PLANET
Networking & Communication

User's Manual

2-Port GEPON Managed OLT

- EPL-2220

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at whose own expense.

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This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Energy Saving Note of the Device

This power required device does not support Standby mode operation. For energy saving, please remove the power cable to disconnect the device from the power circuit. Without removing power cable, the device will still consume power from the power source. In view of Saving the Energy and reducing the unnecessary power consumption, it is strongly suggested to remove the power connection for the device if this device is not intended to be active.

WEEE Warning

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Revision

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

MODEL: EPL-2220

REVISION: V1.0 (January, 2017)

Part No.: EM-EPL-2220 (2081-BA0140-000)

TABLE OF CONTENTS

FIGURE

Chapter 1. Introduction

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

1.1 Packet Contents

The box should contain the following items:

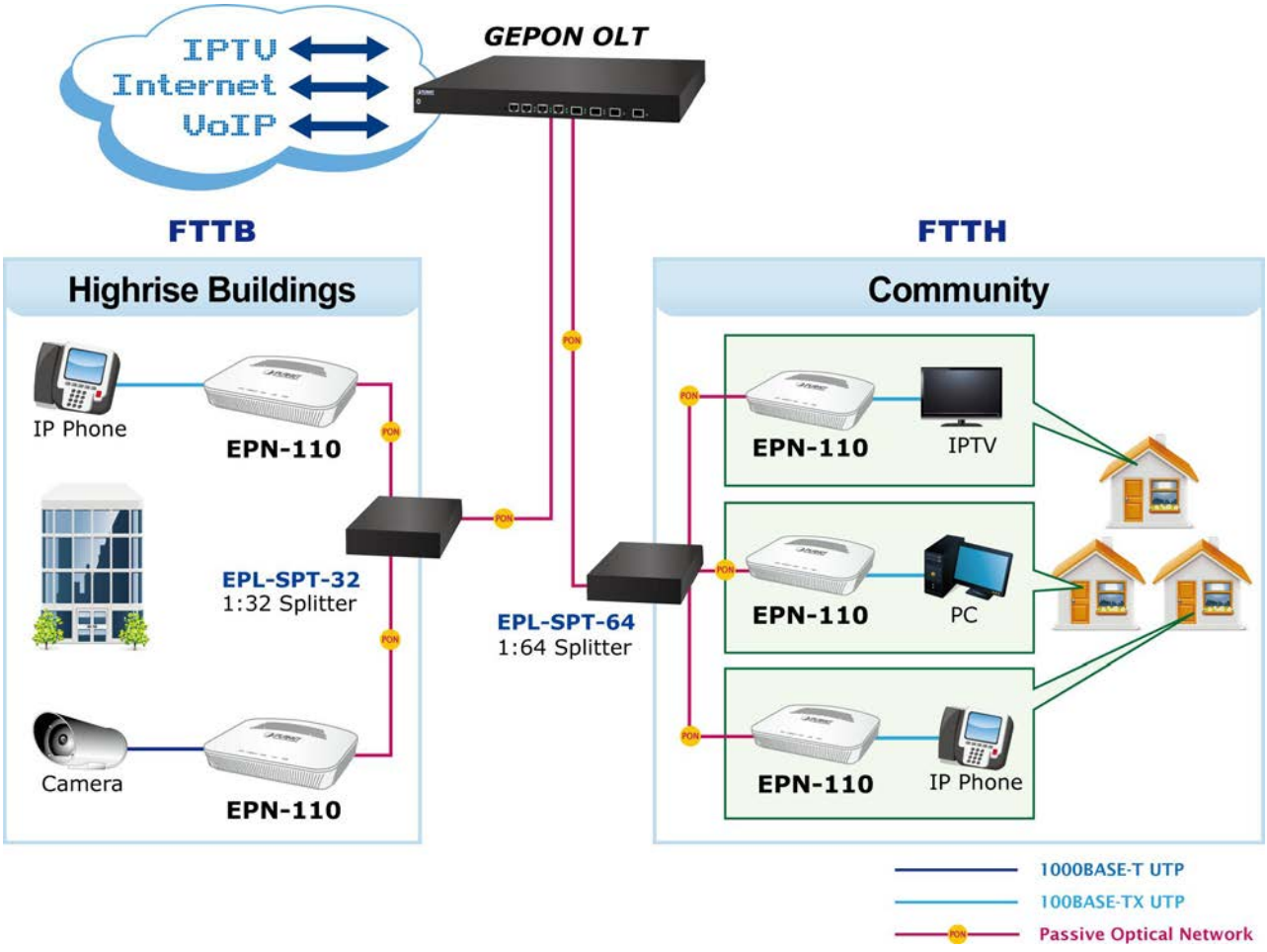
- ☑ **GEPON OLT** x 1
- ☑ **PX20 SFP Transceivers** x 2
- ☑ **Quick Installation Guide** x 1
- ☑ **19" Rack Mount Accessory Kit** x 1
- ☑ **AC Power Cord** x 1
- ☑ **Console Cable** x 1

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 GEPON **Optical Line Terminal (OLT)** consists of **two GEPON ports, two GbE SFP ports, two GbE RJ45 interfaces** and one management port. It is easy to install and maintain a GEPON deployment. With PLANET GEPON **Optical Network Units (ONU)** EPN series, the EPL-2220 can provide highly-effective GEPON solutions and convenient management for broadband network. PLANET GEPON 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

Product		**EPL-2220**
Hardware Specifications		
Transmission Speed		Downstream: 1.25 Gbps Upstream: 1.25 Gbps
Optical Split Ratio		Up to 1:64
Port	**Uplink Port**	Two 1000BASE-X SFP slots Two 100/1000BASE-T RJ45 ports
	PON Port	Two 1.25Gbps PON ports
	MGMT Port	One RJ45 port (10/100BASE-TX)
LED Indicators		1 power LED 1 system LED 6 uplink port LEDs (ACT and Link) 2 PON LEDs (Link)
EMS Utility Specifications		
Switch Feature		– IPTV multicast creation and management – MAC address learning and binding – MAC filtering – Supports IGMP mode – Supports the VLAN division on the basis of port – Up to 4096 VLAN – 8K MAC addresses – ONU multicast control – ONU IGMP fastleave – ONU VLAN mode – ONU port management
Management		– User-friendly GUI Utility – Firmware and configuration upgradeable via utility – Remote ONU management
Standards Conformance		
Safety		CE, LVD
Standards Compliance		IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3z Gigabit SX/LX IEEE 802.3x flow control and back pressure IEEE 802.1Q tagged VLAN
Environment Specifications		
Dimensions (W x D x H)		442 x 200 x 43mm

Weight	2.84kg
Power	100 – 250V AC
Temperature	Operating temperature: 0 ~ 50 degrees C Storage temperature: -30 ~ 60 degrees C
Humidity	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 GEPON OLT on the desktop or rack mount. For easier management and control of the GEPON 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 GEPON 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 GEPON OLT.

EPL-2220 Front Panel

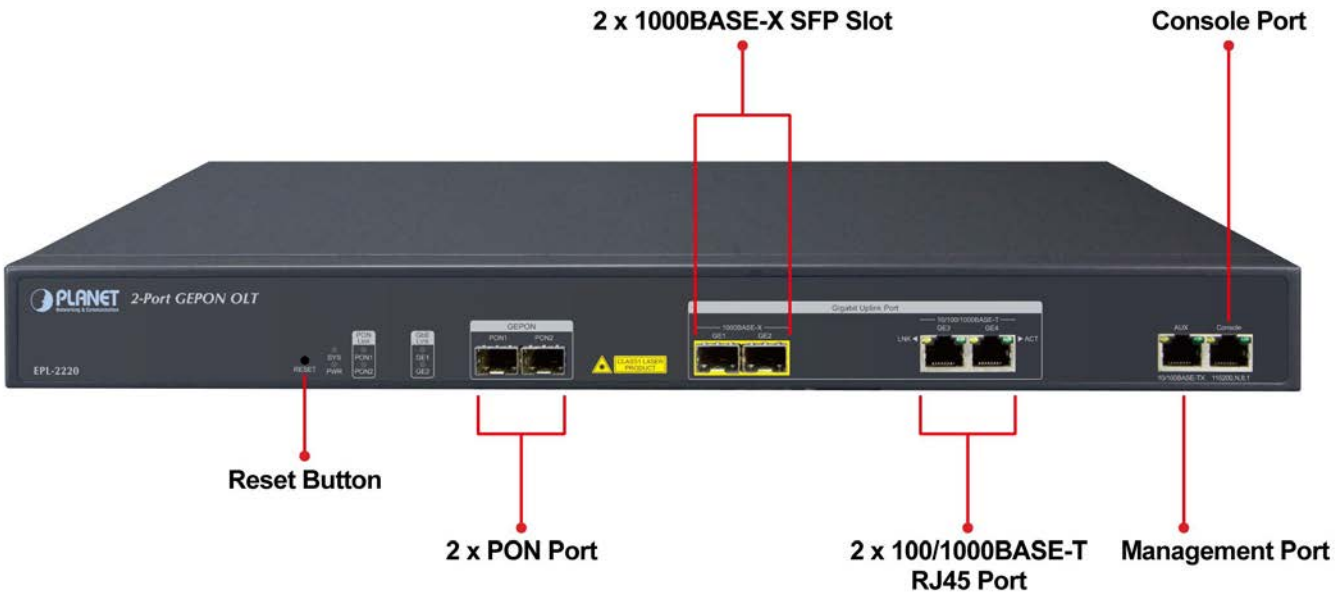


Figure 2-1 EPL-2220 Front Panel

■ **Reset Button**

The reset button is designed for rebooting the GEPON 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 GEPON 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

Note

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 GEPON OLTs.

EPL-2220 LED Indication

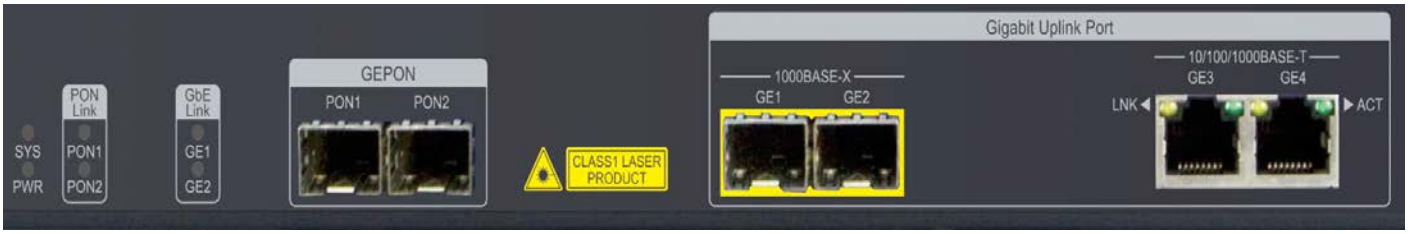


Figure 2-2 EPL-2220 LED Panel

■ **System**

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

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

LED	Color	Function

LINK	**Green**	**Lights:** To indicate the link through that PON port is successfully established.
		Off: To indicate that the PON port is link-down.

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

LED	Color	Function
LINK	**Green**	**Lights:** To indicate the link through that SFP port is successfully established.
		Off: To indicate that the SFP port is link-down.
ACT	**Green**	**Blink**: 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**	**Lights:** To indicate the link through that RJ45 port is successfully established.
		Off: To indicate that the RJ45 port is link-down.
ACT	**Green**	**Blink**: 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 GEPON 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 GEPON 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 GEPON 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.

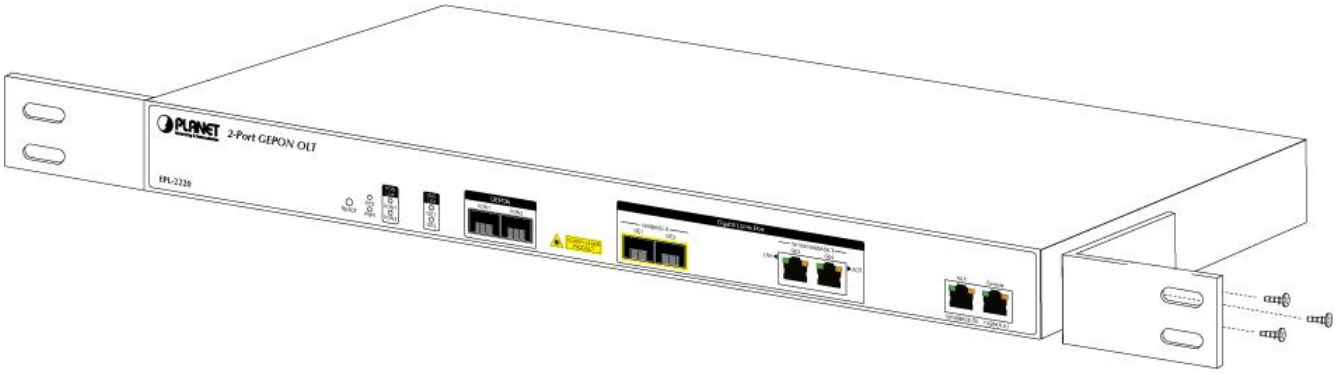


Figure 2-4 Attaching Brackets to the GEPON OLT.

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.

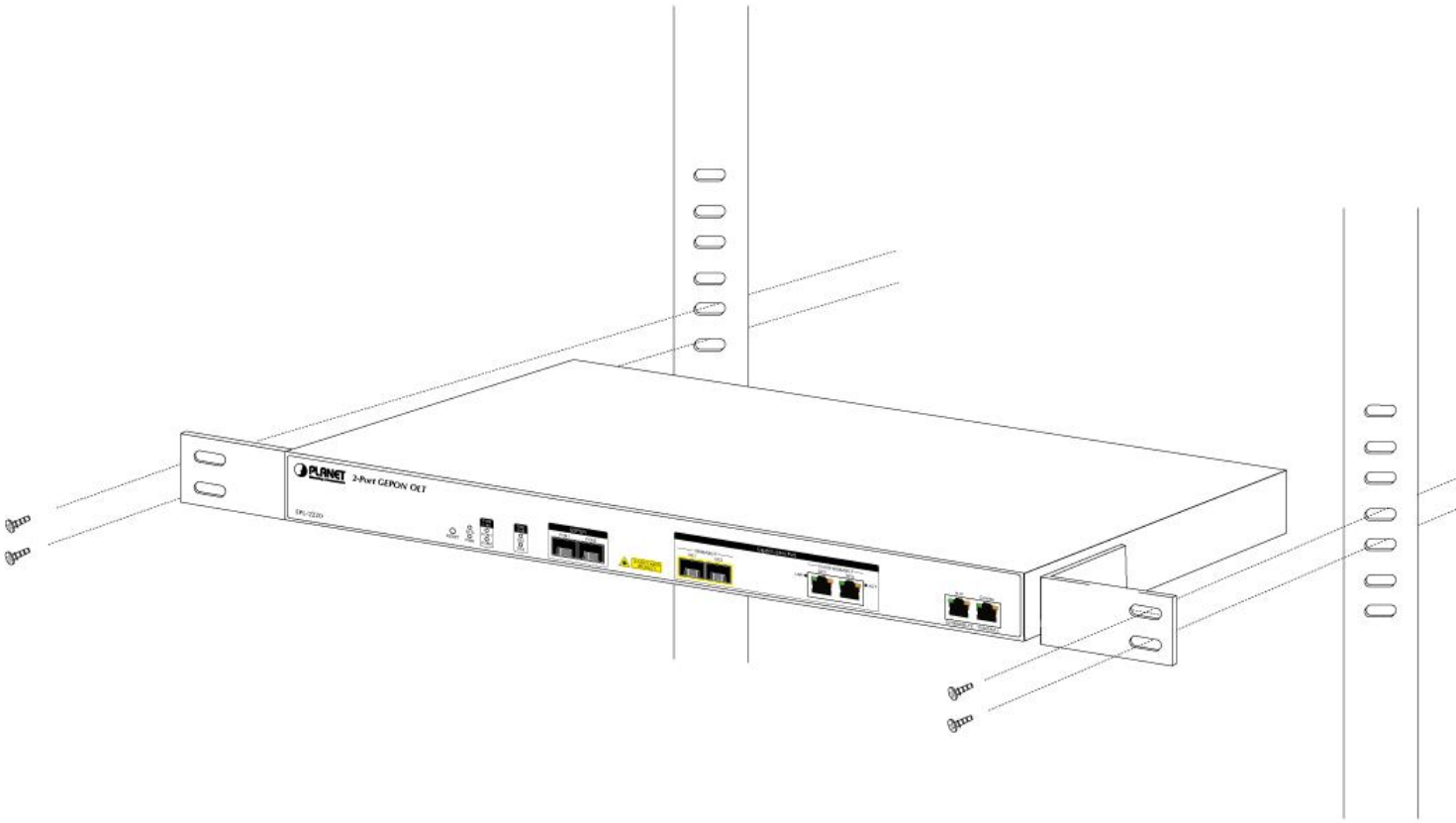


Figure 2-5 Mounting the GEPON OLT on a Rack

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.

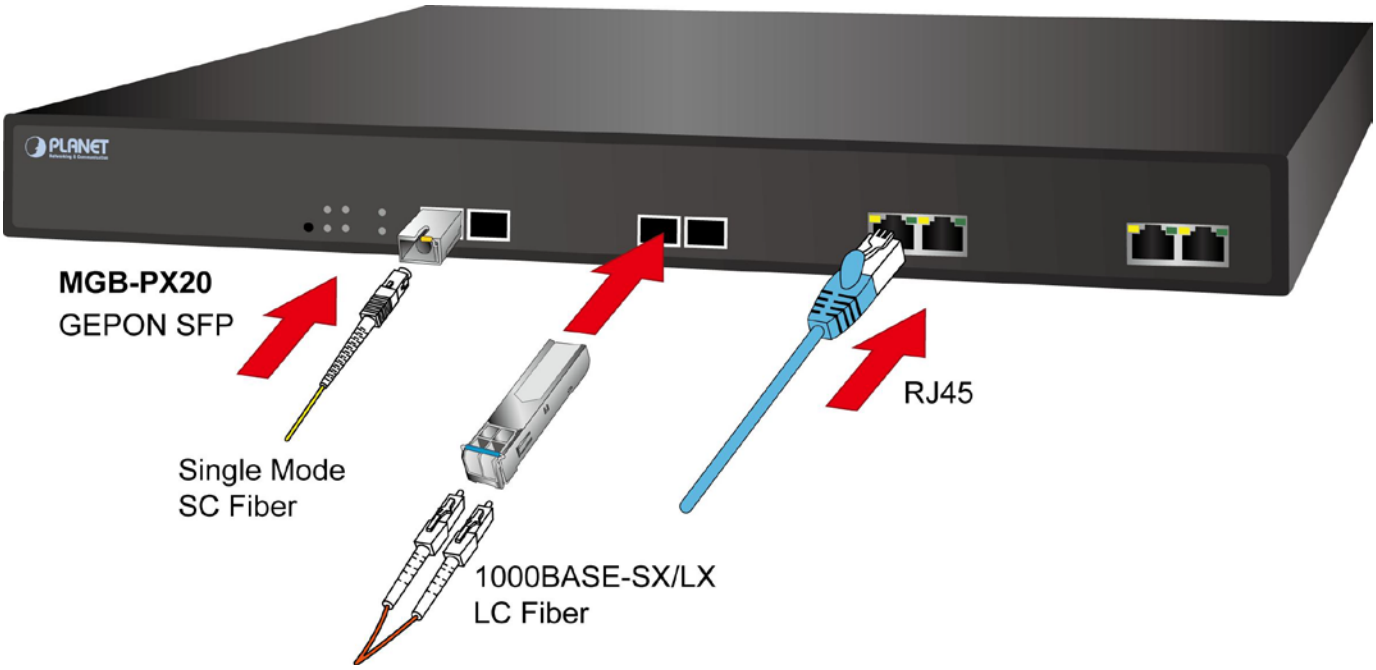


Figure 2-6 Plugging in the SFP Transceiver

■ Approved PLANET SFP Transceivers

PLANET GEPON 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 ℃
MGB-SX	1000	LC	Multi Mode	550m	850nm	0 ~ 60 ℃
MGB-SX2	1000	LC	Multi Mode	2km	1310nm	0 ~ 60 ℃
MGB-LX	1000	LC	Single Mode	10km	1310nm	0 ~ 60℃
MGB-L30	1000	LC	Single Mode	30km	1310nm	0 ~ 60℃
MGB-L50	1000	LC	Single Mode	50km	1550nm	0 ~ 60℃
MGB-L70	1000	LC	Single Mode	70km	1550nm	0 ~ 60℃
MGB-L120	1000	LC	Single Mode	120km	1550nm	0 ~ 60℃
MGB-TSX	1000	LC	Multi Mode	550m	850nm	-40 ~ 75℃
MGB-TLX	1000	LC	Single Mode	10km	1310nm	-40 ~ 75℃
MGB-TL30	1000	LC	Single Mode	30km	1310nm	-40 ~ 75℃
MGB-TL70	1000	LC	Single Mode	70km	1550nm	-40 ~ 75℃

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℃
MGB-LB10	1000	WDM(LC)	Single Mode	10km	1550nm	1310nm	0 ~ 60℃

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.

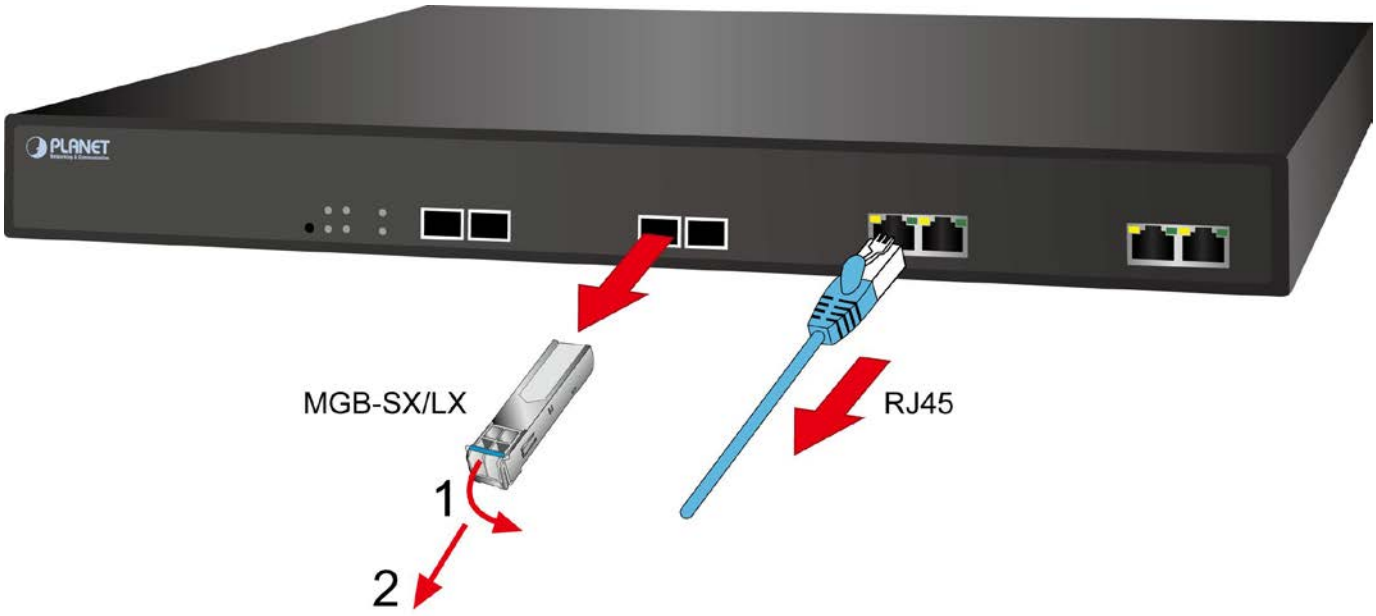


Figure 2-7 Pulling Out the SFP Transceiver

Note

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 GEPON OLT.

Chapter 3. Web-based Management

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

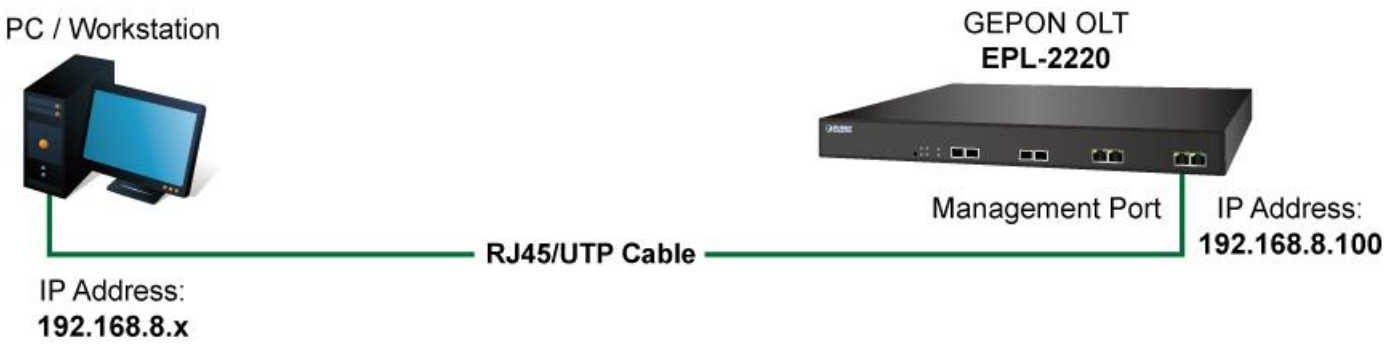
3.1 About Web-based Management

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.

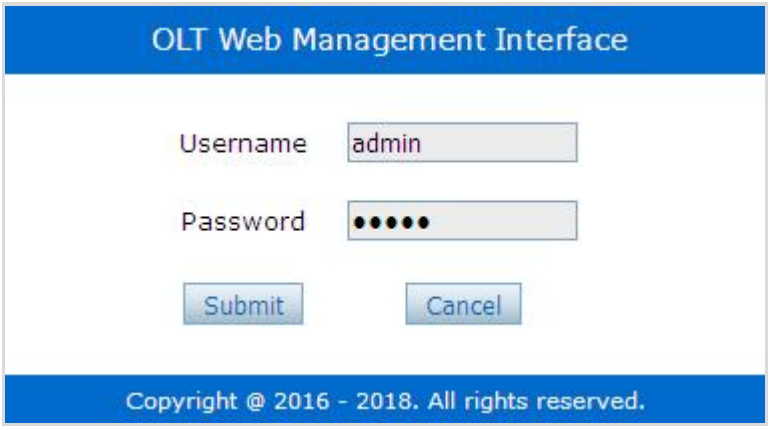


Figure 3-1 Login Screen

Default User name: **admin**

Default Password: **admin**

3. After entering the username and password, the main screen appears as Figure 3-2.

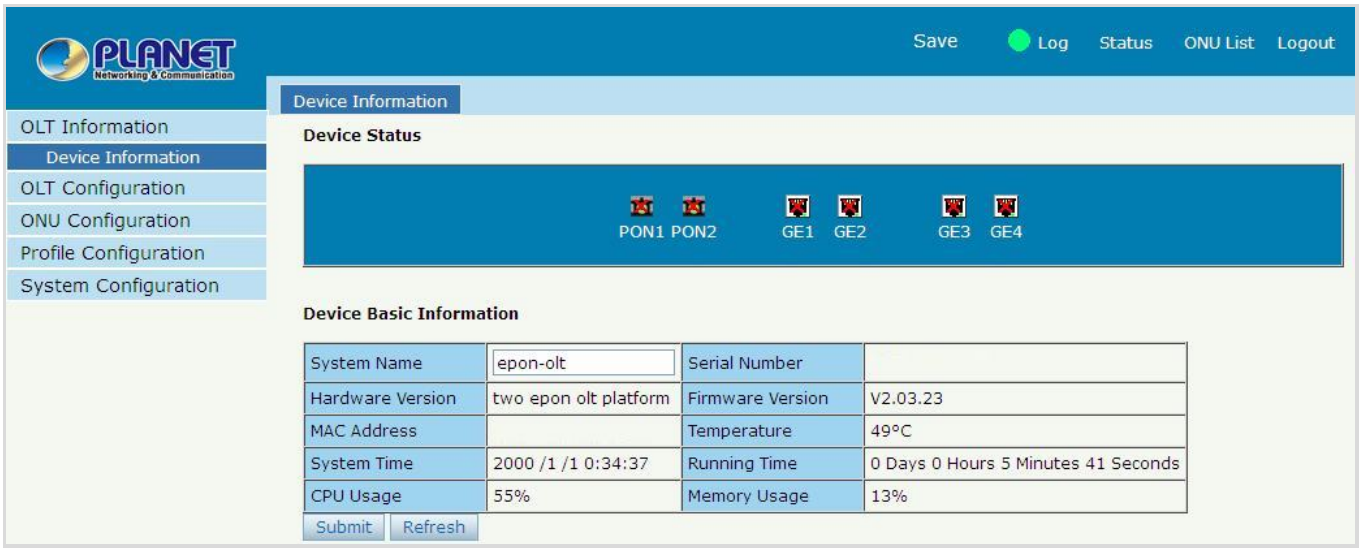


Figure 3-2 Web Main Page

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.

Note

1. It is recommended to use Internet Explore 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.

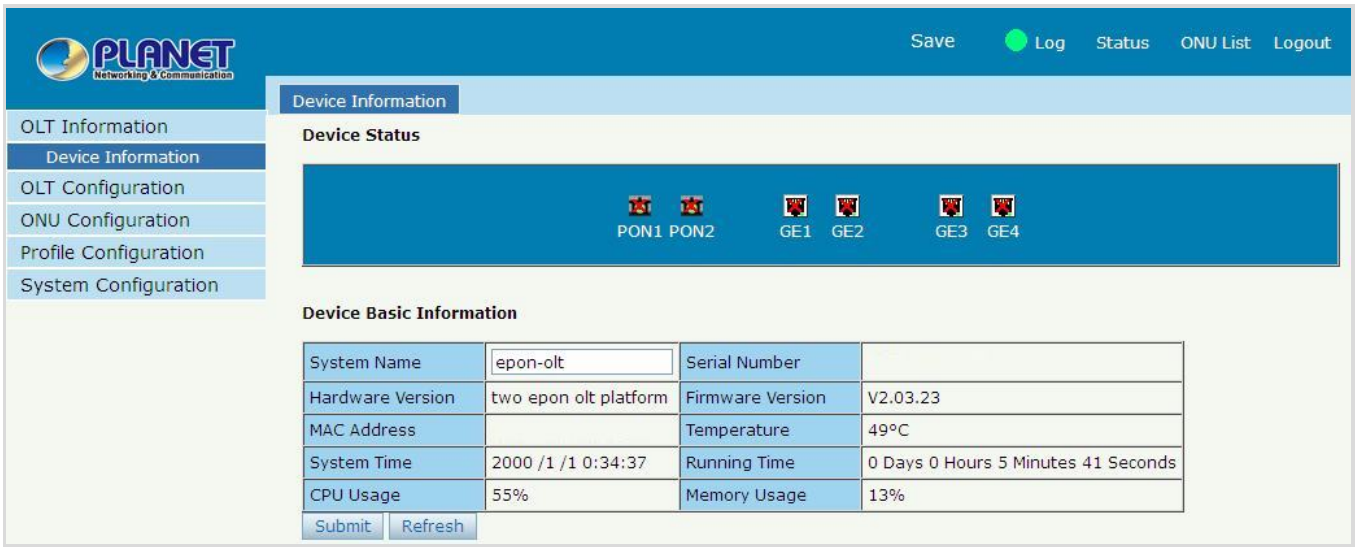


Figure 3-3 Web Main Page

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.

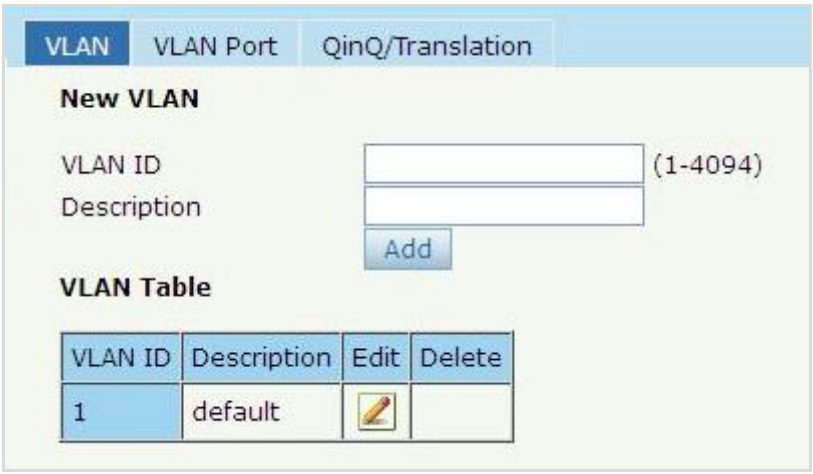


Figure 3-4 VLAN

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 **available range is 1-4094**.
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

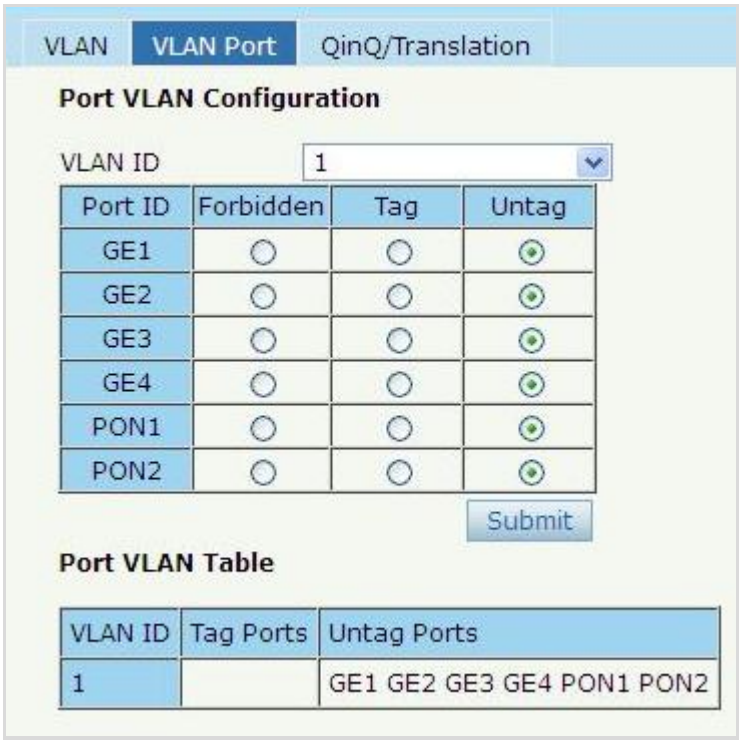


Figure 3-5 VLAN Port

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.

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.

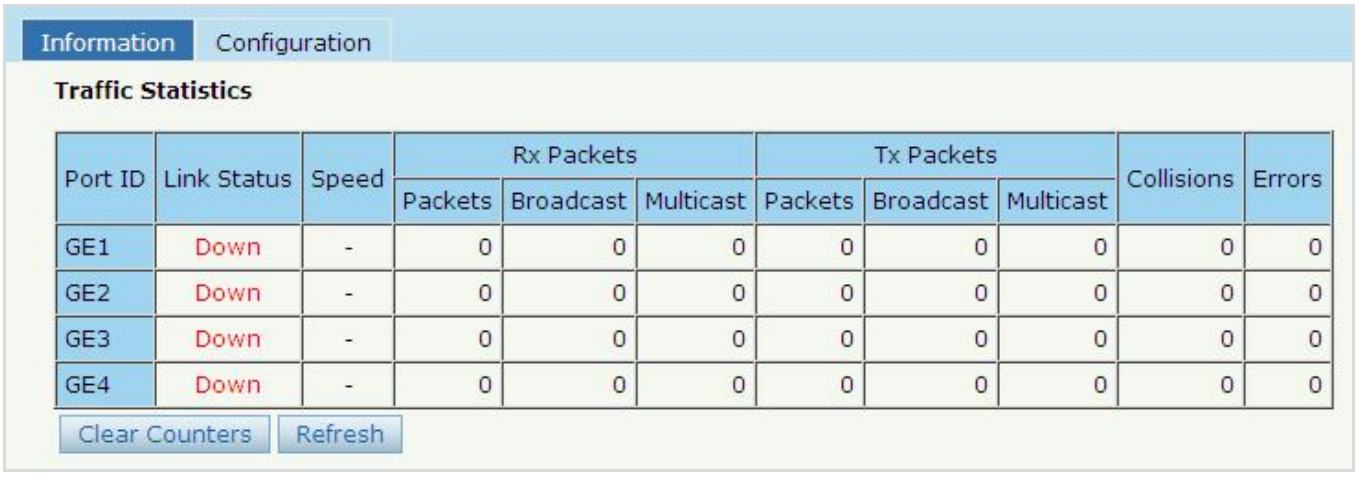


Figure 3-7 Uplink Port Information

3.4.2.2. Configuration

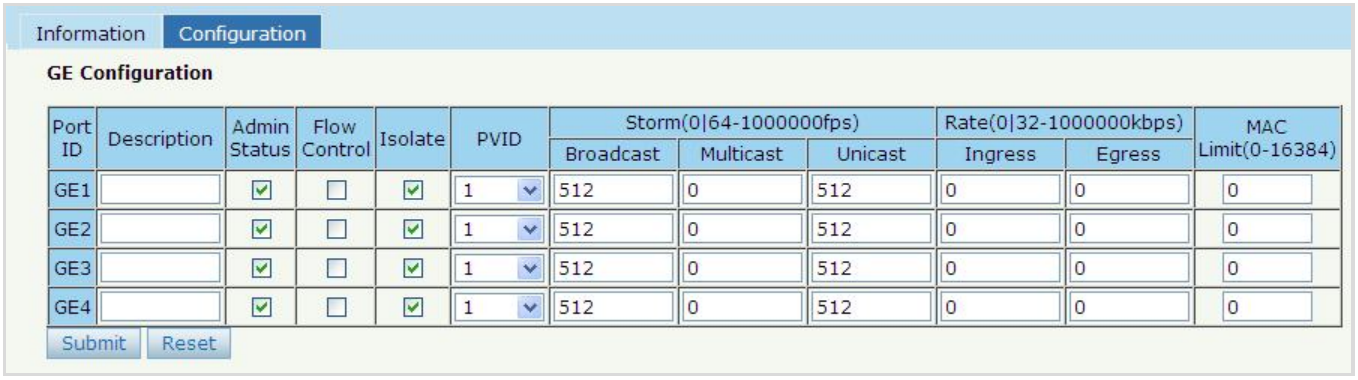


Figure 3-8 Uplink Port Configuration

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 **Flow Control** 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.

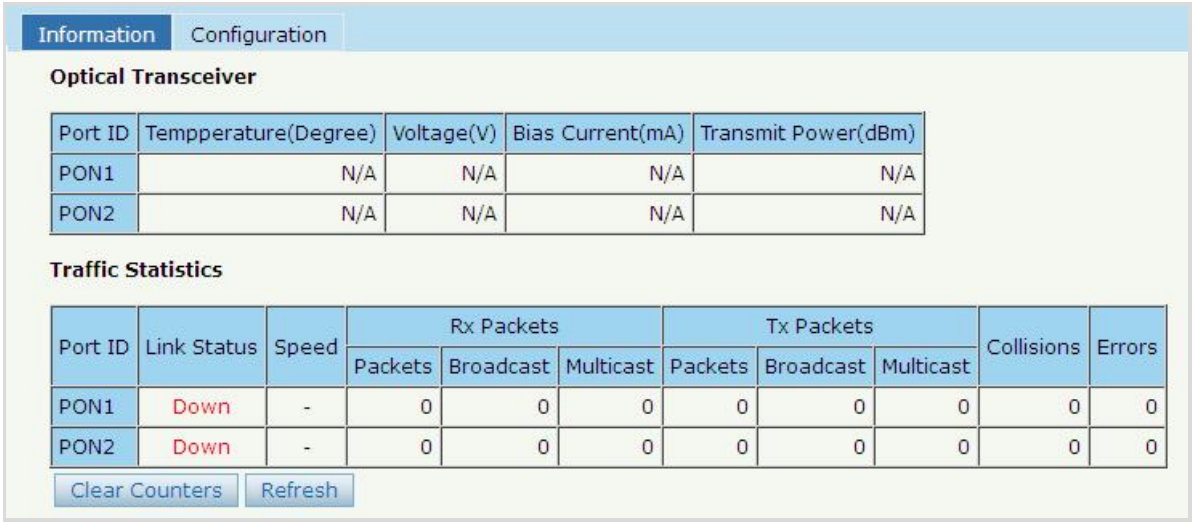


Figure 3-9 PON Information

3.4.3.2. Configuration

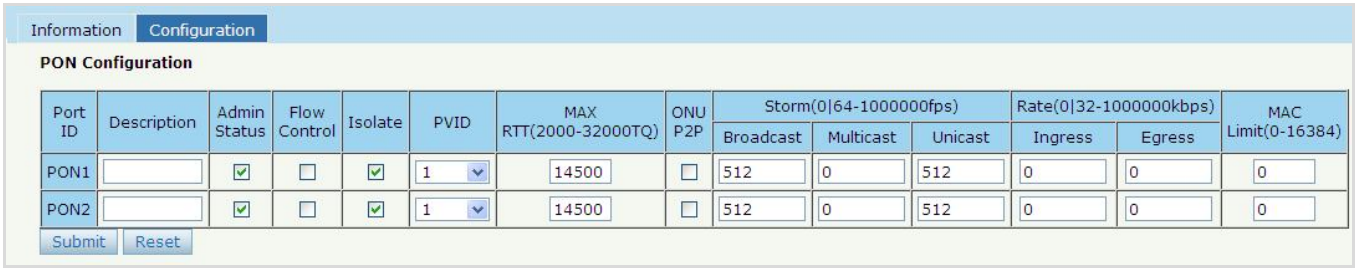


Figure 3-10 PON Configuration

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 **Flow Control** 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.

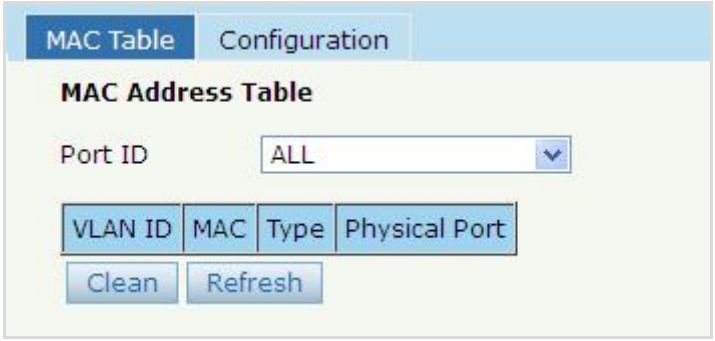


Figure 3-11 MAC Table

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.

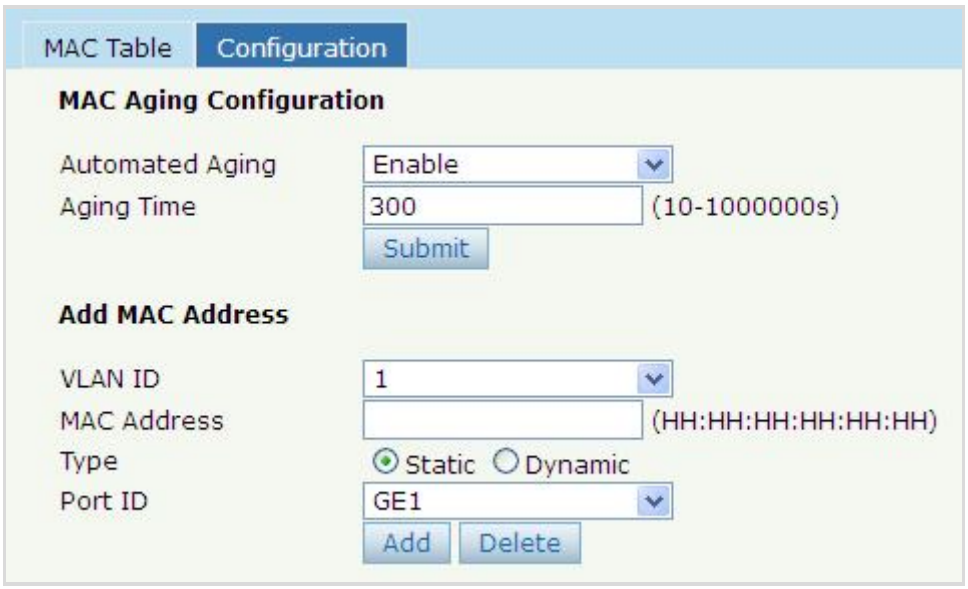


Figure 3-12 MAC Configuration

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.

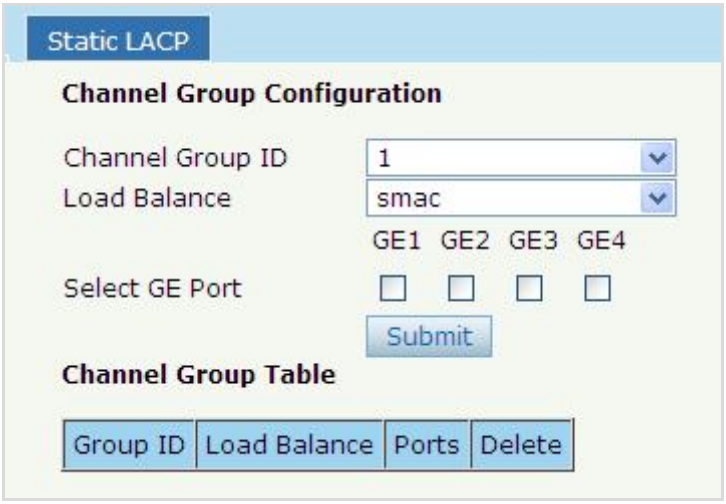


Figure 3-13 Static LACP

The page includes the following fields:

Object	Description
Channel Group ID	This is the ID for different group.
Load Balance	Select different methods from the list. ■ **smac**: Load distribution is based on the source-MAC address of the incoming packet ■ **dmac**: Load distribution is based on the destination-host MAC address of the incoming ■ **sdmac**: Load distribution is based on the source-and-destination host-MAC address ■ **sip**: Load distribution is based on the source-host IP address ■ **dip**: Load distribution is based on the destination-host IP address ■ **sdip**: Load distribution is based on the source-and-destination host-IP address

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.

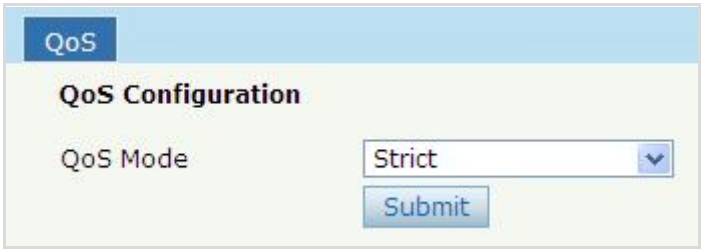


Figure 3-14 QoS

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.

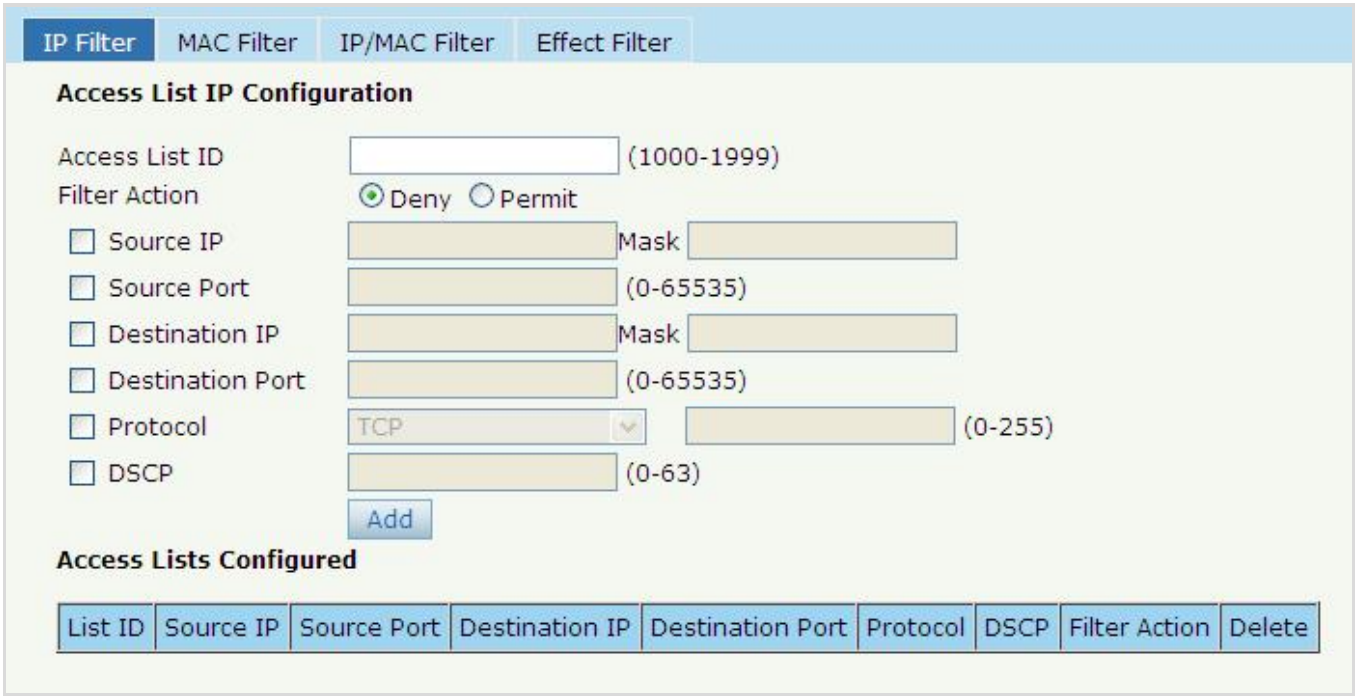


Figure 3-15 IP Filter

Object	Description
Access List ID	Set the access list ID from 1000 to 1999.
Filter Action	Indicates the forwarding action of the OLT ■ **Permit**: Frames matching the OLT may be forwarded and learned. ■ **Deny**: Frames matching the OLT are dropped.
Source IP	Enter the Source IP address and Mask.
Source Port	Enter the Source Port from 0 to 65535.
Destination IP	Enter the Destination IP address and Mask.
Destination Port	Enter the Destination Port from 0 to 65535.
Protocol	Select the protocol from the list.
DSCP	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.

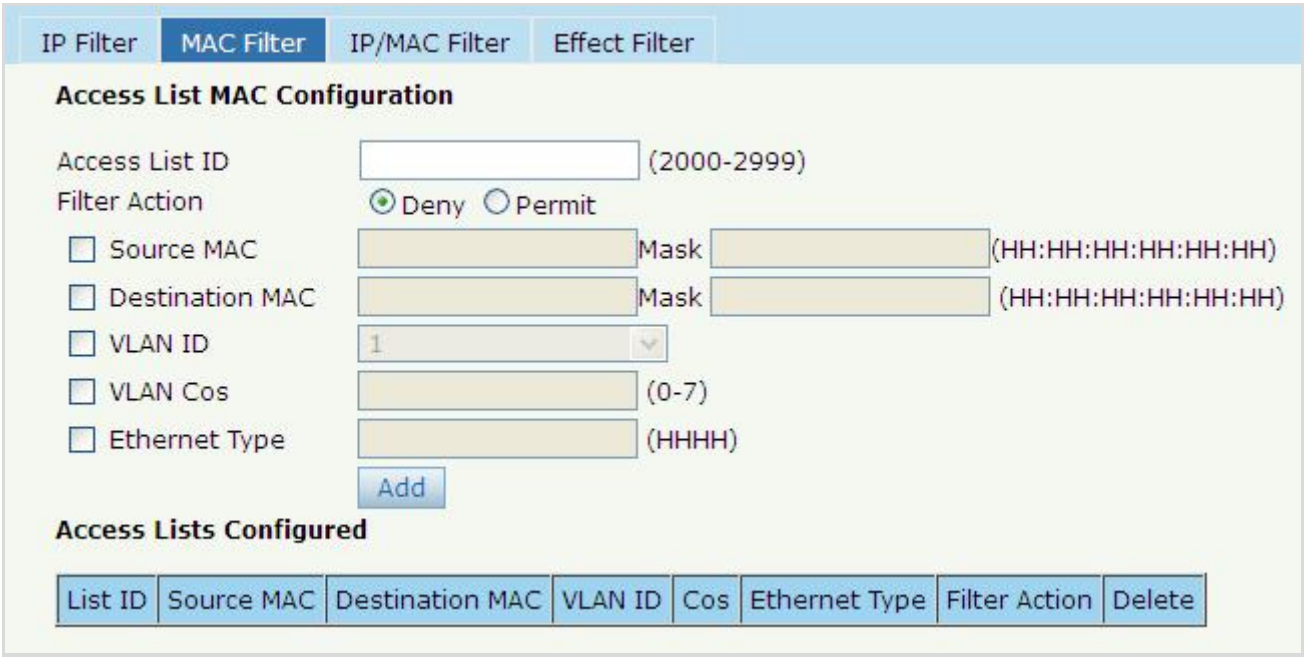


Figure 3-16 MAC Filter

Object	Description
Access List ID	Set the access list ID from 2000 to 2999.
Filter Action	Indicates the forwarding action of the OLT ■ **Permit**: Frames matching the OLT may be forwarded and learned. ■ **Deny**: Frames matching the OLT are dropped.
Source MAC	Enter the Source MAC address and Mask.
Destination MAC	Enter the Destination MAC address and Mask.
VLAN ID	Select the VLAN ID from the list
VLAN CoS	Enter the VLAN CoS from 0 to 7.
Ethernet Type	Enter the Ethernet type.

3.4.7.3. IP/MAC Filter

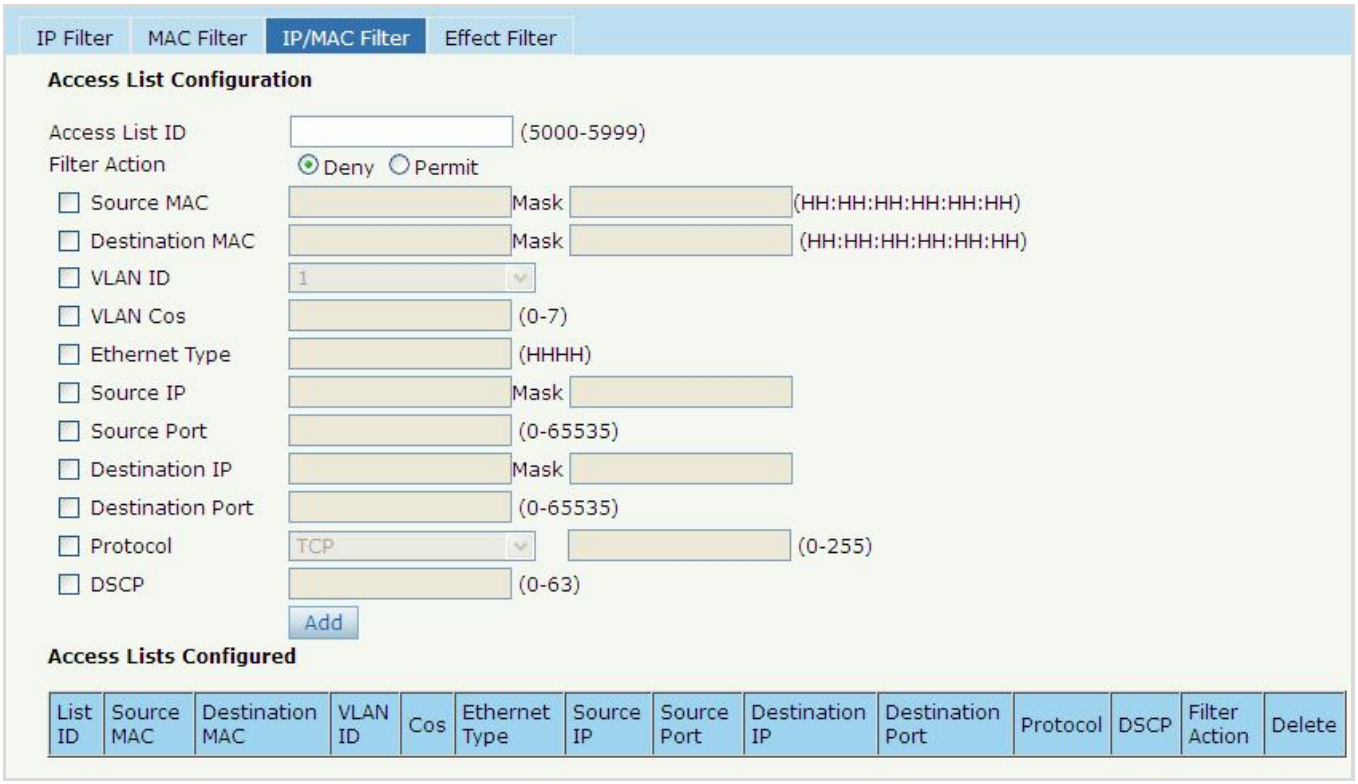


Figure 3-17 IP/MAC Filter

Object	Description
Access List ID	Set the access list ID from 5000 to 5999.
Filter Action	Indicates the forwarding action of the OLT ■ **Permit**: Frames matching the OLT may be forwarded and learned. ■ **Deny**: Frames matching the OLT are dropped.
Source MAC	Enter the Source MAC address and Mask.
Destination MAC	Enter the Destination MAC address and Mask.
VLAN ID	Select the VLAN ID from the list
VLAN Cos	Enter the VLAN Cos from 0 to 7.
Ethernet Type	Enter the Ethernet type.
Source IP	Enter the Source IP address and Mask.
Source Port	Enter the Source Port from 0 to 65535.
Destination IP	Enter the Destination IP address and Mask.
Destination Port	Enter the Destination Port from 0 to 65535.
Protocol	Select the protocol from the list.
DSCP	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.

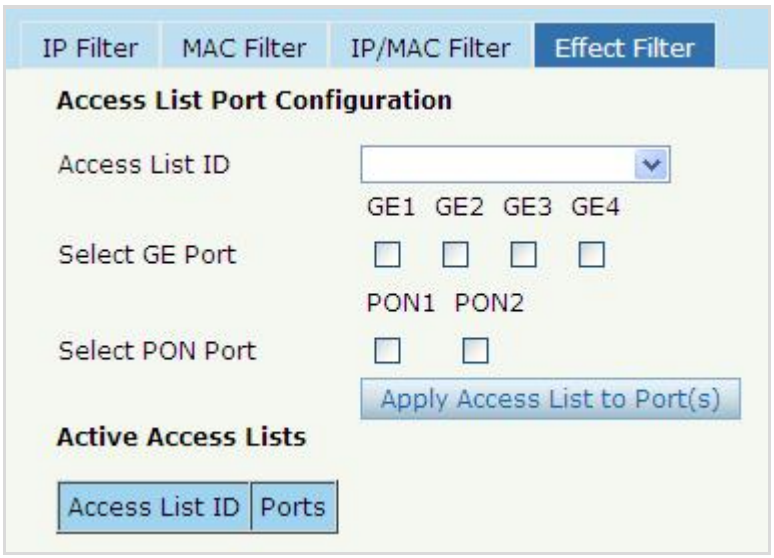


Figure 3-18 Effect Filter

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.

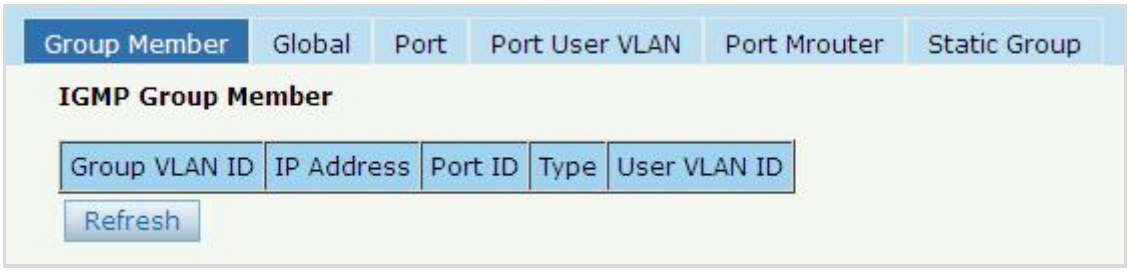


Figure 3-19 IGMP Group Member

3.4.8.2. Global

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

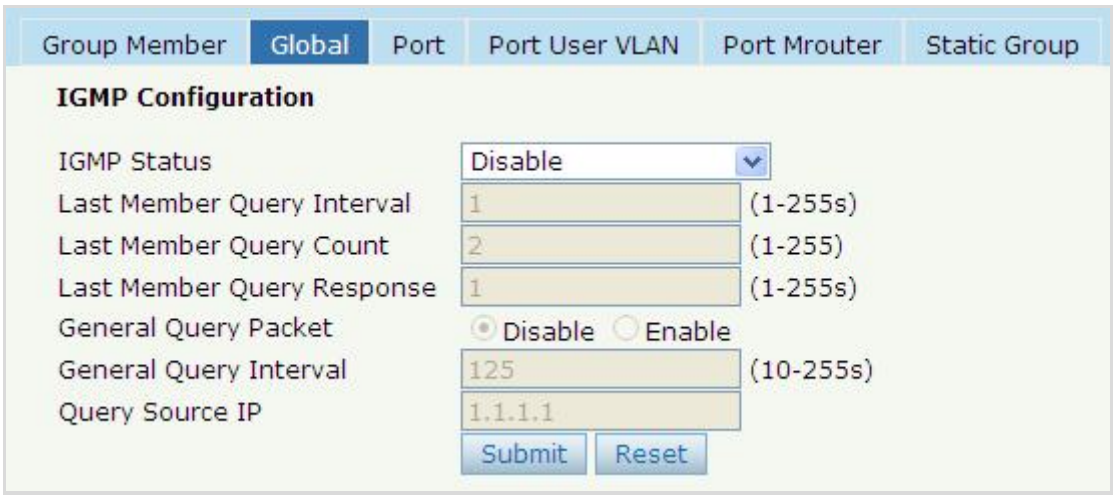


Figure 3-20 IGMP Configuration

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

3.4.8.3. Port

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

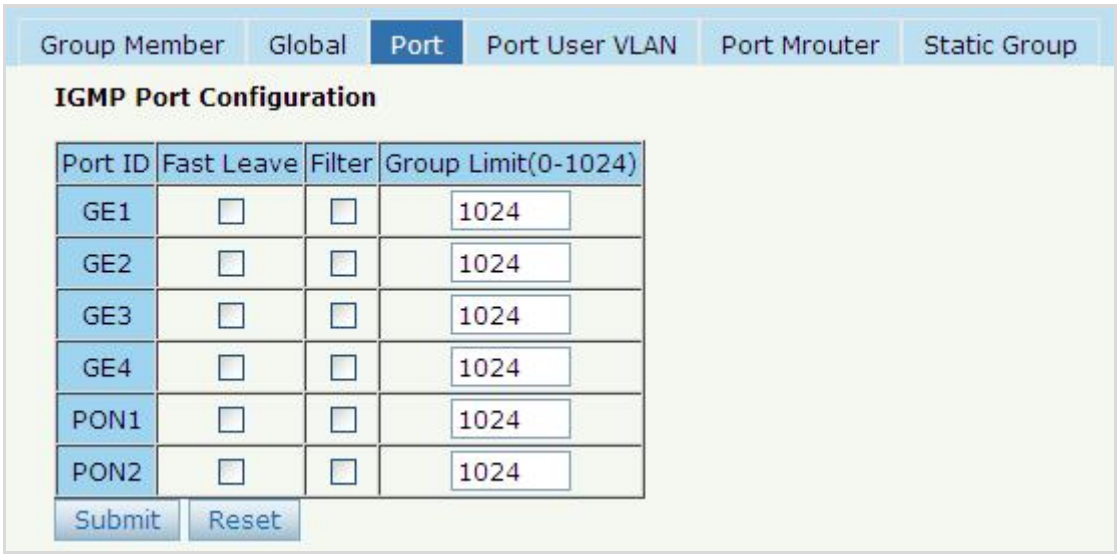


Figure 3-21 IGMP Port Configuration

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

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

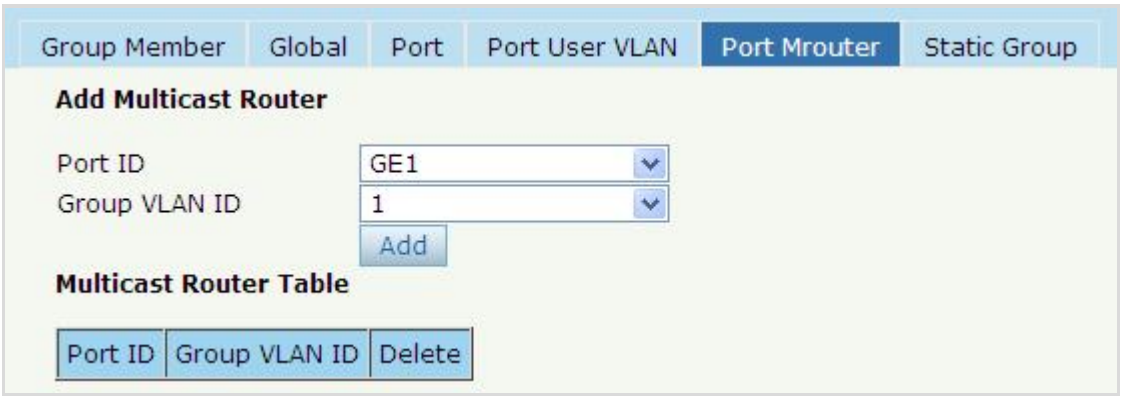


Figure 3-23 Add Multicast Router

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.

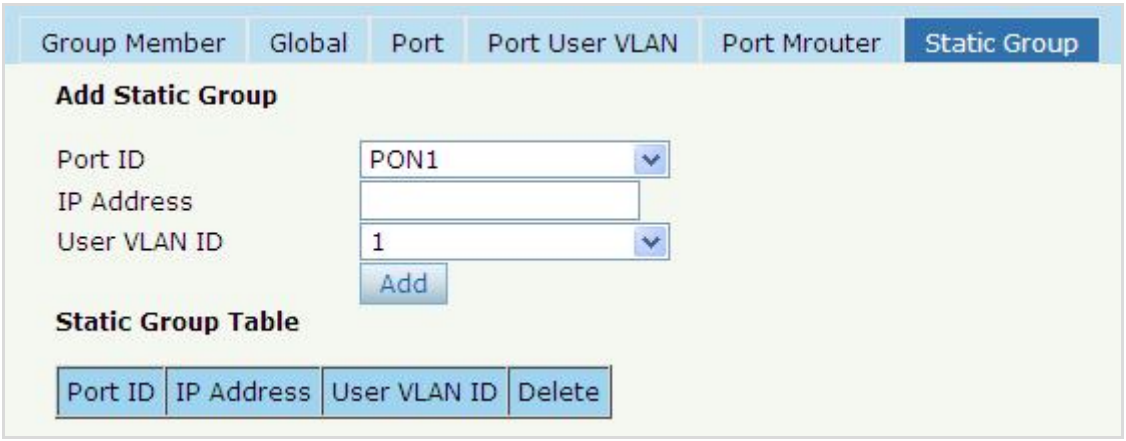


Figure 3-24 Add Static Group

Object	Description

Port ID	Select the port ID
IP Address	The IP address for a specific multicast service
User VLAN ID	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
RSTP Status	Enable or disable the RSTP.
Global Priority	Controls the bridge priority. Lower numeric values have better priority.
Hello Time	The time that controls the switch to send out the BPDU packet to check RSTP current status. Enter a value between 1 and10.
Max. Age	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 x (Hello Time + 1)].

	-Maximum: The lower of 40 or [2 x (Forward Delay -1)]
Forward Delay	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.

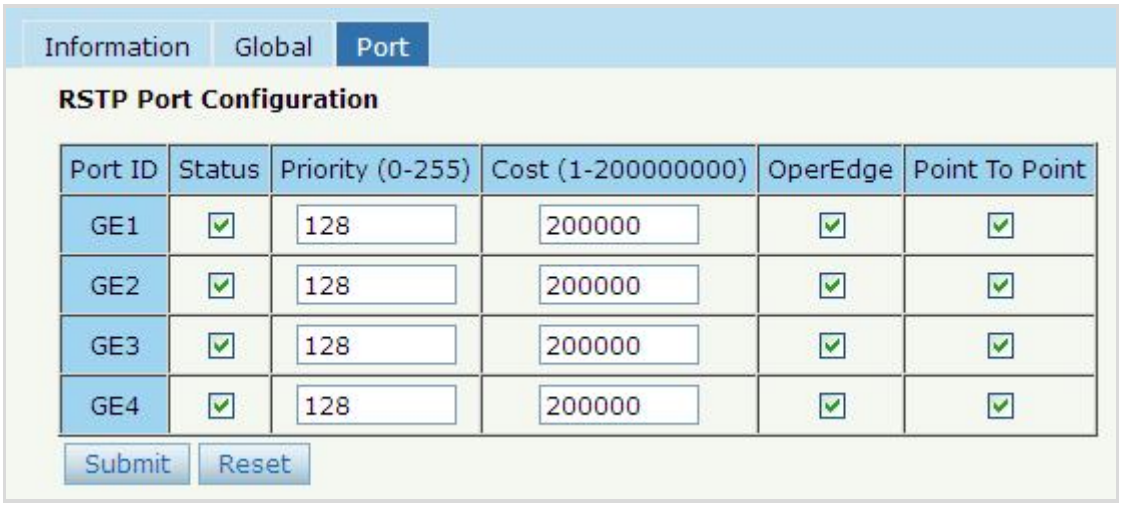


Figure 3-27 RSTP Port

Object	Description
Port ID	Port number of the OLT.
Status	Select the port number.
Priority	Controls the port priority. This can be used to control priority of ports having identical port cost. Default: **128**
Cost	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.
OperEdge	Enable or disable the OperEdge
Point to Point	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**

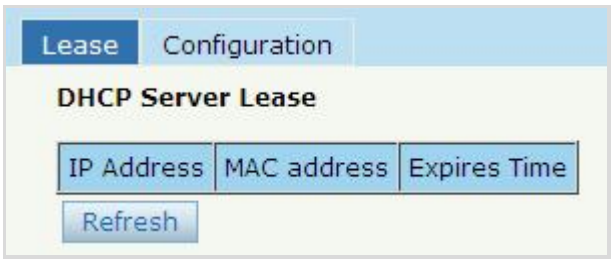


Figure 3-28 DHCP Server Lease

- **Configuration**

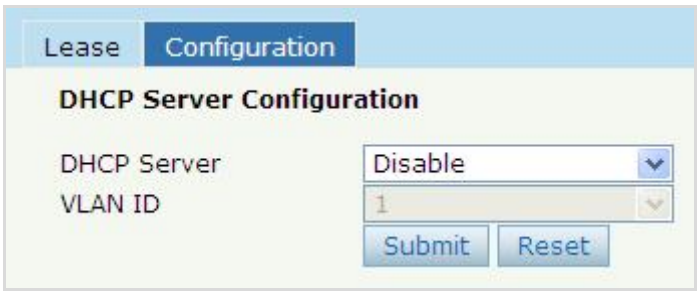


Figure 3-29 DHCP Server Configuration

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.

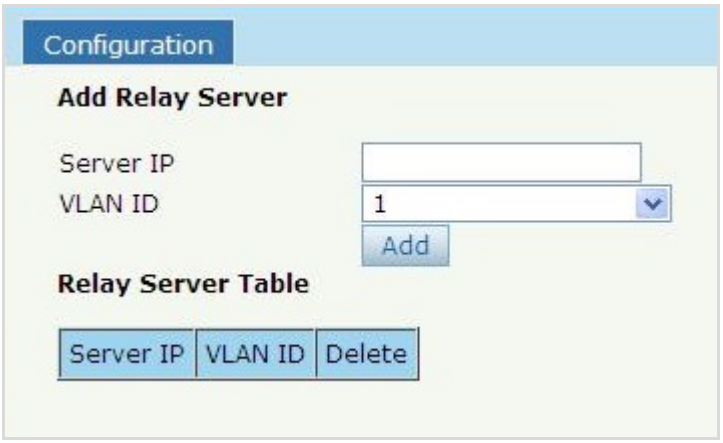


Figure 3-30 DHCP Relay Configuration

Object	Description
Server UP	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**

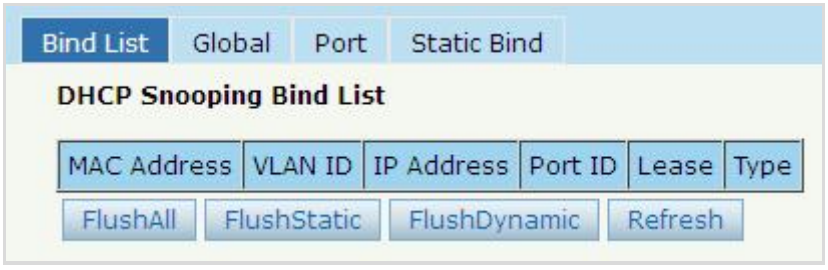


Figure 3-31 DHCP Snooping Bind List

- **Global**

Figure 3-32 DHCP Snooping Configuration

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

- **Port**

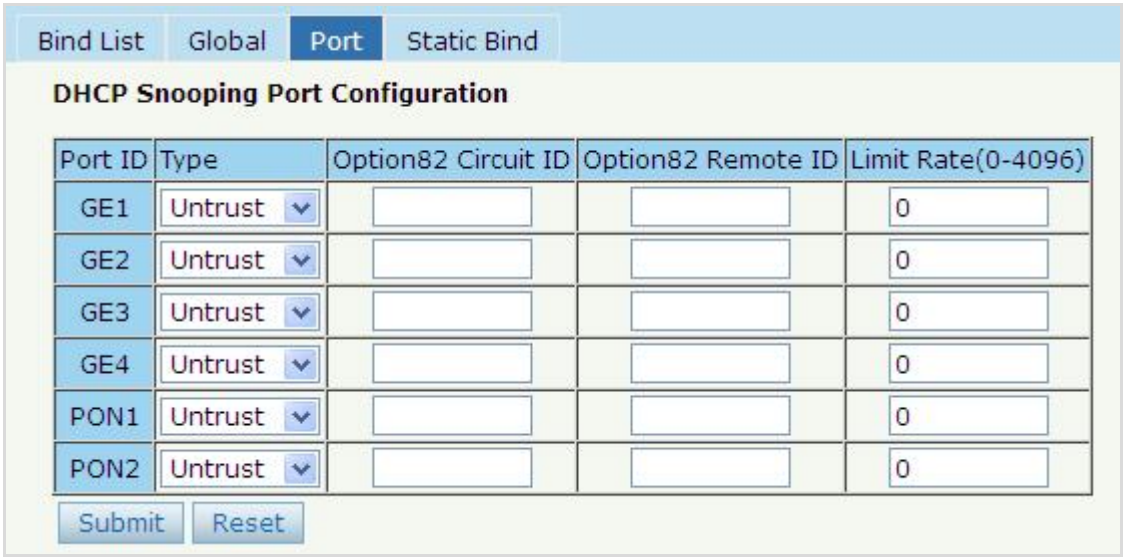


Figure 3-33 DHCP Snooping Port Configuration

Object	Description
Type	Indicates the DHCP snooping port mode. Possible port modes are: ■ **Trusted**: Configures the port as trusted sources of the DHCP message. ■ **Untrusted**: Configures the port as untrusted sources of the DHCP message.
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.

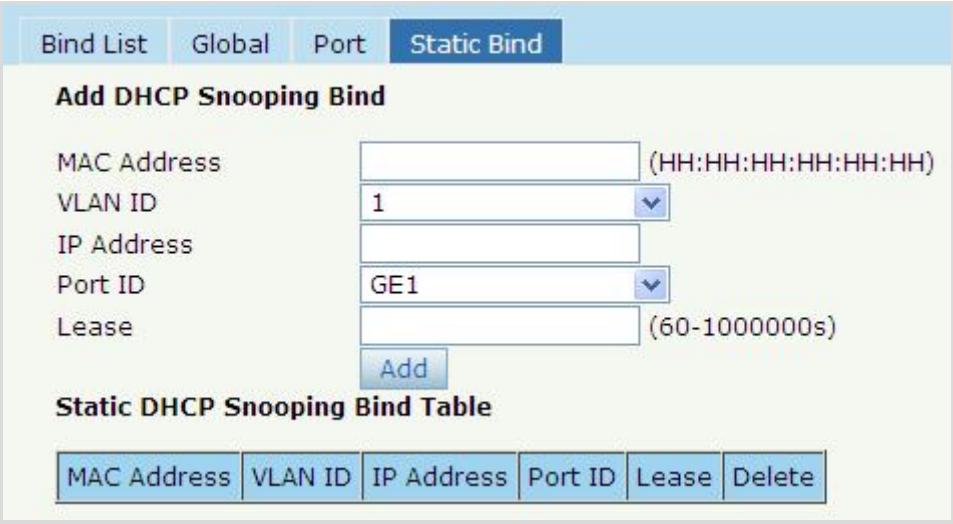


Figure 3-34 Add DHCP Snooping Bind

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

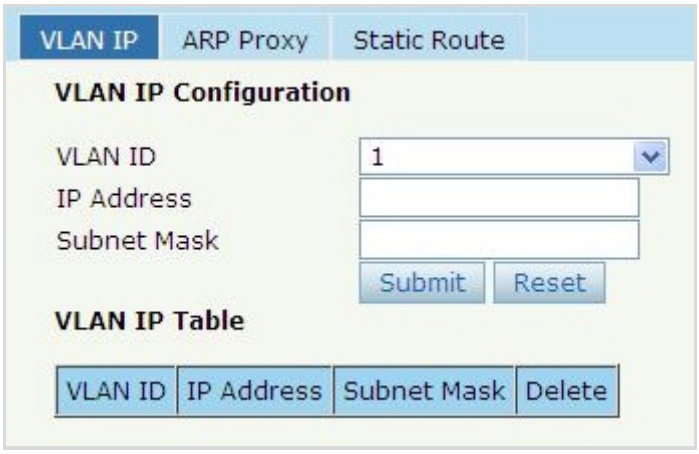


Figure 3-35 VLAN IP

Object	Description
VLAN ID	Indicates the ID of this particular VLAN

IP Address	Enter the IP address
Subnet Mask	Enter the Subnet mask

3.4.11.2. ARP Proxy

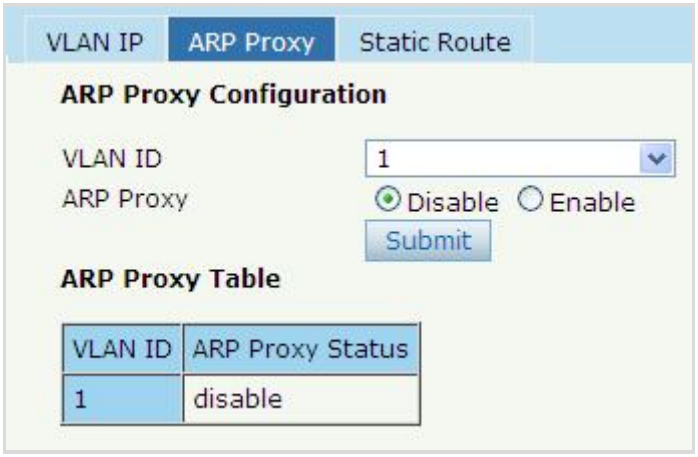


Figure 3-36 ARP Proxy Configuration

Object	Description
VLAN ID	Indicates the ID of this particular VLAN
ARP Proxy	Enable or disable the ARP Proxy

3.4.11.3. Static Route

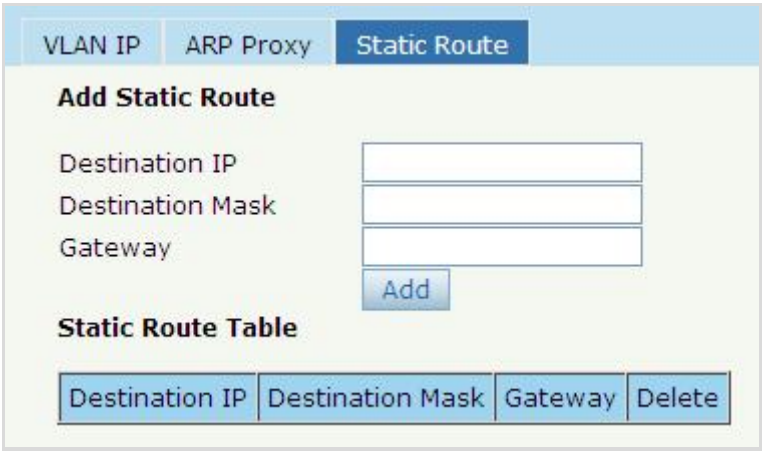


Figure 3-37 Add Static Route

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.

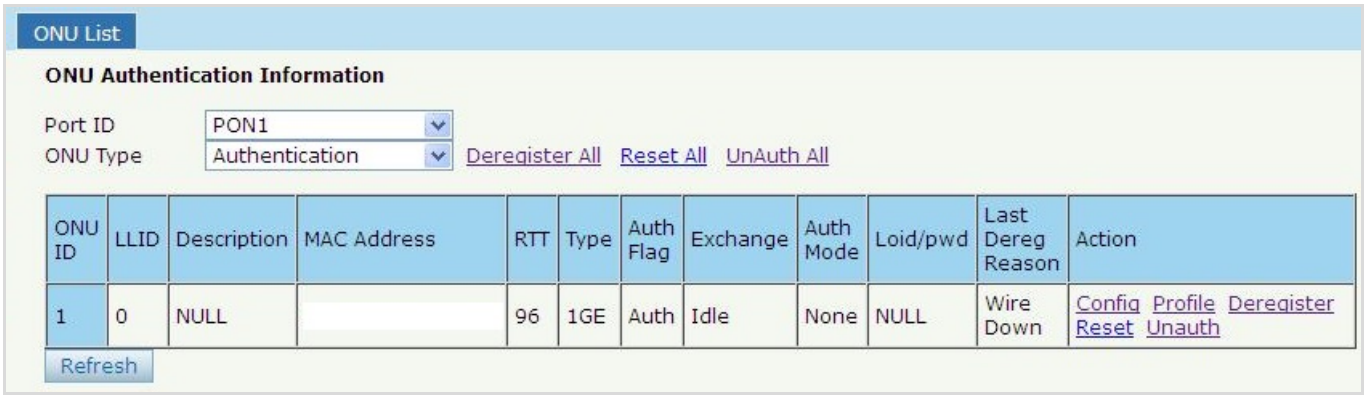


Figure 3-39 ONU Authentication Information

3.5.1.1. Information

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

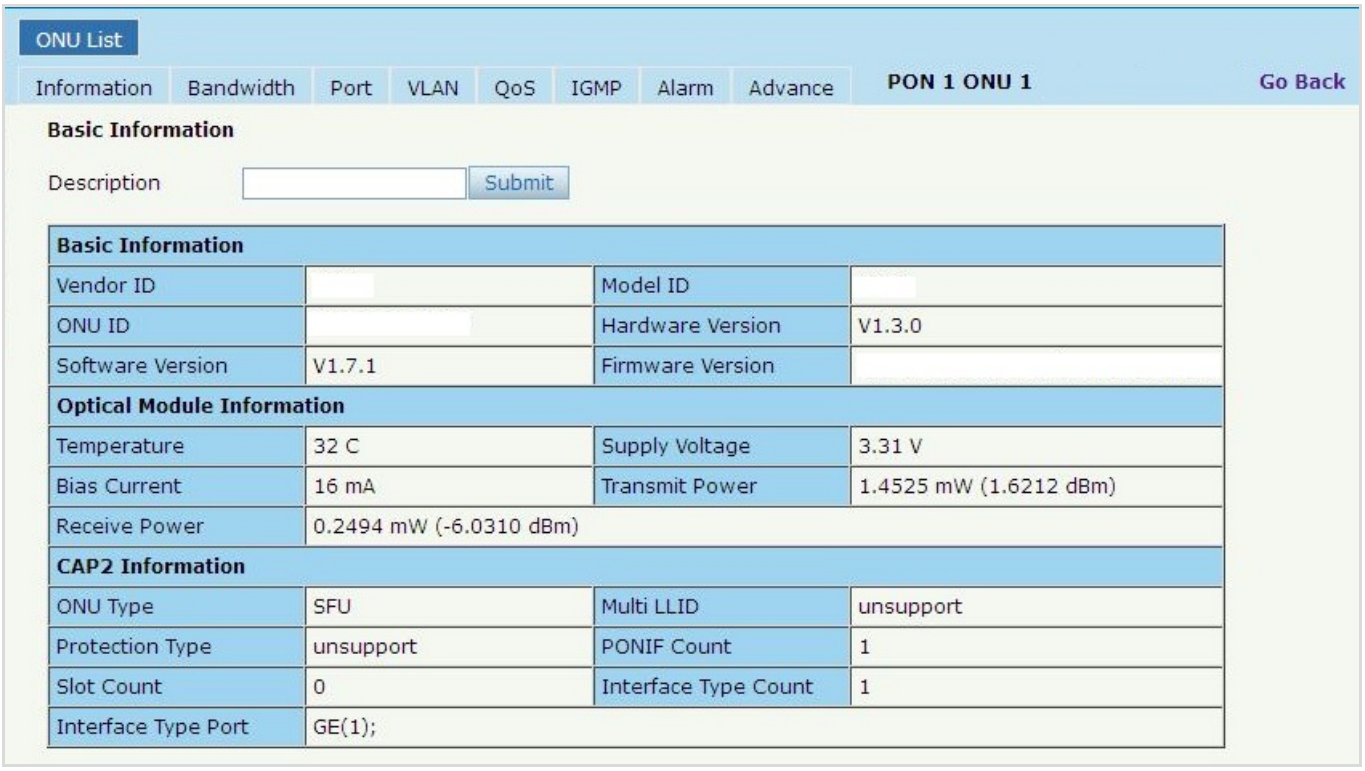


Figure 3-40 ONU Information

3.5.1.2. Bandwidth

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

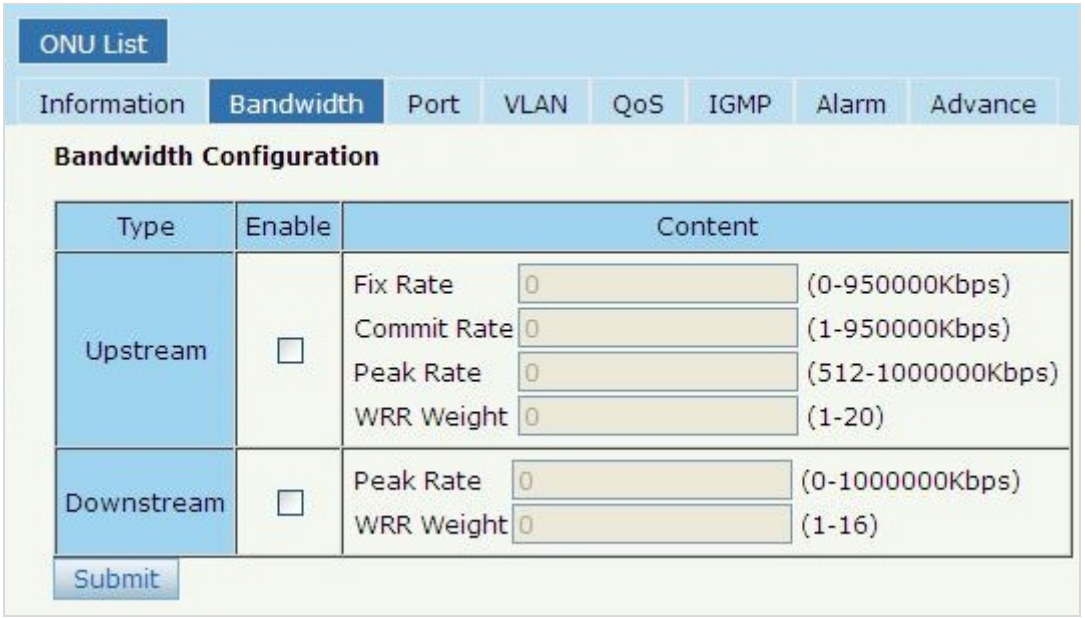


Figure 3-5-4: ONU Bandwidth

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.

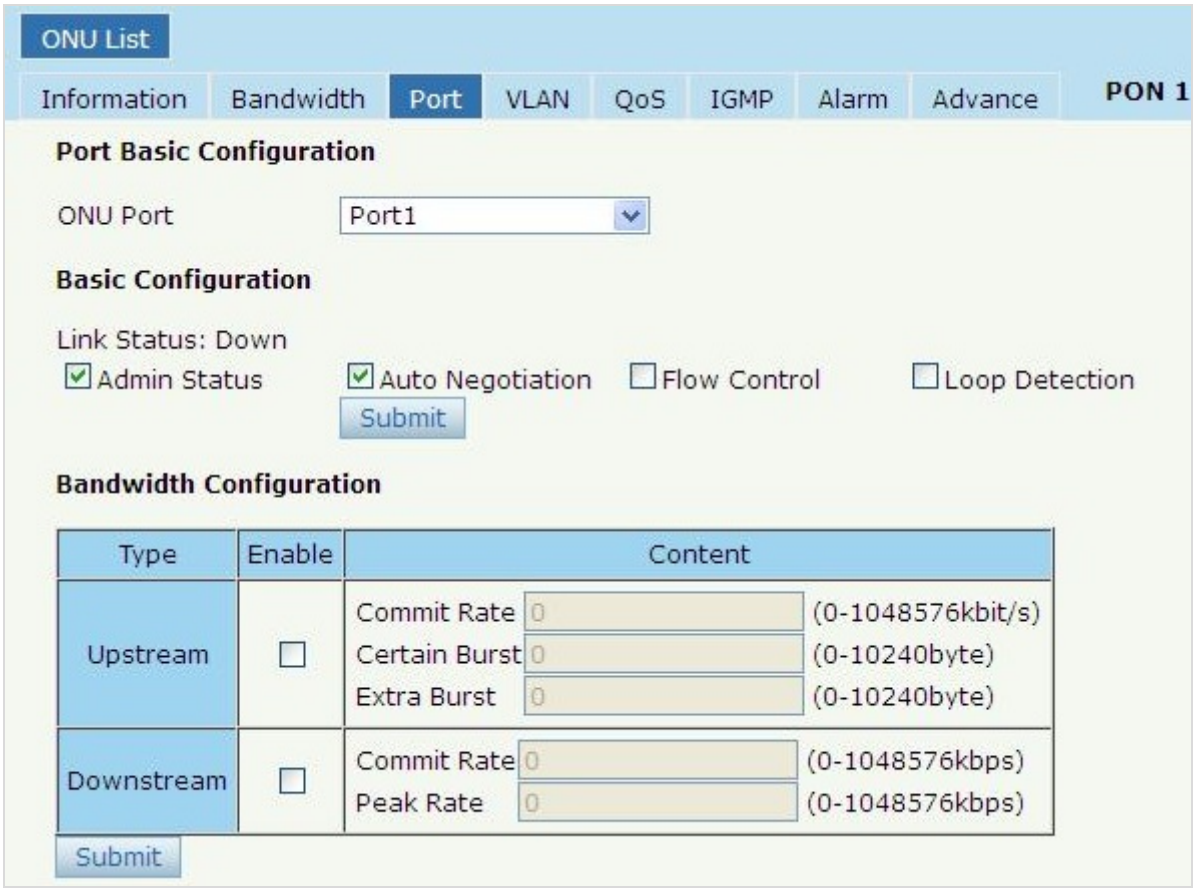


Figure 3-41 ONU Port

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.

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

3.5.1.4. VLAN

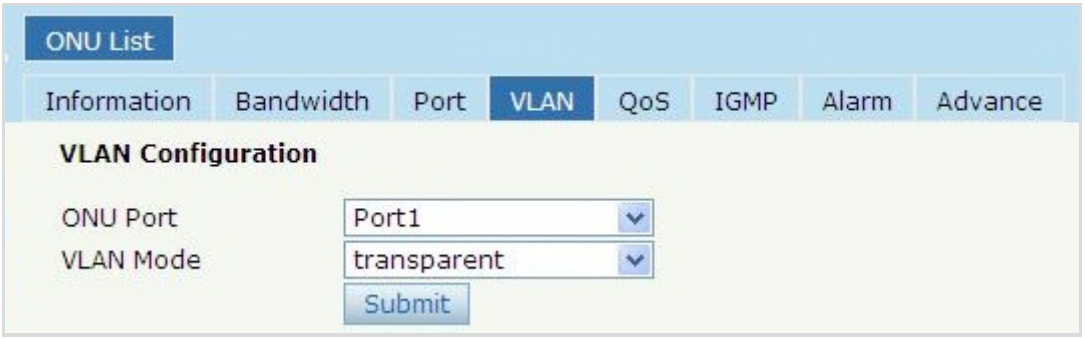


Figure 3-42 ONU VLAN

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

3.5.1.5. QoS

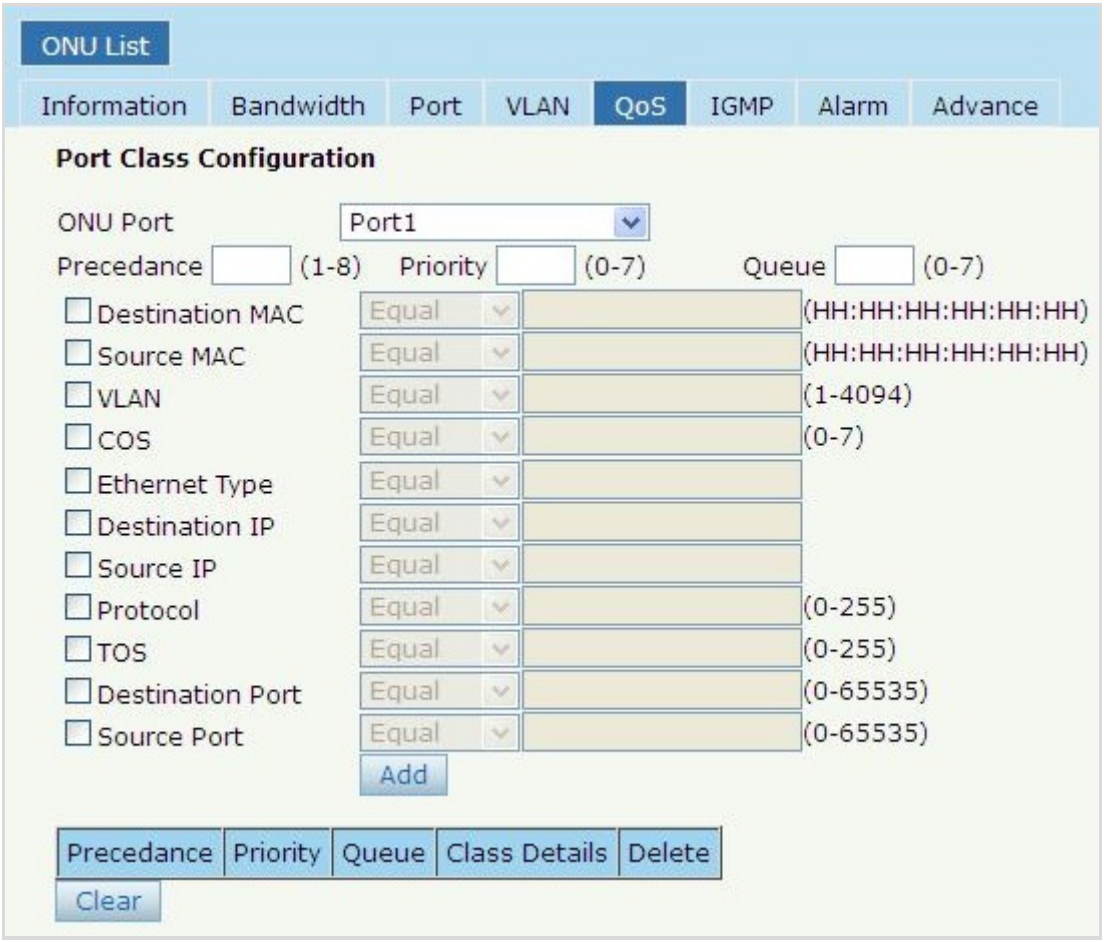


Figure 3-43 ONU QoS

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

3.5.1.6. IGMP

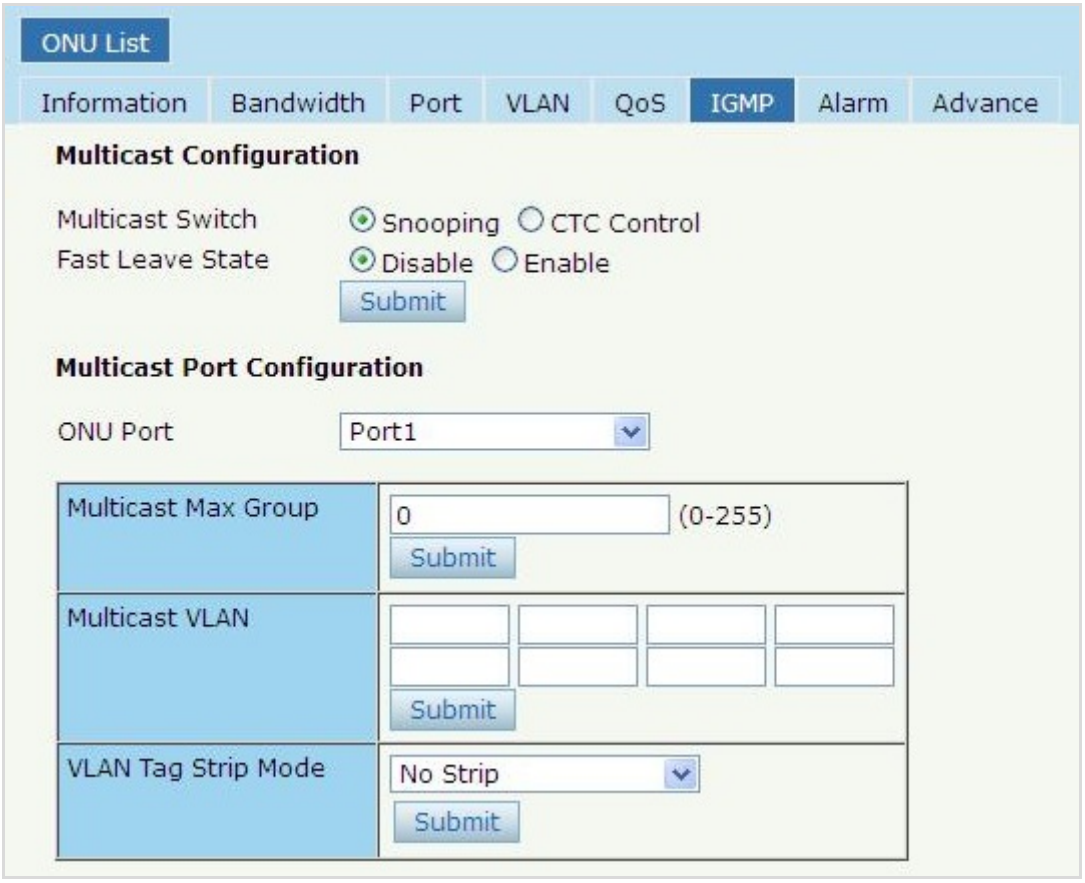


Figure 3-44 ONU IGMP

Object	Description
Multicast Switch	Select **Snooping** or **CTC Control**
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 **No Strip**, **Stri**p or **VLAN Translate**

3.5.1.7. Alarm

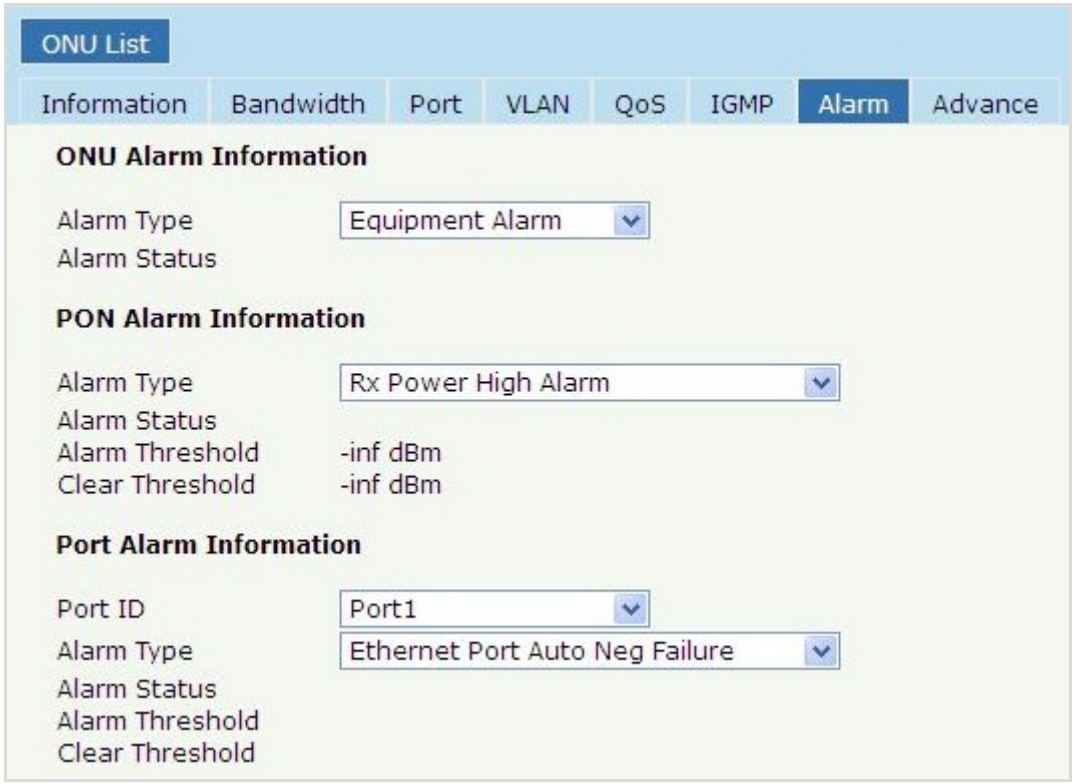


Figure 3-45 ONU Alarm

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.

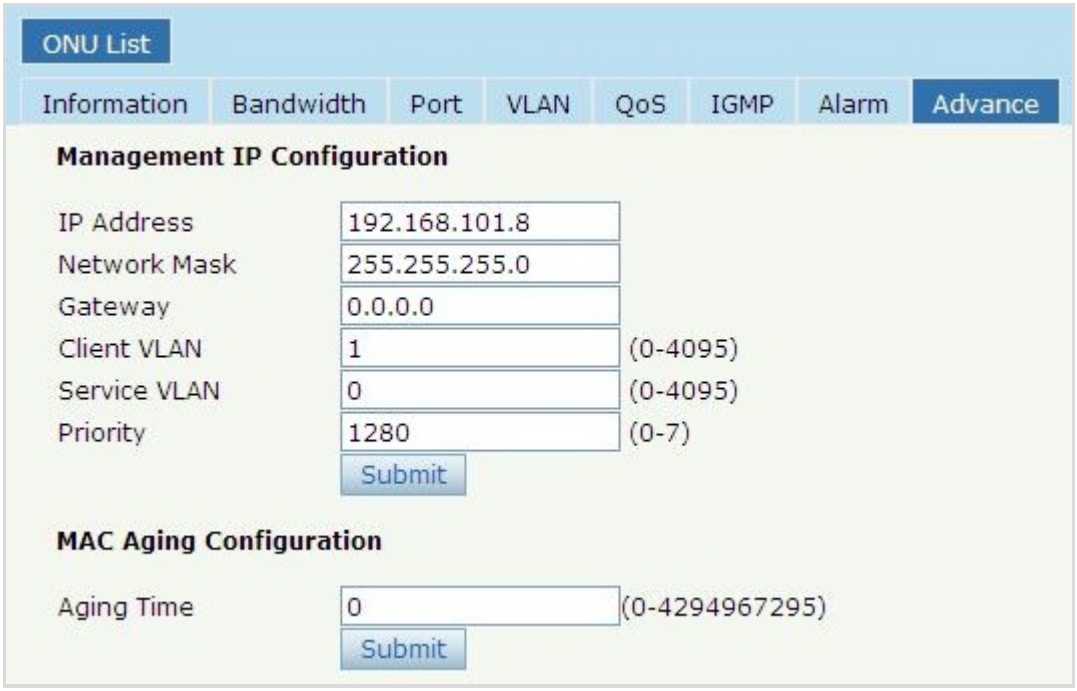


Figure 3-46 ONU Advance

3.5.2 Authentication

3.5.2.1. Authentication Mode

Enable or disable the authentication mode here.

Figure 3-47 ONU Authentication

Object	Description
Port ID	Indicates the ID of this PON port
Authentication Mode	Select **Disable**, **MAC**, **LOID** or **Hybrid**

3.5.2.2. MAC List

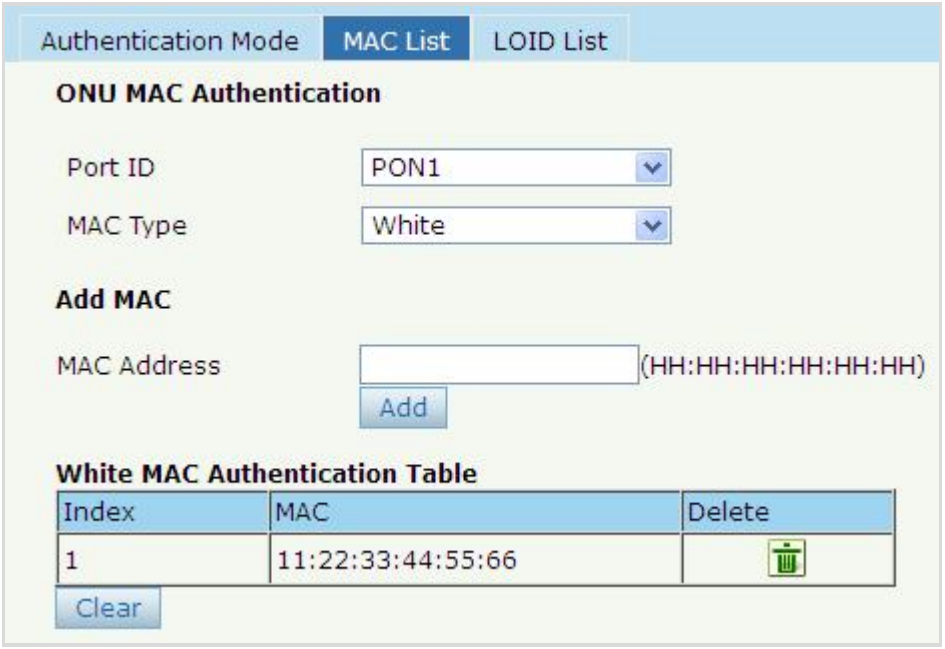


Figure 3-48 ONU MAC Authentication

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

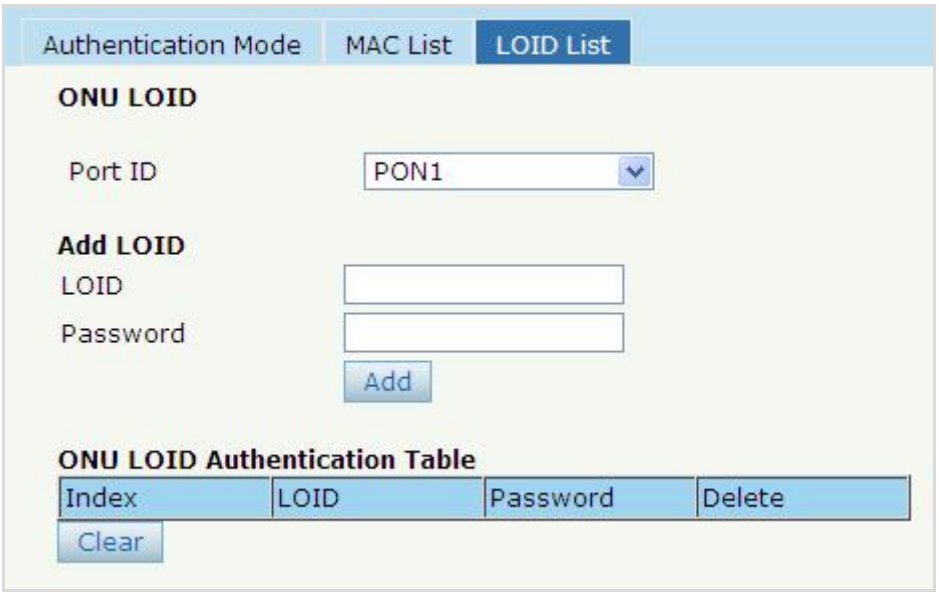


Figure 3-49 ONU LOID

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

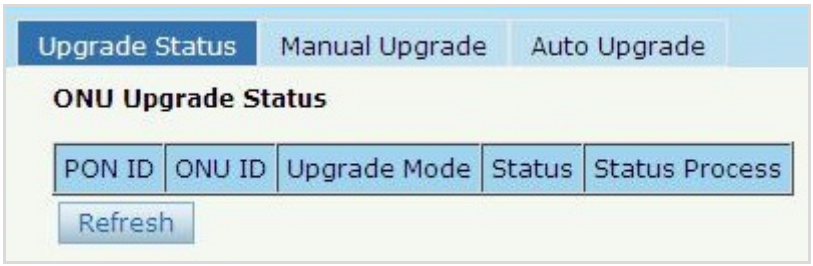


Figure 3-50 ONU Upgrade Status

3.5.3.2. Manual Upgrade

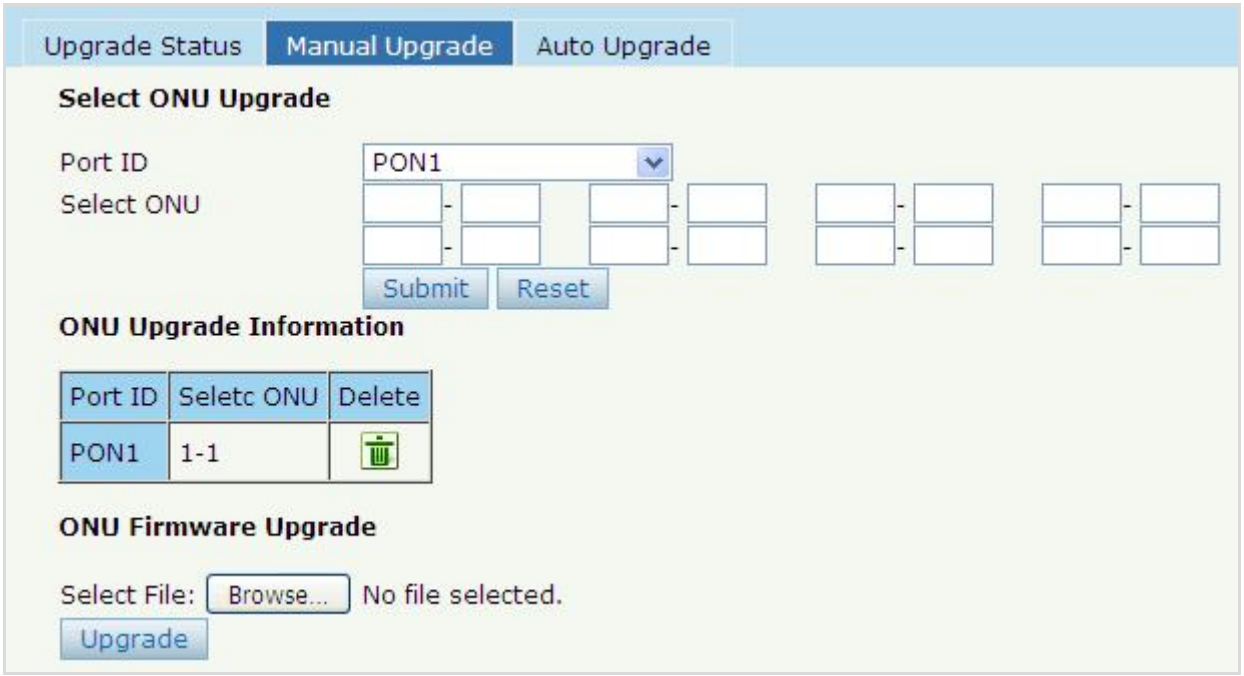


Figure 3-51 ONU Manual Upgrade

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

3.5.3.3. Auto Upgrade

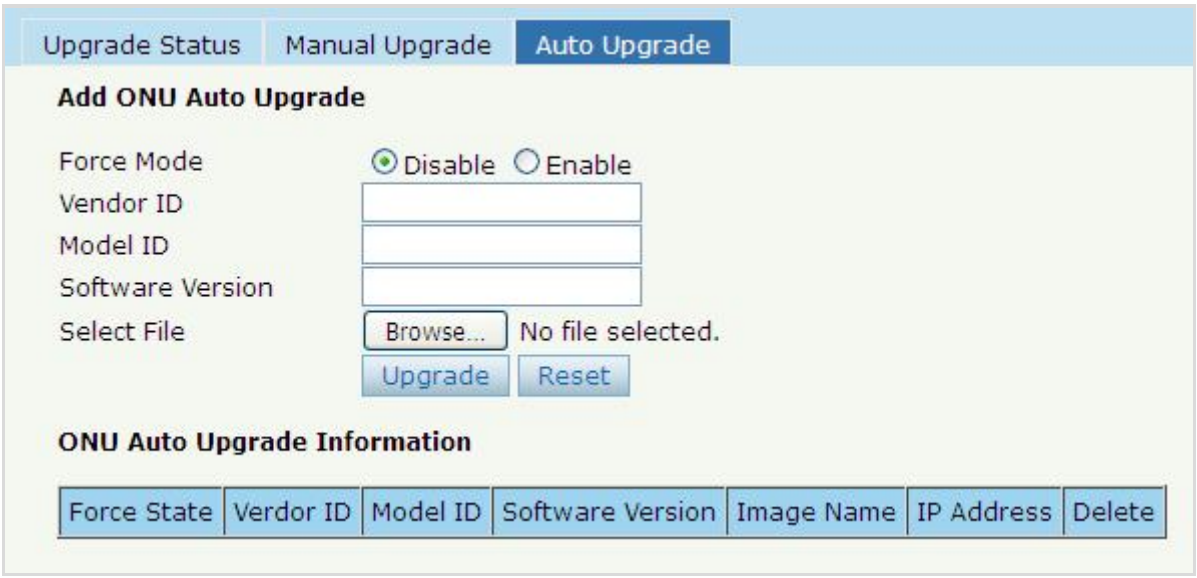


Figure 3-52 ONU Auto Upgrade

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

Figure 3-53 Create DBA Profile

3.6.1.2. Bandwidth

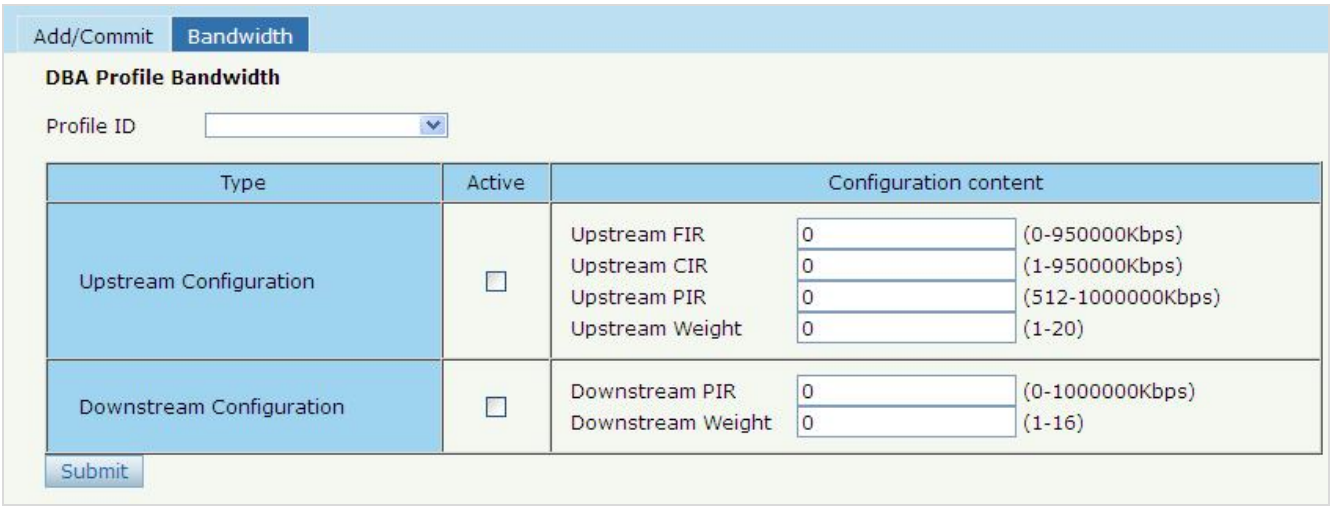


Figure 3-54 DBA Profile Bandwidth

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.

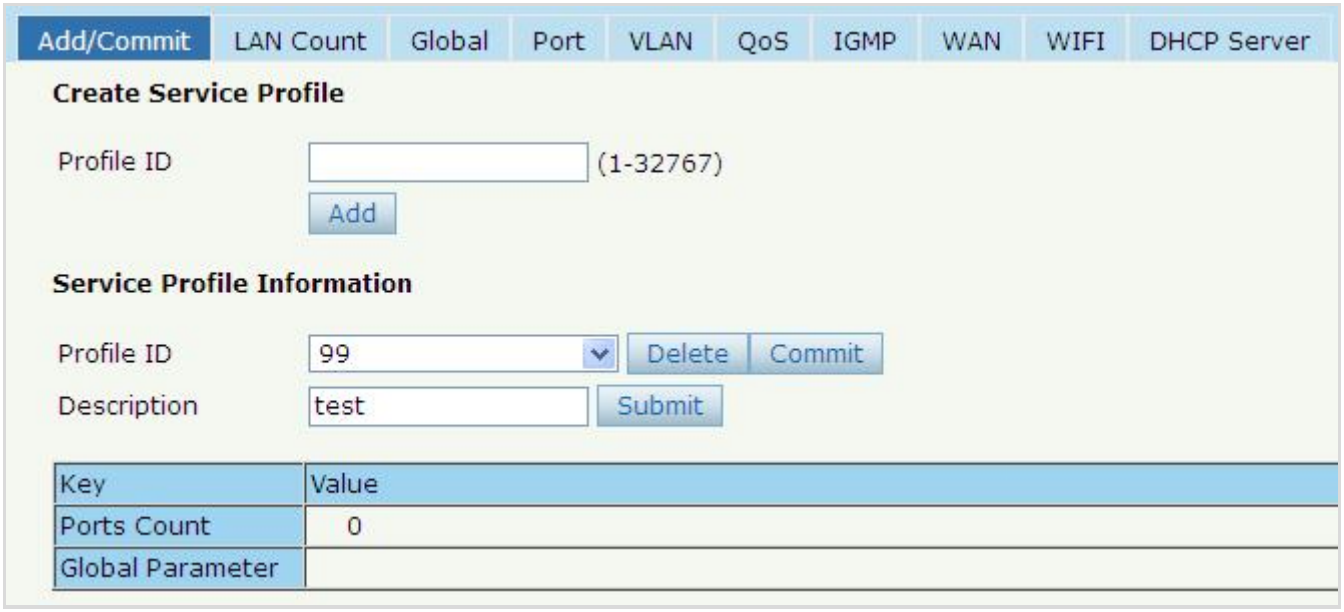


Figure 3-55 Create Service Profile

3.6.2.2. LAN Count

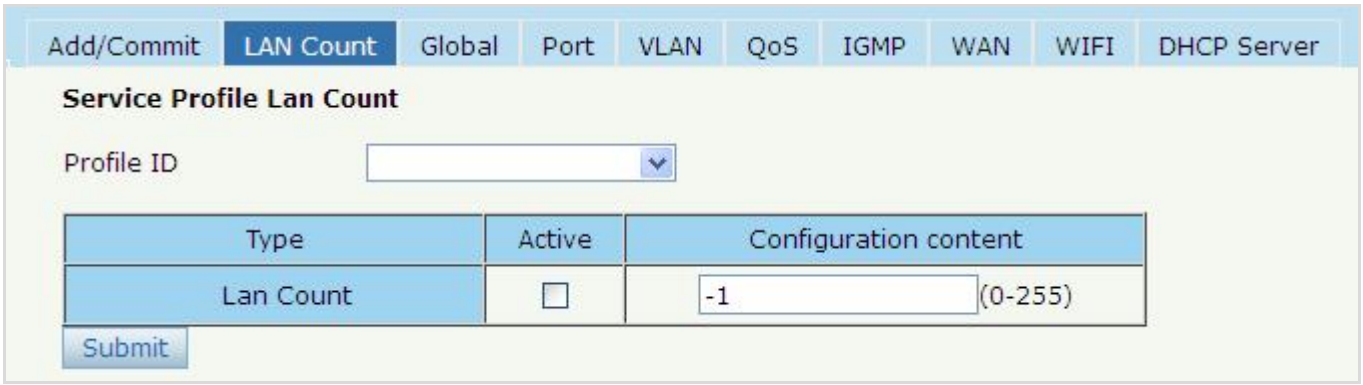


Figure 3-56 Service Profile LAN Count

3.6.2.3. Global

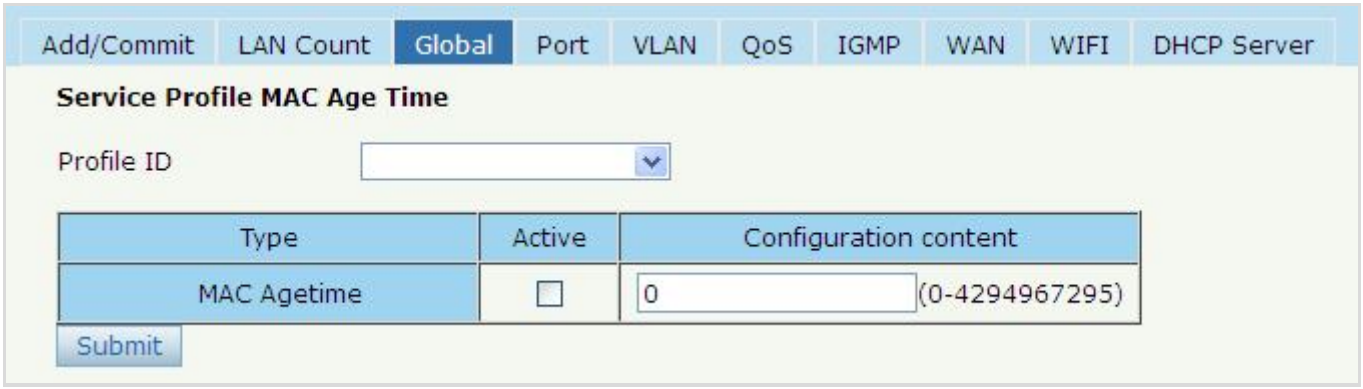


Figure 3-57 Service Profile MAC Age Time

3.6.2.4. Port

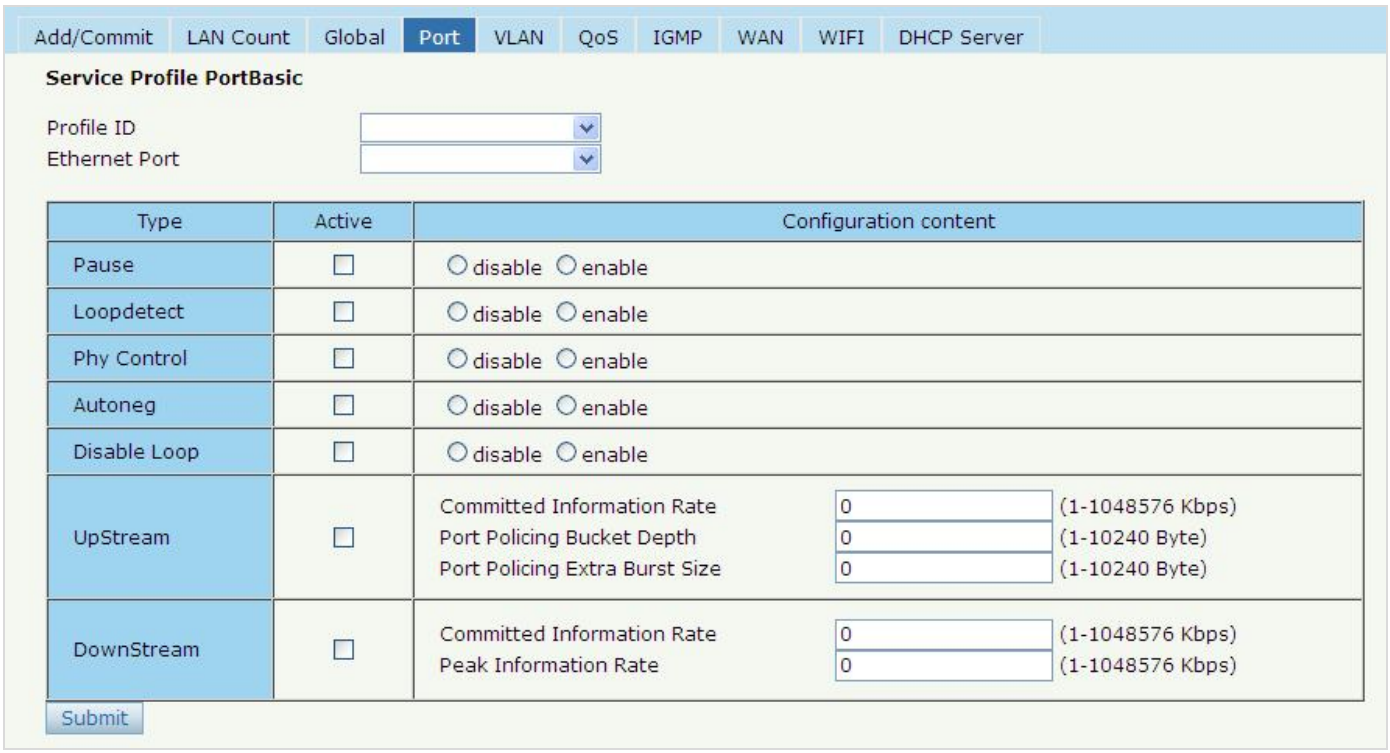


Figure 3-58 Service Profile Port Basic

3.6.2.5. VLAN

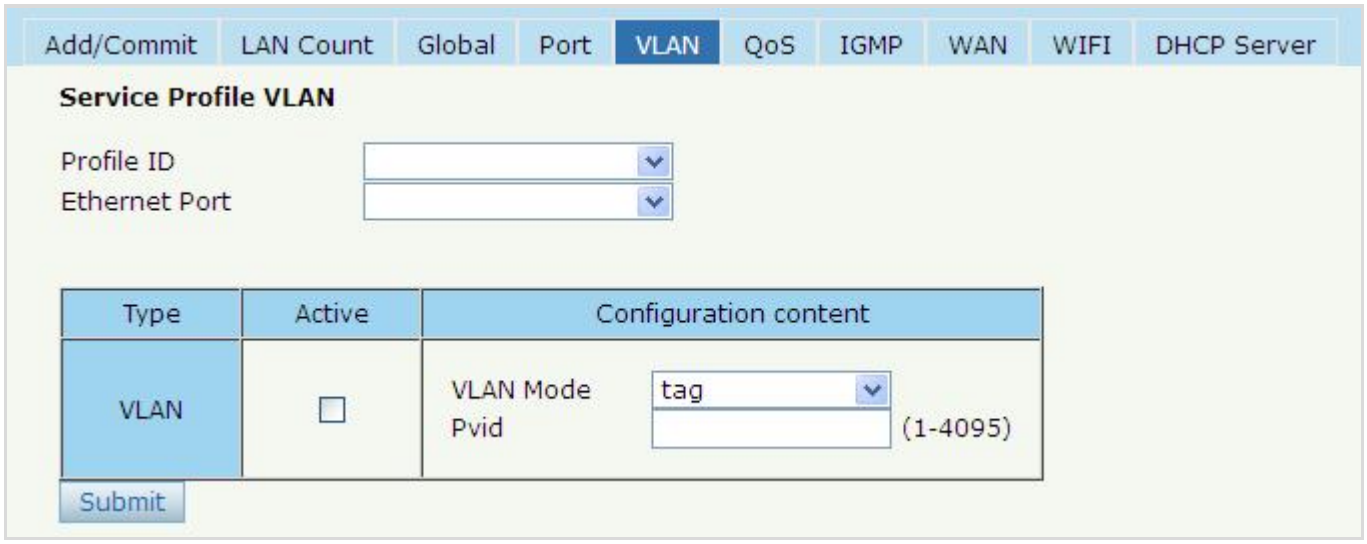


Figure 3-59 Service Profile VLAN

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

3.6.2.6. QoS

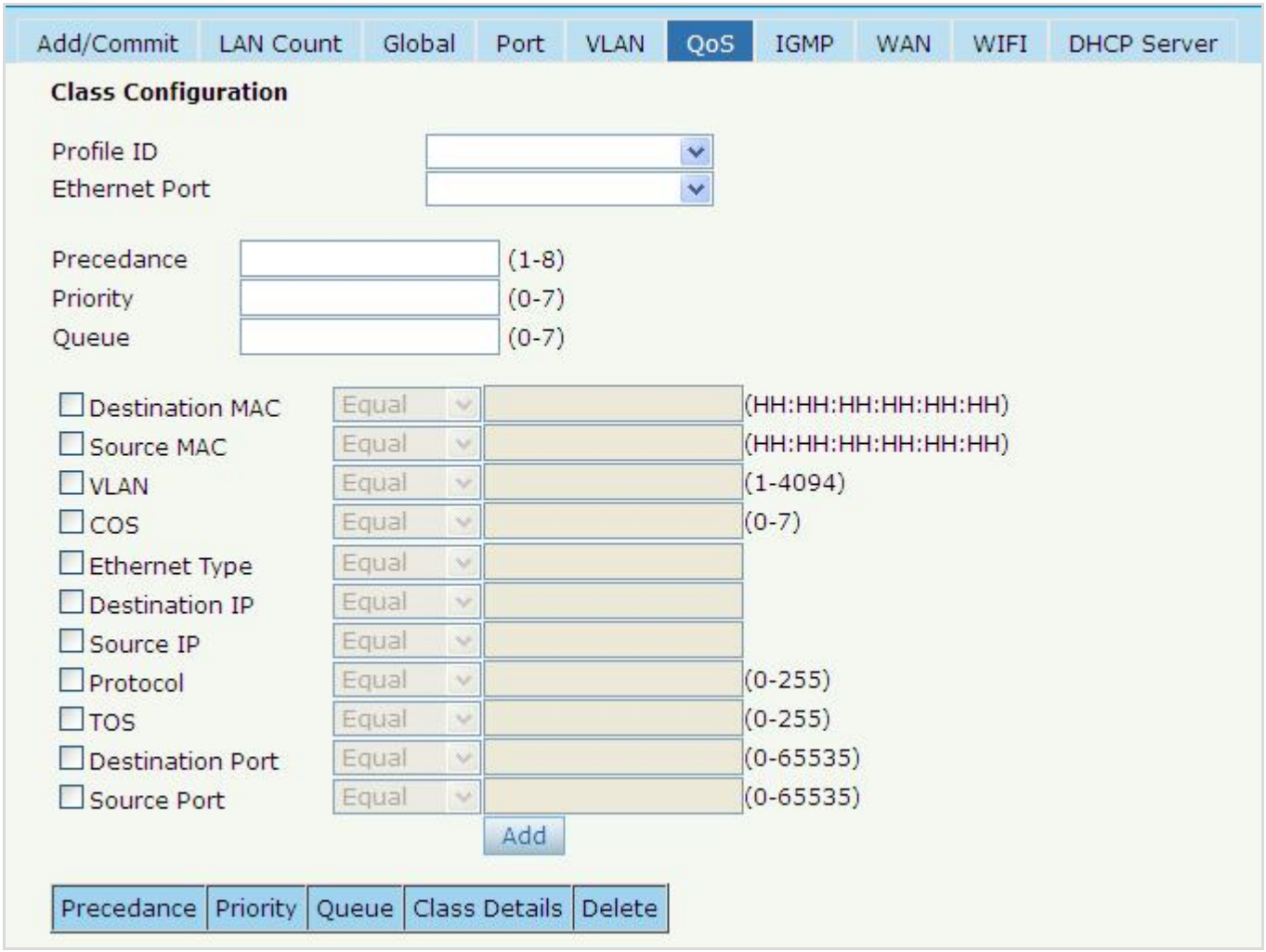


Figure 3-60 Service Profile QoS

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

3.6.2.7. IGMP

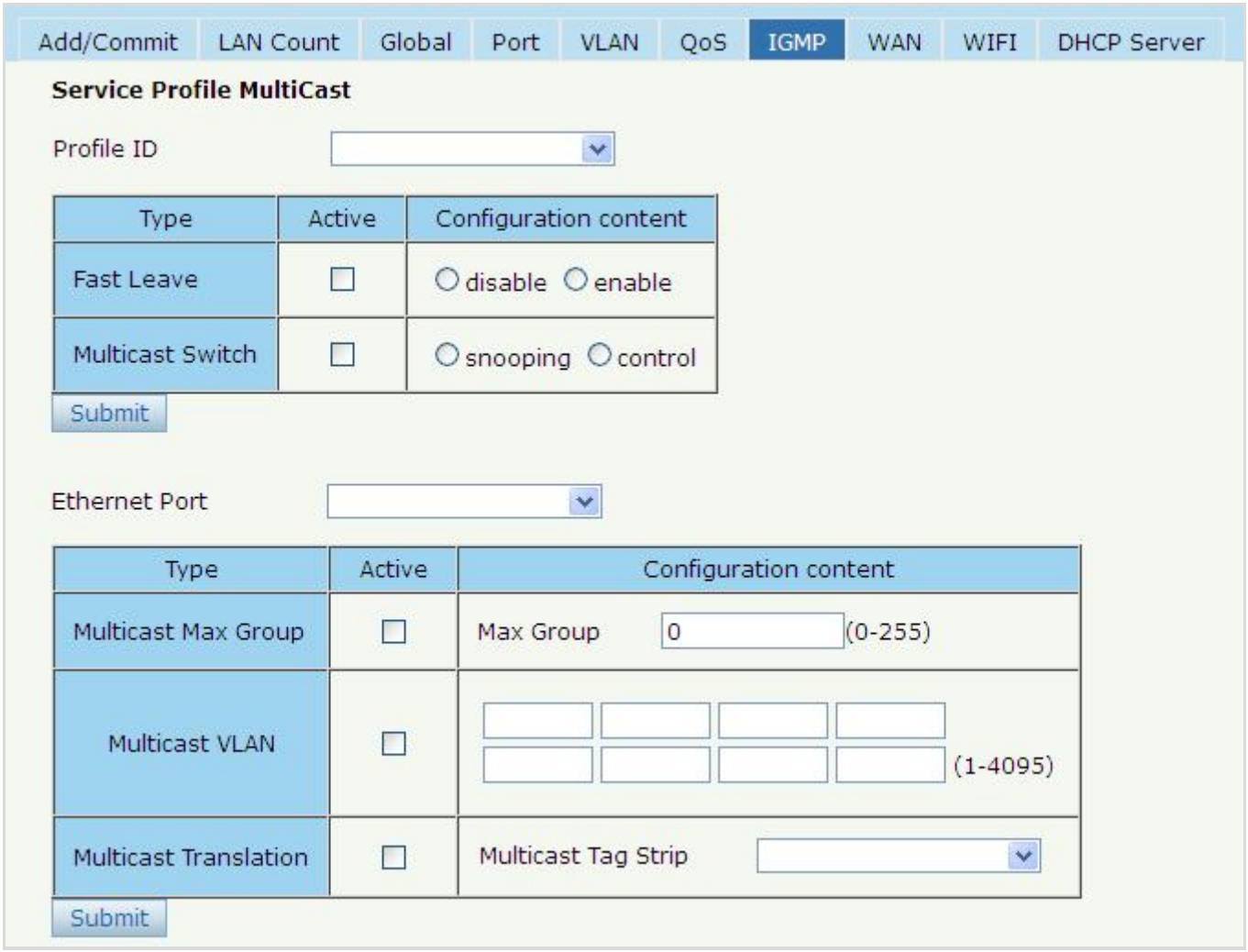


Figure 3-61 Service Profile Multicast

Object	Description
Fast Leave	Enable or disable the fast leave on the ONU
Multicast Switch	Select **Snooping** or **CTC Control**
Ethernet 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 **disable**, **enable** or **translate**

3.6.2.8. WAN

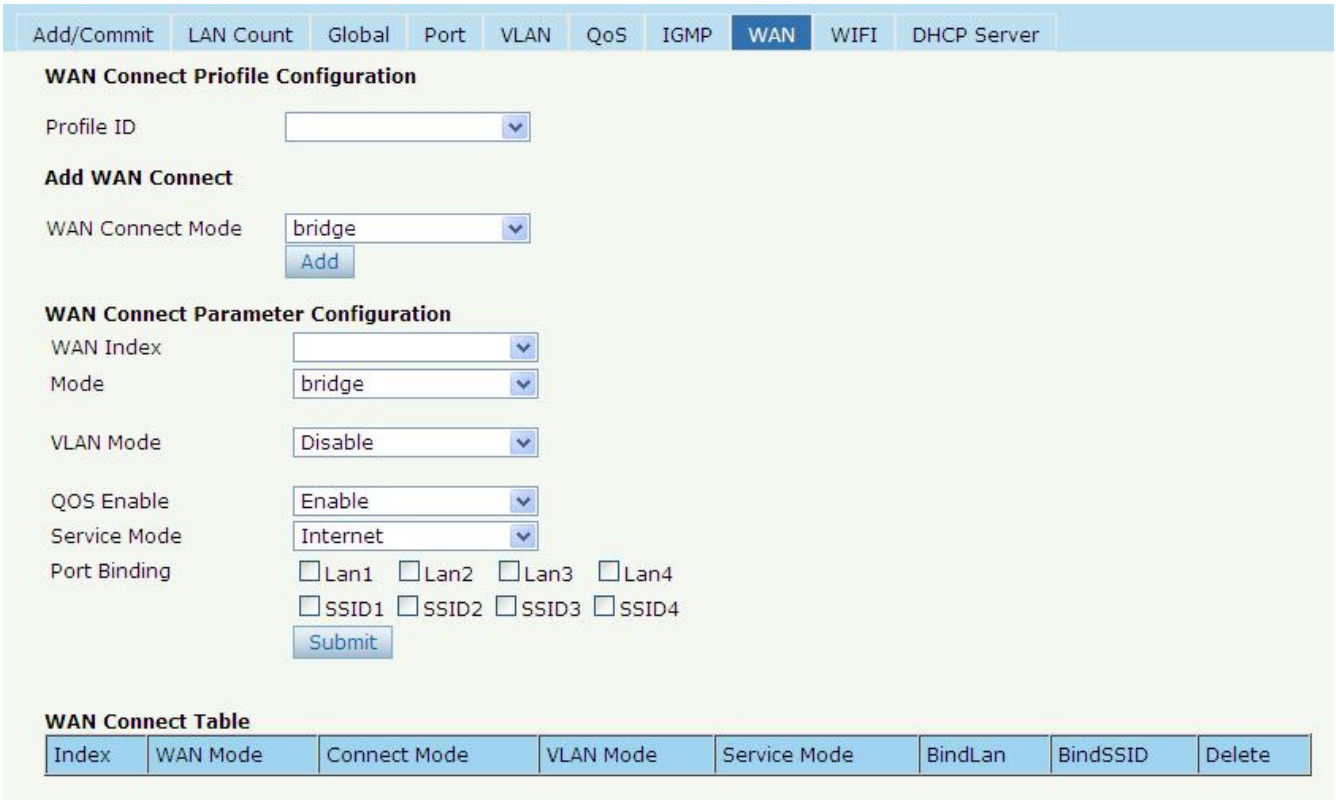


Figure 3-62 WAN Connection Profile Configuration

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

3.6.2.9. Wi-Fi

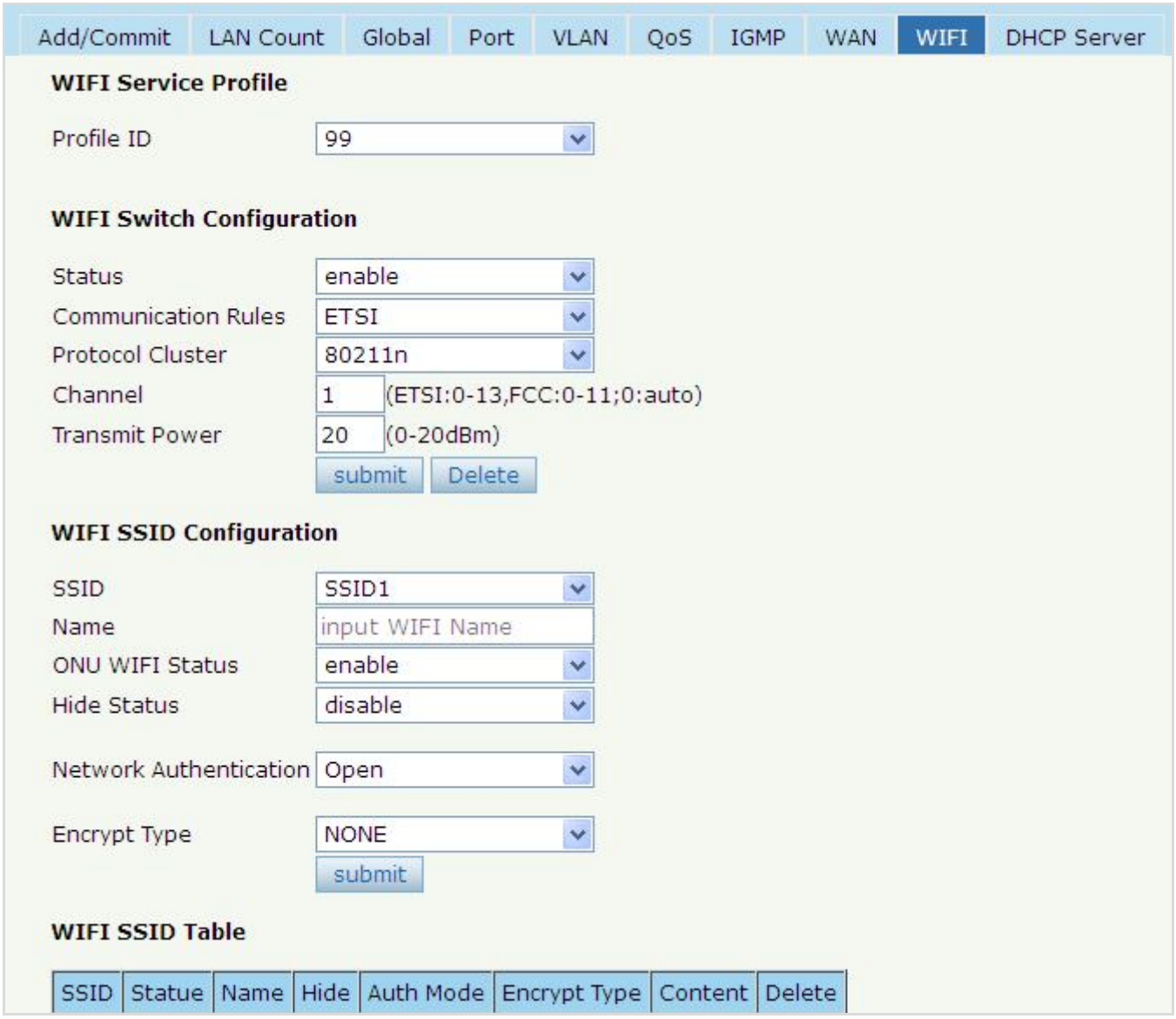


Figure 3-63 Wi-Fi Service Profile

Object	Description
Status	Select **disable** or **enable**
Communication Rules	Select **ETSI** or **FCC**
Protocol Cluster	Select **802.11b**, **802.11g**, **802.11bg**, **802.11n**, **802.11bgn** or **unknown**
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 disable or enable to hide SSID

Network Authentication	Select the security mode from the dropdown list. There are 9 options in the dropdown list: ■ **Open** ■ **Shared** ■ **WEPAUTO** ■ **WPAPSK** ■ **WPA** ■ **WPA2PSK** ■ **WPA2** ■ **WPA/WPA2** ■ **WPA PSK /WPA2PSK**
Encrypt Type	Select the encryption type from the list

3.6.2.10. DHCP Server

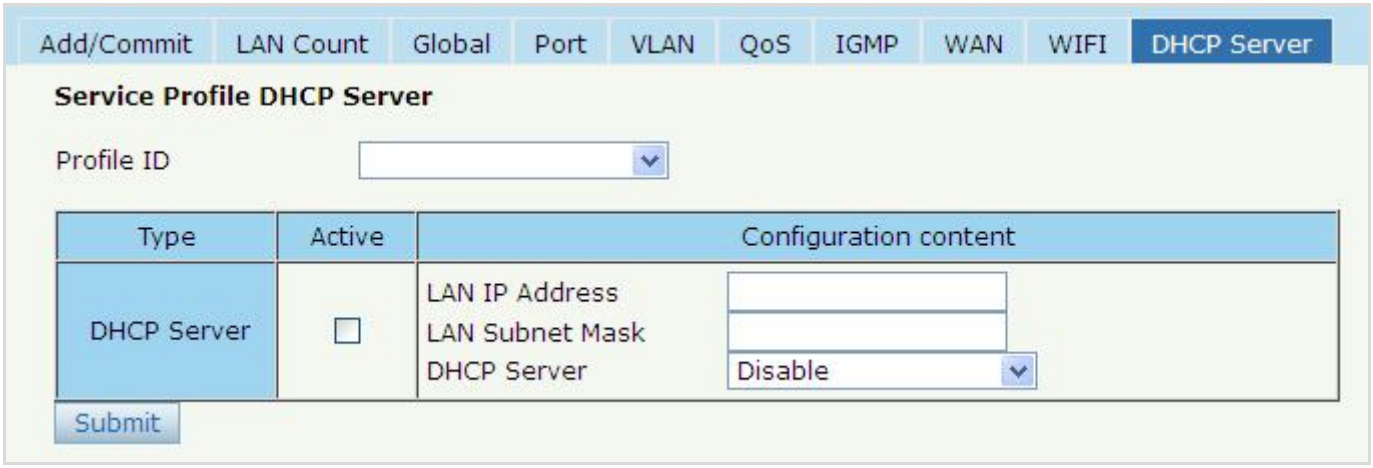


Figure 3-64 Service Profile DHCP Server

Object	Description
LAN IP Address	Enter the IP address
LAN Subnet Mask	Enter the subnet mask
DHCP Server	Select **Disable**, **Enable** or **Relay**
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 **PC**, **Camera**, **STB** or **IP Phone**

Master DNS	Enter the DHCP DNS1
Slave DNS	Enter the DHCP DNS2
Gateway	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

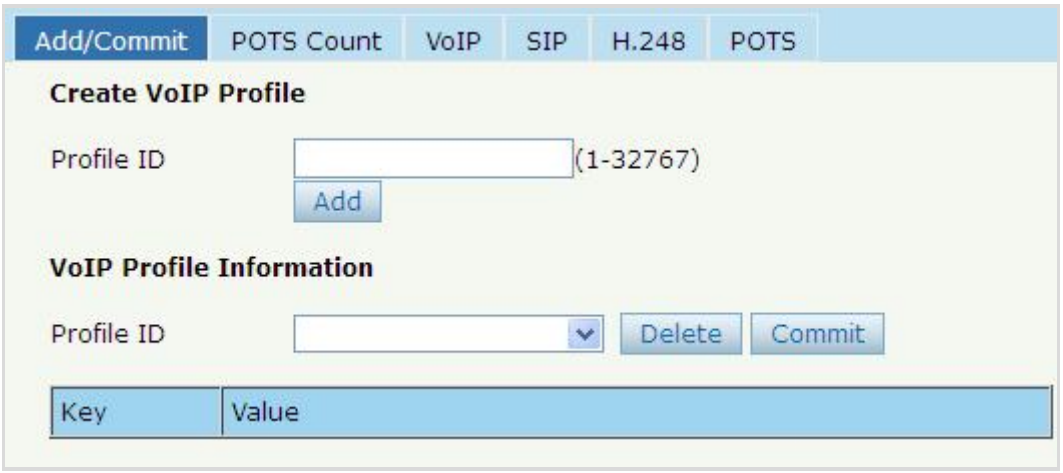


Figure 3-65 Create VoIP Profile

3.6.3.2. POTS Count

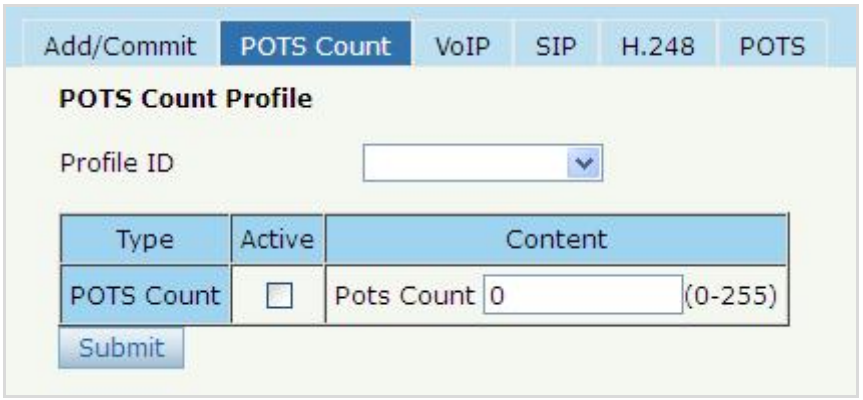


Figure 3-66 Create VoIP Profile

3.6.3.3. VoIP

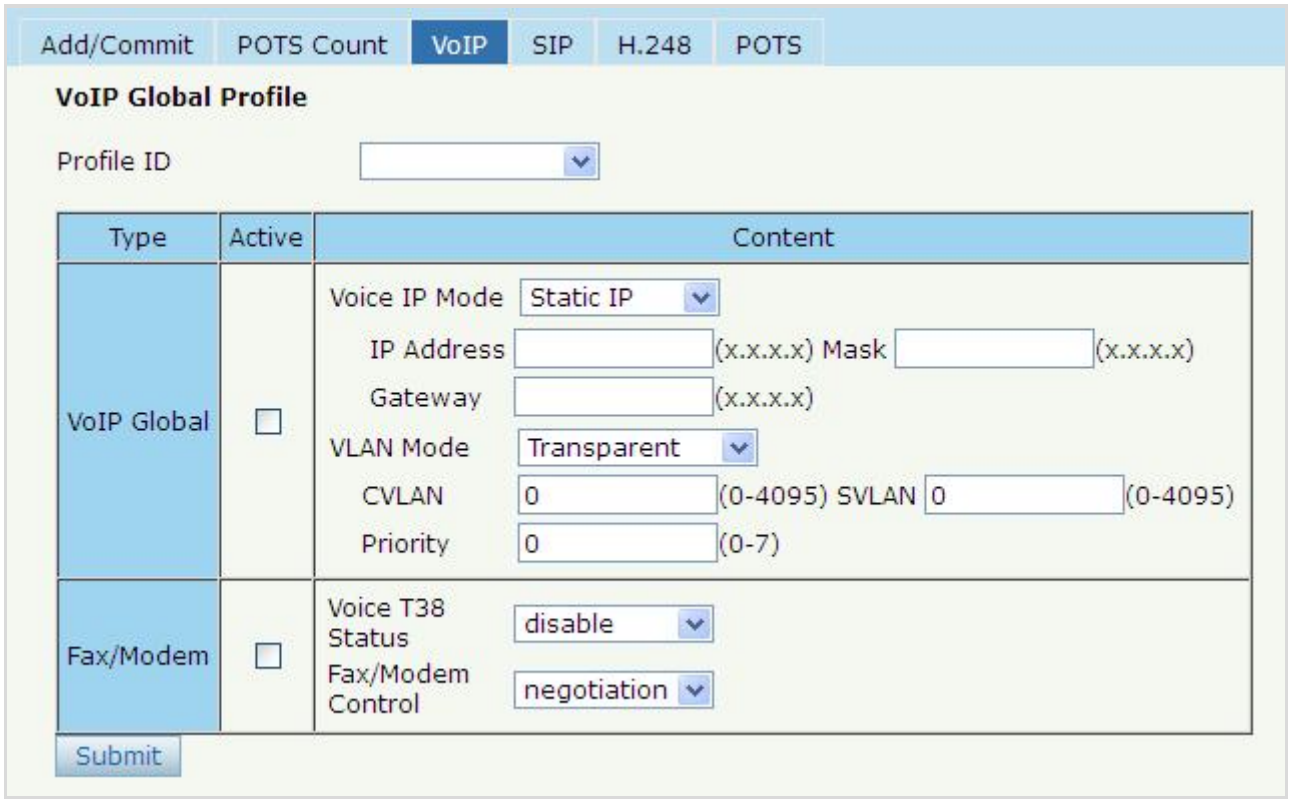


Figure 3-67 VoIP Global Profile

3.6.3.4. SIP

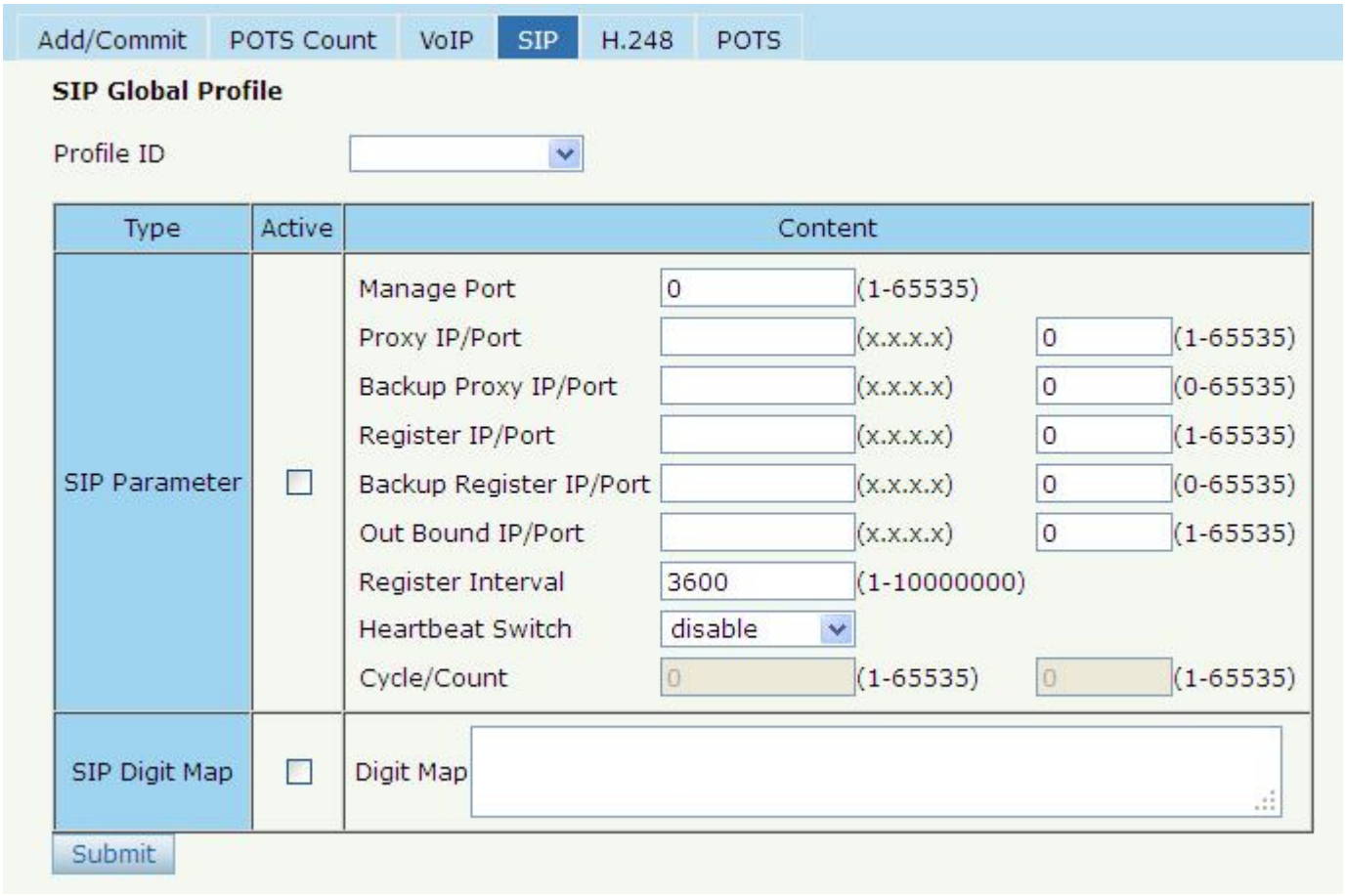


Figure 3-68 SIP Global Profile

3.6.3.5. H.248

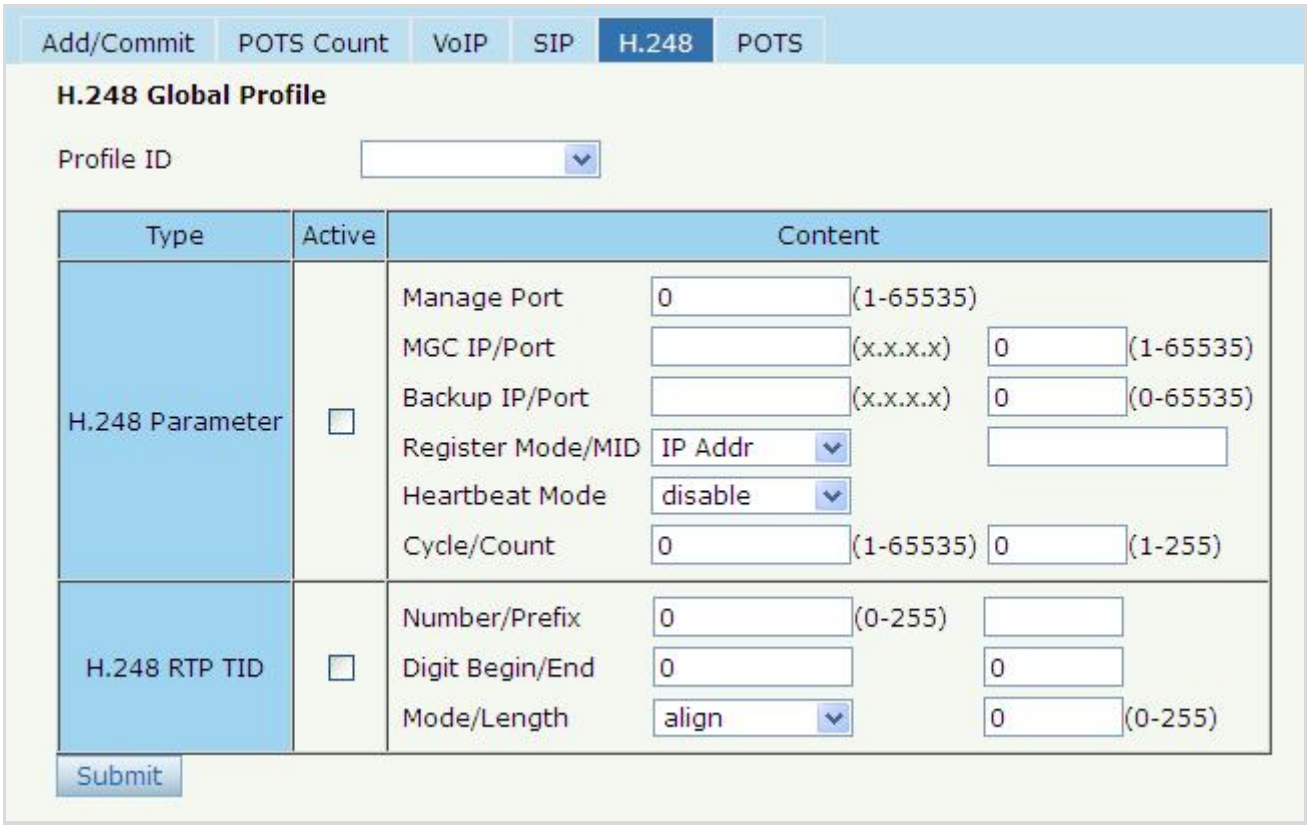


Figure 3-69 H.248 Global Profile

3.6.3.6. POTS

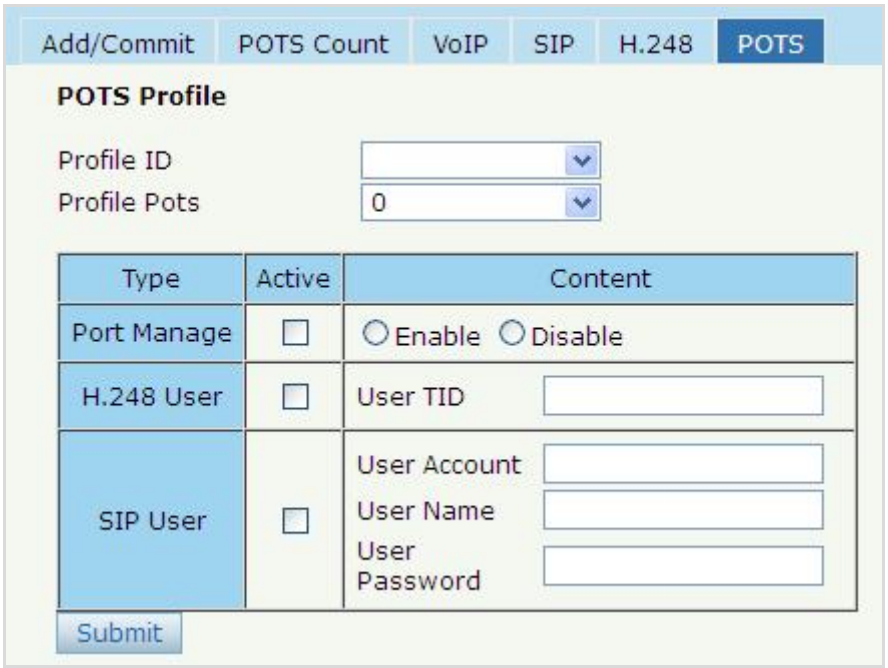


Figure 3-70 POTS Profile

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

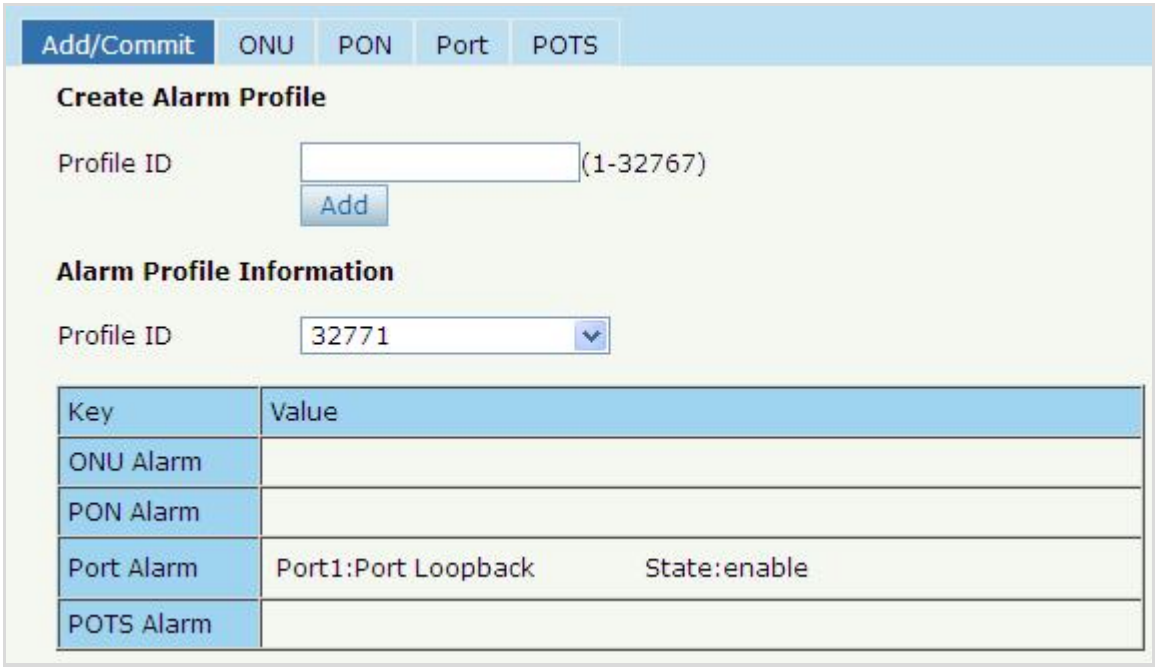


Figure 3-71 Create Alarm Profile

3.6.4.2. ONU

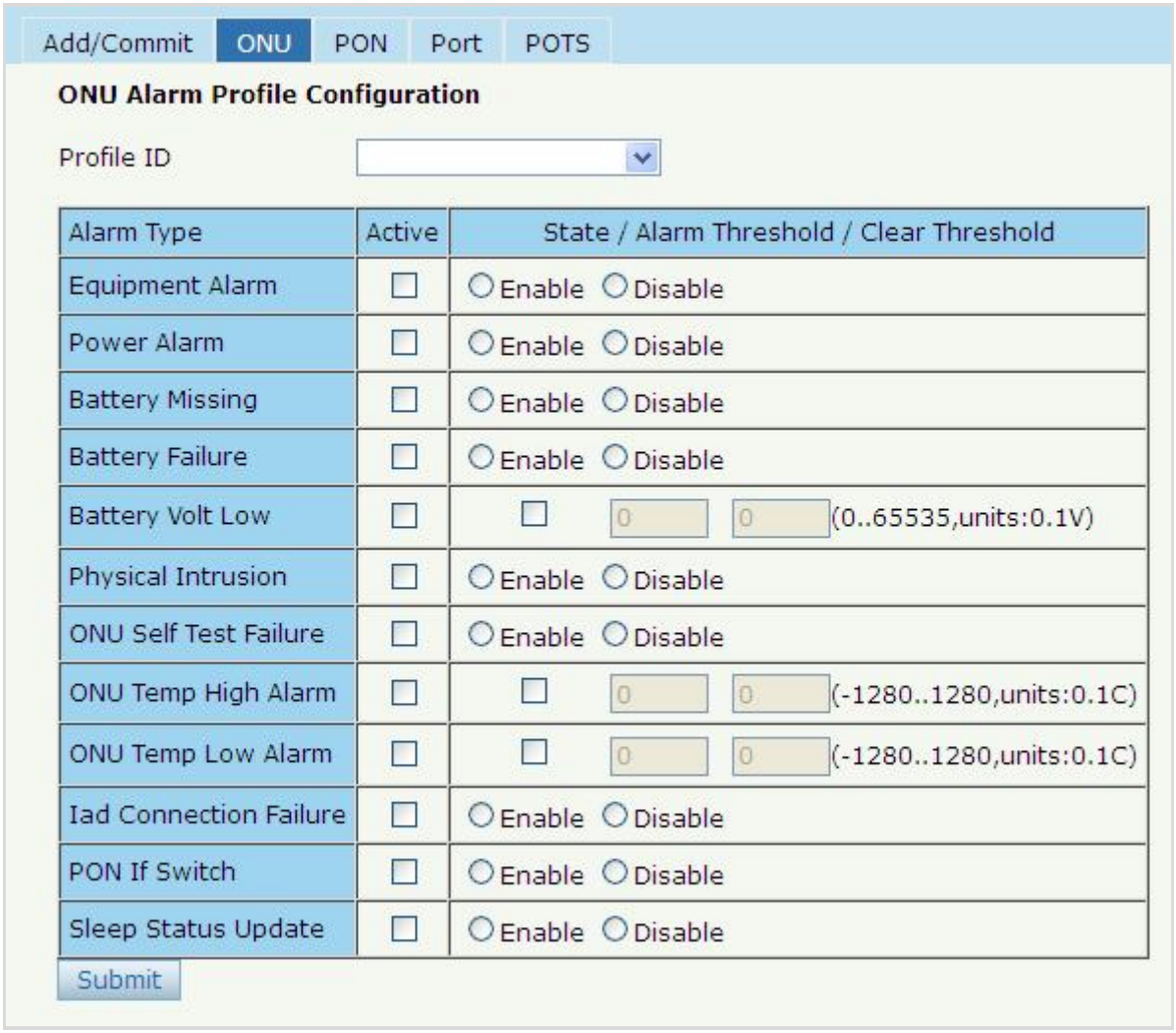


Figure 3-72 ONU Alarm Profile Configuration

3.6.4.3. PON

Alarm Type	Active	State / Alarm Threshold / Clear Threshold
Rx Power High Alarm	☐	☐ 0 0 (-400..82,units:0.1dBm)
Rx Power Low Alarm	☐	☐ 0 0 (-400..82,units:0.1dBm)
Tx Power High Alarm	☐	☐ 0 0 (-400..82,units:0.1dBm)
Tx Power Low Alarm	☐	☐ 0 0 (-400..82,units:0.1dBm)
Tx Bias High Alarm	☐	☐ 0 0 (0..1310,units:0.1mA)
Tx Bias Low Alarm	☐	☐ 0 0 (0..1310,units:0.1mA)
Vcc High Alarm	☐	☐ 0 0 (0..65,units:0.1V)
Vcc Low Alarm	☐	☐ 0 0 (0..65,units:0.1V)
Temp High Alarm	☐	☐ 0 0 (-1280..1280,units:0.1C)
Temp Low Alarm	☐	☐ 0 0 (-1280..1280,units:0.1C)
Rx Power High Warning	☐	☐ 0 0 (-400..82,units:0.1dBm)
Rx Power Low Warning	☐	☐ 0 0 (-400..82,units:0.1dBm)
Tx Power High Warning	☐	☐ 0 0 (-400..82,units:0.1dBm)
Tx Power Low Warning	☐	☐ 0 0 (-400..82,units:0.1dBm)
Tx Bias High Warning	☐	☐ 0 0 (0..1310,units:0.1mA)
Tx Bias Low Warning	☐	☐ 0 0 (0..1310,units:0.1mA)
Vcc High Warning	☐	☐ 0 0 (0..65,units:0.1V)

Figure 3-73 ONU Alarm Profile

3.6.4.4. Port

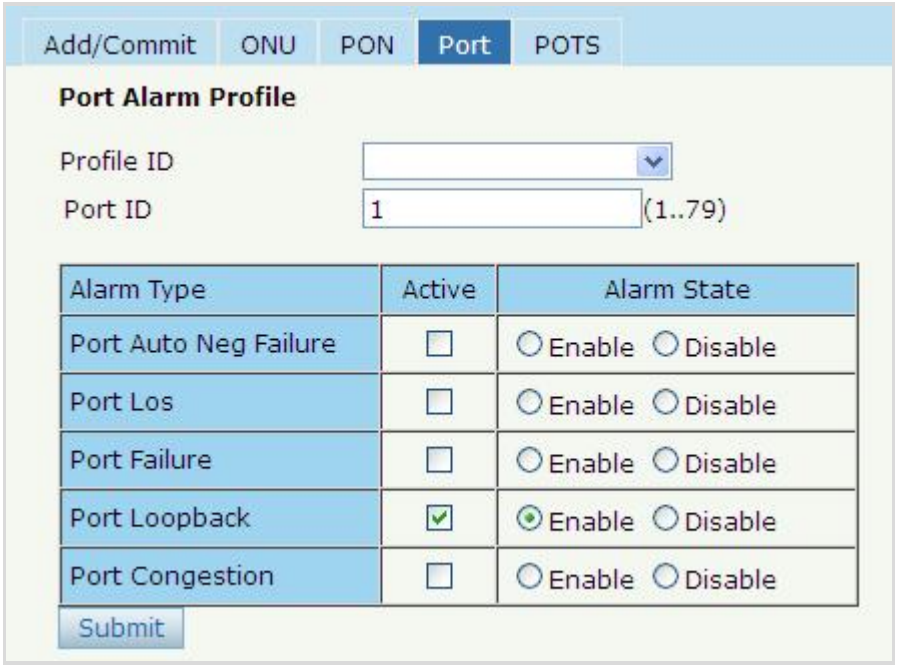


Figure 3-74 Port Alarm Profile

3.6.4.5. POTS

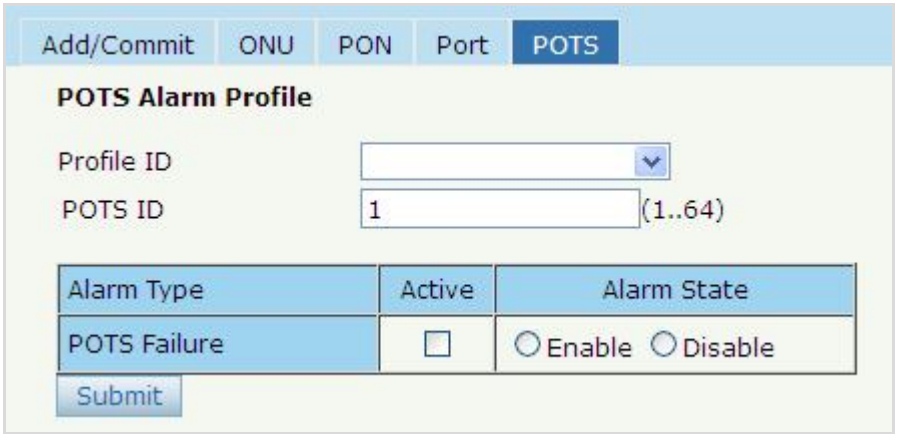


Figure 3-75 Port Alarm Profile

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

Figure 3-76 Bind Profile Information

3.6.5.2. Configuration

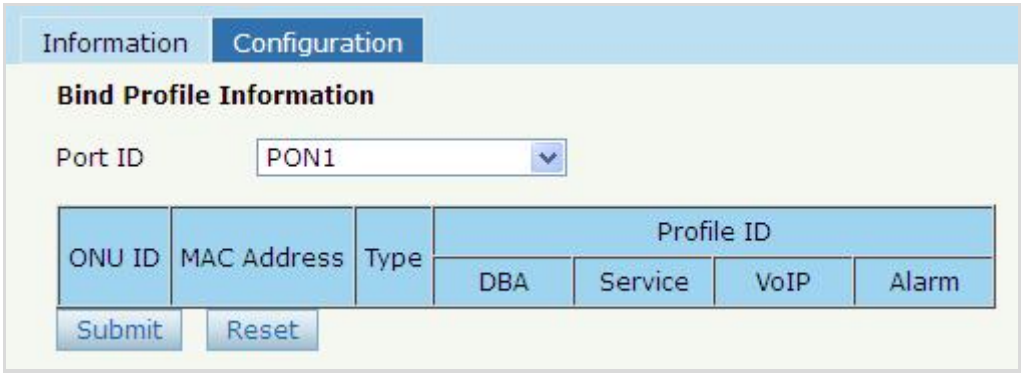


Figure 3-77 Bind Profile Configuration

3.7 System Configuration

3.7.1 System Log

3.7.1.1. System Log

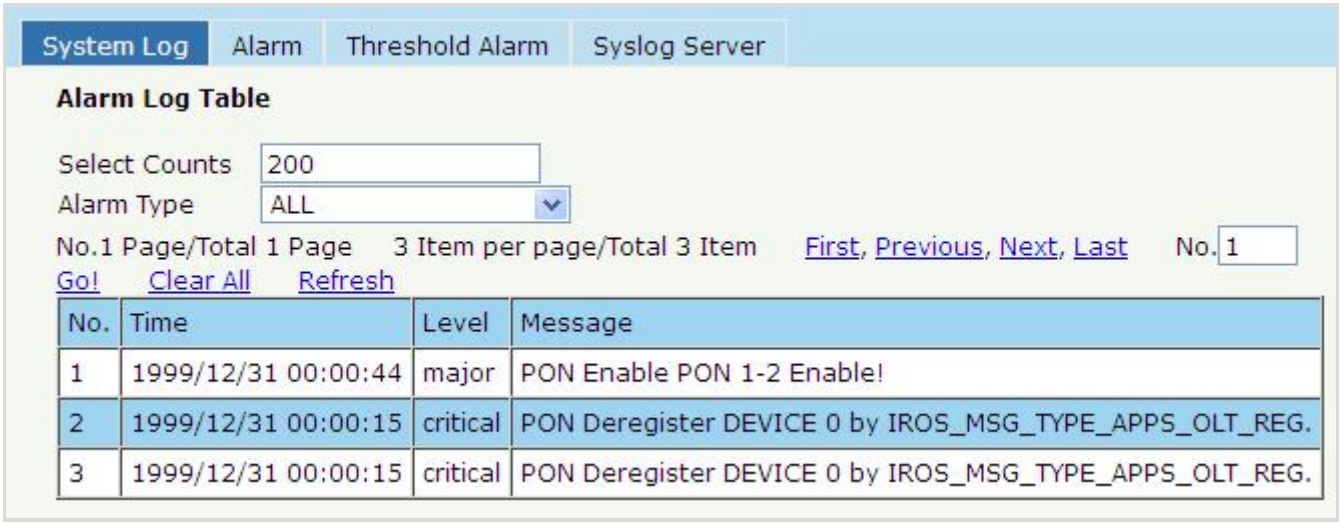


Figure 3-78 Alarm Log Table

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	☐	☐	☐	☐	Download File Failed	☑	☑	☑	☑
Upload File Failed	☑	☑	☑	☑	Upgrade File Failed	☑	☑	☑	☑
Port Updown	☑	☑	☑	☑	Port Loopback	☑	☑	☑	☑
PON Deregister	☑	☑	☑	☑	PON Register Failed	☑	☑	☑	☑
PON Disable	☑	☑	☑	☑	PON Txpower High	☑	☑	☑	☑
PON Txpower Low	☑	☑	☑	☑	PON Txbias High	☑	☑	☑	☑
PON Txbias Low	☑	☑	☑	☑	PON Vcc High	☑	☑	☑	☑
PON Vcc Low	☑	☑	☑	☑	PON Temp High	☑	☑	☑	☑
PON Temp Low	☑	☑	☑	☑	PON Los	☑	☑	☑	☑
ONU Deregister	☑	☑	☑	☑	ONU Link Lost	☐	☐	☐	☐
ONU Illegal Register	☑	☑	☑	☑	ONU Auth Failed	☑	☑	☑	☑
ONU MAC Conflict	☐	☑	☑	☑	ONU Loid Conflict	☑	☑	☑	☑
ONU Critical Event	☐	☐	☐	☐	ONU Dying Gasp	☑	☑	☑	☑
ONU Link Fault	☑	☑	☑	☑	ONU Link Event	☐	☑	☐	☐
ONU Event Notific	☑	☑	☑	☑	Reset	☑	☑	☑	☑
Config Save	☑	☑	☑	☑	Config Erase	☑	☑	☑	☑
Download File Success	☑	☑	☑	☑	Upload File Success	☑	☑	☑	☑
Upgrade File Success	☑	☑	☑	☑	PON Register	☐	☐	☐	☐
PON Enable	☑	☑	☑	☑	PON Los Recovery	☑	☑	☑	☑
ONU Register	☐	☑	☑	☑	ONU Link Discover	☐	☐	☐	☐
ONU Auth Success	☑	☑	☑	☑	ONU Deauth Success	☐	☐	☐	☐

Figure 3-79 Alarm Configuration

3.7.1.3. Threshold Alarm

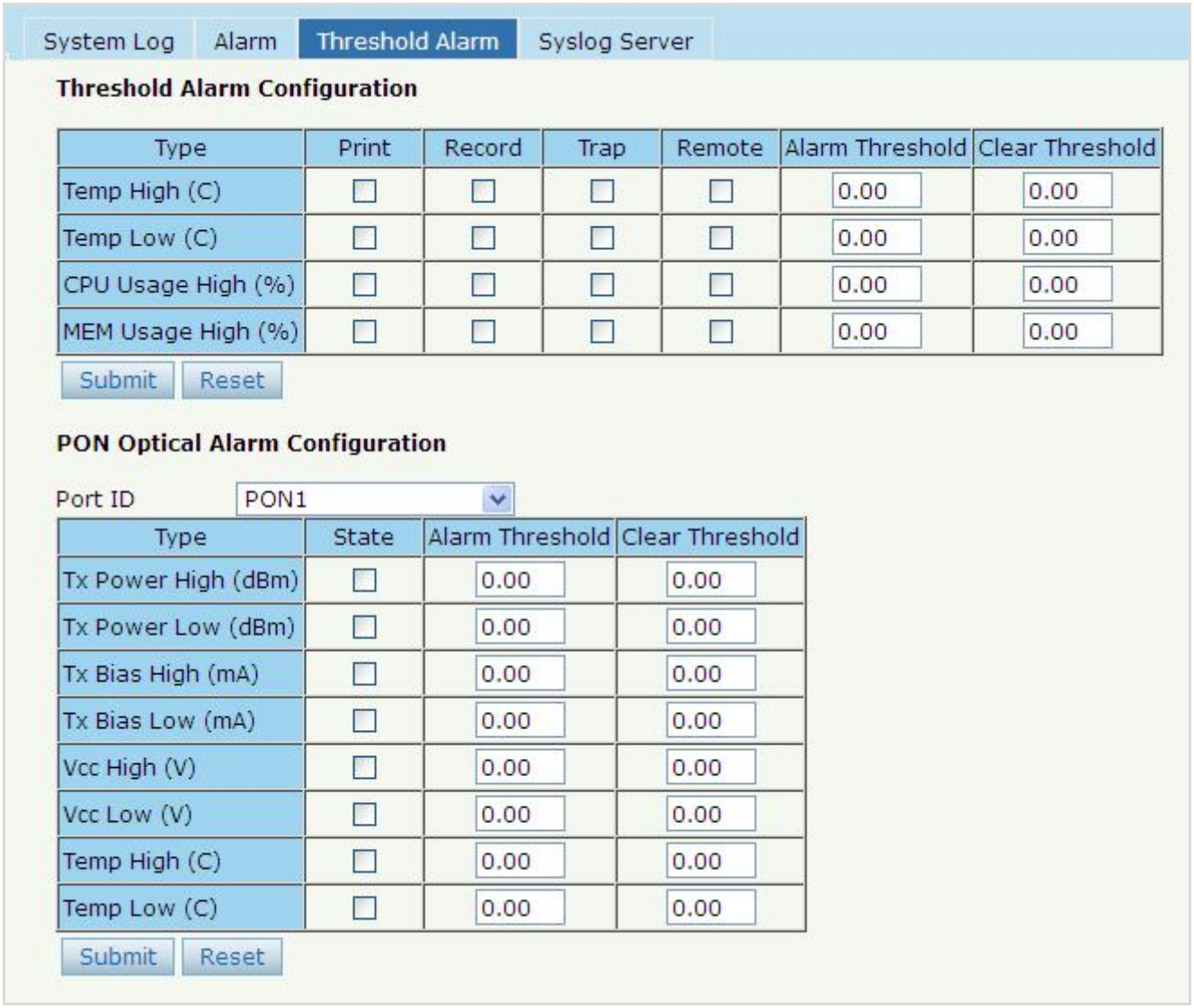


Figure 3-80 Threshold Alarm Configuration

3.7.1.4. Syslog Server

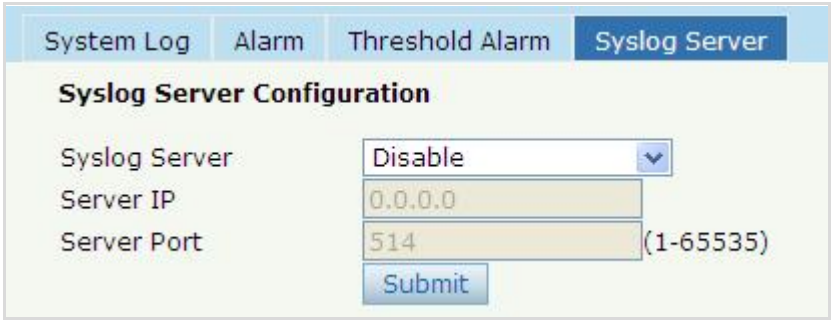


Figure 3-81 Syslog Server Configuration

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.

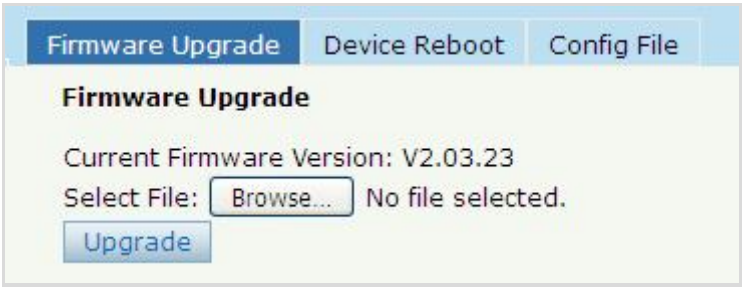


Figure 3-82 Firmware Upgrade

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.

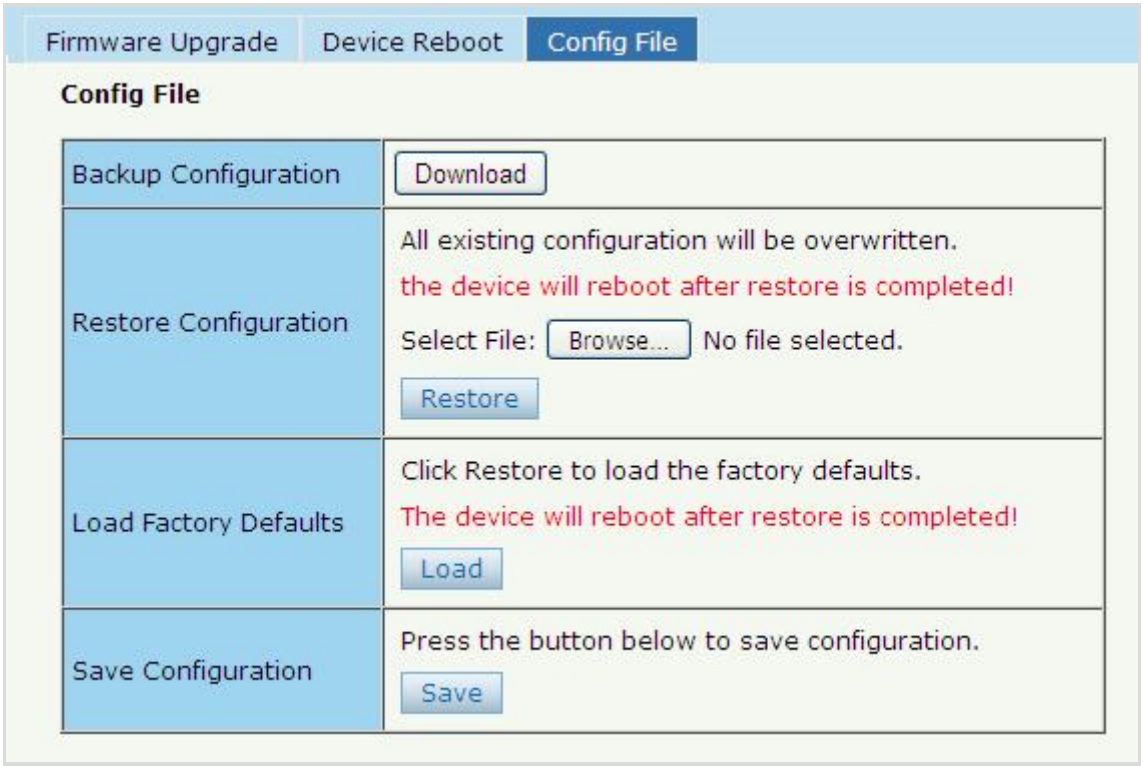


Figure 3-84 Config File

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

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 **Normal** or **Admin**

3.7.4 SNMP

3.7.4.1. SNMPV1/V2

The GEPON OLT supports SNMP v1/v2.

Figure 3-86 SNMP v1/v2

3.7.4.2. SNMP v3

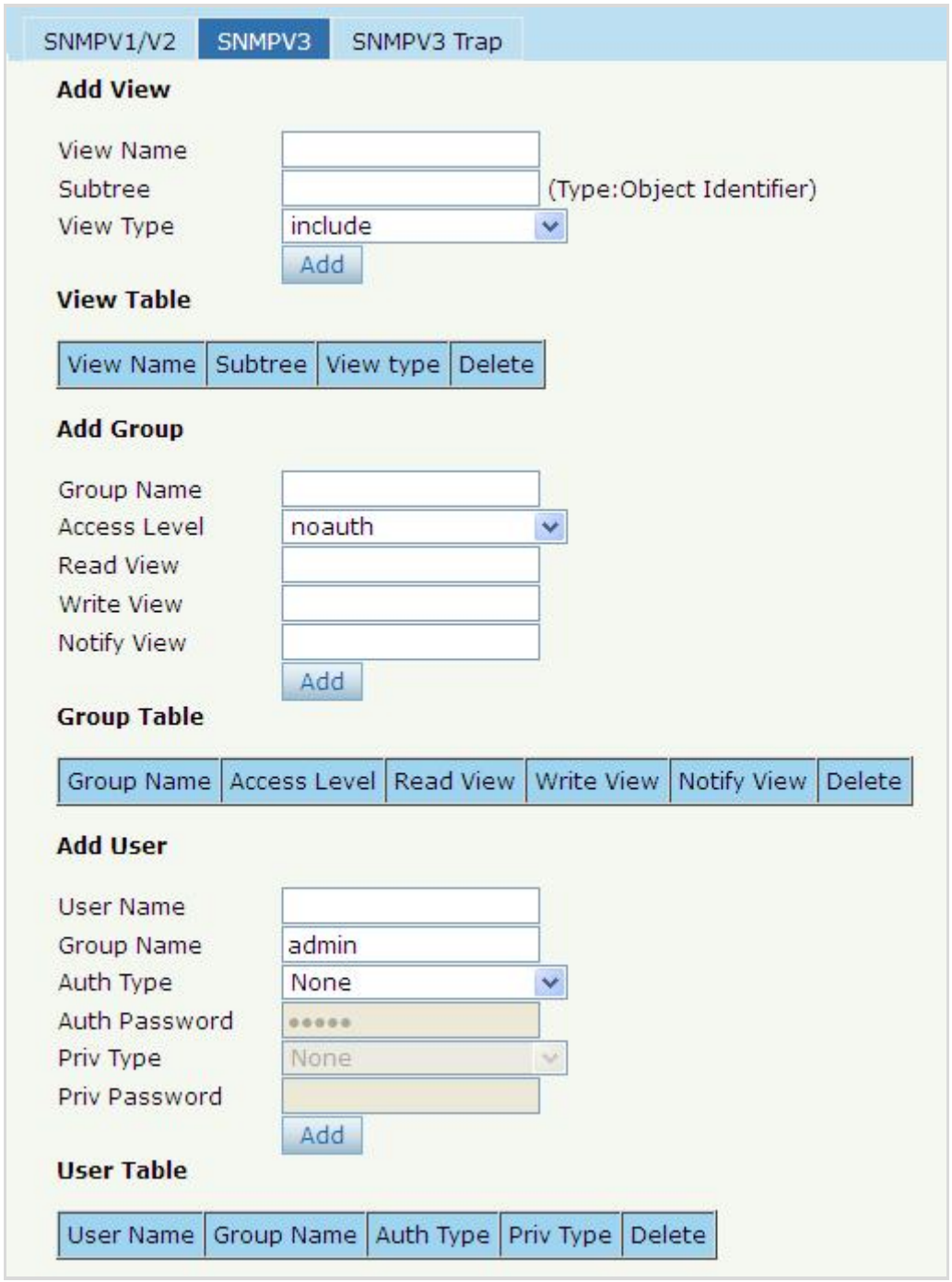


Figure 3-87 SNMP v3

3.7.4.3. SNMP v3 Trap

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

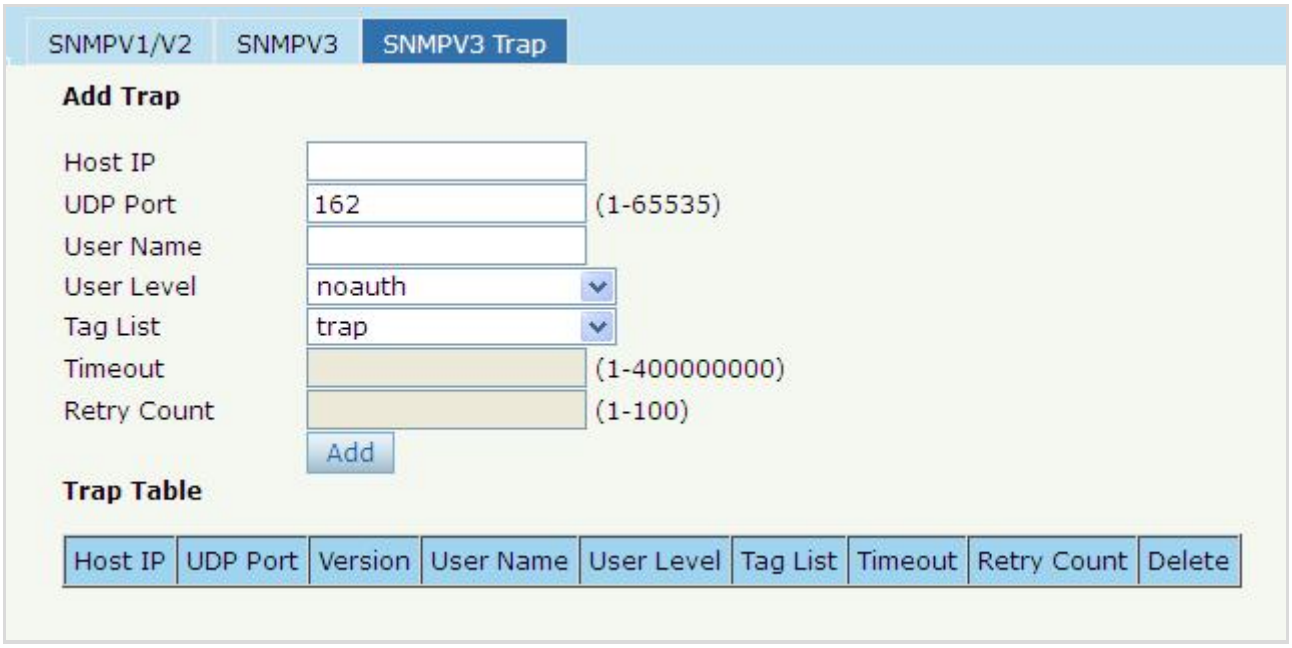


Figure 3-88 SNMP v3 Trap

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.

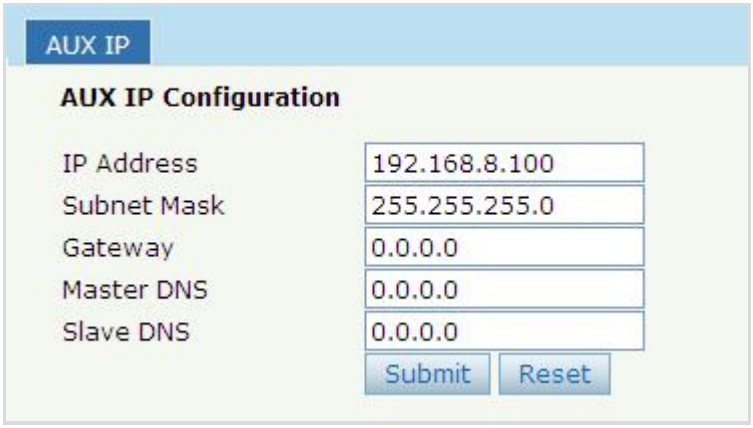


Figure 3-89 AUX IP

3.7.6 System Time

3.7.6.1. RTC

Enter the RTC (Real-time clock) time

Figure 3-90 RTC

3.7.6.2. NTP

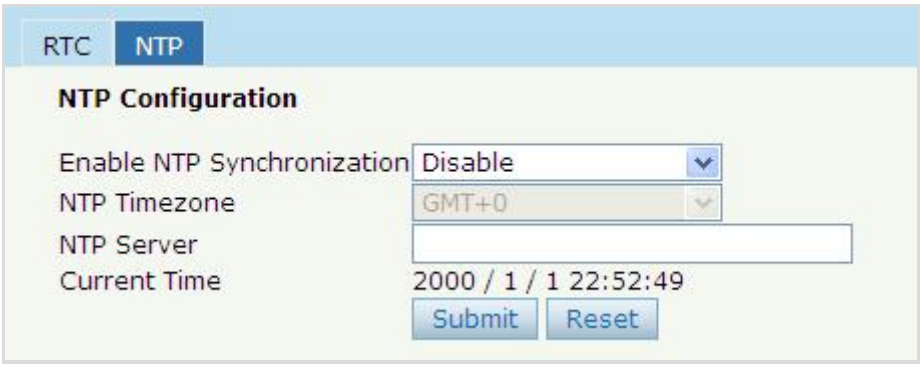


Figure 3-91 NTP

Object	Description
Enable NTP Synchronization	Select **Disable** or **Enable** 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.

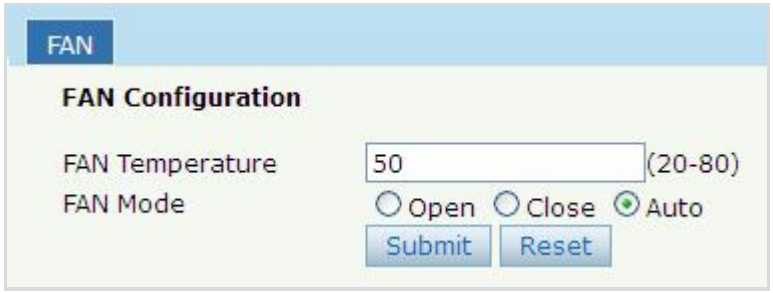


Figure 3-92 Fan

3.7.8 Mirror

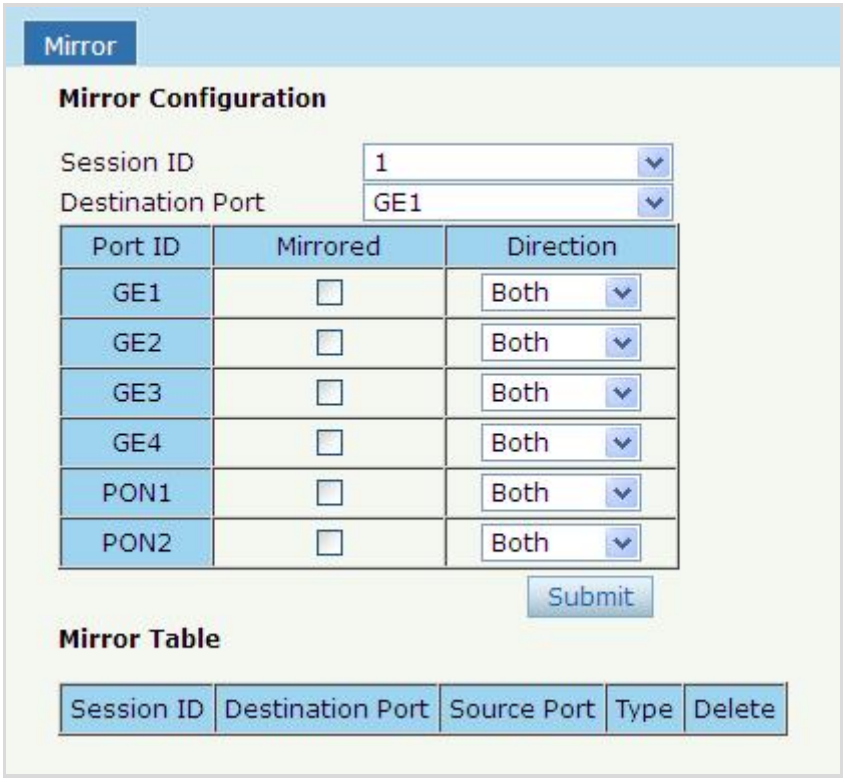


Figure 3-93 Mirror

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-

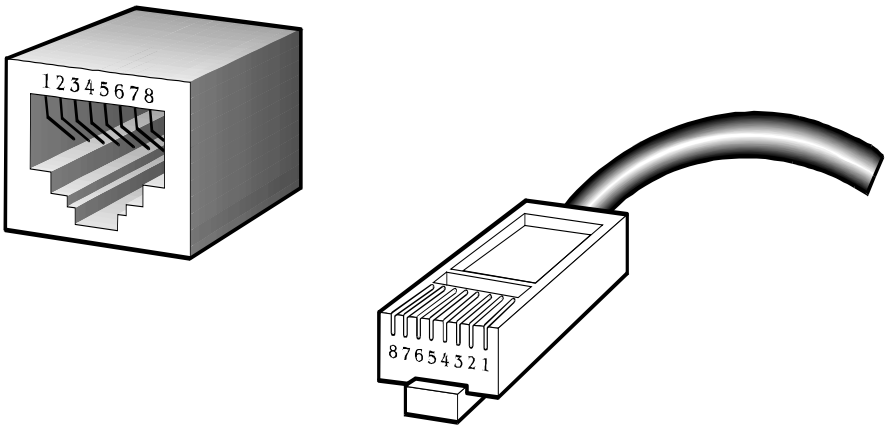
Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.

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:

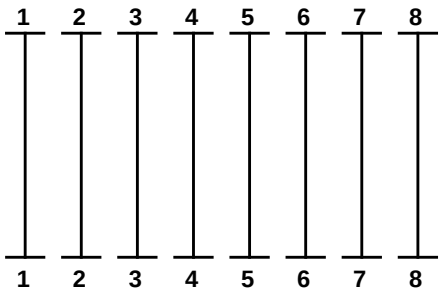
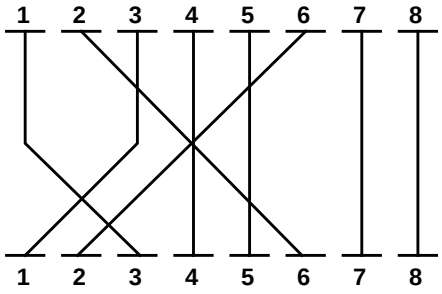
Straight Cable		SIDE 1	SIDE 2
	SIDE 1	1 = White / Orange	1 = White / Orange
		2 = Orange	2 = Orange
		3 = White / Green	3 = White / Green
		4 = Blue	4 = Blue
		5 = White / Blue	5 = White / Blue
		6 = Green	6 = Green
		7 = White / Brown	7 = White / Brown
	SIDE 2	8 = Brown	8 = Brown
Crossover Cable		SIDE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

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.