

EPON OLT Equipment

FD1204S/FD1208S/FD1216S User Manual - EMS Software Part

Version: V3.0

Shenzhen C-Data Technology Co., Ltd.



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About This Manual

This manual is applicable to C-Data FD1208S, FD1216S EPON OLT products, The contents of this document include EMS software installation and operation guidelines. Users should learn this document first when beginning to operate EPON OLT device.

The related documents for EPON OLT device are: 《FD1204S,FD1208S,FD1216S User Manual-Device Installation User Manual》 《FD1204S,FD1208S,FD1216S User Manual- CLI Operation User Manual》 《FD1204S,FD1208S,FD1216S User Manual- Configuration Guide》



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1 Software Introduction

1.1 Software Information

EMS (Element Management System) software is a C/S architecture integrated device management platform, which is designed based on SNMP protocol. Now, it is mainly used for managing EPON ang GPON series products.

EMS need following runtime environment:

OS: Windows2000、 Windows XP、 Windows NT

Hardware: CPU 2.4GHz , 512M memory

Software: JAVA 1.5, MySql 5.0

1.2 Functional Features

EMS software has following main features:

- Based on standard SNMP protocol
- Support multiple client <u>a</u>ccess, C/S architecture
- Support integrated management all our EPON series products
- Support auto topology or modify manually, and multi-layer map view
- Support configuration operation on all EPON products functions
- Support multiple level operation authority
- Real-time and history alarm record view, search and save
- Operation history record trace and save
- Use independent database and support data backup and import
- Support performance monitor and traffic counters statistic
- Support third-party database platform

2 EMS Software Installation

After the release of EMS V2.4.1, EMS software has been able to integrate the database software into a single file by default, so as long as the EMS is installed, the corresponding database software is also installed simultaneously.if your computer have installed the database software, you doesn't need to uninstall, it doesn't matter to the EMS software installation.

It's easy to install EMS, Click 'Next Step', and you will finish it.

Finish the installation of EMS , you will find two Shortcuts in the installation directory or desktop for server and client, typical Shortcuts as follows:



Note:Finish the installation of EMS, you can start it directly.

3 EMS Startup

The architecture of EMS is C/S (Server and Client), Server and Client. You should start Server program before start Client program.

3.1 EMS Server Startup

Run the EMS Server program, we will find icon after the Server runs successfully , icon as follows:



Note:EMS Server startup time is not longer than 30 seconds. If the program runs more than 30 seconds means the program doesn't start properly.

3.2 EMS Client Startup

Run the EMS Client program After the EMS Server starts. We can run EMS Client and EMS Server on the same computer, also can run on two independent computer, as long as two computer's network communication.

Note:To ensure the operating performance of the software, it is recommended that the Server and Client be installed on the computer with same LAN or the same computer.

After the Client has started successfully, the login page as follows:

ogin			
	User name:		
P	Password:		
Lang	guage		
	○ 简体中文		English
A	dvance>>	ок	Cancel

3.3 login EMS

If the Server and Client are installed on the same computer, enter the user name and password and login directly. If the Server and Client are installed on different computers, you must click the **'Advance'** and configure, page as follows:

Usern	ame:	
Passw	/ord:	
Language		
〇 简(本中文	English
Advance <<	< ОК	Cancel
Connection d	leploy	
Poll Server:	127.0.0.1	Port: 8888

Configuration as follows:change poll server's ip same to the server's ip which start EMS server, port and Timeout Keep the default.

Note: The default user is "admin", password is "1234" for client to login.

Element Management System (11) ۵ < 🔾 🗶 k 🕅 a ... EPON 16 PORT Clear Severity Handler Trap Object NE IP Address Time Resume Time Descript

After login the Client successfully, you will see the main page. The typical page follows:

Trap Log Operation log

At this point, EMS software server and client programs have been started normally.

EMS Software Frame Introduction 4

4.1 **Main Frame Overview**

After successfully login, software comes to main frame. Following is a typical page.



As shown above, the EMS client main window is divided into the following sections:

Main menu:

Main menu contain System, Alarm, Configure, Performance and Help parts. Their main features are as follow:

System Menu

Including System Configuration, MIB Browser, Database Maintenance and User Manage, etc.

Alarm Menu

Alarm Query, Configure Trap Rule and System Log are within this menu.

Configuration Menu

Top-tree update, device add/delete, device configuration, map update and device upgrade features are located in this menu.

Performance Menu

Including performance monitor and alarm threshold configuration.

Help Menu

Change software skin, language and About information.

Device list window

The device list window shows all the devices under management currently. The device list can directly observe whether the device is online, whether there is an alarm, and double click device can enter into the management window of the device.

The EPON/GPON OLT device has 5 management object in the device list window, the machine box, exchange control module, PON module, PON port and ONU level.

Windows of topology

Windows of topology is the main display area of the EMS software, according to the management device, user can move device to right postion on regional background map for visual management. Double click the device object on the topology diagram, you can enter the device management window to perform various operations on the device.

The administrator can add or modify the passive network part of the topology diagram manually, such as the optical shunt in EPON/GPON network, to make the topology same to the actual network layout.

Real-time alarm, operation log window

The real-time alarm window shows the abnormal alarm information of the current management device, such as alarm object, alarm time, alarm content, etc.

The operation log window records all the operations of the EMS, so it's convenient to trace who has operated it.

4.2 Device Management Window

For device management, EMS is mainly through the corresponding device EPON OLT User Manual-EMS Software management window to operate. Through the Configuration menu or double click the device icons located on Top-tree or topology map, manager can open the device management windows. Following are several typical examples:

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				COMPOSE A				715 1 10		10 (100) 10 (100)	ore 88		er es	I 🙁 🖻	ă <u>88</u>		Andra Andra 203 Andrea Ba	ŝī
	*****		5 ans arr ann 1681 1682	19972		Port Pro	perties											
IZ N	76 78 PLO PL2 PL4 716			WAIT ALARM BST	OLT Device EPON 16 PORT	Port Nar e	n Operatio Status	n Admin S atus	H MaxSupp ort OnuN	Online O uNum	n Portisola on Enabl	iti PerfStats le Of16minu	PerfStats 0124hou	MacAddr Learn Na	Max Up B andwidth	ActualUs I e Up Ban I	Remain U I p Bandwi	LongEmit Detect E
									um			teEnable	Enable	xNum		dwidth (din e	nable
Surtem Danic Info	rmation				- PonPort Information	Pon-1	up	enable	64	1	true	false	faise	6000	1000000	0 1	0000000	lisable
System busic into	in the second se				-Broadcast Storm Suppression	Pon-2	down	enable	64	0	true	talse	false	0	1000000	0 1	.000000 c	Asable
System Description	description	System OID	.1.3.6.1.4.1.8072.3.2.10		- Onu Authentication Mode Table	Post-3	down	enable	04	0	nne	Ealore .	table a	0	1000000		000000 0	Josephie -
Running Times	10 days, 3 hours, 39 minutes, 43 seconds.	ContactWay	contact		Optical Transmission Property	Poll-4	down	enable	64	0	true	Falco	folge	0	1000000	0 1	000000 4	ficable
System Name	name	Location	location			Pon-6	down	enable	64	6	true	faise	faise	0	1000000	0 1	000000	disable
Cystem reame	The rest	Cotaboli	NCM ON			Pon-7	down	enable	64	6	true	talse	faise	6	1000000	0 1	000000 4	disable
						Pon-8	down	enable	64	0	true	faise	false	0	1000000	0 1	0000000	disable
						Pon-9	down	enable	64	0	true	false	faise	0	1000000	D 1	0000000	disable
					1	Pon-10	down	enable	64	0	true	false	false	0	1000000	0 1	0000000	disable
						Pon-11	down	enable	64	0	true	faise	false	0	1000000	0 1	0000000	disable
						Pon-12	down	enable	64	0	faise	false	faise	0	1000000	D 1	000000 0	disable
						Pon-13	down	enable	64	0	false	Ealse	faise	0	1000000	0 1	000000	disable
					0	Pon-14	down	enable	64	0	faise	false	false	0	1000000	0 1	000000 0	disable
						Pon-15	down	enable	64	0	true	talse	false	0	1000000	0 1	000000 0	disable
						Pon-16	down	enable	64	p	true	faise	faise	p	1000000	0 1	000000	ásable
		Dafrach									Refrest	h	Set					
		Relieon																

Device Basic Information Windows

PON Card Windows

Control Module Management				
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CLUCHARE BEALERS	Spans De Construire de Constru	BanGordfer Annung Ham, Bent Manung Ham, Bent Bent Shan, Olimak, Masses Bent Shan, M	1.1 Concert 2005/0000000000000000000000000000000000	BND: Morris 0.01.1 Marce S 0.02.1 Marce S 0.02.2 Marce S 0.02.2

Switch and Control Card Windows

ONU Management windows

5 Management Object Add/Delete

5.1 Location Add/Delete

For convenience of managing numerous devices, divide them in different regions according to their deployed locations is normally needed. According to following steps to divide management regions:

1) Add a Location node on the Top-tree list. Showing as follows:



As above figure, through 'Add Location' menu or its shortcut, open add location operate window, as following:

Parent Node:	Top Tree	-
Location:		
Map:		-

Operation steps:

i. Select the parent node for new added node;

ii. Input the name of new node;

iii. Select map for the new location node (The map should be upload first), when select this node on top-tree, the topology area will apply this map;

2)Location node delete

🧾 Element Management System		-		
System Alarm Config Performance	<u>H</u> elp)		
	4	e۳	0	
Modify				
🖻 💢 Delete				
Chassis Management				

As above figure, right click the selected location node and delete it.

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5.2 Add/Delete Device

Note:Before using EMS to manage an EPON device, you need to login OLT system to

enable SNMP functions and to configure the read-write community, read the community is public, and write community is private.

Configuration and view commands are as follows: (see cuser Manual- CLI Operation User Manual for more relevant configuration view commands)

OLT(config)#	snmp-agent	enable			
OLT(config)#	snmp-agent	community	read public		
OLT(config)#	snmp-agent	community	write private	2	
OLT(config)# Snmp agent	show snmp-a status: Ena	agent statu able	us		
OLT(config)#	show snmp-a	agent comm	unity		
Community-	Name		VACM-Name	View-Name	
public private			default default	all all	

OLT(config)#

Next, you need to add the device on the EMS manually, and the operation of adding an EPON device is as follows.

1)Add OLT



As above figure, through **'Add Device'** sub-menu or its shortcut to open the device add window and add device. As shown in the figure below:

ocation:	Top Tree
Device Type:	EPON_1U16P
Device Name:	TEST
P:	192.168.5.63
Read community:	•••••
Write community:	•••••
Poll Interval(Sec.):	5
Snmp set Timeout(Sec):	5
Snmp get Timeout(Sec):	5

As above figure, the new added device need configure following parameters:

Location

Select the location node where the added device should be located.

Device Type

Select the device type for the new added device. EMS can manage EPON OLT and other EPON products. So, it is needed to select correct device type. Select EPON_1U type for FD1108S OLT device.

Device Alias

In order to recognize the managed device easily, a suitable alias is normally needed instead of IP Address or MAC Address. This device alias will be displayed on top-tree list.

IP Address

Input the management IP Address of the new added element device, which can be in-band or out-band IP Address.

Read and Write Community

EMS software is designed based on SNMP protocol to communicate with managed devices. Read and write community is used by SNMP protocol as access password. Community value input here should be the same with which configured in managed device, such EMS can communicate with the managed device successfully.

Polling Interval and SNMP Read and Write Timeout Value

EMS software will poll the managed device periodically with a configured time interval. Normally, the poll interval can use the default value. SNMP read and write timeout values are the longest wait time for EMS to wait response from managed device. Usually, the default value is suitable. Manager can also revise these values according to the real network performance situation.

When the above parameters are configured, click OK button to finish the device add operation. When success, the new added device's icon will appear on top-tree list and topology area. Showing as following figure:





Note: For EPON OLT device, only the chassis node need to be added manually,other

part such as equipped card and accessed ONU device need not to be added. These devices will be detected automatically.

2) Delete OLT

Obsolete or unwanted device on top-tree list can be deleted from EMS. Right click on the selected device icon and select Delete option to delete a device.

Note:

i. Deleted device can't be restored and need to be added when need.

ii. All the information of the deleted device will also be removed from EMS.

iii. None any configurations on the deleted device itself will be changed.

6 EPON OLT Management

OLT device mainly consists of OLT chassis, exchange control module, PON business module and PON port. The following sections describe the management of EMS software for these parts.

6.1 OLT Chassis Management

Double click the OLT chassis icon to open the chassis management window. Typically as following figure:



Device Informati	ion		_	×
P1 P3 P1 P3 P2 P4	P5 P7 P9 P11 P13 P15 P1 P1 P13 P15 P16 P16 P16 P16 P6 P8 P10 P12 P14 P16 P16		GE4 56 GE 57 GE 78 GE	5 GE6 GE7 GE8 XGE1 XGE2 5 GE6 GE7 GE8 S1 XGE2 5 GE7 GE8 S1 XGE2 5 GE7 GE7 GE8 S1 XGE2 5 GE7 GE8 S1 XGE2 5 GE7 GE8 S1 XGE2 5 GE7 GE8 GE7 GE8 S1 XGE2 5 GE7
System Basic Infor	mation			
System Description	description		System OID	.1.3.6.1.4.1.8072.3.2.10
Running Times	10 days, 8 hours, 14 minutes, 22 seconds.		ContactWay	contact
System Name	name		Location	location
		Refrest	-	

OLT chassis management includes following several parts.

Front Panel

The equipment panel parts display the power supply of the machine box in real time and the status of each port indicator light. The meaning of the indicator is subject to the panel label.

When EMS can't connect with the OLT the windows will change to gray color.

Basic Information

This section shows the system description, system OID, running time, contact information, system name, location and other basic information. click "refresh" button can refresh the above information.

6.2 Switch and Control Card Management

Double click 'Switch Control Card' icon on top-tree list to open the 'Control Module Management' window . Typical as following figure::

Pit	🔢 Control Module Management		
OLT Device TEST System Info OLT Device TEST OLT Device Type BoardCard Name spon Sistem Status SerialNumber Management Config Device Upgrade Management SwitchCard Attribute 2000/1/1 00:27:23 SwitchCard Attribute 2000/1/1 00:27:23 SwitchCard Mirror 0 hours, 27 minutes, 12 seconds. MacAddress Management 122 SniBroadcastStornSuppression PonPort Num Port VLAN Konfig PonPort Num Port VLAN Config Power Slot Numbers IGPM Management 1 - Port VLAN Config Power Slot Numbers ICMP Management 1 - Port VLAN Config Power Slot Numbers ICMP Management 1 - Site Diola Set Site Port Set Ship Port Set Site Port Set Macagement - Site Port Set - Site Port Set Site Port Set Ship Port Set Site Port Set	P1 P3 P5 P2 P4 P6 P2 P4 P6	77 P8 P11 P15 P15 T T T T T T T T T T	
OLT Device [FEST OLT Device [FEST] OLT Device [TeST] OLT Device [TeST] OLT Device [TeST] Sentanzement Config Device Upgrade Management SwithCard Attribute SwithCard Attribute SwithCard Mirror Management SniBroadcastStormSuppressie Port VLAN Manegement SniBroadcastStormSuppressie Port VLAN Config Port VLAN Translation Gund Config Step Font Set Sp Pont Set CMAnagement roup Step Font Set ACL Runie ACL Runie Bord Set ACL Runie Bord Set Step Cond Set Step Co	System Info		
System Status SerialNumber AF1701-16080003 vendorName XPON Management Config Device Upgrade Management SouthChard Attribute 2000/1/1 00:27:23 RunningTimes 0 hours, 27 minutes, 12 seconds. SwitchCard Attribute SwitchCard Mirror MandwareVersion V3.0 SoftwareVersion 1.2.2 SwitchCard Mirror MacAddress Management SniBroadcastStomSuppressi Pont VLAN Manegement 10 Port VLAN Manegement Pont VLAN Config Pone Stot Numbers 1 10 Pont VLAN Translation 0 in Config Stot Road Set sig Pont Set sig Pont Set Stot Gloal Set Sig Pont Set Set Pont Set Set Pont Set Set Pont Set ACL Rutie Act Rutie Fan Set Set Fan Set Set Set Pont Set	OLT Device TEST OLT DeviceT	pe	BoardCard Name epon
Management Config estect Upgrade Management systemTime 2000/1/1 00.27.23 RunningTimes 0 hours, 27 minutes, 12 seconds. SwitchCard Minuk SoftwareVersion 1.2 Imagement Imag	- System Status SerialNumb	r AF1701-16080003	vendorName XPON
Device Upglade Malagement HardwareVersion V3.0 SoftwareVersion 1.2.2 SwitchCard TrunkForoupConfig MacAddress Management SniPort Num 10 SmitchCard Mirror PonPort Num Manegement SniPort Num 10 Port VLAN Manegement Fan Slot Numbers 1 Port VLAN Translation Imagement Fan Slot Numbers 1 Stip Global Set sip Port Set Set Set Stip Global Set sip Port Set Set Set	Management Config systemTime	2000/1/1 00:27:23	RunningTimes 0 hours, 27 minutes, 12 seconds.
SwitchCardTunkGroupContig SwitchCardMinor MacAddress Management SmithCardMinor MacAddress Management SmithCardMinor Management PortVLAN Kontig PortVLAN Translation GinG Contig StP Management Stp Global Set Stp Font	SwitchCard Attribute HardwareVe	sion V3.0	SoftwareVersion 1.2.2
MacAdress Management PonPort Num 16 SniPort Num 10 SniPort Num Management Fan Slot Numbers 1 Pont VLAN Config Port VLAN Translation Pont VLAN Translation Pont VLAN Translation Olin C Config Ist Pont VLAN Translation I Str Planagement Str Pont Set Pont Set Str Planagement Str Pont Set Pont Set Str Planagement Str Pont Set Pont Set	SwitchCardTrunkGroupConfig		
SnillForadcastStormSuppression Fan Stot Numbers 1 Fan OperationStatus up Port VLAN Manegement Port VLAN Translation Port VLAN Translation 1 Olin C Config Font Soft Numbers 1 IGMP Management Stp Font Soft Stp Font Soft Stp Font Soft ACL Rule Font Soft	MacAddress Management PonPort Nur	16	SniPort Num 10
Vian List Power Slot Numbers 1 Port VLAN Config Port VLAN Translation Oino Config IGMP Management Stp Clobal Set Stp Port Set ACL Management Group ACL Rule	SniBroadcastStormSuppressie Port VLAN Manegement Fan Slot Nur	ibers 1	Fan OperationStatus up
Port VLAN Translation Oin Q Config GMP Management Stp Global Set Stp Port Set ACL Management Group ACL Rule		umbers 1	
Gino Config - IGMP Management STP Management - Stp Global Set - Stp Port Set - ACL Management Group - ACL Rule	- Port VLAN Config		
STP Management Stp Global Set Stp Port Set ACL Management Group ACL Rule	QinQ Config		
Stp Clobal Set Stp Clobal Set ACL Management Group ACL Management Group	STP Management		
ACL Rule	Stp Global Set		
AGE Rule	ACL Management Group		
- Current ACL RULE	- Current ACL RULE		
Apply to Port ACL	Apply to Port ACL		
	all of the start of the		
Refresh Set Save Config Reboot		Refresh Set	Save Config Reboot

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Following management features are contained on this window:

- ✓ view or set device basic information;
- ✓ view or set the IP address, the trap address, SNMP management parameters and etc;
- ✓ upgrade OLT and ONU device;
- ✓ view and set the upper connection port, such as the admin status of port, and the port rate;
- ✓ Swap TRUNK functionality (link aggregation) configuration;
- ✓ MAC address table management;
- Upper port storm suppression management;
- OLT port VLAN configuration management;
- ✓ OLT igmp configuration;
- ✓ OLT STP configuration;
- ✓ ACL management configuration;
- ✓ QoS configuration;

Following sections in this part introduce the management features contained on the switch and control card management window.

6.2.1 View System Status

Double click the 'Switch Control Card' icon on the left side of the main page to open the 'Control Module Management' window and enter the 'System States' to view the page.

J Control Module Management				
	P3 P5 P7	P0 211 213 215 10 10 10 10 10 10 10 10 10 10 10 10 10 1		
OLT Device TEST	System Info OLT DeviceType		BoardCard Name	epon
	SerialNumber	AF1701-16080003	vendorName	XPON
Management Config	systemTime	2000/1/1 01:20:31	RunningTimes	1 hours, 20 minutes, 19 seconds.
SwitchCard Attribute	HardwareVersion	V3.0	SoftwareVersion	1.2.2
- SwitchCardTrunkGroupConfig	Frame Info			
- MacAddress Management	PonPort Num	16	SniPort Num	10
SniBroadcastStormSuppression	Fan Slot Numbers	1	Fan OperationSta	tus up
Vian List Port VLAN Config Port VLAN Translation QinQ Config	Power Slot Numbe	rs 1		
IGMP Management STP Management Stp Global Set Stp Port Set				
ACL Management Group ACL Rule Current ACL RULE Apply to Port ACL One Global Config				
ase of the offing		Refresh	Save Config	Reboot

System info

Display Board card name, serial number, vendor Name, system time, software and hardware version number, device running time and other information.

Frame info

Display pon port number, sniport number, fan slot numbers, and fan operation status.

Save config

The button of 'Save Config' is mainly for saving all configuration of OLT.

Reboot

Click 'Reboot' button, and OLT will reboot.

Set

The button of **'Set'** is used for setting system time.

6.2.2 OLT Management Configuration

Double click the 'Switch Control Card' icon on the left side of the main page to open the 'Control Module Management' window and enter the 'Management Config' page:

500
Operation Modfiy Modfiy

System info

View inband ip address, outband ip address, netmask, getway, inband VLAN.

Instructions:

1)Inband management comes from upper port and needs to add management VLAN for upper port.

2)Outband management comes from MGMT port and needs to add ip for MGMT port.

3)Normally, modify the IP of management and device parameters, EMS will lose connection with device, user need to modify management ip of device in EMS,only in this way,can we connect device again.

Trap address

Alarm receiving address is the destination IP address which alarm information sent to, when the alarm occur, OLT will sent Data Packet of 'SNMP TRAP' to the management PC, usually, trap address is same to the PC's ip which start EMS, Users can set four trap addresses mostly.

[Example of onfigure trap address]

Example:configure trap information as follows:host name is 1234,Alarm reception address is 192.168.5.135, The alarm port is 162, community is public.

🚮 Control Module Management			22
	P3 P5 P7 P8 P11 P13 P15 P4 P4 P4 P4 P4 P4 P4 P4 P4 P4 P4 P4 P4 P4 P4 P4 P4 P6 P6 P10 P12 P14 P16		CESS XORI NORZ 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
OLT Device TEST	System Info inbandlpAddress 0.0.0.0	Trap Address	ess 192.168.5.63
 System Status Management Config Device Upgrade Management SwitchCard Attribute 	inbandbacAddress 00-00-00-00-00 inbandbacAddress 00-00-00-00-00 inbandbgateway 0.0.0.0	Trap Address Trap Port Community	remask 250,255 250.0 dress E0-56-43-A9-B4-19
 SwitchCardTrunkGroupConfig SwitchCard Mirror MacAddress Management SniBroadcastStormSuppression 	Trap Address Selected Host Name	QK <u>C</u> ancel	Community Operation



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6.2.3 OLT And ONU Upgrade Management

Double click the 'Switch Control Card' icon on the left side of the main page to open the 'Control Module Management' window and enter the 'Device Upgrade Management' page. The configuration management interface can upgrade the software of OLT and ONU.

Note: before upgrading, you need to ensure that there is an upgrade file. The FTP

server can connect with OLT.

[Example of upgrade]

Example:Upgrade firmware via FTP server, which ip is 192.168.5.153

Control Module Management				
		P13 P15 Imp Imp		XGR2 CONSOLX
OLT Device TEST	TP Config	onfigure Main menu		
System Status Management Conlig Device Upgrade Management SwitchCard Attribute SwitchCard TrunkGroupConlig SwitchCard Mirror MacAddress Management	IP User Name Targe of	0.0.0 0	File Name Password Conf	igure FTP information
SnieloadcastStormSuppression Port VLAN Manegement - Van List - Port VLAN Config - Port VLAN Config - Other Config IGMP Management Strip Management Strip Management	Choose 'olt OLT,choose onu A	APP' for upgrading PP for upgrading ONU		
Stp Ort Set Set Stp Ort Set CL Management Group ACL Rule Current ACL RULE Apply to Port ACL Qos Global Config	Progress Transfer S	First, choose 'Download to Device' Retresh	Then, choose 'Upgrade' Download to Device Upgrade	After the upgrade is completed,click 'Reboot'

6.2.4 OLT Uplink Port Attribute Configuration

Double click the 'Switch Control Card' icon on the left side of the main page to open the 'Control Module Management' window and enter the 'Switch Card Attribute' page.

The '**Switch Card Attribute'** management page is mainly used to configure and view the attribute parameters of OLT 's uplink port (GE photoelectric port and 10GE uplink port). The parameters are described as follows:

Admin Status

Set up the uplink port state to enable or disable. When the port is set to '**Up**', the port is opened and when the port is set to '**Down**', the port is closed, 'testing' status is not available currently.

Operation Status

Displays the current link state of the uplink port, when the uplink port connect with the end devices, the operation state is displayed as '**Up** '; when the uplink port disconnect with the end devices, the operation state is displayed as '**Down** ', and the running state only shows but can't be configured.

Media Type

Show the media type of the uplink port, the default interface of ge1-ge4 is the optical interface, and the media type is shown as '**Fiber**'.the default interface of ge5-ge8 is the electrical interface, and the media type is shown as '**Twisted Pair** '; XGE1 and XGE2 are uplink port of 10GE.

Auto Negotiation Status

Display the uplink port rate of duplex mode, 1000M full duplex, 100M full duplex, 10M full duplex and auto negotiation status.

Auto Negotiation Mode

Configure the uplink port rate of duplex mode, 1000M full duplex, 100M full duplex, 10M full duplex and auto negotiation status.

PerfStats Of 15 minute Enable

Configure PerfStats Of 15 minute Enable of uplink port,'**False**' means stop properties statistics of every fifteen minutes on uplink port.'**True**' means start properties statistics of Every fifteen minutes on uplink port.

PerfStats Of 24 hours Enable

Configure PerfStats Of 24 hours Enable of uplink port, 'False' means stop properties statistics of every 24 hours on uplink port. 'True' means start properties statistics of every 24 hours on uplink port.

Last Status Change time

Show the change cycle of properties statistics time, and the time of properties statistics change every 300ms.

Mac Addr Learn Max Num

Limit the number of MAC addresses (0-8092) that are permitted to pass by the uplink port, set to '**0**' means no limit, set to '**1-8092**' to limit the number of MAC addresses which permitted to pass by the uplink port.

Port Isolation Enable

Set up data isolation or not between one uplink port and others. '**False**' means uplink port can access to each other. '**True**' means uplink port can access to each other.

6.2.5 OLT Trunk (LACP) Configuration

The device supports the link aggregation protocol, lacp for short, which conforms to the IEEE802.3 ad standard. The lacp protocol is used to bundle multiple uplink ports together to form a single logical connection to increase the bandwidth of the link and realize backup functions of uplink port, which means when a port is broken, other ports can still communicate.

Double click the 'Switch Control Card' icon on the left side of the main interface to open the 'Control Module Management' window and enter the 'Switch Card Trunk Group Config' page.

P1 P3 P5 P1 P3 P5 P2 P4 P6	P7 P9 P11 P P P1 P1 P P P1 P1 P P P1 P1 P1 P1 P1 P12 P	13 P15 1 1 2 GE1 GE2 GE3 GE4 1 1 1 4 00 00 00	6 6 7 8 8 8	GE6 St XGE1	XGE2 MGMT	CPUR1 PUR2 SYS ALARM RST	
DLT Device TEST	Trunk Group Co TrunkGroup ID	nfig TrunkGroup Member	TrunkGroup Name	TrunkGroup Policy	Operation Status	Actual Speed	Admin Status
System Status			lag1	srcMac	down	0	up
Management Config	2		lag2	srcMac	down	0	up
Device Upgrade Management	3		lag3	srcMac	down	0	up
SwitchCard Attribute	4		lag4	srcMac	down	0	up
SwitchCard Humor	5		lag5	srcMac	down	0	up
MacAddress Management	6		lag6	srcMac	down	0	up
SniBroadcastStormSuppression	7		lag7	srcMac	down	0	up
Port VLAN Manegement	8		lag8	srcMac	down	0	up
- Vlan List	9		lagL9	srcMac	down	0	up
- Port VLAN Config	10		lagL10	srcMac	down	0	up
Port VLAN Translation	11		lagL11	srcMac	down	0	up
CMB Management	12		lagL12	srcMac	down	0	up
STD Management	13		lagL13	srcMac	down	0	up
Stp Global Set	14		lagL14	srcMac	down	0	up
Stp Port Set	15		lagL15	srcMac	down	0	up
ACL Management Group	16		lagL16	srcMac	down	0	up
Current ACL RULE Apply to Port ACL Qos Global Config		Refresh	Set Co	nfig (configure	trunk group memt	ber port)	

The features of EPON OLT lacp are as follows:

- Link aggregation function is mainly applied to all uplink port;
- The def ault aggregation group is 16;
- All port can be added to a aggregation group ;
- > Support several equalization algorithms based on the source and destination MAC address,

source and destination IP address;

Each port can be assigned to only one aggregation group and cannot be assigned to multiple aggregation groups at the same time.

Lacp Function parameter on EMS are as follows:

Trunk Group ID

Show number of link aggregation groups available by default on OLT, default number is 1-16, link aggregation groups can't be added, only can modified and configured on the default link aggregation group.

Trunk Group Member

Show which uplink port members are already in the link aggregation group.

Trunk Group Name

Name and set the link aggregation group.

Trunk Group Policy

Select a strategy of link aggregation negotiation, which can be negotiated in several ways, such as the source and destination MAC address, source, and destination IP address.

Operation Status

Show the configuration state of the link aggregation group , the **'Up'** indicates that the configured link aggregation group is successful and has take effect, **'Down'** indicates that the configured link aggregation group is unsuccessful and hasn't take effect.

Actual Speed

Shows the current negotiation rate of the link aggregation group.

Admin Status

Configure the management status of the link aggregation group and configure **'Up'** to run the link aggregation group; Configure **'Down'** to not run the link aggregation group.

[Example of link aggregation configuration]

Example:Add ge1 and ge3 to link aggregation group 1, named 1234, with source MAC and destination MAC nagotiation.

P1 P3 P5 P7 P1 P3 P5 P7 P2 P4 P6 P6 P6	P0 P11 P13 P15 P1 P1 P1 P1 P1 P1 P1 P1 P1 P1 P1 P16 P1	5 6 7 7 8		CONSOLE XGE2 MONT	POUR1 POUR2 SYS HLARM RST	
OLT Device TEST	Trunk Group Config TrunkGroup ID 1 GE1;GE3 2 3 4 5 6 Trunk ID 1 9 10 11 12 13 14 15 16 QK QK Refresh	t Co	TrunkGroup Policy srollac srollac srollac srollac srollac srollac srollac srollac srollac srollac srollac srollac srollac srollac srollac srollac	Operation Status down down down down down down down down	Actual Spee 0 0 0 0 0 0 0 0 0 0 0 0 0	Admin Status up up up up up up up up up up

6.2.6 OLT Port Mirror Configuration

Port mirror function is that copy the message of Source port to other port (destination port), the user can monitor the message which copy to the destination port to monitor network and debug. All uplink port and PON port can be set to source or destination ports.

Double click the 'Switch Control Card' icon on the left side of the main page to open the 'Control Module Management' window and enter the 'Switch Card Mirror' page.

	PO	D10 D1					line enterter			ilinite columb			arriera
	F3 F11 F10 F12	113 F		ge1 ge2	GE3 GE4	6 GE5	GE6 GE7	GE8 🚼	XGE1 XGE2	CONSOLE	PUR1 PUR2 SYS ALARM RS	ST	
OLT Device TEST	Source Po	rt irect											
System Status Management Config	₽ ge1	ge2	ge3	ge4	ge5	ge6	ge7	ge8	xge1	xge2	pon1	pon2	pon3
Device Upgrade Management SwitchCard Attribute	Egress Di	rect	pone	pon/	Doug	Doua	pon 10	pon11	pon12	pon 13	pon 14	pon15	pon 16
SwitchCard FunkGroupContig SwitchCard Mirror Macéddress Management	🔲 ge1	🖌 ge2	🔲 ge3	🔲 ge4	🔲 ge5	🔲 ge6	ge7	🔲 ge8	🔲 xge1	🔲 xge2	pon1	pon2	🔲 pon3
- MacAddress Management - SniBroadcastStormSuppression	pon4	pon5	pon6	pon7	pon8	pon9	pon10	pon11	pon12	pon13	pon14	pon15	pon16
Vian List Port VLAN Config Port VLAN Translation Orin Config GitM Banagement StP Management Stp Port Set ACL Management Group ACL Rule Current ACL RULE Apply to Port ACL Oos Global Config	Destinatio	n Port			1	ge1 _ s	ge2 ⊭ ge2 ge7 geb	3 ge4 3 xge1	ge5 xge2	[

Source port

Specify the source port that needs to be captured and analyzed. User should know the concepts of **'Ingress Direct'** and **'Egress Direct'** first :

'Egress Direct' means the direction of the message leaving the port; 'Ingress Direct' means

the direction which the message enters the port.

When only one direction is checked, OLT will copy message of one direction to the destination port. When both directions are selected, all message are mirrored to the destination port.

Destination port

The port that receives message of the source port.

The configuration of the port image is as follows:

1) select the source port. Port1 ~ Port16 can be selected as the source port, each port has 'Ingress Direct' and 'Egress Direct'. The former refers to the port which receive message, The latter refers to the port which sent message.

2) specify the destination port. You can specify one of the ge1 \sim ge8 ports as the destination port, and all source port data will be forwarded to the specified destination port.

[Example of port mirroring configuration]

Example: check ge2 in the '**Ingress Direct**' and '**Egress Direc**t' and select ge8 in '**Destination port**' then click '**Set**' button. All traffic of ge2 are mirrored to ge8 port.

	P9	P11	P13 P15	;] <u>;</u> ,	71 070		~				201201.1		a state of the
24 P6 P8	P10	P12	P14 P16			GE3 GE4	GES GES	GE6 GE7 GE		E1 XGE2 B	• MGMT	opuri opur2 osys alanm RST	
Source Port	t												
	ge1 [🖌 ge2	🔲 ge3	🔲 ge4	🔲 ge5	🔲 ge6	ge7	🔲 ge8	🔲 xge1	🔲 xge2	pon1	🔲 pon2	pon3
	pon4 [pon5	pon6	pon7	pon8	pon9	pon10	pon11	pon12	pon13	pon14	pon15	pon16
Egress Direct	ge1 [✔ ge2	🔲 ge3	🔲 ge4	ge5	ge6	🔲 ge7	ge8	🔲 xge1	🔲 xge2	pon1	pon2	pon3
	pon4 [pon5	pon6	🗌 pon7	pon8	pon9	pon10	pon11	pon12	pon13	pon14	pon15	pon16
- Destination Po	rt				F	ge1 () ge6 () {	je2 _ ge3 je7 ≥ ge6 Set	ge4	ge5 xge2				
	Source Port Ingress Direct Egress Direct	Source Port ge1 ge1 Egress Direct ge1 ge1 Destination Port	Source Port Ingress Direct ge1 ⊈ge2 pon4 pon5 Egress Direct ge1 ⊈ge2 pon4 pon5 Destination Port	Source Port Ingress Direct ge1 ⊻ ge2 ge3 pon4 pon5 pon6 Egress Direct ge1 ⊻ ge2 ge3 pon4 pon5 pon6 Destination Port	Source Port Ingress Direct ge1 Øg2 ge3 ge4 pon4 pon5 pon6 pon7 Egress Direct ge1 Øg2 ge3 ge4 pon4 pon5 pon6 pon7 Destination Port	Source Port Ingress Direct ge1 Øg2 gg3 gg4 gg5 pon4 pon5 pon6 pon7 pon8 Egress Direct ge1 Øg2 gg3 gg4 gg5 pon4 pon5 pon6 pon7 pon8 Destination Port	Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 pon4 pon5 pon6 pon7 pon8 pon9 Egress Direct ge1 ge2 ge3 ge4 ge5 ge6 pon4 pon5 pon6 pon7 pon8 pon9 Destination Port ge1 ge1 <td>Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 pon4 pon5 pon6 pon7 pon8 pon9 pon10 Egress Direct </td> <td>Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 ge8 pon4 pon5 pon6 pon7 pon8 pon9 pon10 pon11 Egress Direct </td> <td>Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 ge8 xge1 pon4 pon5 pon6 pon7 pon8 pon9 pon10 pon11 pon12 Egress Direct </td> <td>Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 ge8 xge1 xge2 pon4 pon5 pon6 pon7 pon8 pon9 pon10 pon11 pon12 pon13 Egress Direct </td> <td>Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 ge8 xge1 xge2 pon1 pon4 pon5 pon6 pon7 pon8 pon9 pon10 pon11 pon12 pon13 pon14 Egress Direct </td> <td>Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 ge8 xge1 xge2 pon1 pon2 pon4 pon5 pon6 pon7 pon8 pon9 pon10 pon11 pon12 pon14 pon15 Egress Direct </td>	Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 pon4 pon5 pon6 pon7 pon8 pon9 pon10 Egress Direct	Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 ge8 pon4 pon5 pon6 pon7 pon8 pon9 pon10 pon11 Egress Direct	Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 ge8 xge1 pon4 pon5 pon6 pon7 pon8 pon9 pon10 pon11 pon12 Egress Direct	Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 ge8 xge1 xge2 pon4 pon5 pon6 pon7 pon8 pon9 pon10 pon11 pon12 pon13 Egress Direct	Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 ge8 xge1 xge2 pon1 pon4 pon5 pon6 pon7 pon8 pon9 pon10 pon11 pon12 pon13 pon14 Egress Direct	Source Port Ingress Direct ge1 ge2 ge3 ge4 ge5 ge6 ge7 ge8 xge1 xge2 pon1 pon2 pon4 pon5 pon6 pon7 pon8 pon9 pon10 pon11 pon12 pon14 pon15 Egress Direct

6.2.7 OLT Mac Address Management

Double click the 'Switch Control Card' icon on the left side of the main page to open the 'Control Module Management' window and enter the 'Mac Address Mangement' page.

P1	P3 P5 P7 P9 P11 P13 P3 P4 P6 P6 P10 P12 P14	3 P15 1 1 GE1 GE2 GE3 GE4 1 1 GE1 GE2 GE3 GE4 1 P16 S 4 1 1 1 1 1 1 1 1 1 1		CONSULE PIRE PIRE PIRE PIRE PIRE PIRE PIRE PIR
DLT Device TEST	MacAddress Management MacAddress AgingTime(s)	300 - Set	Mac	Address Clear none 💌 Se
- System Status	MacAddress List			
-Management Config	MacAddress	VLAN ID	MacAddr Type	Port ID
Device Upgrade Management	00-DB-DF-9C-FA-0F	1	dynamic	GE6
SwitchCard Attribute	00-E0-FC-09-BC-F9	1	dynamic	GE6
SwitchCardTrunkGroupConfig	20-DC-E6-7D-69-C3	1	dynamic	GE6
SwitchCard Mirror	3C-95-09-50-4C-E5	1	dynamic	GE6
SniBroadcastStormSunnressi	48-BF-6B-BD-F6-50	1	dynamic	GE6
Port VLAN Manegement	6C-3B-6B-32-83-1C	1	dynamic	GE6
Vlan List	74-D0-2B-A1-F1-84	1	dynamic	GE6
Port VLAN Config	90-B0-ED-19-90-C6	1	dynamic	GE6
Port VLAN Translation	A0-88-B4-58-DC-48	1	dynamic	GE6
QinQ Config	B8-81-98-78-36-10	1	dynamic	GE6
IGMP Management	E0-67-B3-46-50-DD	1	dynamic	GE6
STP Management	F4-06-69-B3-75-6D	1	dynamic	GE6
Stp Bort Set	F4-06-69-B3-A3-62	1	dynamic	GE6
ACL rule ACL Rule Current ACL RULE Apply to Port ACL Qos Global Config		Defeat		

MAC Address Management

MAC management interface can configure OLT's mac address aging time and clear MAC address, view the MAC address information which OLT has learnd, including MAC address, VLAN ID, type of MAC address, port ID, parameters are as follows:

Mac address aging time

Set OLT's MAC address aging time. The MAC address that OLT learned will be cleaned automatically after this time.

Mac address clear

Choose a type of mac addresss in 'Mac Address Clear' then click the the 'Set' button, the MAC address of the specified type will be clear.

Mac Address List

The MAC address list mainly displays the MAC address that have learned by OLT, including the VLAN of the MAC address, the type and the port where the MAC address is learned.

Click the 'Add' button to bring up a window of 'Add MAC'. We can add static MAC address, the parameters we can view or configure in the MAC address listare as follows:

Mac address

Display the MAC address learn from the uplink port, the PON port, and static MAC address we configure manually on OLT.

Vlan ID

Display the vlan of mac address which from uplink port or pon port and the the vlan which we set for static mac address.

MacAddr Type

There are three options, static, blackhole, and dynamic.

Static represents a static MAC address. As long as the source MAC address of the message matches this static MAC address, you can use the port.

Blackhole represents the black hole of the MAC address. If the source MAC address of the message is matched with this MAC address, it is discarded and not allowed to be circulated. Dynamci represents the MAC address learned dynamically by OLT.



Port ID

Show the port which MAC address learned from.

[Example of static MAC address configuration]

Example: Configure a static MAC address "00-11-22-33-44-55" on OLT, and forward it from the vlan500 in ge1.

Control Module Management			TRANSPORT OF THE PARTY OF THE		
P1	P3 P5 P7 P9 P11 P3 P4 P4 P5 P7 P9 P11 P4 P5 P6 P6 P6 P10 P12	P13 P15		XGE1 XGE2 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	
OLT Device TEST	MacAddress Management MacAddress AgingTime(s) MacAddress Lint	300 × Set		MacAddress Clear none	▼ Set
System Status Management Config Device Upgrade Management SwitchCard Attribute SwitchCard Attribute SwitchCard Mirror MacAddress Management SniftroadcastStormSuppressis Port VLAN Manegement Van List Port VLAN Translation QinQ Config Hort VLAN Translation QinQ Config STP Management Stp Global Set Stp Global Set Stp Clobal Set Stp Clobal Set ACL Rule Current ACL RULE Apply to Port ACL Qos Global Config	MacAddress (St 00-DB-DF-9C-FA-0E 00-E0-FC-09-BC-F9 20-DC-E6-7D-69-C3 3C-95-09-50-4C-E5 48-BF-9B-B0-F6-50 6C-3B-6B-32-83-1C 774-D0-2B-A1-F1-84 90-B0-ED-19-90-C6 A0-88-84-58-DC-48 B8-81-98-78-36-10 E0-67-B3-46-50-DD F4-06-69-B3-75-60 F4-06-69-B3-A3-62	VLAN ID Port GE1 VLAN ID Mac Type static MacAddress 00-11-22-33-44 3 QK Ca	MacAddr Type	Port ID GE6 GE6 GE6 GE6 GE6 GE6 GE6 GE6 GE6 GE6	
		Reliesh			

6.2.8 Uplink Port Broadcast Storm Suppression Configuration

Exchange storm suppression is mainly to enable the uplink port to suppress unicast storms, multicast storms and broadcast storms to prevent these storms from adversely affecting the current network environment.

Double click the 'Switch Control Card' icon on the left side of the main page, open the 'Control Module Management' window, enter the 'SNI Broadcast Storm Suppression' management page configuration.

Control Module Management	DO DE	P7 P0 P11 P12	DIE				×
	F3 F3 F4 F6	FT FT FT FT Image: Section of the section of t			GET GES XGE1 XG	E2 NGMT	T
	SNI Broad	Cast Storm Suppression					
OLT Device EPON 16 PO V	Port ID	Unicast Storm Enable	UnicastStorm InPacket Ra te(pps)	MulticastStormEnable	MulticastStorm InPacket F ate(pps)	Broadcast Storm Enable	BroadcastStorm InPacket Rate(pps)
System Status	GE1	false	0	false	0	false	0
Management Config	GE2	false	0	false	0	false	0
Device Upgrade Management	GE3	false	0	false	0	false	0
SwitchCardTrunkCroupConfig	GE4	false	0	false	0	false	0
SwitchCard Mirror	GE5	false	0	false	0	false	0
MacAddress Management	GE6	false	0	false	0	false	0
SniBroadcastStormSuppressi	GE7	false	0	false	0	false	0
Port VLAN Manegement	GE8	false	0	false	0	false	0
Vlan List	XGE1	false	0	false	0	false	0
- Port VLAN Config	XGE2	false	0	false	0	false	0
- Fort VLAN Translation - GinQ Config - IGMP Management Stp Global Set - Stp Oot Set - ACL Raugement Group - ACL Raugement Group - Current ACL RULE - Quirent ACL - Qos Global Config							

Exchange broadcast storm suppression support 'Unicast Storm Enable', 'Multicast Storm Enable' and 'Broadcast Storm Enable' three functions. There are several checkbox above.

✓ Unicast / multicast / broadcast storm suppression enabled

When **'True'** is selected, the unicast / multicast / broadcast storm suppression function of the port is enabled.

When **'False'** is selected, the unicast / multicast / broadcast storm suppression function of the port is disabled.

✓ Unicast / multicast / broadcast inpacket rate

This option can be configured with traffic limit values, which can be between 1-1488100 pps.

[Example of storm suppression configuration]

Example: The unicast storm suppression function is set to **True** and the unicast inpacket rate is 5000 pps. The multicast storm suppression function is set to **True** and the multicast inpacket rate to 1000 pps. The broadcast storm suppression function is set to **True** and the broadcast inpacket rate to 2000 pps. Click **'Set'** button after the configuration, a prompt window will pop up and click the **'OK'** button to complete the configuration.

P1	P3 P5	P7 P9 P11 P13 Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Ima	P15 1 1 1 1 1 1 1 1		S GET GES XGE1 XG	E2 IGHT HGHT	ST
	SNI Broad	Cast Storm Suppression					
DLT Device EPON 16 PO	Port ID	Unicast Storm Enable	UnicastStorm InPacket Rate (pps)	MulticastStormEnable	MulticastStorm InPacket F ate(pps)	Broadcast Storm Enable	BroadcastStorm InPack Rate(pps)
System Status	GE1	true	5000	true	1000	true	2000
Management Config	GE2	false	0	false	0	false	0
Device Upgrade Management	GE3	false	0	false	0	false	0
SwitchCardTrunkGroupConfig	GE4	false	0	false	0	false	0
SwitchCard Mirror	GE5	false	0	false	0	false	0
MacAddress Management	GE6	false	0	false	0	false	0
SniBroadcastStormSuppressi	GE7	false	0	false	0	false	0
Port VLAN Manegement	GE8	false	0	false	0	false	0
	XGE1	false	0	false	0	false	0
Port VLAN Config	XGE2	false	0	false	0	false	0
Oring Config IGMP Management STP Management Stp Pol Set Stp Pol Set ACL Management Group - ACL Rule - Current ACL RULE - Apply to Port ACL - Oos Global Config			Prompt	Set success 确定			
				Refresh	Set		

6.2.9 OLT Port VLAN Management

VLAN (Virtual Local Area Network), is a kind of based on user demand (functions, departments or applications, etc.) logically divided the LAN into multiple segments without considering the physical location of the virtual network technology. VLAN technology allows a network administrator to divide a physical network into different logical segments (VLAN), each containing a set of devices with the same requirements.

The advantage of VLAN technology is that the broadcast and unicast traffic within VLAN will not be forwarded to other VLAN, thus helping to control network traffic, simplify network management and improve network security.

The VLAN configuration of the OLT EPON system is divided into the VLAN configuration of the OLT and the VLAN configuration of the ONU part. The VLAN management of the **'Switch Control Card'** section refers to the VLAN configuration and management of the OLT part.

The VLAN function of the OLT part of the EPON device is as follows:

- ✓ Support Port-based VLAN and IEEE802.1Q VLAN.
- ✓ Support full 4K VLAN group, VID range 1~4095.
- ✓ VLAN 1 is the system reserved VLAN, it includes all switch ports, all ports is UNTAG mode.
- ✓ All switch ports, including uplink ports and downlink ports support VLAN Partition.

6.2.9.1 OLT VLAN View

Double click the 'Switch Control Card' icon on the left side of the main page, open the 'Control Module Management' window, and enter the 'VLAN List' page. Typical page is as follows:

P1	P3 P5	P7 I III I III I P8 P	P9 P11 P1 P1 P1 P1 P1 P1 P1 P12 P1	3 P15 1 101 021 022 023 024 0 1 101 00 00 00 00 00	TRE CHT CHE 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	VLAN List	t .				
T Device EPON 16 PO	Selected	VLAN ID	VLAN Name	Tag Port	UnTag Port	Modfiy
		1	vlan1		GE1-GE3;GE6;GE8;XGE1;XGE2;Pon1-Pon8;Pon10-Pon16;	Config
System Status		2	vlan2			Config
Management Config		3	vlan3			Config
Device Opgrade Management		100	vlan100	Pon3	GE5;GE7	Config
SwitchCardTrunkGroupConfig		101	vlan101			Config
SwitchCard Mirror		102	vlan102			Config
MacAddress Management		103	vlan103			Config
SniBroadcastStormSuppressi		199	vlan199			Config
Port VLAN Manegement		200	vlan200			Config
-Vian List		300	vlan300		GE4	Config
Port VLAN Config		500	vlan500	Pon3;Pon8		Config
Port VLAN Translation		1999	vlan1999			Config
CMR Management		2000	vlan2000			Config
STP Management		2162	vlan2162	GE2;GE6	Pon2;Pon4-Pon7;Pon10-Pon16;	Config
- Stp Global Set		2999	vlan2999			Config
Stp Port Set		3000	vlan3000	GE8	Pon9	Config
ACL Management Group - ACL Rule - Current ACL RULE		3012	vlan3012	GE2;GE6;Pon2;Pon4-Pon7;Pon10-Pon16;		Confi

The VLAN list has 'Selected', 'VLAN ID', 'VLAN Name', 'Tag Port', 'Untag Port', 'Modify' and other items. Here's a brief introduction to these projects:

Select

This is mainly to delete the specified VLAN. We can select the VLAN ID we want to delete, and then click on 'delete' button on the left corner of the page to delete the VLAN. In addition, select the **'Select All'** button next to the **'Delete'** can select all the VLAN entries to delete all the VLAN.

VLAN ID / VLAN Name

VLAN ID Displays all the VLAN ID that are available on the current OLT. VLAN Name Displays the name of the current existing VLAN.

Tag Port / Untag Port

In the Port of Tag Port, the forwarded message will be tagged with a VLAN Tag. In the Port of Untag Port, the message that is forwarded will be stripped of the corresponding VLAN tag (no VLAN tag).

6.2.9.2 OLT VLAN Modify

Each VLAN has a **'Config'** button, which can be double-clicked to modify the VLAN 's **'Tag Mode'** and **'Member Port'** as shown below, click **'Confirm'** button to complete the configuration after setting up.

🗾 Control Module Management								Σ
Pi Pi Pi Pi	P3 P5 P7 P P P P P P P P P P4 P6 P8 P	9 P11 P13 1 P1 P13 1 P1 P13 1 P14 P13 0 P12 P14	P15 GE1 GE1 GE2 CD1 GE1 GE2 P16 CE1 GE2 CD1 GE1 GE3 CD1 GE1 GE3 CD1 GE3	GE3 GE4	5 6 7 7 8 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	28 XG	EI XGE2 BERT PARE	
OLT Davies FRON 16 PO	VLAN List	- 11	Tag/UNTag Port			×		
OET Device EFONTOFO	Selected VLAN ID	VLAN Name	VLANID 3					Modfiy
	1	vlan1					E8;XGE1;XGE2;Pon1-Pon8;Pon10-Pon16;	Config
System Status	2	vlan2	Tag Model tag			•		Config
Management Config	3	vlan3	Member Port					Config
SwitchCard Attribute	100	vlan100						Config
SwitchCardTrunkGroupConfig	101	vlan101						Config
SwitchCard Mirror	102	vlan102	GE1 GE2	GE3	GE4 🔲 GE5	GE6		Config
MacAddress Management	103	vlan103						Config
SniBroadcastStormSuppressi	199	vlan199	GE7 GE8	XGE1	XGE2 Don1	Pon2		Config
Port VLAN Manegement	200	vlan200	Pon3 Pon4	Pon5	Pon6 Pon7	Pon8		Config
Vlan List	300	vlan300						Config
- Port VLAN Config	500	vlan500	Pon9 Pon10	Pon11	Pon12 Pon13	Pon14		Config
Port VLAN Translation	1999	vlan1999					-	Config
QinQ Config	2000	vlan2000	Ponts Ponto					Config
IGMP Management	2162	vlan2162					7:Pon10-Pon16:	Config
Sto Clobal Set	2999	vlan2999					- Protocol	Config
Sto Port Set	3000	vlan3000		<u>O</u> K	Cancel		-	Config
ACL Management Group	3012	vlan3012						Config
- ACL Rule - Current ACL RULE								
Apply to Port ACL							-	
Qos Global Config	Select All Dele	ete			Refresh	Add		

6.2.9.3 OLT VLAN Add

There is a **'Add'** button in the **'VLAN List'** page. Click the button to add a VLAN ID to the OLT, and the configuration completes after click **'Ok'** button.

Control Module Management							23
P1 P1 P2	P3 P5	P7 P P P P8 P	9 P11 P1	3 P15		GE8 XGE1 XGE2 Store Store Sto	
i	VLAN List						
OLT Device EPON 16 PO	Selected	VLAN ID	VLAN Name	Tag Port		UnTag Port	Modfiy
		1	vlan1			GE1-GE3;GE6;GE8;XGE1;XGE2;Pon1-Pon8;Pon10-Pon16;	Config
System Status		2	vlan2		C		Config
Management Config		3	vlan3		則 Add Vlan 📃 📈		Config
SwitchCard Attribute		100	vlan100	Pon3		5;GE7	Config
SwitchCardTrunkGroupConfig		101	vlan101				Config
SwitchCard Mirror		102	vlan102				Config
MacAddress Management		103	vlan103		VLAN ID 300		Config
- SniBroadcastStormSuppressi		199	vlan199		Like as 1,2 or 3-6	-	Config
Port VLAN Manegement		200	vlan200				Config
- Vlan List		300	vlan300			4	Config
Port VLAN Config		500	vlan500	Pon3;Pon8			Config
Port VLAN Translation		1999	vlan1999		QK <u>Cancel</u>		Config
- ICMP Management		2000	vlan2000				Config
STP Management		2162	vlan2162	GE2;GE6		Pon2;Pon4-Pon7;Pon10-Pon16;	Config
Stp Global Set		2999	vlan2999				Config
Stp Port Set		3000	vlan3000	GE8		Pon9	Config
ACL Management Group		3012	vlan3012	GE2;GE6;Pon	2;Pon4-Pon7;Pon10-Pon16;		Config
- ACL Rule							
- Current ACL RULE							
Apply to Port ACL					Defer		
- cos olobal colling	Selec	Dele	ele		Refres	Add	

6.2.9.4 OLT Port VLAN Configuration

Double click the **'Switch Control Card'** icon on the left side of the main page, open the **'Control Module Management'** window, and enter the port **'VLAN Configuration'** page. Typical page is as follows.

🗐 Control Module Management					
P1 P1 P2 F2	P3 P5 P7 P9 P1 P1 P1 P1 P1 P1 P1 P1 P1 P6 P8 P10	P11 P13 P15 G21 G22 G23 G21 G22 G23 P12 P14 P16 G21 G22 G23	GE4 56 GE5 GE8 GE7 GE8	S S CONSULX S S CONSULX S S CONSULX S S S S S S S S S S S S S S S S S S S	ST
	Port ID	Vian Priority	PVid	VI ANMode	Modfiv
OLT Device EPON 16 PO	GE1	0	1	20085	Config
	GE2	0	1	trupk	Config
System Status	GE3	3	1	access	Config
Management Config	GE4	4	300	hybird	Config
Device Ungrade Management	GE5	0	100	access	Config
SwitchCard Attribute	GE6	0	1	trunk	Config
SwitchCardTrunkGrounConfig	GE7	0	100	access	Config
SwitchCard Mirror	GE8	0	1	trunk	Config
MacAddress Management	XGE1	0	1	access	Config
SpiBroadcastStormSuppressi	XGE2	0	1	access	Config
Dort VI All Management	PON1	0	1	hybird	Config
Port vLAN Manegement	PON2	0	1	hybird	Config
Vian List	PON3	0	1	trunk	Config
Port VLAN Config	PON4	0	1	hybird	Config
Port VLAN Translation	PON5	0	1	hybird	Config
QinQ Config	PON6	0	1	hybird	Config
- IGMP Management	PON7	0	1	hybird	Config
STP Management	PON8	0	1	trunk	Config
- Stp Global Set	PON9	0	3000	access	Config
Stp Port Set	PON10	0	1	hybird	Config
ACL Management Group	PON11	0	1	hybird	Config
ACL Rule	PON12	0	1	hybird	Config
- Current ACL RULE	PON13	0	1	hybird	Config
Apply to Port ACL	PON14	0	1	hybird	Config
Qos Global Config	PON15	0	1	hybird	Config
CONTRACTOR CONTRACTOR CONTRACTOR	PON16	0	1	hybird	Config

The port VLAN configuration can primarily view and configure Port ID, VLAN Priority, Port VLAN (PVID), and VLAN Mode. The following will be a brief introduction.

Port ID

Display the corresponding port number, GE represents the uplink port, XGE represents the Gigabit port, PON represents the PON interface, the serial number represents the number of ports behind.

VLAN Priority

Displays the priority of the current port VLAN, which shows the value of 0-7, the minimum priority of 0, and the highest priority of 7.

Port VLAN (PVID)

Displays the default VLAN for the current port, which shows the value of 1-4094. If you need to configure the VLAN of the port, you need to add VLAN to the OLT ahead of #6.2.9.3.

VLAN Mode

Displays the VLAN mode of the current port, where the modes that can be displayed are: access, hybrid, trunk.

Modify

Double click the **'Config'** button to configure the VLAN priority, port VLAN (PVID), and VLAN mode of the corresponding port. Click the **'Set'** button to complete the configuration. As shown in the following figure.

Control Module Management			—
P1	P3 P5 P7 P9 P11 P13 P15 P4 P4 P6 P8 P10 P12 P14 P16		RI R2 FM RST
	Port VLAN Config		
OLI Device EPON 16 PO	Port ID	Vian Priority	3 *
System Status	PVid	300 + VLANMode access	_
Management Config			
Device Upgrade Management		Refresh Set Back	
SwitchCard Attribute			
- SwitchCard Mirror			
MacAddress Management			
- SniBroadcastStormSuppressi			
Port VLAN Manegement			
- Port VLAN Translation			
QinQ Config			
- IGMP Management			
STP Management			
- Stp Global Set			
ACL Management Group			
ACL Rule			
Current ACL RULE			
Apply to Port ACL			
Le dos Giobal Contig			

The packets in different VLAN modes are handled as follows:

	Actions(in	the inbound direction)	Actions(in the
mode	Untagged frame	Tagged frame	outbound direction)
Access	Tag the frame with the native VLAN tag.	 Receive the frame if its VLAN id is the same as the native VLAN id. Drop the frame if its VLAN id is different from the native VLAN id 	Remove the native VLAN tag and send the frame
Trunk	Tag the frame with	 Receive the frame if its VLAN is carried on the port Drop the frame if its VLAN is not corriant on 	 Send the frame and removing the tag if the frame is the same as native VLAN id. Send the frame without removing the tag if its VLAN is carried on the port but is different from the native VLAN.
Hybrid		the port.	Send the frame if its VLAN is carried on the port. The frame is sent with the VLAN tag removed or intact depending on your configuration with the VLAN hybrid command.

6.2.9.4.1 OLT Access Mode VLAN Configuration

Example: Configure GE1 port as access mode, priority is 2, PVID is 100. The steps are as follows: (PON port configuration is the same)

Step 1:

Double click the **'Config'** button at the back of this column of GE1 in the port VLAN configuration page.

🗾 Control Module Management					(
Pi Pi Pi Pi	P3 P5 P7 P9 P3 P5 P7 P9 P4 P6 P8 P10	P11 P15 Image: Second se		IGE1 IGE2 2 100 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ST
	Port ID	Vian Priority	PVid	VLANMode	Modfiv
DLT Device EPON 16 PO	GE1	0	1	access	Config
	GE2	0	1	trunk	Config
System Status	GE3	3	300	access	Config
Management Config	GE4	4	300	hybird	Config
Device Upgrade Management	GE5	0	100	access	Config
SwitchCard Attribute	GE6	0	1	trunk	Config
SwitchCardTrunkGroupConfig	GE7	0	100	access	Config
SwitchCard Mirror	GE8	0	1	trunk	Config
MacAddress Management	XGE1	0	1	access	Config
SniBroadcastStormSuppressi	XGE2	0	1	access	Config
Port VI AN Management	PON1	0	1	hybird	Config
Wan List	PON2	0	1	hybird	Config
Port II AN Config	PON3	0	1	trunk	Config
Port VLAN Coning	PON4	0	1	hybird	Config
Port VLAN Translation	PON5	0	1	hybird	Config
QinQ Config	PON6	0	1	hybird	Config
IGMP Management	PON7	0	1	hybird	Config
STP Management	PON8	0	1	trunk	Config
- Stp Global Set	PON9	0	3000	access	Config
Stp Port Set	PON10	0	1	hybird	Config
ACL Management Group	PON11	0	1	hybird	Config
ACL Rule	PON12	0	1	hybird	Config
- Current ACL RULE	PON13	0	1	hybird	Config
Apply to Port ACL	PON14	0	1	hybird	Config
Qos Global Config	PON15	0	1	hybird	Config
	PON16	0	1	hybird	Config

Step 2:

At this point, the following page will appear. Under this page, set the VLAN priority to 2, the PVID to 100, and the VLAN mode select to access. Click the **'Config'** button and click the **'OK'** button to complete the configuration.

Control Module Management			23
P1	P3 P5 P7 P9 P11 P13 P15 P4 P4 P4 P4 P4 P4 P4 P4 P4 P6 P6 P10 P11 P11 P14 P14		
OLT Device EPON 16 PO	Port VLAN Config Port ID PVid 2	1 Vian Priority 100 ¹ VLANMode access Refresh Set Back Promet 4	2 • 3
SwitchCard Mirror MacAddress Management MacAddress Management Pitto Manual Management Van List Port VLAN Translation On Config		i Set [Vian Priority:2:PVid:100],success 阅定 5	
GMP Management Stp Management Stp Clobal Set Stp Port Set AcL Management Group AcL Rule Current AcL RULE Apply to Port AcL Dec Clobal Config			

Step 3:

Click the **'Back'** button to view the modified configuration.

		and the second			Service South
PI PI P2	P3 P5 P7 P9 P11 P1 P1 P1 P1 P1 P1 P6 P6 P10 P12	P13 P15 Image: Constraint of the state of the	GES GEG GET GEG	L ZGE2 KRHT	
OLT Davies EPON 16 PO	Port ID	Vian Priority	PVid	VLANMode	Modfiy
OLI Device EPON 16 PO V	GE1	2	100	access	Config
	GE2	0	1	trunk	Config
System Status	GE3	3	300	access	Config
Management Config	GE4	4	300	hybird	Config
Device Upgrade Management	GE5	0	100	access	Config
SwitchCard Attribute	GE6	0	1	trunk	Config
SwitchCardTrunkGroupConfig	GE7	0	100	access	Config
SwitchCard Mirror	GE8	0	1	trunk	Config
MacAddress Management	XGE1	0	1	access	Config
SniBroadcastStormSuppressi	XGE2	0	1	access	Config
Port VI AN Management	PON1	0	1	hybird	Config
Man List	PON2	0	1	hybird	Config
Dod M AN Coofig	PON3	0	1	trunk	Config
Fort VLAN Coning	PON4	0	1	hybird	Config
Pon VLAN Translation	PON5	0	1	hybird	Config
QinQ Config	PON6	0	1	hybird	Config
IGMP Management	PON7	0	1	hybird	Config
STP Management	PON8	0	1	trunk	Config
- Stp Global Set	PON9	0	3000	access	Config
Stp Port Set	PON10	0	1	hybird	Config
ACL Management Group	PON11	0	1	hybird	Config
ACL Rule	PON12	0	1	hybird	Config
- Current ACL RULE	PON13	0	1	hybird	Config
Apply to Port ACL	PON14	0	1	hybird	Config
Qos Global Config	PON15	0	1	hybird	Config
A CONTRACTOR OF A CONTRACTOR O	PON16	0	1	hybird	Config

6.2.9.4.2 OLT Trunk Mode VLAN Configuration

Example: Configure GE3 port as trunk mode, priority is 2, PVID is 200, trunk VLAN is101-103. The steps are as follows:

Step 1:

Double click the **'Config'** button at the back of this column of GE3 in the port VLAN configuration page.

Control Module Management					X
P1	P3 P5 P7 P9 P11 Image: particular state Image: particular	1 P13 P15 1 TT T T T T T T T T T T T T T T T T T		1 XGE2 1 KGE2 1 KGE1 1 KGE1 1 KGE1 1 KGE1 1 KGE1 1 KGE1 1 KGE2 1 KGE3 1 KGE3	
	Port ID	Vian Priority	PVid	VLANMode	Modfiy
OLT Device EPON 16 PO	GE1	2	100	access	Config A
	GE2	0	1	trunk	Config
System Status	GE3	3	300	access	Config
Management Config	GE4	4	300	hybird	Config
Device Upgrade Management	GE5	0	100	access	Config
- SwitchCard Attribute	GE6	0	1	trunk	Config
SwitchCardTrunkGroupConfig	GE7	0	100	access	Config
SwitchCard Mirror	GE8	0	1	trunk	Config
MacAddress Management	XGE1	0	1	access	Config
SpiBroadcastStormSuppressi	XGE2	0	1	access	Config
Port VI AN Management	PON1	0	1	hybird	Config
Man Liet	PON2	0	1	hybird	Config
Dort II AN Config	PON3	0	1	trunk	Config
Port VLAN Coning	PON4	0	1	hybird	Config
Poli VLAN Translation	PON5	0	1	hybird	Config
Qinu Config	PON6	0	1	hybird	Config
IGMP Management	PON7	0	1	hybird	Config
STP Management	PON8	0	1	trunk	Config
- Stp Global Set	PON9	0	3000	access	Config
Stp Port Set	PON10	0	1	hybird	Config
ACL Management Group	PON11	0	1	hybird	Config
- ACL Rule	PON12	0	1	hybird	Config
Current ACL RULE	PON13	0	1	hybird	Config
Apply to Port ACL	PON14	0	1	hybird	Config
Qos Global Config	PON15	0	1	hybird	Config
	PON16	0	1	hybird	Confin 🔻

Step 2:

At this point, the following page will appear. Under this page, set the VLAN priority to 3, the PVID to 200, and the VLAN mode select to trunk. Click the **'Config'** button,add '101-103' at the **'Add Trunk VLAN'** window and click the **'OK'** button to complete the configuration.



🗾 Control Module Managemer	nt
Pi Pi P2	
OLT Device EPON 16 PO	Port VLAN Config Port ID Vlan Priority 3
System Status	PVid 200 ⁺ VLANMode trunk
Device Upgrade Management SwitchCard Attribute	Refresh Set Back
 SwitchCardTrunkGroupConfig SwitchCard Mirror 	Port VLAN Trunk
MacAddress Management	Device ID
SniBroadcastStormSuppressi Port VLAN Manegement Vlan List Port VLAN Config Port VLAN Translation GinQ Config	VLAN ID 101-103 Like as 1,2 or 3-6
GMP Management STP Management Stp Global Set Stp Port Set	QK <u>Cancel</u>
ACL Management Group ACL Rule Current ACL RULE Apply to Port ACL Qos Global Config	
	Add Delete

Step 3:

Click the **'Back'** button to view the modified configuration, and enter the **'VLAN List'** page to view the VLAN101, VLAN102, and VLAN103 that have been added to the GE3 port.

		P7 F			GES 1.GE1 1.GE2 000501.Z → 1.GE1 000501.	l
	VLAN Lis	ro r	10 112 11	4 110	IKAN1	<u></u>
DLT Device EPON 16 PO 👻	Selected	VLAN ID	VLAN Name	Tag Port	UnTag Port	Modfiv
		1	vlan1		GE2:GE3:GE5:GE6:GE8:XGE1:XGE2:Pon1-Pon8:Pon10-Pon16:	Config
System Status		2	vlan2			Config
Management Config		3	vlan3			Config
Device Upgrade Management		100	vlan100	Pon3	GE1;GE7	Config
SwitchCard Attribute SwitchCardTrunkCroupConfig		101	vlan101	GE3		Config
SwitchCard Mirror		102	vlan102	GE3		Config
MacAddress Management		103	vlan103	GE3		Config
SniBroadcastStormSuppressi		199	vlan199			Config
Port VLAN Manegement		200	vlan200			Config
Vlan List		300	vlan300	GE5	GE4	Config
Port VLAN Config		500	vlan500	Pon3;Pon8		Config
Port VLAN Translation		1999	vlan1999			Config
IGMP Management		2000	vlan2000			Config
STP Management		2162	vlan2162	GE2;GE6	Pon2;Pon4-Pon7;Pon10-Pon16;	Config
Stp Global Set		2999	vlan2999			Config
Stp Port Set		3000	vlan3000	GE8	Pon9	Config
ACL Management Group		3012	vlan3012	GE2;GE6;Pon2;Pon4-Pon7;Pon10-Pon16;		Config
ACL Rule Current ACL RULE Apply to Port ACL Qos Global Config	Select All Delete Refresh Add					

6.2.9.4.3 OLT Hybrid Mode VLAN Configuration

Example: Configure GE4 port as hybrid mode, priority is 4, PVID is 300, The hybrid mode allows VLAN 301 with tag, VLAN 302 without tag. The steps are as follows:

Step 1:

Double click the **'Config'** button at the back of this column of GE4 in the port VLAN configuration page.

P1	P3 P5 P7 P9 P11	P13 P15			
P2	Image Image <th< th=""><th></th><th></th><th>XGE1 XGE2 KGE1 XGE2 KGE1 KGE2 KGE1</th><th></th></th<>			XGE1 XGE2 KGE1 XGE2 KGE1 KGE2 KGE1	
	Port ID	Vian Priority	PVid	VLANMode	Modfly
OLT Device EPON 16 PO	GE1	2	100	access	Config
	GE2	0	1	trunk	Config
System Status	GE3	3	1	trunk	Config
Management Config	GE4	4	300	hybird	Config
Device Upgrade Management	GE5	0	1	trunk	Config
SwitchCard Attribute	GE6	0	1	trunk	Config
SwitchCardTrunkGroupConfig	GE7	0	100	access	Config
SwitchCard Mirror	GE8	0	1	trunk	Config
MacAddress Management	XGE1	0	1	access	Config
SniBroadcastStormSuppressi	XGE2	0	1	access	Config
Port VI AN Management	PON1	0	1	hybird	Config
Vian List	PON2	0	1	hybird	Config
Port VI ANI Config	PON3	0	1	trunk	Config
Bort VLAN Coning	PON4	0	1	hybird	Config
Polt VEAU Hansiation	PON5	0	1	hybird	Config
Ging Coning	PON6	0	1	hybird	Config
IGMP Management	PON7	0	1	hybird	Config
SIP Management	PON8	0	1	trunk	Config
Stp Global Set	PON9	0	3000	access	Config
Stp Port Set	PON10	0	1	hybird	Config
ACL Management Group	PON11	0	1	hybird	Config
ACL Rule	PON12	0	1	hybird	Config
- Current ACL RULE	PON13	0	1	hybird	Config
Apply to Port ACL	PON14	0	1	hybird	Config
Qos Global Config	PON15	0	1	hybird	Config
	PON16	0	1	hybird	Config

Step 2:

At this point, the following page will appear. Under this page, set the VLAN priority to 4, the PVID to 300, and the VLAN mode select to hybrid. Click the **'Config'** button and click the **'OK'** button to complete the configuration.

Control Module Management	
P1 P1 P2	
OLT Device EPON 16 PO. System Status Management Config Device Upgrade Management SwitchCard Attribute SwitchCard Mirror MacAddress Management ShiftroadcastStormSuppressi Port VLAN Config Port VLAN Translation Gina Config Port VLAN Translation Gina Config Stp Global Set Stp Of Set Stp Of Set Stp Of Set Stp Of Set Stp Of Set Current ACL RULE - Acply to Port ACL Stp Of Set Current ACL RULE - Apply to Port ACL - Apply to Port ACL Apply to Port ACL 	Port VLAN Config Port ID Prid 300 PLANMode hybird Refresh Set Back Prompt i Set [VLANMode hybird],success iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii

Step 3:

Click the 'Back' button to view the modified configuration.

Control Module Management					
P1 P1 P2	P3 P5 P7 P9 Image: state sta	P11 P13 P15 CE1 CE2 CE3 CE1 CE2 CE3 P12 P14 P16	GE4	CONSOLE State And State	
	Port ID	Vlan Priority	PVid	VLANMode	Modfiy
DLT Device EPON 16 PO	GE1	2	100	access	Config
	GE2	0	1	trunk	Config
System Status	GE3	3	1	trunk	Config
Management Config	GE4	4	1	hybird	Config
Device Upgrade Management	GE5	0	1	trunk	Config
SwitchCard Attribute	GE6	0	1	trunk	Config
SwitchCardTrunkGroupConfig	GE7	0	100	access	Config
SwitchCard Mirror	GE8	0	1	trunk	Config
MacAddress Management	XGE1	0	1	access	Config
SpiBroadcastStormSuppressi	XGE2	0	1	access	Config
Port VI AN Manegement	PON1	0	1	hybird	Config
Man List	PON2	0	1	hybird	Config
Doct 10 Abl Config	PON3	0	1	trunk	Config
Port VLAN Coning	PON4	0	1	hybird	Config
Port VLAN Translation	PON5	0	1	hybird	Config
Qinu Contig	PON6	0	1	hybird	Config
IGMP Management	PON7	0	1	hybird	Config
STP Management	PON8	0	1	trunk	Config
- Stp Global Set	PON9	0	3000	access	Config
Stp Port Set	PON10	0	1	hybird	Config
ACL Management Group	PON11	0	1	hybird	Config
ACL Rule	PON12	0	1	hybird	Config
- Current ACL RULE	PON13	0	1	hybird	Config
Apply to Port ACL	PON14	0	1	hybird	Config
Qos Global Config	PON15	0	1	hybird	Config
-	PON16	0	1	hybird	Config



Step 4:

The allowed untag and tagged VLAN of the hybrid mode need to be added in the **'VLAN** List' of # 6.2.9.2 and # 6.2.9.3.

6.2.9.5 OLT Translation Mode VLAN Configuration

The OLT port VLAN translation is actually the CVLAN from the OLT side of the user translate into the SVLAN on the network side. Details are as follows.

Double click the **'Switch Control Card'** icon on the left side of the main page, turn on the **'Control Module Management'** window, and enter the **'Port VLAN Translation'** page. Typical page is as follows.

Dontrol Module Management	nent	×
P1		
OLT Device EPON 16 PO	Port GE1 CVLAN ID 1- SVLAN ID	
System Status Management Config Device Upgrade Management SwithCard Attribute SwithCard TrunkGroupConfig SwithCard Mirror MacAddress Management SniBroadcastStormSuppressi Port VLAN Manegement Vian List Port VLAN Config Port VLAN Transiation CinG Config GMUM Management Stp Port Set ACL Management ACL Rule Current ACL Rule Acut Ru Port ACL Qos Global Config	Port VLAN Translation Port VLAN Translation State fig state Image: State State Image: State State Image: State	
	Refresh Set Delete	

Port VLAN Translation can be used to view and configure the port ID, CVLAN ID, and SVLAN ID. The following will be a brief introduction.

Port ID

Display the corresponding port number, GE represents the uplink port, XGE represents the Gigabit port, PON represents the PON interface, the serial number represents the number of ports behind.

CVLAN ID

Represents the VLAN before the translation (VLAN that enters the port), with a value of 1-4094.

SVLAN ID

Represents the converted VLAN (VLAN that out of the port), with a value of 1-4094.

'Set' button

When you have configured the above items, you can click the **'Set'** button to complete the configuration. At this point the translate list will appear in a configuration item.

'Delete' button

Select the entry you want to delete in the conversion list and click the **'Delete'** button to delete the specified entry.

[Example of VLAN Translation Configuration]

Example: Converts a packet with a VLAN of 100 on the user side of the GE1 port to VLAN 200 on the network side. The configuration steps are as follows.

Step 1:

Click on the **'Port VLAN Translation'**, Select GE1 in the right page, CVLAN set to 100, SVLAN set to 200, click on the following **'Set'** button, and then in the **'Prompt'** window click on the **'OK'** button to complete the configuration.



Step 2:

Click the 'Refresh' button to view the VLAN translation entry that you just configured.

🗐 Control Module Management	t			×
P1	P3 P5 P7 P8 P11 P13 P15 P4 P4 P4 P4 P4 P4 P4 P4		S GET GES KOEL KGEL KGEL GES GUNSOLE PART	
OLT Device EPON 16 PO V	Port GE1 CVLAN ID	1 - 	an id	
 Management Config Device Upgrade Management SwitchCard Attribute SwitchCard Attribute SwitchCard Mirror MacAdress Management ShiBroadcastStormSuppressis Port VLAN Manegement Vian List Port VLAN Translation Gin0 Config Stip Port Set Stip Clobal Set Stip Clobal Set Stip Port Set ACL Rule Currier ACL Rule Apply to Port ACL 	Port Name GE1	CVLAN ID 100	SVLAN ID 200	
		Refresh Set	Delete	

6.2.9.6 OLT QinQ Mode VLAN Configuration

QinQ technology (also known as Stacked VLAN or Double VLAN). The standard is from IEEE 802.1ad, which encapsulates the user's private VLAN tag in the public VLAN tag, so that the packet carries the two-layer VLAN tag through the operator's backbone network (public
network).

QinQ technology effectively extends the number of VLANs by stacking two 802.1Q headers in Ethernet frames so that the number of VLANs can be up to 4096x4096.

Double click the 'Switch Control Card' on the left side of the main page to open the 'Control Module Management' window and enter the 'QinQ Config' page. The typical page is as follows.



The QinQ configuration can view and configure the PON port ID, Start VLAN ID, End VLAN ID, Outer VLAN ID, and Outer VLAN Priority. The following will be a brief introduction.

Port ID

Displays the corresponding port number, PON represents the PON interface, the serial number followed by represents the port number. This column can only select PON port.

Start VLAN ID, End VLAN ID, Outer VLAN ID

Start Customer VLAN ID (CVLAN): Represents the initial VLAN ID (when entering the port) of the inner layer VLAN, with the value of 1-4094;

END Customer VLAN ID (CVLAN): Represents the termination VLAN ID (when entering the port) of the inner layer VLAN, with a value of 1-4094;

Service provider VLAN (SVLAN): Represents another layer of VLAN after the inner layer VLAN, with a value of 1-4094;

When a packet enters the port range from the start VLAN to the end VLAN, a layer of outer VLAN (SVLAN) is added to the port, and the message at this time is a message with double layer VLAN.

SVLAN Priority

Represents the priority of SVLAN, with a value of 0-7, in which 0 is the lowest priority and 7 is the highest priority.

'Add' button

Click the 'Add' button pops up the window as shown below. In this window, you can configure the start CVLAN, end CVLAN, SVLAN, and priority. Click 'OK' button to complete the configuration.



🗾 Add QinQ	×
Start CVLAN	10 -
End CVLAN	20 -
SVLAN	200 -
Priority	0
<u>0</u> K	Cancel

'Set' button

When you have configured more than that, you can click the **'Set'** button to complete the configuration.

'Delete' button

Select the items to be deleted in the translation list, and then click **'Delete'** button to delete the specified entry.

[Example of VLAN QinQ Configuration]

Example: PON 8 received VLAN100-103 packets are marked with a layer of outer VLAN 200, the priority of 0.

Step 1:

Click the **'Add'** button, pop up the **'Add QinQ'** window, configure the start VLAN to 100, end VLAN to 103, SVLAN to 200, the priority to 0.

🚽 Control Module Management					8
OLT Device EPON 16 PO	P3 P5 P7 P9 P1 P3 P4 P5 P7 P9 P1 P4 P5 P8 P10 P1 PortName Pon-1 1	1 P13 P15		GES GE6 GE7 GE8 (1022)	CONSULE Prove
System Status Management Config	StartVlanId	EndVlanId	CosDetermi	ne SVIanId	SVIAN Priority
SwitchCard Attribute SwitchCard Attribute SwitchCard Attribute SwitchCard Mirror MacAddress Management ShitchCard Mirror MacAddress Management Port VLAN Manegement Vian List Port VLAN Translation Gind Config Port VLAN Translation Gind Config StP Management Stp Global Set Stp Ort Set ACL Management Group ACL Rule Acurent ACL RULE Apply to Port ACL Gos Global Config			Add QinQ Start CVLAN CVLAN CVLAN SVLAN Prionity 7 QK Refresh Set	100 103 200 0 Cancel 2 Delete 2	

Step 2:

Click the **'OK'** button in the prompt window that appears.

🛒 Control Module Management					23
	P3 P5 P7 P9 P4 P6 P8 P10	P11 P13 P15 P11 P13 P15 P12 P14 P16 P16		CET GEB KGE1 KGE2 GET GEB C2 LGE1 KGE2 GET GEB C3 LGE1 GG1 GG1 GG1 GG1 GG1 GG1 GG1 GG1 GG1	NISOLE - Port Rolf Rolf
OLT Device EPON 16 PO 👻	QinQ Config				
System Status Management Config Device Uprade Management SwitchCard Attribute SwitchCard TunkGroupConfig SwitchCard Mirror MacAddress Management SniBroadcastStormSuppressi B: Port VLAN Manegement -Van List -Port VLAN Translation <u>ComO Config</u> -Port VLAN Translation <u>ComO Config</u> -Port VLAN Translation <u>ComO Config</u> -Sty Global Set -Stp Port Set -Stp Global Set -Stp Port Set -Current ACL RULE -Apply to Port ACL -Qos Global Config	StartVlanId	EndVlanid	CosDetermine Prompt Add QinQ[CVLAN: 100-103,SVL	SVIanid	SVIAN Priority

At this point we can see our newly added QinQ entries.

Control Module Management					
	P3 P5 P7 P9 P1 P2 P3 P3 P4 P4 P6 P8 P10	P11 P13 P15 P1 P13 P15 P1 P13 P15 P11 P13 P15 P12 P14 P16 P16			CONSOLE POURA POURA SYS MORT ALAPAN RST
OLT Device EPON 16 PO	Port Name Pon-1 QinQ Config				
Svetem Status	StartVlanId	EndVlanId	CosDetermine	SVIanId	SVIAN Priority
- Management Config	100	103	NO	200	0
SwitchCard Attribute SwitchCard TunkGroupConfig SwitchCard Mirror MacAddress Management SnifforadcastistormSuppressi Port VLAN Manegement Van List Port VLAN Translation Onio Config Fort VLAN Translation Onio Config IGMP Management StP Management StP Management StP Conf Set ACL Management Group Current ACL RULE Apply to Port ACL Current ACL RULE Apply to Port ACL On Good Config		Refre	sh Set	Add Delete	

6.2.10 OLT IGMP Management

If a host wants to receive multicast packets sent to a particular group, it needs to monitor all packets that are sent to that particular group. In order to solve the routing problem of multicast data packets on Internet, the host needs to join or leave a group by notifying the multicast router on its subnet, and IGMP is used in multicast to accomplish this task. Thus, the multicast router can know the members of the multicast group on the network and decide whether or not to forward the multicast packets to their network. When a multicast router receives a multicast packet, it checks the multicast destination address of the packet and forwards it only if there is a member of that group on the interface.

The OLT on the IGMP provides the information needed to forward the multicast data packet to the final stage of the destination, and implements the following bidirectional functions:

1. The host notifies OLT through IGMP that it wants to receive or leave about a particular

multicast groups.

2. OLT periodically queries the group members in the LAN whether is in a activity status, and realizes the collection and maintenance of group membership in the network segment.

The multicast configuration of our company's FD1216S OLT is as follows.

Double click the 'Switch Control Card' icon on the left side of the main page to open the 'Control Module Management' window and enter the 'IGMP Management' page. Typical page are as follows:.

📃 Control Module Management	
P1	
OLT Device EPON 16 PO System Status Management Config Device Upgrade Management SwitchCard Attribute SwitchCard Attribute SwitchCardTrunkGroupConfig	GMP Management snooping MaxGeneralResponseTime <1-25>s 10 ⁺ /- IGMP Model snooping 10 [±] /- 10 [±] /- RobustnessVariable 10 [±] /- GeneralQueryInterval <2-3000>s 125 [±] /- MaxSpecificResponseTime 1-100-(x100ms) 10 [±] /- SpecificQueryCount <1-10> 2 [±] /- Basic Config Lisar Config Ensward Infig 2 [±] /-
SwitchCard Mirror - MacAddress Management SnilfroadcastStormSuppressi - Port VLAN Manegement - Vian List - Port VLAN Translation - Ond Config - Port VLAN Translation - Ond Config - STP Management - Stp Ciobal Set - Stp Coloal Set - Stp Conf Set - Stp Conf Set - ACL Management Group - ACL Management - Current ACL RULE	Controlled Multicast VLAN Route Port RowStatus 100 GE5 1
Qos Global Config	Refresh Set Add Delete

In the 'IGMP Management' page, you can set the following configuration parameters.

IGMP Management

IGMP Working Mode

IGMP working mode is: 'proxy', 'snooping', 'ctc', 'disable'

(1) Proxy

Set the IGMP mode of the multicast VLAN as proxy.IGMP proxy is the multicast agent. The IGMP proxy forwards the IGMP message between the user and the multicast router and then forwards it to the upper multicast router. From a user perspective, the system is equivalent to a multicast server; From an upper point of view, the system is equivalent to a multicast user. The IGMP proxy mode reduces the traffic of the network side multicast protocol.

(2) Snooping

Set the IGMP mode of the multicast VLAN to IGMP snooping. IGMP snooping is multicast intercept. The IGMP snooping obtain the relevant information to maintains the multicast forwarding table entry by intercepting the IGMP communicated message between the user and the multicast router. The system does not do any processing to multicast messages which belongs to the multicast VLAN, only transparent.

(з) стс

When IGMP mode is ctc, that is, controllable multicast mode. The traditional multicast service is uncontrollable. You can send a IGMP report message to join a multicast group to receive the multicast packets of the multicast group. The core idea is to control the privileges of a user to join a multicast group. When a user requests to join a multicast group, the OLT must authenticate the request and refuse requests for unauthorized or unauthorized access.The

controllable multicast of OLT controls the generation of two layer multicast forwarding table entries by intercepting the IGMP report messages sent by ONT, so as to achieve multicast control purposes. After receiving the IGMP report packet from the multicast user, it finds the privilege template for the VLAN according to the VLAN to which the packet belongs. If the multicast group is not in the list of the privilege template, the user thinks that the user has no authority to block the IGMP report Messages that are not allowed to generate forwarding entries, so that the user can not receive the data flow of the multicast group. If the multicast group is under the list of permissions templates, it depends on how the list is added to the template, and if the list is added to the template by viewing, the IGMP report message is passed. If the list is added to the template by viewing entry of the multicast group is deleted and the subsequent IGMP report packet of the multicast group is blocked. So as to achieve the preview function.

In this mode, the ONT multicast mode must be configured as a controllable multicast. In this mode, when the multicast user passes the authentication, the corresponding extended OAM packets are sent to maintain the ONT multicast entries to achieve control of the multicast service.

(4) Disable

Disable multicast function

Max General Response Time

The maximum response time is used to limit the maximum time of query waits for the host to respond to the group query message (i.e. to send report messages). The value can be 1-25s.

Robustness variable

The robustness variables are configured to send query packets and the number of proxy messages to prevent network topology from being unstable and not receiving packets. The range is 1-10 times.

General Query Interval

The general query interval is primarily used by the system to verify whether the user is watching a program by sending an general query for all programs. If the system does not receive the user's report message, the user is not considered to have watched the program and no longer sends the program stream. Avoid users who do not watch programs, but still receive multicast streams and waste bandwidth. The value is 2-3000s.

Max Specific Response Time

The system send a specific group query according to the setting interval for the specific program to confirm whether the user is watching the program and does not receive the report message from the user feedback, thinks that the user is not watching the program, the system will not send the program stream to the user, to avoid the user did not watch the program but still received the multicast stream and wasted the bandwidth. The value is 1-100, the unit is 100ms.

Specific Query Count

The system for a specific program by sending N times (N through this command to set) of the specific group query to confirm whether the user is watching the program and does not receive the report message from the user feedback, thinks that the user is not watching the program,the system will not send the program stream to the user, to avoid the user did not

watch the program but still received the multicast stream and wasted the bandwidth.

After the above parameters are configured, you need to click the **'Set'** button to complete the configuration to make the configuration take effect.

Basic Config

Click on the 'Basic Config' of the 'IGMP Management' page will appear a multicast program table.

The table can view or configure some parameters, such as 'IGMP Proxy ID', 'Multicast VID', 'Source IP Address', 'Multicast IP Address', 'Route Port'.

➢ IGMP Proxy ID

The ID of multicast table items, that is, the number of multicast programs, can be valued at 1-2000.

Multicast VID

Corresponding multicast VLAN. The legal range is 1-4094.

Source IP address of IGMP Proxy ID

Represents the source address of the IGMP query message, and the address format is X.X.X.X.

Multicast IP address

Multicast IP address of the multicast program, and the address format is X.X.X.X.

Route Port

The routing port of the multicast program specifies the source port of the multicast stream.

In addition, we can click on the **'Add'** button to add multicast program table entries, where we can configure IGMP Proxy ID, routing ports, MVID (multicast VLAN), IP address these items. Click **'OK'** to complete the configuration, and the newly added multicast program list will appear in the multicast program table.

'Delete' button: Select the multicast program entry you want to delete, click the **'Delete'** button to delete the specified multicast program.

ing control wodule wanagement					X
	13 15 17 19 111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <th1< th=""> 1<th>P13 P15 P15 P15 P15 P15 P15 P15 P15 P15 P15</th><th></th><th></th><th>SOLZ PRINT STG ALARM RST</th></th1<>	P13 P15			SOLZ PRINT STG ALARM RST
OLT Device EPON 16 PD. V System Status Management Config Device Upgrade Management SwitchCard Attribute SwitchCard Attribute SwitchCard Attribute SwitchCard Mirror MacAddress Management SmiBroadcastStormSuppressi Port VLAN Manegement Van List Port VLAN Config Port VLAN Translation Oini Config CMP Management Stp Global Set Stp Port Set ACL Management Group ACL Rule Current ACL RULE Apply to Port ACL Que Silobal Config	IGMP Management IGMP Model RobustnessVariable<1-10> MaxSpecificResponseTime<1-100> Basic Config User Config Fo Proxy List Program ID 1	r(x100ms)	SrcIPAddress 10-1 10-2 10-1 SrcIPAddress 192.168.1.253 Add Proxy proxy ID Router Port Ip Address QK Ca	MaxGeneralResponseTime <1-25>s GeneralQueryInterval <2-3000>s SpecificQueryCount <1-10> MulticastIPAddress 224.3.3	10[

User Config

Click 'User Config' in the 'IGMP Management' page, there will be two tables (the premise

is to configure the IGMP working mode to CTC), the left is the **'Controlled Multicast Package'**, and the right is the **'Controlled Multicast User Authority'**.

Control Module Management	
P1	
OLT Device EPON 16 PO System Status Management Config Device Upgrade Management SwitchCard Attribute SwitchCard Attribute	IGMP Management MaxGeneralResponseTime <1-25>s 10 ⁺ / ₁ IGMP Model 10 ⁺ / ₁ 125 ⁺ / ₁ RobustnessVariable 100 ⁺ / ₁ GeneralQueryInterval <2-3000>s 125 ⁺ / ₁ MaxSpecificResponseTime 100 ⁺ / ₁ SpecificQueryCount <1-10> 2 ⁺ / ₁
SwitchCardTrunkKroupConfg SwitchCardTrunkKroupConfg WitchCardWiror MacAddress Management Vian List Port VLAN Konfg Port VLAN Confg Ond Confg GMP Management Stp Global Set Stp Global Set Stp Global Set Stp Global Set Current ACL Rule Current ACL RuLE Apply to Port ACL Qos Global Confg	Basic Config User Config Forward Info Controlled Multicast Package Profile ID Profile Memb User Authont SinglePrevie PreviewRese PreviewCoun Add Delete Add Delete Add Delete
	Refresh Set

(1) Controlled Multicast Package

Profile ID

Profile ID of the controlled multicast package, The value is 0-31.

Profile Member

Profile members are multicast program table entries, which can be viewed in the basic configuration. Range of value is 1-2000.

User Authority

There are three options for user rights: 'Preview', 'Permit', 'Deny'

Preview: the user can only watch the specified program and the content of the specified time period.

Permit: that allows the user to watch the program.

Deny: users are not allowed to watch programs.

Single Preview Time

The user can watch the duration of the program, the range is 10-6000, the unit is

seconds.

Preview Reset Time

After a multicast preview, a preview of the reset time is taken before the program can be re viewed. The range is 1-7650, and the unit is seconds.

Preview Count

The number of times you can preview the multicast program, in the range of 1-255.

Click the 'Add' button will bring up a 'Add Controlled Multicast Package' window where we can configure the package ID, proxy list, user right, single preview, preview reset and preview times. Click 'OK' and a project will appear in the window on the left.

Select the controlled multicast packet entry to be deleted and click the 'Delete' button to delete the specified entry.



Add controlled	MulticastPackage 🛛 🔜
package ID	
porxy list	like as:1,2or 3-5
User Right	preview 👻
Single Preview	
Preview Reset	
Preview Times	
<u>O</u> K	Cancel

(2) Controlled Multicast User Authority

> Device index

The specified ONU under the corresponding specified PON port. The ID of the PON port can be 1-16, the ID of the ONU can be 1-64.

Port index

That is ONU port ID.

Controlled Multicast List

That is the multicast packet profile ID, in the range of 0-31.

Click the 'Add' button under the 'Controlled Multicast User Authority' table on the left to bring up the following 'Add Controlled Multicast User Authority' dialog box. Here you can configure parameters, such as ONU ID, PON port, ONU port, and package list. Click the 'OK' button. At this point, the corresponding entry will appear in the list.

ONU ID	
Pon Port	Pon-1
onu port	
package list	like as:1,2or 3-5

Select the item you want to delete, and click the 'Delete' button to delete the specified entry.

Forward Info

Click on the 'Forward Info' under the 'IGMP Management' page will appear a list of forwarding entries. Here you can view the corresponding multicast program entries. As shown below.

	punsi puns 378 aluram RST
OLT Device EPON 16 PO IGMP Management System Status IGMP Model snooping MaxGeneralResponseTime <1-25~s	10^{+}_{+} 125^{+}_{-} 2^{+}_{+}
HacAddress Management SniProadcastistomSuppressi Device ID VLAN ID IPAddress MemberP Device ID VLAN ID IPAddress MemberP 1 Dov 224.3.3.3 Pon9; I I I I I I I I I I I I I I I I I I I	PortList

- Device index (Multicast table entry) Refers to the index number of the multicast program table entry that exists in OLT.
- VLAN ID Refers to the VLAN ID of the multicast group.
- IP Address
 - Refers to the multicast IP address for multicast programs.
- Member Port List

Refers to the member port of the multicast group.

Click the 'Refresh' button to refresh the multicast entry.

[Example of OLT IGMP Management configuration]

Example: Add a multicast program entry, set the IGMP mode to proxy mode, the multicast entry number to 2, the multicast VLAN to 300, and the multicast address to 224.3.3.3. The configuration steps are as follows.

Step 1:

Enter the **'IGMP Management'** page, select proxy in **'IGMP Model'**, the other parameters can be the default value (see below).

Click the **'Add'** button, configure the proxy ID to 2, the routing port to GE1, the multicast VLAN (MVID) to 300, and the multicast address to 224.3.3.3. Click the **'OK'** button to complete the configuration.

🗐 Control Module Management	X
	P3 P5 P7 P9 P11 P13 P15 P1 P1 P1 P1 P1 P13 P15 P1 P1 P1 P1 P1 P13 P15 P1 P1 P1 P1 P1 P13 P15 P1 P1 P1 P1 P13 P15 P1 P1 P1 P1 P13 P15 P1 P1 P1 P13 P15 P1 P1 P1 P13 P15 P1 P1 P13 P15 P1 P13 P15 P1 P13 P15 P1 P13 P15 P1 P13 P15 P1 P15 P15 P1
OLT Device EPON 16 PD	GMP Madgement IGNP Model proxy MaxGeneralResponseTime <1-25s 10- RobustnessVariable 2- GeneralQueryInterval <2-3000>s 125- MaxSpecificResponseTime 10- SpecificQueryCount <1-10> 2- Basic Config User Config Forward Info 2- Proxy List Forgram ID Multicast/ND SrdPAddress Multicast/PAddress IVD 300 10 2 0 0 0 VID 300 10 10 0
	Refresh Set Add Delete

Step 2:

Click the 'OK' button when the prompt window appears at this time.



Control Module Managemen Pi F F F F F F F	AT 13 15 17 19 11 13 15 14 14 14 14 14 14 14 14 14 14 14 14 14 1
OLT Device EPON 18 PO System Status Management Config Device Upgrade Management SwitchCard Attribute SwitchCard TunkGroupConfig SwitchCard Mirror MacAddress Management SniBroadcastStormSuppressi Port VLAN Manegement Port VLAN Tonfig Port VLAN Translation Oline Config Fort VLAN Translation Oline Config Config Strp Management Strp Ot Set ACL Rule Current ACL RULE Apply to Port ACL Qos Global Config	IGMP Management IGMP Model proxy ✓ MaxGeneralResponseTime <1-25>s 10 RobustnessVariable<1-10> 2 GeneralQueryInterval <2-3000>s 125 MaxSpecificResponseTime<1-10>(x100ms) 10 SpecificQueryCount <1-10> 2 Basic Config User Config Forward Info 2 Proxy List Prompt Image: Config Route Port Image: Config MulticastVID SrcIPAddress MulticastIPAddress Route Port Image: Config Add proxy2,success Image: Config Im

Step 3:

Then we can see that there is a list of items we just configured in the program.

Control Module Management					(
PI PI P2 P2	P3 P5 P7 P9 P11 P1	P13 P15 P1 P1 P1 P1 P1 P1 P14 P16	GE2 GE3 GE4		LE Printi Spinta Sys RARM RST
System Status Management Config Device Upgrade Management SwitchCard Attribute SwitchCard TrunkGroupConfig SwitchCard Mirror	IGMP Management IGMP Model RobustnessVariable<1-10> MaxSpecificResponseTime<1- Basic Config User Config	proxy 100>(x100ms) Forward Info	▼ 2 ÷ 10	MaxGeneralResponseTime <1-25>s GeneralQueryInterval <2-3000>s SpecificQueryCount <1-10>	10 125
MacAddress Management SniBroadcastStormSuppressin Port VLAN Manegement - Vian List - Port VLAN Config - Port VLAN Config - Port VLAN Translation - Gind Config GMP Management - Stp Global Set - Stp Fort Set - Stp Global Set - ACL Rule - Current ACL RULE - Apply to Port ACL - Gos Global Config	Proxy List Program ID 2	MulticastVID 300	SrcIPAddress 192.168.1.253	MulticastIPAddress 224.3.3.3 Add Delete	Route Port 0E1

6.2.11 OLT STP Management

STP (Spanning Tree Protocol) is the abbreviation of spanning tree protocol. The protocol can be applied to the loop network, through a certain algorithm to achieve path redundancy, while the loop network is trimmed into a loopless tree network, so as to avoid the message in the loop network proliferation and infinite loop.

The main application of the spanning tree protocol is to avoid the network loopback in the LAN and solve the "broadcast storm" problem of the ring-to-ring Ethernet network. In a sense, it is a kind of network protection technology that can eliminate the loop connection caused by mistake or accident.

6.2.11.1 STP Global Config

Double click the 'Switch Control Card' icon on the left side of the main page, open the 'Control Module Management' window and enter the 'STP Global Set' window of 'STP Management' page.

🛒 Control Module Managemen	t			×
P1	P3 P5 P7 P9 F P3 P5 P7 P9 F P4 P6 P8 P10 F	11 P13 P15 T T T T T T T T T T T T T T T T T T T	GES GE6 GE7 GE8 XG	EL XGE2 North North ST
OLT Device EPON 16 PO System Status Management Config Device Upgrade Management SwitchCard Mirbute SwitchCard Mirbute SwitchCard Mirbute MacAddress Management SniBroadcastStormSuppressi Port VLAN Manegement Vian List Port VLAN Translation Or Una Config	Stp Global Set STP Version(STP/RSTP) TimeSinceTopologyChange DesignatedRoot RootPort HelloTime(s) ForwardDelay(s) BridgeHelloTime(s) BridgeTxRate(kbps)	Stp 0 hours, 0 minutes, 0 seconds. 00'00:00:00:00 0 0 0 0	Priority TopologyChangeTimes RootCost MaxAgeTime(s) HoldTime(s) BridgeMaxAge(s) 2 BridgeMaxAge(s) 3 STP Enable	32.768 0 0 33 20 15 15
IGMP Management STP Management StP Management Stp Otaset Act. Nanagement Group ACL Rule Current ACL RULE Apply to Port ACL Gos Global Config		Refresh	Set	

As shown above, in '**STP Global Set**' page, you can view the STP Version, Priority, Time Since Topology Change, Topology Change Times, Designate Root, Root Cost, Root Port, Max Age Time(s), Hello Time(s), Hold Time(s), Forward Delay(s), Bridge Tx Rate(kbps)and STP Enable State. Among them, Priority, Max Age Time(s), Hello Time(s), Forward Delay(s), Bridge Tx Rate(kbps) and STP Enable State can be modified. Specific parameters are introduced as follows:

STP Global Set

STP Version

The default setting of system is RSTP.

Priority

Bridge priority is used to select the root bridges of the network. The smaller the value, the higher the priority, the greater chance of being elected as the root bridge. You can set a bridge with a priority value of 0, 4096, 8192, 12288,16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152,53248, 57344 and 61440.

Time Since Topology Change

The duration of switching from the previous topology state to the current state .

Topology Change Times

The number of topology changes caused by the change of the port or link state in the network topology.

Designate Root

You can designate root bridge through bridge priority. In case of not designating priority, the smaller the MAC address, and the greater the chance of being the designated root bridge.

Root Cost

To calculate the link cost, the port with the lowest root link cost will become the forwarding port in case of forwarding the same network bridge ID . The legal range is $1 \approx 20000000$.

Root Port

The number of ports that are passed by the path of from non-root bridge to the root bridge.

Max Age Time

The lifetime of the BPDU message received from the adjacent bridge of Designated port. The legal range is 6^{40} , in s.

Hello Time

Set the bridge how often to send a BPDU message. The setting range time is 1^{2} , in s.

Hold Time

When the network bridge changes in topology, maintaining the time of monitoring and learning state before sending packets.

Forward Delay

With downward compatibility STP network bridge, for port of working in the STP mode, forwarding delay timer designated the port before the transition to the learning state the time of in discarding state , and before the learning state transition to the forwarding state in the time of learning state. The legal range is 4~30, in s.

Bridge Tx Rate

Set the number of maximum sending BPDU messages in 1 second. The setting range of 1^{10} , in frame/s.

STP Enable State Configuration

Open or close the RSTP function by setting the 'RSTP State' to 'Enable' or 'Disable'.

Attention: When you set Max Age Time, Hello Time, Forward Delay, first input setting value,

then click **'Set'** button, finally click **'Refresh'** button, thus configuring successfully. And consistent with three contents shown below.

6.2.11.2 STP Port Set

Double click the 'Switch Control Card' icon on the left side of the main page, open the 'Control Module Management' window and enter the 'STP Port Set' window of 'STP Management' page.

🗐 Control Module Managemen	t											>
PI PI P2 P2	P3 P5	P7 P9	P11 P13	P15 GE1 S2 GE1 S2 GE1 D1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 GE1 S2 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3	GE2 GE3	GE4 86 GE5	GEG GET GE	8 XGE1 P <mark>8</mark> 2 (111)	C XGE2 I	NSOLE Print Sys MGMT	est	
	Stp Port Se	t										
	Device ID	PortStatus	PortPriority	PortPathCost	DesignatedR oot ID	ForwardTrans itions	ProtocolMigra ionEnable	al EdgePortAdm inStatus	EdgePortOp Status	er PortPointToP ointAdminSta	PortPointToP t ointOperStatu	Port STPEnab I led
Management Config	054	and the second			00.00.00.00			C 1-1	6-1	us	S	false.
Device Upgrade Management	GE1	disabled	0	0	00:00:00:00:	0	raise	Edge	raise	auto	raise	Taise
SwitchCard Attribute	GE2	disabled	128	20000	e0:56:43:a9:	0	false	NEdge	faise	auto	true	faise
SwitchCardTrunkGroupConfig	GE3	disabled	0	0	00:00:00:00:	0	raise	Edge	raise	auto	raise	faise
SwitchCard Mirror	GE4	disabled	128	20000	00:00:00:00:	0	false	NEdge	false	auto	true	false
MacAddress Management	GE5	disabled	128	20000	e0:56:43:a9:	0	false	NEdge	false	auto	true	false
SniBroadcastStormSuppressi	GE6	disabled	128	20000	e0:56:43:a9:	0	false	NEdge	false	auto	true	false
Port VLAN Manegement	GE7	disabled	128	20000	00:00:00:00:	0	false	NEdge	false	auto	true	false
Vlan List	GE8	disabled	128	20000	00:00:00:00:	0	false	NEdge	false	auto	true	false
Port VLAN Config	XGE1	disabled	128	20000	00:00:00:00:	0	false	NEdge	false	auto	true	false
- Port VLAN Translation	XGE2	disabled	128	20000	00:00:00:00:	0	false	NEdge	false	auto	true	false
QinQ Config						A						
GMP Management Stp Global Set Global Set Global Set Global Set GL Management Group ACL Rule Current ACL RULE Apply to Port ACL Oos Global Config												

As shown above, in '**STP Port Set**' page, you can view Device ID, Port Status, Port Priority, Port Path Cost, Designated Root ID, Forward Transitions, Protocol Migration Enable, Edge Port Admin Status, Edge Port Oper Status, Port Point to Point Admin Status, Port Point to Port Oper Status and Port STP Enabled Status. In addition, you can modify Port Priority, Port Path Cost, Protocol Migration Enable, Edge Port Admin Status and Port Point to Point Admin Status. Specific parameters are introduced as follows:

Port Status

STP Port Status has five types, including disable, learning, listening, forwarding and blocking.

Disable: In the invalid status, to be a valid port, first switch to the blocking port.

Learning: In the learning state, the port is adding addresses to its forwarding database, but does not forward packets.

Listening: In the listening state, the port is waiting to receive BPDU packet, and BPDU may tell the port to return to the blocking state.

Forwarding: In the forwarding state, the port is forwarding the packet.

Blocking: In the blocking state, the port is blocked and can not forward or receive packets.

Port Priority

When the link cost and the sending network bridge ID is the same, the lowest priority port will be the forward port. The parameter value can be set to 0 ~ 440, and the step length is 16.

Designated Root ID

The BID in the BPDU message consists of two parts, the bridge priority and the bridge MAC. The bridge ID is only. Switches selects the smallest BID switch as the root bridge in the network.

Forward Transitions

The port consists of five status. Status transitions need to go through status transition time.

Protocol Migration Enable

This means that the device supports RTSP, and if the port is enabled, the port will automatically migrate to STP compatible mode when the port is connected to the device running the STP protocol. **'True'** means opening this function, and **'False'** means closing this

function.

Edge Port Admin Status

You can use this option to set whether it is an edge port. 'Edge' is an edge port, and 'NEdge' is a non - edge port.

Edge Port Oper Status

This option indicates whether the current port is in the edge port state. **'False'** indicates that the port is not in an edge state, and **'Ture'** indicates the status of the port on the edge. The edge port does not need to go through the **'Discarding-learning-forwarding'** step and directly switch to the forwarding status.

Port Point to Point Admin Status

You can use this option to set whether the port is a point-to-point port, including 'Auto', 'Ture' and 'False' three options. 'Ture' is to set this port to point-to-point port, and 'False' is to set this port to non point-to-point port. 'Auto' is dependent on the STP protocol itself. Point-to-point ports allow fast switching to forwarding status, and non point-to-point ports need to go through discarding-learning-forwarding step to switch to forwarding status.

Port Point to Port Oper Status

The option is to specify the point-to- point port state in which the current port is actually located.

Prompt: Some of the parameter explanations are described in the previous section, which are not repeated here. You can go to the previous section to inquire.

6.2.12 ACL Management

ACL is 'Access Control List'. Through configuring a serial of matching rules to filter specific data packets, thus identifying objects that needs to be filtered. After identifying specific objects, according to preset policy permitting or denying the corresponding data packets pass. The process of ACL filter message flow prepares for Qos.

6.2.12.1 Configure ACL rule

ACL has three types, including basic ACL, its Id range from 2000 to 2999,only matching source IP address; advanced ACL, its Id range from 3000 to 4999, being able to matching source IP address, destination IP address, source port, destination port, DSCP and IP massage type; link ACL, its Id range from 5000 to 5999, being able to match source mac, destination mac, VLAN Id and Ethernet type.

6.2.12.1.1 Basic ACL Configuration

Double click the **'Switch Control Card'** icon on the left side of the main interface, open the **'Control Module Management'** window and enter the **'ACL Rule'** window of **'ACL Management'** page . Click the pull-down menu of ACL Type, and choose basic acl(2000-2999) option.



🗐 Control Module Managemer	nt	×
Pi Pi P2		
OLT Device EPON 16 PO	ACL Type basic ad(2000-2999) ACL List Rule Index	Query
Management Config Management Config Device Upgrade Management SwitchCard Attribute SwitchCard Mirror MacAddress Management SniBroadcastStornSuppressi Port VLAN Manegement – Vian List – Port VLAN Translation – Ort VLAN Translation	Basic Config Matched SourseIP SourseIP Wildcard-Mask	
- IGMP Management - Stp Biobal Set - Stp Port Set - ACL Management Group - ACL Rule - Stp Port Set - ACL Rule	Mark Model value(0-7) Apply to port Port Direction	0+
Current ACL RULE Apply to Port ACL Qos Global Config	Refresh Set Delete	

As above 'Basic ACL' page, you can set the following configuration parameters:

ACL List

ACL List, the set of ACL entries, this can inquire one of ACL according to inputting ACL Id and rule id.

Rule Index

ACL Rule Index, also rule id, and the range of value is 1-16.

Basic configuration

Matched source IP

Configure matched source IP address of ACL Rule, in this format: A.B.C.D.

ACL Action

ACL Action configuration, including 'permit', 'deny' and 'mark' three options, indicates specific parameters of permitting or denying matching.

Source IP Wildcard-Mask

Configure matched source IP Wildcard-Mask address of ACL Rule. IP Wildcard-Mask address is reverse address of IP sub-net mask. Example for: IP is 192.168.5.123, and its IP Wild-Mask is 0.0.225.

Mark Model

This is Mark Model, only applied in when ACL Action is **'mark'**, including **'null'**, **'802.1p'**, **'VLAN id'**, **TOS PRECEDENCE '** and **'DSCP '**.

➢ 802.1p

For the traffic priority LAN level 2 QoS/CoS protocol, the protocol header includes a 3-bit priority field with a value range of 0-7, which supports grouping packets into various traffic types.

VLAN id

VLAN identifier, with a value range of 0-4094.

TOS PRECEDENCE

TOS is a field of IP Message, with indicating type of service, a total of 8bit. PRECEDENCE is IP priority, and it's at 0, 1, 2 three fields with a value range of 0-7.

DSCP

DSCP is **'Differentiated Services Code Point'**, Which provides the standard of differentiated service for Qos, occupied before 6 bit of TOS, with a value range of 0-63.

Apply to port

Port

ACL Rule applies to ports, including 10 ge port and 16 pon port.

Direction

ACL Rule applies to direction of port, including ' ingress' and ' egress' two options.

Example of Basic ACL configuration

Example: Configure a basic ACL, and ID is 2001. Source IP is 192.168.5.205, and Rule Action is 'permit', as show below:

nt					×
P3 P5 P7 P9 P1 P1 P1 P1 P1 P1 P1 P1 P1 P6 P8 P10	P11 P13 P15	2 CE1 CE2 CE3 CE4 2 DD DD DD DD		XGE1 XGE2	panti panti panti panti RST
ACL Type basic acl(2000-:	2999)				-
ACL List 2001			Rule Index 1		Query
Basic Config Matched SourseIP 1 SourseIP Wildcard-Mask (192 168 5 205		ACL Action per	mit	•
Mark Model		valu	9(0-7)		0
Apply to port Port GE1		Refresh	Direction Ingress Set Delete		•
	t T T T T T T T T T T T T T T T T T T T	t T P P P P P P P P P P P P P P P P P P P	t P3 P5 P7 P9 P11 P13 P15 P4 P5 P3 P2 P11 P13 P15 P12 P14 P16 P14 P16 P14 P16 P14 P16 ACL Ltype basic ad(2000-2999) ACL Ltst[2001 Basic Config Matched SourselP 192.168.5.205 SourselP Wildcard-Mask 0.0.0.255 Mark Model 7 value Apply to port Port GE1 Refresh	t T T T T T T T T T T T T T T T T T T T	t T T T T T T T T T T T T T

After completing those configurations, The configuration takes effect through the **'Set'** button at the bottom of page, thus creating a basic ACL Rule successfully. Deleting a ACL rule created through the **'Delete'** button. Updating a ACL Rule created through the **'Refresh'** button.

6.2.12.1.2 Advance ACL Configuration

Double click the 'Switch Control Card' icon on the left side of the main interface, open the 'Control Module Management' window and enter the 'ACL Rule' window of 'ACL Management' page . Click the pull-down menu of ACL Type, and choose advanced acl(3000-4999) option.

🛒 Control Module Managemer	nt			×
P1	P3 P5 P7 P9 P11 P3 P5 P7 P9 P11 P3 P5 P7 P9 P11 P4 P6 P8 P10 P12	1 P13 P15 1 Total Total 24 GE1 GE2 GE3 GE4 56 GE5 1 Total Total 25 GE4 66 GE5 GE5 GE4 66 GE5 2 P14 P16	S GEB GET GEB XGE1 XGE2	CONSOLE Purch Purch Nort Nort Nort Strate
OLT Device EPON 16 PO V	ACL Type advanced acl(3000-4	-4999)		-
System Status	ACL List	Rule I	Index	Query
Management Config Device Upgrade Management SwitchCard Attribute SwitchCard Attribute SwitchCard Intro MacAddress Management SnitBroadcastStormSuppressi Port VLAN Manegement Van List Port VLAN Config Port VLAN Config Port VLAN Config	Basic Config Matched SourselP Matched SoursePort Matched Dscp ACL Action Matched DestinationIPMask	0 :	Matched DestinationIP Matched DestinationPort Matched IpMessageType SourseIP Wildcard-Mask	0 [[
QinQ Config — IGMP Management		(IP Message Type:<0-255>,ip(0)),icmp(1),ipinip(4),tcp(6),udp(17))	
Stp Global Set Stp Port Set	Mark Model	value(0-7)		0
ACL Management Group ACL Rule Current ACL RULE Apply to Port ACL Qos Global Config	Port	▼ Direc Refresh Si	ction Delete	v

As above **'Advanced ACL Rule'** page, compared with **'Basic ACL Rule'** page, also set the following configuration parameters.

Basic configuration

Matched destination IP

Configure matched destination IP address of ACL Rule, in this format: A.B.C.D.

Matched source port

Configure matched source port Id of ACL Rule to match IP Protocol to TCP/UDP, ranging from 0 to 65535.

Matched destination port

Configure matched destination port Id of ACL Rule to match IP Protocol to TCP/UDP, ranging from 0 to 65535.

Matched DSCP

Configure matched DSCP of ACL Rule. DSCP is **'Differentiated Services Code Point'** .In the TOS identification byte of each data packet IP header, taking advantage of used 6 bit and unused 2 bit to prioritize by coding value. DSCP user 6 bit, the value range of 0-63.

Matched IP Message Type

Configure matched IP Message Type of ACL Rule, including IP, ICMP, IPINIP, UDP, TCP and so on, the value range of 0-255.

Matched Destination IP Wildcard-Mask

Configure matched destination IP Wildcard-Mask address of ACL Rule. IP Wildcard-Mask address is reverse address of IP sub-net mask. Example for: IP is 192.168.5.205, and its IP Wild-Mask is 0.0.255.

[Example of Advanced ACL configuration]

Example: Configure a advanced ACL, and ID is 3001. Rule Action is 'Permit', as show below:

🗐 Control Module Managemen	t						×
Pi Pi Pi Pi	P3 P5 P7 P9 P P P P P P P P P P P P P P P	P11 P13 P15 P11 P13 P15 P11 P13 P15 P11 P13 P15 P12 P14 P16	91 GE1 GE2 GE3 GE4 4 10 10 10 10	65 66 77 81		CONSOLE SI XGE2 NGE2 NGE1 NGE2 NGE1 NGE1 NGE2 NGE1 NGE2 NGE3	N RZ RM RST
OLT Device EPON 16 PO	ACL Type advanced acl(3	000-4999)					•
System Status S	ACL List 3001 Basic Config Matched SourseIP Matched SoursePort Matched Dscp ACL Action Matched DestinationIPMat	192.168.5.205			Index 1 Matched DestinationIP Matched DestinationPort Matched IpMessageType SourseIP Wildcard-Mask	192.168.5.210 0.0.0.255	Query 0(+ - 0(+) -
Port VLAN Translation OinQ Config IGMP Management STP Management Stp Global Set Stp Port Set ACL Management Group ACL Rule Ourrent ACL RULE Apply to Port ACL Qos Global Config	Mark Model Apply to port Port GE7		(IP Message Type:<0-2 value Refresh	255>,ip(0), (0-7) Direct	icmp(1).ipinip(4).tcp(6).udp ion ingress	p(17))	

After completing those configurations, The configuration takes effect through the 'Set' button at the bottom of page, thus creating a advanced ACL Rule successfully. Deleting a ACL

rule created through the **'Delete'** button. Updating a ACL Rule created through the **'Refresh'** button.

6.2.12.1.3 Link ACL Configuration

Double click the **'Switch Control Card**' icon on the left side of the main interface, open the **'Control Module Management'** window and enter the **'ACL Rule'** window of **'ACL Management'** page . Click the pull-down menu of ACL Type, and choose link acl(5000-5999) option.

🗐 Control Module Managemen	t			×
P1	P3 P5 P7 P9 P11 P4 P6 P6 P10 P11	P13 P15 TOP TOP CE1 CE2 CE3 CE4 CE5 CE5		•рия: -рия: -975 -ялия КST
OLT Device EPON 16 PO	ACL Type link acl(5000-5999)			
System Status	ACL List	Rule Ir	ndex	Query
Management Config Device Upgrade Management SwitchCard Miribute SwitchCard Miribute SwitchCard Miribute SwitchCard Miribute MacAddress Management SniBroadcastStormSuppressi Ort VLAN Management Vian List Port VLAN Config Port VLAN Translation	Creat ACL Rule MatchedSourseMac Matched VlanId ACL Action Matched DestinationMacMask	0[<u>-</u> [-	Matched DestinationMac Matched Ethernet Type Matched SourseMacMask	0 <u>+</u>
QinQ Config		(Ethernet Type:ip(2048),arp(2054),snmp(33100),	mpls-unicast(34887),mpls-multicast(34888))	
Stp Global Set Stp Port Set	Mark Model	value(0-7)		0 -
ACL Management Group ACL Rule Current ACL RULE Apply to Port ACL Oos Global Config	Port GE7	▼ Directio	Delete	T

As above 'Link ACL Rule' page, compared with 'Basic and Advanced ACL Rule' page, also set the following configuration parameters.

Basic configuration

Matched source MAC

Configure matched source MAC address of ACL Rule, only applied in link ACL Rule, in the format: AA-BB-CC-DD-EE-FF

Matched destination MAC

Configure matched destination MAC address of ACL Rule, only applied in link ACL Rule, in the format: AA-BB-CC-DD-EE-FF $_{\circ}$

Match VLAN Id

Configure matched VLAN of ACL Rule, only applied in link ACL Rule. The value range of Id is 1-4094.

Match Ethernet Type

Configure matched Ethernet data frame type of ACL Rule, only applied in link ACL Rule, including IP(2048), ARP(2054), SNMP(33100), mpls-unicast(34887), mpls-multicast(34888) and so on.

Matched source MAC wildcard mask

Configure matched source MAC wildcard mask of ACL Rule, only applied in link ACL Rule. MAC wildcard mask of a single host is 00-00-00-00-00. MAC wildcard mask of any host is FF-FF-FF-FF-FF-FF.

Matched destination MAC wildcard mask

Configure matched destination MAC wildcard mask of ACL Rule, only applied in link ACL Rule. MAC wildcard mask of a single host is 00-00-00-00-00. MAC wildcard mask of any host is FF-FF-FF-FF-FF-FF.

Example of LINK ACL configuration

Example: Configure a link ACL, and ID is 5001. Add outer VLAN 500 to MAC address. As shown below:

🛒 Control Module Managemen	nt			×
P1	P3 P5 P7 P9	P11 P15 T T T GE1 GE2 C C C C GE1 GE2 C C C C C GE1 GE2 C <thc< th=""> <thc< th=""> <thc< th=""></thc<></thc<></thc<>		CONSOLE Power Power Roll Autom EST
OLT Device EPON 16 PO V	ACL Type link acl(5000-	999)		•
System Status	ACL List 5001		Rule Index1	Query
Management Config Device Upgrade Management SwitchCard Attribute SwitchCard Attribute SwitchCard Intro SwitchCard Mirror MacAddress Management SniBroadcastStormSuppressi Port VLAN Manegement Van List Port VLAN Config Dort VLAN Manegement	Creat ACL Rule MatchedSourseMac Matched VlanId ACL Action Matched DestinationMac	E0-67-B3-1B-8F-8C	Matched DestinationMac E0-67-B3-C	9-C0-D4
QinQ Config IGMP Management		(Ethernet Type:ip(2048),	arp(2054),snmp(33100),mpls-unicast(34887),mpls-multicast(3	4888))
STP Management Stp Global Set Stp Port Set	Mark Model MARK 801.1		value(0-7)	0
ACL Management Group ACL Rule Current ACL RULE Apply to Port ACL Ops Global Config	Port GE4		Direction egress	•

After completing those configurations, The configuration takes effect through the 'Set' button at the bottom of page, thus creating a link ACL Rule successfully. Deleting a ACL rule created through the 'Delete' button. Updating a ACL Rule created through the 'Refresh' button.

6.2.12.2 View OLT ACL Rule

Double click the 'Switch Control Card' icon on the left side of the main interface, open the 'Control Module Management' window and enter the 'Current ACL Rule' window of 'ACL Management' page.

🗐 Control Module Managemen	t								3
P1	P3 P5	P7 P9	P11 P13 P15				CO XGE1 XGE2	RSOLE PHINE SVS ALAPIM RST	
	Basic Cont	fig							
OLT Device EPON 16 PO V	ACL Rule	Rule ID	MatchedSourseMac	Matched DestinationMa	a Matched Vlanic	Matched Ethernet	Matched SourselP	Matched DestinationIP	Matched IpMess
System Status	2001	1		-	0	0	192,168,5,205	0.0.0.0	0
Management Config	3001	1			0	0	192,168,5,205	192,168,5,210	0
Device Upgrade Management	5001	1	E0-67-B3-1B-8E-8C	E0-67-B3-09-C0-D4	500	0	0000	0000	0
Maraddress Management SniProadcaststormSuppressi Port VLAN Manegement - Van List - Port VLAN Config - Port VLAN Config - Port VLAN Translation - Gling Config - Fort VLAN Translation - Gling Config STP Management - Stp Global Set - Stp Fort Set ACL Management foroup - ACL Rule Current ACL RULE - Apply to Port ACL Gos Global Config	4		Л						

55 / 100

As shown in the figure above, you can view the previously created ACL rule entries on the **'Basic Configuration'** page, where the contents are set on this page.On this page can also delete a ACL, first select an ACL rules, and then click **'Delete'** or **'Delete ACL'** button to delete the ACL rules which not applied directly to the port, if you want to delete the ACL which has been applied to the port, can only remove the binding with the port, and then delete. Update the configuration rules information by the **'Refresh'** button.

6.2.12.3 View OLT Port Applied ACL Rule

Double click the 'Switch Control Card' on the left side of the main page to open the 'Control Module Management' window and enter the 'Apply to Port ACL' window on the 'ACL Management Group' page.

🛒 Control Module Management	×
	T
OLT Device EPON 16 PO_ Apply to Port ACL	

As you can see from the figure above, you can see the ACL that you created is applying to port, including the port number, ACL ID, and the direction of the application port . Through the **'delete'** button, you can delete a ACL rule and update the rule information of the configuration through the **'Refresh'** button.

6.2.13 OLT QoS Configure

QoS Refers to a network can use a variety of basic technology, to provide better services for the specified network communication, is a kind of network security mechanism, is used to solve the problem of network delay and blocking a technology.

Double click the 'Switch Control Card' icon on the left side of the main interface, open the 'Control Module Management' window and enter the 'Qos Global Information' management page configuration.

👼 Control Module Management							×	
P1	P3 P5 P7	P9 P11 P13 P15 1 1 1 1 1 1 1 1 1 1	1 GE2 GE3 GE4 1 60 60 60	66 G	25 GE6 G	ET GES XGEL KGE2 GUNSOLE Parts		
OLT Device EPON 16 PORT	Qos Global Set MaxQueueCount 8				Manger	mentMode deviceBased		
- System Status	Device BaseQos Ma	ар						
 Management Config Device Upgrade Management 	cos0-> queue0				cos1->	queue4	-	
SwitchCard Attribute	cos2-> queue1				cos3->	queue5	-	
- SwitchCard Mirror	cos4-> queue2				cos5->	queue6		
MacAddress Management	cos6-> queue3				cos7.>	niene7		
Port VLAN Manegement	Device Receive R							
Vian List	Device BaseQos Policy							
Port VLAN Translation	policyModel sp							
QinQ Config	Queue Weight			Queue E	andWith((<0, 1024000>(unit:kbps))		
IGMP Management	queue0	20 queue1	30	queue0		0 ÷ queue1	0 -	
Stp Global Set	queue2	15 queue3	0	queue2		0 ÷ queue3	0	
Stp Port Set	queue4	10 - queue5	10	queue4		0 🗘 queue5	0 -	
ACL Rule	queue6	5 queue7	10	queue6		0 + queue7	0	
Apply to Port ACL Qos Global Config			Re	efresh		Set		

'Qos Global Information' management page mainly can configure 'Device BaseQos Map', 'Device BaseQos Policy', 'Queue Wieght' and 'Queue Bandwidth'. The parameters are described as follows:

Qos system parameter

Max queue count

System sets max queue count to 8. it's range from queue 0 to queue 7.

Qos management mode

System set Qos management mode to deviceBased.

Device BaseQos Map

Qos mapping table is corresponding relationship between priority and port queue. This can configure queue corresponding to the priority. The fault configuration is showing in the following table:

priority	Cos 0	Cos 1	Cos 2	Cos 3	Cos 4	Cos 5	Cos 6	Cos 7
queue	Queue 0	Queue 1	Queue 2	Queue 3	Queue 4	Queue 5	Queue 6	Queue 7

Device BaseQos Policy

Queue schedule has three modes, including sp- strict priority, WRR- Weighted Round Robin and SP+WRR. The details are follows.

> SP

Applying this mode, the system is scheduled to be dispatched strictly according to the priority of queue. Only when the high-priority queue is empty, the message of the low priority queue can be dispatched.

> WRR

Applying this mode, it needs to configure a weight for each queue, according to the weight between the queue scheduling in turn, ensure each queue can have a certain amount of services. When the priority is the same, the weight is not the same , the larger the weight of the queue, the longer the scheduling time.

SP+WRR

This mode combines the advantages of SP and WRR, and adopts SP mode when dealing with some critical business, and adopts WRR mode when dealing with some business with low real time requirement.

Queue weight

Applying in the WRR and SP+WRR two modes, the sum of eight queue weight is required to be 100. And in the WRR mode, the value of weight is not be set 0.

Queue bandwidth

Set the size of bandwidth occupied by each queue, its range from 0kbps to 1024000kbps.

Example of QoS configuration

Example: Set Qos schedule mode to SP, the specific configuration is shown below:

🗐 Control Module Managemen	t						×
P1	P3 P5 P7 P P3 P5 P7 P P4 P6 P8 P	9 P11 P13 P15 9 P11 P15 9 P	GE2 GE3 GE4		GES GET GES	XGE1 XGE2 LIN LIN CONSOLE PART PART ROWT RO	
OLT Device EPON 16 PO V	-Qos Global Set MaxQueueCount 8				MangementMode devi	ceBased	
System Status	Device BaseQos Ma)					
Management Config Device Ungrade Management	cos0-> queue0			•	cos1-> queue1		•
- SwitchCard Attribute	cos2-> guaua2			-	cos3-> лиана3		
- SwitchCardTrunkGroupConfig	cusz queuez				dueues		
- SwitchCard Mirror - MacAddress Management	cos4-> queue4			•	cos5-> queue5		•
- SniBroadcastStormSuppressi	cos6-> queue6			-	cos7-> queue7		-
Port VLAN Manegement	Device BaseQos Pol	CV.			L		
Port VI AN Config	Source Bacedoo r ci						
Port VLAN Translation	policyModel sp						
QinQ Config	Queue Weight			Queue Bar	dWith(<0, 1024000>(i	unit:kbps))	
IGMP Management	queue0	0 queue1	0	queue0		0 - queue1	0
Stp Global Set	queue2	0 - queue3	0	queue2		0 queue3	0
Stp Port Set	queued	0 0 00005	02	quound			
ACL Management Group	queue4	queues		queue4		- queues	
ACL Rule	queue6	0 queue7	0	queue6		0 queue7	0
Apply to Port ACL							
Qos Global Config			R	efresh	Set		

Example 2: Set Qos schedule mode to WRR, the specific configuration is shown below:

💷 Control Module Management							×
P1	P3 P5 P7 P1 P1 P1 P1 P1 P5 P8	P9 P11 P13 P15 11 P13 P15 12 P14 P16 P10 P12 P14 P16	2 GE1 GE2 GE3 GE4		E5 GE6	GET GES XGE1 KGE2 LONSOLE LONSOLE MAIN IST	
OLT Device EPON 16 PO	Qos Global Set MaxQueueCount 8				Mange	mentMode deviceBased	
System Status	Device BaseQos Ma	ар					
 Management Config Device Upgrade Management 	cos0-> queue0				cos1->	queue1	-
- SwitchCard Attribute	cos2-> queue2				cos3->	gueue3	
SwitchCard IrunkGroupConfig SwitchCard Mirror	cos4-> queue4				cos5->	dueue5	
MacAddress Management]7.	7	
SniBroadcastStormSuppressi Port VLAN Manegement	cosb-> queueb				COS7->	queue7	
Vlan List	Device BaseQos Po	licy					
- Port VLAN Config	policyModel wrr						-
QinQ Config	Queue Weight			Queue E	andWith	(<0, 1024000>(unit:kbps))	
IGMP Management	queue0	10 - queue1	5	queue0		0 - queue1	0 -
Stp Global Set	queue2	20 - queue3	20	queue2		0 - queue3	0 -
Stp Port Set	queue4	10 - queue5	10	queue4		0 - queue5	0
ACL Rule	queue6	5 - queue7	20	queue6		0 - queue7	0
Current ACL RULE Apply to Port ACL Qos Global Config			(All weights	of each pa efresh	rameter	add must be 100) Set	





Control Module Managemen	t						
P1	P3 F P3 F P4 F	P5 P7 P8 P11 P13 P15 P1 P2 P2 P3 P11 P1 P13 P15 P5 P5 P10 P12 P14 P16 P5 P6 P10 P12 P14 P16	1 2 <u>GE1 GE2 GE3 GE4</u> 4 00 00 00 00		5 GE6	CONSULE CONSUL	
OLT Device EPON 16 PO 👻	Qos Gl MaxQu	ilobal Set JeueCount 8			Mange	mentMode deviceBased	
System Status	Device	e BaseQos Map					
Management Config Device Upgrade Management	cos0->	v queue0		-	cos1->	queue1	-
- SwitchCard Attribute	cos2->	+ queue2		-	cos3->	queue3	-
SwitchCard Mirror	cos4->	oueue4			cos5->	queue5	
MacAddress Management		40000			1		
SniBroadcastStormSuppressi	cos6->	queue6		-	cos7->	queue7	*
Vian List	Device	e BaseQos Policy					
Port VLAN Config	policy	Model spWrr					-
Port VLAN Translation	010	e Weight			indWith	(<0.1024000>(unit-kbps))	
IGMP Management	quous		0	auouo Di		1 000 * ground	000
STP Management	queue			queueo		1,000 v quede 1	
Stp Global Set	queue	32 30 queue3	20	queue2		0 queue3	0 -
ACL Management Group	queue	e4 20 - queue5	10	queue4		0 + queue5	0 -
ACL Rule	queue	e6 0 - queue7	20	queue6		1,200 - queue7	0 -
Current ACL RULE Apply to Port ACL Ωos Global Config			(All weights of each parar	meter add	must be	100 or 0,if 0,mean sp queue) Set	
			Re	efresh		Set	

Attention: In the WRR mode, the value of weight is not be set 0. If the value of weight has 0, Qos schedule mode is SP+WRR.

6.3 OLT PON Card Management

This section introduces OLT PON Card Management function.

Double click the **'PON card'** icon on the left side of the main page and enter the **'PON Card Management'** window. The typical page is shown below:

🗾 Pon Card Management													X
P1 P3 P5 P7 P1 P3 P5 P7 P1 P3 P5 P7 P2 P4 P6 P8	P9 P1:	P13	P15	2 GE1 G 3 100 0	e2 GE3 0 00 1	GE4 56 56 10 77	GES GE6	GET GE8		1 XGE2	CONSOLI MGMT	E PIUR1 PUUR2 SYS ALARM	RST
N	Port Prop	erties											
OLT Device EPON 16 PORT 👻	Port Nam e	Operation Status	Admin St atus	MaxSupp ort OnuN um	Online On uNum	Portisolati on Enable	PerfStats Of15minu teEnable	PerfStats Of24hour Enable	MacAddr Learn Ma xNum	Max Up B andwidth	ActualUs e Up Ban dwidth	Remain U p Bandwi dth	LongEmit Detect E nable
PonPort Information	Pon-1	down down	enable enable	64 64	0	true true	false false	false false	0	1000000	0	1000000	disable disable
— Broadcast Storm Suppression — Onu Authentication Mode Table	Pon-3	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
Optical Transmission Property	Pon-4	down down	enable enable	64 64	0	true	false false	false false	0	1000000	0	1000000	disable disable
	Pon-6	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-7	down	enable enable	64 64	0	true	false false	false	0	1000000	0	1000000	disable
	Pon-9	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-10 Pon-11	down down	enable enable	64 64	0	true true	false false	false false	0	1000000	0	1000000	disable disable
	Pon-12	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-13	down	enable	64	0	true	false false	false	0	1000000	0	1000000	disable
	Pon-14 Pon-15	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-16	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
						Refresh		Set					

Through this window the user can do the following management:

- ✓ Some basic management of PON port of OLT;
- ✓ PON port storm suppression configuration;

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- ✓ Authenticate the registration of the ONU;
- ✓ View the optical power information of the PON port;

The following sections describe the functional modules involved in the switch control module management window.

6.3.1 OLT PON Port Basic Management

Double click the **'PON card'** icon on the left side of the main page to enter the **'PON port** configuration information' page of the **'PON card management window**':

P1 P3 P5 P7 Image: Image in the image	P9 P1	P13	P15	1 GE1 G 2 BE1 G 3 BE D	E2 GE3	GE4	GE5 GE6	GET GES		11 XGE2		E PINRI PINR2 SYS ALARM	RST
1	Port Prop	erties											
OLT Device EPON 16 PORT	Port Nam e	Operation Status	Admin St atus	MaxSupp ort OnuN um	Online On uNum	Portisolati on Enable	PerfStats Of15minu teEnable	PerfStats Of24hour Enable	MacAddr Learn Ma xNum	Max Up B andwidth	ActualUs e Up Ban dwidth	Remain L p Bandwi dth	LongEr Detect I nable
PonPort Information	Pon-1	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
Broadcast Storm Suppression	Pon-2	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
Onu Authentication Mode Table	Pon-3	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
Optical Transmission Property	Pon-4	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-5	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-6	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-7	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-8	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-9	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-10	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-11	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-12	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-13	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-14	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-15	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
	Pon-16	down	enable	64	0	true	false	false	0	1000000	0	1000000	disable
						Refresh		Set					

The '**PON port configuration information'** property page configures and views the PON port property parameters of the OLT. The parameters are described below:

The PON port name

Displays the PON port name on the OLT. This parameter is an unchangeable state.

Port operation status

Display the current PON port operation state, the status displays as **'UP'** when connects to an ONU or the ONU has registered under the PON port; the state displays as **'Down'** when not connected or the ONU unregistered under the PON port.

Port management status

You can configure the PON port of the OLT to be closed or on. Configure **'Enable'** to turn on the PON port; Configure **'Disable'** to turn off the PON port; The default status is **'Enable'**.

Maximum number of ONU supported

Shows the maximum number of ONU connections that can be registered under this PON port. The current display is up to 64.

> The number of online ONU

Displays the number of ONUs that are currently registered under the PON port.

PON port isolation enabled

Displays the managed state of the PON port isolation enabled, which administrators can configure for two states, namely **'True'** and **'False'**.

When set to **'True'**, the ONUs under the PON port can not communicate with each other, that is, the isolation between the ONUs. When configured as **'False'**, the ONUs under the PON port can communicate with each other.

> 15 minutes performance statistics enabled

Displays the management status of the 15 minute performance statistics enabled, administrators can configure this option for two states, namely **'True'** and **'False'**.

When set to **'True'**, the 15 minute performance statistics feature for the PON port is enabled; when configured as **'False'**, the 15 minute performance statistics for the PON port is disabled.

> 24 hours performance statistics enabled

Shows the management status of the 24 hour performance statistics enabled administrators can configure this option for two states, namely **'True'** and **'False'**.

When set to **'True'**, 24 hours performance statistics feature for the PON port is enabled; when configured as **'False'**, 24 hours performance statistics for the PON port is disabled.

The maximum number of PON port MAC address learning

Configure the maximum number of mac addresses learned by the PON port of the OLT, in the range of 0 to 8092.

maximum uplink bandwidth

Displays the maximum uplink bandwidth of the PON port .The maximum uplink bandwidth is 1000000 kbps.

The actual use of the uplink bandwidth

Displays the actual uplink bandwidth of the current PON port, the unit is kbps.

- Remaining uplink bandwidth
 - Displays the remaining uplink bandwidth of the current PON port, the unit is kbps.
- ONU long persistence light-emitting alarm enable of the PON port

Display ONU long persistence light-emitting alarm enable of the PON port management status, administrators can configure this option, respectively, **'Enable'** and **'Disable** 'two states.

When set to **'Enable'**, the ONU long persistence light-emitting alarm function of the PON port will be enabled. When the ONU is long persistence light-emitting, it will prompt the alarm and turn off the port. When configured as 'disable', the ONU long persistence light-emitting alarm function of the PON port will be disabled, when ONU is long persistence light-emitting it will not alarm.

6.3.2 PON Port Broadcast Storm Suppression

Double click the **'PON card'** icon on the left side of the main page to enter the **'Broadcast Storm Suppression'** page of the **'PON Card Management'** window, the typical page is shown below:

Marketing@cdatatec.com \$+86-755-26014509

P1 P3 P5 P7 P1 P3 P5 P7 P1 P3 P5 P7 P2 P4 P6 P8 P2 P4 P6 P8	P9 P11 P10 P12 P10 P12	P13 P15 01 P14 P16 01 P14 P16 04	GE1 GE2 GE3 GE DD DD DD DD		HET GES XGE	L XGE2	Purri Purri Sys Alarm RST
1	PonBroad	castStormSuppressio	n				
DLT Device EPON 16 PORT	Port ID	UnicastStorm Enab	UnicastStorm InPa ket Rate(pps)	Multicast Storm Ena	MulticastStorm InP cket Rate(pps)	a Broadcast Storm E able	Broa <mark>d</mark> castStorm Packet Rate(pps
	Pon-1	false	0	false	0	false	0
PonPort Information	Pon-2	false	0	false	0	false	0
Broadcast Storm Suppression	Pon-3	false	0	false	0	false	0
Onu Authentication Mode Table	Pon-4	false	0	false	0	false	0
Optical Transmission Property	Pon-5	false	0	false	0	false	0
	Pon-6	false	0	false	0	false	0
	Pon-7	false	0	false	0	false	0
	Pon-8	false	0	false	0	false	0
	Pon-9	false	0	false	0	false	0
	Pon-10	false	0	false	0	false	0
	Pon-11	false	0	false	0	false	0
	Pon-12	false	0	false	0	false	0
	Pon-13	false	0	false	0	false	0
	Pon-14	false	0	false	0	false	0
	Pon-15	false	0	false	0	false	0
	Pon-16	false	0	false	0	false	0

Enter this page to view and update settings, set the information about unknown unicast suppression enable status, unknown unicast storm suppression ingress rate, multicast storm suppression enable status, multicast storm suppression ingress rate, broadcast suppression enable status and broadcast storm suppression ingress rate. The explanation is as follows:

✓ Unknown unicast/multicast /broadcast suppression enable status

When select **'True'**, the unknown unicast / multicast / broadcast storm suppression of the port is enabled.

When select **'False'**, the unknown unicast / multicast / broadcast storm suppression of the port is disabled.

✓ Unknown unicast / multicast / broadcast input traffic limit

This option allows you to view the traffic limit, the units is PPS.

6.3.3 ONU Registration Authentication

Double click the **'PON Card'** icon on the left side of the main page to enter the **'ONU** Authentication Mode' page of the **'PON Card Management'** window, the typical page is shown below:

Pon Card Management					×
P1 P3 P5 P7 P1 P3 P5 P7 P2 P4 P6 P8	P9 P11 P13 P Image: 1 Image: 1 Image: 1 Image: 1 Image: 1 Image: 1 Image: 1 Image: 1 Image: 1 Image: 1 Image: 1 Image: 1				CONSOLE Plurei Porez Sys ALAPAN RST
OLT Device EPON 16 PORT	Onu AuthenMode mac	c ONU registed with Loid	Set	PON Port	Pon Port-1 💌
PerPort Information	ONU ID	MacAdo	dress	OperationStatus	;
- Broadcast Storm Suppression	PON-1,ONU-1	E0-67-E	33-12-08-99	offline	
Onu Authentication Mode Table					
Optical Transmission Property					
	J				
		Add	Delete Set	Del ALL	
	Non Auth Onu List	Onu Authentication Limit List			
	AutoFind Onuld	AutoFind MAC	Loid	Password	FindTime
	PON-1,ONU-1	E0-67-B3-1B-8F-8C	test	password	5400
		[auth Auth AL	L	
			Refresh		

Through this page, you can perform the following management actions:

> ONU authentication mode

Through drop-down box of the **"ONU Authentication Mode"** of top of the page to choose the authentication mode, you can select the **'Loid-password'**, **'Mac_or_loid-password'**, **'Loid'**, **'Mac_or_loid'**, **'Mac'** or **'All'** in one of six ways.

(1) Loid-password

This function is not supported currently.

(2) Mac_or_loid-password

When this option is selected, the OLT will only recognize the mac or loid + password of the ONU. Only the specified mac address or loid + password ONU can be authenticated on the line.

(3) Loid

When this option is selected, the OLT will only recognize the loid of the ONU. Only the specified loid ONU can be authenticated on the line.

(4) Mac_or_loid

When this option is selected, the OLT will only recognize the mac or loid of the ONU. Only the specified mac address or loid ONU can be authenticated on the line.

(5) Mac

When this option is selected, the OLT will only recognize the mac of the ONU. Only the ONU of the specified mac address can be authenticated.

(6) All

When this option is selected, all ONUs connected to the OLT are automatically registered on and off automatically.

PON port

This option allows you to select the specified PON port to authenticate the ONU of the PON port.

Mac-authenticated ONU

Pon Card Management						8
PI 13 15 17 PI 10 10 10 10 PI 10 10 10 PI 10 10 PI 10 10 PI 10 10 PI 10 10 PI 10 10 PI 10 P	P9 P11 P13 P1 P1 P13 P1 P10 P12 P14 P1 Onu AuthenMode mac	5 6 6 6 6 6 6 6 6 6 7 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	GE4 GE5 GE6 GE7 (Set	E3 \$2 \$1 \$652 \$2 \$1 \$10 PON Po	CONSOLE PMR1 SPIN SYS SYS SYS SYS SYS SYS SYS SYS SYS SY	
OLI Device EPON 16 PORT	ONU registed with Mac	ONU registed with Loid			Add Loid	×
PonPort Information Broadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property	ONU ID PON-1,ONU-1	MacA E0-67	.ddress 7-83-12-08-99	OperationSta offline	ONU ID 2 MAC Address Loid	
		Add	Delete Set	Del ALL	Input Ma	ac or Loid with password
	Non Auth Onu List	nu Authentication Limit Lis	t			
	AutoFind Onuld	AutoFind MAC	Loid	Password	<u></u> K	Cancel
	PON-1,ONU-1	E0-67-B3-1B-8F-8C	test	password	5400	
			auth Auth Al	L		
s			Refresh			

The list has 'ONU ID', 'Mac Address' and 'Operation Status' three items.

- ✓ **'ONU ID':** Displays the PON port ID and ONU ID of the authenticated ONU.
- ✓ **'Mac Address':** Displays the MAC address of the authenticated ONU.
- ✓ 'Operation Status': Displays the status of the authenticated ONU, both
 'Online' and 'Offline'.

Use the 'Add', 'Delete', 'Set', and 'Delete All' menus to perform the corresponding operation for the mac address or the loid-authenticated ONU.

Loid-authenticated ONU

📑 Pon Card Management		
P1 P3 P5 P7 P1 P3 P5 P7 P2 P4 P6 P8	P0 P11 P13 P15 g1 GE1 GE2 GE3 GE4 GE5 GE5 GE7 GE8 XGE1 XGE2 XGE1 XGE2 XGE1 XGE1	
OLT Device EPON 16 PORT	Onu AuthenMode Iold Set PON Port Pon Port-1 ONU registed with Loid	
PonPort Information	ONU ID Loid Password	
Broadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property	Add Delete Del ALL Non Auth Onu List Onu Authentication Limit List AutoFind Onuld AutoFind MAC Loid PON-1,ONU-1 E0-67-B3-1B-8F-8C test	ancel
	auth Auth ALL Refresh	

The list has 'ONU ID', 'Loid', 'Password' and 'Operation Status' four items.

- ✓ 'ONU ID': Displays the PON port ID and ONU ID of the authenticated ONU.
- ✓ 'Loid': Displays the Loid of the authenticated ONU.
- ✓ **'Password':** Displays the password for the authenticated ONU.
- ✓ 'Operation Status': Displays the status of the authenticated ONU which is



'Online' and 'Offline'.

Use the 'Add', 'Delete', and 'Delete All' menus to perform the corresponding operations for the loid or loid-password authenticated ONU.

List of Unauthenticated ONU

🛒 Pon Card Management					
P1 P3 P5 P7 P1 P3 P5 P7 P2 P4 P5 P8	P9 P11 P13 P1 Image: product of the state of the st	5 1 81 681 682 683 1 84 66 66			GE2 MONT
OLT Device EPON 16 PORT	Onu AuthenMode loid	ONU registed with Loid	Set	PC	N Port Pon Port-1 💌
PonPort Information Broadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property		Loid	d Dele	Password te Del ALL	OperationStatus
	Non Auth Onu List	Onu Authentication Limit Lis	t		
	AutoFind Onuld PON-1,ONU-1	AutoFind MAC E0-67-B3-1B-8F-8C	Loid test	Password password	FindTime 1000
			auth	Auth ALL	
			Ref	fresh	

The list shows all the ONU messages that have not yet been authenticated. Which has 'Auto Find ONU ID', 'Auto Find MAC', 'Loid', 'Password', 'Find Time' of these items.

- ✓ 'Auto Find ONU ID': Displays the PON port ID and ONU ID of the ONU that have not been authenticated.
- ✓ 'Auto Find MAC': Displays the MAC address of the ONU that has not yet been authenticated.
- ✓ **'Loid':** Display the ONU that has not yet been authenticated.
- ✓ 'Password': Displays the password of the ONU that has not yet been authenticated.
- 'Find Time': Displays the find time of the unauthenticated ONU, the unit is milliseconds.

In addition, the ONU is authenticated by the two buttons, 'Auth' and 'Auth all', for the ONU of the list that has not been authenticated.

Update the ONU which authenticated in the OLT through the refresh button.

List of ONU authenticated restriction

Pon Card Management		<u> </u>
P1 F3 F5 F7 F1 F1 F1 F1 F2 F4 F6 F8	F9 F13 F15 CE1 GE2 CE3 GE4 GE5 GE5 GE6 XGE1 XGE2 CONSULE Image: Imag	ST
OLT Device EPON 16 PORT	Onu AuthenMode loid Onu AuthenMode loid ONU registed with Mac ONU registed with Loid	
PonPort Information Broadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property	ONU ID Loid Password OperationStatus	
	Add BlackLis	t 💽
	Add Delete Del ALL Non Auth Onu List Onu Authentication Limit List Port	Pon-1
	ONU ID MacAddress authenBlockTime Address Address	
		K <u>C</u> ancel
	Add Delete	
	Refresh	

The list shows all ONU authenticated restriction, namely the ONU authenticated blacklist, and the ONU on which will not be authenticate online. There are **'ONU ID'**, **'Mac Address'**, **'AuthenBlockTime'** these items.

- ✓ **'ONU ID':** Displays the specific PON port and ONU ID of the blacklist ONU
- ✓ 'Mac Address': Displays the blacklist ONU Mac address
- ✓ 'AuthenBlockTime' : Displays the join time of the blacklist, the unit is milliseconds.

In addition, the 'Add' and 'Delete' buttons are used to add or remove blacklisted ONUs. Use the 'Refresh' button to update the ONU authentication restriction list.

[ONU Mac_or_password authentication mode configuration example]

Example 1: Register a ONU in the Mac_or_password authentication mode under the PON 1 port. Steps are as follows:

🛃 Pon Card Management	
P1 P3 P5 P7 Image: P1 Image: P1 Image: P1 Image: P1 Image: P1 Image: P1 Image: P1 Image: P1 Image: P1 Image: P1 Image: P1 Image: P1	P9 P11 P13 P15 P1 P1 P13 P15 P1 P14 P16 P10 P12 P14 P16 P10 P12 P14 P16
OLT Device EPON 16 PORT	Onu AuthenMode mac_or_loid-password v Set 4 PON Port Pon Port-1 v 1
	ONU ID 2 MacAddress OperationStatus
	Prompt i Set [Onu AuthenMode:mac_or_loid-password],success iii: 5
	ONU ID MacAddress authenBlockTime
	Add Delete
	Refresh
<u> </u>	

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Pon Card Management	P9 P11 P13 P15 P1 P12 P14 P16 P12 P16 P12 P14 P16 P12 P
PonPort Information Broadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property	ONU registed with Mac ONU registed with Loid ONU ID MacAddress OperationStatus Prompt i Add ONU[e0:67:b3:1b:8f:8c],SUCCESS Add Mite: 8 L
Pon Card Management	6 auth Auth ALL 7 Refresh
P1 P3 F5 P7 P2 P4 F5 P8 F P2 P4 F5 P8 F P0 P0 Port Information Proadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property	P11 P13 P15 P15 CE1 CE2 CE3 CE4 CE5 CE5 CE6 CE7 CE8 XCE1 XCE2 XCE1 XCE2 PNRT
	9 Add Delete Set Del ALL Non Auth Onu List Onu Authent Add Loid Image: Constraint of the set of
OLT Device EPON 16 PORT	P11 P13 P15 P11 P13 P15 P12 P14 P16 P12 P16 P
PonPort Information Proadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property	DNU ID MacAddress OperationStatus PON-1,ONU-1 E0-67-B3-1B-8F-8C online Prompt i 添加ONU Macde批总计: 1 成功: 0 失败: 1[E0-67-B3-1B-8F-8C] Mon Auth Onu List One 强症 13
	AutoFind Onuld FindTime FindTime Refresh

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Pon Card Management				
P1 P3 P5 P7 P P P P P P P P P P P P P P P P P P	P9 P11 P13 P15 2 GE1 2 GE1 2 GE1 2 GE1 2 GE1 2 GE1 2 3			MGMT
OLT Device EPON 16 PORT	Onu AuthenMode mac_or_loid-passwor	d Vith Loid	PON Port	Pon Port-1
PonPort Information Broadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property	ONU ID PON-1,ONU-1	MacAddress E0-67-83-18-8F-8C	OperationStatus online	
	Non Auth Onu List Onu Authentication	n Limit List	Del ALL]
	AutoFind Onuld AutoFind MAC	Loid	Password	FindTime
	,	auth Auth Al	L	
		Refresh		

Added successfully. ONU operation status is online.

[ONU loid authentication mode configuration example]

Example 1: Register a ONU in Loid authentication mode under the PON 1 port. Steps are as follows:

📑 Pon Card Management			X
P1 P3 P5 P7 P1 P3 P5 P7 P2 P4 P6 P8	P0 P11 P13 P15 Image: Distribution of the state of	E3 GE4 5 GE5 GE7 GE8	XGE1 XGE2 2 CONSOLE Puter 2 North
OLT Device EPON 16 PORT	Onu AuthenMode loid	Set 3	PON Port Pon Port-1 🔽 1
PonPort Information	ONU ID Loid	Password	OperationStatus
Onu Authentication Mode Table Optical Transmission Property	Non Auth Onu List Onu Authentication Limit	ppt example examples and the set [Onu AuthenMode:Ioid],success 原語 5	
	AutoFind Onuld AutoFind MAC	Loid Passv	word FindTime
		auth Auth ALL Refresh	

Pon Card Management				X
P1 P3 P5 P7 P1 P5 P5 P5 P7 P1 P5 P5 P5 P7 P1 P5 P5 P5 P7 P1 P5	P9 P11 P13 P15 Image Image	GE2 GE3 GE4 States GE5 GE6 GE7	GE8 XGE1 XGE2	MGMT
OLT Device EPON 16 PORT	Onu AuthenMode loid	Set Set	PON Port	Pon Port-1 🔻
PonPort Information Broadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property	ONU ID Loi	d Password Prompt i Add ONU[e0:67:b3:1b:8f:1 قات 8	i Ope	rationStatus
	AutoFind Onuld AutoFind M	IAC Loid	Password	FindTime
	PON-1,ONU-1 E0-67-B3-	1B-8F-8C test	password	1600
7 auth Auth ALL Refresh				

Pon Card Management					
P2 F4 P6 P8	PIO PI2 PI4 PI6				
OLT Device EPON 16 PORT	Onu AuthenMode Iloid Set PON Port Pon Port-1 ONU registed with Loid				
PonPort Information Broadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property	Port Information adcast Storm Suppression Authentication Mode Table ical Transmission Property				
	9 Add Delete Del ALL Non Auth Onu List Onu Authenti Add Loid				
	Auto-Ind Onuid Auto-Ind 10 ONU ID 2 Loid itest Password				
	12 <u>QK</u> <u>Cancel</u>				

Pon Card Management			X
P1 P3 P5 P7 P1 P3 P4 P5 P7 P2 P4 P5 P8 P8	P9 P11 P13 P15 Image: Display in the state of the s		XGE2 MONT
OLT Device EPON 16 PORT	Onu AuthenMode Ioid	Set	PON Port Pon Port-1
PonPort Information	ONU ID Loid	Password	OperationStatus
Broadcast Storm Suppression	PON-1,ONU-1 test	password	online
Optical Transmission Property	Decement		a
	Non Auth Onu List Onu Authenticati		
		13 确定	
	AutoFind Onuld AutoFind M		FindTime
		auth Auth ALL	
		Refresh	
J			



ONU operation status is online.

Pon Card Management				
P1 F3 F5 F7 F1 F5 F	P9 P11 P13 P15 P1 P1 P1 P1 P1 P10 P12 P14 P16 2 6	E1 GE2 GE3 GE4 6 00 00 00 00 00 00 00 00 00 00 00 00 00	GEG GET GES XGE1 XGE2 Lyllyly 82	CONSOLE Prints Prints SYS Modifi
OLT Device EPON 16 PORT	Onu AuthenMode loid	▼ Set gisted with Loid	PON F	Port Pon Port-1
- PonPort Information	ONU ID L	oid	Password	OperationStatus
- Broadcast Storm Suppression	PON-1,ONU-1 te	est	password	online
Optical Transmission Property				
	1	Add Delet	te Del ALL	
	Non Auth Onu List Onu Authenti	ication Limit List		
	AutoFind Onuld AutoFine	d MAC Loid	Password	FindTime
		auth	Auth ALL	
		Ret	fresh	

[ONU blacklist authentication mode configuration example]

Example 3: Add a ONU blacklist at the PON 1 port. Steps are as follows:

🚽 Pon Card Management	
P1 F3 F5 F7 F1 F3 F5 F7 F1 F3 F5 F7 F2 F4 F6 F8	P3 P11 P13 P15 P1 P13 P13 P15 P10 P12 P14 P16 P14 P1
OLT Device EPON 16 PORT	Onu AuthenMode mac_or_loid-password Set PON Port Pon Port-1 ONU registed with Mac ONU registed with Loid ONU ID MacAddress Port Pon-1 ONU ID 1 MacAddress E0-67/B3-33-A6-8C ONU ID 1 MacAddress authenBlockTime ONU ID 1 MacAddress Add Delete Refresh

Pon Card Management	8
P1 P3 P5 P7 Image: P1 Image: P2 Image: P3 Image:	F8 F11 F13 F13 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01 F01
OLT Device EPON 16 PORT	Onu AuthenMode mac_or_loid-password Set PON Port Pon Port-1 ONU registed with Mac ONU registed with Loid
	ONU ID MacAddress OperationStatus
Broadcast Storm Suppression	Prompt
Onu Authentication Mode Table	
opical mananisation roperty	Add [E0-67-B3-33-A6-8C] to BlackList, success!
	7 编定 1ALL
	Non Auth Onu List Onu Authentication Limit List
	ONU ID MacAddress authenBlockTime
	Add Delete
	Refresh

Added a ONU blacklist successfully.

🗾 Pon Card Management	
P1 P3 P5 P7 P1 P3 P5 P7 P2 P4 P6 P5 P7 P2 P4 P6 P5	P9 P11 P13 P15 CONSULE CONSU
OLT Device EPON 16 PORT	Onu AuthenMode mac_or_loid-password Set PON Port Pon Port-1 ONU registed with Mac ONU registed with Loid
PerPet Information	ONU ID MacAddress OperationStatus
Broadcast Storm Suppression Onu Authentication Mode Table Optical Transmission Property	Add Delete Set Del ALL
	Non Auth Onu List Onu Authentication Limit List
	ONU ID MacAddress authenBlockTime
	Pon-1,Onu-1 E0-67-B3-33-A6-8C 10000
	Add Delete
	8 Refresh

6.3.4 View OLT PON port optical Power Information

Double click the **'PON Card'** icon on the left side of the main page to enter the **'Optical Transmission Property'** page of the **'PON Card Management'** window. The typical page is as follow:

Pon Card Management	P3 P11 P13 P15	CE1 GE2 GE3 GE4	GES GES GET GES SI VOET	XGE2 WGHT WGHT KGHT
	Port Properties			
OLT Davias EPON 16 POPT	PonPort ID	Voltage(V)	Current(mA)	TxPower(dBm)
	Pon-1	3.38	26.0	4.1
	Pon-2	0.0	0.0	0.0
	Pon-3	0.0	0.0	0.0
Broadcast Storm Suppression	Pon-4	0.0	0.0	0.0
Onu Authentication Mode Table	Pon-5	0.0	0.0	0.0
Optical Transmission Property	Pon-6	0.0	0.0	0.0
	Pon-7	0.0	0.0	0.0
	Pon-8	0.0	0.0	0.0
	Pon-9	0.0	0.0	0.0
	Pon-10	0.0	0.0	0.0
	Pon-11	0.0	0.0	0.0
	Pon-12	0.0	0.0	0.0
	Pon-13	0.0	0.0	0.0
	Pon-14	0.0	0.0	0.0
	Pon-15	0.0	0.0	0.0
	Pon-16	0.0	0.0	0.0
			Refresh	

Enter this page to view and update the voltage, current, and transmit power of each PON port module.

✓ Voltage

Current OLT PON port optical module operating voltage, the unit is V.

- ✓ Current status
 Current OLT PON port optical module operating current, the unit is V.
- ✓ transmission power
 Current OLT PON port optical module transmission power, the unit is dbm.

6.4 Single PON Ports Manage

Double click the **'Port -1'** icon under the **'PON Card'** on the left side of the main page and enter the **'PON Card Management'** page. The typical page is as follows:
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Pon Port Pon-1					
Basic Config OperationStatus	Úp	-	Admin Status	enable	
MaxSupport OnuNum	64		Online OnuNum	1	
PortIsolation Enable	true	•	PerfStatsOf15minuteEnable	false	
PerfStatsOf24hourEnable	false	-	Max Up Bandwidth	1000000	
ActualUse Up Bandwidth	0		Remain Up Bandwidth	1000000	
Port Name	pon1		LongEmit Detect Enable	disable	
Voltage(V)			Current(mA)		
			PyPower(dPm)		

In this page, you can view the PON port, port operation status, port management status, the maximum number of ONU supported, online ONU number, PON port isolation enable, 15 minutes performance statistics enable, 24 hour performance statistics enable, maximum uplink bandwidth, Actual use of bandwidth, the remaining uplink use bandwidth, PON port name, ONU long persistence light-emitting alarm enable of the PON port, voltage, current, transmission power, receive power and other information. The following is a brief introduction to these parameter:

Pon port

Display the port to which the Pon port page belongs. The current port belongs to the PON1 port.

Port operating state

The status of the port is shown as **'Up'** and **'Down'** respectively. When the status is **'Up'**, it indicates that the port is working normally. When the status is **'Down'**, it indicates that the port is offline and does not work.

Port management status

Display the management status of the port, administrators can configure this option, there are **'Enable'** and **'Disable '**two states.

When set to **'Enable'**, the port is enabled, which means the port can communicate normally. When configured as **'Disable'**, the port will be disabled, and the port will not be able to communicate.

Maximum number of ONUs supported

It shows the maximum number of ONU connections that can be registered under this PON port. The maximum current display is 64.

Number of online ONU

Display the number of ONU currently registered under the PON port.

Enable ONU port isolation
 Displays the managed state of the PON port isolation enabled, which administrators can

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configure for two states, namely 'True' and 'False'.

When set to **'True'**, the ONUs under the PON port can not communicate with each other, that is, the isolation between the ONUs. When configured as **'False'**, the ONUs under the PON port can communicate with each other.

15 minutes performance statistics enabled

Displays the management status of the 15 minute performance statistics enabled, administrators can configure this option for two states, namely **'True'** and **'False'**.

When set to 'True', the 15 minute performance statistics feature for the PON port is enabled; when configured as 'False', the 15 minute performance statistics for the PON port is disabled.

> 24 hours performance statistics enabled

Shows the management status of the 24 hour performance statistics enabled administrators can configure this option for two states, namely **'True'** and **'False'**.

When set to **'True'**, 24 hours performance statistics feature for the PON port is enabled; when configured as **'False'**, 24 hours performance statistics for the PON port is disabled.

maximum uplink bandwidth

Displays the maximum uplink bandwidth of the PON port .The maximum uplink bandwidth is 1000000 kbps.

The actual use of the uplink bandwidth

Displays the actual uplink bandwidth of the current PON port, the unit is kbps.

Remaining uplink bandwidth

Displays the remaining uplink bandwidth of the current PON port, the unit is kbps.

The PON port name

Displays the PON port name on the OLT. The administrator can set the name of the port for administrator management. Supports 1-17 characters.

The PON port of the ONU long persistence light-emitting alarm enable

Display PON port of the ONU long persistence light-emitting alarm enable management status, administrators can configure this option, respectively, **'Enable'** and **'Disable'** two states.

When set to **'Enable'**, the ONU long persistence light-emitting alarm function of the PON port will be enabled. When the ONU is long persistence light-emitting, it will prompt the alarm and turn off the port. When configured as **'Disable'**, the ONU long persistence light-emitting alarm function of the PON port will be disabled, when ONU is long persistence light-emitting it will not alarm.

Voltage

Displays the operating voltage of the current PON module, the unit is V.

Current

Displays the operating current of the current PON module, the unit is mA.

Transmission Power

Displays the transmission power of the current PON module, the unit is dBm.

Received Power

Displays the received power of the current PON module, the unit is dBm.

7 ONU Device Management

7.1 ONU Device Management Introduction

ONU is the user end device in EPON system. EMS software manages the accessed ONU devices through their registered OLT device. OLT device transmits management operations received from EMS software to accessed ONUs through OAM frames defined based on IEEE802.3ah standard.

EMS software supports a variety of types and models of ONU equipment management, such as 1FE port ONU, 4FE port ONU, 8FE port ONU, 24FE port ONU, 1FE+1GE port ONU, 4FE+2POTS ONU, 4FE+1CATV ONU, 4FE+2POTS+1CATV ONU and so on .

This part use the 4FE+CATV port type ONU as an example to introduce EMS management software on ONU equipment, pure data ONU which is configured under different port and data part of the multi service ONU are basically managed in the same way through the EMS software , different sections are introduced in the relevant document for the type of device that should be available.

Double click the selected ONU device icon on topology-tree list to open **'ONU Management'** window. The function pages located on this window contain all the management features for this type ONU device. The typical ONU management window page is shown as follows:

	and the second	(
			4 3 2 1 LNKACT • • • •	CATY PWR	•••
OLT Device	EPON 16 PORT	Onu Basic Inform	ation		
Pon Card	Pon Module 👻	ONU Name	ONU-1	ONU Type	ONU4FE
Pon Port	Port-1	MacAddress	E0-67-B3-1B-8F-8C	OperationStatus	up .
UNC	[1B:8F:8C]ON 👻	AdminStatus	up 🔽	Chip Vendor	82-76
Onu Bas	sic Information	ChipType	1502	TestDistance	6 m
Onu Por Onu Car	Port Trans Information	Onu Llidld	1	Online time	369
Onu Sla	Information	ONU Vendor Id	PON	ONU Model Id	434R(0x34333452)
Port Rate	t Manegement e Limit	HardwareVersion	V1.2	ChipVersion	00
ONU Po	rt VLAN	SoftwareVersion	V1.2.4	FirmwareVersion	31-2e-31-2e-32-20-41-70-72-20-31-37-20-
ONUIGN	NP	SerialNumber	50-4f-4e-56-31-2e-32-56-31-2e	LastRegisterTime	2000/1/1 01:03:47.0
			Refresh Set	Reboot	Save

As shown above, the ONU device management includes the following:

- ✓ Device interface indicate lamp working condition
- ✓ ONU Basic Information

- ✓ ONU basic operations, such as refresh, configure, restart, etc.
- ✓ ONU Port Transfer Information
- ✓ ONU Capability Information
- ✓ ONU Sla Information (upstream/downstream rate limit configuration)
- ✓ ONU Port Management
- ✓ ONU Port rate limit
- ✓ ONU Port VLAN
- ✓ ONU IGMP

Following sections introduce these ONU management features.

7.2 ONU Basic Information Management

7.2.1 ONU Indicator Status

Usually, the device panel diagram will be displayed on the ONU management window. On this diagram, all the working LED indicators show the actual working EPON OLT User Manual-EMS Software status. See the following example figure.

I ONU Ma	🗐 ONU Management					
			4 3 2 1	1 CATY PW		
OLT Device	EPON 16 PORT	Onu Basic Inform	ation			
Pon Card	Pon Module 👻	ONU Name	ONU-1	ONU Type	ONU4FE	
Pon Port	Port-1	MacAddress	E0-67-B3-1B-8F-8C	OperationStatus	up	
ONU	[1B:8F:8C]ON 🔻	AdminStatus	up	Chip Vendor	82-76	
Onu Bas	ic Information	ChipType	1502	TestDistance	6 m	
Onu Pon	Port Trans Information	Onu Llidld	1	Online time	369	
Onu Sla	Information	ONU Vendor Id	PON	ONU Model Id	434R(0x34333452)	
Onu Port Port Rate	Manegement E Limit	HardwareVersion	V1.2	ChipVersion	00	
- ONU Por	t VLAN	SoftwareVersion	V1.2.4	FirmwareVersion	31-2e-31-2e-32-20-41-70-72-20-31-37-20-3:	
ONU IGN	IP	SerialNumber	50-4f-4e-56-31-2e-32-56-31-2e	LastRegisterTim	e 2000/1/1 01:03:47.0	
				_		
			Refresh Set	Reboot	Save	

7.2.2 ONU Basic Information View

Double click the ONU which you wanted to manage on the left side of the main page , enter the ONU management page , click on **'Basic Information'** into the **'Basic Information'** page, the page displays the basic information of the device.

📕 ONU Management				
		4 3 2 1	CATY O	
OLT Device EPON 16 PORT	Onu Basic Inform	ation		
Pon Card Pon Module 💌	ONU Name	ONU-1	ONU Type	ONU4FE
Pon Port Port-1	MacAddress	E0-67-B3-1B-8F-8C	OperationStatus	up
DNU [1B:8F:8C]ON	AdminStatus	up 🗸	Chip Vendor	82-76
Onu Basic Information	ChipType	1502	TestDistance	6 m
Onu PonPort Trans Information Onu Capability Information	Onu Llidld	1	Online time	369
Onu Sla Information	ONU Vendor Id	PON	ONU Model Id	434R(0x34333452)
- Onu Port Manegement - Port Rate Limit	HardwareVersion	V1.2	ChipVersion	00
ONU Port VLAN	SoftwareVersion	V1.2.4	FirmwareVersion	31-2e-31-2e-32-20-41-70-72-20-31-37-20-3:
UNU IGMP	SerialNumber	50-4f-4e-56-31-2e-32-56-31-2e	LastRegisterTime	2000/1/1 01:03:47.0
		Refresh Set	Reboot	Save

On this page, user can view ONU name, ONU type, ONU MAC Address, ONU Operation Status, ONU Chip Vendor, ONU Chip Type, ONU Test Distance, ONU LLID ID, ONU Online time, ONU Vendor Id, ONU Mode Id, ONU Hardware Version, ONU Chip Version, ONU Software version, ONU Firmware Version, ONU Serial Number, Last Register Time. Following are explanations for some special parameters.

ONU Name

This configuration can name ONU and distinguish the role of each ONU.

ONU Testing distance

Shows the fiber distance between the ONU and the OLT, distance below 6 meters shows the initial distance to 6 meters by default.

ONU Management Status

There are three ONU management states to set ONU port status enabled or disabled. Set to **'Up'** to open the port, set to **'Down'** to close the port , **'Testing'** state cannot be used at present,You can refresh, setup, restart and save the configuration operation on ONU through the function button at the bottom of the page.

7.3 ONU PON Port Optical Power Information

Double click ONU which is managed in the left of main interface , then enter ONU management interface. Click **'ONU PON Port Trans Information '**, then enter **'ONU PON Port Trans Information'** page.

🛒 ONU M	Management				:
			4 3 2 1 4 3 2 1	CATY	
OLT Device	e EPON 16 PORT	Onu PonPort Trans Inform	ation		
Pon Card	Pon Module 👻	ONU DeviceID	ONU-1	Received OpticalPower	-10.92dBm
Pon Port	Port-1	Tramsmitted OpticalPower	1.67dBm	BiasCurrent	17.3mA
ONU	[1B:8F:8C]ON 👻	Working Voltage	3.33V	Working Temperature	41°C
- Onu Por Port Rat - ONU Po - ONU IGI	rt Manegement le Limit vrt VLAN MP		Refi	resh	

This page displays ONU Device ID, ONU Received Optical Power, ONU Transmitted Optical Power, ONU Bias Current, ONU Working Voltage, ONU Working Temperature.

ONU Device ID

The index name of ONU corresponding to pon port for user to view ONU's location.

ONU Received Optical Power

This displays ONU received Optical Power, in dBM.

➢ ONU

This displays ONU transmitter Optical Power, in dBM.

ONU Bias Current

This displays ONU Bias Current, in mA.

ONU Working Voltage

This displays ONU Working Voltage, in V.

ONU Working temperature

This displays ONU Working temperature, in $^\circ\!\mathrm{C}.$

7.4 ONU Capability Information

Double click ONU which is managed in the left of main interface , then enter ONU management interface. Click **'ONU Capability Information'** , then enter **'ONU Capability Information'** page.



🗾 ONU M	lanagement				>
			4 3 2 1 ct 4 3 2 1	CATV .	
OLT Device	EPON 16 PORT	Onu Capability Informati	on		
on Card	Pon Module 👻	ONU ID	ONU-1	GePortNum	0
on Port	Port-1	FePortNum	4	UplinkQueueNum	8
NU	[1B:8F:8C]ON 🔻	MaxUplinkQueueNum	8	DownlinkQueueNum	8
Onu Basi	ic Information	MaxDownlinkQueueNum	8	Fec Enable	false
Onu Poni	Port Trans Information				true
- Onu Sla I	Information				false
Onu Port	Manegement				
ONU Por	t VLAN				
ONU IGM	IP				
			Refresh	Set	

This page displays ONU ID, ONU Ge Port Number, ONU Fe Port Number, Uplink Queue number, Max Uplink Queue number, Downlink Queue number, Max Downlink Queue number, also can set fec function .

Explain:

Setting ONU FEC function has two options, including **'True'** and **'False'**. **'True'** is on FEC function. **'False'** is off FEC function. Choose **'True'** or **'False'**, and click **'Set'** button on the page to complete the settings.

FEC is a very important anti-interference algorithm. Open FEC to reduce symbol error rate of digital signal and improve reliability of signal transmission.

7.5 ONU Sla Configuration

Double click ONU which is managed in the left of main page, then enter ONU management page. Click **'ONU SIa Information'**, then enter **'ONU SIa Information'** page.

🗾 ONU Management		×
OLT Device EPON 16 PORT	Onu Sla Information	
Pon Card Pon Module	DownlinkFixedBW 0 UplinkFixedBW	0 -
Pon Port Port-1	DownlinkCommittedBW	0 -
ONU [1B:8F:8C]ON 👻	DownlinkPeakBW 1,000,000 + UplinkPeakBW	1,000,000
Onu PonPort Trans Information Onu Capability Information Onu Sta Information Onu Port Manegement Port Rate Limit ONU Port VLAN ONU IGMP	(bandwidth value must be : max ≻= assure ≻= fix.) Refresh Set	

In the EPON network, after ONU registers successfully, it's uplink OLT device will assign one logic link for it, identified by LLID. In downstream direction, OLT add LLID filed to the received standard Ethernet frame then send them to all registered ONU devices. In upstream direction, OLT schedule and forward upstream packets based on the logic links registered by ONU devices.

On the page, network manager can view and configure SLA up/down link Fixed BW, SLA up/down link Committed BW, SLA up/down link Peak BW. Attention: bandwidth value must be: max>=assure>=fix.

Following subsections introduce the logic link management parameters:

Min assure bandwidth

Min assure bandwidth is the min bandwidth of dynamic bandwidth allocation algorithm for the link assigned. DBA also assure that the link can achieve min assure bandwidth. It's the lower limit of dynamic bandwidth allocation.

The setting range of Min assure bandwidth is : 0~1000000, in kbps, and fault value is 0.

Attention: The SLA configuration failed when the min assure bandwidth of all links under a PON was greater than 1G.

Max assure bandwidth

Max assure bandwidth is the max bandwidth of dynamic bandwidth allocation algorithm It's the upper limit of dynamic bandwidth allocation. If the link bandwidth is not limited, it is recommended to set it to 1000Mbps.

The setting range of Max assure bandwidth is : $0^{1000000}$, in kbps, and fault value is 10000.

Max burst byte

The setting range of Max burst byte is : 1~256, in Kbytes.

7.6 ONU Port Configuration

Double click the ONU which you want to manage on the left of the main page, enter the ONU management page, click on **'ONU Port Management'**.

🥶 ONU Management		
OLT Device EPON 16 PORT	ONU Port port-1	
Pon Card Pon Module	Port Management Status	
Pon Port Port-1	ONU ID ONU-1	Port ID 1
ONU [1B:8F:8C]ON 👻	AdminStatus up 🗣	OperationStatus down
- Onu Basic Information	AutoNegotiationEnable true	MaxMacAddrLearnNum 0
Onu PonPort Trans Information Onu Canability Information	PerformanceStatsEnable false	
Onu Sla Information Onu Port Manegement Port Rate Limit ONU Port VLAN ONU IGMP	Local TechAbility RestartAutoNegotiation	▼
	Uni MacAddr Management MacAgingTime 0	- Mac Clear
	Refresh	Set

This section describes the management function and parameter configuration for ONU user ports.ONU user port management includes the following:

Port Management Status

'Port Management Status' You can view ONU ID,port ID, operation status, local equipment ability, admin status, port auto negotiation enable, max MAC address learning number, performance status enable, restart the auto negotiation and so on of the selected port.

Through this page, you can set the management status which are up, down, and testing three options, the maximum number of MAC address learning, the port auto-negotiation enable, the current performance acquisition enable , start auto-negotiation and other parameters of the selected port. When the port enable status is **'False'**, the port corresponding function is turned off. When the port enable state is **'True'**, the port corresponding function is turned on.

Admin Status

The port management state has three options: up, down, testing, which means port activation, port is not activated, and the testing option is not available.

Auto Negotiation Enable

Auto Negotiation Enable has true and false options, true means to enable auto negotiation, and false to disable auto negotiation.

The port auto-negotiation mode is that determines the port rate and duplex mode according to the actual speed of the device connected to the ONU.

Performance Status Enable

Configure the ONU performance statistics switch, 'False' means to disable the ONU

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performance statistics, and 'True' means to enable ONU performance statistics.

Max MAC Address Learning Number

Configure the maximum number of MAC addresses learned by the ONU, and that will not be learned when the maximum number of MAC addresses in the MAC address table of the ONU reaches the maximum number of the maximum settings.

Restart Auto Negotiation

You can restart the auto negotiation manually by selecting restart.

Uni MAC Address Management

You can configure the MAC aging time and MAC clear of the OLT as follows.

Mac Aging Time

Set the MAC aging time of the ONU, the MAC addresses learned by ONU will automatically be cleaned up after this time.

Mac Clear

Select allDynamc, and click the 'Set' button to clean up the MAC address.

7.7 ONU Port Rate Limit Configuration

Double click the ONU to be managed on the left side of the main page, enter the ONU management page, and click **'Port Rate Limit'**.

🚰 ONU Management	
OLT Device EPON 16 PORT V	ONU Port port-1
Pon Card Pon Module	Input Rate Limit
Pon Port Port-1	InRateLimitEnable
	InCIR(<64-1024000>kbps)
Onu Basic Information Onu PonPort Trans Information	InCBS(<64-1024000>kbyte)
Onu Capability Information	InEBS(<2000-1024000>kbytes)
Onu Port Manegement	
- Port Rate Limit - ONU Port VLAN	
ONU IGMP	Output Rate Limit
	OutRateLimitEnable
	OutCIR(<64-1024000>kbps)
	OutPIR(<64-1024000>kbyte)
	Refresh Set

Input Rate Limit

The figure above can set port input rate limit to enable state, committed information rate(64-1024000kbps), committed burst size(64-1024000kbyte) and excess burst 82 / 100

size(2000-1024000 kbytes). When the enable status is **'False'**, the port function is turned off and the port function is turned on when the enable status is **'True'**.

Output Rate Limit

The figure above can set port output rate limit to enable state, committed information rate(64-1024000kbps), peak information rate(64-1024000kbyte). When the enable status is **'False'**, the port function is turned off and the port function is turned on when the enable status is **'True'**.

[Example of ONU Port Rate limit configuration]

Example: Enable the rate limit on the fourth port of the ONU. The committed information rate of the input limit is 200 kbps. The committed burst size is 300 kpbs. The excess burst size is 3000 kpbs. The committed information rate of the output limit is 200 kpbs and the peak information rate is 3000 kbps.

🛃 ONU Management	
OLT Device EPON 16 PORT Pon Card Pon Module Pon Port Port-1 ONU [1B:8F:8C]ON Onu Basic Information Onu PonPort Trans Information Onu Capability Information	ONU Port port-4 Imput Rate Limit InRateLimitEnable true InCIR(<64-1024000>kbyts) 200 - InCBS(<64-1024000>kbyte) 300 InCBS(<2000-1024000>kbytes) 3,000
Onu Sla Information Onu Port Manegement Port Rate Limit ONU Port VLAN ONU IGMP	Output Rate Limit OutRateLimitEnable True OutCIR(<64-1024000>kbps) 200 - OutEIR(<64-1024000>kbps) 200 - 200 - 300h -
	Refresh Set

7.8 ONU Port VLAN Configuration

Double click the ONU which you want to manage on the left of the main page, enter the ONU management page, click on **'ONU Port VLAN '**.

🛃 ONU Management	
OLT Device EPON 16 PORT	UNKACT 4321 OPTIN INVACT 4321 UNKACT 4321 UNKACT VLAN model transparent
Pon Port Pon Port ONU [1B:8F:8C]ON ▼ ONU Onu Basic Information Onu Capability Information Onu Sla Information Onu Sla Information Onu Port Manegement Port Rate Limit ONU Port VLAN	Priority 0 PVID transparent tag translation aggregation trunk
- ONU IGMP	Refresh

In this page, you can view and configure the selected ports VLAN mode, priority, port, VLAN, ID and so on.

ONU supports five port VLAN modes: **Transparent mode, Tag mode, Translate mode, Aggregation mode, Trunk mode**. These five modes are introduced as follows.

Transparent mode

ONU equipment for processing the received uplink Ethernet frame mode is not any treatment of the Ethernet frame (regardless of whether the Ethernet frame with VLAN Tag) transparent to the Ethernet frame forwarding; for downstream is transparent forwarding mode.

Direction	With VLAN Tag	Operation
Upstream	YES	Make no changes to Ethernet packets (keep the original VLAN Tag),
		forward.
	NO	Make no changes to Ethernet packets, forward.
Downstrea	YES	Make no changes to Ethernet packets (keep the original VLAN Tag),
m		forward.
	NO	Make no changes to Ethernet packets , forward.

Tag mode

The ONU device processes the received uplink Ethernet frame by adding a VLAN tag to it; for the downstream Ethernet frame, stripping its VLAN tag.

Direction	With VLAN Tag	Operation			
Upstream	YES	Discard this packet.			
	NO	Add default VLAN Tag to this packet and forward.			
Downstream	YES	If the VID is not equal to the port default VLAN ID, discard this packet. Otherwise strip the VLAN Tag of this packet and forward.			
	NO	Discard this packet.			

Translate mode

The ONU device translates the user-tagged VLAN tag (the VID may not be its own, and may have the same VID among other users in the same system) to the unique VLAN tag. Downstream to perform the opposite operation.

Direction	With VLAN Tag	Operation			
Upstream	YES	If the VID of a packet equal to the CVLAN ID of a certain translation			
		entry, overwrite the packet VID with this entry's SVLAN ID and			
		forward this packet's; If the VID of a packet is not equal to any			
		translation entry's CVLAN ID, discard this packet.			
	NO	Add default VLAN Tag to this packet and forward this packet.			
Downstream	YES	If the VID of a packet equal to the SVLAN ID of a certain translation			
		entry, overwrite the packet's VID with this entry's CVLAN ID and			
		forward this packet; If the VID of a packet is not equal to any			
		translation entry's SVLAN ID.			
		discard this packet.			
	NO	Discard this packet.			

Aggregation mode

The ONU device aggregated the upstream multiple VLAN into the only network side VLAN ID, and mapped the upstream traffic (VLAN Y) to the corresponding multiple VLAN.

Direction	With VLAN Tag	Operation				
Upstream	YES	If the VID of a packet equal to a ' aggregated VLAN ' of the port of				
		VLAN polymerization table , overwrite the packet's VID with 'V				
		to VID be aggr.', recorded the source MAC address of the serv				
		flow and forward this packet; If the VID of a packet not equal to				
		aggregated VLAN ' of the port of VLAN polymerization				
		table,discard this packet.				
		The only requirement for VID conversion equipment and other				
		fields (such as TPID, CFI and Pri) conversion temporarily, the				
		equipment should be converted to the default TPID (TPID=0x8100),				
		Pri keep original value.				
	NO	Add default VLAN Tag to this packet and forward this packet.				
Downstream	YES	If the VID of a packet equal to a 'VLAN to VID be aggr.' of the port				
		of VLAN polymerization table , according to the MAC address or				
		Cos to the converted VID to corresponding ' aggregated VLAN ' an				
		forward this packet; if VID is the default VID, stripping the Tag and				
		forward; if the VLAN ID is not equal to 'VLAN to be aggr.' or default				
		VLAN ID, discard this packet.				
		Currently, only VID conversion is required for the device, and				
		conversions to other fields (such as TPID, CFI, and Pri) are not				
		required. The equipment should set transformed TPID of the VLAN				
		Tag to the default value (TPID=0x8100), Pri maintains the original				
		value.				
	NO	Discard this packet.				

Trunk mode

The port VLAN configure to Trunk mode allows the port to pass through multiple VLAN at the same time, and is generally used for connections between network devices. The packet handling mode of the port in Trunk mode is shown in the following table.

Direction	With VLAN Tag	Operation			
Upstream	YES	If the packet's VID exist in the VLAN Trunk allow list or equal to the			
		port default VLAN ID, forward this packet, otherwise discard this			
		packet.			
	NO	Add default VLAN Tag to this packet and forward this packet.			
Downstream	YES	If the packet's VID equal to the port default VID, strip the VLA			
		Tag of this packet and forward this packet.			
		f the packet's VID not equal to the port default VID but exist in			
		the VLAN Trunk allow list, forward this packet.If the packet's VID			
		not equal to the port default VID and not exist in the VLAN Trunk			
		allow list, discard this packet.			
	NO	Discard this packet.			

[Example of ONU transparent mode VLAN configuration]

Example: Set the VLAN mode of the ONU port 1 to transparent mode.

In the drop-down menu on the right side of the VLAN mode, select transparent and click the **'Set'** button to complete the setup.

🛒 ONU Management	
OLT Device EPON 16 PORT	ONU Port port-1
Pon Card Pon Module	Priority 0 VID 1
Pon Port Port-1 ONU [1B:8F:8C]ON	Set
Onu Basic Information Onu Capability Information Onu Capability Information Onu Capability Information Onu Sla Information Onu Port Manegement Port Rate Limit ONU Port VLAN ONU IGMP	Refresh

Example of ONU tag mode VLAN configuration

Example: Set the VLAN mode of the ONU port 1 to tag mode, pvid to 100.

In the drop-down menu on the right side of the VLAN mode, select tag and click the **'Set'** button to complete the setup.



OLT Device EPON 16 PORT Pon Card Pon Card Pon Port Pon Port ONU 1188F:8CjON Onu Gapability Information Onu Gapability Information Onu Gapability Information ONU Port Rate Limit Pon Nut Jon VLAN ONU Port Nanegement Pon VLAN ONU GMP	🛃 ONU Management	
OLT Device EPON 16 PORT Image: Construction of the construction o		
Refresh	OLT Device EPON 16 PORT Pon Card Pon Module Pon Port ONU [IB:8F:8C]ON Onu Basic Information Onu PonPort Trans Information Onu Sta Information Onu Sta Information Onu Port Manegement Port Rate Limit ONU Port VLAN ONU IGMP	ONU Port port-1 VLAN model tag Priority PVID 1 Set

[Example of ONU translation mode VLAN configuration]

Example: Set the VLAN mode of the ONU port 1 to the translation mode, PVID to 100, CVLAN to 400, and SVLAN to 500. Proceed as follows:

In the drop-down menu on the right side of VLAN mode, select translation, click the **'Set'** button, set the PVID to 100, and then the port VLAN conversion entry, click the **'Add'** menu, in the pop-up **'Add VLAN Translation'** dialog box, enter the value of CVLAN and SVLAN, and then click the **'OK'** menu to complete the setup. In addition, click the **'Delete'** menu to delete this setting. Click the **'Refresh'** menu to update these actions.

🛃 ONU Management			23
		2 1 DATY • PWR • •	
OLT Device EPON 16 PORT Pon Card Pon Module Pon Port Port-1 ONU [1B:8F:8C]ON	ONU Port port-1 Priority	VLAN model translation VID Set	1 (m)
Onu Basic Information Onu Capability Information Onu Capability Information Onu Capability Information Onu Sla Information Onu Port Manegement Port Rate Limit ONU Port VLAN ONU IGMP	Port VLAN Translation Port ID ONU-1 1 ADD Translation VLAN CVLAN SVLAN QK QAN Refresh	CVLAN ID 400 400 500 :	SVLAN ID 500

Example of ONU aggregation mode VLAN configuration

Example: Set the VLAN mode of the ONU port 1 to Aggregation mode, PVID to 1, CVLAN to 900, and SVLAN to 901-905.

Select Aggregation from the drop-down menu on the right side of the VLAN mode, click **'Set'**, then the contents of the port VLAN aggregation management entry, click the **'Add'** menu, and in the pop-up **'Add Aggregate VLAN'** dialog box, you can select the mode of **'Multiple VLAN'** and **'Single VLAN'**. The input mode of **'Single VLAN'** is similar to the translation mode, here to select the input of **'Multiple VLAN'** Mode, for example, enter the aggregate VLAN ID, the starting VLAN and terminate the VLAN value, then click on the **'OK'** menu to complete the settings. In addition, click the **'Delete'** menu to delete the entry for this setting . Click the **'Refresh'** menu to update these actions.

🛃 ONU Management				8
		4 3 2 1	2 1 DATY • PWR •	•
OLT Device EPON 16 PORT Pon Card Pon Module Pon Port ONU [18:8F:8C]ON	ONU Port port-1 Priority		VLAN model aggregation VID Set	
Onu Basic Information Onu Capability Information Onu Capability Information Onu Sla Information Onu Port Manegement Port Rate Limit ONU Port VLAN ONU IGMP	Port VLAN Aggregat	ion Port ID 1 ADD Aggreation VLAN VLAN ID 900 Input model add moi Start VLAN 901 End VLAN 905 QK Ca	CVLAN ID 900	SVLAN 901;902;903;904;905;

[Example of ONU trunk mode VLAN configuration]

Example: Set the VLAN mode of the ONU port 1 to trunk mode, PVID to 1, and trunk VLAN to 7-8.

Select trunk from the drop-down menu on the right side of the VLAN mode, click the 'Set' button, and then the contents of port VLAN Trunk entry. Click 'Add' menu. In the 'Add VLAN Trunk' dialog box, enter the value of the VLAN ID, Then click the 'OK' menu to complete the setup. In addition, click the 'Delete' menu to delete this setting. Click the 'Refresh' menu to update these actions.



🗾 ONU Management			X
OLT Device EPON 16 PORT Pon Card Pon Module Pon Port ONU [1B:8F:8C]ON ONU Basic Information	ONU Port port-1 Priority	VLAN mode	el trunk
Onu PonPort Trans Information Onu Capability Information Onu Capability Information	Device ID ONU-1	Port ID 1	TrunkVidList 7;8;
Onu Port Manegement Port Rate Limit ONU Port VLAN ONU IGMP		ADD Trunk VLAN	
		Refresh Add	Delete

7.9 ONU IGMP

Double click the ONU which you want to manage on the left of the main page, enter the ONU management page, click on **'ONU IGMP'**.

📑 ONU Management	
OLT Device EPON 16 PORT	IGMP Mode transparent
Pon Card Pon Module 💌	ONU IGMP transparent
Pon Port Port-1	Port ID dcc
ONU [1B:8F:8C]ON 👻	
Onu Basic Information	
Onu Capability Information	
Onu Sla Information Onu Port Manegement	
- Port Rate Limit	
ONU IGMP	
	Refresh Set

Set the IGMP working mode, there are transparent, IGMP-snooping and ctc , here is IGMP-snooping mode of operation by default.

IGMP snooping is used to listen to IGMP messages between hosts and routers. The primary

function is to receive IGMP messages, send member queries to the host, send proxy report messages to multicast routers ,manage, create and delete a multicast group , restricts the spread of multicast data on the second floor of the switch and enables filtering of unknown multicast data. The following is a detailed description of three modes.

Transparent mode:

ONU does not do any processing of multicast messages and broadcasts multicast messages to all ports of ONU in a broadcast manner.

IGMP-snooping mode:

You can set the multicast VLAN for each user port, the maximum number of multicast groups supported and the multicast VLAN tag processing mode of the ONU.

Multicast VLAN tag processing mode refers to the processing of VLAN tags when multicast packets are output from the user port:

1) NoStrip: Multicast messages are not stripped VLAN tag when they are output from the ONU user port.

2) Strip: Multicast messages are stripped VLAN tag when they are output from the ONU user port.

The IGMP snooping function of the ONU is based on VLAN. Therefore, you need to add the ONU user port to the corresponding multicast VLAN and add the same VALN to the VLAN configuration of the ONU port. When IGMP snooping is disabled, all multicast packets are broadcast to the ONU user port.

CTC mode:

Multicast messages are broadcast to all ports of ONU, and unlike the transparent mode, multicast VLAN tag packets can be processed and selected whether to strip the VLAN tag.

Example of ONU IGMP configuration

Example: Configure the IGMP working mode of the ONU to IGMP-snooping mode. The multicast VLAN of port 1 to 1 and 8, and multicast messages are stripped of the VLAN tag when they are exported from the port 1.

Select IGMP-snooping from the drop-down menu on the right side of the IGMP operation mode, click on the lower side of the **'Set'** button, select strip under stripping / non-stripping, click on the lower side of the **'Set'** button, then click the **'Add'** button, In the pop-up dialog box, select port1, enter '1,8' in MVLAN, and finally click on the **'OK'** to complete the set.



I ONU Management			PVIR •	2
OLT Device EPON 16 PORT	IGMP Mode igmp-snooping			.
Pon Card Pon Module	ONU IGMP			
Pon Port Port-1	Port ID 1	MVIan ID	MaxMultiNum 64	Tag/unTag Strip
Onu Basic Information Onu PonPort Trans Information	2 3 4	🛃 ADD ONU IGMP	64	NoStrip NoStrip NoStrip
Onu Capability Information Onu Sla Information Onu Port Manegement Port Rate Limit ONU Port VLAN ONU IGMP		ONU Port port-1 MVLAN 1.8 (like as:1,2,3.)	, or 2-5)	
		<u>U</u> K <u>C</u> ar		
		Refresh Set	Add Clea	r

8 Operation Logs Management

It's convenient for administrator to view historic records of EMS operation. EMS provides operation logs query function. Open **'Operation Logs'** window of **'Alarm'** menu to view historic operation records. The typical interface is shown below:



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Filter	Onerate Time	Onerate Liser Onerate Tv	Operate Where
Filter From Time: 2017-08-02 15:21:35 End Date: 2017-08-02 15:21:35 Page record: 50 Search Back up	Operate Time	Operate User	Operate Where
-	•		

The following 'Operation Logs' window shows :

As pictured above, inquiring operation logs according to operation period and operation users, the result of query can be saved as a single file.

Example of operation logs

Example: Inquire and save admin user's operation event from June 2,2017 20:40:40 to August 2,2017 20:40:40.

Step 1:

Choose specified time from left drop-down menu of From Time and End Date. User name chooses **'Admin'** . page record chooses **'5**0' , then click **'Search'** button, displaying log events in the right, and click **'Back up'**.

		UserName	Log	DateTime
		admin	add device "FD1104S" success	2017-08-02 20:11:19
From Time: 2017-06-02 20:40:40 End Date: 2017-08-02 20:40:40		admin User admin login from /127.0.0.1:52136 admin login system.	User admin login from /127.0.0.1:52136	2017-08-02 19:48:47
			2017-08-02 19:48:47	
		admin	User admin login from /127.0.0.1:62686	2017-08-01 20:53:48
ser name:	admin	admin	login system.	2017-08-01 20:53:48
ade record:	50	admin	add device "FD1508GS" success	2017-08-01 16:18:10
ago rocora.		admin	add device "FD1108S" success	2017-08-01 13:06:17
Search	Back up	admin	add device "EPON 16 PORT" success	2017-08-01 11:20:19
		admin	User admin login from /127.0.0.1:50057	2017-08-01 11:18:28
		admin	login system.	2017-08-01 11:18:28



Step 2:

Choose specified dictionary to make a backup of admin user's operation logs.

ain		
	nia.	

9 Alarm Logs Management

It's convenient for administrator to search alarm record of EMS operation. EMS provides alarm filter ,backup and query function.

As shown below, open 'Alarm Query' window of 'Alarm' menu to search alarm information. You can set alarm filter conditions in the left page, including alarm time, alarm status, alarm severity, alarm element, alarm page record count and alarm type. Clicking 'Filter' menu can view alarm information meeting filter conditions in the right. Clicking 'Save As' menu can save query information to chosen dictionary.

🗐 Alarm Filter				×
From Time: 2017-01-02 20:12:08 End Date: 2017-08-02 20:12:08 Days 50 Current Time	NE IP Address	\7 Time	Resume Time	Descript
Alarm Status Alarm Status Severity Image: Provide and Provided A				
Select Trap Name Select ALL Deselect All				
Illegal user login ONU port detect circle ONU user port circle eliminate ONU DYING_GASP ONU UNIPort Down Image: State				
Start Filter Reset Filter Save As	•	Previous	Next	Current Page

As shown below, open 'Config Trap Rule' window of 'Alarm' menu to configure alarm rule.

Choose device type in the left. On the right is corresponding alarm rule information. Firstly ,You can choose **'Yes'** or **'No'** of filter menu to modify alarm rules. Secondly, click **'Apply'** menu. Finally, choose **'Yes'** button from the pop-up menu. Clicking **'Refresh'** button can update alarm rule information. Clicking **'Close'** button can close current page.

System	Trap Name	Severity	Filter	
EPON 114P	ONU port detect circle	Major	No	-
	ONU user port circle	Infomation	No	
EPON_108P	ONU DYING_GASP	Major	No	
EPON_2U8P	ONU UNIPort Down	Minor	No	
EPON_1U2P	ONU UNIPort Up	Infomation	No	
FPON 1U16P	ONU Offline	Minor	No	
	ONU Online	Information	No	
GPUN_108P	Logic Link Linkdown	Major	No	
	Logic Link Linkup	Infomation	No	
	ONU Traffic Change	Minor	No	
	Link ID Resource Ex	Major	No	
	Illegal Regist	Major	No	
	OLT Traffic Change	Minor	No	_
	Switch Port Traffic C	Major	No	
	Switch Port Linkdown	Critical	No	
	Switch Port Linkup	Information	No	
	SFP Plug out Minor		No	
	SFP Plug in	Information	No	
	Fan Status Change	Information	No	
	Power Status Change	Minor	No	
	ONU DeRegistered	Information	No	
	ONU Registered	Minor	No	

As shown below, open **'Trap Window'** of **'Alarm'** menu to inquire all alarm information. You can set alarm From Time, End time and Page record. Clicking **'Search'** button can view alarm information on the right. Clicking **'Backup'** button can save alarm information to chosen dictionary.



10 Database Backup And Restore

EMS database management function includes database backup , database restore, ONU name backup, ONU name restore .

EMS configuration information, such as added device node, device port id name, user name and so on, is saved in EMS database file. In order to configurations not to be lost when system is abnormal, users can backup database regular intervals. Users have access to past configuration information via restoring database in case of software upgrade, operation system installation, system error or management server change.



Choose **'Database Backup/Restore'** bar of **'System'** menu to execute database backup and restore operation. Database backup by fault database filename, as shown below:



Backup database file type is **'.sql'** file. Filename by system auto-generated, and file is saved fault database document folder. After database backup, users can copy those database files to other location.

Open 'Database Restore' window when database restore, as shown below:



This window lists all database files by user backup before, choose a database file to execute database restore operation. If user's backup database is not in fault location, user need to copy the file to EMS fault saving path, then restore database file. EMS fault database saving path is '..\EMS\EMS Server\backup DB' dictionary.

ONU name backup and restore method is the same as database backup and restore method.

User Management 11

EMS support multi-user operation and set different operation rights for different users, thus improving system operation security. By user management operation, administrator can add, delete and modify existing user information.

Open 'User Manager' window of 'System' menu to execute user information management. As shown below:

🗾 User Manager				×
💿 🗙 📄				
Account	Name	Phon	e	Right
idmin	admin		Sys	stem Admin
Login Name:		User name:		
Password:		Password Confirm:		
			0.1	
Phone:		Right	System Admi	n 🗸
			System Admi	n
			Net Manager	

As shown above, the following is user management operations:

Add user

Input login name, user name and password into text-box at the bottom of window, and choose operation right, then click 'Add User' button with thus account set up successfully. Click 'Save' button to save updated user information.

Delete user

Choose a user account which needs to delete from current user lists, click 'Delete User'

button to delete the user.

Modify user information

Choose a user account which needs to modify from current user lists, and can view current the user's information at the bottom of window. After modifying user information, clicking

'Save User' button to save changed user information.

User account privilege

EMS Support 'System Admin', 'Net Manager' and 'Comm User' three user rights. 'System Admin' level is the highest privilege, has all the operation rights of EMS software. 'Net Manager' level has all of operation rights, expect of user account management function. 'Comm User' is the lowest privilege, the users with this privilege only can view management information and have not the rights to do any set operations.

12 Device Upgrade

EMS software support device firmware on-line upgrade. The main procedure for device upgrade has two step. First, download firmware files to target device via FTP server to be upgraded. The target device will go through the whole firmware upgrade process according to upgrade commands received from EMS.

Device upgrade steps are introduced as follows:

1. FTP Server configure

First open FTP server, then configure file path and IP address. IP address and OLT mgmt port's IP address should in the same network segment.

As shown below:

🞽 No log file open - WFTPD		×
File Edit View Logging Messages Security Help		
[# -001] 2017/8/3 16:25:54 Welcome to WFTPD - we are listening at the pseudo-address 0.0.0.0. [# -001] 2017/8/3 16:25:54 The first address assigned to your system is 192.168.5.208 [# -001] 2017/8/3 16:25:54 User / Rights Security Dialog [# -001] 2017/8/3 16:25:54 User / Rights Security Dialog [# -001] 2017/8/3 16:25:54 User / Rights Security Dialog [# -001] 2017/8/3 16:25:54 User Anne: admin Done [# -001] 2017/8/3 16:25:54 User Anne: Bestrict to home directory and below New User [# -001] 2017/8/3 16:25:54 Help Browse [# -001] 2017/8/3 16:25:54 Help Browse		>
For Help, press F1 1 socket 0 users		11.

- 2. Copy upgrade file to root dictionary of FTP Server
- 3. Parameter configure

1) Choose 'Configure' -> 'Device Upgrade' from main interface, as shown below:

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剩 Element Management System		– 5 ×
System Alarm Config Performance Help		
Contraction of the second seco		
E Inp Tree Modify		
Zelete		
Change Map	AT THE SALE	
Device Upgrade	Paul SPEER	
	Service March 1	the second s
[33:A7]		
[09:00 =		
Port-4		8
Port-5 Port-6		
Port-7		
Port-9		
Port-10		1 hrs
Port-12		
Port-14	П	
Map		
Device Upgrade		×
I op Tree->EPON 16 PORT	Upgrade Configure	
	FTP Configure	
	IP 192,168,5,208	File Name image.img
	Lie er Name admin	Descurred admin
	Oser Name admin	Password admin
	Progress	
	Transfer Status	
		0%
	1	
	Refresh Downloa	id to Device Upgrade Reboot
		Cancel
		- Odition

Figure 1: Device upgrade

- 2) Input FTP Server's IP address and upgrade filename in the interface.
- 3) Input FTP Server's user name and password.

4) Click **'Download Device'** button , **'Upgrade'** button and **'Reboot'** button in turn, completing OLT's upgrade.

13 Device Search Function

EMS support device search function. When there are more OLT and ONU devices connected EMS, we can find a device from a number of devices via EMS 's search function.

The specific operation method is as follows:

Right-click **'Top Tree'** of EMS main page , and click **'Search'** , then input device name in **'Key Word'** of pop-up **'Search Box'**.







14 End

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