

# User's Manual



## 2-Port GEPON Managed OLT

▶ EPL-2220



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## Revision

PLANET GEAPON OLT (2-PON Interface, 2 x GbE SFP, 2 x GbE RJ45, 1 x MGT Port) User's Manual

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# Chapter 1. Introduction

PLANET EPL-2220 GEAPON Optical Line Terminal (OLT) consists of two GEAPON ports, two Gigabit SFP interfaces and one management port. The term "GEAPON OLT" refers to the OLT in this user's manual.

## 1.1 Packet Contents

The box should contain the following items:

- |   |     |
|---|-----|
| <input checked="" type="checkbox"/> <b>GEAPON OLT</b>                   | x 1 |
| <input checked="" type="checkbox"/> <b>PX20 SFP Transceivers</b>        | x 2 |
| <input checked="" type="checkbox"/> <b>Quick Installation Guide</b>     | x 1 |
| <input checked="" type="checkbox"/> <b>19" Rack Mount Accessory Kit</b> | x 1 |
| <input checked="" type="checkbox"/> <b>AC Power Cord</b>                | x 1 |
| <input checked="" type="checkbox"/> <b>Console Cable</b>                | x 1 |

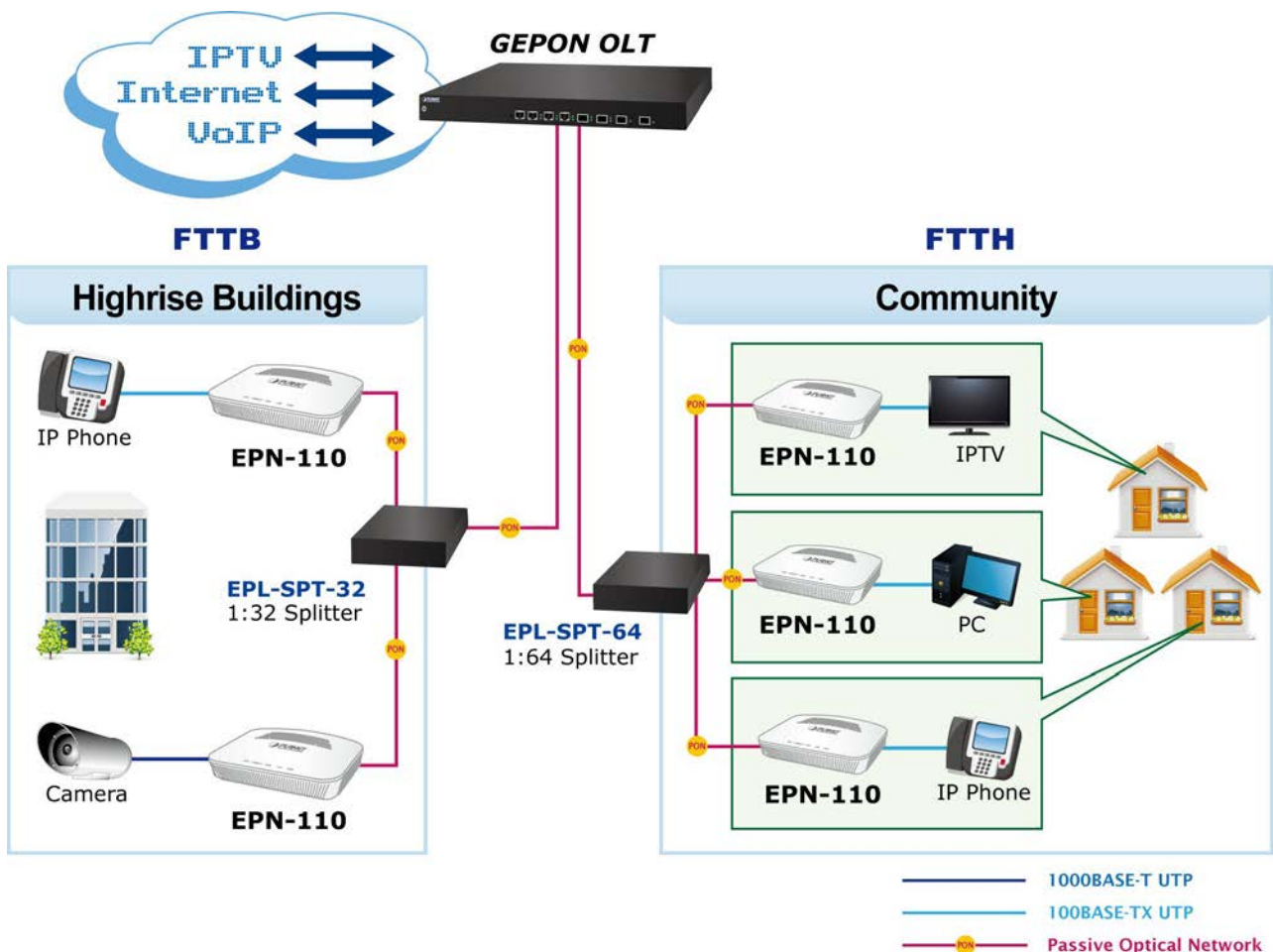
If any of these are missing or damaged, please contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.

## 1.2 Product Description



### Perfectly Designed for FTTx Applications

PLANET EPL-2220 GEAPON **Optical Line Terminal (OLT)** consists of **two GEAPON ports, two GbE SFP ports, two GbE RJ45 interfaces** and one management port. It is easy to install and maintain a GEAPON deployment. With PLANET GEAPON **Optical Network Units (ONU)** EPN series, the EPL-2220 can provide highly-effective GEAPON solutions and convenient management for broadband network. PLANET GEAPON technology provides a high bandwidth of up to 1.25Gbps for both upstream and downstream, long-distance coverage of up to 20km between equipment nodes, and scalability and flexibility for network deployment. It is a cost-effective access technology with reliable and scalable network for triple-play service applications.



## High-speed and Long-distance Coverage for Tripleplay Services

With growing network services such as HDTV, IPTV, voice-over-IP (VoIP) and multimedia broadband applications, the demand for broadband use rises quickly. The present broadband environment has not accorded with needs; however, **Passive Optical Network (PON)** would be the most promising NGN (Next Generation Networking) technology to fulfill the demand.

## Robust Layer 2 Features

With a high split ratio of **1:64** per port and supporting the usage of PLANET ONUs, the EPL-2220 can minimize the investment cost for carriers. By using the advanced technology in the telecommunication industry, the EPL-2220 provides strong functionalities for Ethernet features such as VLAN, Multicast, DBA (Dynamic Bandwidth Allocation), and Access Control List. The EPL-2220 is an ideal solution for FTTx applications.

GEPON is a point to multipoint communications protocol based on Gigabit Ethernet. It allows a Gigabit Ethernet communications fiber to be shared by multiple end users using a passive optical splitter. GEPON communication takes place between an Optical Line Terminal (OLT) and multiple Optical Network Units (ONUs). Using standard terminology, downstream traffic flows from OLT to ONU, and upstream traffic flows from ONU to OLT. A protocol called Multi Point Control Protocol (MPCP) is used to arbitrate the channel between the ONU's so that no collisions will occur on the common fiber.

## 1.3 How to Use This Manual

This User Manual is structured as follows:

### Section 2, Hardware Installation

The section explains the functions of the Switch and how to physically install the GEPON OLT.

### Section 3, Web-based Management

The section explains how to manage the GEPON OLT from Web UI.

### Section 4, Switch Operation

The chapter explains how to do the switch operation of the GEPON OLT.

### Appendix A

The section contains cable information of the GEPON OLT.

## 1.4 Product Features

### ➤ **GEPON Port**

- 2 x SC-type GEPON OLT port
- Up to 1.25Gbps upstream and downstream
- Maximum transfer distance of up to 20km
- Each OLT port supports up to 64 ONUs
- Fully compliant with IEEE 802.3ah
- Point-to-multipoint network topology
- LED indicators for link status

- **Uplink and Management Port**
  - Two 1000BASE-SX/LX SFP interfaces
  - Two 100/1000BASE-T RJ45 interfaces
  - Maximum transfer distance of up to 120km
  - One 10/100BASE-TX RJ45 management port
- **Layer 2 Features**
  - Dynamic bandwidth allocation (DBA) support
  - Supports VLAN
    - IEEE 802.1Q tagged VLAN
    - Up to 255 VLAN groups, out of 4094 VLAN IDs
  - Supports up to 8K MAC addresses
  - Enhanced IGMP features
- **OLT Management**
  - User-friendly GUI management
  - IPTV multicast creation and management
  - Up to 32 OLTs management through single GUI
  - SNMP v1/v2c monitoring
  - Three users levels control
  - 2 control interfaces
    - Out-of-Band IP -- the management RJ port
    - In-Band IP – the two uplink ports
  - Supports ONU authentication; averts illegal ONUs access to network
  - Event message logging to system log
  - SNMP trap for alarm notification
- **ONU Management**
  - ONU port control
  - ONU multicast control
  - ONU IGMP fastleave
  - ONU VLAN mode

## 1.5 Product Specifications

<b>Product</b>		<b>EPL-2220</b>
<b>Hardware Specifications</b>		
<b>Transmission Speed</b>		Downstream: 1.25 Gbps Upstream: 1.25 Gbps
<b>Optical Split Ratio</b>		Up to 1:64
<b>Port</b>	<b>Uplink Port</b>	Two 1000BASE-X SFP slots Two 100/1000BASE-T RJ45 ports
	<b>PON Port</b>	Two 1.25Gbps PON ports
	<b>MGMT Port</b>	One RJ45 port (10/100BASE-TX)
<b>LED Indicators</b>		1 power LED 1 system LED 6 uplink port LEDs (ACT and Link) 2 PON LEDs (Link)
<b>EMS Utility Specifications</b>		
<b>Switch Feature</b>		<ul style="list-style-type: none"> <li>– IPTV multicast creation and management</li> <li>– MAC address learning and binding</li> <li>– MAC filtering</li> <li>– Supports IGMP mode</li> <li>– Supports the VLAN division on the basis of port</li> <li>– Up to 4096 VLAN</li> <li>– 8K MAC addresses</li> <li>– ONU multicast control</li> <li>– ONU IGMP fastleave</li> <li>– ONU VLAN mode</li> <li>– ONU port management</li> </ul>
<b>Management</b>		<ul style="list-style-type: none"> <li>– User-friendly GUI Utility</li> <li>– Firmware and configuration upgradeable via utility</li> <li>– Remote ONU management</li> </ul>
<b>Standards Conformance</b>		
<b>Safety</b>		CE, LVD
<b>Standards Compliance</b>		<ul style="list-style-type: none"> <li>IEEE 802.3 10BASE-T</li> <li>IEEE 802.3u 100BASE-TX</li> <li>IEEE 802.3z Gigabit SX/LX</li> <li>IEEE 802.3x flow control and back pressure</li> <li>IEEE 802.1Q tagged VLAN</li> </ul>
<b>Environment Specifications</b>		
<b>Dimensions (W x D x H)</b>		442 x 200 x 43mm

<b>Weight</b>	2.84kg
<b>Power</b>	100 – 250V AC
<b>Temperature</b>	Operating temperature: 0 ~ 50 degrees C Storage temperature: -30 ~ 60 degrees C
<b>Humidity</b>	Operating Humidity: 10 ~ 90% non-condensing Storage Humidity: 5 ~ 90% non-condensing

## Chapter 2. Hardware Installation

This section describes the hardware features and installation of the GEAPON OLT on the desktop or rack mount. For easier management and control of the GEAPON OLT, familiarize yourself with its display indicators and ports. Front panel illustrations in this chapter display the unit LED indicators. Before connecting any network device to the GEAPON OLT, please read this chapter completely.

### 2.1 Hardware Description

#### 2.1.1 OLT Front Panel

The front panel of the unit provides a simple interface monitoring the OLT. [Figure 2-1](#) shows the front panel of the GEAPON OLT.

##### EPL-2220 Front Panel

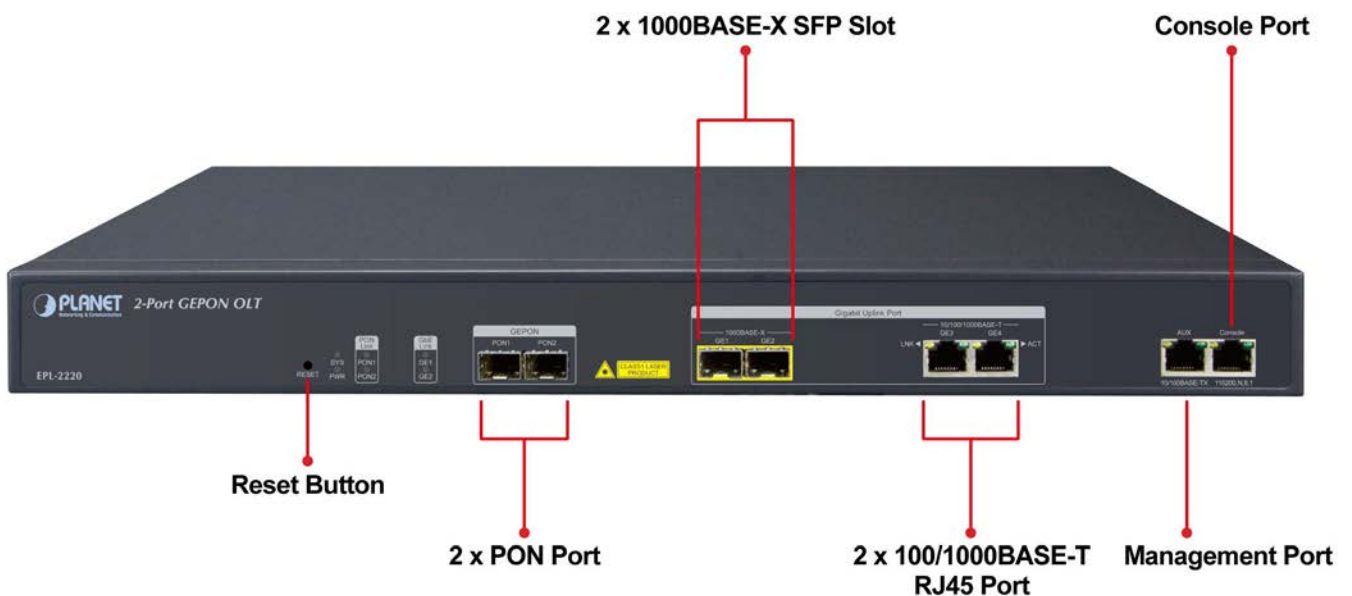


Figure 2-1 EPL-2220 Front Panel

#### ■ Reset Button

The reset button is designed for rebooting the GEAPON OLT without turning off and on the power. The following is the summary table of reset button functions:

Reset Button Pressed and Released	Function
System reboot	Reboot the GEAPON OLT

#### ■ Gigabit SFP PON Slots

1000BASE-PX20 mini-GBIC slot, SFP (Small Form Factor Pluggable) transceiver module: Up to 20 kilometers (single-mode fiber).



■ **Gigabit SFP Uplink Slots**

1000BASE-SX/LX mini-GBIC slot, SFP (Small Form Factor Pluggable) transceiver module: From 550 meters (multi-mode fiber) to 10/30/50/70/120 kilometers (single-mode fiber).

■ **Gigabit RJ45 Uplink Ports**

100/1000BASE-T copper, RJ45 twisted-pair: Up to 100 meters

■ **Management Port**

10/100BASE-TX copper, RJ45 twisted-pair: Up to 100 meters



GE1 and GE2 Gigabit SFP uplink slots support **1000Mbps Forced Mode** only. The remote Gigabit switch or media converter's SFP port must support 1000Mbps Forced Mode as well.

**2.1.2 LED Indications**

The front panel LEDs indicate instant status of port links, data activity and system power, and help to monitor and troubleshoot when needed. Figure 2-2 shows the LED indications of these GEAPON OLTs.

**EPL-2220 LED Indication**

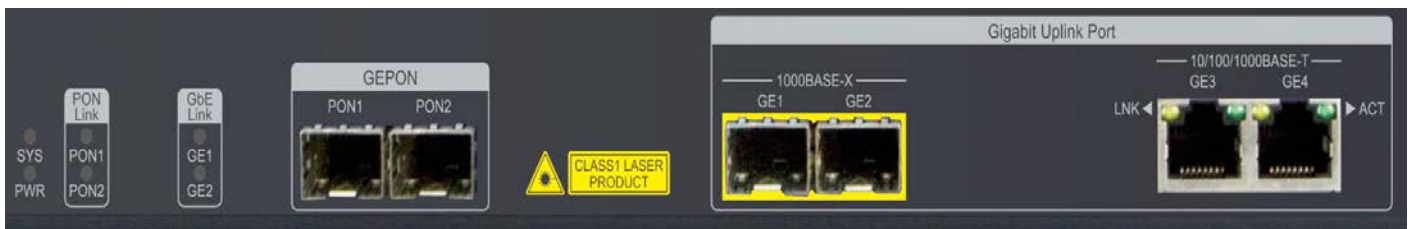


Figure 2-2 EPL-2220 LED Panel

■ **System**

LED	Color	Function
PWR	Green	<b>Lights:</b> To indicate that the Switch is powered on.
SYS	Green	<b>Blink:</b> The OLT is ready for management
		<b>Off:</b> The OLT is abnormal in system operation

■ **1000BASE-PX20 SFP PON Interfaces (PON1 and PON2 Ports)**

LED	Color	Function
-----	-------	----------

LINK	Green	<b>Lights:</b> To indicate the link through that PON port is successfully established.
		<b>Off:</b> To indicate that the PON port is link-down.

■ 1000BASE-SX/LX SFP Interfaces (GE1 and GE2Ports)

LED	Color	Function
LINK	Green	<b>Lights:</b> To indicate the link through that SFP port is successfully established.
		<b>Off:</b> To indicate that the SFP port is link-down.
ACT	Green	<b>Blink:</b> To indicate that the switch is actively sending or receiving data over that port.

■ 100/1000BASE-T RJ45 Interfaces (GE3 and GE4 Ports)

LED	Color	Function
LINK	Green	<b>Lights:</b> To indicate the link through that RJ45 port is successfully established.
		<b>Off:</b> To indicate that the RJ45 port is link-down.
ACT	Green	<b>Blink:</b> To indicate that the switch is actively sending or receiving data over that port.

### 2.1.3 OLT Rear Panel

The rear panel of the GEAPON OLT indicates an AC inlet power socket, which accepts input power from 100 to 250V AC, 50-60Hz.

Figure 2-3 shows the rear panel of this GEAPON OLT.

**EPL-2220 Rear Panel**

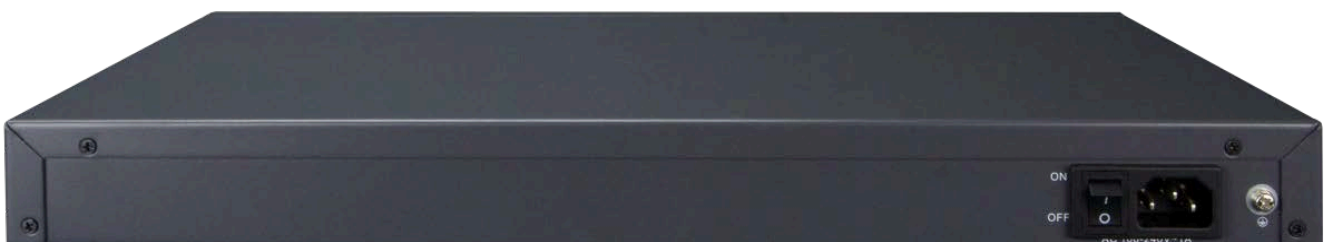


Figure 2-3 Rear Panel of EPL-2220

■ AC Power Receptacle

For compatibility with electric service in most areas of the world, the GEAPON OLT's power supply automatically adjusts to line power in the range of 100-250V AC and 50/60 Hz.

Plug the female end of the power cord firmly into the receptacle on the rear panel of the GEPON OLT and the other end of the power cord into an electric outlet and then the power will be ready.

There is a power switch for AC power input use only, whereas DC power input has no power switch.




---

The device is a power-required device; if your networks should be active all the time, please consider using UPS (Uninterrupted Power Supply) for your device. It will prevent you from network data loss or network downtime.

In some areas, installing a surge suppression device may also help to protect your GEPON OLT from being damaged by unregulated surge or current to the switch or the power adapter.

---

## 2.2 Installing the OLT

This section describes how to install your GEPON OLT and make connections to the GEPON OLT. Please read the following topics and perform the procedures in the order being presented. To install your GEPON OLT on a shelf, simply complete the following steps.

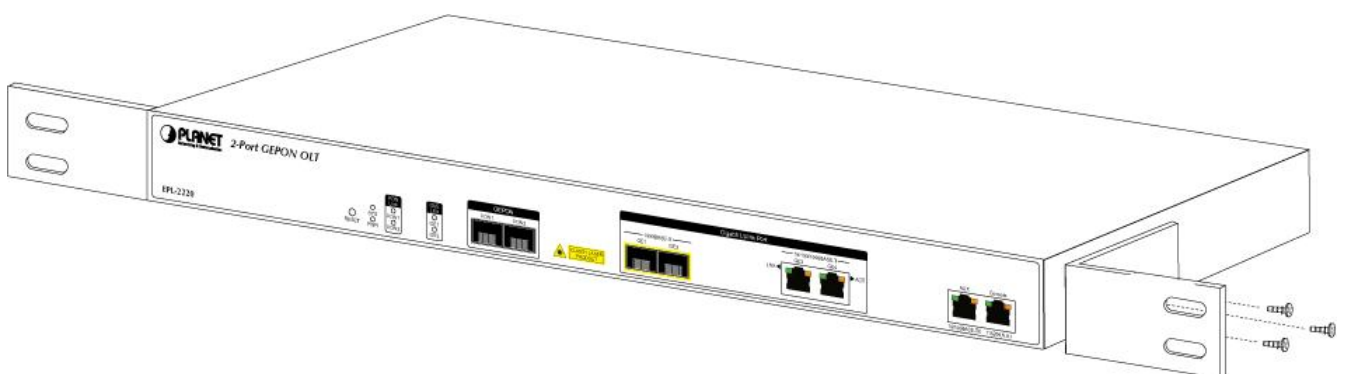
### 2.2.1 Rack Mounting

To install the GEPON OLT in a 19-inch standard rack, please follow the instructions described below:

**Step 1:** Place the GEPON OLT on a hard flat surface, with the front panel positioned towards the front side.

**Step 2:** Attach the rack-mount bracket to each side of the GEPON OLT with supplied screws attached to the package.

Figure 2-4 shows how to attach brackets to one side of the GEPON OLT.



**Figure 2-4** Attaching Brackets to the GEPON OLT.




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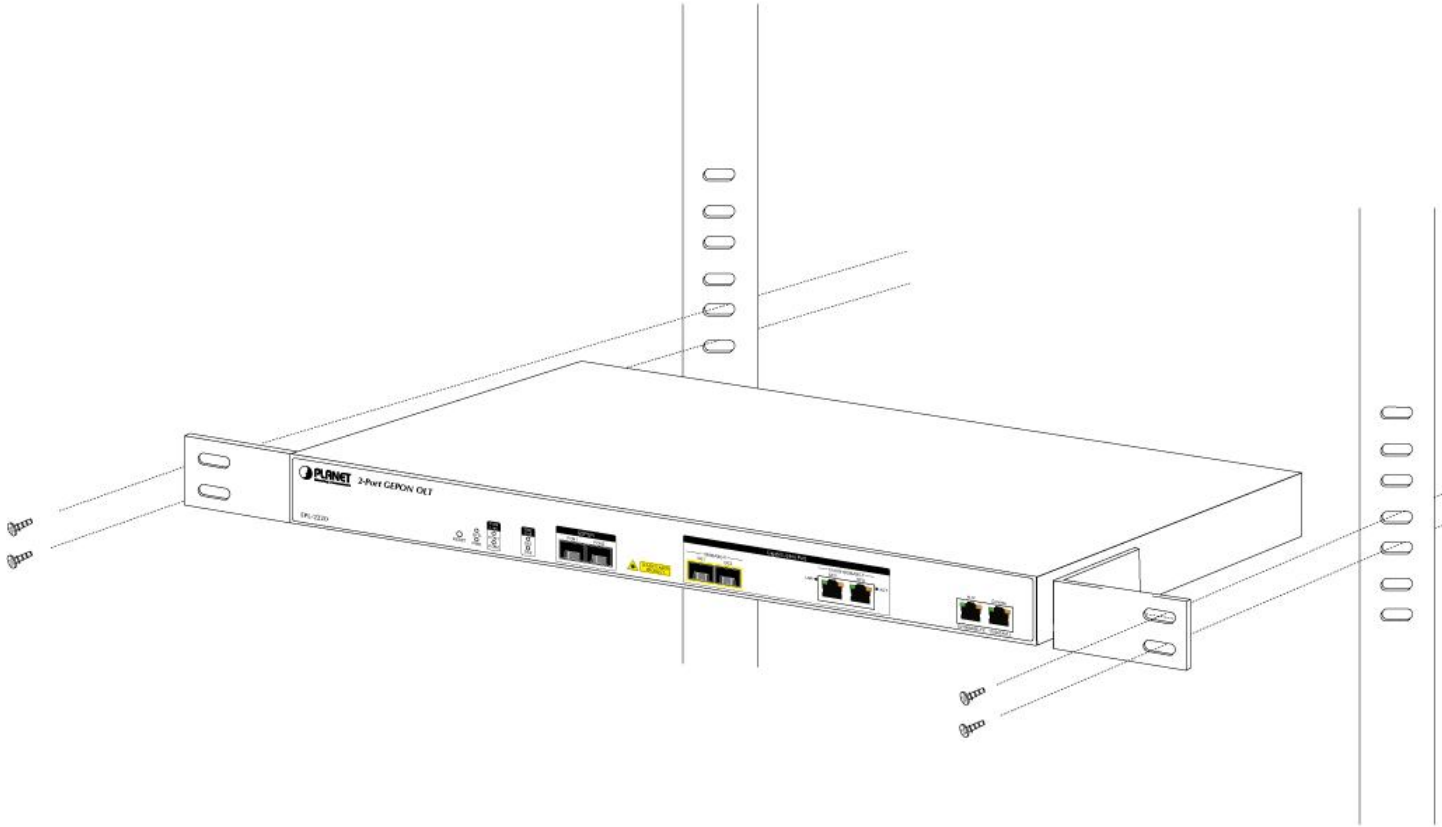
You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate the warranty.

---

**Step 3:** Secure the brackets tightly.

**Step 4:** Follow the same steps to attach the second bracket to the opposite side.

**Step 5:** After the brackets are attached to the GEPON OLT, use suitable screws to securely attach the brackets to the rack, as shown in [Figure 2-5](#).



**Figure 2-5** Mounting the GEPON OLT on a Rack

## 2.2.2 Installing the Uplink Port

The sections describe how to insert an SFP transceiver into an SFP slot and UTP copper cable to RJ45 port. The SFP transceivers are hot-pluggable and hot-swappable. You can plug in and out the transceiver to/from any SFP port without having to power down the GEPON OLT as [Figure 2-6](#) shows.

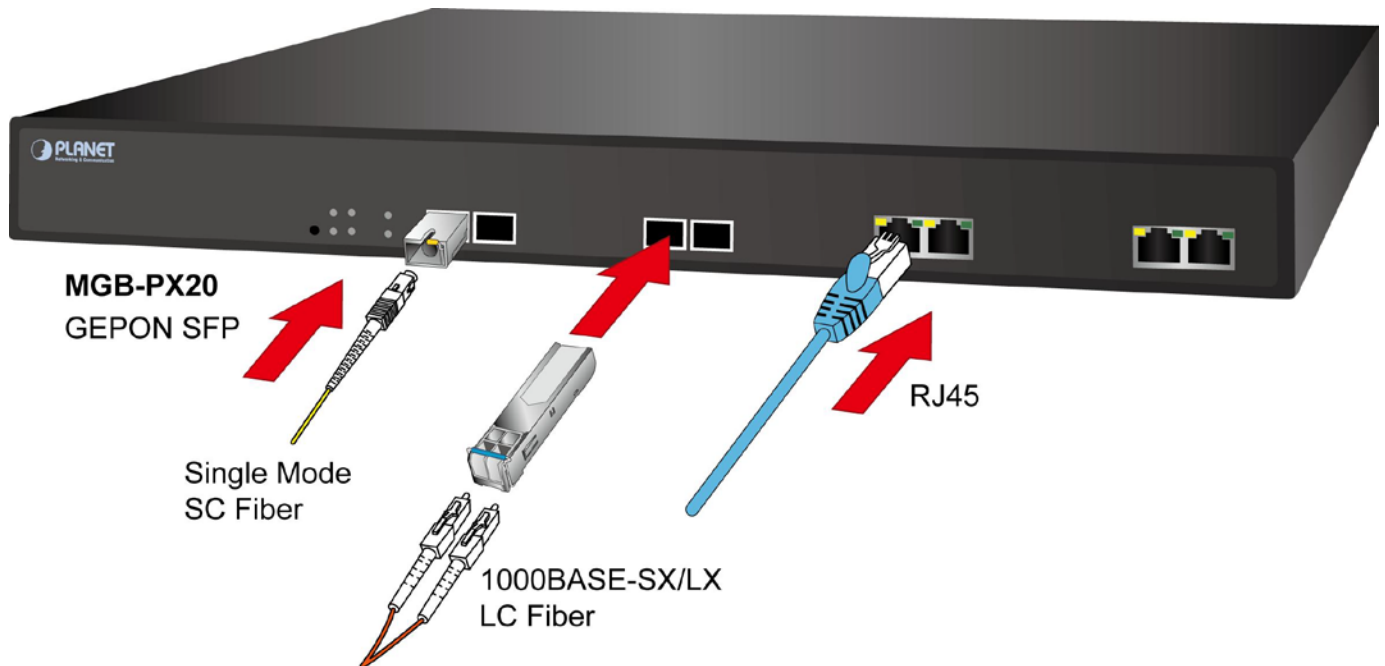


Figure 2-6 Plugging in the SFP Transceiver

■ **Approved PLANET SFP Transceivers**

PLANET GEAPON OLT supports both Single mode and Multi-mode SFP transceivers. The following list of approved PLANET SFP transceivers is correct at the time of publication:

**1000BASE-X SFP modules:**

**Gigabit Ethernet Transceiver (1000BASE-X SFP)**

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MGB-GT	1000	Copper	--	100m	--	0 ~ 60 °C
MGB-SX	1000	LC	Multi Mode	550m	850nm	0 ~ 60 °C
MGB-SX2	1000	LC	Multi Mode	2km	1310nm	0 ~ 60 °C
MGB-LX	1000	LC	Single Mode	10km	1310nm	0 ~ 60 °C
MGB-L30	1000	LC	Single Mode	30km	1310nm	0 ~ 60 °C
MGB-L50	1000	LC	Single Mode	50km	1550nm	0 ~ 60 °C
MGB-L70	1000	LC	Single Mode	70km	1550nm	0 ~ 60 °C
MGB-L120	1000	LC	Single Mode	120km	1550nm	0 ~ 60 °C
MGB-TSX	1000	LC	Multi Mode	550m	850nm	-40 ~ 75 °C
MGB-TLX	1000	LC	Single Mode	10km	1310nm	-40 ~ 75 °C
MGB-TL30	1000	LC	Single Mode	30km	1310nm	-40 ~ 75 °C
MGB-TL70	1000	LC	Single Mode	70km	1550nm	-40 ~ 75 °C

**Gigabit Ethernet Transceiver (1000BASE-BX, Single Fiber Bi-directional SFP)**

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MGB-LA10	1000	WDM(LC)	Single Mode	10km	1310nm	1550nm	0 ~ 60 °C
MGB-LB10	1000	WDM(LC)	Single Mode	10km	1550nm	1310nm	0 ~ 60 °C

MGB-LA20	1000	WDM(LC)	Single Mode	20km	1310nm	1550nm	0 ~ 60℃
MGB-LB20	1000	WDM(LC)	Single Mode	20km	1550nm	1310nm	0 ~ 60℃
MGB-LA40	1000	WDM(LC)	Single Mode	40km	1310nm	1550nm	0 ~ 60℃
MGB-LB40	1000	WDM(LC)	Single Mode	40km	1550nm	1310nm	0 ~ 60℃
MGB-LA60	1000	WDM(LC)	Single Mode	60km	1310nm	1550nm	0 ~ 60℃
MGB-LB60	1000	WDM(LC)	Single Mode	60km	1550nm	1310nm	0 ~ 60℃
MGB-TLA10	1000	WDM(LC)	Single Mode	10km	1310nm	1550nm	-40 ~ 75℃
MGB-TLB10	1000	WDM(LC)	Single Mode	10km	1550nm	1310nm	-40 ~ 75℃
MGB-TLA20	1000	WDM(LC)	Single Mode	20km	1310nm	1550nm	-40 ~ 75℃
MGB-TLB20	1000	WDM(LC)	Single Mode	20km	1550nm	1310nm	-40 ~ 75℃
MGB-TLA40	1000	WDM(LC)	Single Mode	40km	1310nm	1550nm	-40 ~ 75℃
MGB-TLB40	1000	WDM(LC)	Single Mode	40km	1550nm	1310nm	-40 ~ 75℃
MGB-TLA60	1000	WDM(LC)	Single Mode	60km	1310nm	1550nm	-40 ~ 75℃
MGB-TLB60	1000	WDM(LC)	Single Mode	60km	1550nm	1310nm	-40 ~ 75℃



GEPON OLT EPL-2220 SFP ports of GE1 and GE2 are configured in 1000Mbps Forced Mode. To make the connection successfully, the switch's SFP ports should also be in 1000Mbps Forced Mode. Otherwise, the connection might fail.

Before connecting the other GEPON OLT, workstation or media converter,

1. Make sure both sides of the SFP transceiver are with the same media type, for example, 1000BASE-SX to 1000BASE-SX, or 1000BASE-LX to 1000BASE-LX.
2. Check whether the fiber-optic cable type matches the SFP transceiver model.
  - To connect to 1000BASE-SX SFP transceiver, use the multi-mode fiber cable, with one side being male duplex LC connector type.
  - To connect to 1000BASE-LX SFP transceiver, use the single-mode fiber cable, with one side being male duplex LC connector type.

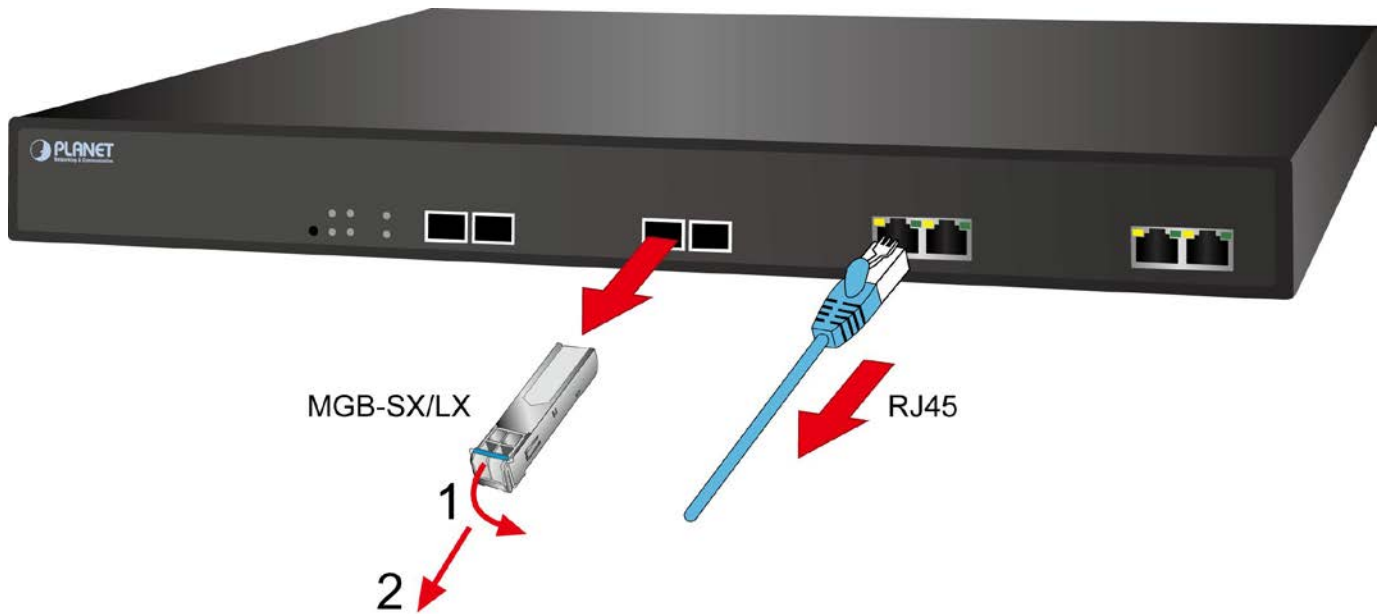
#### ■ Connecting the fiber cable

1. Insert the duplex LC connector on the network cable into the SFP transceiver.
2. Connect the other end of the cable to a device – switches with SFP installed, fiber NIC on a workstation or a media converter.
3. Check the LNK/ACT LED of the SFP slot on the front of the GEPON OLT. Ensure that the SFP transceiver is operating correctly.
4. Check the Link mode of the SFP port if the link fails. It works well with some fiber-NICs or media converters. Set the Link mode to "1000 Force" if needed.

#### ■ Removing the transceiver module

1. Make sure there is no network activity by consulting or checking with the network administrator. Or through the management interface of the switch/converter (if available), disable the port in advance.

2. Remove the Fiber Optic Cable gently.
3. Turn the handle of the MGB module to a horizontal position.
4. Pull out the module gently through the handle.



**Figure 2-7** Pulling Out the SFP Transceiver



Never pull out the module without pulling the handle or the push bolts on the module. Directly pulling out the module with force could damage the module and SFP module slot of the GEAPON OLT.

## Chapter 3. Web-based Management

This section introduces the configuration and functions of the Web-based management.

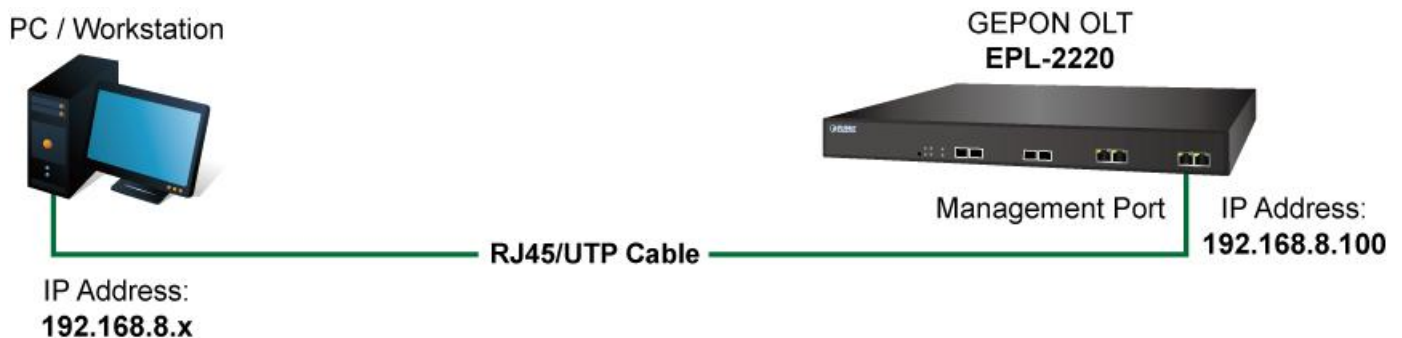
### 3.1 About Web-based Management

The EPL-2220 offers management features that allow users to manage the OLT from anywhere on the network through a standard browser such as Microsoft Internet Explorer. The Web-based Management supports Internet Explorer 8.0 above.

The EPL-2220 can be configured through an Ethernet connection, making sure the manager PC must be set to the same IP subnet address with the OLT.

For example, the default IP address of the OLT is **192.168.8.100**, then the manager PC should be set to **192.168.8.x** (where x is a number between 1 and 254, except 100), and the default subnet mask is 255.255.255.0.

If you have changed the default IP address of the OLT to 192.168.1.1 with subnet mask 255.255.255.0 via console, then the manager PC should be set to 192.168.1.x (where x is a number between 2 and 254) to do the relative configuration on manager PC.



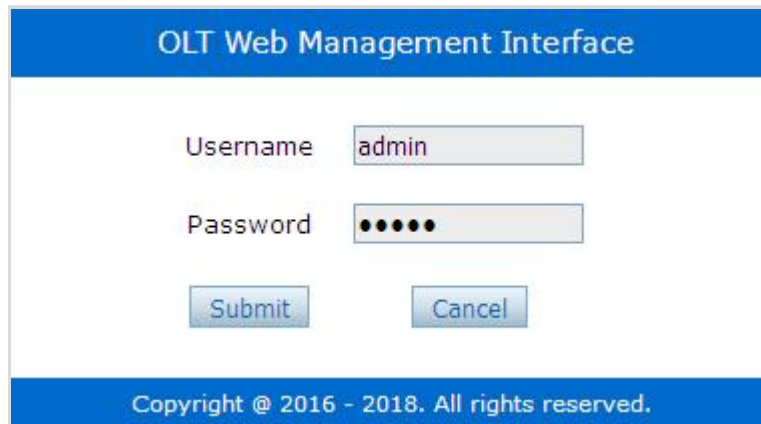
### 3.2 Logging on to the Switch

1. Use Internet Explorer 8.0 or above Web browser. Enter the factory-default IP address to access the Web interface. The factory-default IP address is as follows:

**http://192.168.8.100**

2. When the following login screen appears, please enter the default username "**admin**" with password "**admin**" (or the username/password you have changed via console) to log in the main screen of OLT. The login screen in [Figure 3-1-1](#) appears.





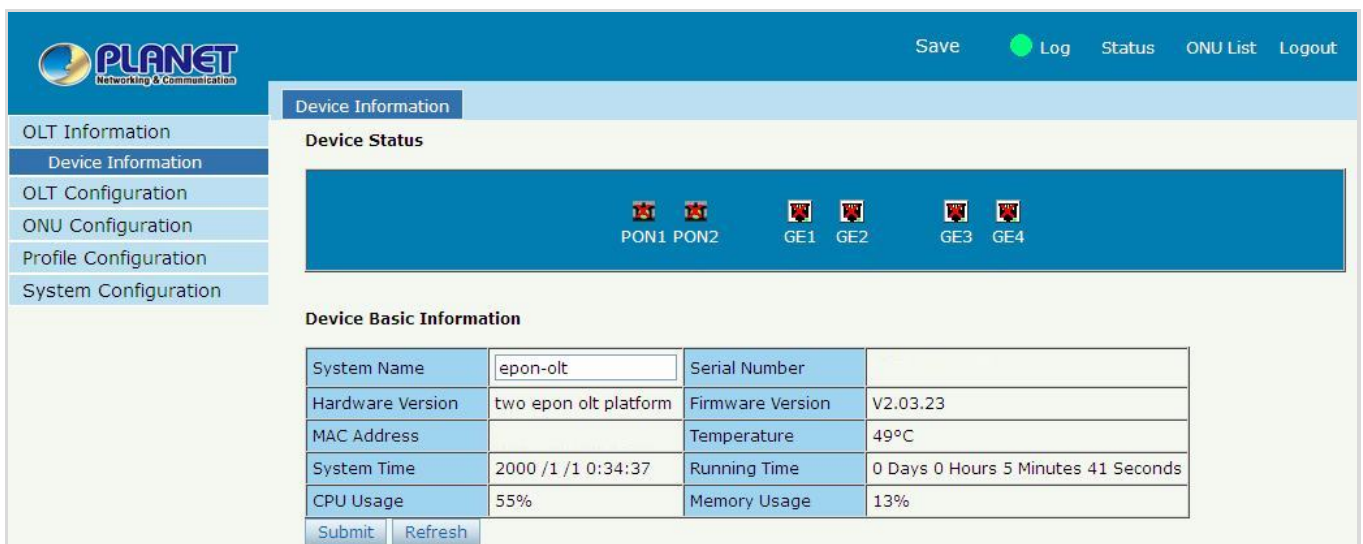
The login screen features a blue header with the text "OLT Web Management Interface". Below the header, there are two input fields: "Username" with the value "admin" and "Password" with six black dots. Below these fields are two buttons: "Submit" and "Cancel". At the bottom of the interface, a blue footer contains the text "Copyright @ 2016 - 2018. All rights reserved."

Figure 3-1 Login Screen

Default User name: **admin**

Default Password: **admin**

3. After entering the username and password, the main screen appears as [Figure 3-2](#).



The main page displays the PLANET logo and navigation menu on the left. The top right contains "Save", "Log", "Status", "ONU List", and "Logout" buttons. The "Device Information" tab is active, showing "Device Status" with icons for PON1, PON2, GE1, GE2, GE3, and GE4. Below is the "Device Basic Information" table:

System Name	epon-olt	Serial Number	
Hardware Version	two epon olt platform	Firmware Version	V2.03.23
MAC Address		Temperature	49°C
System Time	2000 /1 /1 0:34:37	Running Time	0 Days 0 Hours 5 Minutes 41 Seconds
CPU Usage	55%	Memory Usage	13%

Buttons for "Submit" and "Refresh" are located at the bottom of the table.

Figure 3-2 Web Main Page

The OLT menu on the left of the Web page lets you access all the commands and statistics the OLT provides.

Now, you can use the Web management interface to continue the OLT management or manage the ONU by Web interface. The OLT menu on the left of the web page lets you access all the commands and statistics the ONU provides.



1. It is recommended to use Internet Explorer 8.0 or above to access OLT.
2. The changed IP address takes effect immediately after clicking on the **Submit** button; you need to use the new IP address to access the Web interface.
3. For security reason, please change and memorize the new password after this first setup.

### 3.3 OLT Information

#### 3.3.1 Device Information

This page shows the OLT information such as system name, serial number, hardware version, firmware version, MAC address and system time. The system name can be modified if need.

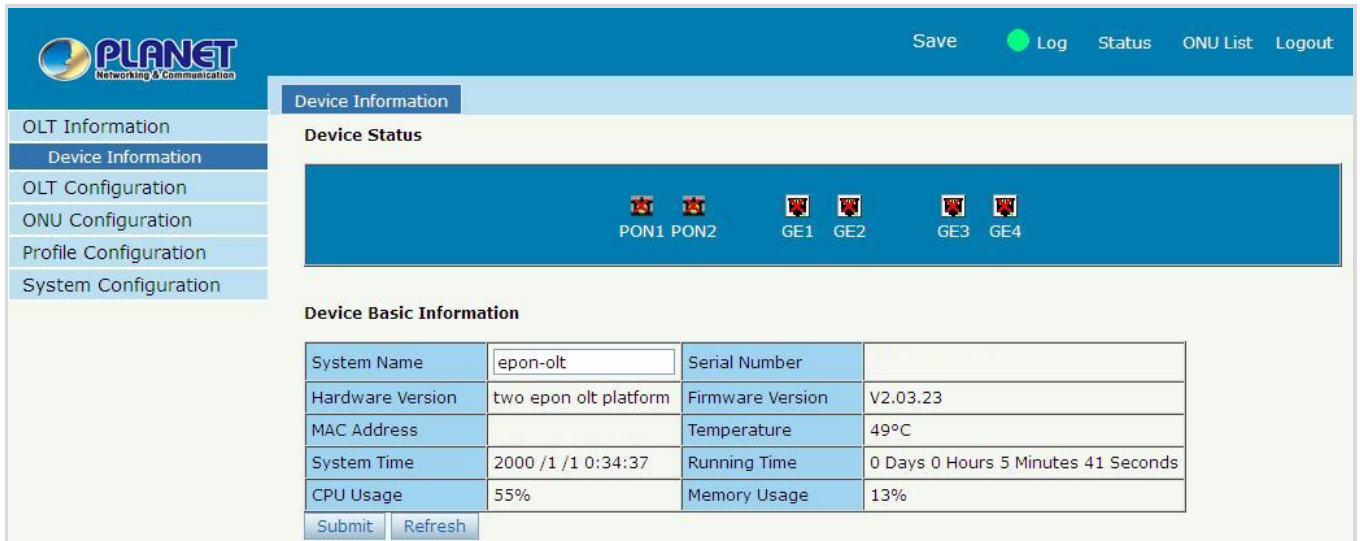


Figure 3-3 Web Main Page

### 3.4 OLT Configuration

#### 3.4.1 VLAN

##### 3.4.1.1. New VLAN

Click OLT Configuration=>VLAN=>New VLAN to create a new VLAN.



Figure 3-4 VLAN

Object	Description
VLAN ID	You can configure the ID number of the VLAN by this item. This field is used to add VLANs one at a time. The VLAN ID and <b>available range is 1-4094</b> .
Description	Enter the description of the VLAN.

### 3.4.1.2. VLAN Port

Assign the ports to the VLANs you created. You can choose the tag or untag VLAN mode. Click **OLT Configuration =>VLAN=>Port VLAN** shown in Figure 3-5

The screenshot displays the 'VLAN Port' configuration page. At the top, there are three tabs: 'VLAN', 'VLAN Port' (selected), and 'QinQ/Translation'. Below the tabs, the title 'Port VLAN Configuration' is shown. A 'VLAN ID' dropdown menu is set to '1'. A table with four columns: 'Port ID', 'Forbidden', 'Tag', and 'Untag', lists six ports: GE1, GE2, GE3, GE4, PON1, and PON2. Each port has three radio buttons. The 'Untag' radio button is selected for all ports. A 'Submit' button is located below the table. At the bottom, a 'Port VLAN Table' is shown with three columns: 'VLAN ID', 'Tag Ports', and 'Untag Ports'. The first row shows '1' in the 'VLAN ID' column and 'GE1 GE2 GE3 GE4 PON1 PON2' in the 'Untag Ports' column.

Port ID	Forbidden	Tag	Untag
GE1	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
GE2	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
GE3	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
GE4	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
PON1	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
PON2	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

VLAN ID	Tag Ports	Untag Ports
1		GE1 GE2 GE3 GE4 PON1 PON2

Figure 3-5 VLAN Port

### 3.4.1.3. Q-in-Q/Translation

To configure the port mode VLAN translation or double VLAN tag, click **OLT Configuration =>VLAN=>QinQ** shown in Figure 3-6.

**QinQ Configuration**

Port ID: GE1  
 Customer VLAN: 1  
 Customer Cos: any  
 Service VLAN: 1  
 Service Cos: any  
 Mode: VLAN Translation

**VLAN QinQ Mapping Table**

Port ID	Customer VLAN	Customer Cos	Service VLAN	Service Cos	Mode	Delete
---------	---------------	--------------	--------------	-------------	------	--------

Figure 3-6 Q-in-Q

### 3.4.2 Uplink Port

#### 3.4.2.1. Information

Select **OLT Configuration =>Uplink Port**, you can configure the uplink GE port parameters shown as Figure 3-7.

**Traffic Statistics**

Port ID	Link Status	Speed	Rx Packets			Tx Packets			Collisions	Errors
			Packets	Broadcast	Multicast	Packets	Broadcast	Multicast		
GE1	Down	-	0	0	0	0	0	0	0	0
GE2	Down	-	0	0	0	0	0	0	0	0
GE3	Down	-	0	0	0	0	0	0	0	0
GE4	Down	-	0	0	0	0	0	0	0	0

Clear Counters Refresh

Figure 3-7 Uplink Port Information

### 3.4.2.2. Configuration

Port ID	Description	Admin Status	Flow Control	Isolate	PVID	Storm(0 64-1000000fps)			Rate(0 32-1000000kbps)		MAC Limit(0-16384)
						Broadcast	Multicast	Unicast	Ingress	Egress	
GE1		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	512	0	512	0	0	0
GE2		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	512	0	512	0	0	0
GE3		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	512	0	512	0	0	0
GE4		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	512	0	512	0	0	0

Submit Reset

Figure 3-8 Uplink Port Configuration

The page includes the following fields:

Object	Description
Port ID	This is the logical port number for this row.
Description	Indicates the per port description.
Admin Status	A check box is provided for each port of Admin Status.
Flow Control	When <b>Flow Control</b> is selected, this section indicates the flow control capability that is advertised to the link partner.
Isolate	A check box is provided for each port of Isolate.
PVID	Select the VID of the port.

### 3.4.3 PON

#### 3.4.3.1. Information

The PON information page provides information for the current device information.

Port ID	Temperature(Degree)	Voltage(V)	Bias Current(mA)	Transmit Power(dBm)
PON1	N/A	N/A	N/A	N/A
PON2	N/A	N/A	N/A	N/A

Port ID	Link Status	Speed	Rx Packets			Tx Packets			Collisions	Errors
			Packets	Broadcast	Multicast	Packets	Broadcast	Multicast		
PON1	Down	-	0	0	0	0	0	0	0	
PON2	Down	-	0	0	0	0	0	0	0	

Clear Counters Refresh

Figure 3-9 PON Information

### 3.4.3.2. Configuration

Port ID	Description	Admin Status	Flow Control	Isolate	PVID	MAX RTT(2000-32000TQ)	ONU P2P	Storm(0 64-1000000fps)			Rate(0 32-1000000kbps)		MAC Limit(0-16384)
								Broadcast	Multicast	Unicast	Ingress	Egress	
PON1		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	14500	<input type="checkbox"/>	512	0	512	0	0	0
PON2		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	14500	<input type="checkbox"/>	512	0	512	0	0	0

Figure 3-10 PON Configuration

The page includes the following fields:

Object	Description
Port ID	This is the logical port number for this row.
Description	Indicates the per port description.
Admin Status	A check box is provided for each port of Admin Status.
Flow Control	When <b>Flow Control</b> is selected, this section indicates the flow control capability that is advertised to the link partner.
Isolate	A check box is provided for each port of Isolate.
PVID	Select the VID of the port.

### 3.4.4 MAC

#### 3.4.4.1. MAC Table

Entries in the MAC Table are shown on this page.

Figure 3-11 MAC Table

### 3.4.4.2. Configuration

The MAC aging time is 300s by default. You can add a static MAC address manually with VLAN and port.

The screenshot shows a web-based configuration interface for MAC settings. It has two tabs: 'MAC Table' and 'Configuration', with 'Configuration' selected. The interface is divided into two main sections:

- MAC Aging Configuration:**
  - 'Automated Aging' is set to 'Enable' via a dropdown menu.
  - 'Aging Time' is set to '300' in a text input field, with '(10-1000000s)' shown as a hint.
  - A 'Submit' button is located below the input field.
- Add MAC Address:**
  - 'VLAN ID' is set to '1' via a dropdown menu.
  - 'MAC Address' is an empty text input field with '(HH:HH:HH:HH:HH:HH)' as a hint.
  - 'Type' has two radio buttons: 'Static' (which is selected) and 'Dynamic'.
  - 'Port ID' is set to 'GE1' via a dropdown menu.
  - 'Add' and 'Delete' buttons are located at the bottom of this section.

Figure 3-12 MAC Configuration

### 3.4.5 LACP

The **Link Aggregation Control Protocol (LACP)** provides a standardized means for exchanging information between Partner Systems on a link to allow their Link Aggregation Control instances to reach agreement on the identity of the Link Aggregation Group to which the link belongs, move the link to that Link Aggregation Group, and enable its transmission and reception functions in an orderly manner. Link aggregation lets you group up to eight consecutive ports into a single dedicated connection. This feature can expand bandwidth to a device on the network. **LACP operation requires full-duplex mode.** For more information, refer to IEEE 802.3ad.

The screenshot shows a web-based configuration interface for Static LACP. It has a single tab labeled 'Static LACP'. The interface is divided into two main sections:

- Channel Group Configuration:**
  - 'Channel Group ID' is set to '1' via a dropdown menu.
  - 'Load Balance' is set to 'smac' via a dropdown menu.
  - Below the dropdowns are four checkboxes labeled 'GE1', 'GE2', 'GE3', and 'GE4', all of which are currently unchecked.
  - A 'Submit' button is located below the checkboxes.
- Channel Group Table:**
  - A table with four columns: 'Group ID', 'Load Balance', 'Ports', and 'Delete'.
  - The table is currently empty.

Figure 3-13 Static LACP

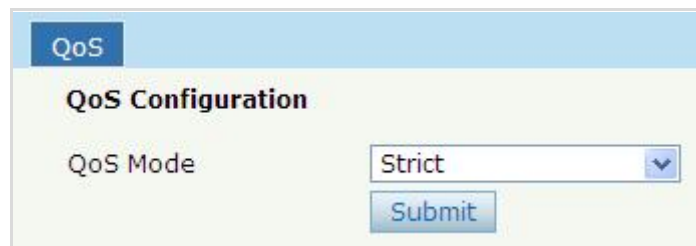
The page includes the following fields:

Object	Description
Channel Group ID	This is the ID for different group.
Load Balance	<p>Select different methods from the list.</p> <ul style="list-style-type: none"> <li>■ <b>smac</b>: Load distribution is based on the source-MAC address of the incoming packet</li> <li>■ <b>dmac</b>: Load distribution is based on the destination-host MAC address of the incoming</li> <li>■ <b>sdmac</b>: Load distribution is based on the source-and-destination host-MAC address</li> <li>■ <b>sip</b>: Load distribution is based on the source-host IP address</li> <li>■ <b>dip</b>: Load distribution is based on the destination-host IP address</li> <li>■ <b>sdip</b>: Load distribution is based on the source-and-destination host-IP address</li> </ul>

### 3.4.6 QoS

The EPL-2220 supports Layer 2 802.1p and Layer 3 DSCP QoS. Frames can be placed in different queues and serviced via Strict Priority, Weighted Round Robin (WRR) and Strict+WRR.

Select **OLT Configuration=>QoS** to set QoS configuration shown in Figure 3-14.



The screenshot shows a web interface for QoS configuration. At the top, there is a blue header with the text 'QoS'. Below this, the main content area is titled 'QoS Configuration'. Underneath the title, there is a label 'QoS Mode' followed by a dropdown menu that currently displays 'Strict'. To the right of the dropdown menu is a blue 'Submit' button.

Figure 3-14 QoS

### 3.4.7 ACL

#### 3.4.7.1. IP Filter

This part is about the security of OLT. It can permit or deny the clients access.



IP Filter	MAC Filter	IP/MAC Filter	Effect Filter					
<b>Access List IP Configuration</b>								
Access List ID	<input type="text"/>	(1000-1999)						
Filter Action	<input checked="" type="radio"/> Deny <input type="radio"/> Permit							
<input type="checkbox"/> Source IP	<input type="text"/>	Mask	<input type="text"/>					
<input type="checkbox"/> Source Port	<input type="text"/>	(0-65535)						
<input type="checkbox"/> Destination IP	<input type="text"/>	Mask	<input type="text"/>					
<input type="checkbox"/> Destination Port	<input type="text"/>	(0-65535)						
<input type="checkbox"/> Protocol	TCP	<input type="text"/>	(0-255)					
<input type="checkbox"/> DSCP	<input type="text"/>	(0-63)						
<input type="button" value="Add"/>								
<b>Access Lists Configured</b>								
List ID	Source IP	Source Port	Destination IP	Destination Port	Protocol	DSCP	Filter Action	Delete

Figure 3-15 IP Filter

Object	Description
<b>Access List ID</b>	Set the access list ID from 1000 to 1999.
<b>Filter Action</b>	Indicates the forwarding action of the OLT <ul style="list-style-type: none"> <li>■ <b>Permit:</b> Frames matching the OLT may be forwarded and learned.</li> <li>■ <b>Deny:</b> Frames matching the OLT are dropped.</li> </ul>
<b>Source IP</b>	Enter the Source IP address and Mask.
<b>Source Port</b>	Enter the Source Port from 0 to 65535.
<b>Destination IP</b>	Enter the Destination IP address and Mask.
<b>Destination Port</b>	Enter the Destination Port from 0 to 65535.
<b>Protocol</b>	Select the protocol from the list.
<b>DSCP</b>	Enter the DSCP from 0 to 63.

### 3.4.7.2. MAC Filter

By filtering MAC address, the OLT can easily filter the pre-configured MAC address and reduce the un-safety.

**Access List MAC Configuration**

Access List ID:  (2000-2999)

Filter Action:  Deny  Permit

Source MAC:  Mask  (HH:HH:HH:HH:HH:HH)

Destination MAC:  Mask  (HH:HH:HH:HH:HH:HH)

VLAN ID:  (dropdown)

VLAN Cos:  (0-7)

Ethernet Type:  (HHHH)

**Access Lists Configured**

List ID	Source MAC	Destination MAC	VLAN ID	Cos	Ethernet Type	Filter Action	Delete
---------	------------	-----------------	---------	-----	---------------	---------------	--------

Figure 3-16 MAC Filter

Object	Description
<b>Access List ID</b>	Set the access list ID from 2000 to 2999.
<b>Filter Action</b>	Indicates the forwarding action of the OLT <ul style="list-style-type: none"> <li>■ <b>Permit:</b> Frames matching the OLT may be forwarded and learned.</li> <li>■ <b>Deny:</b> Frames matching the OLT are dropped.</li> </ul>
<b>Source MAC</b>	Enter the Source MAC address and Mask.
<b>Destination MAC</b>	Enter the Destination MAC address and Mask.
<b>VLAN ID</b>	Select the VLAN ID from the list
<b>VLAN CoS</b>	Enter the VLAN CoS from 0 to 7.
<b>Ethernet Type</b>	Enter the Ethernet type.

## 3.4.7.3. IP/MAC Filter

IP Filter	MAC Filter	IP/MAC Filter	Effect Filter										
<b>Access List Configuration</b>													
Access List ID	<input type="text"/>	(5000-5999)											
Filter Action	<input checked="" type="radio"/> Deny <input type="radio"/> Permit												
<input type="checkbox"/> Source MAC	<input type="text"/>	Mask	<input type="text"/> (HH:HH:HH:HH:HH:HH)										
<input type="checkbox"/> Destination MAC	<input type="text"/>	Mask	<input type="text"/> (HH:HH:HH:HH:HH:HH)										
<input type="checkbox"/> VLAN ID	<input type="text" value="1"/>												
<input type="checkbox"/> VLAN Cos	<input type="text"/>	(0-7)											
<input type="checkbox"/> Ethernet Type	<input type="text"/>	(HHHH)											
<input type="checkbox"/> Source IP	<input type="text"/>	Mask	<input type="text"/>										
<input type="checkbox"/> Source Port	<input type="text"/>	(0-65535)											
<input type="checkbox"/> Destination IP	<input type="text"/>	Mask	<input type="text"/>										
<input type="checkbox"/> Destination Port	<input type="text"/>	(0-65535)											
<input type="checkbox"/> Protocol	<input type="text" value="TCP"/>	<input type="text"/>	(0-255)										
<input type="checkbox"/> DSCP	<input type="text"/>	(0-63)											
<input type="button" value="Add"/>													
<b>Access Lists Configured</b>													
List ID	Source MAC	Destination MAC	VLAN ID	Cos	Ethernet Type	Source IP	Source Port	Destination IP	Destination Port	Protocol	DSCP	Filter Action	Delete

Figure 3-17 IP/MAC Filter

Object	Description
<b>Access List ID</b>	Set the access list ID from 5000 to 5999.
<b>Filter Action</b>	Indicates the forwarding action of the OLT <ul style="list-style-type: none"> <li>■ <b>Permit:</b> Frames matching the OLT may be forwarded and learned.</li> <li>■ <b>Deny:</b> Frames matching the OLT are dropped.</li> </ul>
<b>Source MAC</b>	Enter the Source MAC address and Mask.
<b>Destination MAC</b>	Enter the Destination MAC address and Mask.
<b>VLAN ID</b>	Select the VLAN ID from the list
<b>VLAN Cos</b>	Enter the VLAN Cos from 0 to 7.
<b>Ethernet Type</b>	Enter the Ethernet type.
<b>Source IP</b>	Enter the Source IP address and Mask.
<b>Source Port</b>	Enter the Source Port from 0 to 65535.
<b>Destination IP</b>	Enter the Destination IP address and Mask.
<b>Destination Port</b>	Enter the Destination Port from 0 to 65535.
<b>Protocol</b>	Select the protocol from the list.
<b>DSCP</b>	Enter the DSCP from 0 to 63.

### 3.4.7.4. Effect Filter

Bind the access list to the ports then it can take effect. Each access list can be bound to several ports.

Figure 3-18 Effect Filter

Object	Description
Access List ID	Set the access list ID
Select GE Port	Select the GE port
Select PON Port	Select the PON port

### 3.4.8 IGMP

#### 3.4.8.1. Group Member

This page will display the IGMP group member.

Figure 3-19 IGMP Group Member

### 3.4.8.2. Global

To enable the IGMP snooping mode, click **OLT Configuration=>IGMP=>Global**.

The screenshot shows the 'IGMP Configuration' page with the following fields and values:

- IGMP Status: Disable
- Last Member Query Interval: 1 (1-255s)
- Last Member Query Count: 2 (1-255)
- Last Member Query Response: 1 (1-255s)
- General Query Packet:  Disable  Enable
- General Query Interval: 125 (10-255s)
- Query Source IP: 1.1.1.1

Buttons: Submit, Reset

**Figure 3-20** IGMP Configuration

Object	Description
<b>IGMP Status</b>	Enable or disable the IGMP snooping. The default value is "Disabled".
<b>Last Member Query Interval</b>	Display the current last member query interval
<b>Last Member Query Count</b>	Display the current last member query count
<b>Last Member Query Response</b>	Display the current last member query response
<b>General Query Packet</b>	Enable or disable the General Query Packet. The default value is "Disabled".
<b>General Query Interval</b>	Display the current query interval
<b>Query Source IP</b>	Enter the query source IP

### 3.4.8.3. Port

Click **OLT Configuration=>IGMP=>Port** to set group limit value, fast leave and filter.

**IGMP Port Configuration**

Port ID	Fast Leave	Filter	Group Limit(0-1024)
GE1	<input type="checkbox"/>	<input type="checkbox"/>	1024
GE2	<input type="checkbox"/>	<input type="checkbox"/>	1024
GE3	<input type="checkbox"/>	<input type="checkbox"/>	1024
GE4	<input type="checkbox"/>	<input type="checkbox"/>	1024
PON1	<input type="checkbox"/>	<input type="checkbox"/>	1024
PON2	<input type="checkbox"/>	<input type="checkbox"/>	1024

Submit Reset

Figure 3-21 IGMP Port Configuration

Object	Description
Fast Leave	Enable or disable fast leave
Filter	Enable or disable filter
Group Limit	Enter the group limit from 0 to 1024

#### 3.4.8.4. Port User VLAN

**User VLAN Configuration**

Port ID: GE1  
 User VLAN ID: 1  
 Group VLAN ID: 1

Add

**User VLAN Table**

Port ID	User VLAN ID	Group VLAN ID	Delete
---------	--------------	---------------	--------

Figure 3-22 User VLAN Configuration

Object	Description
Port ID	Select the port ID
User VLAN ID	Select the user VLAN ID
Group VLAN ID	Select the group VLAN ID

### 3.4.8.5. Port Mrouter

Figure 3-23 Add Multicast Router

Object	Description
Port ID	Select the port ID
Group VLAN ID	Select the group VLAN ID

### 3.4.8.6. Static Group

Multicast filtering can be dynamically configured using IGMP Snooping and IGMP Query messages as described in above sections. For certain applications that require tighter control, you may need to statically configure a multicast service on the OLT. First add all the ports attached to participating hosts to a common VLAN, and then assign the multicast service to that VLAN group.

- Static multicast addresses are never aged out.
- When a multicast address is assigned to an interface in a specific VLAN, the corresponding traffic can only be forwarded to ports within that VLAN.

Figure 3-24 Add Static Group

Object	Description
--------	-------------

<b>Port ID</b>	Select the port ID
<b>IP Address</b>	The IP address for a specific multicast service
<b>User VLAN ID</b>	Select the VLAN ID

### 3.4.9 RSTP

#### 3.4.9.1. Information

**Figure 3-25** RSTP Status

#### 3.4.9.2. Global

Enter **OLT Configuration=>RSTP=>Global** to enable RSTP.

**Figure 3-26** RSTP Configuration

Object	Description
<b>RSTP Status</b>	Enable or disable the RSTP.
<b>Global Priority</b>	Controls the bridge priority. Lower numeric values have better priority.
<b>Hello Time</b>	The time that controls the switch to send out the BPDU packet to check RSTP current status. Enter a value between 1 and 10.
<b>Max. Age</b>	The maximum age of the information transmitted by the Bridge when it is the Root Bridge. Valid values are in the range from 6 to 40 seconds. -Default: 20 -Minimum: The higher of 6 or $[2 \times (\text{Hello Time} + 1)]$ .



	-Maximum: The lower of 40 or [2 x (Forward Delay -1)]
<b>Forward Delay</b>	The delay used by RSTP Bridges to transition Root and Designated Ports to Forwarding (used in RSTP compatible mode). Valid values are in the range from 4 to 30 seconds  -Default: 15  -Minimum: The higher of 4 or [(Max. Message Age / 2) + 1]  -Maximum: 30

### 3.4.9.3. Port

The RSTP ports parameter can be set by selecting.

Port ID	Status	Priority (0-255)	Cost (1-200000000)	OperEdge	Point To Point
GE1	<input checked="" type="checkbox"/>	128	200000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
GE2	<input checked="" type="checkbox"/>	128	200000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
GE3	<input checked="" type="checkbox"/>	128	200000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
GE4	<input checked="" type="checkbox"/>	128	200000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Submit Reset

Figure 3-27 RSTP Port

Object	Description
<b>Port ID</b>	Port number of the OLT.
<b>Status</b>	Select the port number.
<b>Priority</b>	Controls the port priority. This can be used to control priority of ports having identical port cost.  Default: <b>128</b>
<b>Cost</b>	Controls the path cost incurred by the port.  The path cost is used when establishing the active topology of the network. Lower path cost ports are chosen as forwarding ports in favor of higher path cost ports. Valid values are in the range from 1 to 200000000.
<b>OperEdge</b>	Enable or disable the OperEdge
<b>Point to Point</b>	Enable or disable the Point to Point

### 3.4.10 DHCP

OLT supports 3 services of DHCP: DHCP server, DHCP relay and DHCP Snooping.

#### 3.4.10.1. DHCP Server

When enable OLT DHCP server, the connecting devices will obtain an IP address.

- Lease



Figure 3-28 DHCP Server Lease

- Configuration

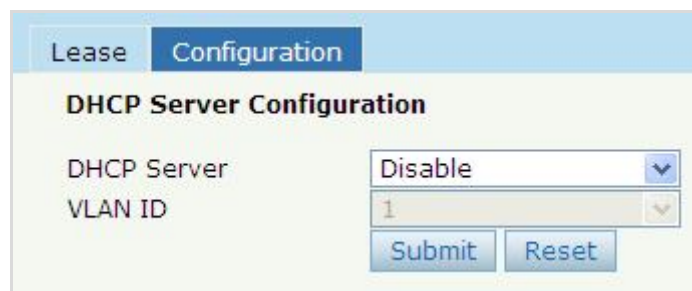


Figure 3-29 DHCP Server Configuration

Object	Description
DHCP Server	Enable or disable DHCP Server
VLAN ID	Select the VLAN ID

#### 3.4.10.2. DHCP Relay

When the DHCP server and the clients are not in the same subnet, DHCP relay can help the clients get the IP address from the server. The relay server IP address network segment should be the same as the DHCP server.

Figure 3-30 DHCP Relay Configuration

Object	Description
Server IP	Enter the IP of the DHCP Relay Server
VLAN ID	Select the VLAN ID

### 3.4.10.3. DHCP Snooping

To prevent the DHCP message from attacking and to protect your IP address, it can deny the DHCP offering packets. DHCP snooping is used for denying the DHCP offering packets. The DHCP server is forbidden to allocate the IP address successfully.

- Bind List

Figure 3-31 DHCP Snooping Bind List

- Global

Figure 3-32 DHCP Snooping Configuration

Object	Description
DHCP Snooping	<p>Indicates the DHCP snooping mode operation. Possible modes are:</p> <p><b>Enabled:</b> Enable DHCP snooping mode operation.</p> <p>When enabling DHCP snooping mode operation, the requested DHCP messages will be forwarded to trusted ports and only allowed reply packets from trusted ports.</p> <p><b>Disabled:</b> Disable DHCP snooping mode operation.</p>

- Port

Port ID	Type	Option82 Circuit ID	Option82 Remote ID	Limit Rate(0-4096)
GE1	Untrust			0
GE2	Untrust			0
GE3	Untrust			0
GE4	Untrust			0
PON1	Untrust			0
PON2	Untrust			0

Figure 3-33 DHCP Snooping Port Configuration

Object	Description
Type	<p>Indicates the DHCP snooping port mode. Possible port modes are:</p> <ul style="list-style-type: none"> <li>■ <b>Trusted:</b> Configures the port as trusted sources of the DHCP message.</li> <li>■ <b>Untrusted:</b> Configures the port as untrusted sources of the DHCP message.</li> </ul>
Option82 Circuit ID	Set the option1 (Circuit ID) content of option 82 added by DHCP request packets
Option82 Remote ID	Set the option2 (Remote ID option) content of option 82 added by DHCP request packets.
Limit Rate	Configure the rate limit for the port policer.

- Static Bind

Fill in the MAC address and choose the VLAN ID, port ID and the lease time. Click "Add" to create a DHCP snooping bind list.

Figure 3-34 Add DHCP Snooping Bind

Object	Description
MAC Address	Sourcing MAC address is allowed
VLAN ID	Indicates the ID of this particular VLAN
IP Address	Sourcing IP address is allowed
Port ID	Select port from this drop-down list
Lease	Lease time from 60 to 100000 seconds

### 3.4.11 IP Route

#### 3.4.11.1. VLAN IP

Figure 3-35 VLAN IP

Object	Description
VLAN ID	Indicates the ID of this particular VLAN

<b>IP Address</b>	Enter the IP address
<b>Subnet Mask</b>	Enter the Subnet mask

### 3.4.11.2. ARP Proxy

Figure 3-36 ARP Proxy Configuration

Object	Description
<b>VLAN ID</b>	Indicates the ID of this particular VLAN
<b>ARP Proxy</b>	Enable or disable the ARP Proxy

### 3.4.11.3. Static Route

Figure 3-37 Add Static Route

Object	Description
Destination IP	Enter the destination IP address
Destination Mask	Enter the destination subnet mask
Gateway	Enter the gateway

### 3.5 ONU Configuration

This chapter is about configuring a single ONU by OLT.

#### 3.5.1 ONU List

Figure 3-38 ONU List

Press “Config” to configure the ONU if the OLT is connected with ONU already.

ONU ID	LLID	Description	MAC Address	RTT	Type	Auth Flag	Exchange	Auth Mode	Loid/pwd	Last Dereg Reason	Action
1	0	NULL		96	1GE	Auth	Idle	None	NULL	Wire Down	<a href="#">Config</a> <a href="#">Profile</a> <a href="#">Deregister</a> <a href="#">Reset</a> <a href="#">Unauth</a>

Figure 3-39 ONU Authentication Information

### 3.5.1.1. Information

This page shows the basic information of the ONU connected with OLT.

ONU List

Information
Bandwidth
Port
VLAN
QoS
IGMP
Alarm
Advance
PON 1 ONU 1
Go Back

**Basic Information**

Description  Submit

Basic Information			
Vendor ID		Model ID	
ONU ID		Hardware Version	V1.3.0
Software Version	V1.7.1	Firmware Version	
Optical Module Information			
Temperature	32 C	Supply Voltage	3.31 V
Bias Current	16 mA	Transmit Power	1.4525 mW (1.6212 dBm)
Receive Power	0.2494 mW (-6.0310 dBm)		
CAP2 Information			
ONU Type	SFU	Multi LLID	unsupport
Protection Type	unsupport	PONIF Count	1
Slot Count	0	Interface Type Count	1
Interface Type Port	GE(1);		

Figure 3-40 ONU Information

### 3.5.1.2. Bandwidth

This page is able to enable the bandwidth control for upstream and downstream.

ONU List

Information
Bandwidth
Port
VLAN
QoS
IGMP
Alarm
Advance

**Bandwidth Configuration**

Type	Enable	Content	
Upstream	<input type="checkbox"/>	Fix Rate	<input style="width: 100px;" type="text" value="0"/> (0-950000Kbps)
		Commit Rate	<input style="width: 100px;" type="text" value="0"/> (1-950000Kbps)
		Peak Rate	<input style="width: 100px;" type="text" value="0"/> (512-1000000Kbps)
		WRR Weight	<input style="width: 100px;" type="text" value="0"/> (1-20)
Downstream	<input type="checkbox"/>	Peak Rate	<input style="width: 100px;" type="text" value="0"/> (0-1000000Kbps)
		WRR Weight	<input style="width: 100px;" type="text" value="0"/> (1-16)

Submit

Figure 3-5-4: ONU Bandwidth



Object	Description
Enable	Select the check box to enable bandwidth control of this OLT.
Fix Rate	Specify the fix rate from 0 to 950000Kbps
Commit Rate	Specify the bandwidth for the incoming traffic flow on a port. The commit rate should be less than the peak rate. The sum of commit rate cannot be greater than or equal to the uplink bandwidth.
Peak Rate	Specify the bandwidth for the incoming or outgoing traffic flow on a port.
WRR Weight	Controls the weight for this queue

### 3.5.1.3. Port

You can activate and configure the ONU port settings.

Figure 3-41 ONU Port

Object	Description
Enable	Select the check box to enable bandwidth control of this OLT.
Commit Rate	Specify the bandwidth for the incoming traffic flow on a port. The commit rate should be less than the peak rate. The sum of commit rate cannot be greater than or equal to the uplink bandwidth.

<b>Certain Burst</b>	Enter the certain burst
<b>Extra Burst</b>	Enter the extra burst
<b>Peak Rate</b>	Specify the bandwidth for the incoming or outgoing traffic flow on a port.

### 3.5.1.4. VLAN

The screenshot shows a web-based configuration interface for an ONU. At the top, there is a blue header with the text 'ONU List'. Below this header is a horizontal menu with several tabs: 'Information', 'Bandwidth', 'Port', 'VLAN', 'QoS', 'IGMP', 'Alarm', and 'Advance'. The 'VLAN' tab is currently selected and highlighted. Underneath the menu, the section is titled 'VLAN Configuration'. This section contains two configuration fields: 'ONU Port' with a dropdown menu showing 'Port1', and 'VLAN Mode' with a dropdown menu showing 'transparent'. Below these fields is a blue 'Submit' button.

Figure 3-42 ONU VLAN

Object	Description
<b>ONU Port</b>	Select the port from the list
<b>VLAN Mode</b>	There are four modes: <b>transparent, tag, translation, aggregation and trunk modes.</b>

3.5.1.5. QoS

Figure 3-43 ONU QoS

Object	Description
<b>ONU Port</b>	Indicates the port for QoS
<b>Precedence</b>	Enter the Precedence between 1 and 8
<b>Priority</b>	Enter the Priority between 0 and 7
<b>Queue</b>	Enter the Queue between 0 and 7

3.5.1.6. IGMP

Figure 3-44 ONU IGMP

Object	Description
Multicast Switch	Select <b>Snooping</b> or <b>CTC Control</b>
Fast Leave State	Enable or disable the fast leave on the ONU
ONU Port	Indicates the port for IGMP
Multicast Max. Group	Enter the group from 0 to 255
Multicast VLAN	Enter the multicast VLAN
VLAN Tag Strip Mode	Select <b>No Strip</b> , <b>Strip</b> or <b>VLAN Translate</b>

### 3.5.1.7. Alarm

The screenshot shows the 'ONU Alarm' configuration page. It features a top navigation bar with tabs for 'Information', 'Bandwidth', 'Port', 'VLAN', 'QoS', 'IGMP', 'Alarm' (selected), and 'Advance'. Below the tabs is the 'ONU List' header. The main content area is divided into three sections: 'ONU Alarm Information', 'PON Alarm Information', and 'Port Alarm Information'. Each section contains configuration fields for Alarm Type, Alarm Status, Alarm Threshold, and Clear Threshold.

**ONU Alarm Information**

Alarm Type: Equipment Alarm (dropdown)  
 Alarm Status: (text field)

**PON Alarm Information**

Alarm Type: Rx Power High Alarm (dropdown)  
 Alarm Status: (text field)  
 Alarm Threshold: -inf dBm  
 Clear Threshold: -inf dBm

**Port Alarm Information**

Port ID: Port1 (dropdown)  
 Alarm Type: Ethernet Port Auto Neg Failure (dropdown)  
 Alarm Status: (text field)  
 Alarm Threshold: (text field)  
 Clear Threshold: (text field)

Figure 3-45 ONU Alarm

Object	Description
ONU Alarm Type	Select alarm type from the list
PON Alarm Type	Select alarm type from the list
ONU Port	Indicates the port for alarm
Port PON Alarm Type	Select alarm type from the list

### 3.5.1.8. Advance

On this page you can enter the IP configuration.

**ONU List**

Information | Bandwidth | Port | VLAN | QoS | IGMP | Alarm | **Advance**

**Management IP Configuration**

IP Address: 192.168.101.8  
 Network Mask: 255.255.255.0  
 Gateway: 0.0.0.0  
 Client VLAN: 1 (0-4095)  
 Service VLAN: 0 (0-4095)  
 Priority: 1280 (0-7)

**MAC Aging Configuration**

Aging Time: 0 (0-4294967295)

Figure 3-46 ONU Advance

### 3.5.2 Authentication

#### 3.5.2.1. Authentication Mode

Enable or disable the authentication mode here.

**Authentication Mode** | MAC List | LOID List

**ONU Authentication**

Port ID	Authentication Mode
PON1	Disable
PON2	Disable

submit

Figure 3-47 ONU Authentication

Object	Description
Port ID	Indicates the ID of this PON port
Authentication Mode	Select <b>Disable</b> , <b>MAC</b> , <b>LOID</b> or <b>Hybrid</b>

### 3.5.2.2. MAC List

Authentication Mode **MAC List** LOID List

**ONU MAC Authentication**

Port ID

MAC Type

**Add MAC**

MAC Address  (HH:HH:HH:HH:HH:HH)

**White MAC Authentication Table**

Index	MAC	Delete
1	11:22:33:44:55:66	

Figure 3-48 ONU MAC Authentication

Object	Description
Port ID	Select the port from the list
MAC Type	Select White list or Black list
MAC Address	Enter the MAC Address

### 3.5.2.3. LOID List

Authentication Mode MAC List **LOID List**

**ONU LOID**

Port ID

**Add LOID**

LOID

Password

**ONU LOID Authentication Table**

Index	LOID	Password	Delete
-------	------	----------	--------

Figure 3-49 ONU LOID

Object	Description
Port ID	Select the port from the list
LOID	Enter the LOID
Password	Enter the password

### 3.5.3 Upgrade

#### 3.5.3.1. Upgrade Status

Figure 3-50 ONU Upgrade Status

#### 3.5.3.2. Manual Upgrade

Figure 3-51 ONU Manual Upgrade



Object	Description
Port ID	Select the port from the list
Select ONU	Select the ONU connected to OLT

### 3.5.3.3. Auto Upgrade

Upgrade Status   Manual Upgrade   **Auto Upgrade**

**Add ONU Auto Upgrade**

Force Mode       Disable    Enable

Vendor ID     

Model ID     

Software Version     

Select File         No file selected.

**ONU Auto Upgrade Information**

Force State	Vendor ID	Model ID	Software Version	Image Name	IP Address	Delete
-------------	-----------	----------	------------------	------------	------------	--------

Figure 3-52 ONU Auto Upgrade

Object	Description
Force Mode	Enable or disable the force mode
Vendor ID	Enter the Vendor ID
Model ID	Enter the Model ID
Software Version	Enter the software version

### 3.6 Profile Configuration

This chapter is about the ONU profile configuration. It is designed for batch ONU management by OLT.

#### 3.6.1 DBA Profile

The default system will have an ID 0 DBA template and these template parameters cannot be modified. All ONUs will be bound to the template. When the user binds manually, the new template will take effect.

##### 3.6.1.1. Add/Commit

**Create DBA Profile**

Profile ID  (1-32767)

**DBA Profile Information**

Profile ID  ▼

Key	Value
-----	-------

Figure 3-53 Create DBA Profile

##### 3.6.1.2. Bandwidth

**DBA Profile Bandwidth**

Profile ID  ▼

Type	Active	Configuration content
Upstream Configuration	<input type="checkbox"/>	Upstream FIR <input type="text" value="0"/> (0-950000Kbps)
		Upstream CIR <input type="text" value="0"/> (1-950000Kbps)
		Upstream PIR <input type="text" value="0"/> (512-1000000Kbps)
		Upstream Weight <input type="text" value="0"/> (1-20)
Downstream Configuration	<input type="checkbox"/>	Downstream PIR <input type="text" value="0"/> (0-1000000Kbps)
		Downstream Weight <input type="text" value="0"/> (1-16)

Figure 3-54 DBA Profile Bandwidth

### 3.6.2 Service Profile

Create a server profile and it can be shown in the table when user selects the profile ID.

#### 3.6.2.1. Add/Commit

Please add a profile ID and then it can be selected in the Service Profile Information of every service.

Key	Value
Ports Count	0
Global Parameter	

Figure 3-55 Create Service Profile

#### 3.6.2.2. LAN Count

Type	Active	Configuration content
Lan Count	<input type="checkbox"/>	-1 (0-255)

Figure 3-56 Service Profile LAN Count

### 3.6.2.3. Global

Add/Commit	LAN Count	<b>Global</b>	Port	VLAN	QoS	IGMP	WAN	WIFI	DHCP Server
------------	-----------	---------------	------	------	-----	------	-----	------	-------------

**Service Profile MAC Age Time**

Profile ID

Type	Active	Configuration content
MAC Agetime	<input type="checkbox"/>	0 (0-4294967295)

Figure 3-57 Service Profile MAC Age Time

### 3.6.2.4. Port

Add/Commit	LAN Count	Global	<b>Port</b>	VLAN	QoS	IGMP	WAN	WIFI	DHCP Server
------------	-----------	--------	-------------	------	-----	------	-----	------	-------------

**Service Profile PortBasic**

Profile ID

Ethernet Port

Type	Active	Configuration content
Pause	<input type="checkbox"/>	<input type="radio"/> disable <input type="radio"/> enable
Loopdetect	<input type="checkbox"/>	<input type="radio"/> disable <input type="radio"/> enable
Phy Control	<input type="checkbox"/>	<input type="radio"/> disable <input type="radio"/> enable
Autoneg	<input type="checkbox"/>	<input type="radio"/> disable <input type="radio"/> enable
Disable Loop	<input type="checkbox"/>	<input type="radio"/> disable <input type="radio"/> enable
UpStream	<input type="checkbox"/>	Committed Information Rate <input type="text" value="0"/> (1-1048576 Kbps)
		Port Policing Bucket Depth <input type="text" value="0"/> (1-10240 Byte)
		Port Policing Extra Burst Size <input type="text" value="0"/> (1-10240 Byte)
DownStream	<input type="checkbox"/>	Committed Information Rate <input type="text" value="0"/> (1-1048576 Kbps)
		Peak Information Rate <input type="text" value="0"/> (1-1048576 Kbps)

Figure 3-58 Service Profile Port Basic

## 3.6.2.5. VLAN

Add/Commit	LAN Count	Global	Port	VLAN	QoS	IGMP	WAN	WIFI	DHCP Server
<b>Service Profile VLAN</b>									
Profile ID		<input type="text"/>							
Ethernet Port		<input type="text"/>							
Type	Active	Configuration content							
VLAN	<input type="checkbox"/>	VLAN Mode	<input type="text" value="tag"/>						
		Pvid	<input type="text" value="(1-4095)"/>						
<input type="button" value="Submit"/>									

Figure 3-59 Service Profile VLAN

Object	Description
Active	Check box to active VLAN
VLAN Mode	There are four modes: <b>transparent, tag, translation, aggregation and trunk modes.</b>

3.6.2.6. QoS

Add/Commit LAN Count Global Port VLAN QoS IGMP WAN WIFI DHCP Server

**Class Configuration**

Profile ID

Ethernet Port

Precedance  (1-8)

Priority  (0-7)

Queue  (0-7)

<input type="checkbox"/> Destination MAC	Equal	<input style="width: 80px;" type="text"/>	(HH:HH:HH:HH:HH:HH)
<input type="checkbox"/> Source MAC	Equal	<input style="width: 80px;" type="text"/>	(HH:HH:HH:HH:HH:HH)
<input type="checkbox"/> VLAN	Equal	<input style="width: 80px;" type="text"/>	(1-4094)
<input type="checkbox"/> COS	Equal	<input style="width: 80px;" type="text"/>	(0-7)
<input type="checkbox"/> Ethernet Type	Equal	<input style="width: 80px;" type="text"/>	
<input type="checkbox"/> Destination IP	Equal	<input style="width: 80px;" type="text"/>	
<input type="checkbox"/> Source IP	Equal	<input style="width: 80px;" type="text"/>	
<input type="checkbox"/> Protocol	Equal	<input style="width: 80px;" type="text"/>	(0-255)
<input type="checkbox"/> TOS	Equal	<input style="width: 80px;" type="text"/>	(0-255)
<input type="checkbox"/> Destination Port	Equal	<input style="width: 80px;" type="text"/>	(0-65535)
<input type="checkbox"/> Source Port	Equal	<input style="width: 80px;" type="text"/>	(0-65535)

Add

Precedance
Priority
Queue
Class Details
Delete

Figure 3-60 Service Profile QoS

Object	Description
<b>Ethernet Port</b>	Indicates the port for QoS
<b>Precedence</b>	Enter the Precedence between 1 and 8
<b>Priority</b>	Enter the Priority between 0 and 7
<b>Queue</b>	Enter the Queue between 0 and 7

3.6.2.7. IGMP

Add/Commit LAN Count Global Port VLAN QoS **IGMP** WAN WIFI DHCP Server

**Service Profile MultiCast**

Profile ID

Type	Active	Configuration content
Fast Leave	<input type="checkbox"/>	<input type="radio"/> disable <input type="radio"/> enable
Multicast Switch	<input type="checkbox"/>	<input type="radio"/> snooping <input type="radio"/> control

Ethernet Port

Type	Active	Configuration content
Multicast Max Group	<input type="checkbox"/>	Max Group <input type="text" value="0"/> (0-255)
Multicast VLAN	<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> (1-4095)
Multicast Translation	<input type="checkbox"/>	Multicast Tag Strip <input type="text"/>

Figure 3-61 Service Profile Multicast

Object	Description
<b>Fast Leave</b>	Enable or disable the fast leave on the ONU
<b>Multicast Switch</b>	Select <b>Snooping</b> or <b>CTC Control</b>
<b>Ethernet Port</b>	Indicates the port for IGMP
<b>Multicast Max Group</b>	Enter the group from 0 to 255
<b>Multicast VLAN</b>	Enter the multicast VLAN
<b>VLAN Tag Strip Mode</b>	Select <b>disable</b> , <b>enable</b> or <b>translate</b>

### 3.6.2.8. WAN

Add/Commit LAN Count Global Port VLAN QoS IGMP **WAN** WIFI DHCP Server

**WAN Connect Profile Configuration**

Profile ID

**Add WAN Connect**

WAN Connect Mode

**WAN Connect Parameter Configuration**

WAN Index

Mode

VLAN Mode

QoS Enable

Service Mode

Port Binding  Lan1  Lan2  Lan3  Lan4  
 SSID1  SSID2  SSID3  SSID4

**WAN Connect Table**

Index	WAN Mode	Connect Mode	VLAN Mode	Service Mode	BindLan	BindSSID	Delete
-------	----------	--------------	-----------	--------------	---------	----------	--------

Figure 3-62 WAN Connection Profile Configuration

Object	Description
<b>WAN Connect Mode</b>	Select bridge or route
<b>Mode</b>	Select bridge or route
<b>VLAN Mode</b>	Select Disable, Tag or Transparent
<b>QoS Enable</b>	Select Enable or Disable
<b>Service</b>	Select Internet or Other
<b>Port Binding</b>	Select the port to be bound



## 3.6.2.9. Wi-Fi

Add/Commit	LAN Count	Global	Port	VLAN	QoS	IGMP	WAN	<b>WIFI</b>	DHCP Server
------------	-----------	--------	------	------	-----	------	-----	-------------	-------------

**WIFI Service Profile**

Profile ID

**WIFI Switch Configuration**

Status

Communication Rules

Protocol Cluster

Channel  (ETSI:0-13,FCC:0-11;0:auto)

Transmit Power  (0-20dBm)

**WIFI SSID Configuration**

SSID

Name

ONU WIFI Status

Hide Status

Network Authentication

Encrypt Type

**WIFI SSID Table**

SSID	Statue	Name	Hide	Auth Mode	Encrypt Type	Content	Delete
------	--------	------	------	-----------	--------------	---------	--------

Figure 3-63 Wi-Fi Service Profile

Object	Description
Status	Select <b>disable</b> or <b>enable</b>
Communication Rules	Select <b>ETSI</b> or <b>FCC</b>
Protocol Cluster	Select <b>802.11b</b> , <b>802.11g</b> , <b>802.11bg</b> , <b>802.11n</b> , <b>802.11bgn</b> or <b>unknown</b>
Channel	Enter the channel
Transmit Power	Enter the transmit power
SSID	Select the SSID from the list
Name	Enter the Wi-Fi name
Hide Status	Select <b>disable</b> or <b>enable</b> to hide SSID

<p><b>Network Authentication</b></p>	<p>Select the security mode from the dropdown list. There are 9 options in the dropdown list:</p> <ul style="list-style-type: none"> <li>■ Open</li> <li>■ Shared</li> <li>■ WEPAUTO</li> <li>■ WPAPSK</li> <li>■ WPA</li> <li>■ WPA2PSK</li> <li>■ WPA2</li> <li>■ WPA/WPA2</li> <li>■ WPA PSK /WPA2PSK</li> </ul>
<p><b>Encrypt Type</b></p>	<p>Select the encryption type from the list</p>

**3.6.2.10. DHCP Server**

**Figure 3-64** Service Profile DHCP Server

Object	Description
LAN IP Address	Enter the IP address
LAN Subnet Mask	Enter the subnet mask
DHCP Server	Select <b>Disable</b> , <b>Enable</b> or <b>Relay</b>
Lease Time	Enter the DHCP lease time
Beginning IP Address	Enter the DHCP server start IP
Ending IP Address	Enter the DHCP server end IP
Pool Type	Select <b>PC</b> , <b>Camera</b> , <b>STB</b> or <b>IP Phone</b>

<b>Master DNS</b>	Enter the DHCP DNS1
<b>Slave DNS</b>	Enter the DHCP DNS2
<b>Gateway</b>	Enter the DHCP Gateway

### 3.6.3 VoIP Profile

To create a profile first, it will be shown in the table when user selects the profile ID.

#### 3.6.3.1. Add/Commit

Figure 3-65 Create VoIP Profile

#### 3.6.3.2. POTS Count

Figure 3-66 Create VoIP Profile

3.6.3.3. VoIP

Add/Commit	POTS Count	VoIP	SIP	H.248	POTS
<b>VoIP Global Profile</b>					
Profile ID		<input type="text" value=""/>			
Type	Active	Content			
VoIP Global	<input type="checkbox"/>	Voice IP Mode	Static IP <input type="text" value=""/>		
		IP Address	<input type="text" value=""/> (x.x.x.x)	Mask	<input type="text" value=""/> (x.x.x.x)
		Gateway	<input type="text" value=""/> (x.x.x.x)		
		VLAN Mode	Transparent <input type="text" value=""/>		
		CVLAN	<input type="text" value="0"/> (0-4095)	SVLAN	<input type="text" value="0"/> (0-4095)
Priority	<input type="text" value="0"/> (0-7)				
Fax/Modem	<input type="checkbox"/>	Voice T38 Status	disable <input type="text" value=""/>		
		Fax/Modem Control	negotiation <input type="text" value=""/>		
<input type="button" value="Submit"/>					

Figure 3-67 VoIP Global Profile

3.6.3.4. SIP

Add/Commit	POTS Count	VoIP	<b>SIP</b>	H.248	POTS
------------	------------	------	------------	-------	------

**SIP Global Profile**

Profile ID

Type	Active	Content			
SIP Parameter	<input type="checkbox"/>	Manage Port	<input type="text" value="0"/>	(1-65535)	
		Proxy IP/Port	<input type="text" value=""/>	(x.x.x.x)	<input type="text" value="0"/> (1-65535)
		Backup Proxy IP/Port	<input type="text" value=""/>	(x.x.x.x)	<input type="text" value="0"/> (0-65535)
		Register IP/Port	<input type="text" value=""/>	(x.x.x.x)	<input type="text" value="0"/> (1-65535)
		Backup Register IP/Port	<input type="text" value=""/>	(x.x.x.x)	<input type="text" value="0"/> (0-65535)
		Out Bound IP/Port	<input type="text" value=""/>	(x.x.x.x)	<input type="text" value="0"/> (1-65535)
		Register Interval	<input type="text" value="3600"/>	(1-10000000)	
		Heartbeat Switch	<input type="text" value="disable"/>	<input type="button" value="v"/>	
		Cycle/Count	<input type="text" value="0"/>	(1-65535)	<input type="text" value="0"/> (1-65535)
SIP Digit Map	<input type="checkbox"/>	Digit Map	<input type="text" value=""/>		

Figure 3-68 SIP Global Profile

3.6.3.5. H.248

Add/Commit POTS Count VoIP SIP **H.248** POTS

**H.248 Global Profile**

Profile ID

Type	Active	Content	
H.248 Parameter	<input type="checkbox"/>	Manage Port	<input type="text" value="0"/> (1-65535)
		MGC IP/Port	<input type="text"/> (x.x.x.x) <input type="text" value="0"/> (1-65535)
		Backup IP/Port	<input type="text"/> (x.x.x.x) <input type="text" value="0"/> (0-65535)
		Register Mode/MID	IP Addr <input type="text"/> <input type="text"/>
		Heartbeat Mode	disable <input type="text"/>
		Cycle/Count	<input type="text" value="0"/> (1-65535) <input type="text" value="0"/> (1-255)
H.248 RTP TID	<input type="checkbox"/>	Number/Prefix	<input type="text" value="0"/> (0-255) <input type="text"/>
		Digit Begin/End	<input type="text" value="0"/> <input type="text" value="0"/>
		Mode/Length	align <input type="text"/> <input type="text" value="0"/> (0-255)

Figure 3-69 H.248 Global Profile

3.6.3.6. POTS

Add/Commit POTS Count VoIP SIP H.248 **POTS**

**POTS Profile**

Profile ID

Profile POTS

Type	Active	Content	
Port Manage	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable	
H.248 User	<input type="checkbox"/>	User TID	<input type="text"/>
SIP User	<input type="checkbox"/>	User Account	<input type="text"/>
		User Name	<input type="text"/>
		User Password	<input type="text"/>

Figure 3-70 POTS Profile

### 3.6.4 Alarm Profile

The alarm profile contains ONU global threshold alarm, PON alarm, port alarm and POTS alarm.

#### 3.6.4.1. Add/Commit

Add/Commit
ONU
PON
Port
POTS

**Create Alarm Profile**

Profile ID  (1-32767)  
Add

**Alarm Profile Information**

Profile ID  ▼

Key	Value
ONU Alarm	
PON Alarm	
Port Alarm	Port1:Port Loopback      State:enable
POTS Alarm	

**Figure 3-71** Create Alarm Profile

3.6.4.2. ONU

Add/Commit **ONU** PON Port POTS

**ONU Alarm Profile Configuration**

Profile ID

Alarm Type	Active	State / Alarm Threshold / Clear Threshold
Equipment Alarm	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
Power Alarm	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
Battery Missing	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
Battery Failure	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
Battery Volt Low	<input type="checkbox"/>	<input type="checkbox"/> <input type="text" value="0"/> <input type="text" value="0"/> (0..65535,units:0.1V)
Physical Intrusion	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
ONU Self Test Failure	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
ONU Temp High Alarm	<input type="checkbox"/>	<input type="checkbox"/> <input type="text" value="0"/> <input type="text" value="0"/> (-1280..1280,units:0.1C)
ONU Temp Low Alarm	<input type="checkbox"/>	<input type="checkbox"/> <input type="text" value="0"/> <input type="text" value="0"/> (-1280..1280,units:0.1C)
Iad Connection Failure	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
PON If Switch	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
Sleep Status Update	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable

Figure 3-72 ONU Alarm Profile Configuration



## 3.6.4.3. PON

Add/Commit		ONU	PON	Port	POTS
<b>PON Alarm Profile</b>					
Profile ID		<input type="text" value=""/>			
Alarm Type	Active	State / Alarm Threshold / Clear Threshold			
Rx Power High Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(-400..82,units:0.1dBm)
Rx Power Low Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(-400..82,units:0.1dBm)
Tx Power High Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(-400..82,units:0.1dBm)
Tx Power Low Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(-400..82,units:0.1dBm)
Tx Bias High Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(0..1310,units:0.1mA)
Tx Bias Low Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(0..1310,units:0.1mA)
Vcc High Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(0..65,units:0.1V)
Vcc Low Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(0..65,units:0.1V)
Temp High Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(-1280..1280,units:0.1C)
Temp Low Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(-1280..1280,units:0.1C)
Rx Power High Warning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(-400..82,units:0.1dBm)
Rx Power Low Warning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(-400..82,units:0.1dBm)
Tx Power High Warning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(-400..82,units:0.1dBm)
Tx Power Low Warning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(-400..82,units:0.1dBm)
Tx Bias High Warning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(0..1310,units:0.1mA)
Tx Bias Low Warning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(0..1310,units:0.1mA)
Vcc High Warning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	(0..65,units:0.1V)

Figure 3-73 ONU Alarm Profile

### 3.6.4.4. Port

Add/Commit ONU PON **Port** POTS

**Port Alarm Profile**

Profile ID

Port ID  (1..79)

Alarm Type	Active	Alarm State
Port Auto Neg Failure	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
Port Los	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
Port Failure	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable
Port Loopback	<input checked="" type="checkbox"/>	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Port Congestion	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable

Figure 3-74 Port Alarm Profile

### 3.6.4.5. POTS

Add/Commit ONU PON Port **POTS**

**POTS Alarm Profile**

Profile ID

POTS ID  (1..64)

Alarm Type	Active	Alarm State
POTS Failure	<input type="checkbox"/>	<input type="radio"/> Enable <input type="radio"/> Disable

Figure 3-75 Port Alarm Profile

## 3.6.5 Bind Profile

The DBA profile, server profile, VoIP profile and alarm profile can be bound to the ONU.

### 3.6.5.1. Information

The screenshot shows the 'Information' tab of the Bind Profile Information page. At the top, there are two tabs: 'Information' (selected) and 'Configuration'. Below the tabs is the title 'Bind Profile Information'. Underneath, there is a 'Port ID' dropdown menu with 'PON1' selected. Below that is a table with the following structure:

ONU ID	MAC Address	Type	Profile ID					Bind
			DBA	Service	VoIP	Alarm	Default Service	

Below the table is a 'Refresh' button.

Figure 3-76 Bind Profile Information

### 3.6.5.2. Configuration

The screenshot shows the 'Configuration' tab of the Bind Profile Information page. At the top, there are two tabs: 'Information' and 'Configuration' (selected). Below the tabs is the title 'Bind Profile Information'. Underneath, there is a 'Port ID' dropdown menu with 'PON1' selected. Below that is a table with the following structure:

ONU ID	MAC Address	Type	Profile ID			
			DBA	Service	VoIP	Alarm

Below the table are 'Submit' and 'Reset' buttons.

Figure 3-77 Bind Profile Configuration

## 3.7 System Configuration

### 3.7.1 System Log

#### 3.7.1.1. System Log

System Log
Alarm
Threshold Alarm
Syslog Server

**Alarm Log Table**

Select Counts

Alarm Type

No.1 Page/Total 1 Page 3 Item per page/Total 3 Item [First](#), [Previous](#), [Next](#), [Last](#) No.

[Go!](#) [Clear All](#) [Refresh](#)

No.	Time	Level	Message
1	1999/12/31 00:00:44	major	PON Enable PON 1-2 Enable!
2	1999/12/31 00:00:15	critical	PON Deregister DEVICE 0 by IROS_MSG_TYPE_APPS_OLT_REG.
3	1999/12/31 00:00:15	critical	PON Deregister DEVICE 0 by IROS_MSG_TYPE_APPS_OLT_REG.

**Figure 3-78** Alarm Log Table

## 3.7.1.2. Alarm

System Log Alarm Threshold Alarm Syslog Server									
Alarm Configuration									
Type	Print	Record	Trap	Remote	Type	Print	Record	Trap	Remote
FAN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Download File Failed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Upload File Failed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Upgrade File Failed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Port Updown	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Port Loopback	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PON Deregister	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PON Register Failed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PON Disable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PON Txpower High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PON Txpower Low	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PON Txbias High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PON Txbias Low	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PON Vcc High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PON Vcc Low	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PON Temp High	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PON Temp Low	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PON Los	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ONU Deregister	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ONU Link Lost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ONU Illegal Register	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ONU Auth Failed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ONU MAC Conflict	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ONU Loid Conflict	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ONU Critical Event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ONU Dying Gasp	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ONU Link Fault	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ONU Link Event	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ONU Event Notific	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Reset	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Config Save	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Config Erase	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Download File Success	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Upload File Success	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Upgrade File Success	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PON Register	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PON Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PON Los Recovery	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ONU Register	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ONU Link Discover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ONU Auth Success	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ONU Death Success	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 3-79 Alarm Configuration

### 3.7.1.3. Threshold Alarm

System Log Alarm **Threshold Alarm** Syslog Server

#### Threshold Alarm Configuration

Type	Print	Record	Trap	Remote	Alarm Threshold	Clear Threshold
Temp High (C)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.00	0.00
Temp Low (C)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.00	0.00
CPU Usage High (%)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.00	0.00
MEM Usage High (%)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.00	0.00

Submit Reset

#### PON Optical Alarm Configuration

Port ID PON1

Type	State	Alarm Threshold	Clear Threshold
Tx Power High (dBm)	<input type="checkbox"/>	0.00	0.00
Tx Power Low (dBm)	<input type="checkbox"/>	0.00	0.00
Tx Bias High (mA)	<input type="checkbox"/>	0.00	0.00
Tx Bias Low (mA)	<input type="checkbox"/>	0.00	0.00
Vcc High (V)	<input type="checkbox"/>	0.00	0.00
Vcc Low (V)	<input type="checkbox"/>	0.00	0.00
Temp High (C)	<input type="checkbox"/>	0.00	0.00
Temp Low (C)	<input type="checkbox"/>	0.00	0.00

Submit Reset

Figure 3-80 Threshold Alarm Configuration

### 3.7.1.4. Syslog Server

System Log Alarm Threshold Alarm **Syslog Server**

#### Syslog Server Configuration

Syslog Server Disable

Server IP 0.0.0.0

Server Port 514 (1-65535)

Submit

Figure 3-81 Syslog Server Configuration

## 3.7.2 Device Management

### 3.7.2.1. Firmware Upgrade

You can upgrade the OLT firmware from Web page without TFTP server. After finishing upgrading, it will reboot automatically.

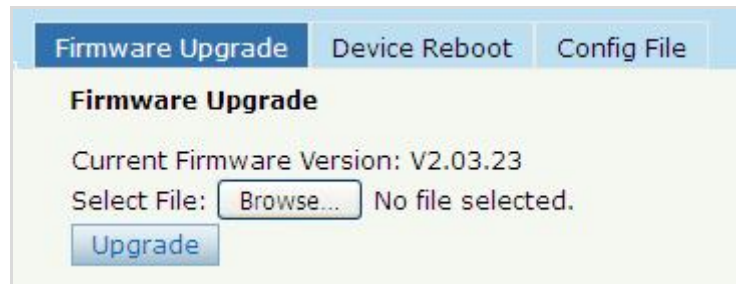


Figure 3-82 Firmware Upgrade

### 3.7.2.2. Device Reboot

Click the "Reboot" button to reboot this OLT.



Figure 3-83 Device Reboot

### 3.7.2.3. Config File

On this page, you can back up configuration, restore configuration, restore factory defaults and save configuration.

Firmware Upgrade	Device Reboot	Config File
<b>Config File</b>		
Backup Configuration	<input type="button" value="Download"/>	
Restore Configuration	All existing configuration will be overwritten. the device will reboot after restore is completed! Select File: <input type="button" value="Browse..."/> No file selected. <input type="button" value="Restore"/>	
Load Factory Defaults	Click Restore to load the factory defaults. The device will reboot after restore is completed! <input type="button" value="Load"/>	
Save Configuration	Press the button below to save configuration. <input type="button" value="Save"/>	

Figure 3-84 Config File

### 3.7.3 User Management

There are two kinds of users could be defined, Normal and Admin. There are some limitations for normal user, and admin user has full function of OLT. The default account member is **Admin** level.

#### 3.7.3.1. User Manage

User Manage			
<b>Add User</b>			
User Name	<input type="text"/>		
User Password	<input type="text"/>		
Confirm Password	<input type="text"/>		
User Role	Normal <input type="button" value="v"/>		
		<input type="button" value="Add"/>	<input type="button" value="Cancel"/>
<b>User Table</b>			
User Name	User Role	Edit	Delete
admin	Admin		

Figure 3-85 Add User



Object	Description
User Name	Enter the new user name
User Password	Enter the new password
Confirm Password	Enter t the new password again
User Role	Select <b>Normal</b> or <b>Admin</b>

### 3.7.4 SNMP

#### 3.7.4.1. SNMPV1/V2

The GEAPON OLT supports SNMP v1/v2.

The screenshot shows a web interface for configuring SNMP v1/v2. It has three tabs: 'SNMPV1/V2' (selected), 'SNMPV3', and 'SNMPV3 Trap'. The 'Add Community' section includes a text input for 'Community Name', a dropdown for 'Access Right' (set to 'Read-Only'), and an 'Add' button. Below it is a 'Community Table' with columns for 'Community Name', 'Access Right', and 'Delete'. The table contains two entries: 'public' with 'Read-Only' access and 'private' with 'Read-Write' access. The 'Add Trap' section includes text inputs for 'Host IP', 'UDP Port' (set to 162), and 'Community Name' (set to public), a dropdown for 'SNMP Version' (set to 1), and an 'Add' button. Below it is a 'Trap Table' with columns for 'Host IP', 'UDP Port', 'SNMP Version', 'Community Name', and 'Delete'.

Figure 3-86 SNMP v1/v2

### 3.7.4.2. SNMP v3

SNMPV1/V2
SNMPV3
SNMPV3 Trap

**Add View**

View Name

Subtree  (Type:Object Identifier)

View Type include

**View Table**

View Name	Subtree	View type	Delete

**Add Group**

Group Name

Access Level noauth

Read View

Write View

Notify View

**Group Table**

Group Name	Access Level	Read View	Write View	Notify View	Delete

**Add User**

User Name

Group Name admin

Auth Type None

Auth Password

Priv Type None

Priv Password

**User Table**

User Name	Group Name	Auth Type	Priv Type	Delete

Figure 3-87 SNMP v3

### 3.7.4.3. SNMP v3 Trap

Configure or remove the Trap messages of the target host IP address.

The image shows a web-based configuration interface for SNMPV3 Traps. At the top, there are three tabs: 'SNMPV1/V2', 'SNMPV3', and 'SNMPV3 Trap', with the latter being selected. Below the tabs is the 'Add Trap' section, which contains several input fields and dropdown menus. The fields are: 'Host IP' (empty), 'UDP Port' (162) with a range '(1-65535)', 'User Name' (empty), 'User Level' (noauth) with a dropdown arrow, 'Tag List' (trap) with a dropdown arrow, 'Timeout' (empty) with a range '(1-400000000)', and 'Retry Count' (empty) with a range '(1-100)'. Below these fields is an 'Add' button. Underneath the 'Add Trap' section is a 'Trap Table' section, which currently contains a header row with the following columns: 'Host IP', 'UDP Port', 'Version', 'User Name', 'User Level', 'Tag List', 'Timeout', 'Retry Count', and 'Delete'.

Figure 3-88 SNMP v3 Trap

### 3.7.5 AUX IP

AUX port is out of band management port. The default IP address is 192.168.8.100. You can change it if needed.

The image shows a web-based configuration interface for the AUX IP. At the top, there is a tab labeled 'AUX IP'. Below the tab is the 'AUX IP Configuration' section. It contains five input fields: 'IP Address' (192.168.8.100), 'Subnet Mask' (255.255.255.0), 'Gateway' (0.0.0.0), 'Master DNS' (0.0.0.0), and 'Slave DNS' (0.0.0.0). Below these fields are two buttons: 'Submit' and 'Reset'.

Figure 3-89 AUX IP

### 3.7.6 System Time

#### 3.7.6.1. RTC

Enter the RTC (Real-time clock) time

The screenshot shows a web interface for RTC configuration. At the top, there are two tabs: 'RTC' and 'NTP'. The 'RTC' tab is selected. Below the tabs is the title 'Date Setting'. The form contains six input fields for date and time: Year (2000), Month (1), Day (1), Hour (22), Minute (52), and Second (21). Below these fields are two buttons: 'Submit' and 'Reset'.

Figure 3-90 RTC

### 3.7.6.2. NTP

The screenshot shows a web interface for NTP configuration. At the top, there are two tabs: 'RTC' and 'NTP'. The 'NTP' tab is selected. Below the tabs is the title 'NTP Configuration'. The form contains three main settings: 'Enable NTP Synchronization' with a dropdown menu set to 'Disable', 'NTP Timezone' with a dropdown menu set to 'GMT+0', and 'NTP Server' with an empty text input field. Below these is the 'Current Time' displayed as '2000 / 1 / 1 22:52:49'. At the bottom are 'Submit' and 'Reset' buttons.

Figure 3-91 NTP

Object	Description
Enable NTP Synchronization	Select <b>Disable</b> or <b>Enable</b> the NTP
NTP Time zone	Select the time zone
NTP Server	Enter the NTP server

### 3.7.7 Fan

The fans can be set to turn on or off automatically.

The screenshot shows a web interface for FAN configuration. At the top, there is a tab labeled 'FAN'. Below the tab is the title 'FAN Configuration'. The form contains two main settings: 'FAN Temperature' with a text input field set to '50' and a range '(20-80)' to its right, and 'FAN Mode' with three radio buttons: 'Open', 'Close', and 'Auto' (which is selected). Below these are 'Submit' and 'Reset' buttons.

Figure 3-92 Fan

### 3.7.8 Mirror

**Mirror**

**Mirror Configuration**

Session ID  ▼

Destination Port  ▼

Port ID	Mirrored	Direction
GE1	<input type="checkbox"/>	Both ▼
GE2	<input type="checkbox"/>	Both ▼
GE3	<input type="checkbox"/>	Both ▼
GE4	<input type="checkbox"/>	Both ▼
PON1	<input type="checkbox"/>	Both ▼
PON2	<input type="checkbox"/>	Both ▼

**Mirror Table**

Session ID	Destination Port	Source Port	Type	Delete

Figure 3-93 Mirror

## Chapter 4. EPL-2220 OPERATION

### 4.1 Address Table

The OLT switch is implemented with an address table. This address table is composed of many entries. Each entry is used to store the address information on some nodes on the network, including MAC address, port number, etc.

### 4.2 Learning

When one packet comes in from any port, the OLT Switch will record the source address, port number, and other related information in the address table. This information will be used to decide either forwarding or filtering for future packets.

### 4.3 Forwarding & Filtering

When one packet comes from some port of the Ethernet Switching, it will also check the destination address besides the source address learning. The OLT Switch will look up the address table for the destination address. If not found, this packet will be forwarded to all the other ports except the port, which this packet comes in. And these ports will transmit this packet to the network it connected. If found, and the destination address is located at a different port from this packet comes in, the OLT Switch will forward this packet to the port where this destination address is located according to the information from the address table. But, if the destination address is located at the same port with this packet that comes in, then this packet will be filtered, thereby increasing the network throughput and availability

### 4.4 Auto-Negotiation

The STP ports on the Switch have built-in "Auto-negotiation". This technology automatically sets the best possible bandwidth when a connection is established with another network device (usually at Power On or Reset). This is done by detecting the modes and speeds at the second of both devices are connected and capable of. Both 10BASE-T and 100BASE-TX devices can connect with the port in either Half- or Full-Duplex mode.

If attached device is:	100BASE-TX port will set to:
10Mbps, no auto-negotiation	10Mbps.
10Mbps, with auto-negotiation	10/20Mbps (10BASE-T/Full-Duplex)
100Mbps, no auto-negotiation	100Mbps
100Mbps, with auto-negotiation	100/200Mbps (100BASE-TX/Full-Duplex)

## Chapter 5. APPENDIX

### 5.1 Switch's RJ45 Pin Assignments

1000Mbps, 1000BASE-T

Contact	MDI	MDI-X
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

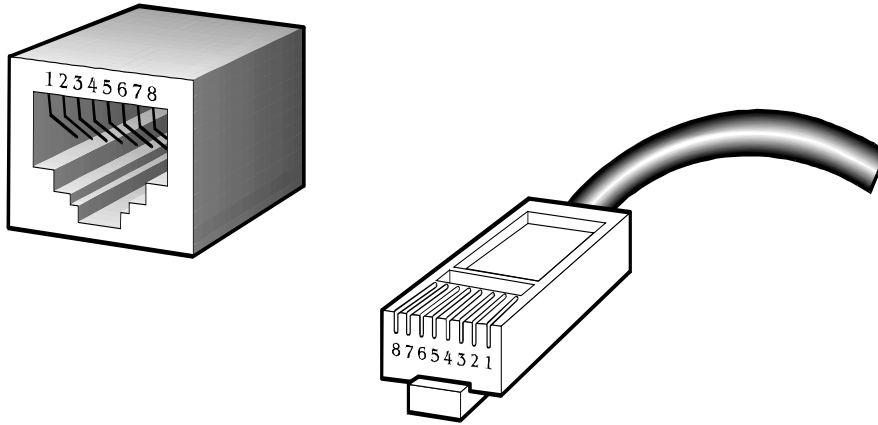
Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.

### 5.2 10/100Mbps, 10/100BASE-TX

When connecting your 10/100Mbps Ethernet Switch to another switch, a bridge or a hub, a straight or crossover cable is necessary. Each port of the Switch supports auto-MDI/MDI-X detection. That means you can directly connect the Switch to any Ethernet devices without making a crossover cable. The following table and diagram show the standard RJ45 receptacle/connector and their pin assignments:

RJ45 Connector pin assignment		
Contact	MDI Media Dependent Interface	MDI-X Media Dependent Interface-Cross
1	Tx + (transmit)	Rx + (receive)
2	Tx - (transmit)	Rx - (receive)
3	Rx + (receive)	Tx + (transmit)
4, 5	Not used	
6	Rx - (receive)	Tx - (transmit)
7, 8	Not used	

The standard cable, RJ45 pin assignment



The standard RJ45 receptacle/connector

There are 8 wires on a standard UTP/STP cable and each wire is color-coded. The following shows the pin allocation, color of straight cable and crossover cable connection:

Straight Cable		SIDE 1	SIDE 2					
1	2	3	4	5	6	7	8	SIDE 1 1 = White / Orange 2 = Orange 3 = White / Green 4 = Blue 5 = White / Blue 6 = Green 7 = White / Brown 8 = Brown  SIDE 2 1 = White / Orange 2 = Orange 3 = White / Green 4 = Blue 5 = White / Blue 6 = Green 7 = White / Brown 8 = Brown
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
Crossover Cable		SIDE 1	SIDE 2					
1	2	3	4	5	6	7	8	SIDE 1 1 = White / Orange 2 = Orange 3 = White / Green 4 = Blue 5 = White / Blue 6 = Green 7 = White / Brown 8 = Brown  SIDE 2 1 = White / Green 2 = Green 3 = White / Orange 4 = Blue 5 = White / Blue 6 = Orange 7 = White / Brown 8 = Brown
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	
1	2	3	4	5	6	7	8	

Figure 5-1 Straight-through and Crossover Cables

Please make sure your connected cables are with the same pin assignment and color as the above diagram before deploying the cables into your network.