

## Introduction

### Manual Instruction

This is Focomm EPON Network Management System Operation User's Manual, this manual is applicable to the EPON equipment with the Focomm Network Management System. This manual is used for equipment setting instruction. Please read me before operation.

### Conventions

#### 1. Command Description Convention

When this manual is introducing the usage of the commands, it might use one or several text format as below to express particular description:

Format	Description
<b></b>	Refers to command line keyword (remain unchanged part of the command, must input accordingly)
	Used to separate several options, indicates that select from two or more options.
[]	Indicates that the content in the "[]" is optional during command configuring.
[x y ...]	Indicates that select one or not from two or more options.
<A.B.C.D>	Indicates that the user needs to input the IP address.
<A.B.C.D/M>	Indicates that the user needs to input the IP address, and it is allowed to designate subnet mask with parameter "M", "M" is referred to the bit of the subnet mask.
<n-m>	Indicates the allowable value range

#### 2. Graphical Interface Convention

Format	Description
< >	"< >" indicates the button name, such as "click <OK> button".
[]	"[]" indicates windows name, menu name and datasheet, such as "pop up [open] window".
/	Multilevel menu is separated with "/", for example: [system/exit] indicates the [exit]

	option under [system] menu list.
➤	➤ After this is explanative and illustrative content.
→	The simple operation procedure is linked with“→”, such as “OLT→essentiainformation→enable”, it means select OLT menu first, then the essential information, and the click the enable button in essential information.

### 3. Content Introduction

Chapter	Content
Chapter 1 Product introduction	EPON product interview 、 features and introduction of network management.
Chapter 2 Config the system parameter of the network management card	Change the IP address, Alarm address and system information
Chapter 3 EPON network management software	Install, uninstall and enable the software
Chapter 4 EPON network management software config	Network management software config, OLT config and ONU config.

---

## Catalogue

Chapter 1 Product Introduction.....	1
1.1 Product Interview.....	1
1.2 Interface and Indicator Light.....	1
1.3 Management Card Cable Connection.....	2
Chapter 2 Config the system parameter of the management card.....	3
2.1 Config Preparation.....	3
2.2 Login Network Management Card Config.....	3
2.2.1 Telnet Login Network Management.....	3
2.2.2 Login network management by Console interface.....	4
2.3 Config the System Parameter of Management Card.....	4
2.3.1 Introduction of Configuration.....	4
2.3.2 Config examples.....	7
Chapter 3 EPON Network Management Software.....	8
3.1 Installation.....	8
3.1.1 Server.....	8
3.1.2 Client.....	8
3.2 Enable EPON network management software.....	9
3.3 Close EPON Management Software.....	9
Chapter 4 EPON Network Management Software Config.....	11
4.1 Configuration Introduction.....	11
4.1.1 Login network management client.....	11
4.1.2 Configuration Interface Introduction.....	11
4.1.3 Change User Password.....	12
4.2 Basic Configurations.....	13
4.2.1 Add device.....	13
4.2.2 Two ways to check.....	18
4.2.3 Update topology.....	20
4.2.4 Check the Device Rack.....	21
4.2.5 Description of the Device Icon.....	22
4.2.6 Alarm Management.....	22
4.3 OLT Configuration Management.....	22
4.3.1 OLT Basic Information Management.....	22
4.3.2 OLT Config.....	28
4.3.3 OLT Uplink Port Config.....	29
4.3.4 OLT Bridge Parameter Config.....	29
4.3.5 OLT Senior Management Config.....	30
4.4 ONU Config.....	30
4.4.1 ONU Link Management.....	30
4.4.2 ONU Hardware Config.....	32
4.4.3 ONU Config.....	35
4.4.4 ONU 802.1x Management.....	42

## Chapter 1 Product Introduction

### 1.1 Product Interview

iCoreView is a Focomm independent R&D EPON Network Management System based on SNMP V2c protocol, and it's compatible with SNMP V1. iCoreView adopts powerful management capability; the staff in control center can monitor, manage and maintain EPON system in different places. iCoreView made the network stable.

iCoreView provides operative and administrable interface, the features are:

- Support Performance Management, Malfunction Management, Alarm Management, Safety Management, and real time monitoring.
- Provide reliable safety strategy, support multilevel user rights
- Adopt hierarchical architecture, easy to operate
- Support remote management and maintenance
- Support several Trap management modes, support Trap Email distribution and Trap short message notification, help the management staff know the condition of the device and the network in time, ensure the stability of the network.
- Perfect log management, record detailed log information during operation and maintenance, ensure the safety of management and operation
- Up-to-date edition supports Chinese and English
- iCoreView adopts C/S architecture, composed of server and client

### 1.2 Interface and Indicator Light

There is one RJ45 port and one Console port on the Network Management card, RJ45 port connects with the PC network port, Console port connects with the PC Console port by serial line:

Table1-1 Indicator Light Status

Indicator Light	Status	Specification
RUN	Blink	The management card is normal
	Off	The management card is not running.
FANA	On	The right power fan is normal



	Off	The right power fan stops
FANB	On	The left power fan is normal
	Off	The left power fan stops
PWRA	On	The right power supply is normal
	Off	The right power supply is off
PWRB	On	The left power supply is normal
	Off	The left power supply is off
FDX	On	The full duplex is on
	Off	The half duplex is on
PWR	On	The power supply of the chassis is normal
	Off	The power supply of the chassis is not normal
10M	On	RJ-45 port is under 10M mode
	Off	RJ-45 port is under other modes
100M	On	RJ-45 port is under 10/100M mode
	Off	RJ-45 port is under other modes

### 1.3 Management Card Cable Connection

The EPON management card should be in the leftmost slot of the chassis (3U), the cable connection is shown as Figure 1-1, and both two connections in Figure 1-1 are OK.

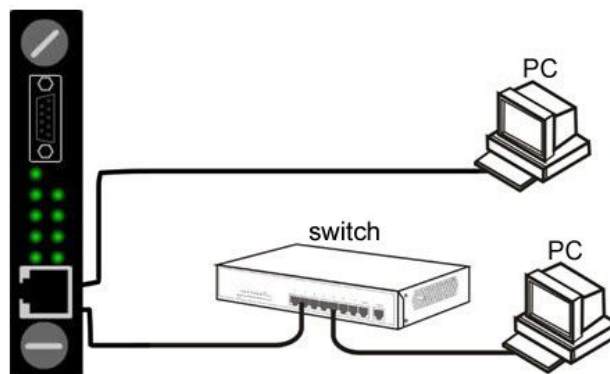


Figure 1-1 Cable Connection between PC and Management Card

---

## Chapter 2 Config the system parameter of the management card

### 2.1 Config Preparation

supposed the user has inserted the management card in the right place of the chassis, and has finished the cable connection. Before the config, the user's PC has to meet some basic config demand.

#### 1. User PC

- Operation system (Windows 2000/XP/Vista/Win7)
- Install the management agent card

#### 2. Establish correct network configuration

- For local config, the IP address of the PC and EPON management card must be in the same subnet; for remote config, the PC and EPON management card must be reachable through router. The default IP address of EPON management card is: 192.168.0.88, Mask is: 255.255.255.0
- Connect the RJ45 ports of the PC and EPON management card by UTP cable or through switch. After positive identification, power on the device.

### 2.2 Login Network Management Card Config

#### 2.2.1 Telnet Login Network Management

Click "start/run" of the PC, see the dialog box, and input telnet 192.168.0.88 in "open", shown as Figure 2-1

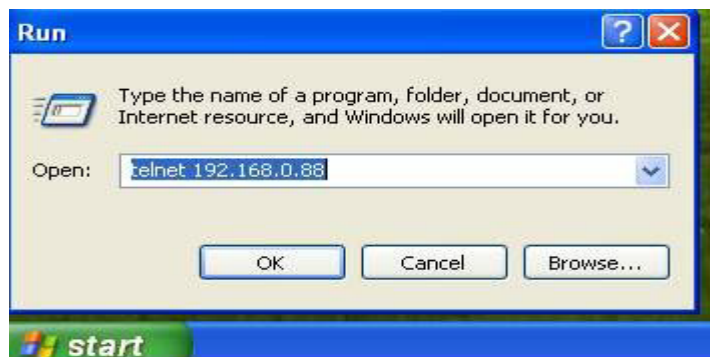


Figure 2-1 Telnet Login

Click <OK>, see the Telnet login interface, shown as Figure 2-2, input the user name and the password (for first login, input default username: root, password: admin)

```
Linux 2.6.32.71.0.0 <localhost> <08:03 on Thursday, 01 January 1998>  
Hioso login:
```

Figure 2-2 Telnet Login Interface

- EPON network management card allows only one user to login in the same time.
- No operations would display on the screen when you input the password, just push enter key after the input.
- Push Ctrl+Backspace to delete; only Backspace wouldn't work.

## 2.2.2 Login network management by Console interface

It supports config the network management card by HyperTerminal if the card IP address is unknown. Connect the Console port of the PC with the Console port of the management card with RS232 serial line, and then run the HyperTerminal (start-program-accessories-communication-HyperTerminal). Need to input area code, phone number and other related information for the first login, and then click<OK> to next step, input name in "Name" tag under [connection description], click "OK", to [connect to...], click "OK", to [properties], click <restore to default>, then select 115200 in "bit per second", click "OK", then to [hyperterminal], input enter.

## 2.3 Config the System Parameter of Management Card

### 2.3.1 Introduction of Configuration

After logging successful, bellowed page would appear:

```
Revision: v3.00  
Chassis :HA7000  
SN      :HA2010050301T23
```

Revision: software version. Chassis: equipment type. SN: equipment serial number.

Input enter, popup Access login page, see as below:

```
*****
*          EPON System CLI          *
*          Welcome !                *
*****

Access Verification ./

Access Password: 
```

Access Password defaults to “admin”. Input password, input “enter”, to privileged mode, input “enable”, password of privileged mode is “admin”. Page shown as below:

```
Access Password:
EPON> enable
Enable Password:
EPON#
```

In privileged mode, the following commands often used:

- configure terminal: enter configure terminal mode
- reload: restart agent card
- quit: exit command line

In privileged mode, input “configure terminal”, to configure terminal mode

Command line supports command complemented function (press “Tab” in keyboard to implement the function) and Command prompt function (input “?”, it will show the command that can be input)

For example: if entered configure terminal mode, input command prompt “?”, page would shown as below:

```
EPON(config)#
  banner      Banner configure
  cliname     Configure CLI system name
  end         End current mode and change to enable mode.
  exit        Exit current mode and down to previous mode
  help        CLI tips
  ip          Configure IP
  line        Terminal line setting
  list        List all available command in current mode
  logging     Configure the Logging function
  mngshell    Quit hscli and enter to manager shell!
  no          Cancel or restore the setting
  password    Modify password parameters
  ping        Ping the host
  quit        Quit CLI whitout configuration file saved!!
  show        Show Device running information
  syslog      Configure the Syslog function
  system      Configure the EPON system
  write       Write logging items to file
EPON(config)#
```

In configure terminal mode, the following commands often used:

cliname: modify command line name

exit: exit current mode to previous mode

help: help and prompt

password: password needed when modifying Access and privileged mode

ping: check whether the connection is available from Host PC and agent card

quit: exit command line

show: check equipment operation status

system: system configure menu, making agent card configurationis through this menu.

Agent card configurations are mainly in “system” menu. Input “show system”, check equipment operation information which is shown as below:

```
EPON(config)# show system Current configuration is as below:
IP address      :192.168.0.88
Gateway        :192.168.0.1
Netmask        :255.255.255.0
MAC            :78:5c:72:00:00:00
OLT Host IP    :192.168.1.100
OLT IP         :192.168.1.101
OLT Host Port  :0x3721
OLT Port      :0x3721
Hostname       :Hioso

Trap2sink      :192.168.0.194
Trapcommunity  :kkk
Trapable       :1 1
Syscontact     :market@haishuo.com
Trapsink       :192.168.0.194

Revision       :v3.00
Chassis        :HA7000
SN             :HA2010050301T23
```

IP address: agent card IP address(IP address can not be set in 192.168.1.X network segment)

Gateway: agent card gateway

Netmask: agent card subnet mask

MAC: agent card MAC address

Hostname: agent card name, default name is “root”

Trap2sink: the address that agent card send to host PC, i.e. host PC address of installation network management software

Trapsink: the address that alarm message agent card sends to host PC, same as Trap2sink

---

Trapcommunity: Alarm community, default as “public”

### 2.3.2 Config examples

Example:

Config the agent card IP address: 192.168.10.10;

Gateway IP address: 192.168.10.1;

Subnet mask IP address: 255.255.255.0

Alarm address: 92.168.10.11;

Configuration method is as below:

Enter agent card through telnet, to configure terminal mode.

EPON(config)#

EPON(config)# system ip 192.168.10.10 //modify IP as 192.168.10.10

EPON(config)# system gateway 192.168.10.1 //modify gateway as 192.168.10.1

EPON(config)# system netmask 255.255.255.0 //modify subnet mask 255.255.255.0

EPON(config)# system trapsink 192.168.10.20 //modify alarm address as 192.168.10.20

EPON(config)# system trap2sink 192.168.10.20 //confirm alarm address as 192.168.10.20

EPON(config)# system trap enable //enable alarm

EPON(config)#exit //exit to enter privileged mode

EPON#reload //restart agent card to apply this configuration

---

## Chapter 3 EPON Network Management Software

### 3.1 Installation

The EPON management software is a compressed file.

1. There is disk will be sent together with the EPON products. Please decompress the software. The install path should be English, no Chinese. After decompression, there is below contents in the objective directory:



MySQL5 is the folder for mysql database

Client is the folder for client end

Server is the folder for the server

Operating Instructions.txt is the introduction of installation

2. Install MYSQL database. It is convenient to install MYSQL, we supply an automatically installation programme regmysqlservice.exe, after decompression, users can find this programme under the directory of MYSQL5, users just need to run one time the MySQL5\regmysqlservice.exe, then the MYSQL data base is installed successfully. Then EPON software is installed successfully.

#### 3.1.1 Server

EPON management server supports to collect the information of the OLT racks, and centralized supplying services to the user ends.

#### 3.1.2 Client


Client end supports to manage the OLT cards and ONUs, detail functions as below:

- User management: add, delete and modify users. Set different authorities to different users, so to implement decentralized management to the users.
- Agent management: add the agent information of the rack, so to browser the operating information of the rack and the alarm information.








Left click the icon  at the right Conner of the PC, choose “Stop Service” , then you will see the below interface:



Input password “admin”, click “OK”. Left click the icon  again, choose “ShutDown this Tool”, then the software closed.

### 3.4 Uninstall EPON Management Software

1. Close EPON client and server
2. Run MySQL5\DelMysqlServer.bat to uninstall the MYSQL database
3. Delete all the EPON management software files

---

## Chapter 4 EPON Network Management Software Config

Users can use EPON SNMP software to manage and maintenance the devices directly; install and enable the device please refer to the Chapter 3.

Before config any items, please make sure the connection between the PC and the agent is correct, and configure the agent IP address and alarm address (there is default IP existed) correctly through Telnet or Console port. There is LED description refer to the connections (check table 1-1).

### 4.1 Configuration Introduction

#### 4.1.1 Login network management client

Enable the software according to 3.2, see as Figure 4-1, there is prompt about input account and password (there is default account name existed—administrator, password: admin. Click OK, enter the network management interface.



Figure 4-1 Login Interface

#### 4.1.2 Configuration Interface Introduction

First login; see as below Figure 4-2:

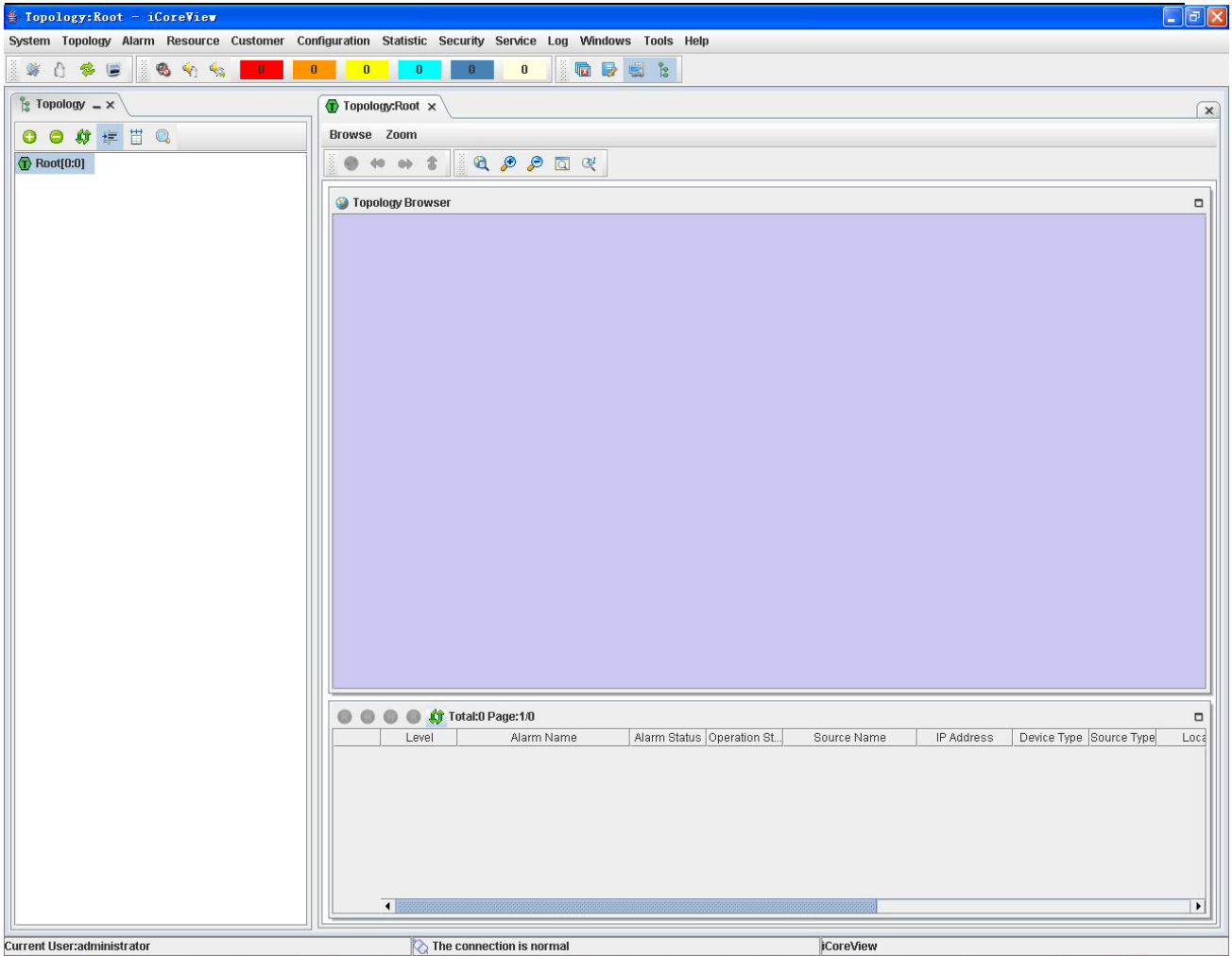


Figure 4-2 First Login

#### 4.1.3 Change User Password

Enter the configuration page, left click the main menu **【System】** --> **【Change Password】** as Figure 4-3, to change password.



Figure 4-3 change password

Administrator can add user groups or users, delete users, change user password and distribute resource, details refer to the main menu **【Help】**

## 4.2 Basic Configurations

### 4.2.1 Add device

After enter the Figure 4-2 interface, need to add a device node, follow as below:

In the topology browser, or choose a subnet in the topological view, right click the mouse, choose “Add Device”, see as Figure 4-4. then pop up the add device dialog box as Figure 4-5.

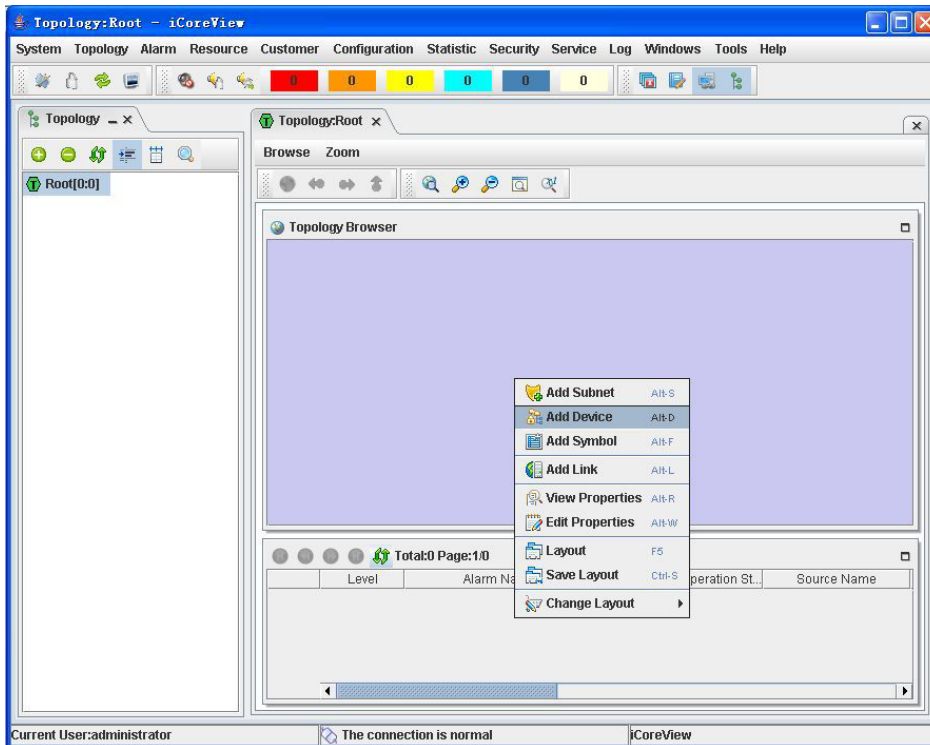


Figure 4-4 Add device

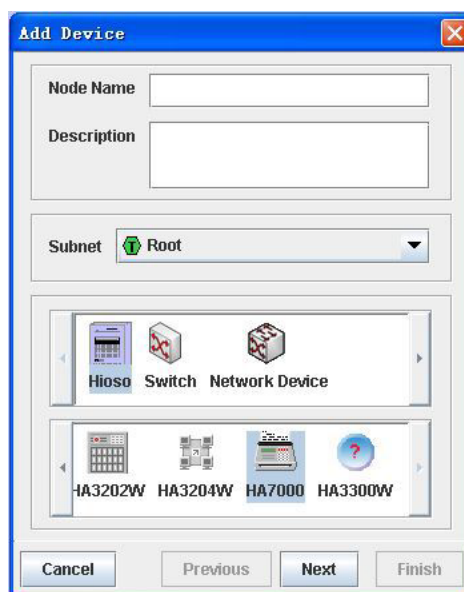




Figure 4-5

This page includes the below properties:

- Node Name: necessary. The name of the node, this name displays in the topological view.
- Node Description: optional. Describe the node, not display in the topological view.
- Subnet: necessary. The subnet the node located, default is present subnet.

Icon: necessary. The icon the node uses.

Click the Focomm icon,  There are the manageable devices list supplied by Focomm then click the related EPON device  Here taken HA7000 as an example.

Click "Next", enter next property editing page. As Figure 4-6.



Figure 4-6

This page includes below properties:

- Device type: necessary. The types of the devices, just for display, can't be revised.
- IP Address: necessary. Device IP addresses, default IP is 192.168.0.88, and users can change the IP and then do configurations.

- Device Name: optional. The device name, which used to recognize the controlled device, could be the same name of symbolic name.
- SNMP Basic: optional. SNMP management properties, includes: version, SNMP port, read and write community, time out config and retry times, there is default value at initial. When choose SNMP version V3, “SNMP V3 property” page is available, users can config V3 properties, including user name, security class, authentication protocol, authentication password, private agreement, and private password.

Some properties in this page (SNMP version, SNMP port, read community, write community), we have config default value. User can revise it according to real environment. Users just fill the IP address is enough to use.

After fill the properties, click “Next”, enter next property editing page, as Figure 4-7.

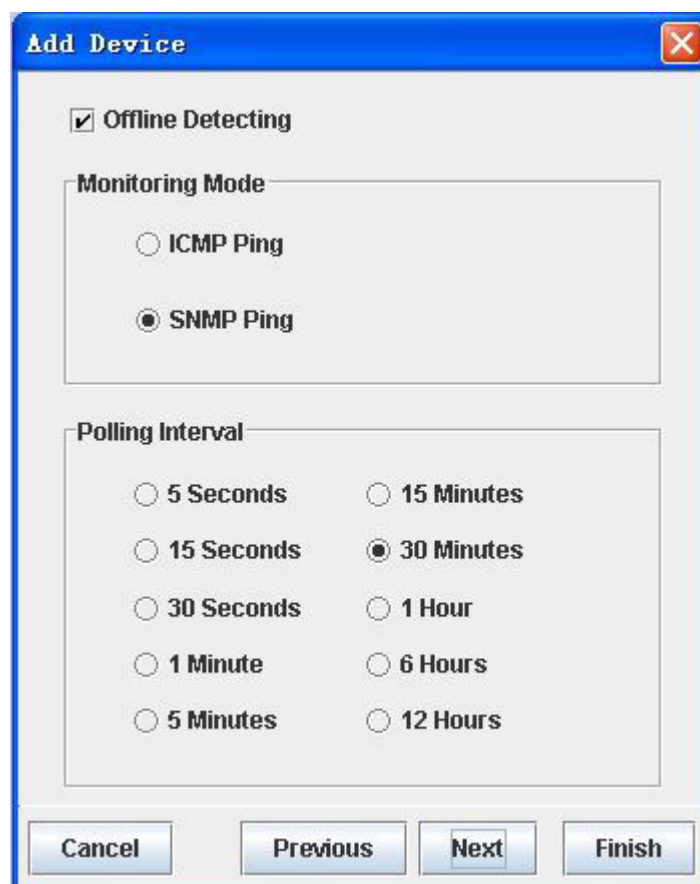


Figure 4-7

This page includes below properties:

- Offline Detecting: if there is off link detecting to the devices.

- Monitoring Mode: adopt which operation, There are two options: “ICMP Ping” and “SNMP Ping”.
- Polling Interval: the interval time the system polling operations to devices, there are several options: “5 seconds”, “15 seconds”, “30 seconds”, “1 minute”, “5 minutes”, “15 minutes”, “30 minutes”, “1 hour”, “6 hour”, “12 hour”

Use default configuration is enough. If 30 minutes polling interval is too long, users can choose a short time like 5 seconds, 15 seconds or 30 seconds, the software can get the online and offline status in time.

After configure, click “Next”, and enter another property editing page, as Figure 4-8.

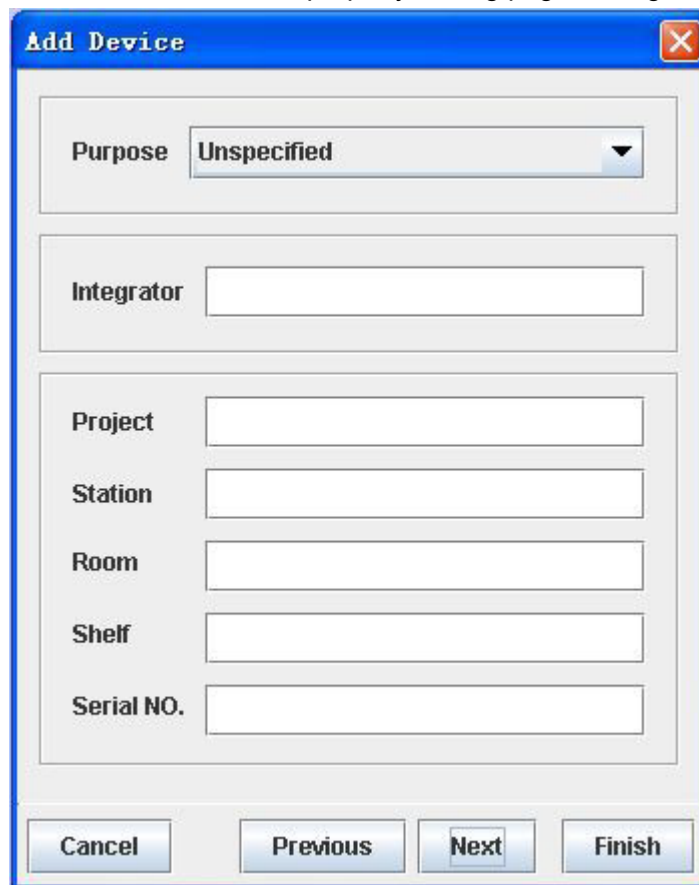


Figure 4-8

This page includes below properties:

- Purpose: necessary. Identify the device is access layer device or integrated layer device;
- Integrator: optional. Device integrator.
- Project: optional. The project where the device use
- Station: optional. The station where the device use
- Room: optional. The machine room where the device use

- Shelf: optional. Serial Number of the shelf.
- Serial NO: optional. The device capitol serial number.

This page can use the default configuration, supporting user-defined.

After configuration, click “Next”, enter next property editing page.

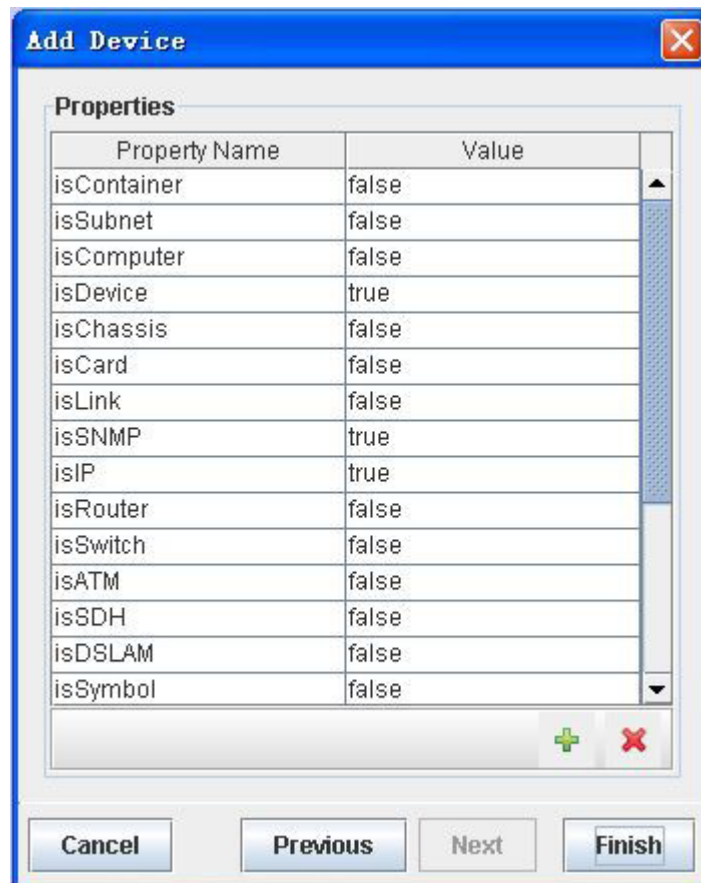


Figure 4-9

Please don't revise the property of this page, keep the default ones.

After configuration, click the “Finish” button to implement creating device node operation, if success, there is prompt “operation is successful, Add another node now?” Choose “yes”, the guide automatically switches to the first page; choose “No”, the dialog box closed.



Adding a device node in the topological view, if the device properties filled correctly, and the device is online, the management software will collect the device basic information, and producing topological structure according to the device. The icon of the device will change from rectangle to round





rectangle in 10 seconds. Expand the left tree topological structure you can see the device topological situation. If not changed, please check IP of PC and NMS card IP are in the same segment, and if LEDs of NMS card are normal.

After adding devices completed, you can revise the device properties. Right click the device icon, and choose **【Edit Properties】**, as Figure 4-10.

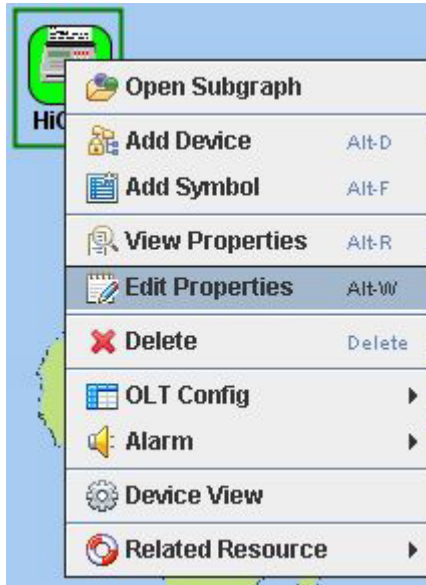


Figure 4-10

The configuration property guide comes up. This guide is the same with the former adding device guide. Users can revise the properties according to the real needs.

#### 4.2.2 Two ways to check

1. Expand the left tree topological structure, as Figure 4-11.

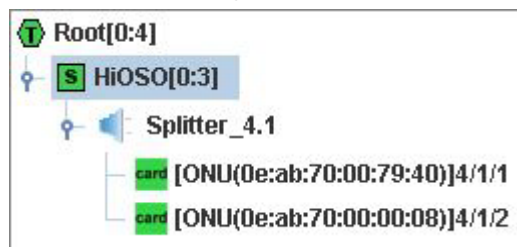


Figure 4-11

There are two registered ONUs under an OLT, if there is no ONU connects to the OLT, you can't see the topological structure. If there is ONU connected, but no topological structure, check if the ONU register successfully (ONU LLID keep lit when register successfully).

【0e:ab:70:00:79:40】 is ONU MAC address, 【4/1/1】 is ONU index, 【4】 represents OLT is at the fourth slot of the rack, the first 【1】 represents the first PON port of the OLT, the second 【1】 means the ONU is the first ONU under this OLT.

2. Right click the icon **HiOSO[0:3]** and choose **Open Subgraph**, check the device topological view as Figure 4-12.

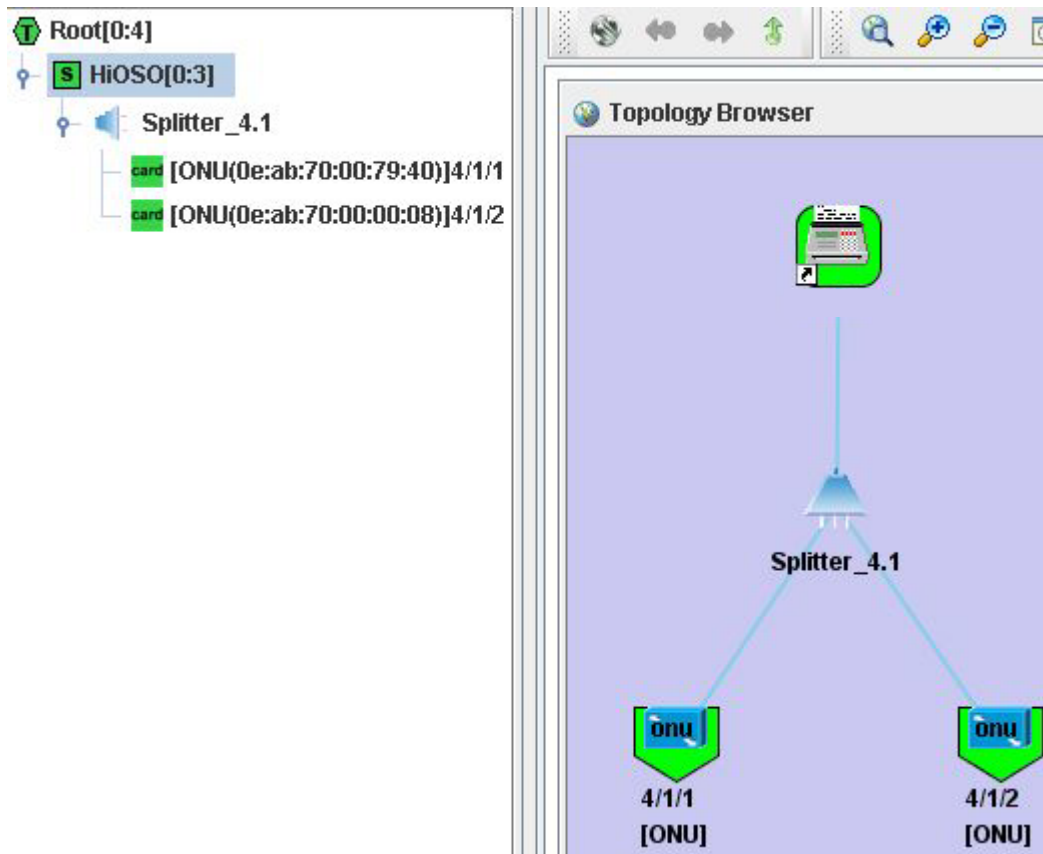


Figure 4-12

Users can revise the ONU properties (name and description information; After uses adding device, the management software will automatically produce the device topological structure, there is a default name and empty description information produces, users can edit it according to the real requirements.). Right click the ONU icon and choose **Edit ONU Properties**, as Figure 4-13, then users and edit the properties. When revising the ONU name, we suggest reserving the index.

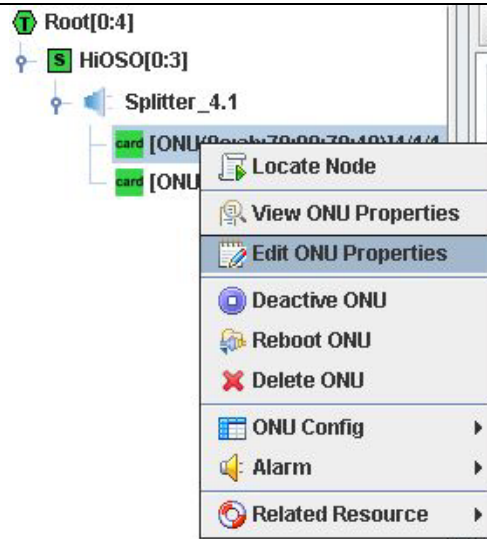


Figure 4-13

### 4.2.3 Update topology

The way to update the topology is to perform resource synchronization operations. Resource synchronization refer to: The status of the managed devices, cards, ports (these called resource) in the software be synchronized with the real devices status. When receiving TRAP alarm host IP is set as the server IP address (the way to set the EPON device receiving TRAP alarm host IP, refer to the chapter 2.2.2 example), the server can update the device real-time status according to the TRAP alarm information from the devices. This reflection costs some time, manual operation supported to implement this update operation.

Check the Figure 4-14, right click the devices need to configure synchronization **HiOSO[0:3]**, and choose **Related Resource**--> **Synchronize**. The system performs this operation costs some time (the need time depends on the network status and the devices, usually 3 to 8 seconds)

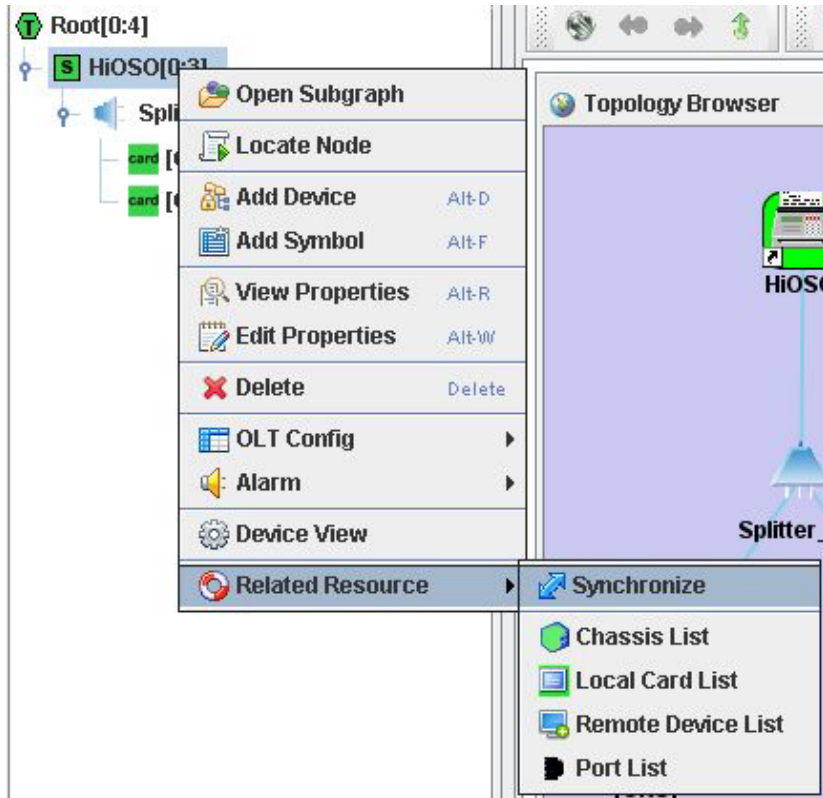


Figure 4-14

#### 4.2.4 Check the Device Rack

Double click **HiOSO[0:3]** or right click **HiOSO[0:3]**, and choose **Device View** to check the device rack status, as Figure 4-15.

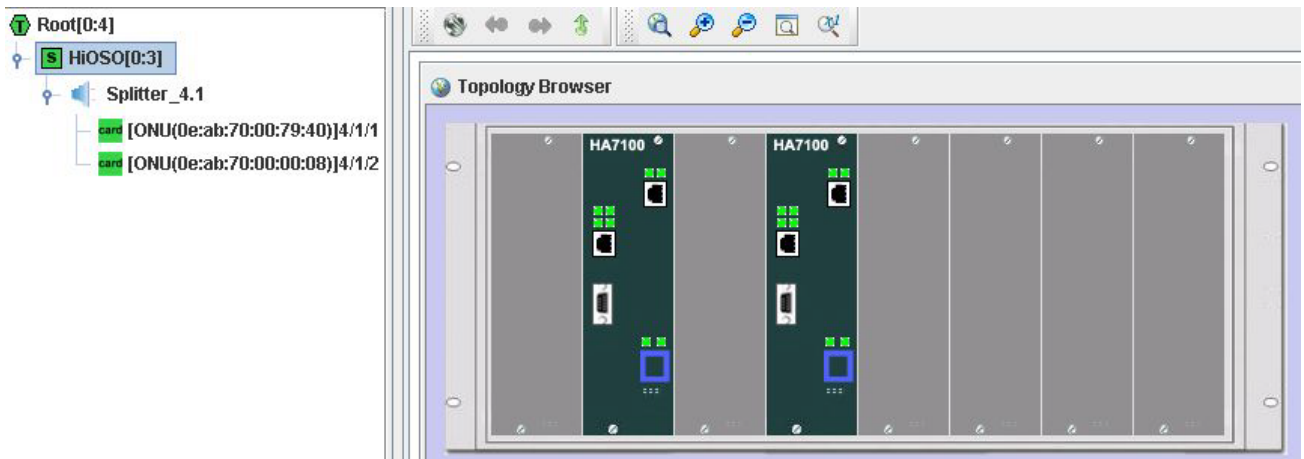






Figure 4-15

## 4.2.5 Description of the Device Icon

If there is no mark on the icon like , , , , it represents the devices work normal, OLT and ONU are online.

If there is “!” such as , , , , it means there is an alarm on this device.


If there is red “x” such as , , , , it means the device is offline.


If there is white “x” such as , it means ONU was refused access.


## 4.2.6 Alarm Management


Telnet to the agent card, set the alarm IP address as the PC IP address (where the server is), configure as the introduction in Chapter 2.2.

For every type of alarm event, iCoreView system marks them with a level to show its severity. View NNM provides 5 levels in all, from the most serious to the least serious, they are:

Critical Alarm (Critical): The highest level alarm, which will interrupt the communication. Marked in red: .

Major Alarm (Major) : Service continues while the performance declined considerably and affected the operation. Marked in orange: .

Minor Alarm (Minor): Alarm event occurs but does not affect the operation of the service. Marked in yellow: .

Warn Alarm (Warn): The service is operating in order. Only an ordinary problem occurred. Marked in blue: .

Unknown Alarm (Unknown) : Alarm events that cannot be recognized. Marked in light grey.

Details introduction please refer to the main menu **【Help】**

## 4.3 OLT Configuration Management

### 4.3.1 OLT Basic Information Management

Right click the device icon **HiOSO[0:3]** and choose **【OLT Config】** --> **【Basic Manipulation Classic Info】** --> **【Classic Info】** ,then popup the OLT SNMP config interface, as Figure 4-16.

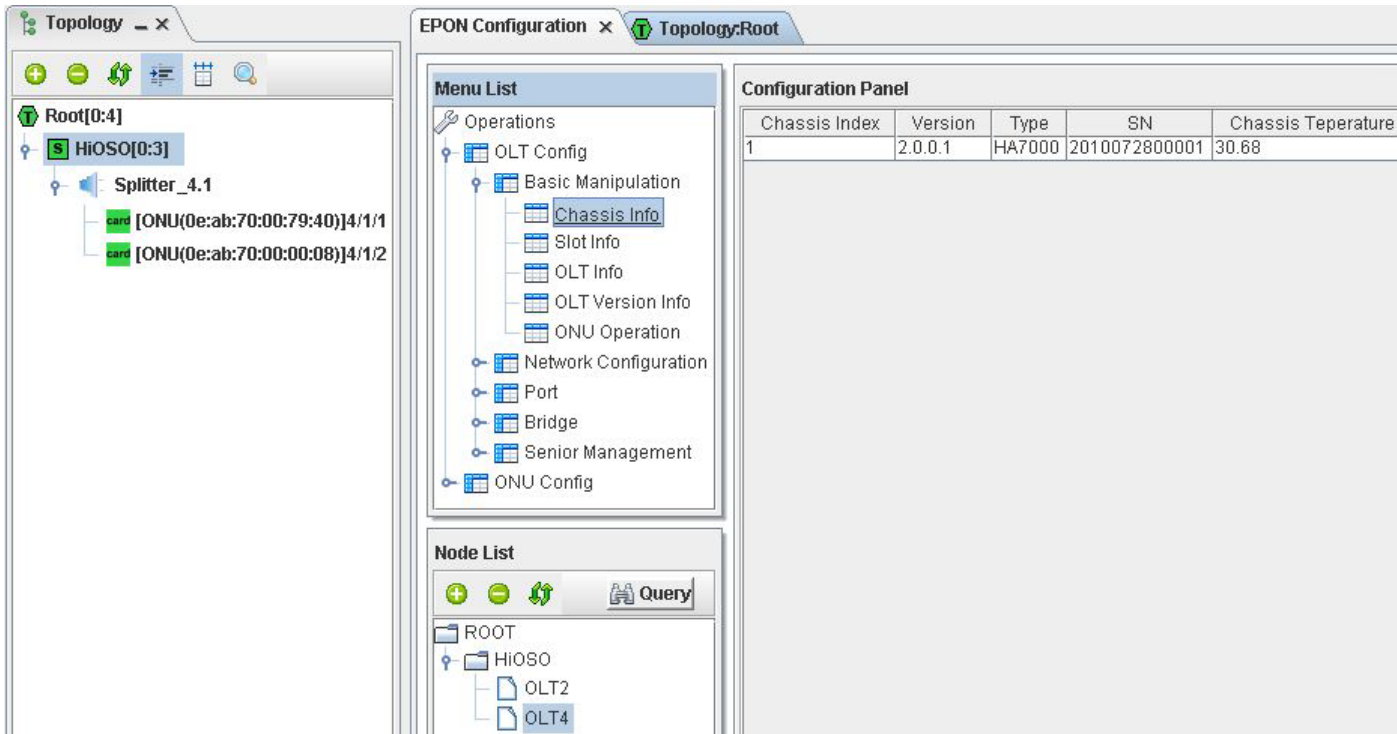


Figure 4-16

Left EPON configuration page is a tree function list, below the list are the devices it support, right side is a configuration panel to display the device information and the configuration options.

Example:

Check or revise the OLT **【Bridge Parameter】**

Choose **【OLT Config】**--> **【Bridge】** --> **【Bridge Parameter】**, right side will display the parameter as Figure 4-15. If there is no information for **【Bridge Parameter】** , that means it didn't point to the OLT in the left device list. Click an OLT in the list as Figure 4-17.

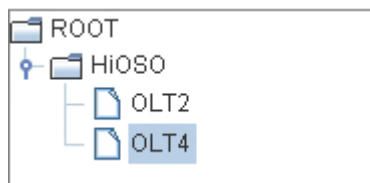


Figure 4-17

Click the **【Bridge Parameter】** again, the right list will display the OLT bridge parameters, as Figure 4-18.To revise the bridge parameter, needs to click the row firstly, then click **【Modify】** , revise the parameters in the popup dialog box, after revise, click apply. As Figure 4-19.

**Menu List**

- Operations
  - OLT Config
    - Basic Manipulation
      - Chassis Info
      - Slot Info
      - OLT Info
      - OLT Version Info
      - ONU Operation
    - Network Configuration
    - Port
    - Bridge
      - Bridge Parameter**
      - Cos/Tos Mapping
    - Senior Management
  - ONU Config

**Configuration Panel**

Olt Index	AGE Limit	Downstream Frames Reset Ageing	Bridge Vlans	Simple Bridge	MAC L
2	0	No	24	Yes	No
4	0	No	24	Yes	No

**Node List**

+
-
↻
Query

- ROOT
  - HIOSO
    - OLT2
    - OLT4**

Figure 4-18

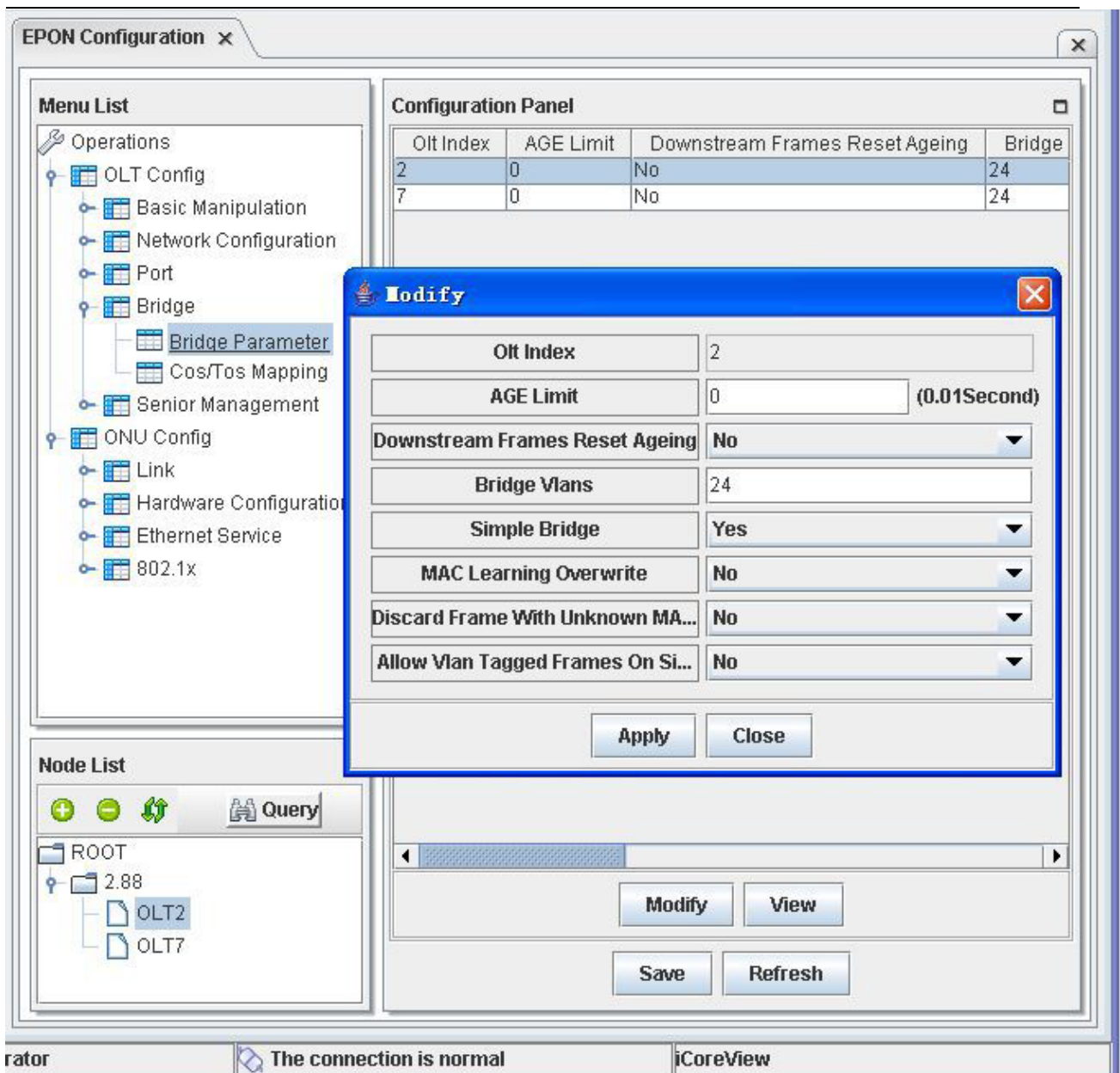


Figure 4-19

OLT basic function information description, as table 4-1.

Menu	Function Description
<b>【class Info】</b>	Check the rack information, includes rack temperature, power status, fan speed
<b>【Slot Info】</b>	Check the slots information, support to implement restore and reboot operations to the OLT in the slots.
<b>【OLT Info】</b>	Set the authentication mode to ONU
<b>【OLT Version Info】</b>	Check OLT software version, hardware version
<b>【ONU Operation】</b>	Check the ONU status under the OLT, implement add, delete and revise operations to the ONU

Table 4-1



### 【Slot Info】

This menu includes two functions:

Restore OLT to factory settings; when OLT can't communicate to all the ONUs, try this operation;

Reboot OLT;

Note: After restore OLT to factory settings, need to reboot OLT, then operation effects.

### 【OLT Info】

Set the registration mode to ONU; The authentication mode includes: accession, MAC and sn, default one is accession. There are three operations under the three modes: Undefined, Allow and Deny, these can manage the ONU access.

Accession: under this mode, ONU can register normally and display in the topological view. Choose Deny operation, ONU can't communicate with OLT; choose Undefined or Allow, ONU can communicate with OLT; default is Undefined, when new ONU access, it can communicate with OLT.

Mac: under this mode, ONU can register normally and display in the topological view. Choose Undefined or Allow, ONU can't communicate with OLT; default is Undefined, when new ONU access, it can't communicate with OLT.

Sn: this mode has no effect.

### 【ONU Operation】

Set ONU access mode, there are three modes: Undefined, Allow and Deny, as Figure 4-20. Users can config according to real requirements.

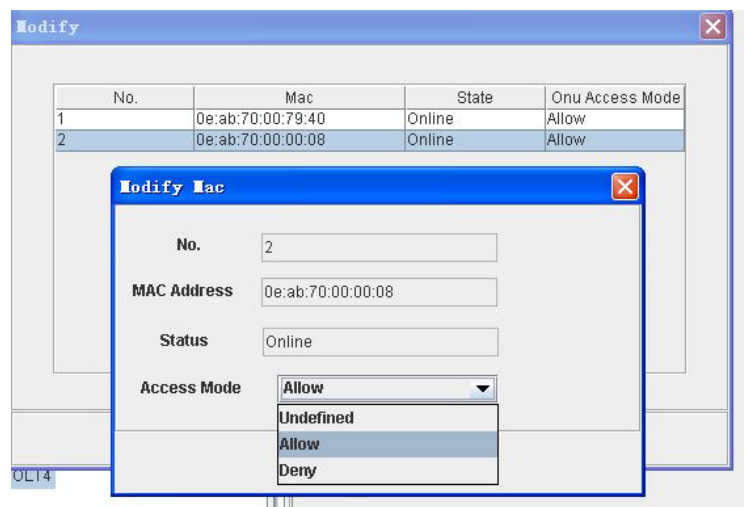


Figure 4-20

Users can configure ONU in the tree topology, as Figure 4-21.

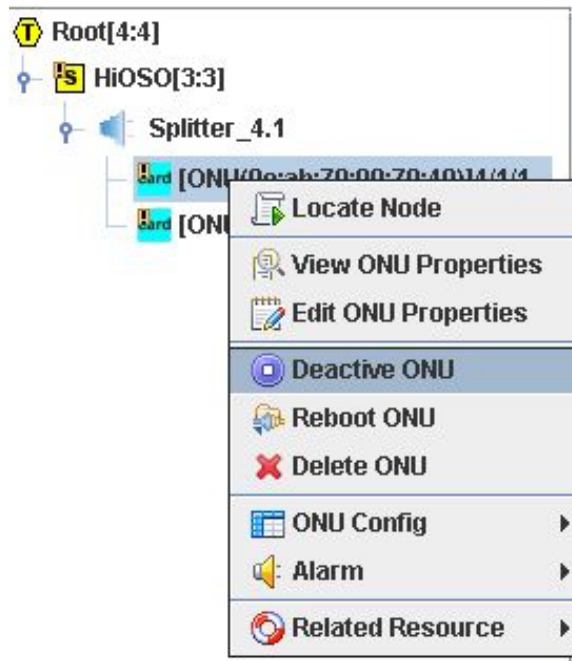


Figure 4-21

Right click ONU, choose **【Deactive ONU】** , the access mode changes to Deny, communication between ONU and OLT break off. If choose **【Active ONU】** , ONU access mode changes to Allow, ONU Communicate normally with OLT, as Figure 4-22

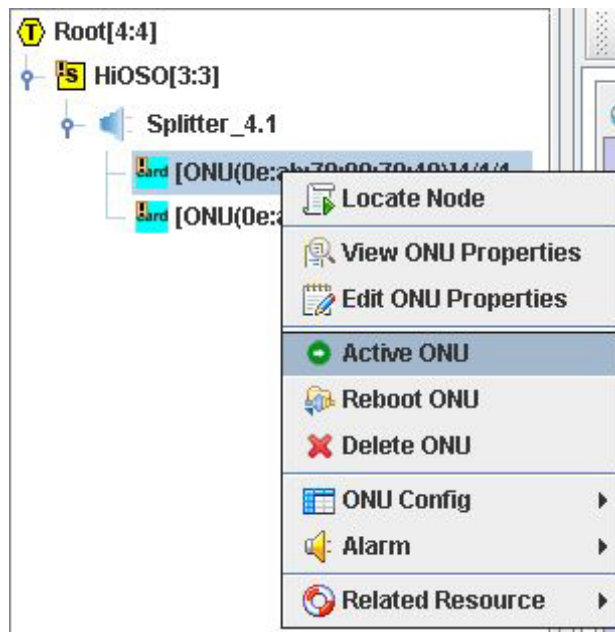


Figure 4-22

### 4.3.2 OLT Config

Click OLT, ( **【OLT Config】**--> **【Network Configuration】** ), config menu as Figure 4-23, function description as Table 4-2.



Figure 4-23

Menu	Function Description
<b>【Network Params】</b>	Revise the VLAN Ethernet type passing through OLT (suggest use the default value 8100), add tags to uplink and downlink (suggest not config this)
<b>【Broadcast SLA】</b>	Config the OLT SLA downlink broadcast bandwidth
<b>【Bandwidth】</b>	Config the maximum upstream and downstream bandwidth of OLT PON
<b>【DownStream Statistics】</b>	Check the OLT downstream statistics
<b>【UpStream Statistics】</b>	Check the OLT upstream statistics

Table 4-2

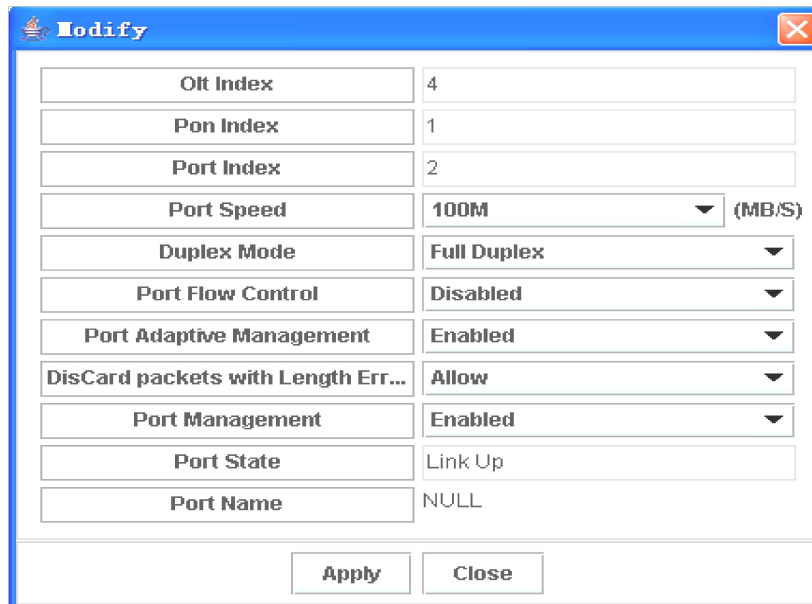
**【Broadcast SLA】** detail functions refer to table 4-3.

Menu	Function Description
<b>【Maximum Bandwidth】</b>	Maximum data transmission rate
<b>【Minimum Bandwidth】</b>	Minimum data transmission rate
<b>【Mode】</b>	<p>Sensitive: distribute a fixed bandwidth to the link, let the link data queue empty</p> <p>Tolerant: only when the link data queue is empty, the bandwidth allocated to the link is virtual value (recommend this mode)</p> <p>TDM: time division multiplexing, supports to set the size of round time slice</p>
<b>【Maximum Burst Size】</b>	Maximum bandwidth reserved for burse flow

Table 4-3

### 4.3.3 OLT Uplink Port Config

【OLT Config】 --> 【Port】 --> 【Uplink Port】 , config as Figure 4-24.



OLT Index	4
Pon Index	1
Port Index	2
Port Speed	100M (MB/S)
Duplex Mode	Full Duplex
Port Flow Control	Disabled
Port Adaptive Management	Enabled
DisCard packets with Length Err...	Allow
Port Management	Enabled
Port State	Link Up
Port Name	NULL

Buttons: Apply, Close

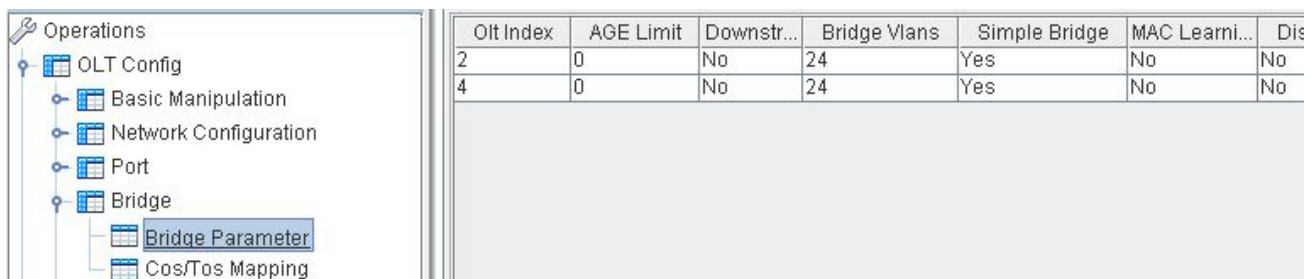
Figure 4-24

- Port speed: set port speed
- Duplex Mode: set port working mode to full duplex or half duplex
- Flow Control: enable or close 802.1x flow control
- Port Adaptive Management: choose port adaptive mode, default is enable
- Discard Packets with Length Errors: such as small data packet
- Port Management: close or open the port, close the port, this port not work

Note: to config Port speed or Duplex Mode, must Disabled Port Adaptive Management firstly.

### 4.3.4 OLT Bridge Parameter Config

【OLT Config】 --> 【Bridge】 , config menu as below Figure 4-25.



Olt Index	AGE Limit	Downstr...	Bridge Vlans	Simple Bridge	MAC Learni...	Dis
2	0	No	24	Yes	No	No
4	0	No	24	Yes	No	No

Figure 4-25

**【Bridge Parameter】**

- AGE Limit: set OLT aging time, default is no configuration
- Downstream Frame ResetAging: Reset aging to downstream frame, this configuration effects to all the MAC table entries.
- Simple Bridge: default is enabled
- MAC Learning Overwrite: overwrite the entries in the MAC address table
- Discard Unknown MAC Addresses: discard unknown MAC, not flood
- Allow VLAN Tagged Frames on Simple Bridge: allow data frame with VLAN transmitting in Simple Bridged link, default config is not enabled; to config VLAN, need to enable this function first.

**4.3.5 OLT Senior Management Config**

**【OLT Config】** --> **【Senior Management】** , introduction as table 4-4.

Menu	Function Description
<b>【Dynamic MAC】</b>	Check the learned Dynamic MAC from OLT link
<b>【Static MAC】</b>	Config the Static MAC bond to OLT link

Table 4-4

**4.4 ONU Config**

HA7200 series ONU includes: HA7200 one port 100M ONU, HA7200G one port Gigabit ONU, HA7200D two ports with 100M and 1000M ONU, HA7204 four 100M ports ONU, HA7208 eight 100M ports ONU, and HA7201TW ONU with CATV port. In the management system, there are two ports for HA7200G ONU and HA7200 ONU. HA7200G port correspond to the port index 1, port 2 is not used; HA7200 port correspond to port index 2, port 1 is not used; HA7200D GE port correspond to port index 1, FE port correspond to port index 2.

**4.4.1 ONU Link Management**

**【ONU Config】** --> **【Link】** , config the logical link between OLT and ONU, suggest not config. except **【Link Bandwidth】** .

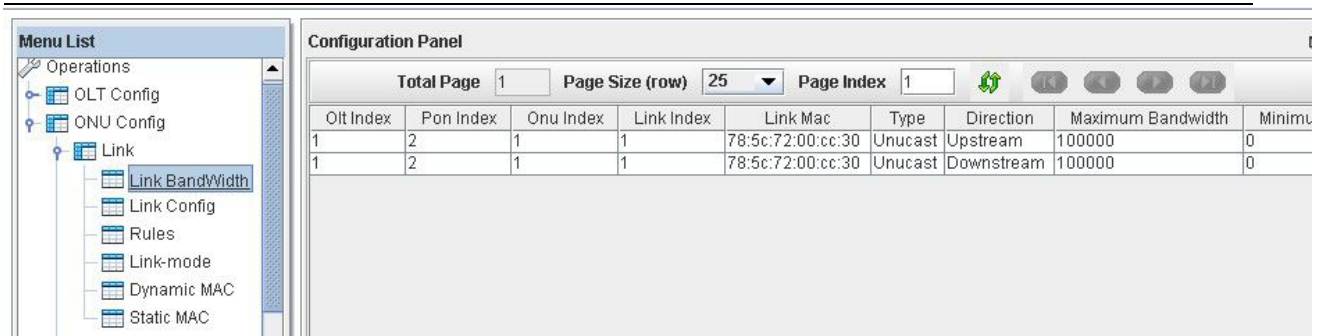


Figure 4-26

【Link Bandwidth】 confi., details as Figure 4-27



Figure 4-27

HA7200, HA7200G and HA200D each one has 2 links. HA7200 corresponding link is bigger Index link of the 2 links, smaller Index link is unavail. HA7200G corresponding link is smaller Index link of the 2 links, bigger Index link is unavail. HA7200D GE port corresponding link is smaller Index link, FE port corresponding link is bigger Index link. HA7204 and HA7208 each has 1 link. As HA7200D has 2 usable links, GE port bandwidth and FE bandwidth could be separately configured. Other type ONU link bandwidth is total bandwidth of all ports. Please check the table 4-5.

Menu	Function Description
【Maximum Bandwidth】	Maximum data transmission rate
【Minimum Bandwidth】	Minimum data transmission rate
【Mode】	<p>Sensitive: distribute bandwidth to the link according to the actual bandwidth needed under ONU users, make the bandwidth value between Max. and Min. bandwidth. At this time, no need to set the same value of Max. bandwidth and Min. bandwidth.</p> <p>Tolerant: distribute a fixed bandwidth to the link, even if the users under ONU don't take full advantage of bandwidth that are distributed. At this time, Max. and Min. bandwidth must be set as the same value.</p> <p>TDM: time division multiplexing, supports to set the size of round time slice</p>
【Maximum Burst Size】	Maximum bandwidth reserved for burst flow
Other Confi.	Keep same as the default

Figure 4-5

#### 4.4.2 ONU Hardware Config

As Figure 4-28.

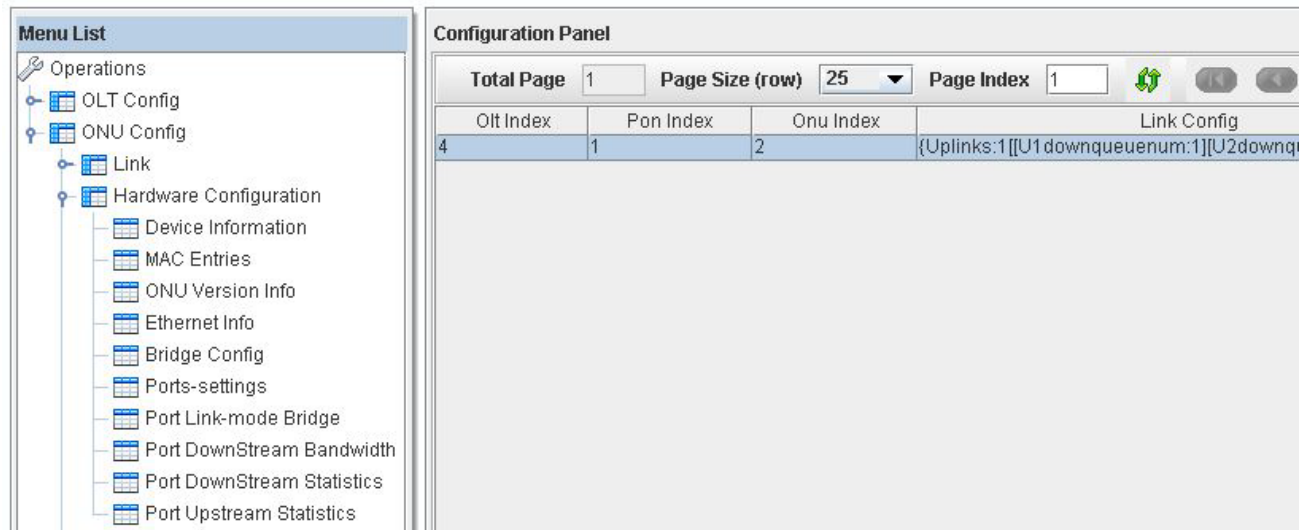


Figure 4-26

Menu	Function Description
【Device Information】	Reset ONU to factory settings, reboot, set ONU access mode
【MAC Entries】	Check ONU port learning MAC address, and clear the learned MAC address
【ONU Version Info】	Check ONU chipset, version
【Ethernet Info】	Revise the VLAN Ethernet type passing ONU (recommend to use the default config 8100), add tag to upstream and downstream (not suggest to config)
【Bridge Config】	Only HA7204 and HA7208 ONU support this function. Config THE local exchange function and MAC limitation function to mutli-port ONU
【Port-settings】	Config the ONU ports
【PortLink-mode Bridge】	Port bridge config
【Port DownStream Bandwidth】	Port downstream bandwidth config
【Port DownStream Statistics】	Port downstream statistics
【Port UpStream Statistics】	Port upstream statistics

Table 4-5

【Bridge Config】 as Figure 4-29.



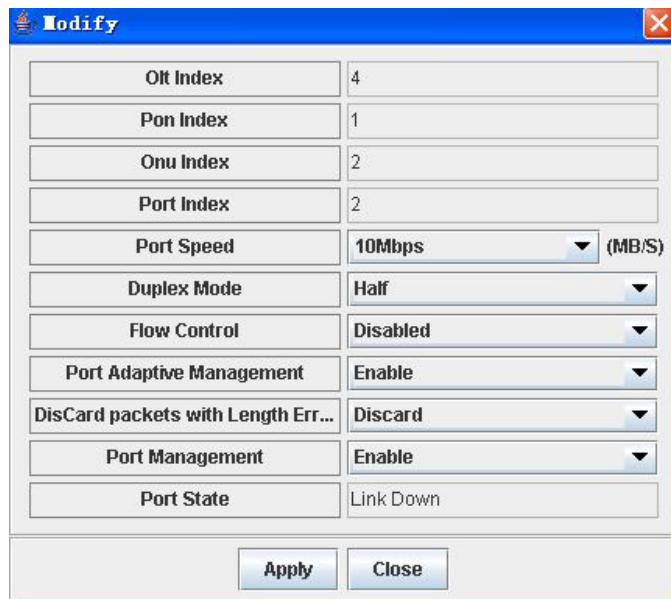
Figure 4-27

- ONU Learn MAC Entries Limit: limit the MAC address number of devices connected to the ONU, if not limit, config 0.



- Flood Frame With Unknown MAC: choose YES, expand the unknown data frame broadcast of destination MAC to all the ports; choose NO, discard the unknown data frame of destination MAC.
- Locale Switch: config local switch function of multi-port ONUs, choose Enable, each port is not isolated; choose Disable, each port is isolated.
- DownStream Burs: open or close downstream Burst function.

【Port-settings】 as Figure 4-30.



Olt Index	4
Pon Index	1
Onu Index	2
Port Index	2
Port Speed	10Mbps (MB/S)
Duplex Mode	Half
Flow Control	Disabled
Port Adaptive Management	Enable
DisCard packets with Length Err...	Discard
Port Management	Enable
Port State	Link Down

Figure 4-30

- Port speed: config port speed
- Duplex Mode: set port working mode full duplex or half duplex
- Flow Control: enable or close 802.1x flow control
- Port Adaptive Management: default is enable
- Discard Packets with Length Errors: such as small data packets
- Port Management: close or open the port, when close, the port can't work

Note: to config Port speed and Duplex Mode, must Disabled Port Adaptive Management.

【Port Link-mode Bridge】 as Figure 4-31.

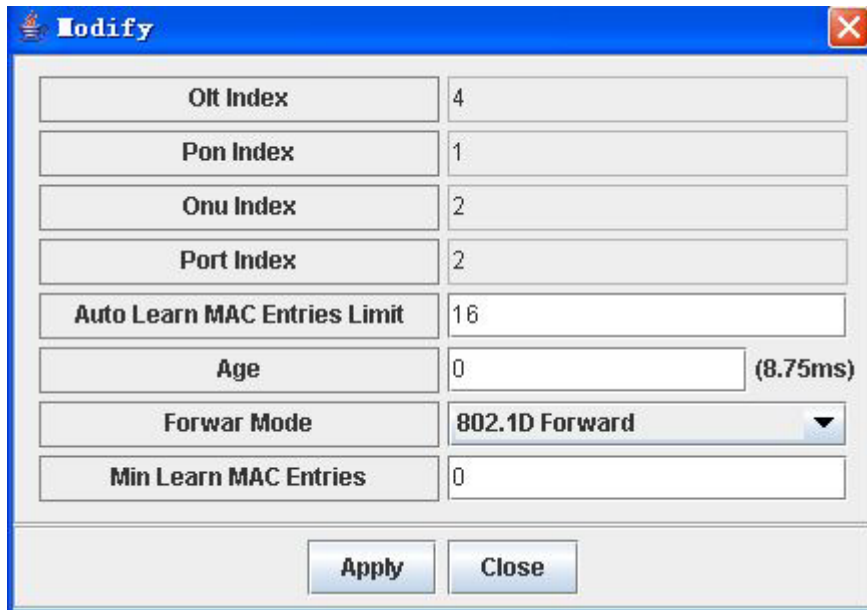


Figure 4-31

- Auto Learn MAC Entries Limit: maximum 64, if not limit, config it to 0.
- Age: config the MAC aging time, maximum 32768; minimum 0, means not aging.
- Forwar Mode: port data packets forward mode, there is 802.1d Forwarding and MAC Access Control two modes. 802.1d Forwarding actions includes: learn MAC, unicast the known MAC data frame, flood unknown MAC frame; different with 802.1d Forwarding, under MAC Access Control mode, only after ONU learned the source MAC of upstream data packet, it will forward this data packet, this character also called Dropped Unit Learned.
- Min Guaranteed MAC Learning Limit: config the minimum entries of MAC learning

#### 4.4.3 ONU Config

【ONU Config】 --> 【Ethernet Service】 as Figure 4-32, function description as Table 4-7.

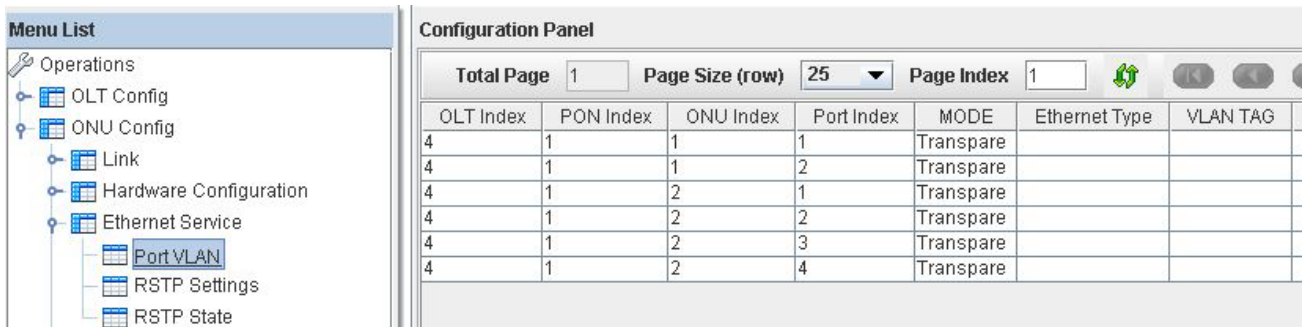


Figure 4-32

Menu	Function Description
【Port VLAN】	Config ONU port VLAN
【RSTP Settings】	RSTP Setting
【RSTP State】	Check RSTP state

Table 4-7

【Port VLAN】

ONU VLAN function support three VLAN modes”:

Transparent, Tag and Translated mode, details as Table 4-8, 4-9, 4-10.

Direction	Ethernet packet with or not with VID	Treatment way
Upstream	With VLAN VID	No change to Ethernet packet, reserve the VLAN TAG, forward
	No VLAN VID	No change to Ethernet packet, forward
Downstream	With VLAN VID	No change to Ethernet packet, reserve the VLAN TAG, forward
	No VLAN VID	No change to Ethernet packet, forward

Table 4-7 Treatment way to the data packet under Transparent mode

Direction	Ethernet packet with or not with VID	Treatment way
Upstream	With VLAN VID	Discard
	No VLAN VID	Add the configed VLAN VID, forward
Downstream	With VLAN VID	Forward to the corresponding port according to the VID And divest the VID, if the VID is unequal to the configured ID, discard the packet.
	No VLAN VID	Discard

Table 4-8 Treatment way to the data packet under Tag mode

Direction	Ethernet packet with or not with VID	Treatment way
Upstream	With VLAN VID	If the original VID is the same with forward VID (in tag), divest this VID, add new tag (Translated Tag) and forward; if different, discard

	No VLAN VID	Add default VID (VLAN Tag) and forward
Downstream	With VLAN VID	If the original VID is the same with forward VID (in tag), divest the VID, add new tag (In Tag) and forward; if different, discard
	No VLAN tag	Discard

Table 4-9 Treatment way to the data packet under Translated mode

Example: here need to add VLAN VID to the upstream data entering ONU port, and divest the downstream corresponding VLAN VID, VID is 100.

Choose ONU Port Type as TAG, input 8100 in the TPID column (TPID is Ethernet type, common is 8100), input the VID 100 in the VLAN Tag column, as Figure 4-33.

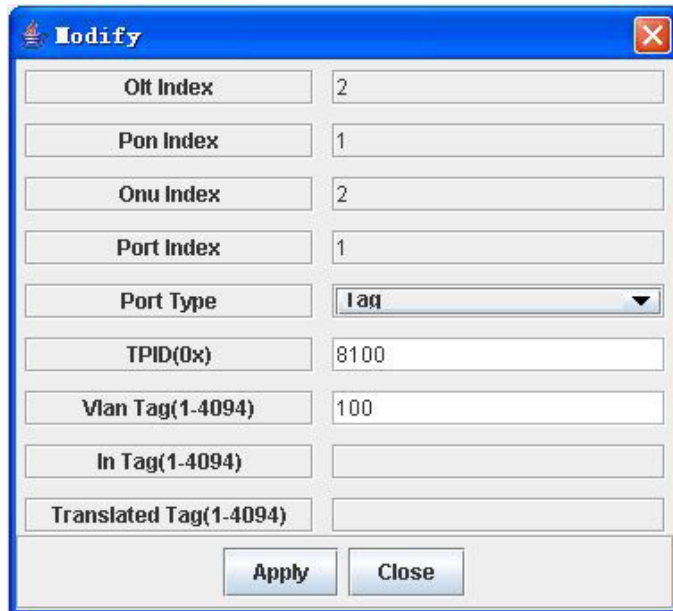
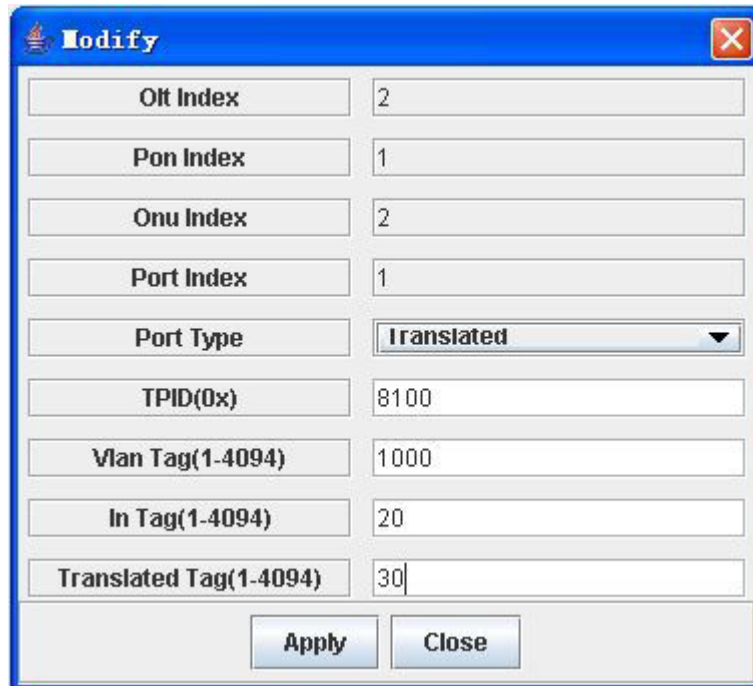


Figure 4-33

Example: upstream, transfer data packet with VLAN VID 20 to VID 30; downstream, transfer the data packet with VLAN VID 30 to VID 20.

Choose ONU Port Type as Translated, input Choose ONU Port Type as TAG, input 8100 in the TPID column (TPID is Ethernet type, common is 8100), transfer the VID 20 to VID 30, input arbitrary value in the VLAN Tag column, then ONU will add this VID to the packet with VID, as Figure 4-32



Field	Value
Olt Index	2
Pon Index	1
Onu Index	2
Port Index	1
Port Type	Translated
TPID(0x)	8100
Vlan Tag(1-4094)	1000
In Tag(1-4094)	20
Translated Tag(1-4094)	30

Buttons: Apply, Close

Figure 4--32

Note: VLAN mode can't switch directly between TAG mode and Translated mode, must config VLAN mode to Transparent mode and then config new mode; under same modes, to change VID, also need to config VLAN mode to Transparent, then config new mode, reconfigure VID, or the config is not successful.

To the ONU HA7200 and HA7200D 100M port (port index is 2), TAG mode is not available, and Translated mode can be used to substitute TAG.

Example:

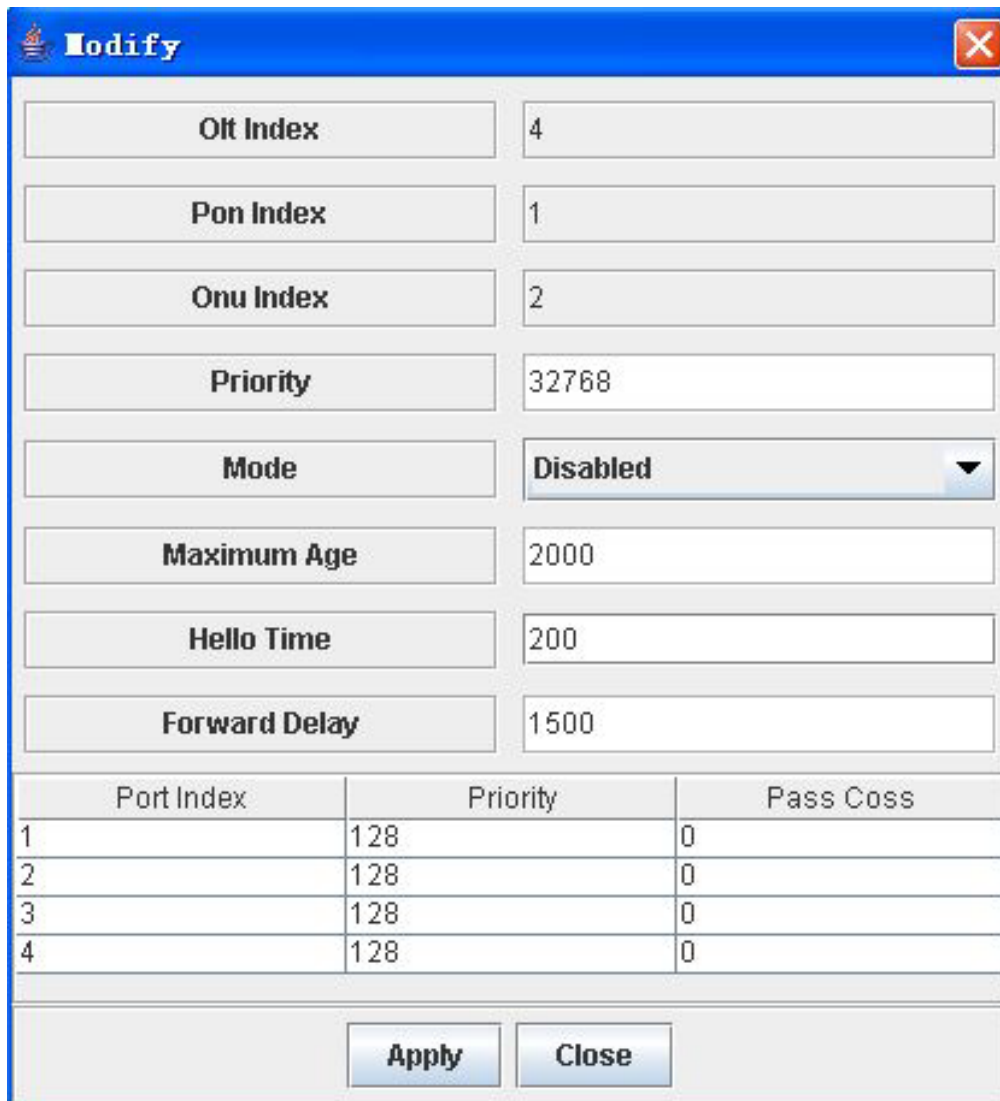
Here need to add VLAN ID to upstream data, and divest downstream corresponding VLAN VID, VID is 100. Choose Translated mode (it should choose TAG mode, tag mode is not available to index 2 port, Translated mode can implement the same function) Configure as Table 4-35.

Modify	
Olt Index	2
Pon Index	1
Onu Index	2
Port Index	2
Port Type	Translated
TPID(0x)	8100
Vlan Tag(1-4094)	100
In Tag(1-4094)	0
Translated Tag(1-4094)	0
<input type="button" value="Apply"/> <input type="button" value="Close"/>	

Table 4-35

ONU will add VID 100 tag to the data packet without VID, and discard the data packet with VID.

【RSTP Settings】 as Figure 4-36



Port Index	Priority	Pass Coss
1	128	0
2	128	0
3	128	0
4	128	0

Figure 4-36

ONU supports RSTP (Rapid Spanning Tree Protocol) function. It is simple to config RSTP function.

Under default mode, choose Enable in the Mode options under config panel.

Config parameters in the RSTP config panel:

- Priority: the size of the priority decides if this network bridge can be taken as root bridge; The small one can be chosen as root, if all the priority adopts the same value in the whole switch network, the bridge with smallest MAC can be chosen as root. Under RSTP mode, to config the network bridge priority will cause the STP recount. Range is 0-65535, default 32768.
- Mode: this options supports to enable, close or transparent RSTP function.
- Maximum Age: config the aging time. If this value is too small, the spanning tree counts frequently, this will covers much resource; if this value is too large, it will not find the link faults

timely. According to the real network condition, we suggest to adopt the default value, range 6—40s, default is 20s.

- Hello Time: internal time to send config information. If too small, the network bridge will send the information frequently, cause high load to the network and CPU; too large, network bridge will take link packet loss as link fault, cause the spanning tree recount. Suggest to use the default value, range 1—10s, default is 2s.
- Forward Delay: the status forward mechanism spanning tree adopts. RSTP defines three port statuses: Discarding, Learning and Forwarding. Forward Delay occurs under Discarding and Learning status. If this value too small, it will lead to temporary redundant path; if too large, network will can't connect in long time. Suggest to use default value, range is 4—30s, default is 15s.
- The three time parameters of root bridge Hello Time, Forward Delay and Max Age should apply to the below formula:
  - $2 * (\text{ForwardDelay} - 1s) \geq \text{MaxAge} \geq 2 * (\text{HelloTime} + 1s)$

Or the network will vibrate frequently.

- Port Priority: port priority is an important matter to choose root port. Under same condition, small value will be the switch root port. If all the Ethernet port adopts same priority parameter, the range of the priority depends on the port index. Change priority will lead to the spanning tree recount, range is 0—255, default is 128.
- Path Cost: related to link speed, the high the port link speed, the low to configure this parameter, STP can count the current Ethernet port path overhead.

### 【RSTP State】

Enable RSTP, the whole spanning tree status can check in the **【State】** table, as Figure 4-37.



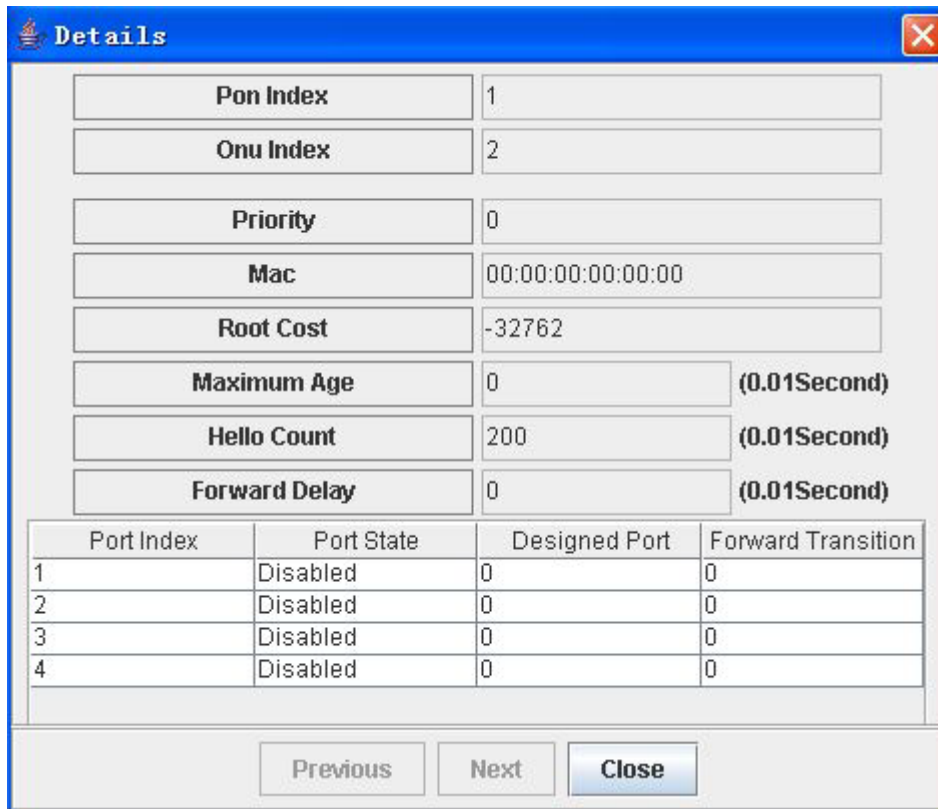


Figure 4-37

#### 4.4.4 ONU 802.1x Management

【ONU Config】-->【802.1x】 , not available at present.

#### 4.4.5 ONU IGMP

ONU support IGMP Snooping.

The menu “IGMP” includes two options:

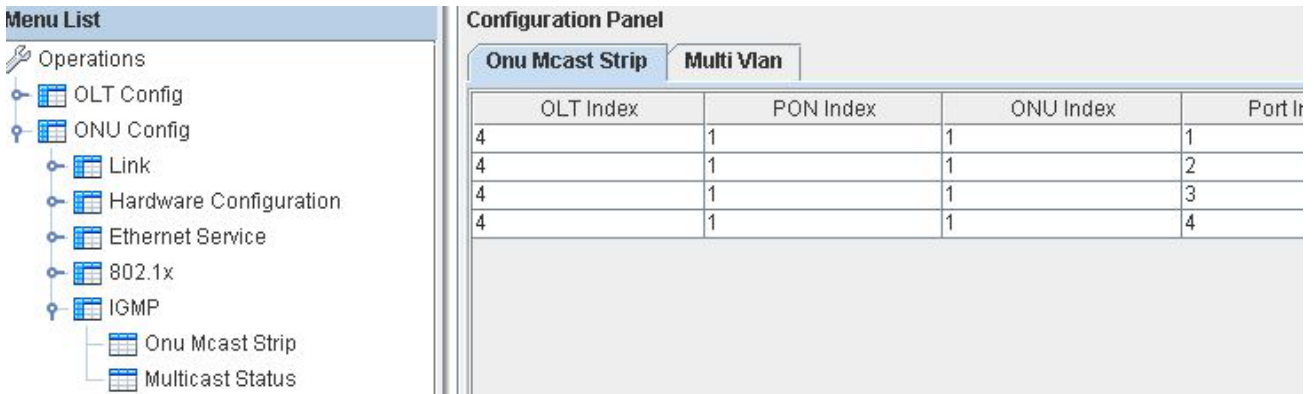
- Onu Mcast Strip
- Multicast Status

A. The menu “Onu Mcast Strip” is to configure the multicast of ONU ports and the related VID

Unstrip/Strip operation. All the multicast from OLT to ONU has the VID, users need to add the VID to the ONU port, and each port can choose VID according to the needs. After adding VID, ONU port can receiver multicast strip, and then choose to Unstrip/Strip the VID of this multicast strip; eg, STB doesn't support the function of Strip VID, if you want ONU to receive the multicast strip, need to strip the VID for the STB.

The menu “Onu Mcast Strip” includes two options: “Onu Mcast Strip” and “Multi VLAN”.

Operating: choose menu “Onu Mcast Strip”, as below



- OLT Index:

OLT Index is refer to the card type OLT in the rack, this can't be changed. The 3U rack supports total 8pcs OLT cards (HA7100 or HA7102), The OLT index related to the position of the OLT in the rack, (from left to right), it is 1, 2, 3, 4, 5, 6, 7, 8.

- PON Index: HA7100 OLT card has one PON port, the PON Index is 1; HA7102 OLT card has two PON ports, the PON Index is 1 and 2.
- ONU Index: refer to ONU
- Port Index: refer to ONU ports. HA7204 ONU has 4 10/100M ports, the index is related to 1,2,3,4; HA7208 ONU has 8 10/100M ports, the index is related to 1,2,3,4,5,6,7,8; HA7200G port index is 1; HA7200 port index is 2; for HA7200D ONU, 10/100M port index is 2, GE port index is 1;
- Multicast VLAN: as all the multicast strip from OLT to ONU has VLAN tag, need to configure the port VLAN VID to be the same with the multicast strip VID, then the multicast strip can be transferred.
- 
- Option: operation refer to the multicast strip ONU received, includes: "Unstrip" and "Strip"; "Unstrip" means keep VID and transfer, "Strip" means discard VID and transfer..

Note: "Multicast VLAN" relates to the "User VLAN" in OLT multicast transfer items.

Choose the port, right click the mouse, and choose "Modify"

**Configuration Panel**

Onu Mcast Strip    Multi Vlan

OLT Index	PON Index	ONU Index	Port Index	Option
4	1	1	1	Unstrip
4	1		2	Unstrip
4	1		3	Unstrip
4	1		4	Unstrip

See as below:

Onu Mcast Strip    Multi Vlan

OLT Index	PON Index	ONU Index	Port Index	Option
4	1	1	1	Unstrip
4	1	1	2	Unstrip
4	1	1	3	Unstrip
4	1	1	4	Unstrip

**Modify**

OLT Index: 4

PON Index: 1

ONU Index: 1

Port Index: 1

Option: Unstrip

Apply

Choose “Unstrip” or “Strip” according to the needs, click “Apply”.

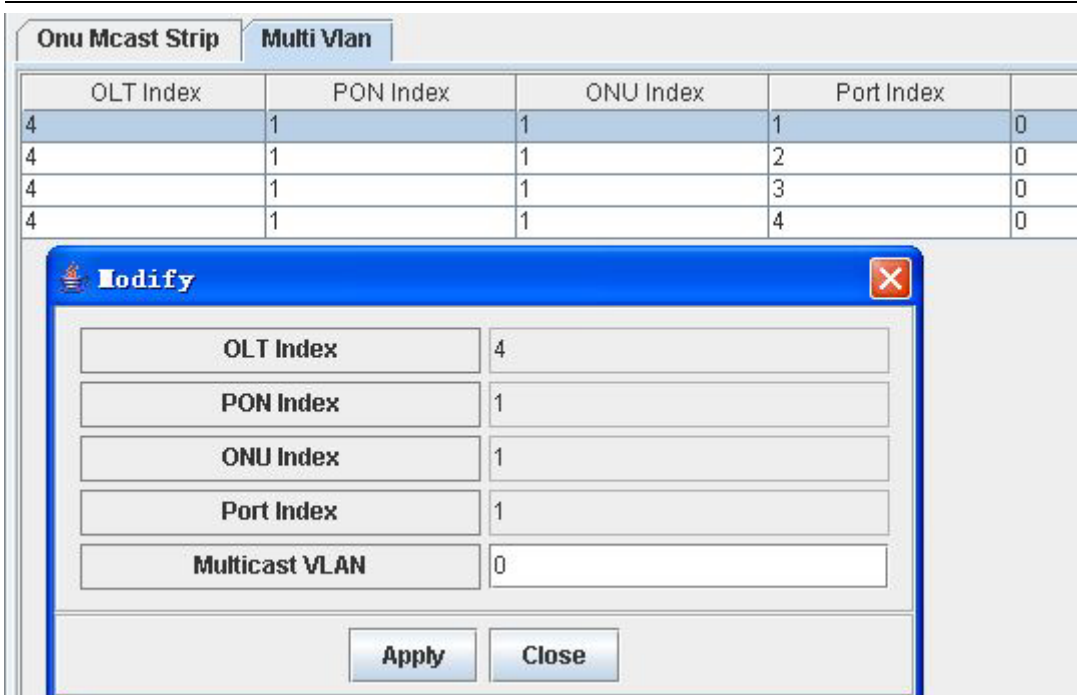
Choose “Multi Vlan”, as below

**Configuration Panel**

Onu Mcast Strip    Multi Vlan

OLT Index	PON Index	ONU Index	Port Index	Multicast VLAN
4	1	1	1	0
4	1	1	2	0
4	1	1	3	0
4	1	1	4	0

Choose the port you want to configure, right click the mouse, choose “Modify”:



Input the VLAN ID in the Multicast VLAN, range 2---494 is available.

B The menu “Multicast Status” is to descrip the multicast strip information ONU transfer

- OLT Index:

OLT Index is refer to the card type OLT in the rack, this can't be changed. The 3U rack supports total 8pcsOLT cards (HA7100 or HA7102), The OLT index related to the position of the OLT in the rack, (from left to right),it is 1, 2, 3, 4, 5, 6, 7, 8.

- Multicast Group Numms:

The number of the multicast groups transferred

“Multicast Group Information”: information of the transferred multicast groups, support to check the multicast IP addrss.

Configuration Panel					
OLT Index	PON Index	ONU Index	ONU Index	Multicast Group Numms	Multicast Group Information
4	1	1	1	0	{}
4	1	1	2	0	{}
4	1	1	3	0	{}
4	1	1	4	0	{}

- OLT Index:
- PON Index:
- ONU Index
- Port Index
- Multicast Group Numms
- Multicast Group Information