
Created 1 ACL(s) success
OLT(config-acl-basic-2)#
```

Create 4 ACL lists, numbered from 5 to 8:

```
OLT(config)# acl 5 8
Created 4 ACL(s) success
OLT(config)#
```

Delete all ACL lists:

```
OLT(config)# no acl all
Removed 5 ACL(s) success
OLT(config)#
```

14.1.2. View ACL

Command:

```
show acl {ACLID | all}
```

View:

```
config view
```

Parameters:

- **LISTID**: Displays information about the ACL listid, in the range of 2000 to 5999.
- **all**: Displays information about all ACLs, including the list id, the number of rules belonging to the ACL list, whether it has been applied to the hardware, and if it is applied to the hardware, lists the list of ports applied to it, all rules belonging to the ACL list, including rule, the id, rule matching condition, rule matching processing action, application time-range, etc.

Descriptions:

Displays information about ACL rules, including ACL list information, rule information belonging to the list, and status of the list applied to the hardware.

The show acl command without parameters displays the current ACL list information.

Examples:

Display all related information of acl list

```
OLT(config)# show acl all
```

```
ACL: 7
```

```
Installed on: no port install.
```

```
Rule 1 action: permit
```

```
ACL: 77
```

```
Installed on: no port install
```

14.1.3. View Current ACL Information

Command:

```
show list
```

View:

```
Config view
```

Parameters:

```
None
```

Descriptions:

Display this ACL listid related information. Display the ACL related information, including the list id, the number of rules belonging to the ACL list, whether it has been applied to the hardware, and if it is applied to the hardware, list the list which applied to the port, belong to all the rules of the ACL list, including the id of the rule, the matching condition of the rule, the matching processing action of the rule, and the time-range of the application.

Examples:

```

Dispaly this ACL related information
OLT(config-acl-basic-7)# show list
ACL: 7
  Installed on: no port install.
  Rule 1 action: permit
  
```

14.2. ACL Rule

14.2.1. Create/Delete Rule

Command:

- 1) rule {RULEID} [END_RULEID]
- 2) no rule all
- 3) no rule {RULEID} [END_RULEID]

View:

Acl view

Parameters:

- **RULEID:** Indicates the created ruleid, which ranges from {1-16}
- **END_RULEID:** When taking two parameters,create the ruler ~great-ruleid ACL rule in batches,the value ranges from 2 to 16.

Descriptions:

Rule When taking only one parameter, add a rule to the current ACL list rule

When taking two parameters, create the ruleid~great-ruleid ACL rule in batches.

No rule is used to delete the rule.

Examples:

Create 3 rules to the current acl list, numbered from 1 to 3:

```

OLT(config-acl-base-200)#rule 1 3
  Created 1 rule(s) success.
  Created 2 rule(s) success.
  Created 3 rule(s) success.
  
```

Delete 2 rules, numbered from 6 to 7:

```

OLT(config-acl-basic-200)#no rule 1 2
  Remove 2 rule(s) success
  
```

```
OLT(config-acl-basic-200)#
```

14.2.2. Configure Rule Action

Command:

```
rule ruleid action {permit | deny}
```

View:

Acl view including all type of acl

Parameters:

- **ruleid:** Specifies the number of the rule, in the range of {1-16}.
- **permit:** Set the match action of the rule as permit, that is, allow matching packets to pass. **deny:** Set the matching action of the rule as deny, that is, the matching data packet is forbidden to pass.

Descriptions:

Set a rule matching action. ase

Examples:

Configure the matching processing action of rule 1 as the prohibit packets matching the matching criteria to pass.

```
OLT(config-acl-basic-1)# rule 1 action deny
```

14.3. ACL Matching Condition (Standard)

14.3.1. Source IP

Command:

```
rule {RULEID} match src-ip {IP_ADDR} {WILD_IP_ADDR }
```

View:

Standard ACL view, extended ACL view

Parameters:

- **RULEID:** Specifies the number of the rule, in the range of {1-16}.
- **IP_ADDR:** Set the rule to match the specific source IP address, denoted as A.B.C.D.
- **WILD_IP_ADDR:** Source IP address wildcard. A total of 32 bits, 1 means that need to be match.
- A value of 0 means no match. For example, if the IP address is 192.168.5.21 and the wildcard is 255.255.255.0, the packets of 192.168.5.0-192.168.5.255 will match the matching condition.

Descriptions:

Rule adds rule to match the source IP address.

Examples:

Add rule 1 to match packets with source IP address 192.168.12.xxx:

```
OLT(config-acl-base-2000)# rule 1 match src-ip 192.168.12.21 255.255.255.0
```

14.4. ACL Matching Condition (Extended)

14.4.1. Destination IP

Command:

```
rule {RULEID} match dst-ip { IP_ADDR } { WILD_IP_ADDR }
```

View:

Extended ACL view

Parameters:

- **RULEID:** Specifies the number of the rule, in the range of {1-16}.
- **IP_ADDR:** Set the rule to match the specific destination ip address, denoted as A.B.C.D.
- **WILD_IP_ADDR:** Destination IP address wildcard. total 32 bits, 1 means that need to be match, and 0 means no match. If the IP address is 192.168.5.21 and the wildcard is 255.255.255.0, the packets of 192.168.5.0-192.168.5.255 will match the conditions.

Descriptions:

Rule adds rule to match the destination IP address.

Examples:

Add rule 1 to match the packets with the destination IP address of 192.168.12.xxx.
 OLT(config-acl-adv-3000)# rule 1 match dst-ip 192.168.12.21 255.255.255.0

14.4.2. Source Port

Command:

```
rule {RULEID} match src-port {L4_PORT}
```

View:

Extended ACL view

Parameters:

- **ruleid:** Specifies the number of the rule, in the range of {1-16}.
- **L4_PORT:** Limit the minimum value of the matching source protocol port, ranging from 0 to 65535.

Descriptions:

Rule adds rule to match the source protocol port number.

Examples:

Add rule1 to match packets with source protocol port 1025:
 OLT(config-acl-adv-3000)# rule 1 match src-port 1025

14.4.3. Destination Port

Command:


```
rule {RULEID} match dst-port {L4_PORT}
```

View:

Extended ACL view

Parameters:

- **RULEID**: Specifies the number of the rule, in the range of {1-16}.
- **L4_PORT**: Limit the minimum value of the matching source protocol port, ranging from 0 to 65535.

Descriptions:

Rule adds rule to match the destination protocol port number.

Examples:

Add rule 1 to match the packets with the destination protocol port of 25:

```
OLT(config-acl-adv-3000)# rule 1 match dst-port 25
```

14.4.4. IP Protocol

Command:

```
rule {RULEID} match ip-protocol {icmp | igmp | tcp | udp | egp}
rule {RULEID} match ip-protocol {PROTOCOL_ID}
```

View:

Extended ACL view

Parameters:

- **RULEID**: Specifies the number of the rule, in the range of {1-16}.
- **icmp**: Set the rule to match the icmp packet.
- **igmp**: Set the rule to match the igmp packet.
- **tcp**: Set the rule to match tcp packet.
- **udp**: Set the rule to match the udp packet.
- **egp**: Set the rule to match the egp packet.
- **PROTOCOL_ID**:
- IP protocol ID.

Descriptions:

The rule adds a rule to match the IP packet protocol type.

Examples:

Add rule 1 to match the packets whose IP packet protocol type is TCP:

```
OLT(config-acl-adv-3000)# rule 1 match ip-protocol tcp
```

14.4.5. Condition Tos

Command:

```
rule {RULEID} match tos {TOS}
```

View:

Extended ACL view

Parameters:

None

Descriptions:

RULEID: Specifies the number of the rule, in the range of {1-16}.

TOS : Match the ip packet tos priority.

Examples:

Add rule 1 to match packets with ip packet priority 0:

```
OLT(config-acl-link-3000)# rule 1 match tos 0
```

14.4.6. Conditions Dscp

Command:

```
rule {RULEID} match dscp {DSCP}
```

View:

Extended ACL view

Parameters:

None

Descriptions:

RULEID: Specifies the number of the rule, in the range of {1-16}.

DSCP : Match the ip packet dscp priority.

Examples:

Add rule 1 to match packets with ip packet priority 0:

```
OLT(config-acl-link-3000)# rule 1 match dscp 0
```

14.5. ACL matching condition (Link Layer)

14.5.1. Source Mac

Command:

```
rule {RULEID} match src-mac {MAC_ADDR} {MASK}
```

View:

Link layer ACL view

Parameters:

- **RULEID:** Specify the number of the rule, in the range of {1-16}.
- **MAC_ADDR :** Set the rule to match the specific source mac address, expressed as AA:BB:CC:DD:EE:FF
- **MASK:** Source MAC address wildcard, total is 48 bits, 1 means that need to be matched, and 0 means no match. For example, the source MAC address is 00:11:22:33:44:55, and the wildcard is 00:ff:ff:00:00:00, all packets with source MAC address XX:11:22:XX:XX:XX will match the matching condition.

Descriptions:

The rule adds rule to match the source MAC address.

Examples:

```
Add rule1 to match packets with the source MAC address 00:11:22:00:00:00:
OLT(config-acl-link-4000)# rule 1 match src-mac 00:11:22:33:44:55 ff:ff:ff:00:00:00
```

14.5.2. Destination Mac

Command:

```
rule {RULEID} match dst-mac {MAC_ADDR} {MASK}
```

View:

Link layer ACL view.

Parameters:

- **RULEID:** Specifies the number of the rule, in the range of {1-16}.
- **MAC_ADDR:** Set the rule to match the specific destination MAC address, expressed as AA:BB:CC:DD:EE:FF.
- **MASK:** Destination MAC address wildcard, total is 48 bits, 1 means that need to be matched, and 0 means no match. For example, the destination MAC address is 00:11:22:33:44:55, and the wildcard is 00:ff:ff:00:00:00, all packets with the destination MAC address of XX:11:22:XX:XX:XX will match the matching condition.

Descriptions:

The rule adds a rule to match the destination MAC address.

Examples:

```
Add rule 1 to match the destination MAC address 00:01:02:03:04:05:
OLT(config-acl-link-4000)# rule 1 match dst-mac 00:11:22:33:44:55 00:00:00:ff:ff:ff
```

14.5.3. Ethernet Type

Command:

```
rule {RULEID} match eth-type {ETH_TYPE}
```

View:

Link layer ACL view.

Parameters:

- **RULEID:** Specifies the number of the rule, in the range of {1-16}.
- **ETH_TYPE:** Ether type value. For example: IP-0x0800, ARP-0x0806, RARP-0x8035,
- SNMP-0x814C ,IPV6-0x86DD ,PPP-0x880B ,PPPoE_DISC-0x8863, PPPoE_SESSION-0x8864
- SNMP-0x814C ,IPV6-0x86DD ,PPP-0x880B ,PPPoE_DISC-0x8863, PPPoE_SESSION-0x8864

Descriptions:

Rule adds rule to match the Ethernet frame type.

Examples:

```
Add rule1 to match packets with Ethernet frame type ARP:
```

```
OLT(config-acl-link-4000)# rule 1 match eth-type 0x0800
```

14.5.4. Vlan

Command:

```
rule {RULEID} match vlan {VLANID}
```

View:

```
Link layer acl view.
```

Parameters:

- **RULEID:** Specifies the number of the rule, in the range of {1-16}.
- **VLANID:** The value of the matching service provider vlan, in a range of {1-4094}.

Descriptions:

Rule adds rule to match svlan.

Examples:

Rule adds rule to match svlan.

```
OLT(config-acl-link-4000)# rule 1 match vlan 56
```

14.5.5. Inner-Vlan-Id

Command:

```
rule {RULEID} match inner-vlan-id {VLANID}
```

View:

```
Link layer acl view
```

Parameters:

None

Descriptions:

RULEID: Specifies the number of the rule, in the range of {1-16}.

VLANID: Match the packets of the inner vlan ID.

Examples:

Add rule 1 to match packets with inner vlan ID 1000:

```
OLT(config-acl-link-4000)# rule 1 match inner-vlan-id 1000
```

14.5.6. Innter-Vlan-Pri

Command:

```
rule {RULEID} match inner-vlan-pri {PRI}
```

View:

```
Link layer acl view
```

Parameters:

None

Descriptions:

RULEID: Specifies the number of the rule, in the range of {1-16}.

PRI: Match the packets of the inner vlan pri.

Examples:

Add rule 1 to match packets with inner vlan pri 0:

```
OLT(config-acl-link-4000)# rule 1 match inner-vlan-pri 0
```

14.5.7. Outer-Vlan-Id

Command:

```
rule {RULEID} match outer-vlan-id {VLANID}
```

View:

```
Link layer acl view
```

Parameters:

None

Descriptions:

RULEID: Specifies the number of the rule, in the range of {1-16}.

VLANID: Match the packets of the outer vlan ID.

Examples:

Add rule 1 to match packets with an outer vlan ID of 1000:

```
OLT(config-acl-link-4000)# rule 1 match outter-vlan-id 1000
```

14.5.8. Outer-Vlan-Pri

Command:

```
rule {RULEID} match outer-vlan-pri {PRI}
```

View:

```
Link layer acl view
```

Parameters:

None

Descriptions:

RULEID: Specifies the number of the rule, in the range of {1-16}.

PRI: Match the packets of the outer vlan pri.

Examples:

Add rule 1 to match packets with outer vlan pri 0:

```
OLT(config-acl-link-4000)# rule 1 match outer-vlan-pri 0
```

14.6. Port Acl-Qos Configuration

14.6.1. Modify Cos

Command:

```
acl-qos {ACLID} cos {COSID}
```

View:

ge、xge view

- ACLID: Indicates the listid to which the ACL is to be applied.
- COSID: The priority of 802.1p used for replacement, ranging from 0-7.

Descriptions:

Directly refer to the defined ACL for QoS control. The processing action of the ACL rule should be permit.

Examples:

For the PON1/4 down source MAC address is 78:E3:B5:95:09:95, modify the 802.1P priority to 6.

```
OLT(config)# acl 4000

OLT(config-acl-link-4000)# rule 1 match src-mac 78:E3:B5:95:09:95 ff:ff:ff:ff:ff:ff
OLT(config-acl-link-4000)# rule 1 action permit
OLT(config-acl-link-4000)# exit
OLT(config)# interface ge 0/1
OLT (config-if-ge-0/1)# acl-qos 4000 cos 6
```

14.6.2. Modify Dscp

Command:

```
acl-qos { ACLID } dscp {DSCP}
```

View:

ge、xge view

Parameters:

- ACLID: Indicates the listid to which apply the ACL
- DSCP: For the packet that matches the acl rule, modify the dscp of the packet, in the range from 0-63

Descriptions:

Acl-qos directly references the defined ACL for QoS control. The processing action of the ACL rule should be permit.

Examples:

Modify the dscp priority of data pack which PON1/4 down source MAC address is 78:E3:B5:95:09:95 to 6

```
OLT(config)# acl 4000
OLT(config-acl-link-4000)# rule 1 match src-mac 78:E3:B5:95:09:95 ff:ff:ff:ff:ff:ff
OLT(config-acl-link-4000)# rule 1 action permit
OLT(config-acl-link-4000)# exit

OLT(config)# interface ge 0/1
```

```
OLT (config-if-ge-0/1)# acl-qos 4000 dscp 6
```

14.6.3. Add Outer Vlan

Command:

```
acl-qos { ACLID } outer-vlan {VLANID}
```

View:

```
ge、 xge view
```

Parameters:

- **ACLID:** Indicates the listid to which apply the ACL.
- **VLANID:** Add an outer vlan for packets that match the acl rule.

Descriptions:

Directly refer to the defined ACL for QoS control. The processing action of the ACL rule should be permit.

Examples:

Apply the acl 4000 rule under the GE1 to filter the data of vlan 1000, and nest the outer vlan 2000.

```
OLT(config)# acl 4000
OLT(config-acl-link-4000)# rule 1
OLT(config-acl-link-4000)# rule 1 action permit
OLT(config-acl-link-4000)# rule 1 match outer-vlan-id 1000
OLT(config-if-ge-0/1)# acl-qos 4000 outer-vlan 2000
```

14.6.4. Delete Port Acl-Qos

Command:

```
no acl-qos { ACLID }
```

View:

```
ge、 xge view
```

Parameters:

ACLID: Indicates the ACLID of the ACL applied to the port.

Descriptions:

Delete an ACL that has been applied to a port

Examples:

```
OLT (config-if-ge-0/1)# no acl-qos 5001
```

14.6.5. View Acl-Qos

Command:

```
show acl-qos
```

View:

ge、 xge view

Parameters:

None

Descriptions:

Displays the acl-qos information applied to the current port.

Examples:

Display the acl-qos information applied to the current port (ge-1/3):

```
OLT(config-if-ge-1/3)# show acl-qos
```

```
Acl 5001 install this port.
```

```
cos: 6.,
```


14.6.6. Configure Packet Filter

Command:

- 1) packet-filter { ACLID } rulemerge {enable | disable}
- 2) no packet-filter { ACLID }

View:

ge、xge view

Parameters:

- all: All ACL lists applied to the port.
- ACLID: Specifies the ACL list number applied to the port.

Descriptions:

The packet-filter applies an already defined acl list to the current port.

packet-filterIf the specified ACL list does not exist or the specified list does not have any rules, it will not be applied successfully.No packet-filter removes the acl list applied to the current port.

If the specified ACL list does not exist or the list is not applied to the current port, it will not be removed successfully.

Examples:

Apply (install) acl list 1 to the current port (ge-0/3):

```
OLT(config-if-ge-0/3)#packet-filter 1 rulemerge enable
```

Remove the app (installed) to the current port (ge-1/3) list 1:

```
OLT(config-if-ge-0/3)# no packet-filter 1
```

14.6.7. View Packet Filter

Command:

show packet-filter

View:

ge、xge view

Parameters:

None

Descriptions:

Ge, xge, pon view: Displays the acl list information applied to the current port.

Examples:

Display the acl list information applied to the current port (ge-1/3):

```
OLT(config-if-ge-0/3)# show packet-filter
```

```
ACL install on current port:
```

```
4000
```

15. RSTP Configuration

15.1. RSTP Protocol Configuration

15.1.1. Enable/Disable RSTP

Command:

```
rstp {enable | disable}
```

View:

Config view

Parameters:

- **enable:** Open the RSTP protocol switch.
- **disable:** Turn off the RSTP protocol switch.

Descriptions:

Turn on or off the enable RSTP function (the default is to forbid the RSTP function).

Examples:

```
OLT(config)# rstp enable
OLT(config)# rstp disable
```

15.1.2. Configure Priority

Command:

- 1) `rstp priority {PRI}`
- 2) `no rstp priority`

View:

Config view

Parameters:

- **PRI:** Network bridge priority, the value is 0-61440, with 4096 as the smallest particle.

Descriptions:

Configure network bridge priority

Restore the default configuration of the network bridge priority (32768).

Examples:

```
Configure network bridge priority as 4096
OLT(config)# rstp priority 4096
```

15.1.3. Configure Mode

Command:

```
rstp mode {stp | rstp}
```

View:

Config view

Parameters:

- stp: Adopt STP protocol.
- rstp: Adopt RSTP protocol.

Descriptions:

Configure protocol mode

Examples:

The configuration uses the RSTP protocol.

```
OLT(config)# rstp mode rstp
```

15.1.4. Configure Holdtime Timer

Command:

- 1) rstp holdtime {SECONDS}
- 2) no rstp holdtime

View:

Config view

Parameters:

- SECONDS: The holdtime timer, takes the value 1-10, in seconds.

Descriptions:

Configure the holdtime timer.

Restore holdtime to the default configuration (3s).

Examples:

Set the holdtime timer to 6s.

```
OLT(config)# rstp holdtime 6
```

15.1.5. Configure Forward-Delay Timer

Command:

- 1) rstp timer forward-delay {SECONDS }
- 2) no rstp timer forward-delay

View:

Config view

Parameters:

- SECONDS: Forward-delay timer, in the range of 4-30, in seconds.

Descriptions:

Configure forward-delay timer

Examples:

Configure forward-delay timer to 20s

```
OLT(config)# rstp timer forward-delay 20
```

【说明】

The value of max-age is associated with hello and forward-delay. The specific relationship is as follows:

15.1.6. Configure Hello Timer

Command:

- 1) `rstp timer hello {SECONDS}`
- 2) `no rstp timer hello`

View:

Config view

Parameters:

- **SECONDS:** The hello timer, takes the value is 1-10, in seconds.

Descriptions:

Configure hello timer

Restore the default configuration of the hello timer (2s).

Examples:

Configure hello timer to 4s

```
OLT(config)# rstp timer hello 4
```

【说明】

The value of max-age is associated with hello and forward-delay. The specific relationship is as follows:

$2 \times (\text{forward-delay} - 1) \leq \text{max-age} \leq 2 \times (\text{hello} + 1)$.

15.1.7. Configure Max-Age Timer

Command:

- 1) `rstp timer max-age {SECONDS}`
- 2) `no rstp timer max-age`

View:

Config view

Parameters:

- **SECONDS:** max-age timer, the value is 6-40, in seconds.

Descriptions:

Configure max-age timer

Restore the default configuration of the max-age timer (20s).

Examples:

Configure the max-age timer to 30s.

```
OLT(config)# rstp timer max-age 30
```

【Description】 The value of max-age is associated with hello and forward-delay. The specific relationship is: $2 \times (\text{forward-delay} - 1) \leq \text{max-age} \leq 2 \times (\text{hello} + 1)$.

15.1.8. View Rstp Network Bridge Information

Command:

show rstp bridge-info

View:

Config view

Parameters:

None

Descriptions:

Display network information

Examples:

Display network information

```
OLT(config)# show rstp bridge-info
Bridge RSTP state      : enabled
Local Bridge ID       : 4096.02-17-18-d3-f3-ae
Bridge Priority        : 4096
Stp/rstp Version      : stp
Max Age               : 20s
Local Bridge Max Age  : 20s
Hello Time            : 2s
Local Bridge Hello Time : 2s
Forward Delay         : 15s
Local Bridge Forward Delay : 15s
Hold Time             : 3s
Root Bridge ID        : 4096.02-17-18-d3-f3-ae
Root Port             : [0]
Root Path Cost        : 0
Topology Change Count : 0
Time Since Topology Change : 865
```

15.2. RSTP Port Configuration

15.2.1. Turn On/Off Port RSTP

Command:

rstp port {enable | disable}

View:

Ge view

Parameters:

- enable: Open port RSTP enable.
- disable: Disable RSTP port enable.

Descriptions:

Turn on or off the port RSTP enable (the default is to open the RSTP function).

Examples:

Enable the RSTP function on the GE0/3 port.

```
OLT(config-ge-0/3)# rstp port enable
```

15.2.2. Configure Port Cost

Command:

- 1) `rstp cost {COST}`
- 2) `no rstp cost`

View:

Ge view

Parameters:

- **COST:**Port cost. The value is:
 - 1) 0: auto,
 - 2) 10M: 200,000~20,000,000,
 - 3) 100M: 20,000~2,000,000,
 - 4) 1G: 2,000~200,000

Descriptions:

Configure port cost.

Restore RSTP cost to the default configuration (auto).

Examples:

Configure the GE port cost to be 20000.

```
OLT(config-ge-0/3)# rstp cost 20000
```

15.2.3. Turn On/Off Edged-Port

Command:

`rstp edged-port {enable | disable}`

View:

Ge view

Parameters:

- enable: enable edged-port
- Disable: disable edged-port

Descriptions:

Configure the edge port.

Examples:

Configure the GE0/3 port edged-port mode to disable.

```
OLT(config-ge-0/3)# rstp edged-port disable
```

15.2.4. Configure Point-To-Point Mode

Command:

- 1) `rstp point-to-point {auto | force-false | force-true}`
- 2) `no rstp point-to-point`

View:

Ge view

Parameters:

- **auto:** Decided by spanning tree protocol
- **force-false:** Disable point to point link
- **force-true:** Enable point to point link

Descriptions:

Configure the port point-to-point mode.

Restore RSTP point-to-point to the default configuration (auto).

Examples:

Configure the GE0/3 port point-to-point mode to auto.

```
OLT(config-ge-0/3)# rstp point-to-point auto
```

15.2.5. Configure Port-Priority

Command:

```
rstp port-priority port-priority
```

View:

Ge view

Parameters:

- **port-priority:** Port priority, value 0-240, with 16 as the smallest particle.

Descriptions:

Configure port priority.

Examples:

Set the priority of the GE0/3 port to 96.

```
OLT(config-ge-0/3)# rstp port-priority 96
```

15.2.6. View Port Rstp Information

Command:

```
show rstp interface-info
```

View:

Ge view

Parameters:

None

Descriptions:

Display the RSTP information of the port.

Examples:

Display RSTP information of GE 0/3 ports

```
OLT(config-ge-0/3)# show rstp interface-info
```

```
RSTP State      : Enabled
Port Roles      : Unknown Port
Port State      : Disabled
Port Priority    : 128
Port Cost       : Config=200000 / Active=200000
Port Edged      : Config=disable / Active=disable
Point to Point  : Config=auto / Active=enable
```


16. Link-Aggregation Management

16.1. Create/Delete Trunk Group

Command:

- 1) link-aggregation group {TRUNK-GROUP} psc {TRUNK-PSC}
- 2) no link-aggregation group {TRUNK-GROUP | all}

View:

Config view

Parameters:

- TRUNK-GROUP: The created trunk-id, in the range of 1-32.
- TRUNK-PSC: Created trunk traffic distribution policy, ranging from 1-6.1 for based on source MAC address; 2 for based on destination MAC address; 3 for simultaneous based on source and destination MAC addresses; 4 for based on source IP address; 5 for based on destination IP address; 6 means based on both source and destination IP addresses.
- all: Select all trunk groups.

Descriptions:

The link-aggregation group creates a trunk group and specifies the trunk id and the distribution policy of traffic between ports.

No link-aggregation group deletes the specified/all trunk groups.

Examples:

Display trunk group information with trunk id 1

```
OLT(config)# show link-aggregation group 2
```

The trunk group does not exist.

Create a trunk id of 2, and the traffic distribution policy is based on the source MAC address.

```
OLT(config)# link-aggregation group 2 psc 1
```

Display trunk group information with trunk id 2

```
OLT(config)# show link-aggregation group 2
```

Trunk 2: psc: srcmac

Ports: none

16.2. Configure Trunk Group PSC

Command:

```
link-aggregation group {TRUNK-GROUP} new-psc {TRUNK-PSC }
```

View:

Config view

Parameters:

- **TRUNK-GROUP:** The trunk id of the traffic distribution policy which will be modified, in the range 1-32.
- **TRUNK-PSC:** trunk new traffic distribution policy, ranging from 1-6. 1 means based on source MAC address; 2 means based on destination MAC address; 3 means based on Simultaneously based on source and destination MAC addresses; 4 means based on source IP address; 5 means based on destination IP address; 6 means Simultaneously based source and destination IP addresses.

Descriptions:

Modify the traffic distribution policy of a trunk group.

Examples:

Display trunk group information with trunk id 2

```
OLT(config)# show link-aggregation group 2
```

```
Trunk 2: psc: srcmac
```

```
Ports: none
```

Modify the traffic distribution policy of trunk 2 to be based on the destination IP address.

```
OLT(config)# link-aggregation group 2 new-psc 5
```

Display trunk group information with trunk id 2

```
OLT(config)# show link-aggregation group 2
```

```
Trunk 2: psc: destip
```

```
Ports: none
```

16.3. Add/Delete Trunk Group Port

Command:

- 1) port link-aggregation group {TRUNK-GROUP }
- 2) no port link-aggregation group {TRUNK-GROUP }

View:

Ge and xge view

Parameters:

- **TRUNK-GROUP:** The trunk group number, in the range of 1-8.

Descriptions:

Port link-aggregation group adds the current interface to the specified trunk group. The no port link-aggregation group command deletes the current interface from the specified trunk group.

Examples:

Add the current port to trunk 2

```
OLT(config-if-ge-0/3)# port link-aggregation group 2
```

Display trunk 2 information

```
OLT(config-if-ge-0/3)# show link-aggregation group 2
Trunk 2: psc: destip
Ports: GE3
```

16.4. View Link-Aggregation Information

Command:

```
show link-aggregation group {TRUNK-GROUP | all}
```

View:

```
config view
```

Parameters:

- **TRUNK-GROUP:** Display the trunk-id value, in the range of 1-8.
- **all:** Display information about all trunks, including the id of the trunk, the distribution policy of the traffic between the trunk ports, the ports belonging to the trunk, and so on.

Descriptions:

Display information about the trunk, including the id of the trunk, the distribution policy of the traffic between the trunk ports, the ports belonging to the trunk, and so on.

Examples:

Display all trunk information

```
OLT(config)# show link-aggregation group all
Trunk 2: psc: destip
Ports: GE3
Trunk 3: psc: srcdestmac
Ports: none
```

17. Alarm Configuration

17.1. View Alarm Information

17.1.1. View Alarm History

Command:

```
show alarm history { all | id | level | type | time }
```

View:

Config view

Parameters:

- **id:** Query alarms and event history records according to the alarm id.
- **level:** Query alarm and event history according to the alarm level.
- **time:** Query alarm and event history according to the alarm time.
- **type:** Query alarm and event history according to the alarm type.
- **all:** Display all alarm type query alarms and event history records.

Descriptions:

Display all alarm and event history in the system.

Examples:

```
OLT(config)# show alarm history all
```

Alarm SN	Alarm ID	LOCATION	MAC ADDRESS	TIME	DESCRIPTION
1	0x00001002	SYS:00/00:00	00:00:00:00:00:00	2012/09/21 14:15:41	System init
2	0x00003001	PON:05/00:00	00:00:00:00:00:05	2012/09/21 14:15:42	PON add ok
3	0x00003001	PON:06/00:00	00:00:00:00:00:06	2012/09/21 14:15:43	PON add ok
4	0x00003001	PON:07/00:00	00:00:00:00:00:07	2012/09/21 14:15:43	PON add ok
5	0x00003001	PON:08/00:00	00:00:00:00:00:08	2012/09/21 14:15:43	PON add ok
6	0x00003001	PON:01/00:00	00:00:00:00:00:01	2012/09/21 14:15:43	PON add ok
7	0x00003001	PON:02/00:00	00:00:00:00:00:02	2012/09/21 14:15:43	PON add ok
8	0x00003001	PON:03/00:00	00:00:00:00:00:03	2012/09/21 14:15:43	PON add ok
9	0x00003001	PON:04/00:00	00:00:00:00:00:04	2012/09/21 14:15:43	PON add ok

17.1.2. View Active Alarm

Command:

```
show alarm active
```

View:

Config view

Parameters:

None

Descriptions:

It display that there are still alarms and event history records in the current system, and will be cleared after restart.

Examples:

```
OLT(config)# show alarm active
Alarm SN Alarm ID LOCATION MAC ADDRESS TIME
DESCRIPTION
-----
1 0x00001002 SYS:00/00:00 00:00:00:00:00:00 2012/09/21 14:15:41
System init
2 0x00003001 PON:05/00:00 00:00:00:00:00:05 2012/09/21 14:15:42
PON add ok
```

17.1.3. Clean Alarm

Command:

- 1) no alarm all
- 2) no alarm history {all | ALARM_ID }
- 3) no alarm active {all | ALARM_ID }

View:

Config view

Parameters:

- all: All historical alarm list information.
- History: Clear historical alarms and event record lists.
- active : Clear current alarm and event record list
- ALARM_ID: Alarm id, hexadecimal show it.

Descriptions:

Clear the historical alarm record of the specified alarm id or clear all historical alarm records. For display history alarms, please refer to show alarm.

Examples:

```
OLT (config)# no alarm all
```

17.2. Alarm Terminal Output Configuration

17.2.1. Enable/Disable Alarm Output

Command:

```
alarm display {disable|enable}
```

View:

Config view

Parameters:

- **disable:** Cancel the display of alarms and events
- **enable:** Open the display of alarms and events

Descriptions:

Alarm display / no display of the main switch, after opening, the alarm information will be displayed in real time on the terminal interface.

Examples:

```
OLT(config)# alarm display enable
```

17.2.2. View Alarm Terminal Output Status

Command:

show alarm display status

View:

Config view

Parameters:

None

Descriptions:

View current alarm and event display total switch enable status

Examples:

```
OLT(config)# show alarm display status
Alarm display enable
```

17.2.3. Enable/Disable Output by Alarm ID

Command:

- 1) **alarm output {system|onu|pon|switch} {ALARM_ID} {disable|enable}**
- 2) **alarm {system | onu | pon | switch} {ALARM_ID} {disable | enable}**

View:

Config view

Parameters:

- **system:** system module alarms and events
- **onu:** onu module alarms and events
- **pon:** pon module alarms and events
- **switch:** switch module alarms and events
- **ALARM_ID:** Alarm ID number
- **Enable:** Enable an alarm and event output to the terminal switch.
- **Disable:** Disable an alarm and event output to the terminal switch.

Descriptions:

Configure whether an alarm or event in a module is output to the terminal
 Configure whether alarms and events under a module are output, No impact on alarms and events. The alarms and events generated by the system will still be recorded. In the history table and activity record table, the alarms and events can be viewed. It will also report to the network management, whether the network management is displayed, depending on the configuration of the network management.

Examples:

The system reset alarm id is 0x00001001. Configure the OLT so that this event not output to the terminal

```
OLT (config)# alarm output system 0x00001001 disable
```

17.2.4. Enable/Disable Output by Alarm Level

Command:

```
alarm output level {critical | major | minor | warning} {enable | disable}
```

View:

Config view

Parameters:

- critical | major | minor | warning: Configure whether a certain level of alarms and events are output to the terminal.
- enable: Enable a certain level of alarm and event output to the terminal switch.
- disable: Forbid certain levels and events from being output to the terminal switch.

Descriptions:

Configure whether a certain level of alarm or event is output to the terminal.

Examples:

Configure alarms and events for the warning level to not be output to the terminal.

```
OLT(config)# alarm output level warning disable
```

```
OLT(config)# show alarm config level
```

ALARM LEVEL	OUTPUT
-----	-----
warning	disable
minor	enable
major	enable
critical	enable

17.2.1. Enable/Disable Output by Alarm

Type

Command:

```
alarm output type {communication | service | process | equipment | environment | tca}
{enable | disable}
```

View:

Config view

Parameters:

- communication: Configure communication alarms and events to be output to the terminal or not.
- service: Configure service quality alarms and events to be output to the terminal or not.
- process: Configure whether to handle error type alarms and events output to the terminal or not.
- equipment: Configure hardware device alarms and events to be output to the terminal or not.
- environment: Configure environment-level alarms and events to be output to the terminal or not.
- Tca: Configure whether threshold alarms and events are output to the terminal or not.
- enable: Enable certain types of alarms and event output to the terminal switch or not.
- Disable: Disable certain types of alarms and events from being output to the terminal switch or not.

Descriptions:

Configure whether certain types of alarms and events are output to the terminal.

Examples:

Disable service class alarms and event output to the terminal

```
OLT(config)# show alarm config type
ALARM TYPE    OUTPUT
-----
environment    enable
equipment      enable
process        enable
service        enable
communication  enable
tca            enable

OLT(config)# alarm output type service disable
OLT(config)# show alarm config type
ALARM TYPE    OUTPUT
-----
environment    enable
equipment      enable
process        enable
service        disable
```



```
communication enable  
tca          enable
```

17.2.2. View Alarm Terminal Output Configuration

Command:

```
show alarm config {level | type}
```

View:

Config view

Parameters:

- **level:** Displays whether a certain level of alarms and events are output to the terminal configuration.
- **type:** Displays whether certain types of alarms and events are output to the terminal configuration.

Descriptions:

Displays mask information for alarms and events when the command has no parameters.

When the command has parameters, display alarms and event output to the terminal information.

Examples:

Display whether a certain level of alarms and events are output to the terminal.

```
OLT(config)# show alarm config type
```

ALARM TYPE	OUTPUT
-----	-----
environment	enable
equipment	enable
process	enable
service	disable
communication	enable
tca	enable

17.3. Alarm Configuration

17.3.1. View All Alarm Configuration

Command:

show alarm info all

View:

Config view

Parameters:

None

Descriptions:

Displays a list of alarms and events. Displays the id, description, level, type, enable switch, output to terminal switch, alarm, and time stamp of each alarm or event.

Examples:

Display alarm and event list

```
OLT(config)# show alarm info all
```

alarm id	description	level	type	trap	output	class	
0x00001001	system reset	critical	equipment	enable	enable	enable	event
0x00001002	system init	warning	equipment	enable	enable	enable	event

17.3.2. View Alarm Module Configuration

Command:

show alarm info { system|onu|pon|switch} {ALARM_ID}

View:

Config view

Parameters:

- **system:** System module alarms and events
- **onu:** Onu module alarms and events
- **pon:** Pon module alarms and events
- **switch:** Switch module alarms and events
- **ALARM_ID :** The id of the alarm or event in the corresponding module

Descriptions:

Displays the id, description, level, type, enable switch, output to terminal switch, alarm, and time stamp of an alarm or event.

Examples:

```
OLT(config)# show alarm info system 0x00001001
ID      : 0x00001001
```

```

Description : System reset
Level      : critical
Type      : equipment
Output    : enable
Trap      : enable
Class     : event alarm_class = 0    0x00001002  system init  warning
equipment enable enable event

```

17.3.1. Configure Alarm Level

Command:

```
alarm {system | onu | pon | switch} {ALARM_ID} {critical | default | major | minor | warning }
```

View:

Config view

Parameters:

- System: System module alarms and events
- onu: onu module alarms and events
- pon: pon module alarms and events
- switch: Alarms and events of the switch module
- ALARM_ID: Alarm ID number
- Critical: The levels of alarms and events are severe.
- Default: Configure alarm and event levels as default values.
- Major: Configure the level of alarms and events is important.
- Minor: Configure alarm and event levels as secondary
- Warning: Configure alarm and event levels as warnings.

Descriptions:

Configure alarm and event levels. Turn on and off alarms and events according to the alarm id.

Examples:

The alarm ID of the system time change is 0x00001001. Configure this event level as minor.

```

OLT(config)# alarm system 0x00001001 minor
OLT(config)# show alarm info system 0x00001001
ID      : 0x00001001
Description : System reset
Level    : minor
Type     : equipment
Output   : enable
Trap     : enable
Class    : event

```

17.4. Alarm Log Configuration

17.4.1. Enable/Disable Alarm Log

Command:

```
alarm log {enable | disable | save}
```

View:

Config view

Parameters:

- **enable:** Turn on alarms and event output to the log switch.
- **disable:** Turn off alarms and event output to the log switch.

Descriptions:

Enables or disables the logging of alarms and event output (the default state is to disable alarms and event output logs).

Examples:

Enable alarm and event output to the log switch

```
OLT(config)# alarm log enable
```

17.4.2. View Alarm Log Status

Command:

```
show alarm log status
```

View:

Config view

Parameters:

None

Descriptions:

Display alarm and event output to log switch configuration.

Examples:

```
OLT(config)# show alarm log status
```

```
Alarm to log status :Disable
```

17.5. Alarm Trap Configuration

17.5.1. Enable/Disable Alarm Trap

Command:

alarm trap {enable | disable}

View:

Config view

Parameters:

- **enable:** Turn on alarms and event output to the Trap Server switch.
- **disable:** Turn off alarms and event output to the Trap Server switch.

Descriptions:

Enable or disable alarms and events to be output to the Trap Server. The default state is to disable the alarm and event output Trap Server. After the network management configure the Trap server IP, the switch is automatically enabled.

Examples:

Enable alarm and event output to the Trap Server switch.

```
OLT(config)# alarm trap enable
```

17.5.2. SNMP Trap Server

Command:

snmp-trap ip-address {IPADDRESS}

View:

Config view

Parameters:

IPADDRESS: SNMP trap server ipaddress

Descriptions:

set the SNMP trap server.

Examples:

```
OLT(config)# snmp-trap ip-address 192.168.0.116
```

17.5.3. View Alarm Trap Status

Command:

show alarm trap

View:

Config view

Parameters:

None

Descriptions:

Displays alarms and events output to the Trap Server switch state.

Examples:

```
OLT(config)# show alarm trap status
```


18. ONU Management

18.1. ONU Registration

18.1.1. Enable/Disable ONU Auto Find

Command:

```
onu auto-find {PON_ID} {enable| disable}
```

View:

Config or gpon-olt view

Parameters:

- PON_ID: Pon port ID pon □ ID;
- enable: Turn on ONU auto discovery function ;
- disable: Turn off ONU auto discovery function .

Descriptions:

Configure to turn on or turn off the ONU automatic discovery function of a PON port. The default is to turn off the ONU auto-discovery feature.

Examples:

Open the ONU auto discovery function of the PON 1 port:

```
OLT(config)# onu auto-find 1 enable
```

18.1.2. View Auto Find ONU List

Command:

```
show onu auto-find list { PON_ID }
```

View:

Config or gpon-olt view

Parameters:

PON_ID: pon port ID;

Descriptions:

View the ONUs automatically discovered by a PON port.

Note: After viewing, the discovery list will be automatically cleared.

Examples:

View the ONUs automatically discovered by the PON 1 port:

```
OLT(config)# show onu auto-find list 1
id  Vendor-ID  GPON-SN
01  GPON       GPON18060155 (47504f4e18060155)
```


18.1.3. ONU Manual Registration

Command:

- 1) onu add {ONU_ID} {sn GPON_SN | sn-pw GPON_SN PASSWORD | pw PASSWORD | loid LOID | loid_lopw LOID } [desc NAME]
- 2) onu add { ONU_ID } {sn GPON_SN | sn-pw GPON_SN PASSWD | pw PASSWORD | loid LOID | loid_lopw LOID } {line-profile-name NAME| line-profile-id ID} [desc NAME]
- 3) onu add { ONU_ID } {sn GPON_SN | sn-pw GPON_SN PASSWD | pw PASSWORD | loid LOID | loid_lopw LOID } {line-profile-name NAME| line-profile-id ID} {service-profile-name NAME| service-profile-id ID} [desc NAME]

View:

Gpon-olt view

Parameters:

- ONU_ID: ONU ID;
- GPON_SN:ONU Serial number, fixed 12 characters, such as: GPON18060155;
- PASSWORD: Authentication password;
- LOID: Logical ID
- LOPW: Logical ID password
- desc NAME: ONU description information, up to 32 characters, optional
- line-profile-name NAME: Register the ONU and bind the line Profile according to the name. Optional;
- line-profile-id ID: Register the ONU and bind the line Profile according to the ID.
- service-profile-name NAME: Register the ONU and bind the service Profile according to the name. Optional;
- service-profile-id ID: Register the ONU and bind the service Profile according to the ID.

Descriptions:

As above, ONU registration supports the following authentication methods: GPON SN, GPON SN plus password, password, LOID, LOID plus LOID password.

As above, ONU registration supports 3 modes:

- 1) If not bind the line Profile, and not bind service Profile. The configuration commands of the line Profile and service Profile are configured in the gpon-onu node.
- 2) Only bind the line Profile, and do not bind the service Profile. The configuration command of the corresponding service Profile is configured in the gpon-onu node.
- 3) Bind line profiles and service templates at the same time

Examples:

Enter the PON 1 port, register the ONU, do not bind the line profile, and do not bind the service Profile:

```
OLT(config)# interface gpon-olt 0/1
OLT(config-if-gpon-olt_0/1)# onu add 1 sn GPON18060183
```

Enter PON 1 port, register ONU, and bind line Profile HGU:

```
OLT(config-if-gpon-olt_0/1)# onu add 2 sn GPON18060184 line-profile-name HGU
```

Enter PON 1 port, register ONU, bind line profile HGU and service Profile HGU:

```
OLT(config-if-gpon-olt_0/1)# onu add 3 sn GPON18060178 line-profile-name HGU
service-profile-name HGU
```

18.1.4. ONU Auto Registration

Command:

- 1) onu auto-config {all-onu | gpon-olt { SLOT_ID/PON_ID } | equipment-id {EQUID} | vendor-id {VENDORID} equipment-id {EQUID}}
- 2) onu auto-config {all-onu | gpon-olt { SLOT_ID/PON_ID } | equipment-id {EQUID} | vendor-id {VENDORID} equipment-id {EQUID}} {line-profile-id {LINE_PROFILE_ID} | line-profile-name {LINE_PROFILE_NAME}}
- 3) onu auto-config {all-onu | gpon-olt { SLOT_ID/PON_ID } | equipment-id {EQUID} | vendor-id {VENDORID} equipment-id {EQUID}} {line-profile-id {LINE_PROFILE_ID} | line-profile-name {LINE_PROFILE_NAME}} {service-profile-id {SERVICE_PROFILE_ID} | service-profile-name { SERVICE_PROFILE_NAME}}

View:

```
gpon-olt view
```

Parameters:

- all-onu: All ONUs are automatically registered;
- gpon-olt { SLOT_ID/PON_ID}: The ONU under the PON port specified by SLOT_ID/PON_ID is automatically registered.;
- equipment-id {EQUID}: The ONU of the specified equipment-id is automatically registered.;
- vendor-id {VENDORID} equipment-id {EQUID}: Automatic registration of ONUs for specified vendor-id and equipment-id
- LINE_PROFILE_ID: Line Profile ID bound after auto registration
- LINE_PROFILE_NAME: Line Profile name bound after auto registration
- SERVICE_PROFILE_ID: Line Profile ID bound after auto registration
- SERVICE_PROFILE_NAME: Service Profile name bound after auto registration

Descriptions:

Auto-find function should be enable.

Examples:

All ONUs under PON port 1 are registered automatically, and bind the line Profile 100, and the service Profile is 100:

```
OLT(config-if-gpon-olt_0/1)# onu auto-find enable
```

```
OLT(config-if-gpon-olt_0/1)# onu auto-config gpon-olt 0/1 service-profile-id 100 line-profile-id 100
```

18.1.5. Delete ONU

Command:

```
onu delete {{ ONU_ID }}all}
```

View:

```
gpon-olt view
```

Parameters:

- **ONU_ID:** delete single ;
- **all:** delete all ONU;

Descriptions:

None

Examples:

Delete onu 1 in PON 1 port:

```
OLT(config-if-gpon-olt_0/1)# onu delete 1
```

18.2. Activate/Deactivate ONU

18.2.1. Activate ONU

Command:

```
onu activate { ONU_ID }
```

View:

```
Gpon-olt view
```

Parameters:

- **ONU_ID:** ONU ID;

Descriptions:

Activate ONU.

Examples:

Activate the ONU under the PON 1 port 1:

```
OLT(config-if-gpon-olt_0/1)# onu activate 1
```

18.2.2. Deactivate ONU

Command:

```
onu deactivate { ONU_ID }
```

View:

```
Gpon-olt view
```

Parameters:

- **ONU_ID:**

Descriptions:

Deactivate ONU Note: After deactivation, the ONU is disconnected and will be automatically activated after a while.

Examples:

Deactivate the ONU under the PON 1 port 1:
`OLT(config-if-gpon-olt_0/1)# onu deactivate 1`

18.3. Enable/Disable Rogue Onu Detection

Command:

`rogue-onu auto-detect {enable| disable}`

View:

Gpon-olt view

Parameters:

- **enable:** Turn on the rogue ONU detection function of this PON port.
- **disable:** Turn off the rogue ONU detection function of this PON port.

Descriptions:

Turn on/off the rogue ONU detection function of the PON port. After turn on the ONU detection function and the alarm, when there is a rogue ONU under the PON port, an alarm will be displayed on the OLT.

Examples:

Open the rogue ONU detection under the PON 1 port:
`OLT(config-if-gpon-olt_0/1)# rogue-onu auto-detect enable`

18.4. Reboot ONU

18.4.1. Reboot ONU

Command:

`onu reboot { ONU_ID }`

View:

Gpon-olt view

Parameters:

- **ONU_ID:**

Descriptions:

Restart the ONU.

Examples:

Restart the ONU under the PON 1 port 1:
`OLT(config-if-gpon-olt_0/1)# onu reboot 1`

18.5. View ONU Information

18.5.1. View ONU Registration Status

Command:

- 1) show onu state
- 2) show onu state {all| gpon-olt SLOT_ID/PON_ID}

View:

Gpon-onu view

- all: View the registration status of all ONUs;
- SLOT_ID: Olt slot, fixed to 0;
- PON_ID: Pon id, range 1-16;

Descriptions:

The ONU status mainly has the following types:

- 1) offline: Means that the ONU is offline;
- 2) processing: Means during processing;
- 3) ranging: It means that the ONU is in the ranging state;
- 4) online: The ONU is online but has no delivery configuration.
- 5) syncmib: The ONU is online and the configuration is being syncmib.
- 6) syncmib-fail: The ONU is online and the configuration is being syncmib-fail
- 7) working: The ONU is online and the configuration is successfully delivered.

Examples:

Check all ONU registration status under PON 1

```
OLT(config)# show onu state gpon-olt 0/1
```

ONU-ID	GPON-SN	ONU-State
0/1:1	GPON18060183	working
0/1:2	GPON18060184	working
0/1:3	GPON18060178	working
0/1:99	GPON18010360	offline

Total Num: 4 (num of working: 3)

18.5.2. View ONU Running Configuration

Command:

```
show running-config gpon-onu {SLOT_ID/PON_ID:ONU_ID}
```

View:

Gpon-onu view

Parameters:

- SLOT_ID: Olt slot, fixed to 0;
- PON_ID: Pon id, range 1-16;
- ONU_ID: Onu id, range 0-127;

Descriptions:

None

Examples:

View the registration information and configuration information of ONU 99 under PON 1 port:

```
OLT(config)# show running-config gpon-onu 0/1:99
!
interface gpon-olt 0/1
  onu add 99 sn GPON18010360 line-profile-id 1
  exit
interface gpon-onu 0/1:99
  exit
!
```

18.5.3. View ONU Version

Command:

```
show onu version gpon-onu {SLOT_ID/PON_ID:ONU_ID}
```

View:

Gpon-onu view

Parameters:

- SLOT_ID: Olt slot, fixed to 0;
- PON_ID: Pon id, range 1-16;
- ONU_ID: Onu id, range 0-127;

Descriptions:

Version information includes Vendor ID, hardware version number, SN, device ID, software version, etc.

Note: Only the ONU in online status can view its version information.

Examples:

View the registration information and configuration information of ONU 1 under PON 1 port:

```
OLT(config)# show onu version gpon-onu 0/1:1
-----
ONU-ID          : 0/1:1
Vendor-ID       : GPON
ONU Version     : V1.0
Serial Number   : GPON18060183
Equipment-ID    : TSGP6101
Main Software Version : V001R01B02
Standby Software Version : V1R01B002
```

18.5.4. View ONU Capability

Command:

```
show onu capability gpon-onu {SLOT_ID/PON_ID:ONU_ID}
```

View:

```
Gpon-onu view
```

Parameters:

- SLOT_ID: Olt slot, fixed to 0;
- PON_ID: Pon id, range 1-16;
- ONU_ID: Onu id, range 0-127;

Descriptions:

The capability set information includes the number of eth ports, the number of pots, the number of veips, the number of supported gempports, and the number of supported tcont.

Note: Only when the ONU is in the working state can you view its capability set information.

Examples:

View the capability set information of ONU 1 under PON 1 port:

```
OLT(config)# show onu capability gpon-onu 0/1:1
```

18.5.5. View Onu Optical Information

Command:

```
show onu optical-info gpon-onu {SLOT_ID/PON_ID:ONU_ID}
```

View:

```
Gpon-onu view
```

Parameters:

- SLOT_ID: Olt slot, fixed to 0;
- PON_ID: Pon id, range 1-16;
- ONU_ID: Onu id, range 0-127;

Descriptions:

Optical power information includes transmitted optical power, received optical power, temperature, voltage, and current.

Note: The optical power information can be viewed only when the ONU is online.

Examples:

View the optical power information of ONU 1 under PON 1 port:

```
OLT(config)# show onu optical-info gpon-onu 0/1:1
```

```
-----
ONU-ID          : 0/1:1
Temperature(C)  : 34
Voltage(V)      : 3.320
```

```
Laser bias current(mA) : 11.550
Rx optical power(dBm)  : -13.26
Tx optical power(dBm)  : 1.29
-----
```

18.5.6. View ONU ETH Port Status

Command:

```
show onu eth-port state gpon-onu {SLOT_ID/PON_ID:ONU_ID}
```

View:

```
gpon-onu view
```

Parameters:

- SLOT_ID: Olt slot, fixed to 0;
- PON_ID: Pon id, range 1-16;
- ONU_ID: onu id, range 0-127;

Descriptions:

Status information of the ONU Ethernet interface includes the GE/FE interface, link status, negotiation rate, and duplex mode. NOTE: Only when the ONU is in the working state can you view the status information of its Ethernet port.

Examples:

View the Ethernet port status information of ONU 99 under PON 1 port:

```
OLT(config)# show onu eth-port state gpon-onu 0/1:99
```

```
-----
ONU-ID  Port-ID  Port-type  Speed(Mbps)  Duplex  LinkState
-----
0/1:99  1        GE         1000         full   up
-----
```

18.5.7. View ONU ETH Port Statistics

Command:

```
show statistics port {PORT_ID} {current-15minutes | historic-15minutes}
```

View:

```
gpon-onu view
```

Parameters:

- PORT_ID: ONU port ID
- current-15minutes:
- historic-15minutes:

Descriptions:

View the statistics of the ONU Ethernet port current-15minutes or historical-15minutes.

Examples:

Check the current-15minutes statistics of Ethernet port 1 on ONU 0/1:1:


```
OLT(config-if-gpon-onu_0/1:1)# show statistics port 1 current-15minutes
```

```
-----
Received bytes          : 0
Received frames         : 0
Received unicast frames : 0
Received multicast frames : 0
Received broadcast frames : 0
Received 64-byte frames : 0
Received 65~127-byte frames : 0
Received 128~255-byte frames : 0
Received 256~511-byte frames : 0
Received 512~1023-byte frames : 0
Received 1024~1518-byte frames : 0
Received undersize frames : 0
Received oversize frames : 0
Received CRC error frames : 0
Received Drop events    : 0
-----
Sent bytes              : 0
Sent frames             : 0
Sent unicast frames     : 0
Sent multicast frames   : 0
Sent broadcast frames   : 0
Sent 64-byte frames     : 0
Sent 65~127-byte frames : 0
Sent 128~255-byte frames : 0
Sent 256~511-byte frames : 0
Sent 512~1023-byte frames : 0
Sent 1024~1518-byte frames : 0
Sent undersize frames   : 0
Sent oversize frames    : 0
Sent CRC error frames   : 0
Sent Drop events        : 0
-----
```

18.5.1. View ONU Gempport Statistics

Command:

```
show statistics gem {broadcast | multicast | gemindex {GEMID}} {current-15minutes |
historic-15minutes}
```

View:

```
gpon-onu view
```

Parameters:

- broadcast: Broadcast gempport;
- multicast: Multicast gempport
- gemindex {GEMID}
- current-15minutes:
- historic-15minutes:

Descriptions:

View the statistics of current-15minutes or historical-15minutes of ONU gempport. gempport can specify gempport for broadcast gempport, multicast gempport or GEMID.

Examples:

View the current-15minutes statistics of the broadcast gempport of the ONU 0/1:1:
OLT (config-if-gpon-onu_0/1:1)# show statistics gem broadcast current-15minutes

```
-----
Gempport : broadcast
Received frames : 0
Received bytes  : 0
Sent frames    : 0
Sent bytes     : 0
-----
```

18.6. Tcont/Gempport Configuration

18.6.1. Gempport Mapping Mode

Command:

```
mapping-mode vlan
```

View:

```
Gpon-onu view
```

Parameters:

None

Descriptions:

Configure the gempport mapping mode.

Note: This command can be configured only when the ONU is registered and the line Profile is not bound.

Examples:

Configure the mapping mode of ONU1 on the PON 1 port as vlan mapping mode:

```
OLT(config-if-gpon-onu_0/1:1)# mapping-mode vlan
```

18.6.2. Create/Delete Tcont

Command:

- 1) tcont {TCONT_ID} {dba-profile-name NAME|dba-profile-id ID}
- 2) no tcont {0-7}

View:

```
Gpon-onu view
```

Parameters:

- TCONT_ID: tcont ID or index;
- NAME: DBA mode name
- ID: DBE mode ID

Descriptions:

Create tcont and bind the DBA Profile; you can create 8 tcont.

Note: This command can be configured only when the ONU is registered and the line Profile is not bound.

Examples:

Create tcont 1, bind DBA UP-1G:

```
OLT(config-if-gpon-onu_0/1:1)# tcont 1 dba-profile-name UP-1G
```

Delete tcont 1

```
OLT(config-if-gpon-onu_0/1:1)# no tcont 1
```

18.6.3. Create/Delete Gempport

Command:

1. gempport {GEMINDEX} unicast tcont {TCONT_ID}
2. no gempport {GEMINDEX}

View:

```
gpon-onu view
```

Parameters:

- GEMINDEX: gempport index
- TCONT_ID: tcont ID.

Descriptions:

Create a gempport and bind tcont; create 8 gempports;

Note: This command can be configured only when the ONU is registered and the line Profile is not bound.

Examples:

Create a gempport with index 1 and bind to tcont 1:

```
OLT(config-if-gpon-onu_0/1:1)# gempport 1 unicast tcont 1
```

Delete gempport 1:

```
OLT(config-if-gpon-onu_0/1:1)# no gempport 1
```

18.6.4. Configuring Gempport Mapping

Command:

- 1) `gempport {GEMINDEX} mapping vlan (VID|transparent)`
- 2) `no gempport {GEMINDEX} mapping vlan (VID|transparent)`

View:

`Gpon-onu view`

Parameters:

- **GEMINDEX:** Gempport index
- **VID:** Vlan ID, which means that the gempport allows the vlan to pass;
- **transparent:** Vlan transparent means that the gempport allows all vlans to pass;vlan

Descriptions:

Configure gempport mapping. Each gempport can be configured with 8 mappings.

Note: This command can be configured only when the ONU is registered and the line Profile is not bound.

Examples:

Configure gempport 1 to allow vlan100 to pass:

```
OLT(config-if-gpon-onu_0/1:1)# gempport 1 mapping vlan 100
```

Delete gempport 1 mapping vlan100:

```
OLT(config-if-gpon-onu_0/1:1)# no gempport 1 mapping vlan 100
```

18.7. ONU Port Configuration

18.7.1. Enable/Disable Port

Command:

- 1) `shutdown port eth {PORT_ID}`
- 2) `no shutdown port eth {PORT_ID}`

View:

`gpon-onu view`

Parameters:

- **PORT_ID:** Ethernet port port id;

Descriptions:

`shutdown port eth` The command closes the specified LAN port.

`no shutdown` The command opens the specified LAN port.

Examples:

Close eth 1:

```
OLT(config-if-gpon-onu_0/1:1)# shutdown port eth 1
```

18.7.2. Port Vlan Mode

Command:

```
port eth { PORT_ID } vlan mode {transparent|tag|translation|trunk}
```

View:

```
gpon-onu view
```

Parameters:

- PORT_ID: Ethernet port port id;
- transparent: Transparent mode
- tag: tag mode
- translation: translation mode
- trunk: trunk mode

Descriptions:

Configure the vlan mode of an Ethernet interface.

Currently supports 4 modes: transparent, tag, translation, trunk mode.

Note: This command can be configured only when the ONU is registered and the service Profile is not bound.

Examples:

Configure eth 1 as the transparent transmission mode:

```
OLT(config-if-gpon-onu_0/1:1)# port eth 1 vlan mode transparent
```

18.7.3. Port Tag

Command:

```
port eth {PORT_ID} tag vlan {VID} priority {PRI}
```

View:

```
gpon-onu view
```

Parameters:

- PORT_ID: Ethernet port ID;
- VID: vlan ID;
- PRI: Vlan priority

Descriptions:

Configure the default vlan of the eth interface. The uplink packet will be marked with the vlan. The downlink packets carrying the vlan will be stripped and other packets will be discarded.

note:

- 1) The command can be configured only when the service Profile is not bound to the ONU.
- 2) This command can be configured only when the vlan mode of the eth port is in tag mode.

Examples:

Configure the default vlan of eth 1 as 100, the priority as 0:

```
OLT(config-if-gpon-onu_0/1:1)# port eth 1 tag vlan 100 priority 0
```

18.7.4. Port Vlan Translation

Command:

- 1) port eth {PORT_ID} translation default vlan {VID} {PRI}
- 2) port eth {PORT_ID} translation {INDEX} {CVID} [CPRI] to {SVID} [SPRI]
- 3) no port eth {PORT_ID} translation {INDEX}

View:

```
gpon-onu view
```

Parameters:

- PORT_ID: Ethernet port port id;
- VID: default vlan ID;
- PRI: Default vlan priority
- INDEX: Convert entry index to support up to support 8 conversion entries;
- CVID: User side vlan ID
- CPRI: User side vlan priority, optional;
- SPRI: Network side vlan priority, optional;

Descriptions:

Configure the default vlan of the eth interface. The uplink packet will be marked with the vlan. The downlink packets carrying the vlan will be stripped and other packets will be discarded.

Configure the conversion entry of the eth interface, and change the direction: the packet carrying the CVID [CPRI] on the uplink is converted to carry the SVID [SPRI]; the packet carrying the SVID [SPRI] on the downlink is converted to carry the CVID [CPRI];

note:

- 1) The command can be configured only when the service Profile is not bound to the ONU.
- 2) This command can be configured only when the vlan mode of the eth port is in the translation mode.

Examples:

Configure the default vlan of eth 1 as 100, the priority as 0:

```
OLT(config-if-gpon-onu_0/1:1)# port eth 1 translation default vlan 100 0
```

Configure eth 1 for a conversion entry: vlan 20 to vllan 200:

```
OLT(config-if-gpon-onu_0/1:1)# port eth 1 translation 1 20 to 200
```

Delete the conversion entry with eth 1 index of 1:

```
OLT(config-if-gpon-onu_0/1:1)# no port eth 1 translation 1
```

18.7.5. Port Vlan Trunk

Command:

- 1) port eth {PORT_ID} trunk default vlan {VID} {PRI}
- 2) port eth {PORT_ID} trunk vlan {VID} [PRI]
- 3) no port eth {PORT_ID} trunk vlan {VID} [PRI]

View:

gpon-onu view

Parameters:

- PORT_ID: Ethernet port ID;
- VID: vlan ID;
- PRI: Vlan priority
- trunk vlan VID: Indicates that the packet of transparent vlan as VID.
- trunk vlan VID PRI: Indicates that the packets of transparent vlan as VID and the priority as PRI.

Descriptions:

Configure the default vlan of the eth interface. The uplink packet will be marked with the vlan. The downlink packets carrying the vlan will be stripped and other packets will be discarded.

Configure the trunk vlan table of the eth interface, up to support 8 configurations.

note:

- 1) The command can be configured only when the service Profile is not bound to the ONU.
- 2) This command can be configured only when the vlan mode of the eth port is trunk mode.

Examples:

Configure the default vlan of eth 1 as 100, priority as 0:

```
lt vlan 100 0
```

Configure eth 1 to transparently transmit vlan 200:

```
OLT(config-if-gpon-onu_0/1:1)# port eth 1 trunk vlan 200
```

Delete eth 1 transparent vlan 200:

```
OLT(config-if-gpon-onu_0/1:1)# no port eth 1 trunk vlan 200
```

18.8. ONU Multicast Configuration

18.8.1. Create Multicast VLAN

Command:

- 1) multicast vlan add vlanlist {VID}
- 2) multicast vlan delete vlanlist {VID}
- 3) multicast vlan delete all

View:

gpon-onu view

Parameters:

- **vlanlist VID:** Multicast vlan, format: VID or VID-VID or VID, VID;

Descriptions:

Configure a multicast vlan, means a vlan downlink carried multicast stream. Up to 8 downstream multicast vlan.

The default does not care about the downstream multicast vlan.

Note: This command can be configured only when the ONU is registered and the service Profile is not bound.

Examples:

Configure add allow multicast stream with a multicast vlan of 100 to pass:

```
OLT(config-if-gpon-onu_0/1:1)# multicast vlan add vlanlist 100
```

Delete multicast vlan 100:

```
OLT(config-if-gpon-onu_0/1:1)# multicast vlan delete vlanlist 100
```

Clear all multicast vlans and restore them to the default do not care about multicast vlan:

```
OLT(config-if-gpon-onu_0/1:1)# multicast vlan delete all
```

18.8.2. Configure Multicast Fast Leave

Command:

```
igmp {eth {PORT_ID} | veip 1} fast-leave {enable|disable}
```

View:

```
Gpon-onu view
```

Parameters:

- **PORT_ID:** Ethernet port port id;
- **enable:** Turn on the quick leave feature;
- **disable:** Turn off the fast leave feature.

Descriptions:

Configure the fast leave function of eth or veip; the default fast leave function is turned on.

Note: This command can be configured only when the ONU is registered and the service Profile is not bound.

Examples:

Turn off the fast leave feature of eth 1:

```
OLT(config-if-gpon-onu_0/1:1)# igmp eth 1 fast-leave disable
```

18.8.3. IGMP Packet Forwarding Mode

Command:

- 1) `igmp {eth { PORT_ID }|veip 1} igmp-forward add {VID} {PRI}`
- 2) `igmp {eth { PORT_ID }|veip 1} igmp-forward translation{VID} [PRI]`
- 3) `igmp {eth { PORT_ID }|veip 1} igmp-forward transparent`
- 4) `no igmp {eth { PORT_ID }|veip 1} igmp-forward`

View:

`gpon-onu view`

Parameters:

- `PORT_ID`: Ethernet port ID;
- `add VID PRI`: Means that the uplink igmp packet mark a VID and a priority PRI;
- `translation VID`: Replace the vlan ID of the uplink igmp packet with the VID.
- `translation VID PRI`: Replace the vlan ID of the uplink igmp packet with the VID and the priority with the PRI.
- `transparent`: Mean transparent of igmp packets.

Descriptions:

Configure the uplink igmp packet forwarding function of eth or veip. The default is to transparent uplink igmp packets.

Note: This command can be configured only when the ONU is registered and the service Profile is not bound.

Examples:

Configure eth 1 to match the upstream igmp packet and mark vlan 100, priority 7:

```
OLT(config-if-gpon-onu_0/1:1)# igmp eth 1 igmp-forward add 100 7
```

Delete the uplink igmp packet function of eth 1 and restore it to the default:

```
OLT(config-if-gpon-onu_0/1:1)# no igmp eth 1 igmp-forward
```

18.8.4. Configure Multicast Version.

Command:

```
igmp {eth { PORT_ID }|veip 1} igmp-version {v1 | v2| v3| mld_v1| mld_v2}
```

View:

`Gpon-onu view`

Parameters:

- `PORT_ID`: Ethernet port port id; 以太网口 port id;
- `v1`: igmp version 1
- `v2`: igmp version 2
- `v3`: igmp version 3
- `mld_v1`: mld version 1
- `mld_v2`: mld version 2

Descriptions:

Configure the igmp version of eth or veip; the default is igmp v2.

Note: This command can be configured only when the ONU is registered and the service Profile is not bound.

Examples:

Configure the igmp version of eth 1 as igmp v3:

```
OLT(config-if-gpon-onu_0/1:1)# igmp eth 1 igmp-version v3
```

18.8.5. Maximum Multicast Bandwidth

Command:

```
igmp {eth { PORT_ID }}veip 1} max-bandwidth {BW_VAL| no-limit}
```

View:

```
Gpon-onu view
```

Parameters:

- PORT_ID: Ethernet port ID;
- BW_VAL: Maximum multicast bandwidth limit value;
- no-limit: No limit

Descriptions:

Configure the maximum multicast bandwidth of eth or veip; the default is unlimited. Note: This command can be configured only when the ONU is registered and the service Profile is not bound.

Examples:

Configure the maximum multicast bandwidth of eth 1 to be 1 Mbps:
 OLT(config-if-gpon-onu_0/1:1)# igmp eth 1 max-bandwidth 1024

18.8.6. Maximum Multicast Group

Command:

```
igmp {eth { PORT_ID }}veip 1} max-groups {NUM| no-limit}
```

View:

```
gpon-onu view
```

Parameters:

- PORT_ID: Ethernet port ID
- NUM: Maximum number of multicast groups;
- no-limit: No limit

Descriptions:

Configure the maximum number of multicast groups for eth or veip; the default is unlimited. Note: This command can be configured only when the ONU is registered and the service Profile is not bound.

Examples:

Configure the maximum number of multicast for eth 1 is 8:
 OLT(config-if-gpon-onu_0/1:1)# igmp eth 1 max-groups 8

18.8.7. Multicast StreamForwarding Mode

Command:

- 1) igmp {eth { PORT_ID }}veip 1} multicast-forward add {VID} {PRI}
- 2) igmp {eth { PORT_ID }}veip 1} multicast-forward translation {VID} [PRI]
- 3) igmp {eth { PORT_ID }}veip 1} multicast-forward transparent
- 4) igmp {eth { PORT_ID }}veip 1} multicast-forward vlan-strip

5) no igmp {eth { PORT_ID }}veip 1} multicast-forward

View:

```
gpon-onu view
```

Parameters:

- PORT_ID: Ethernet port ID;
- add VID PRI: Indicates that the downlink multicast packet is marked with a VID and a priority PRI.
- translation VID: Replace the vlan ID of the downlink multicast packet with the VID.
- translation VID PRI: Replace the vlan ID of the downlink multicast packet with the VID and the priority with the PRI. transparent: Indicate transparent of downlink multicast packets;
- vlan-strip: The multicast vlan of the downlink multicast packet is stripped.

Descriptions:

Configure the downlink multicast packet forwarding function of eth or veip. The default is to transparent downlink multicast packets.

Note: This command can be configured only when the ONU is registered and the service Profile is not bound.

Examples:

Configure eth 1 to perform vlan stripping on downlink multicast packets:

```
OLT(config-if-gpon-onu_0/1:1)# igmp eth 1 multicast-forward vlan-strip
```

Delete the downlink multicast forwarding function of eth 1 and restore it to the default:

```
OLT(config-if-gpon-onu_0/1:1)# no igmp eth 1 multicast-forward
```

18.8.8. Configure Multicast Working Mode

Command:

```
igmp {eth { PORT_ID }}veip 1} work-mode {snooping|proxy|spr}
```

View:

```
gpon-onu view
```

Parameters:

- PORT_ID: Ethernet port ID;
- snooping: Configure igmp to work in snooping mode.
- proxy: Configure igmp to work in proxy mode.
- spr: Configure igmp to work in snooping with proxy reporting mode.

Descriptions:

Configure the igmp working mode of eth or veip; The default is snooping mode.

Note: This command can be configured only when the ONU is registered and the service Profile is not bound.

Examples:

Configure the igmp working mode of eth 1 as proxy:

```
OLT(config-if-gpon-onu_0/1:1)# igmp eth 1 work-mode proxy
```

18.8.9. IGMP Non-Match-Group

Command:

```
igmp {eth { PORT_ID }}veip 1} non-match-group {forward|discard}
```

View:

```
gpon-onu view
```

Parameters:

- **PORT_ID**: Ethernet port port id;
- **forward**: Indicate forwarding an igmp request packet whose uplink is not in the dynamic control list.
- **discard**: Indicate the igmp request packet that is not in the dynamic control list is discarded.

Descriptions:

Configure the eth or veip igmp request packet process behavior which uplink are not in the dynamic control list. The default is forward.

Note: This command can be configured only when the ONU is registered and the service Profile is not bound.

Examples:

Configure eth 1 to discard igmp request packets that are not in the dynamic control list.

```
OLT(config-if-gpon-onu_0/1:1)# igmp eth 1 non-match-group discard
```

18.9. ONU Upgrade

18.9.1. Import Upgrade Image By Tftp

Command:

```
load onu-image {NAME} tftp {IPADDR}
```

View:

```
Enable view
```

Parameters:

- **NAME**: ONU upgrade image file name, up to 64 characters;
- **IPADDR**: Tftp server IP address;

Descriptions:

Import the ONU upgrade image file to the OLT through tftp.

Examples:

Import the img.tar image file from the tftp server 192.168.0.99 to the OLT:

```
OLT# load onu-image img.tar tftp 192.168.0.99
```

18.9.2. Import Upgrade Image By Ftp

Command:

```
load onu-image {NAME} ftp { IPADDR } user {USER} passwd {PASSWORD}
```

View:

Enable view

Parameters:

- NAME: ONU upgrade image file name, up to 64 characters;
- IPADDR: Ftp server IP address;
- USER: Ftp login username;
- PASSWORD: ftp login password.

Descriptions:

Import the ONU upgrade image file to the OLT through ftp.

Examples:

```
Import the img.tar image file from the ftp server 192.168.0.99 to the OLT:
OLT# load onu-image img.tar ftp 192.168.0.99 user 123 passwd 123456
```

18.9.3. Single ONU Upgrade

Command:

```
onu {upgrade|upgrade-active|upgrade-commit|upgrade-commit-reboot} {NAME}
gpon-onu {SLOT_ID/PON_ID:ONU_ID}
```

View:

Enable view

Parameters:

- upgrade: Only the upgrade operation is performed, the ONU does not automatically restart, and the new version needs to be manually switched to take effect.
- upgrade-active: After upgrading and activating the new version, the ONU will automatically restart. After the first restart, the new version is the main version; after that, the new version becomes the backup version, and the previous version is switched back to the main version.
- upgrade-commit: Upgrade, and submit, ONU will not automatically restart; after manual or remote restart, the new version becomes the main version;
- upgrade-commit-reboot: Upgrade, submit, and restart the ONU, the new version is the main version;
- NAME: ONU upgrade image file name, up to 64 characters;
- SLOT_ID: Olt slot, fixed at 0
- PON_ID: Pon id, range 1-16;
- ONU_ID: Onu id, range 0-127;

Descriptions:

Upgrade the ONU remotely, supporting 4 upgrade modes: upgrade, upgrade-active, upgrade-commit, upgrade-commit-reboot; the details are as follows:

- 1) upgrade: It means that only the image file is upgraded to the ONU backup area, the ONU does not automatically restart. After the manual or remote restart, the new version or the backup version will not become the main version.

- 2) upgrade-active: The image file is upgraded to the ONU backup area. The ONU will automatically restart. After the restart, the new version becomes the main version, and the previous version becomes the backup version. But after the ONU restarts, it will automatically switch back to the previous version. The new version becomes Backup version
- 3) upgrade-commit: The image file is upgraded to the ONU backup area. The ONU does not restart automatically. After the manual or remote restart, the new version becomes the main version, and the previous version becomes the backup version. The ONU restarts again, and the new version is still the main version.
- 4) upgrade-commit-reboot: The image file is upgraded to the ONU backup area. The ONU will automatically restart. After the restart, the new version becomes the main version, and the previous version becomes the backup version. The ONU restarts again, and the new version is still the main version
Note: The ONU can be upgraded remotely only if the ONU is online.

Examples:

Upgrade the ONU 0/1:99 remotely though upgrading-commit-reboot:

```
OLT# onu upgrade-commit-reboot img.tar gpon-onu 0/1:99
```

18.9.4. Batch ONU Upgrade

Command:

```
onu {upgrade|upgrade-active|upgrade-commit|upgrade-commit-reboot} {NAME}  
gpon-olt {SLOT_ID/PON_ID [ONU_ID]}
```

View:

Enable view

Parameters:

- upgrade: Only the upgrade operation is performed. The ONU does not automatically restart. The new version needs to be manually switched to take effect.
- upgrade-active: Upgrade and activate the new version. The ONU will restart automatically. After the first restart, the new version is the main version. After that, the new version becomes the backup version. The previous version is switched back to the main version.
- upgrade-commit: Upgrade, and submit, ONU will not restart automatically; after manual or remote restart, the new version becomes the main version;
- upgrade-commit-reboot: Upgrade, submit, and restart the ONU, the new version is the main version;
- NAME: ONU upgrade image file name, up to 64 characters;
- SLOT_ID: Olt slot, fixed to 0;
- PON_ID: pon id, range 1-16;
- ONU_ID: The onu id here mean the onu id range, such as: 3-10, optional.

Descriptions:

The upgrade method is the same as upgrading a single ONU.

Note: At present, the batch upgrade only supports upgrading all online ONUs under a certain PON port (or within an ONU range of a PON port).

Examples:

Upgrade all online ONUs under the PON1 port remotely through upgrading-commit-reboot:

```
OLT# onu upgrade-commit-reboot img.tar gpon-olt 0/1
```

18.9.5. View Single ONU Upgrade Status

Command:

```
show onu-upgrade status gpon-onu {SLOT_ID/PON_ID:ONU_ID}
```

View:

Enable view

Parameters:

- SLOT_ID: Olt slot, fixed to 0;
- PON_ID: pon id, range 1-16;
- ONU_ID: onu id, range 0-127;

Descriptions:

There are four main upgrade statuses:

ready: Prepare the status, check the upgrade image has the required conditions before the upgrade or not;

updating: During the upgrade process, the image is being downloaded to the ONU;

success: The upgrade is successful and the upgrade image is downloaded to the ONU.

fail: The upgrade failed. The cause of the failure can be viewed through show onu-upgrade info.

In addition, the ONU upgrade progress will also be displayed.

Note: When upgrading to 99%, the waiting time may be slightly longer, because the ONU is writing the image file to the flash at this time, the waiting time depend on the ONU write time.

Examples:

View the ONU 0/1:99 upgrade status:

```
OLT# show onu-upgrade status gpon-onu 0/1:99
```

```
-----
ONU-ID  Upgrade-status  Upgrade-progress
-----
0/1:99  updating        87%
-----
```

18.9.6. View Single ONU Upgrade Information

Command:

```
show onu-upgrade info gpon-onu {SLOT_ID/PON_ID:ONU_ID}
```

View:

Enable view

Parameters:

- SLOT_ID: olt slot, fixed to 0;
- PON_ID: pon id, range 1-16;
- ONU_ID: Onu id, range 0-127;

Descriptions:

The upgrade information includes the name of the ONU upgrade image file, the upgrade method (such as upgrade-commit-reboot), the upgrade result (success/failure), and the reason for the failure.

Examples:

Check the ONU 0/1:99 upgrade information:

```
OLT# show onu-upgrade info gpon-onu 0/1:99
```

```
-----
ONU-ID      : 0/1:99
onu-image   : img.tar
action      : upgrade-commit-reboot
result      : success
fail-reason : -
-----
```

18.9.7. View All ONU Upgrade Status

Command:

```
show onu-upgrade status gpon-olt {SLOT_ID/PON_ID}
```

View:

Enable view

Parameters:

- SLOT_ID: Olt slot, fixed to 0;
- PON_ID: Pon id, range 1-16;

Descriptions:

There are four main upgrade statuses:

- 1) ready: Prepare the status, check the upgrade image has the required conditions before the upgrade or not;
- 2) updating: During the upgrade process, the image is being downloaded to the ONU;
- 3) success: The upgrade is successful and the upgrade image is downloaded to the ONU.
- 4) fail: The upgrade failed. The cause of the failure can be viewed through show onu-upgrade info.

In addition, it also displays the progress of the ONU upgrade, the total number of upgraded ONUs, the number of successful upgrades, and the number of upgrade failures.

Note: When upgrading to 99%, the waiting time may be slightly longer, because the ONU is writing the image file to the flash at this time, the waiting time depends on the ONU write time.

Examples:

Check all ONU upgrade status of the PON1 port:

```
OLT# show onu-upgrade status gpon-olt 0/1
```

```
-----
ONU-ID   Upgrade-status   Upgrade-progress
-----
```

```
0/1:99   success          100%
```

```
-----
Total Num: 1 (success: 1, fail: 0)
```

18.9.8. View All ONU Upgrade Information

Command:

```
show onu-upgrade info gpon-olt {SLOT_ID/PON_ID}
```

View:

Enable view

Parameters:

- **SLOT_ID**: Olt slot, fixed to 0;
- **PON_ID**: Pon id, range 1-16;

Descriptions:

The upgrade information includes the name of the ONU upgrade image file, the upgrade method (such as upgrade-commit-reboot), the upgrade result (success/failure), and the reason for the failure.

Examples:

View all ONU upgrade information on the PON1 port:

```
OLT# show onu-upgrade info gpon-olt 0/1
```

```
-----
ONU-ID       : 0/1:99
```

```
onu-image    : img.tar
```

```
action       : upgrade-commit-reboot
```

```
result       : success
```

```
fail-reason  : -
-----
```

18.9.9. Confirm Current ONU Version Manully

Command:

```
onu confirm version gpon-onu {SLOT_ID/PON_ID:ONU_ID}
```

View:

Enable view

Parameters:

- SLOT_ID: Olt slot, fixed to 0;
- PON_ID: Pon id, range 1-16;
- ONU_ID: Onu id, range 0-127;

Descriptions:

This function is mainly used in conjunction with the upgrade mode upgrade-active; when the ONU use upgrade-active upgrade, after the first reboot, you can use this command to confirm the current version, so that even if you restart again, it will not switch back to the previous version.

Examples:

Confirm the current version of ONU 0/1:99:

```
OLT# onu confirm version gpon-onu 0/1:99
```

18.9.10. Confirm Current ONU Version Automatically

Command:

- 1) onu auto-commit {enable|disable}
- 2) show onu auto-commit

View:

Enable view

Parameters:

- enable: Enable automatic confirmation of the ONU version;
- disable: Disable automatic confirmation of the ONU version;

Descriptions:

This function can be used in conjunction with the upgrade mode upgrade-active. After the ONU version is confirmed automatically, the ONU uses the upgrade-active complete the upgrade. After the first restart, the OLT will confirm the current version of the ONU automatically. Even if it is restarted again, it will not switch to the previous version.

The default is to turn off the automatic confirmation ONU version function.

Examples:

Enable automatic confirmation of the current version of the ONU:

```
OLT# onu auto-commit enable
```

Check the status of the ONU current version function enable automatically:

```
OLT# show onu auto-commit
```

```
Auto commit : enable
```

18.10. ONU WAN Connection Configuration

18.10.1. Create/Delete WAN Connection

Command:

- 1) wan add {WAN_INDEX} { bridge | dhcp | pppoe | static } service-type {internet | tr069 | voice | internet-tr069 | internet-voice | internet-tr069-voice | other}
- 2) no wan {WAN_INDEX}

View:

GPON ONU view

Parameters:

- WAN_INDEX: WAN connection index value, ranging from 1-6
- bridge | dhcp | pppoe | static: Specify the mode of the WAN connection
- internet | tr069 | voice | internet-tr069 | internet-voice | internet-tr069-voice | other: Specify the service type of the WAN connection

Descriptions:

The wan add command creates a new WAN connection, specifying the corresponding WAN connection index, mode and service type. The no wan command deletes the specified WAN connection.

Create an internet WAN connection in dhcp mode:

```
OLT(config-if-gpon-onu_0/1:1)# wan add 1 dhcp service-type internet
```

18.10.2. Configure VLAN and Priority of WAN

Command:

- 1) wan {WAN_INDEX} vlan {VLAN_ID} [PRI]
- 2) no wan { WAN_INDEX } vlan

View:

GPON ONU view

Parameters:

- WAN_INDEX: WAN connection index value, ranging from 1 to 16
- VLAN_ID: WAN connected VLAN
- PRI: WAN connection 802.1P priority

Descriptions:

The wan vlan command configures the WAN connection VLAN and its priority. The no wan vlan command deletes the VLAN configuration of the WAN connection.

Examples:

Configure VLAN 1 for WAN connection 1 to be 100, priority is 1:

```
OLT(config-if-gpon-onu_0/1:1)# wan 1 vlan 100 1
```

18.10.3. Configure WAN Port Binding

Command:

- 1) wan { WAN_INDEX } port-bind [lan1] [lan2] [lan3] [lan4] [ssid1] [ssid2] [ssid3] [ssid4] [ssid5] [ssid6] [ssid7] [ssid8]
- 2) no wan { WAN_INDEX } port-bind

View:

GPON ONU view

Parameters:

- WAN_INDEX: WAN connection index value, ranging from 1 to 16
- lan1~lan4/ssid1~ssid8: To bind the LAN and SSID, you can bind multiple at the same time.

Descriptions:

The wan port-bind command configures port binding for a WAN connection.

The no wan port-bind command deletes the port binding of the WAN connection.

For the internet service, you must bind the port, and the corresponding port can get the internet service.

Examples:

Wan 1 is bound to lan1 lan2 and ssid1.

```
OLT(config-if-gpon-onu_0/1:1)# wan 1 port-bind lan1 lan2 ssid1
```

18.10.4. Configure PPPoE WAN Connection

Command:

- 1) wan { WAN_INDEX } pppoe user {USERNAME} password {PASSWORD}
- 2) no wan { WAN_INDEX } pppoe user

View:

GPON ONU view

Parameters:

- WAN_INDEX: WAN connection index value, ranging from 1 to 16
- USERNAME: Dial-up username for pppoe WAN connection
- PASSWORD: Pppoe WAN connection dial password

Descriptions:

After the wan pppoe user command increases the pppoe type WAN connection, you must configure its dial-up username and password.

No wan pppoe user deletes the account configuration of the pppoe type WAN connection.

Examples:

Wan 1 is the pppoe WAN, configured with the username admin and password 123456.

```
OLT(config-if-gpon-onu_0/1:1)# wan 1 pppoe user admin password 123456
```

18.10.5. Configure Static WAN Connection

Command:

- 1) wan { WAN_INDEX } static ip {IP_ADDR} mask {MASK} gw {GATEWAY} [pri-dns {PRI-DNS}] [sec-dns {SEC-DNS}]
- 2) no wan { WAN_INDEX } static ip

View:

GPON ONU view

Parameters:

- WAN_INDEX: WAN connection index value, ranging from 1 to 16
- IP_ADDR: Static IP address of the WAN connection
- MASK: IP address mask for WAN connection
- GATEWAY: WAN connection default gateway
- PRI-DNS: Preferred DNS address, optional
- SEC-DNS: Alternate DNS address, optional

Descriptions:

The wan static ip command configures the parameters of the static WAN connection.

The no wan static ip command deletes the parameters of the static WAN connection.

Examples:

Wan 1 is a static WAN with a configuration IP of 10.10.10.10, a mask of 255.255.255.0, a gateway of 10.10.10.1 and a preferred DNS of 202.0.1.1.

```
OLT(config-if-gpon-onu_0/1:1)# wan 1 static ip 10.10.10.10 mask 255.255.255.0 gw
10.10.10.1 pri-dns 202.0.1.1
```

18.10.6. Create/Delete VoIP WAN Connection

Command:

- 1) iphost { WAN_INDEX } dhcp
- 2) iphost { WAN_INDEX } static ip-address {IP_ADDR} mask {MASK} [gateway {GATEWAY}] [primary-dns {PRI-DNS}] [secondary-dns {SEC_DNS}]
- 3) no iphost { WAN_INDEX }

View:

GPON ONU view

Parameters:

- WAN_INDEX: VOIP WAN connection index value, ranging from 0-7
- IP_ADDR: Static IP address of the WAN connection
- MASK: IP address mask of WAN connection
- GATEWAY: WAN connection default gateway, optional
- PRI-DNS: Preferred DNS address, optional
- SEC-DNS: Alternate DNS address, optional

Descriptions:

The iphost dhcp command creates a VOIP WAN connection of a DHCP address.

The iphost static command creates a statically configured VOIP WAN connection.

Use wan add command also can establish VOIP WAN connection, but the VOIP WAN created in this way does not support omci configuration VOIP configuration information. The iphost command can be used to support omci configuration VOIP configuration information.

Examples:

Create a VOIP WAN connection in dhcp mode:

```
OLT(config-if-gpon-onu_0/1:1)# iphost 1 dhcp
```

18.10.7. Configure VLAN and Prioritie of VoIP WAN

Command:

- 1) iphost { WAN_INDEX } vlan {VLAN_ID} pri [PRI]
- 2) no iphost { WAN_INDEX } vlan

View:

```
GPON ONU view
```

Parameters:

- WAN_INDEX: WAN connection index value, ranging from 1 to 16
- VLAN_ID: WAN connected VLAN
- PRI: WAN connection 802.1P priority

Descriptions:

The iphost vlan command configures the VOIP WAN connection VLAN and its priority.

The no iphost vlan command deletes the VLAN configuration of the VOIP WAN connection.

Examples:

Configure the VLAN of VOIP WAN connection 1 to be 100, the priority is 1:

```
OLT(config-if-gpon-onu_0/1:1)# iphost 1 vlan 100 pri 1
```

18.10.8. Apply WAN Connection

Command:

```
wan {WAN_INDEX} apply
```

View:

```
GPON ONU view
```

Parameters:

- WAN_INDEX: WAN connection index value, ranging from 1 to 16

Descriptions:

Apply WAN connection configuration. Only after apply, the WAN configuration takes effect.

Examples:

Apply WAN connection 1.

```
OLT(config-if-gpon-onu_0/1:1)# wan 1 apply
```

18.11. ONU WIFI Configuration

18.11.1. Enable/Disable WIFI

Command:

```
wifi intf {1-2} status {enable | disable}
```

View:

```
GPON ONU view
```

Parameters:

- {1-2}: 1 is 2.4G WIFI, 2 is 5G WIFI
- enable: Turn on WIFI
- disable: Turn off WIFI

Descriptions:

Turn on/off 2.4G/5G WIFI.

Examples:

Turn on 2.4G WIFI

Turn off 5G WIFI

```
OLT(config-if-gpon-onu_0/1:1)# wifi intf 1 status enable
```

```
OLT(config-if-gpon-onu_0/1:1)# wifi intf 2 status disable
```

18.11.2. Disable OMCI Control WIFI

Command:

```
no wifi intf {1-2} status
```

View:

```
GPON ONU view
```

Parameters:

- {1-2}: 1 is 2.4G WIFI, 2 is 5G WIFI

Descriptions:

Cancel omci control wifi function, users can freely turn off / turn on WIFI.

Examples:

Cancel the control of 2.4G wifi function.

```
OLT(config-if-gpon-onu_0/1:1)# no wifi intf 1 status
```

18.12. ONU CATV Configuration

18.12.1. Enable/Disable CATV

Command:

- 1) `shutdown port catv {CATV_ID}`
- 2) `no shutdown port catv {CATV_ID}`

View:

`gpon-onu view`

Parameters:

- **CATV_ID:** CATV ID

Descriptions:

Shutdown port catv command to close the specified CATV;
The no shutdown command turns on the specified CATV.

Examples:

Turn on catv 1

```
OLT(config-if-gpon-onu_0/1:1)# no shutdown port catv 1
```

18.12.2. View ONU CATV Information

Command:

`show onu catv-info`

View:

`gpon-onu view`

Parameters:

None

Descriptions:

View information of ONU CATV

Examples:

```
OLT(config-if-gpon-onu_0/1:1)# show onu catv-info
```

18.13. ONU VOIP Configuration

18.13.1. Add SIP Proxy

Command:

```

sip agent add proxy-server {SERVER_IP} outbound-proxy {OUTBOUND_PROXY}
registrar-server {REG_SERVER} domain-name {DOMAIN-NAME}

```

View:

```
gpon-onu view
```

Parameters:

- SERVER_IP: server IP
- OUTBOUND_PROXY: outbound proxy
- REG_SERVER: registra server
- DOMAIN-NAME: domain name

Descriptions:

Configure sip proxy related configuration.

Examples:

```

OLT(config-if-gpon-onu_0/1:1)# sip agent add proxy-server 192.168.200.129
outbound-proxy 192.168.200.129 registrar-server 192.168.200.129 domain-name
192.168.200.129

```

18.13.2. Bind SIP Proxy Port And WAN Connection

Command:

```

sip agent signal-port {SIGNAL_PORT} iphost {IPHOST}

```

View:

```
gpon-onu view
```

Parameters:

- SIGNAL_PORT: IP server port number
- IPHOST: VOIP WAN 的 index

Descriptions:

Bind the sip proxy server port number and WAN connection.

Examples:

```

OLT(config-if-gpon-onu_0/1:1)# sip agent signal-port 5060 iphost 0

```

18.13.3. Configure SIP Account

Command:

```

sip user add 1 username {NAME} password {PASSWORD} telno {NUMBER}

```

View:

```
gpon-onu view
```

Parameters:

- NAME: account name

- PASSWORD: account password
- NUMBER: telephone number

Descriptions:

Configure the SIP account number and phone number.

Examples:

```
OLT(config-if-gpon-onu_0/1:1)# s sip user add 1 username 123456 password  
123456 telno 123456
```