PLANET
Networking & Communication

EMS Guide

2-Port GEPON Managed OLT

- EPL-2220

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Chapter 1. MANAGEMENT SOFTWARE INSTALLATION

This chapter explains the methods that you can use to configure management access to the GEPON OLT. It describes the types of management applications and the communication and management protocols that deliver data between your management device (workstation or personal computer) and the system. It also contains information about port connection options.

This chapter covers the following topics:

- Requirements
- Management Access Overview
- EMS Utility Installation

1.1 Requirements

The GEPON OLT provides a GUI utility to manage the system; the following equipment is necessary for further management.

- Subscriber PC is installed with Ethernet NIC (Network Card)
- **EMS** Software (Windows Platform)
- **Management Port** connection
  - Network cables -- Use standard network (UTP) cables with RJ45 connectors

1.2 Management Access Overview

The GEPON OLT EPL-2220 supports 10/100Mbps management interface and two 1000BASE-X net interfaces for TCP/IP-based GUI management. The GEPON OLT gives you the flexibility to access and manage it by using any or all of the following methods:

- **EMS (Element Management System) Utility**
- An external **SNMP-based network management application**

Each of these management methods has its own advantages. Table 3-1 compares the two management methods.

Method	Advantages	Disadvantages
EMS Utility	• Ideal for configuring the EPL-2220 • Compatible with most popular Windows-based Systems • Most visually appealing	• Can't remotely control over Ethernet

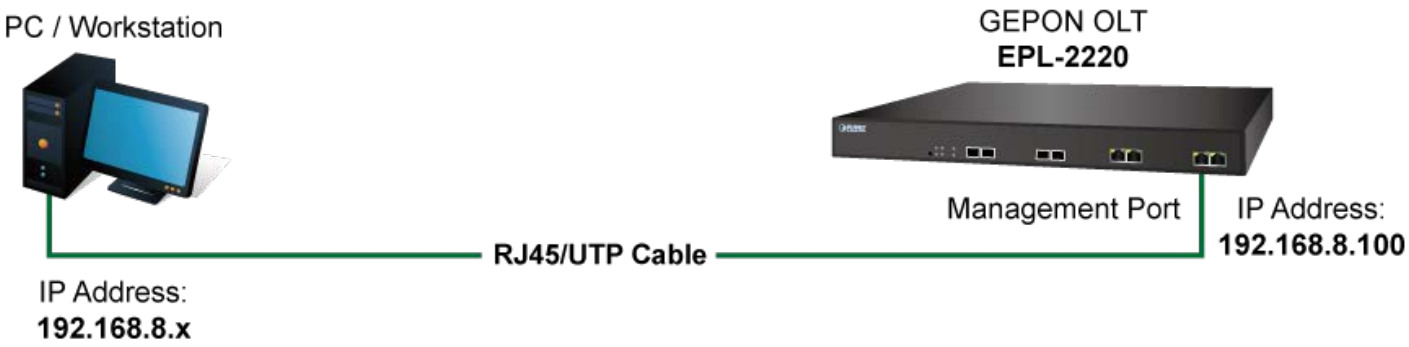
Table 1-1 Management Methods Comparison

1.3 EMS Utility Management

The **EMS (Element Management System)** Utility comes with a sophisticated software Graphical User Interface (GUI). It is highly intuitive and allows the user to control the GEPON and set such things as SLAs, bridging and VLAN modes, static table entries, firmware upgrades, etc. It is found in the Utility folder on the CD provided. There are two EMS softwares that need to be installed in your management PC:

- EMS Server
- EMS Client

To install and use the GUI, do the following two sections.



1.3.1 EMS Utility Installation

1. Insert the bundled CD disk into the CD-ROM drive to launch the autorun program. Once completed, a welcome menu screen will appear. Click the “Utility” button and double-click the **EMS-Server** to install.
2. Once the Setup program starts running, please click the “**Next**” button for starting the installation.

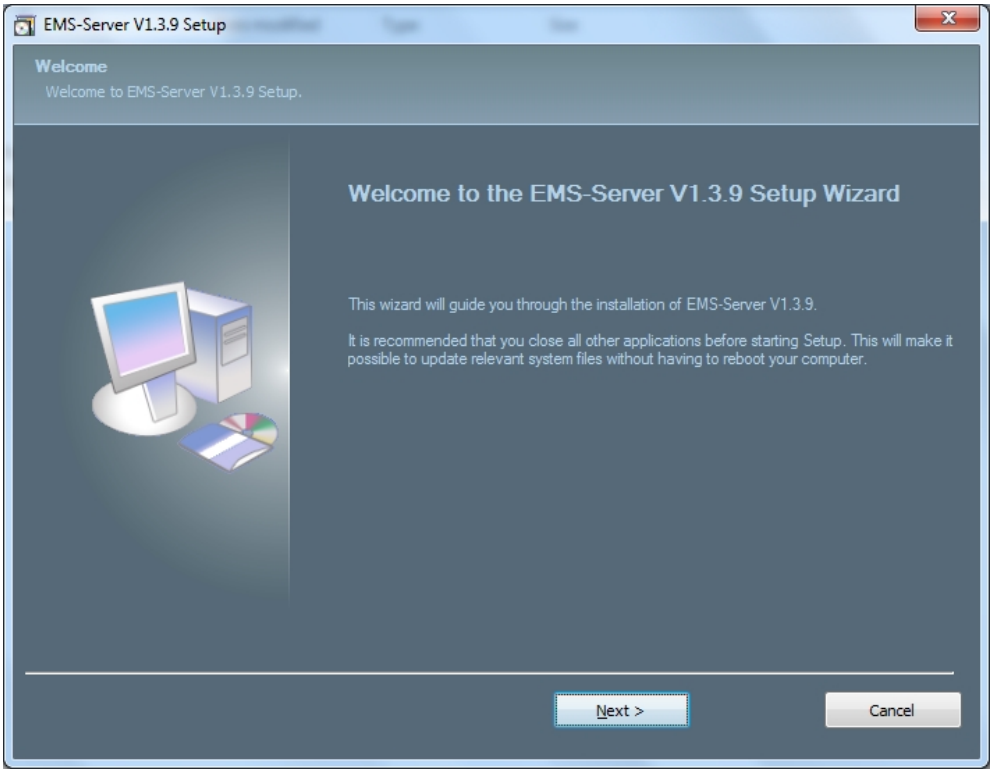


Figure 1-1 EMS Setup Wizard Screen

3. During the installation, it will ask for the place to put the EMS folder.

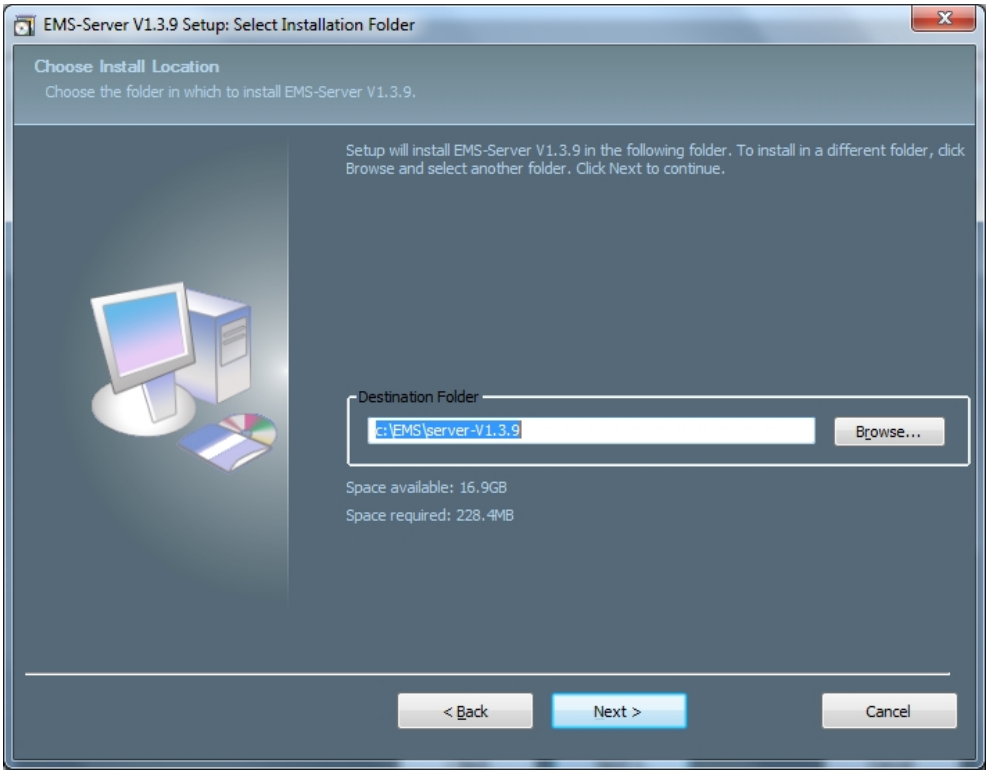


Figure 1-2 EMS Folder Installation Screen

4. Click the “**Close**” button for completing the EMS Setup.

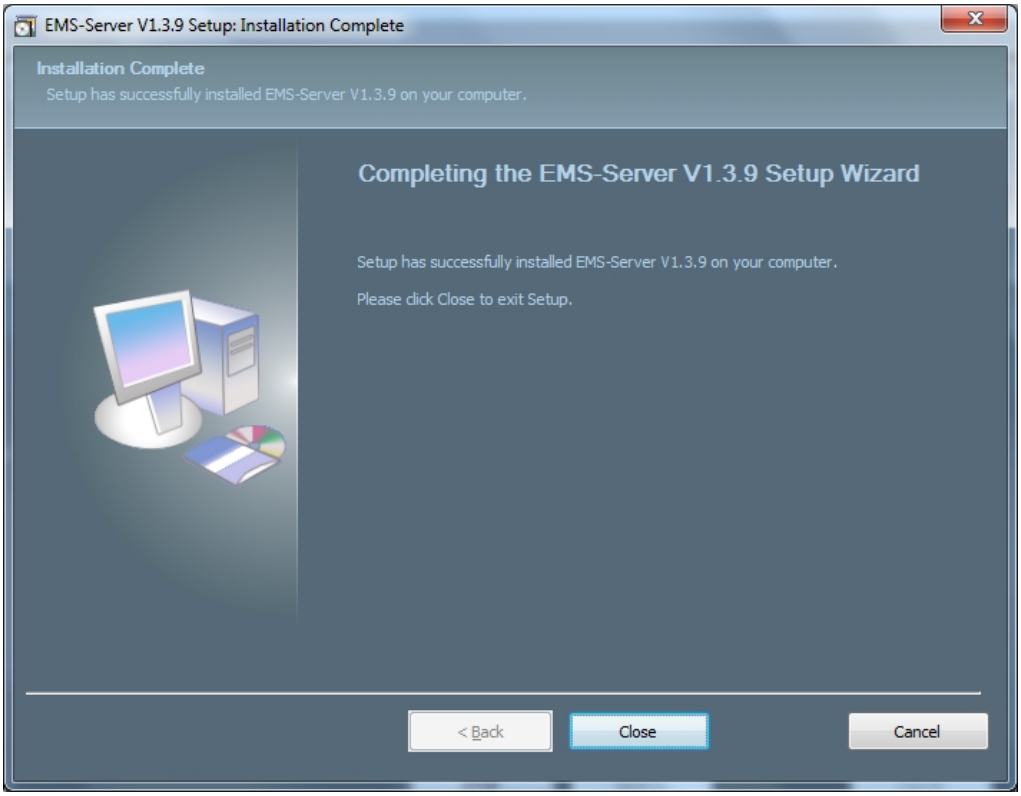


Figure 1-3 EMS-Server Installation Completed Screen

5. When the EMS-Server installation is done, the icon will appear on the desktop.

Figure 1-4 EMS-Server icon

6. Then double-click **EMS-Client** to install the utility. Once the Setup program starts running, please click the “**Next”** button for starting installation.

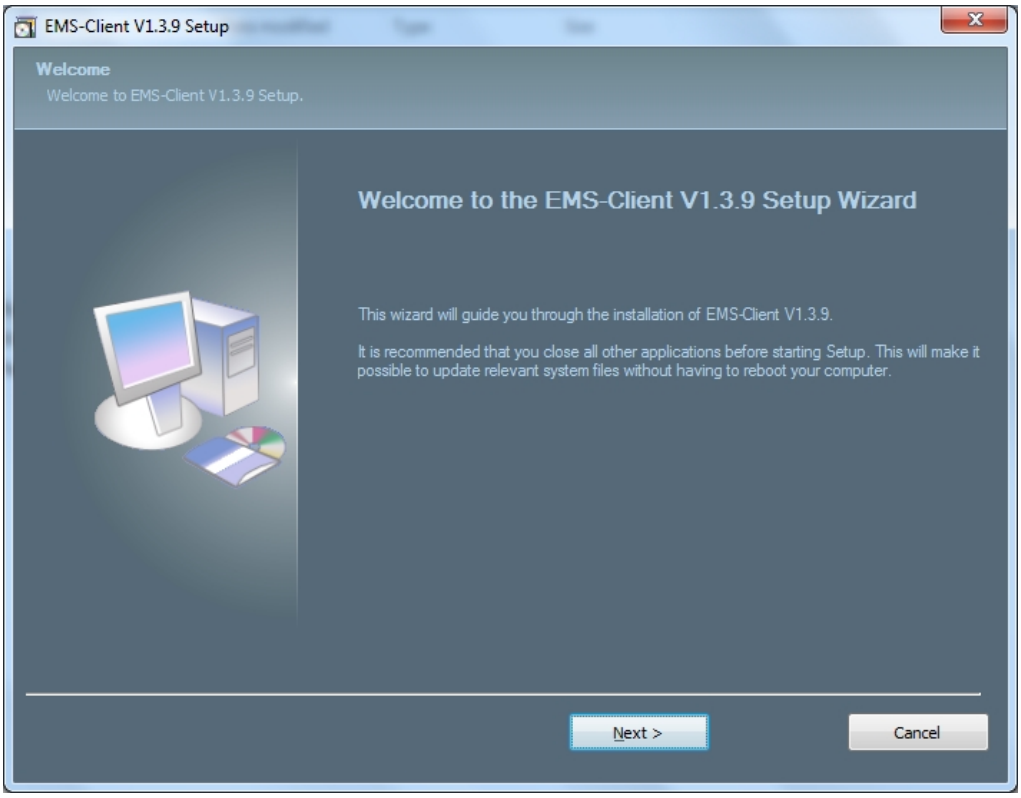


Figure 1-5 EMS-Client Setup Wizard Screen

7. During the installation, it will ask for the place to put the EMS folder.

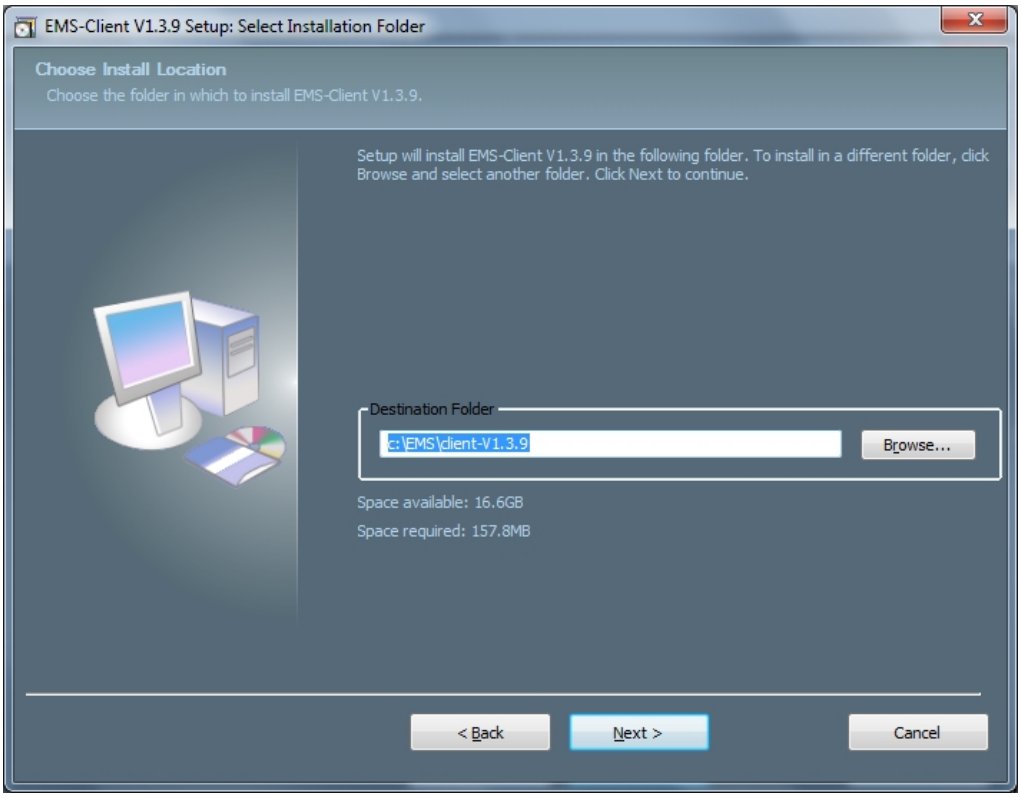


Figure 1-6 EMS-Client Folder Installation Screen

8. Click the “**Close**” button for completing the EMS-Client Setup.

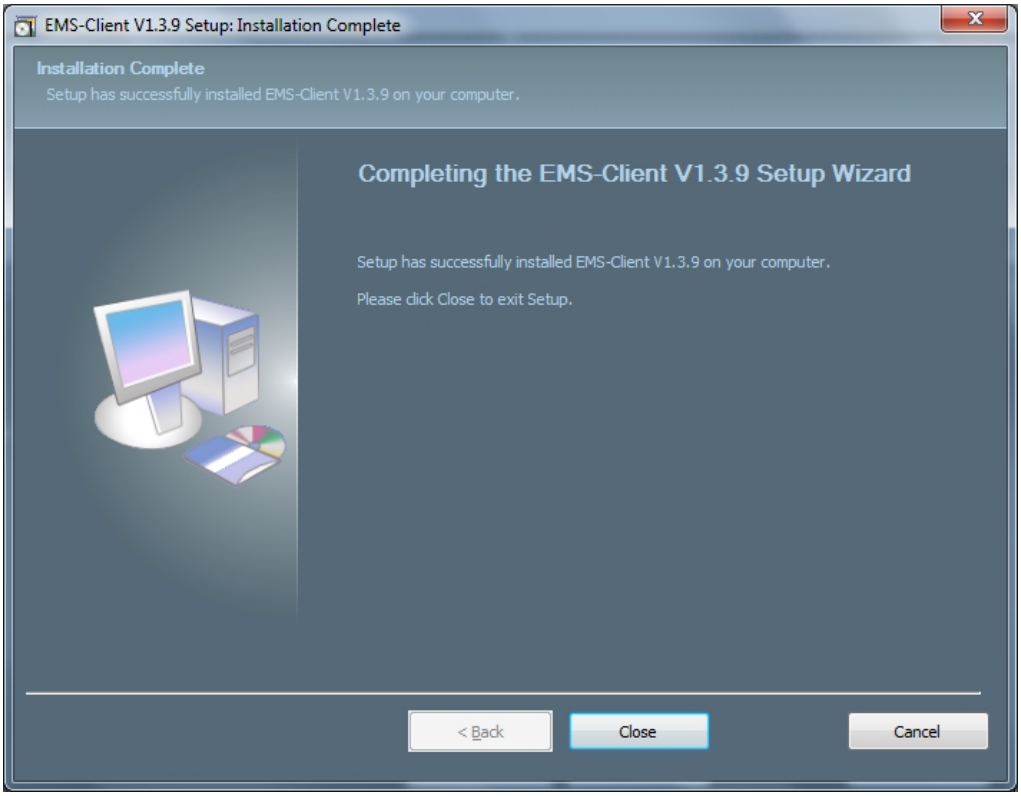


Figure 1-7 EMS-Client Installation Completing Screen

9. When the EMS-Client installation is done, the icon will appear on the desktop.

Figure 1-8 EMS-Client icon

1.3.2 Starting PLANET EMS Management

The following shows how to start up the **EMS Management** on the management PC.

1. Double-click the **EMS-Server** icon on the PC desktop to start the EMS Server.

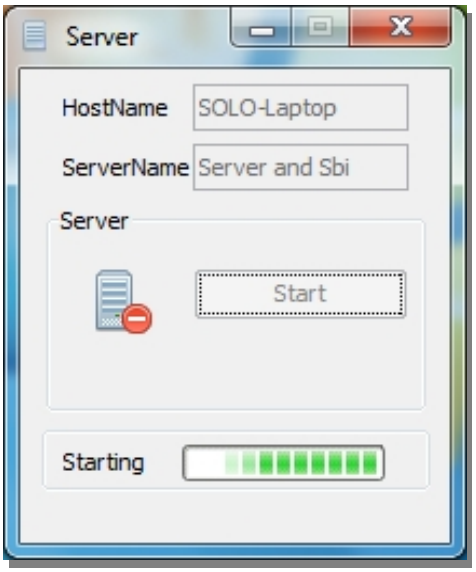


Figure 1-9 EMS-Server starting

2. After the server started, please double-click the EMS-Client icon.

3. Enter the user name and password. Please enter the default user name "**root**", password "**root**", server "**127.0.0.1**" and port "**5188**" as screen in Figure 1-10 appears.

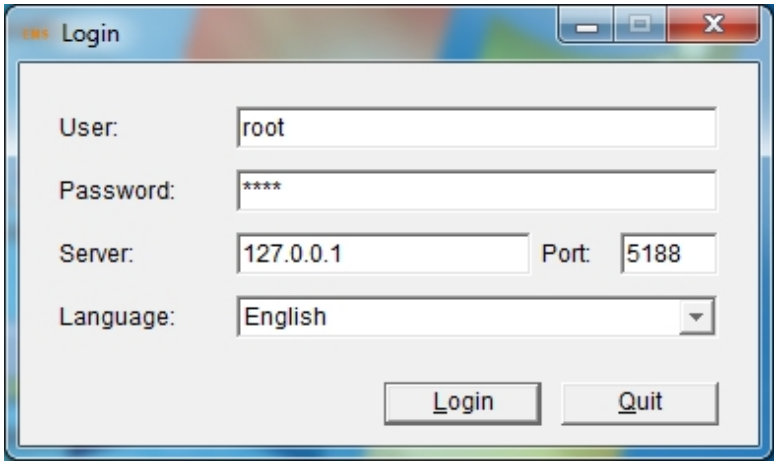


Figure 1-10 PLANET-EMS Icon and Login Window

4. After entering the user name and password**,** the EMS utility main screen will appear as in Figure 1-11.

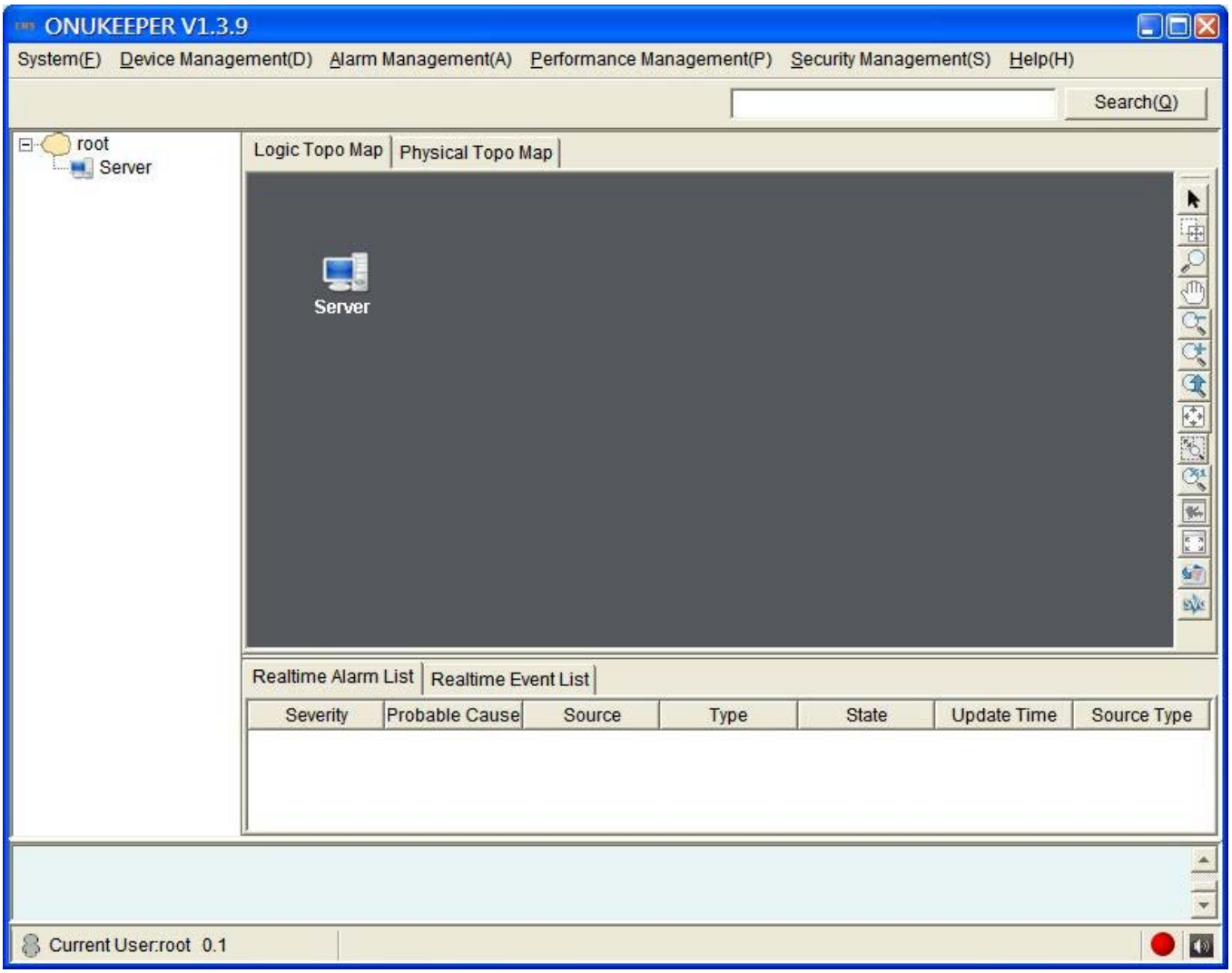


Figure 1-11 Main Screen of EPL-2220 GEPON OLT

5. Right click on the map and select "**Add Device"** to add the OLT.

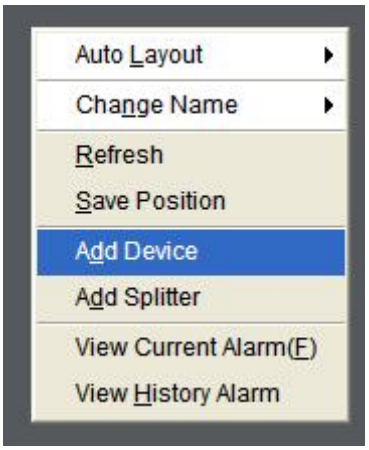


Figure 1-12 Adding GEPON OLT

6. Enter the management IP of OLT and select Read community to public, Write community to private.

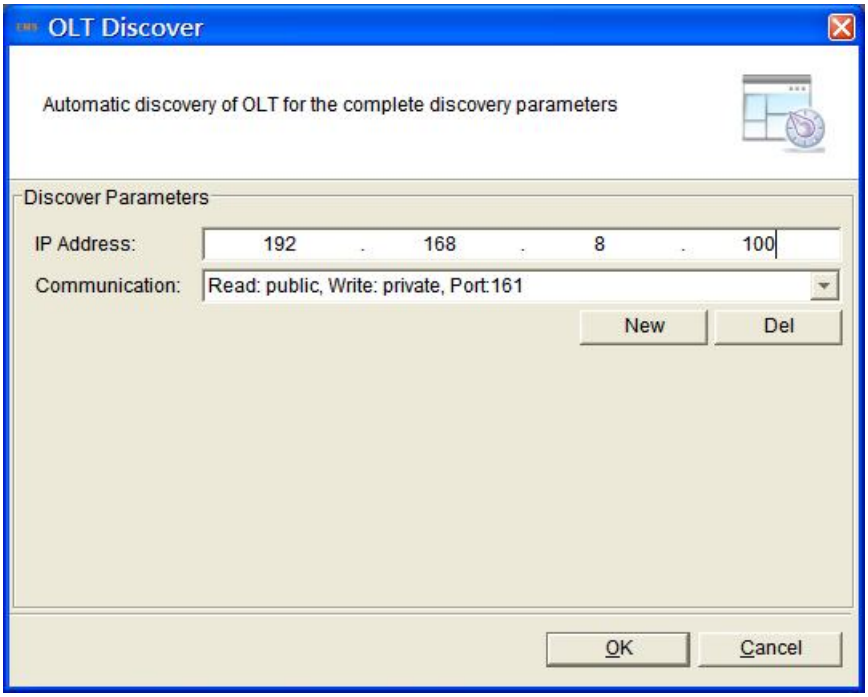


Figure 1-13 Enter IP of GEPON OLT

Chapter 2. EMS Management System

PLANET GEPON solutions include the OLT EPL-2220 and ONUs -- EPN-110 and EPN-402NV. The following information introduces the software configuration.

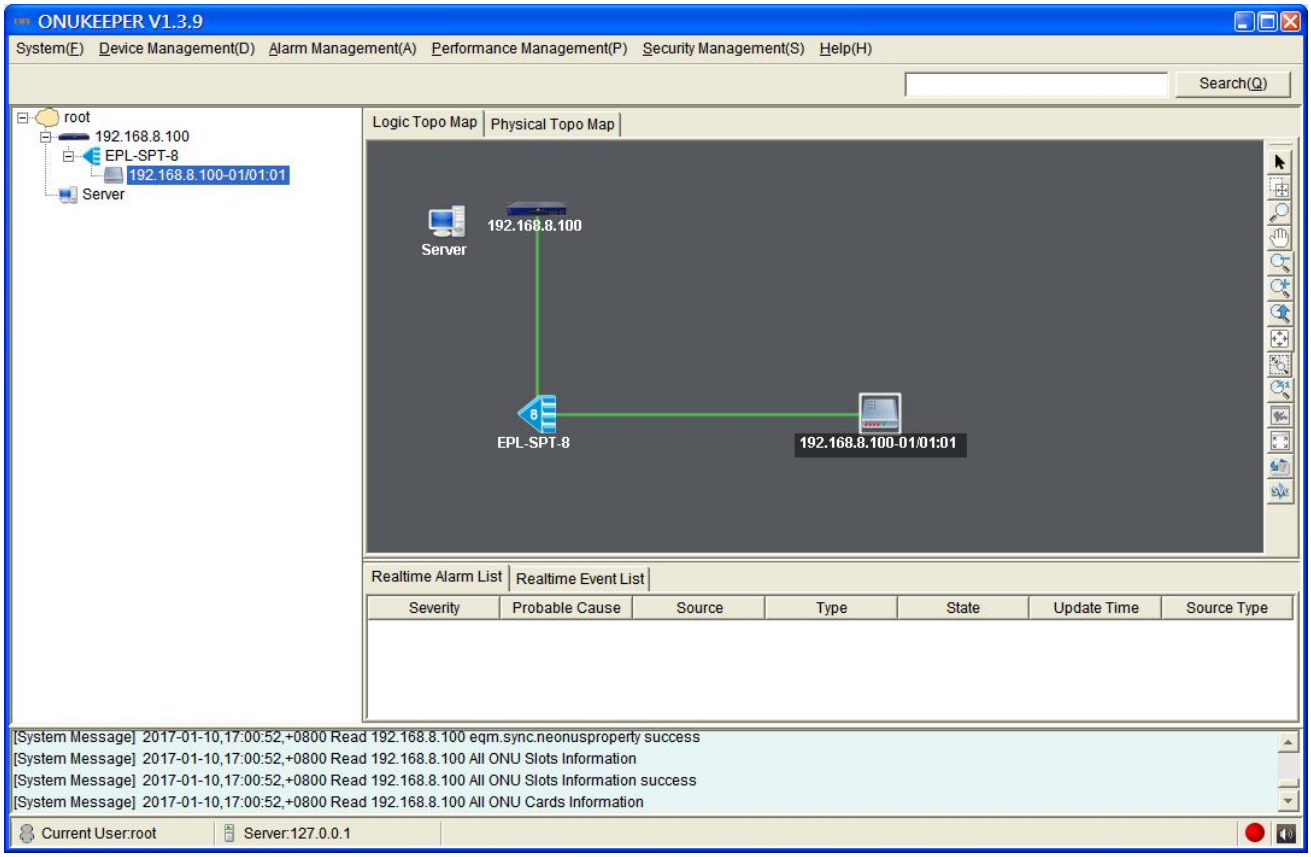
This document explains how to use the EMS Utility for the purpose of evaluating the functionality and usability of Host Interface Protocol. This manual assumes that the reader has a technical background and a base level of understanding regarding the basic operation of PON equipment. The EMS Utility is a demonstration package, intended for evaluation purposes only.

Organization of the EMS Utility

The screen real estate used by the EMS Utility is divided into three sash windows and one EMS toolbar.

- The upper left panel displays the entities that may be managed by the Host Interface, including the OLT, ONUs and Logical Links. This sash window will be referred to as the **Element Status Window**.
- Left clicking on an entity with the mouse will open a tabbed panel in the upper right sash window that may be used to manage the entity. This sash window will be referred to as the **Entity Management Window**.
- The bottom sash window is used for the purpose of logging the host interface message that is sent and received by the EMS Utility, and will be referred to as the **Message Log**.

If the OLT is running normally and the ONUs register each of their LLIDs, you should see something similar to the figure. The left handed pane shows the IP addresses of the OLT and the ONU's LLIDs. Depending on the number of ONUs, LLIDs, MAC addresses, etc., you may see something slightly different. If the GUI fails to connect to the OLT, check the IP addresses of the Host PC and the management port. Make sure you can ping the IP address assigned to the management port or uplink port. Also verify that the Host and management IP addresses match in the GUI's Utilities.



2.1 OLT Management

To manage the EPL-2220, EMS manager needs to add EPL-2220 device. They can add and manage the EPL-2220 from the two types of interfaces:

- **AUX Port** – the 10/100BASE-TX RJ45 interface

The EPL-2220 is shipped with default IP addresses shown as follows:

AUX Port: IP Address: **192.168.8.100**
Subnet Mask: **255.255.255.0**

Right-click on the map and then click **Add Device** in the interface as the windows appear below.

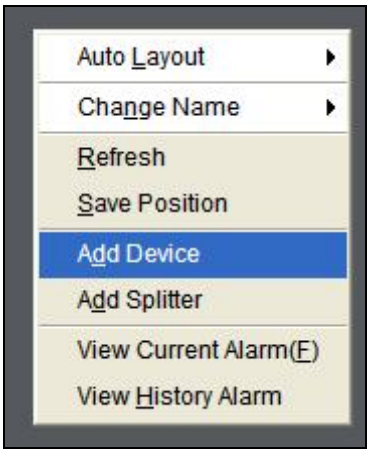


Figure 2-1 Add Device Screen

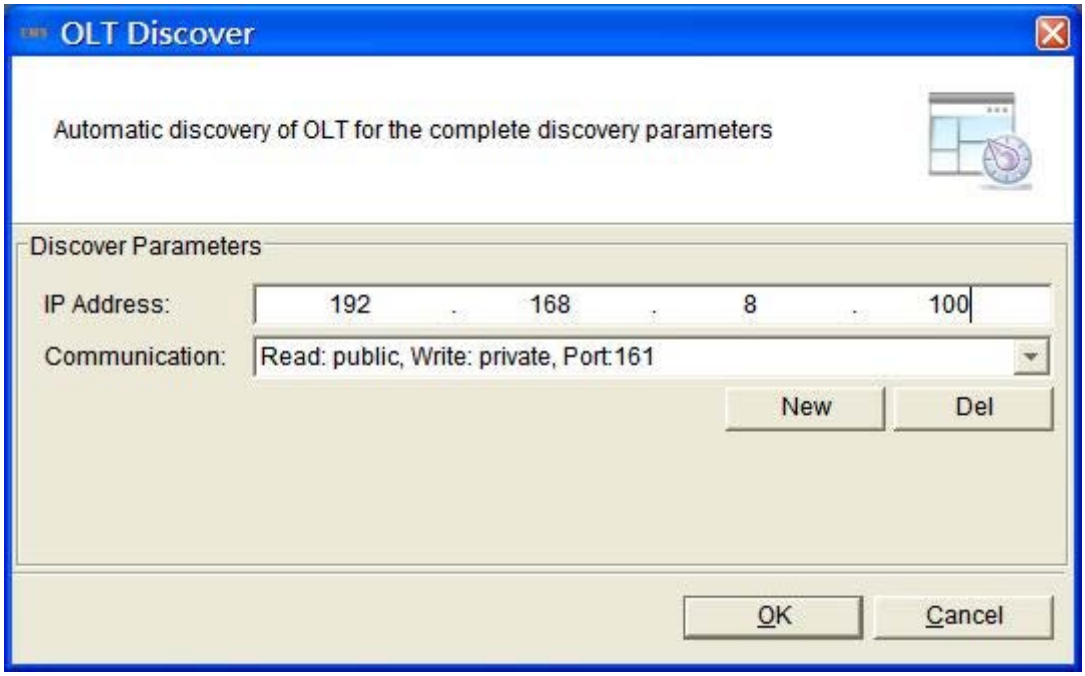


Figure 2-2 Enter IP Address of OLT

Please enter the EPL-2220 default IP address **"192.168.8.100"** and select Read Community **"public"**, Write Community **"private"** and Port **"161"**of the communication.

2.2 Device Details

Right-click the EPL-2220 device node unit in the topology tree, and click **Device Details** in the interface as the window appears below:

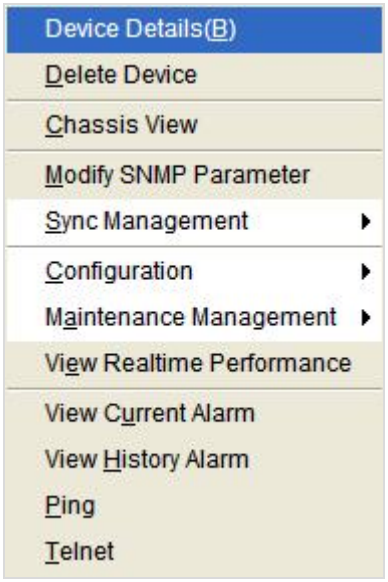


Figure 2-3 Device Details

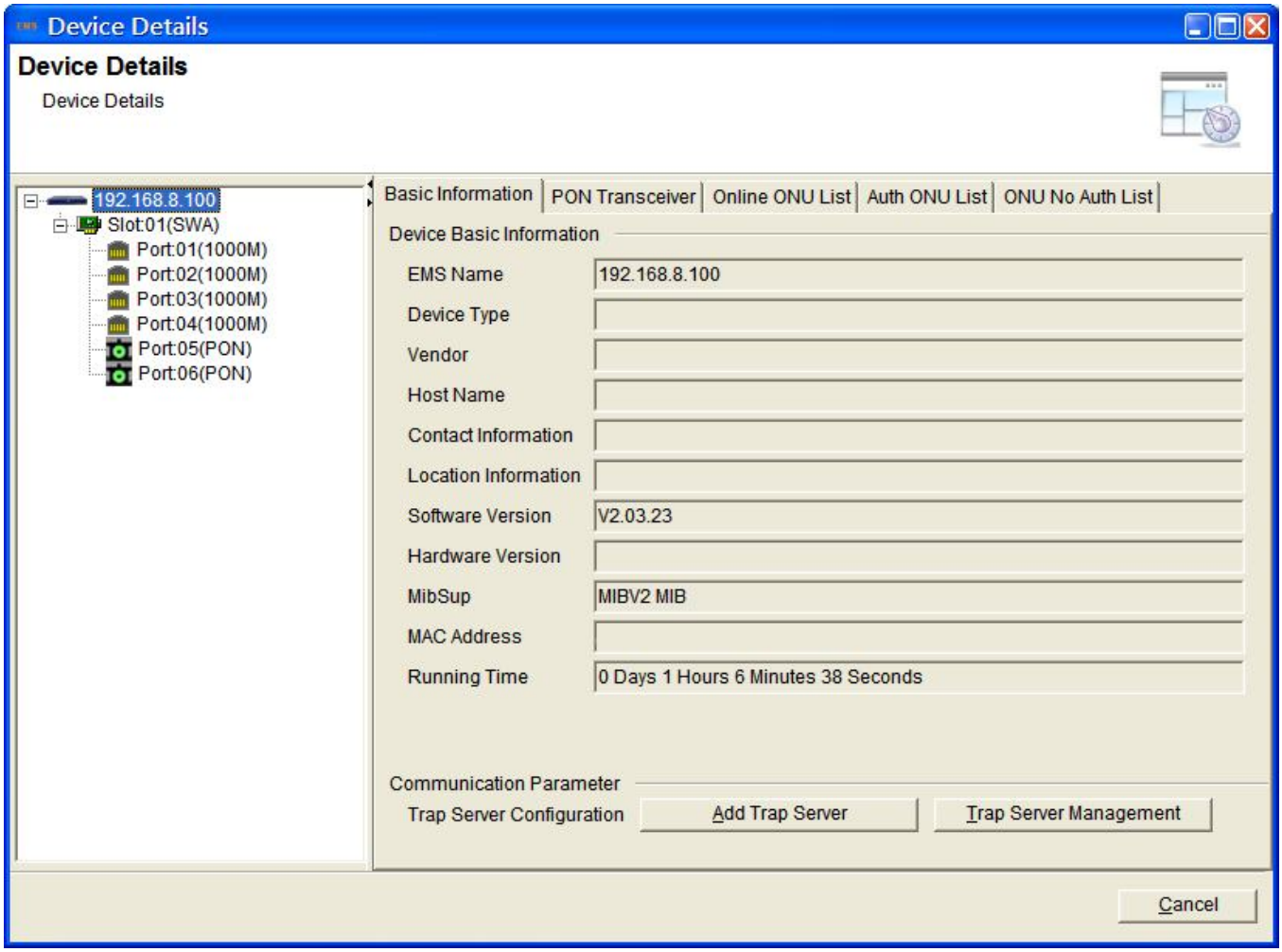


Figure 2-4 EPL-2220 OLT Management Screen

2.2.1 Basic Information

The Basic System Information page provides information for the current device information. The Basic System Information page helps an OLT administrator to identify the System Description, Software Version and MAC Address.

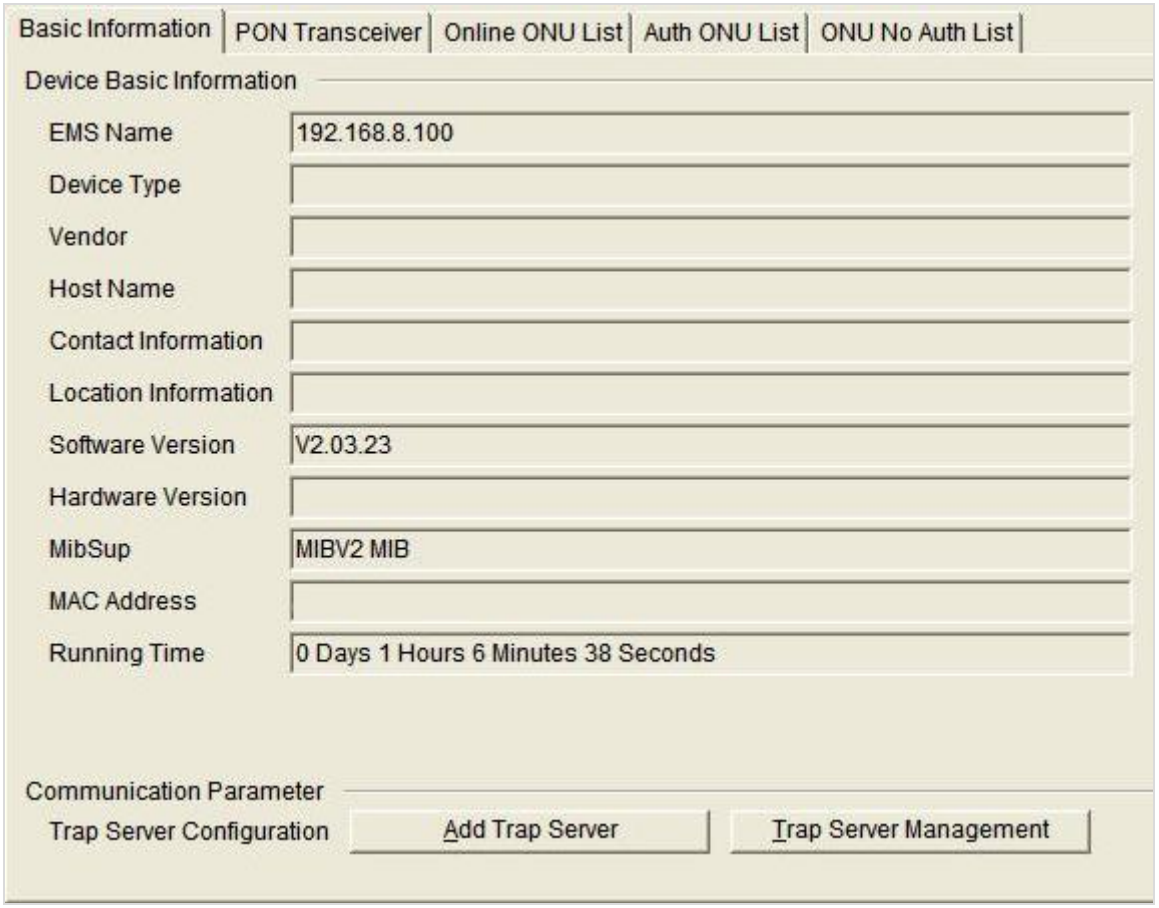


Figure 2-5 Basic Information Screen

The window includes the following fields:

Object	Description
EMS Name	Model name of OLT
Software Version	The version of current firmware.
MAC Address	MAC Address of OLT
Running Time	The period of time the device has been operational.

2.2.2 PON Transceiver

This page shows the PON transceiver information.

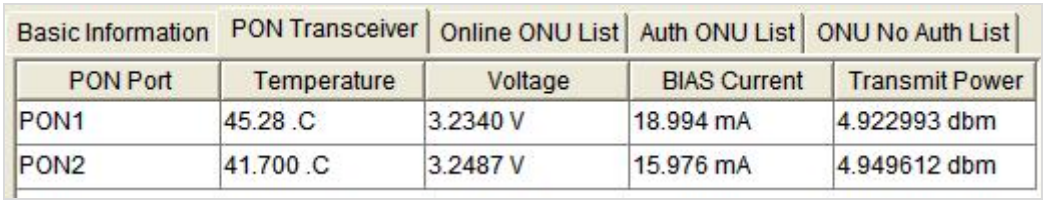


Figure 2-6 Net Interface Management Screen

The window includes the following fields:

Object	Description
PON Port	The PON port number for this OLT
Temperature	This shows the current temperature of this PON transceiver
Voltage	This shows the current voltage of this PON transceiver
BISA Current	This shows the current BIAS current of this PON transceiver
Transmit Power	This shows the current transmit power of this PON transceiver

2.2.3 Online ONU List

This page provides an overview of the current ONU.

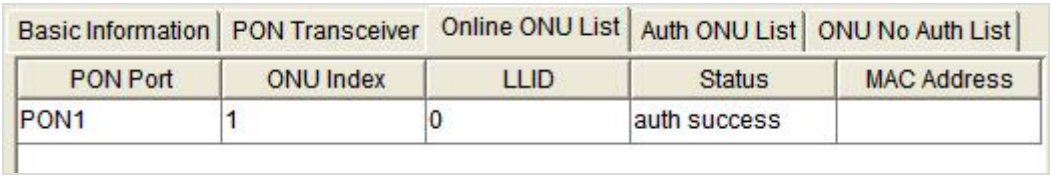


Figure 2-7 Online ONU List

The window includes the following fields:

Object	Description
PON Port	The PON port number for this OLT
ONU Index	The index for the ONU
LLID	The Logical Link identifier (LLID) was created by OLT
Status	Status of ONU that connected to OLT
MAC Address	The MAC address of the ONU that connected to OLT

2.2.4 Auth ONU List

This page provides an overview of the authenticated ONU.

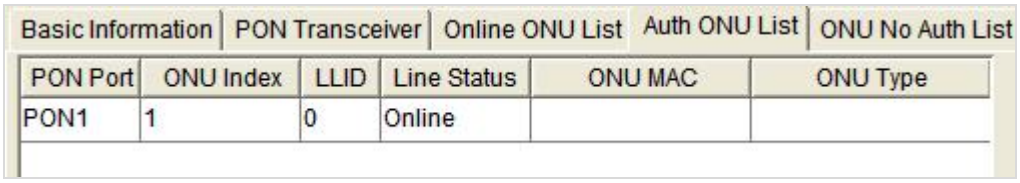


Figure 2-8 Auth ONU List

The window includes the following fields:

Object	Description
PON Port	The PON port number for this OLT
ONU Index	The index for the ONU
LLID	The Logical Link identifier (LLID) was created by OLT
Status	Status of ONU that authenticated by OLT
ONU MAC	The MAC address of the ONU that authenticated by OLT
ONU Type	The model of the ONU that authenticated by OLT
Exchange	The current exchange status of the ONU that authenticated by OLT
Auth Mode	The auth mode of the ONU that authenticated by OLT
ONU Description	The description of the ONU
ONU LOID	The LOID of the ONU
ONU LOID Password	The LOID password of the ONU
RTT (m)	The RTT value of the ONU
Management IP	The management IP of the ONU

2.2.5 ONU No Auth List

This page provides an overview of the no authentication ONU.

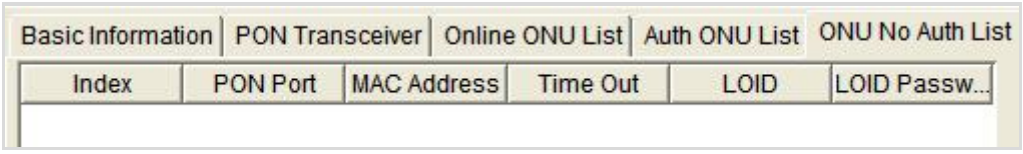


Figure 2-9 ONU No Auth List

The window includes the following fields:

Object	Description
Index	The index for the ONU
PON Port	The PON port number for this OLT
MAC Address	The MAC address of the ONU
Time Out	The period of time the device has not been operational.
LOID	The LOID of the ONU
LOID Password	The LOID password of the ONU

2.3 Delete Device

Press the "**Delete Device**" to delete the OLT on the map.

2.4 Chassis View

Press "**Chassis View**" to check the port function

Figure 2-10 Chassis View

2.5 Modify SNMP Parameter

Press “**Modify SNMP Parameter**” to change the OLT parameter.

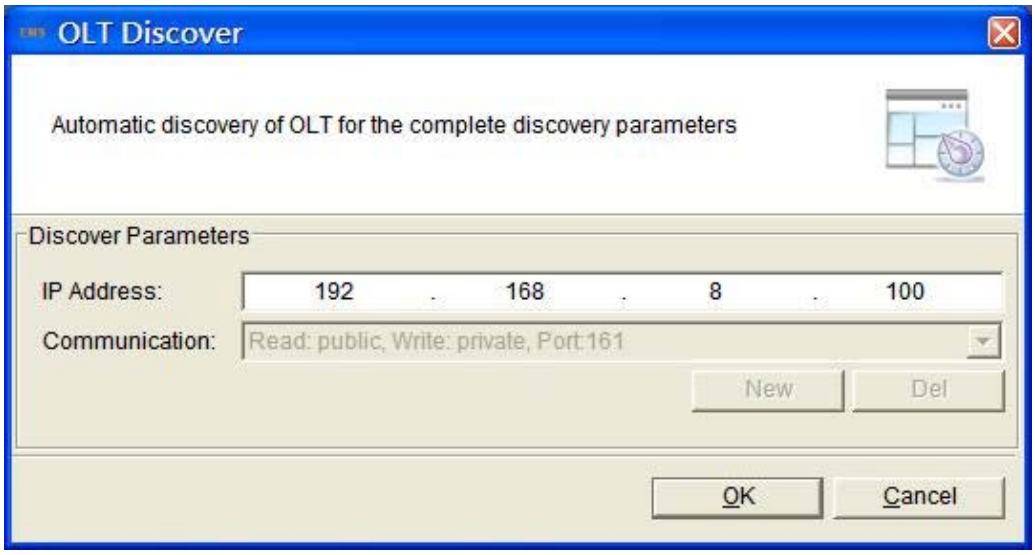


Figure 2-11 OLT Discover

2.6 Configuration

This operation is used for configuring related functions and characteristic parameters of this OLT.

Right-click the EPL-2220 device node unit in the topology tree, and click **Configuration** in the interface as the window appears below:

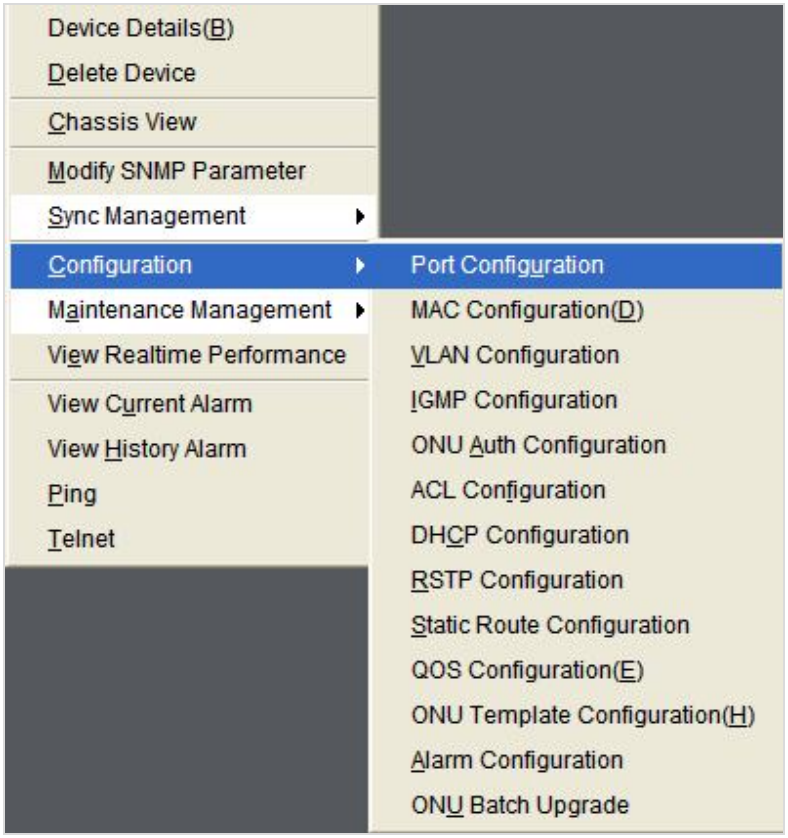


Figure 2-12 Configuration

2.6.1 Port Configuration

Select one port and modify the configuration.

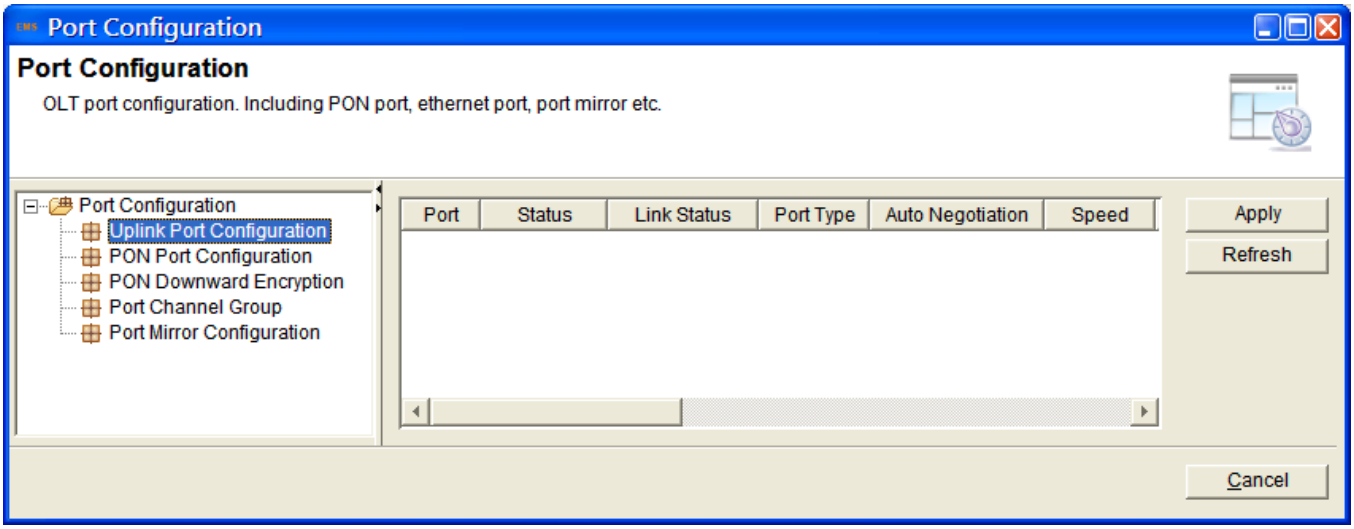


Figure 2-13 Port Configurations

2.6.1.1. Uplink Port Configuration

This page provides the information of the uplink port.

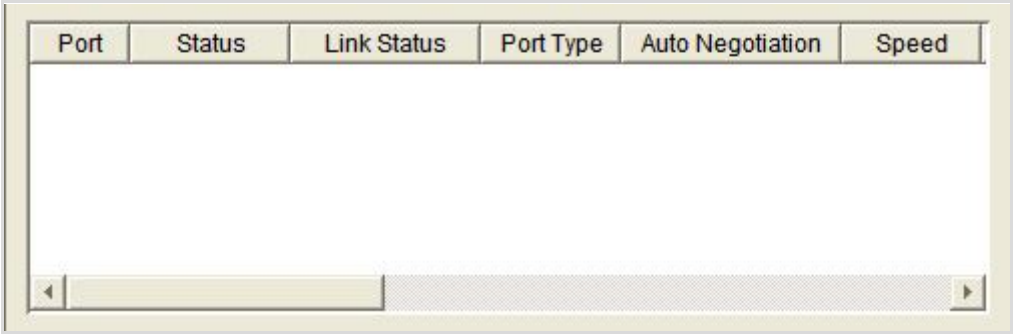


Figure 2-14 Uplink Port Configurations

The window includes the following fields:

Object	Description
Port	The uplink port of the ONU
Status	The subsequent parameters can be configured only when the port is enabled. Default is "**Enable**"
Link Status	Showing the link status of uplink ports is "**Link Down**" or "**Link Up**"
Port Type	It shows "**Fiber**" or "**Copper**"
Auto Negotiation	It is used to enable or disable auto negotiation of the uplink port. The default is "**Enable**". After enabled, the uplink port will negotiate with the connected port to reach the

	largest possible transmission rate.
Speed	To configure uplink ports speed, there are three options: **10Mbps**, **100Mbps**, and **1000Mbps**. This parameter can be configurable only when auto negotiation is disabled.
Duplex	Configure the working mode as duplex or half duplex. This parameter can be configurable only when auto negotiation disabled. The default is "**Duplex**".
Flow Control	It is used to enable or disable the flow control function of uplink port to control congestion. Default is "**Disable**".
Ingress Rate	Enter the Ingress Rate
Egress Rate	Enter the Egress Rate
Broadcast	Broadcast storm inhibition
Multicast	Multicast storm inhibition
Unknown Unicast	Unknown unicast storm inhibition
Isolate	Port isolate with each other
PVID	Enter port default VLAN ID

2.6.1.2. PON Port Configuration

This page is configuring related functions and characteristic parameters of PON port.

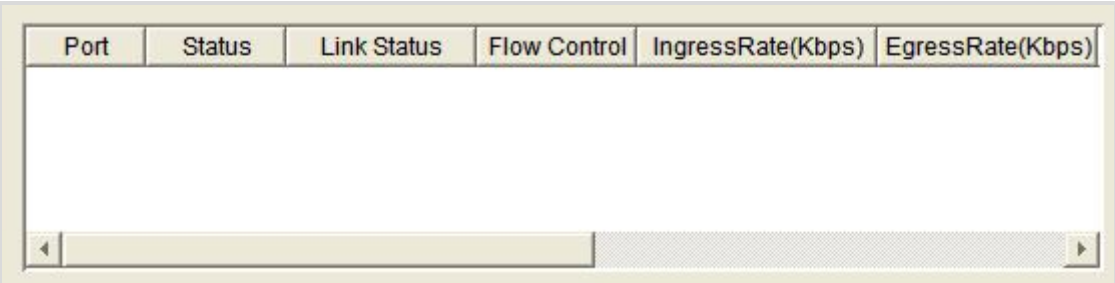


Figure 2-15 PON Port Configurations

The window includes the following fields:

Object	Description
Port	The PON port of the ONU
Status	The subsequent parameters can be configured only when the port is enabled. Default is "**Enable**"
Link Status	The link status of uplink ports shown is “**Link Down**” or “**Link Up**”
Flow Control	It is used to enable or disable the flow control function of PON port to control

	congestion. Default is "**Disable**".
Ingress Rate	Enter the Ingress Rate
Egress Rate	Enter the Egress Rate
Broadcast	Broadcast storm inhibition
Multicast	Multicast storm inhibition
Unknown Unicast	Unknown unicast storm inhibition
PVID	Enter port default VLAN ID
Isolate	Port isolate with each other

2.6.1.3. PON Downward Encryption

The downward transmission broadcasted by the GEPON system protects the safety of the user.

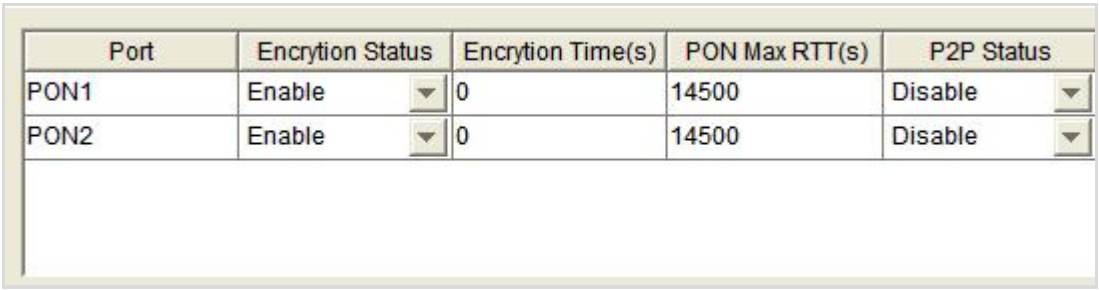


Figure 2-16 PON Downward Encryption

The window includes the following fields:

Object	Description
Port	The PON port of the ONU
Encryption Status	You can enable or disable this function. Only when enabled, it can configure the subsequent parameters. Default is "**Enable**".
Encryption Time	This is the timer of encryption. Range is from 774 to786426
PON Max. RTT	To avoid all the signals of ONUs to reach OLT at the same time, The maximum RTT can be configured to prevent this conflict. The range is from 2000 to 32000. Default is **14500**.
P2P Status	You can enable or disable this function to communicate with other PON ports of ONU. Default is "**Disable**".

2.6.1.4. Port Channel Group

The GE ports can be added as a group and all the ports can be added as the same group. If one cannot be used suddenly, it will change the link to another port. The maximum number for groups is 4 and each group can add a maximum of 4 ports.

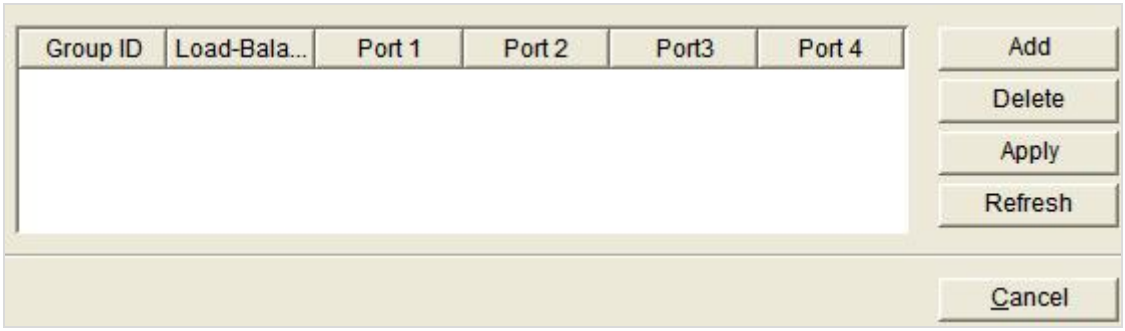


Figure 2-17 Port Channel Group

Click "**Add**" and select the Load-Balance. All the configurations of the ports should be in the same group.

2.6.1.5. Port Mirror Configuration

Copy the data from one or more ports to the specified port which can help for traffic analysis and network error diagnostics. A maximum of 4 mirror groupscan be added.

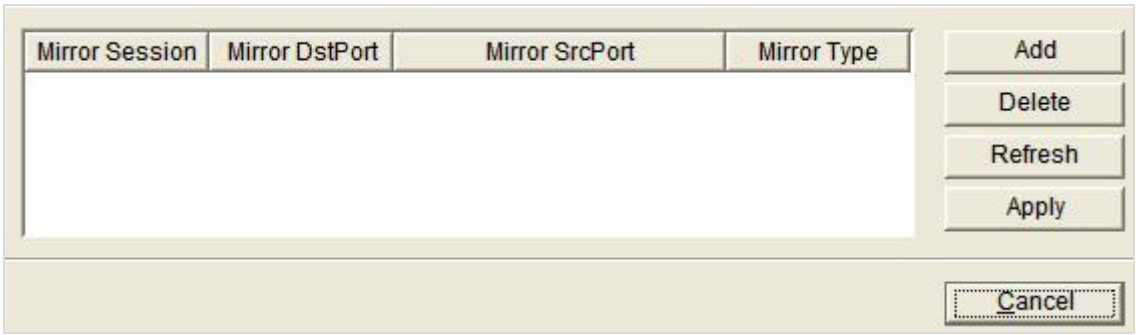


Figure 2-18 Port Mirror Configuration

Click "**Add**">select "**Mirror DstPort**">click "**Mirror SrcPort**" blank entries to select one or more ports>choose the "**Mirror Type**".

2.6.2 MAC Configuration

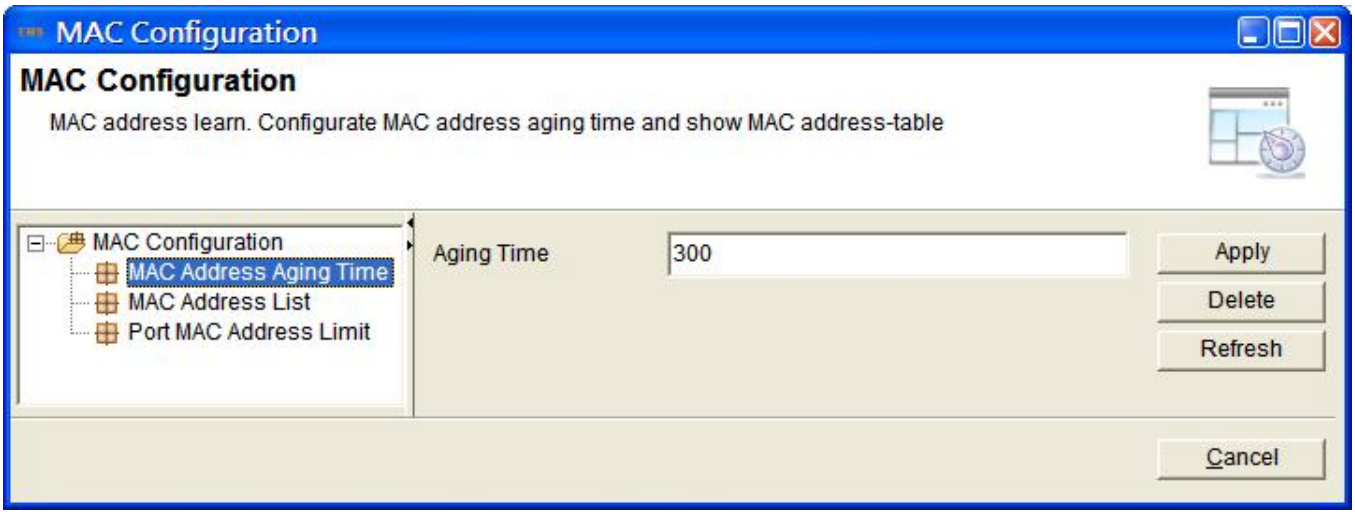


Figure 2-19 MAC Configuration

2.6.2.1. MAC Address Aging Time

You can enter the MAC address aging time here.

Figure 2-20 MAC Address Aging Time

2.6.2.2. MAC Address List

It shows the MAC address list here.

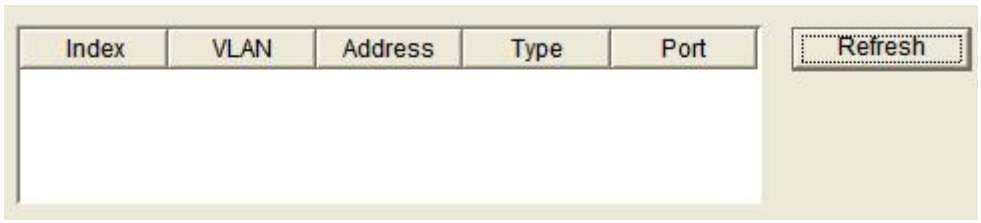


Figure 2-21 MAC Address List

2.6.2.3. Port MAC Address Limit

Enter the MAC address count.

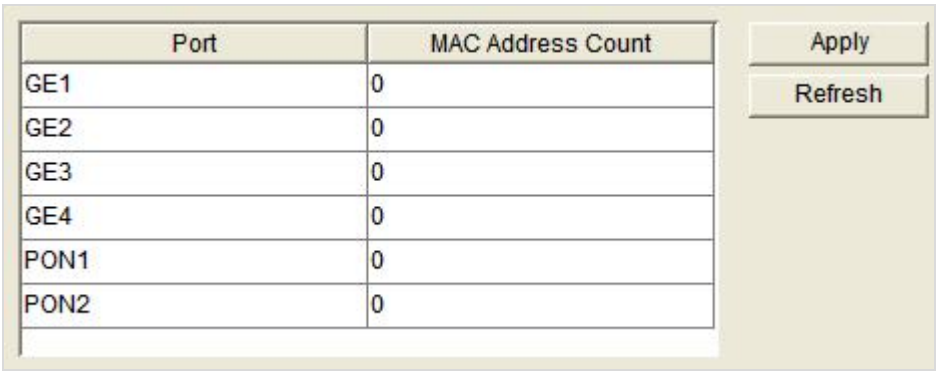


Figure 2-22 Port MAC Address Limit

2.6.3 VLAN Configuration

The OLT is fully compliant with the IEEE802.1Q VLAN standard and has the following main features:

- Supports Port-based VLAN and IEEE802.1Q VLAN.
- Supports full 4K VLAN group. VID range is from1 to 4095.
- All ports, including uplink ports and downlink ports, support VLAN partition.

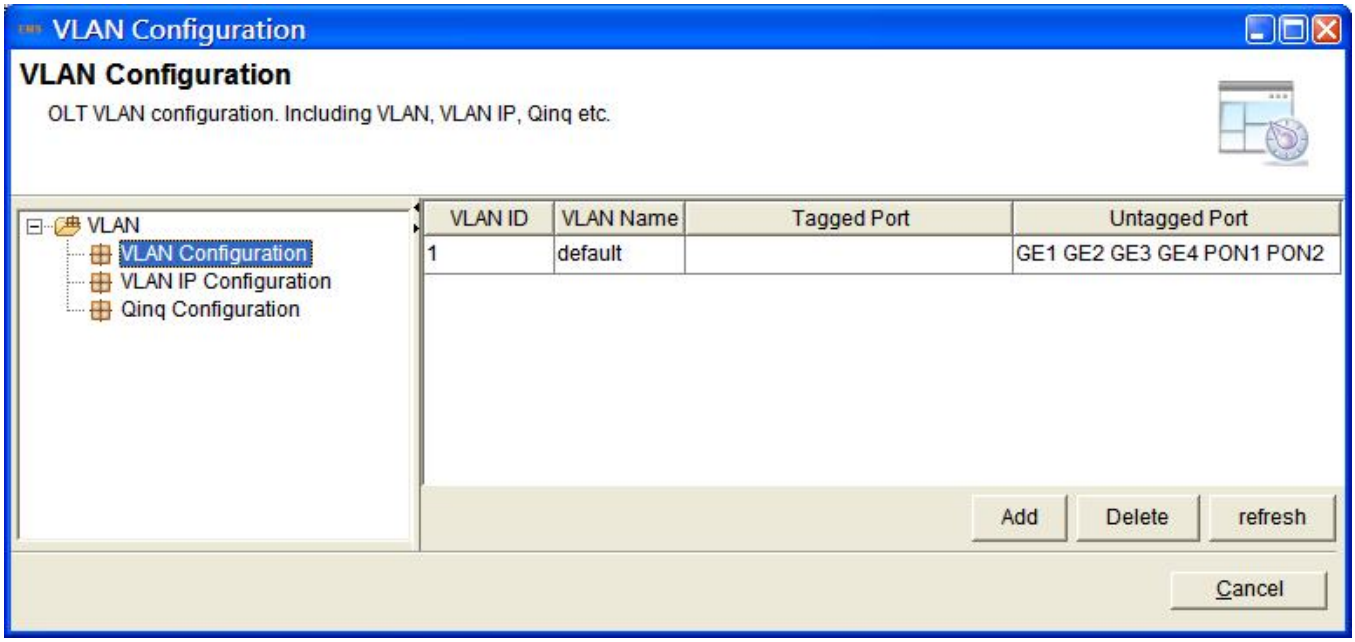


Figure 2-23 VLAN Configuration

2.6.3.1. VLAN Configuration

VLAN 1 is the system reserved VLAN, including all switch ports, and all ports are in UNTAG mode. Press “Add” to add a VLAN ID.

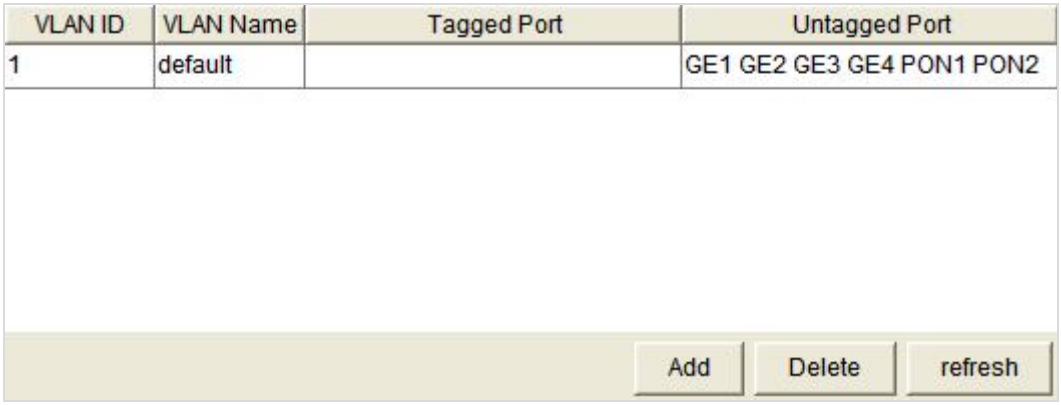


Figure 2-24 Add VLAN Configuration

The window includes the following fields:

Object	Description
VLAN ID	Indicates the ID of this particular VLAN.
VLAN Name	It shows the VLAN ID automatically when you set up the VLAN.
Tagged Port	Selects specific port to transmit outgoing frames with VLAN-Tagged.
Untagged Port	Selects specific port to transmit outgoing frames without VLAN-Tagged.

2.6.3.2. VLAN IP Configuration

Please create the VLAN first. This configuration can add the IP to the VLAN. When the VLAN is added to the port, the IP address will be added.

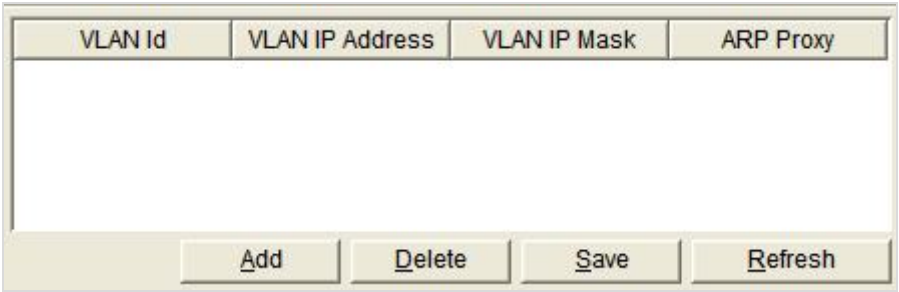


Figure 2-25 VLAN IP Configuration

The window includes the following fields:

Object	Description
VLAN ID	Indicates the ID of this particular VLAN.
VLAN IP Address	Enter the VLAN IP Address
VLAN IP Mask	Enter the VLAN IP Mask
ARP Proxy	Select ARP Proxy to Enable or Disable. Default is “**Enable**”

2.6.3.3. Q-in-Q Configuration

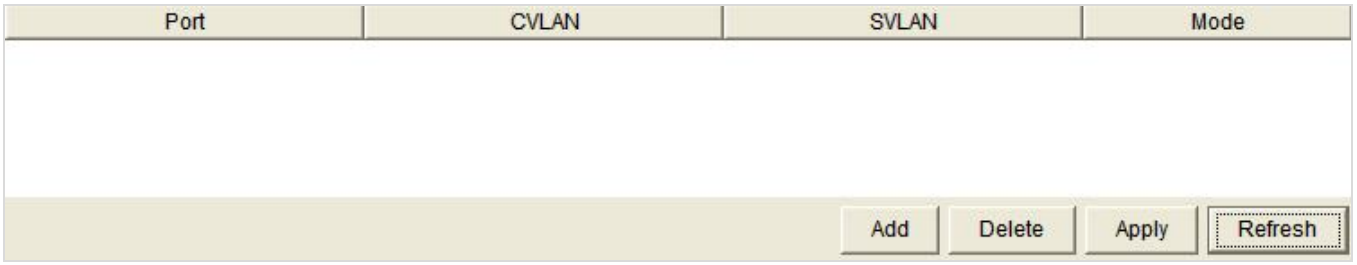


Figure 2-26 Q-in-Q Configuration

The window includes the following fields:

Object	Description
Port	Select the port from the list
CVLAN	The inner tag or inner tags are set by the customer
SVLAN	The outer tag is set by the provider
Mode	Select **Translation** or **Q-in-Q**

2.6.4 IGMP Configuration

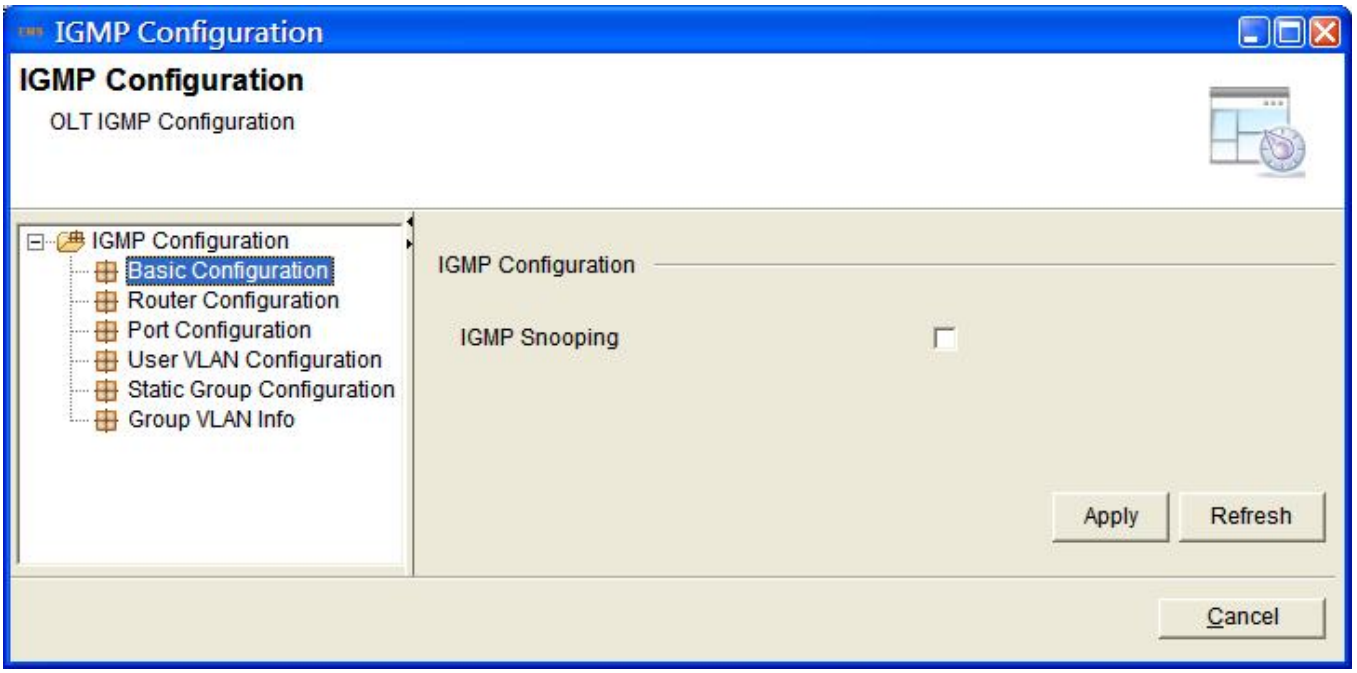


Figure 2-27 IGMP Configuration

2.6.4.1. Basic Configuration

On this page, you can enable IGMP snooping.

Figure 2-28 IGMP Snooping

2.6.4.2. Router Configuration

Figure 2-29 Router Configuration

The window includes the following fields:

Object	Description
Index	Indicates the ID of this particular VLAN.
Router Port	Select the router port from the list
Router VLAN	Enter the Router VLAN

2.6.4.3. Port Configuration

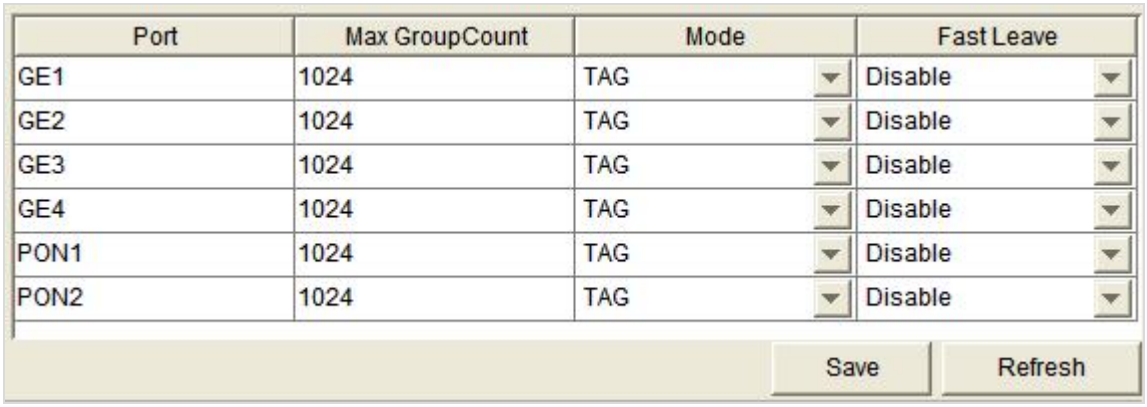


Figure 2-30 Port Configuration

The window includes the following fields:

Object	Description
Port	Indicates the port of this OLT
Max Group Count	Enter the group count from 0 to 1024
Mode	Select **TAG** or **UNTAG**
Fast Leave	Enable or disable the fast leave on the port.

2.6.4.4. User VLAN Configuration

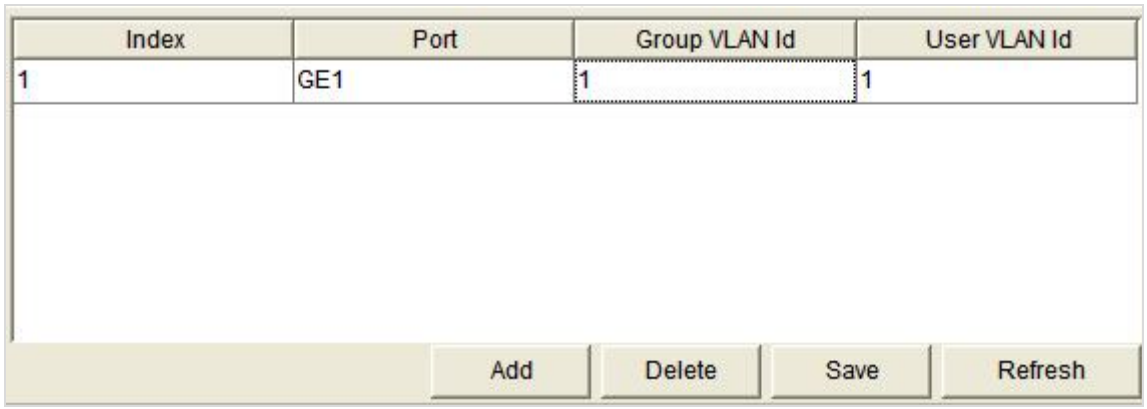


Figure 2-31 User VLAN Configuration

The window includes the following fields:

Object	Description
Index	Indicates the ID of this particular VLAN.
Port	Select the port from the list

Group VLAN ID	Enter the Group VLAN ID from 1 to 4094
User VLAN ID	Enter the User VLAN ID from 1 to 4094

2.6.4.5. Static Group Configuration

Enable the IGMP Snooping to activate this function.

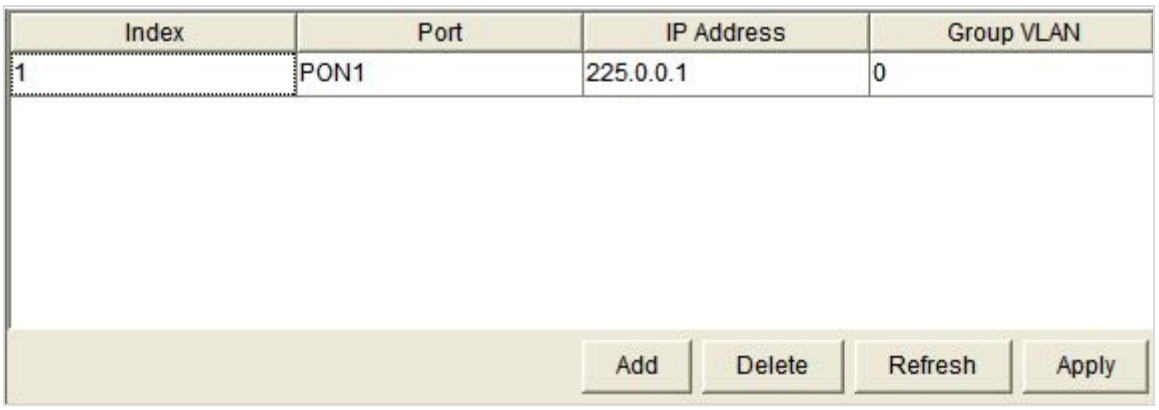


Figure 2-32 Static Group Configuration

The window includes the following fields:

Object	Description
Index	Indicates the ID of this particular VLAN.
Port	Select the port from the list
IP Address	Enter the IP address
Group VLAN ID	Enter the Group VLAN ID from 1 to 4094

2.6.4.6. Group VLAN Info

On this page, it shows the Group VLAN information.

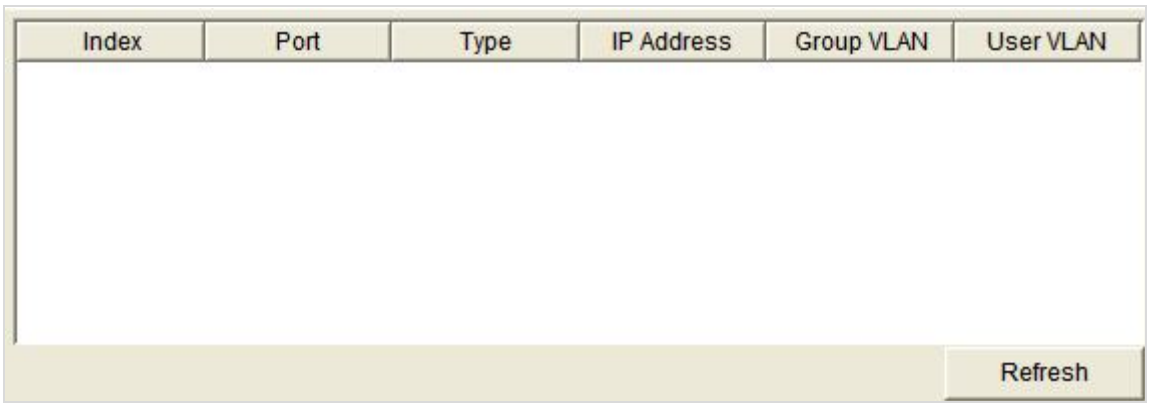


Figure 2-33 Group VLAN Info

2.6.5 ONU Auth Configuration

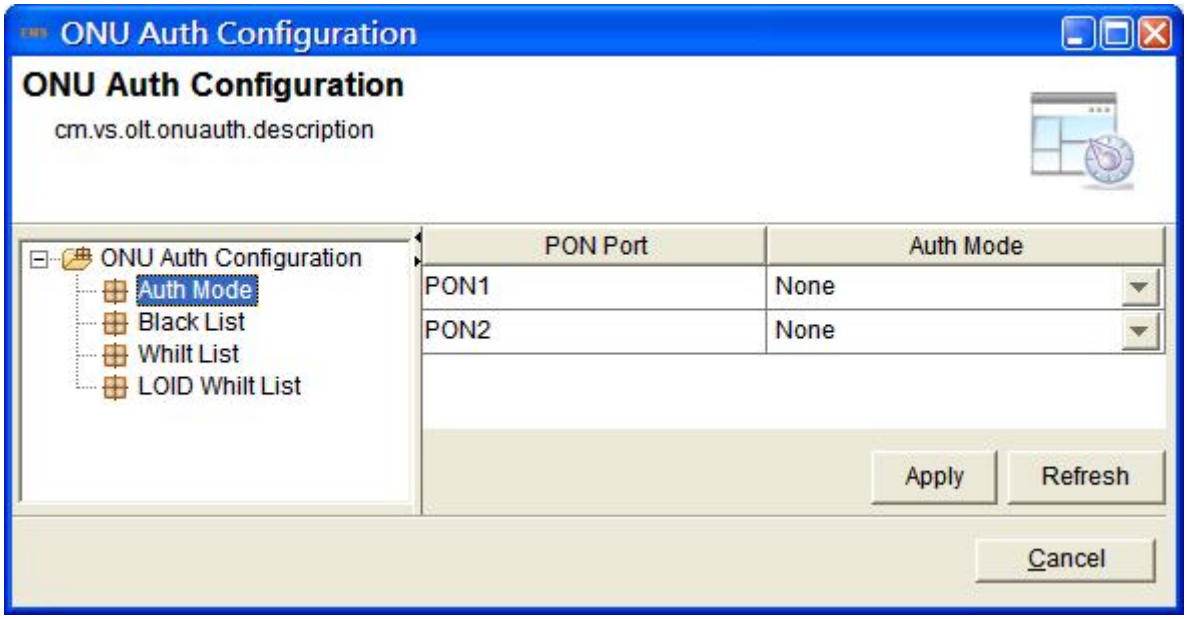


Figure 2-34 ONU Auth Configuration

2.6.5.1. Auth Mode

On this page, you can select the Auth mode to **None**, **Mac Model**, **Loid** and **Hybrid**.

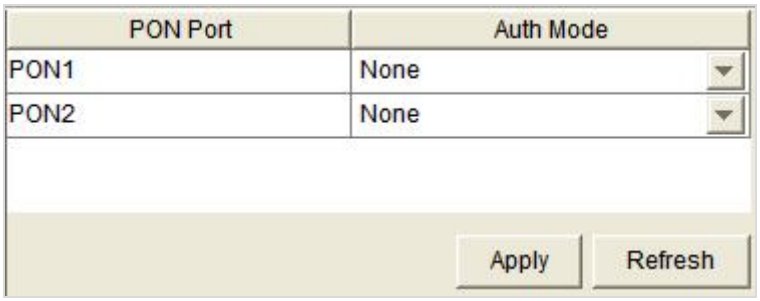


Figure 2-35 Auth Mode

2.6.5.2. Black List

On this page, you can enter the MAC address to add the black list.

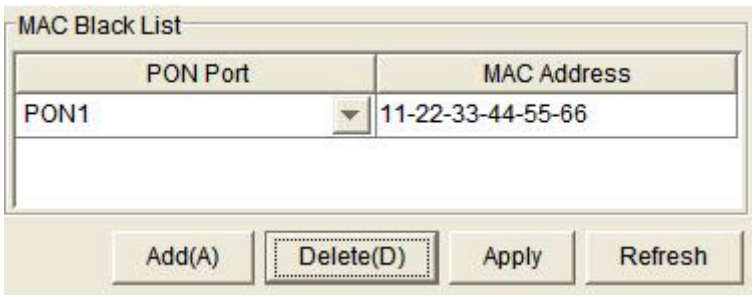


Figure 2-36 MAC Black List

2.6.5.3. White List

On this page, you can enter the MAC address to add the white list.

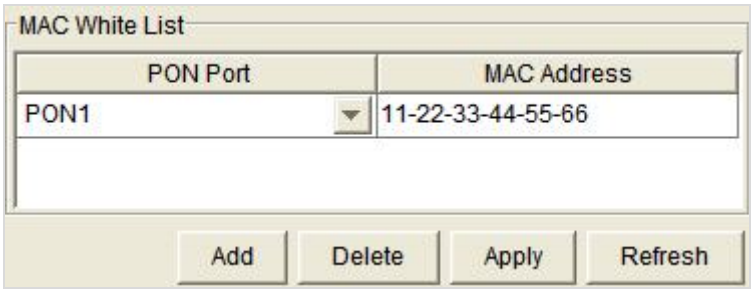


Figure 2-37 MAC White List

2.6.5.4. LOID White List

On this page, you can add the LOID white list.

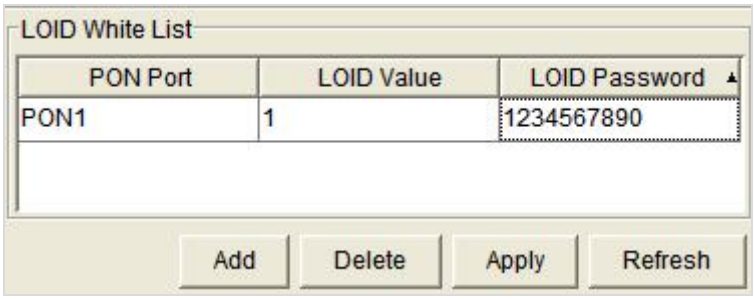


Figure 2-38 LOID White List

The window includes the following fields:

Object	Description
PON Port	Select the PON port fom the list
LOID Value	Enter the LOID value. The length is 1 to 24
LOID Password	Enter the LOID password. The length is 1 to 12

2.6.6 ACL Configuration

ACL is an acronym for Access Control List. It is the list table of ACEs, containing access control entries that specify individual users or groups permitted or denied to specific traffic objects, such as a process or a program.

Each accessible traffic object contains an identifier to its ACL. The privileges determine whether there are specific traffic object access rights.

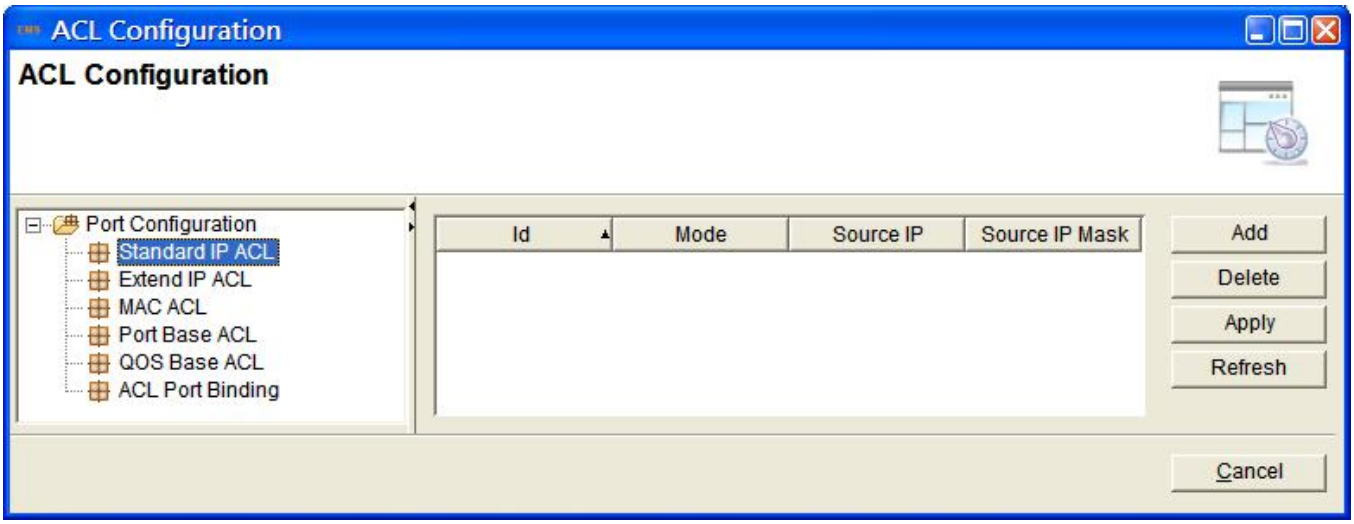


Figure 2-39 ACL Configuration

2.6.6.1. Standard IP ACL

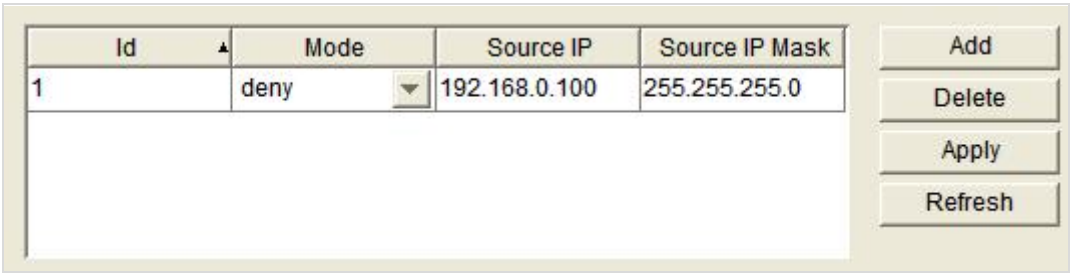


Figure 2-40 Standard IP ACL

The window includes the following fields:

Object	Description
ID	Indicates the ID of this IP ACL
Mode	Select **permit** or **deny** from the list
Source IP	Enter the source IP
Source IP Mask	Enter the source mask

2.6.6.2. Extend IP ACL

It is the extension of the IP standard ACL. On this page, you can permit or deny the IP address of both source and destination. Press "**Add**" for more information.

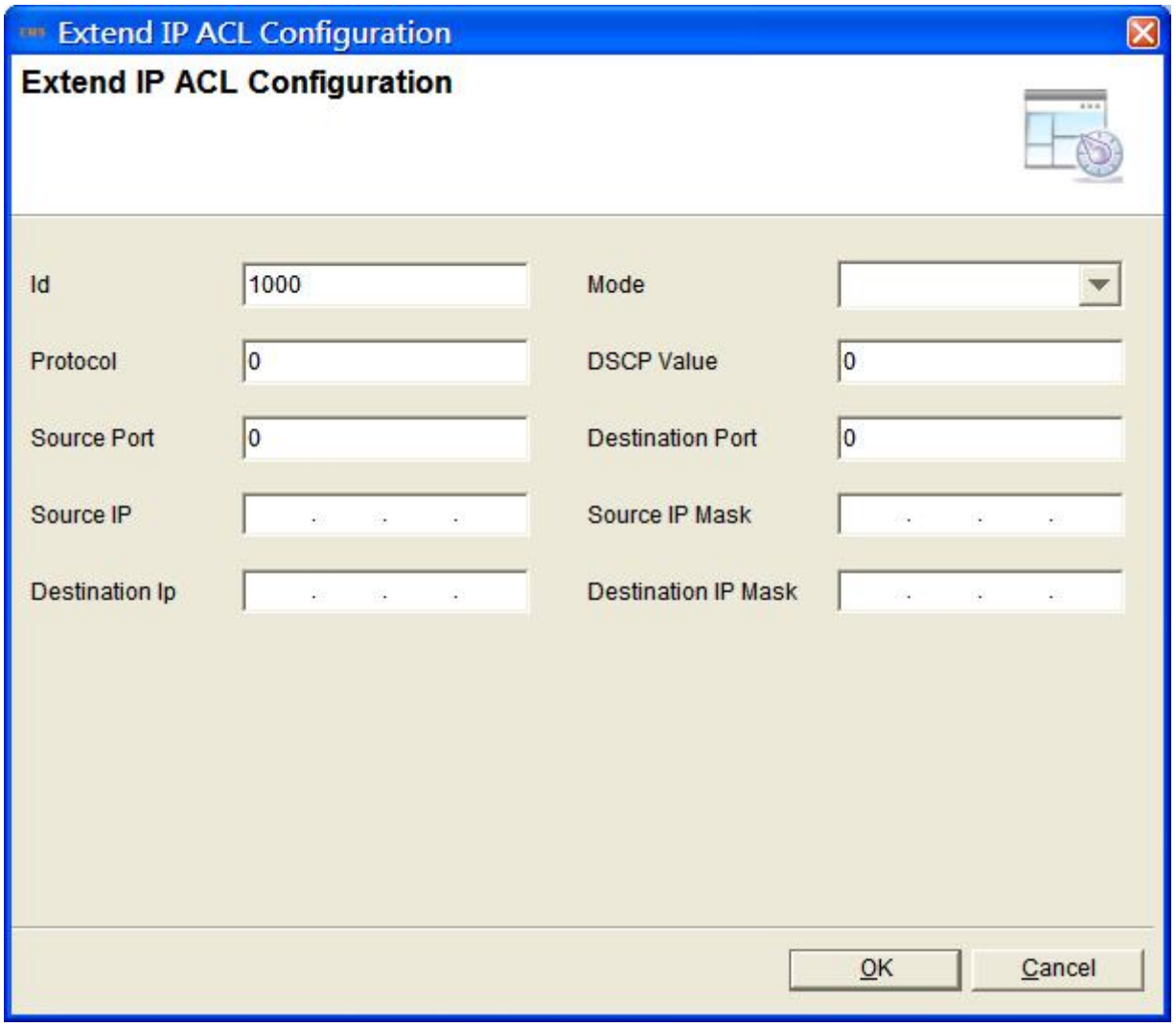


Figure 2-41 Extend IP ACL

The window includes the following fields:

Object	Description
ID	Indicates the ID of this IP ACL
Mode	Select **permit** or **deny** from the list
Protocol	Enter the protocol **6** or **17**
DSCP Value	Enter the DSCP value between 1 to 63
Source Port	Enter the source port between 1 to 65535
Destination Port	Enter the destination port between 1 to 65535

Source IP	Enter the source IP
Source IP Mask	Enter the source mask
Destination IP	Enter the destination IP
Destination IP Mask	Enter the destination mask

2.6.6.3. MAC ACL

This ACL is based on MAC address. It can filter data packages both the source MAC address and destination MAC address.

Press "**Add**" for more information.

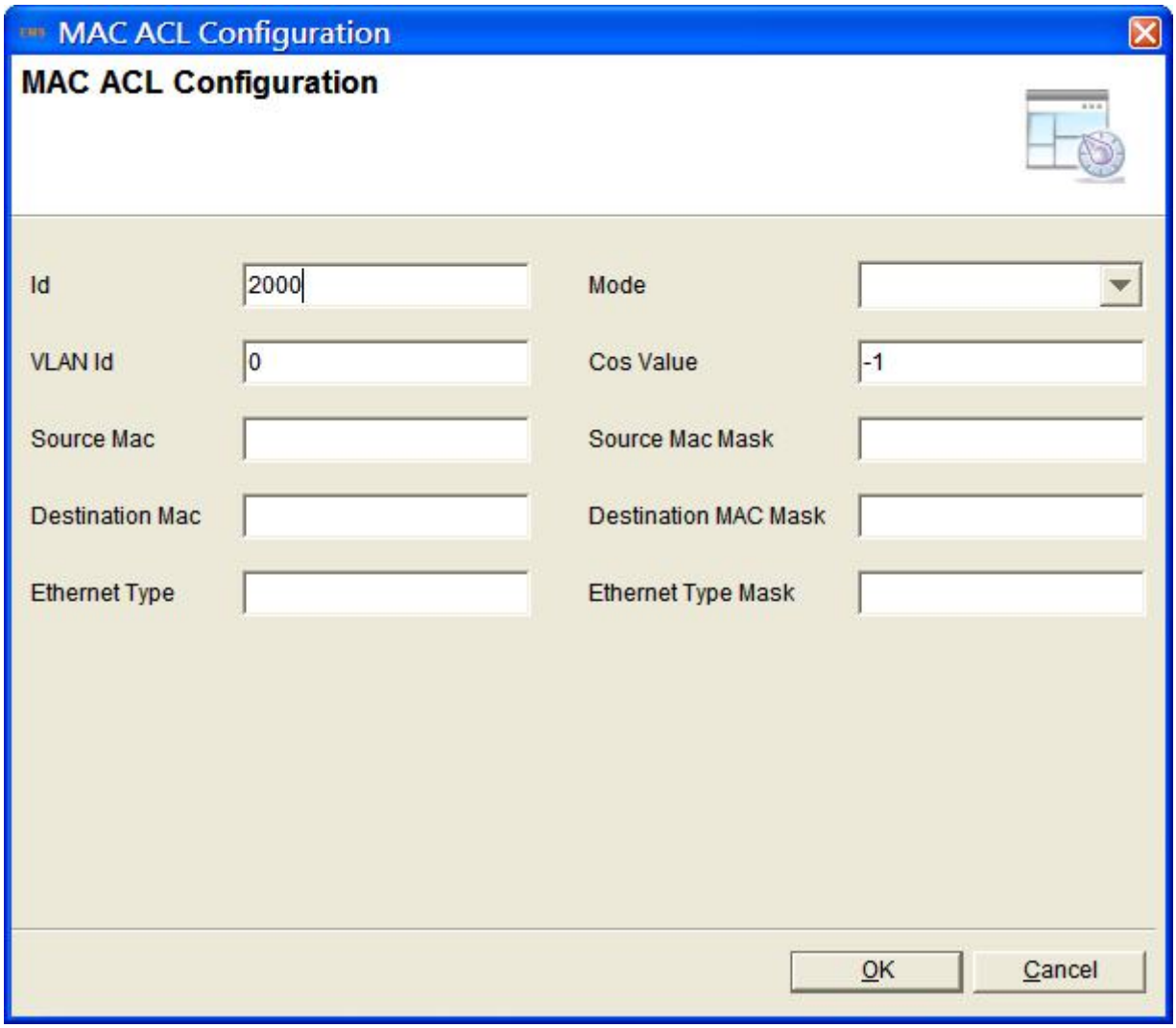


Figure 2-42 MAC ACL

The window includes the following fields:

Object	Description
ID	Indicates the ID of this MAC ACL
Mode	Select **permit** or **deny** from the list

VLAN ID	Enter the VLAN ID between 0 and 4094
CoS Value	Enter the CoS value between -1 and 7
Source Mac	Enter the source MAC address
Source Mac Mask	Enter the source MAC mask
Destination Mac	Enter the destination MAC address
Destination MAC Mask	Enter the destination MAC mask
Ethernet Type	Enter the Ethernet type
Ethernet Type Mask	Enter the Ethernet type mask

2.6.6.4. Port-based ACL

Press "**Add**" for more information.

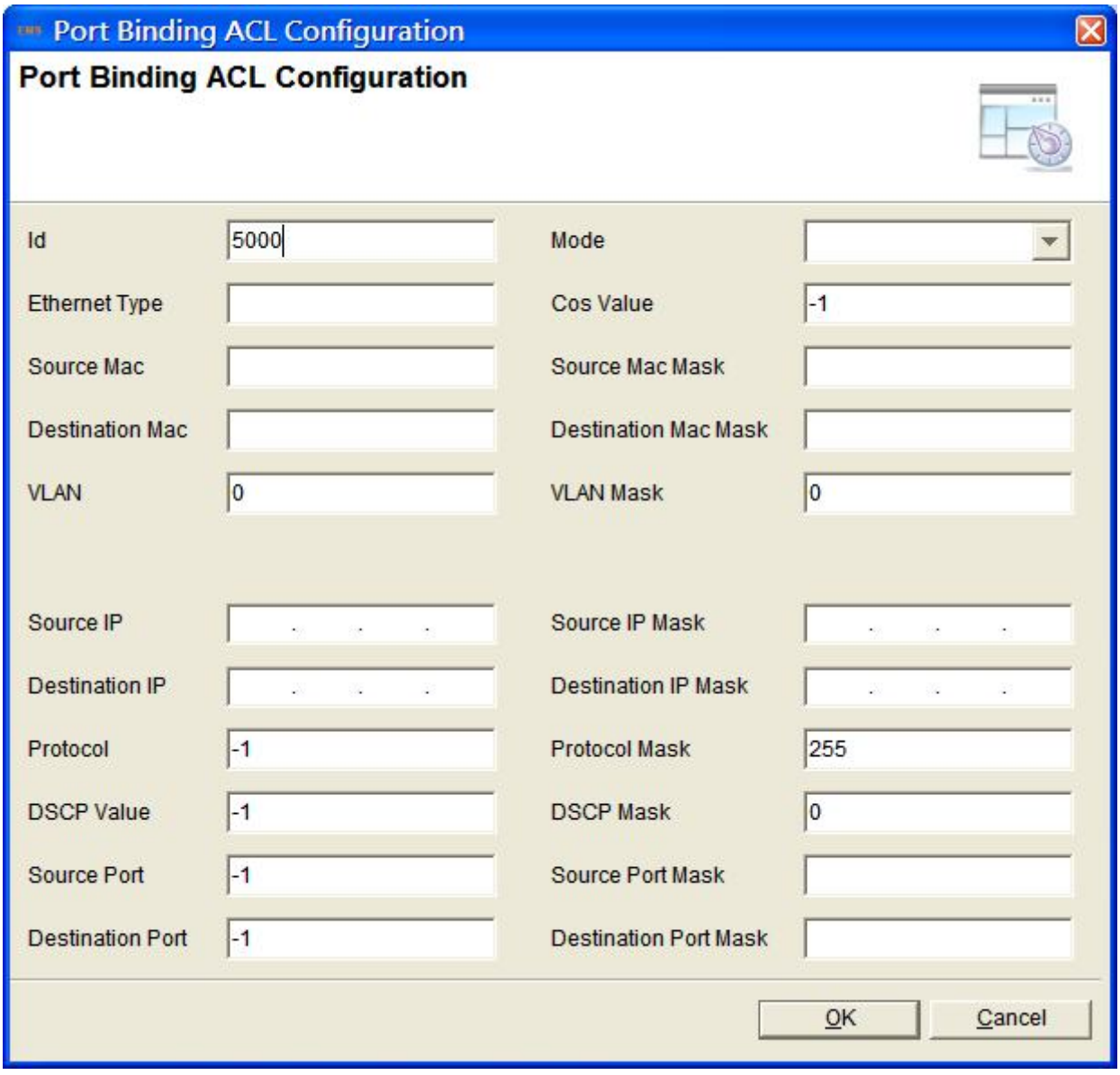


Figure 2-43 Port-based ACL

The window includes the following fields:

Object	Description
ID	Indicates the ID of this MAC ACL
Mode	Select **permit** or **deny** from the list
Ethernet Type	Enter the Ethernet type
CoS Value	Enter the CoS value between -1 and 7
Source Mac	Enter the source MAC address
Source Mac Mask	Enter the source MAC mask
Destination Mac	Enter the destination MAC address
Destination MAC Mask	Enter the destination MAC mask
VLAN	Enter the VLAN between 0 and 4094
VLAN Mask	Enter the VLAN mask between 0 and 4095
Source IP	Enter the source IP
Source IP Mask	Enter the source mask
Destination IP	Enter the destination IP
Destination IP Mask	Enter the destination mask
Protocol	Enter the protocol between -1 and 255
Protocol Mask	Enter the protocol mask between 0 and 255
DSCP Value	Enter the DSCP value between -1 and 255
DSCP Mask	Enter the DSCP mask between 0 and 255
Source Port	Enter the source port between -1 and 65535
Source Port Mask	Enter the source port mask
Destination Port	Enter the destination port between -1 and65535
Destination Port Mask	Enter the destination port mask

2.6.6.5. QoS-based ACL

Bind this ACL to a port, and it will limit the data by the priority. Press "**Add**" for more information.

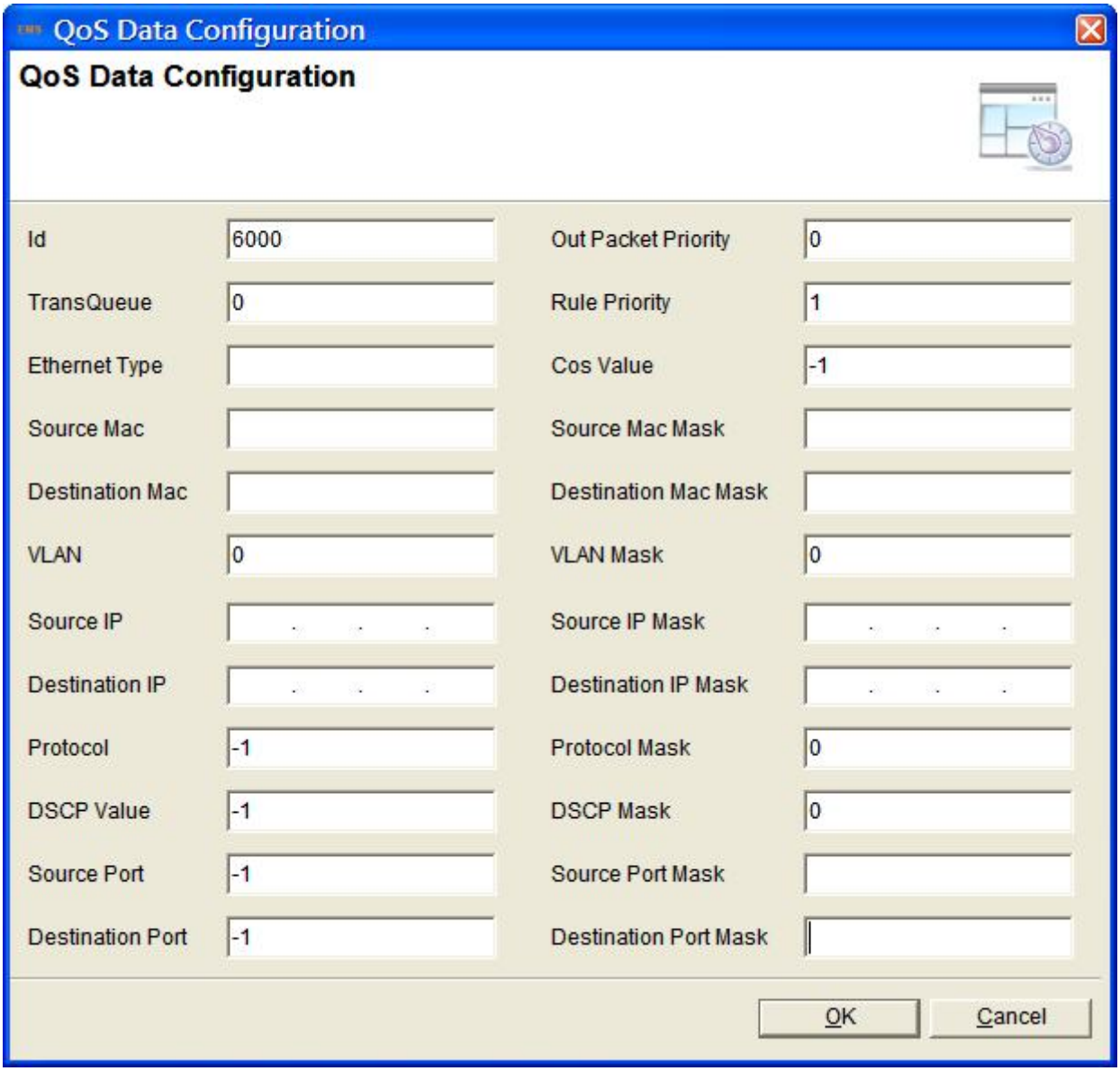


Figure 2-44 QoS-based ACL

The window includes the following fields:

Object	Description
ID	Indicates the ID of this QoS ACL
Out Packet Priority	Enter the Out Packet Priority between 0 and 8
Trans Queue	Enter the Trans Queue between 0 and 7
Rule Priority	Enter the Rule Priority between 1 and 12
Ethernet Type	Enter the Ethernet type

CoS Value	Enter the CoS value between -1 and 7
Source Mac	Enter the source MAC address
Source Mac Mask	Enter the source MAC mask
Destination Mac	Enter the destination MAC address
Destination MAC Mask	Enter the destination MAC mask
VLAN	Enter the VLAN between 0 and 4094
VLAN Mask	Enter the VLAN mask between 0 and 4095
Source IP	Enter the source IP
Source IP Mask	Enter the source mask
Destination IP	Enter the destination IP
Destination IP Mask	Enter the destination mask
Protocol	Enter the protocol between -1 and 255
Protocol Mask	Enter the protocol mask between 0 and 255
DSCP Value	Enter the DSCP value between -1 and 255
DSCP Mask	Enter the DSCP mask between 0 and 255
Source Port	Enter the source port between -1 and 65535
Source Port Mask	Enter the source port mask
Destination Port	Enter the destination port between -1 and 65535
Destination Port Mask	Enter the destination port mask

2.6.6.6. ACL Port Binding

When you create an ACL list, the ACL Port Binding would take effect. The index will appear automatically when created.

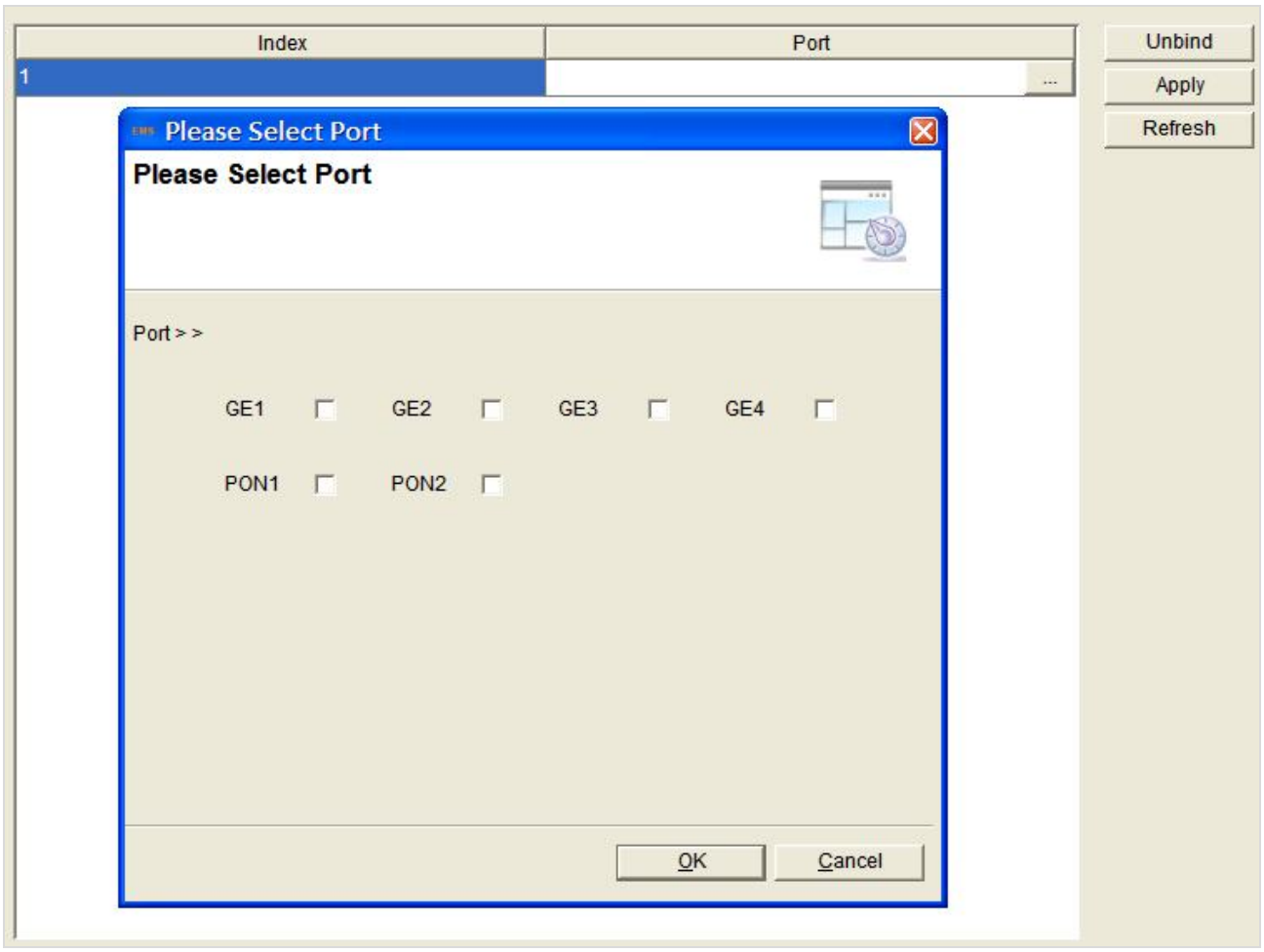


Figure 2-45 ACL Port Binding

2.6.7 DHCP Configuration

2.6.7.1. DHCP Server Configuration

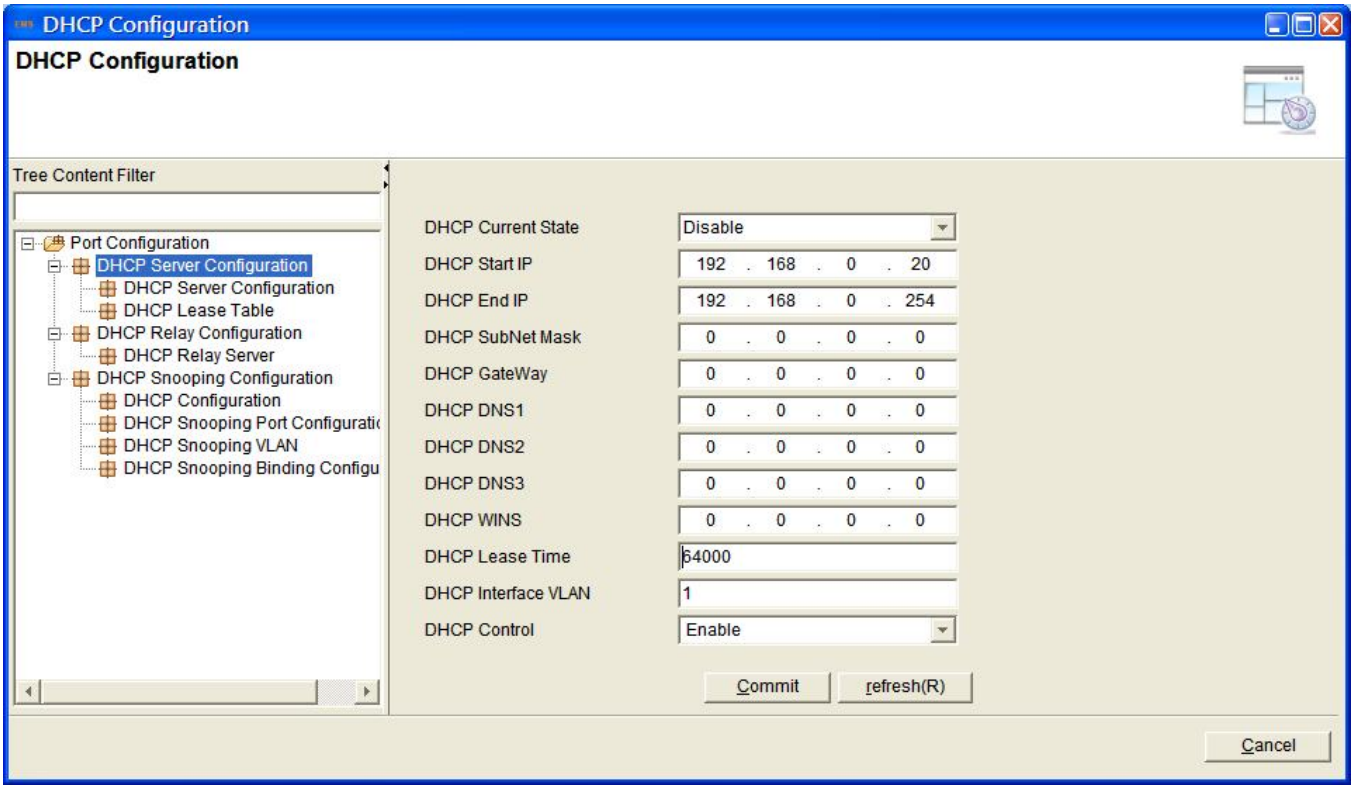


Figure 2-46 DHCP Server Configuration

The window includes the following fields:

Object	Description
DHCP Current State	Select **Enable** or **Disable** the DHCP server from the list. Default is "**Disable**"
DHCP Start IP	Enter the DHCP server start IP
DHCP End IP	Enter the DHCP server end IP
DHCP Subnet Mask	Enter the DHCP Subnet mask
DHCP Gateway	Enter the DHCP Gateway
DHCP DNS1	Enter the DHCP DNS1
DHCP DNS2	Enter the DHCP DNS2
DHCP DNS3	Enter the DHCP DNS3
DHCP WINS	Enter the DHCP WINS
DHCP Lease Time	Enter the DHCP lease time from 0 to 65535
DHCP Interface VLAN	Enter the DHCP interface VLAN
DHCP Control	Enable or Disable the DHCP control. Default is "**Enable**"

2.6.7.2. DHCP Relay Configuration

Configure DHCP Relay on this page. **DHCP Relay** is used to forward and to transfer DHCP messages between the clients and the server when they are not on the same subnet domain.

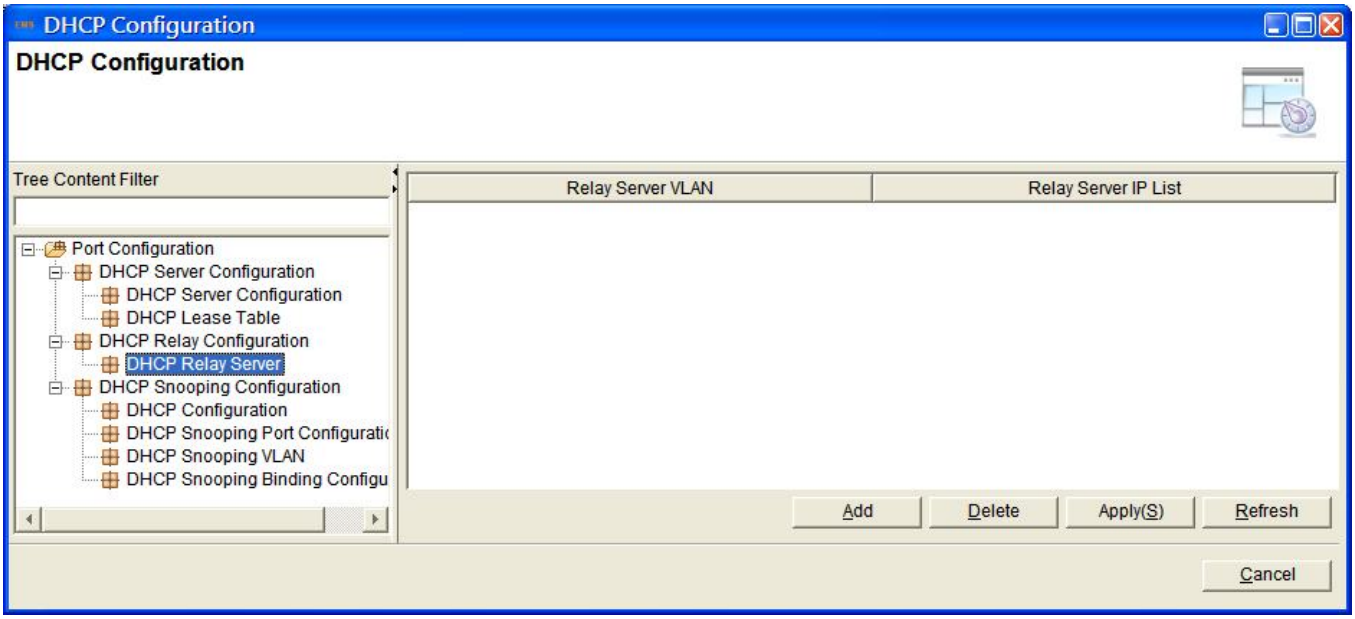


Figure 2-47 DHCP Relay Configuration

2.6.7.3. DHCP Snooping Configuration

The addresses assigned to DHCP clients on unsecure ports can be carefully controlled using the dynamic bindings registered with DHCP Snooping. DHCP snooping allows a switch to protect a network from rogue DHCP servers or other devices which send port-related information to a DHCP server. This information can be useful in tracking an IP address back to a physical port.

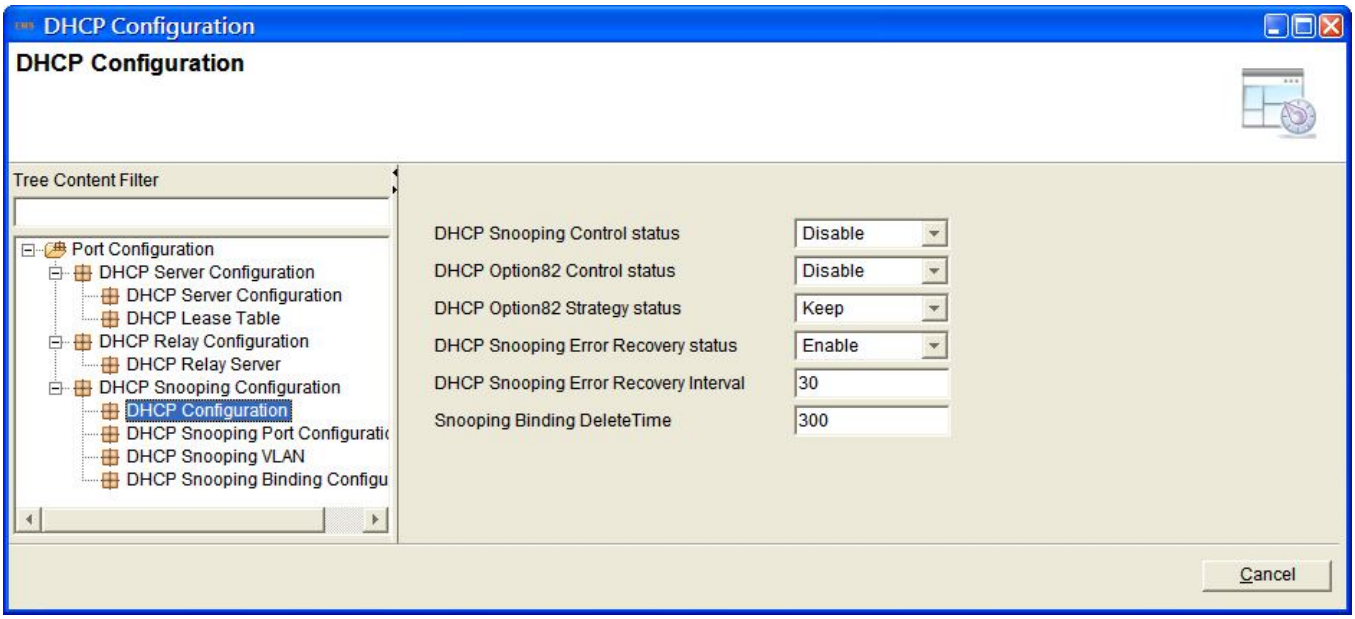


Figure 2-48 DHCP Snooping Configuration

- **DHCP Configuration**

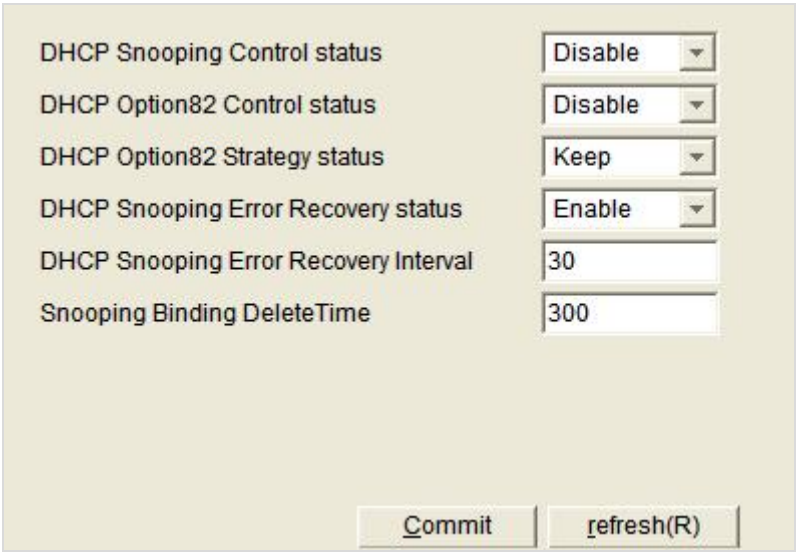


Figure 2-49 DHCP Configuration

The window includes the following fields:

Object	Description
DHCP Snooping Control status	Select **Enable** or **Disable** the DHCP Snooping Control from the list. Default is "**Disable**"
DHCP Option82 Control status	Select **Enable** or **Disable** the DHCP Option82 Control from the list. Default is "**Disable**"
DHCP Option82 Strategy status	Select **Drop, Keep or Replace** the DHCP Option82 Strategy from the list. Default is "**Keepe**"
DHCP Snooping Error Recovery status	Select **Enable** or **Disable** the DHCP Snooping Error Recovery from the list. Default is "**Enable**"
DHCP Snooping Error Recovery Interval	Enter the DHCP Snooping Error Recovery interval from 0 to 65535.
Snooping Binding Delete Time	Enter the Snooping Binding delete time from 0 to 65535.

- **DHCP Snooping Port**

All the port type is untrust by default. The "Port User Circuit" and "Port User Remate ID" are the parameters of Option82. The "Port Rate Limit" is about the port maximum speed of receiving the DHCP packet. It doesn't limit by default.

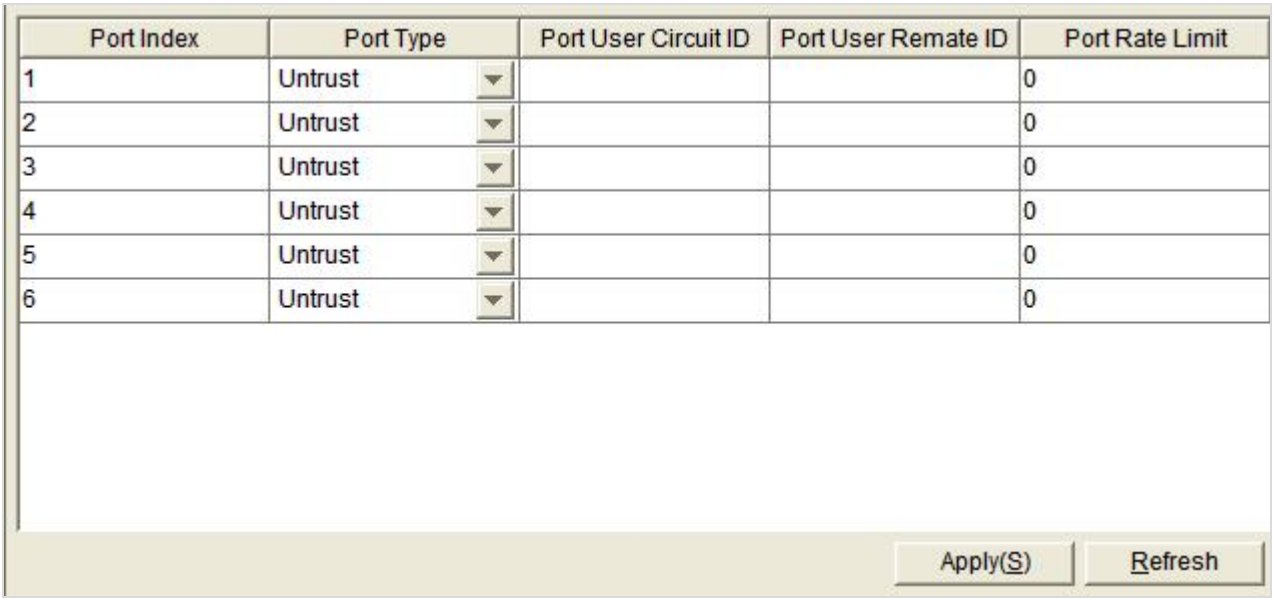


Figure 2-50 DHCP Snooping Port

The window includes the following fields:

Object	Description
Port Index	Indicates the Port of this OLT
Port Type	Select **Trust** or **Untrust** from the list. Default is "**Untrust**"
Port User Circuit ID	Enter the Port User Circuit ID
Port User Remote ID	Enter the Port User Remote ID
Port Rate Limit	Enter the Port Rate Limit from 0 to 4096.

- **DHCP Snooping VLAN**

This page shows the VLAN. All the DHCPs offering packets will be forbidden in this VLAN. The DHCP clients will not get the IP address by this VLAN ID.

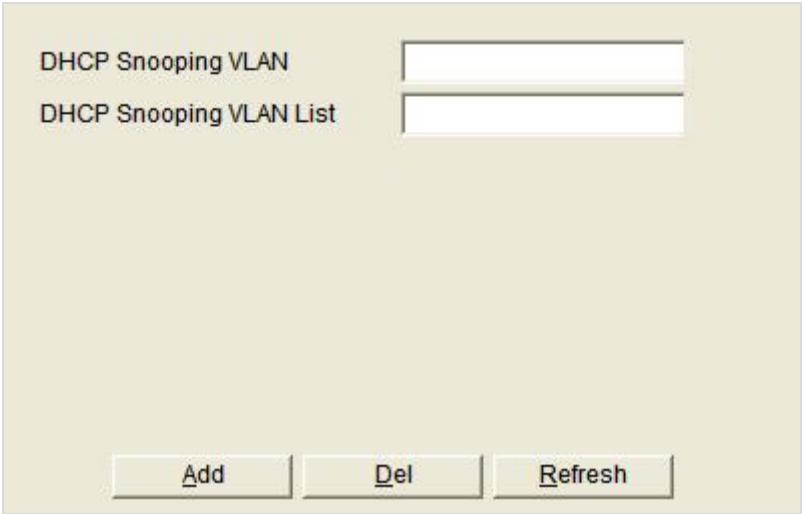


Figure 2-51 DHCP Snooping VLAN

- **DHCP Snooping Binding Configuration**

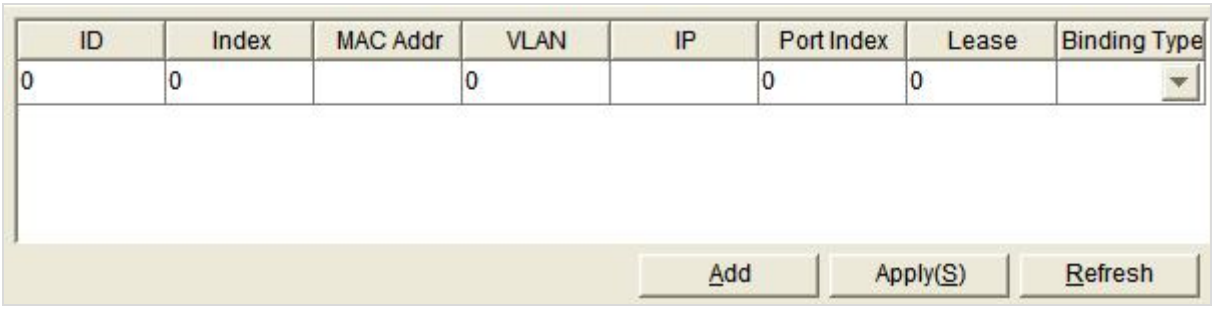


Figure 2-52 DHCP Snooping Binding Configuration

The window includes the following fields:

Object	Description
ID	Indicates the ID of the binding configuration
Index	Indicates the Index of this OLT
MAC Address	Enter the MAC address
IP	Enter the IP
Port Index	Indicates the Port of this OLT
Lease	Enter the Lease time
Binding Type	Select **SnBinding Type.Static** or **SnBinding Type.Dynamic**

2.6.8 RSTP Configuration

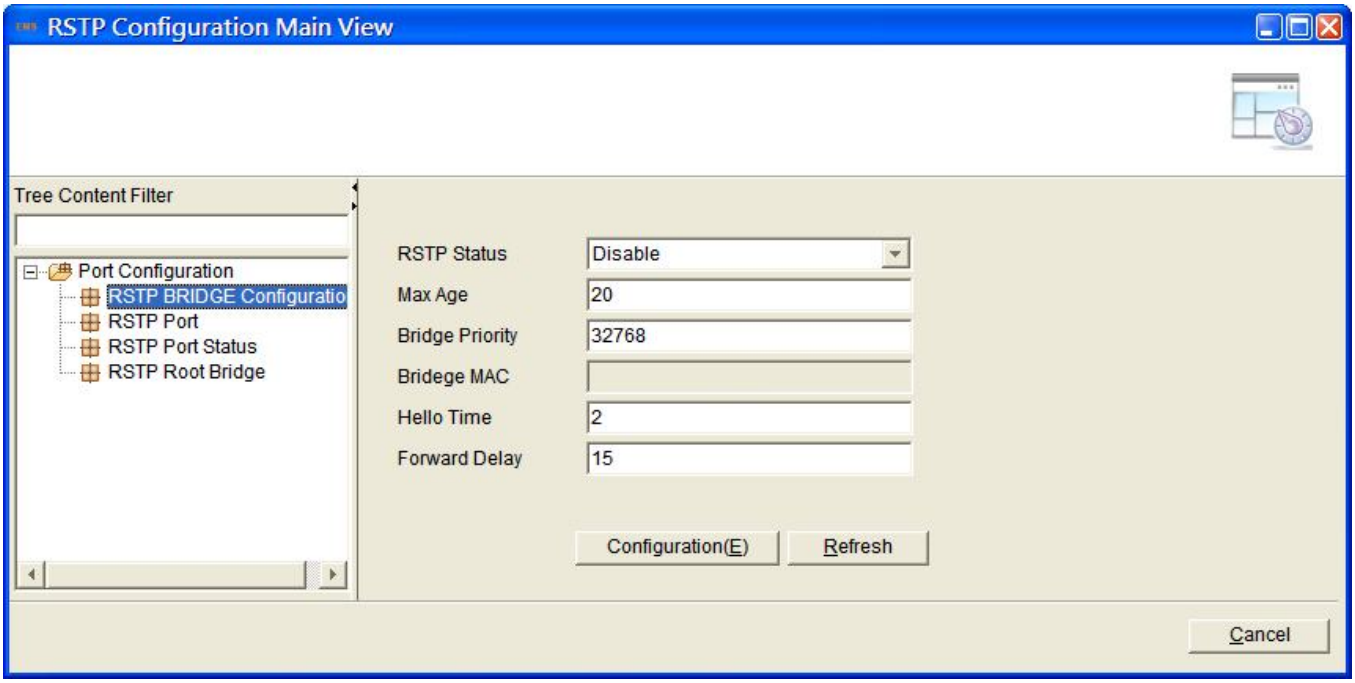


Figure 2-53 RSTP Configuration

2.6.8.1. RSTP Bridge Configuration

Rapid Spanning Tree Protocol (RSTP) : Detects and uses network topologies that provide faster spanning tree convergence, without creating forwarding loops.

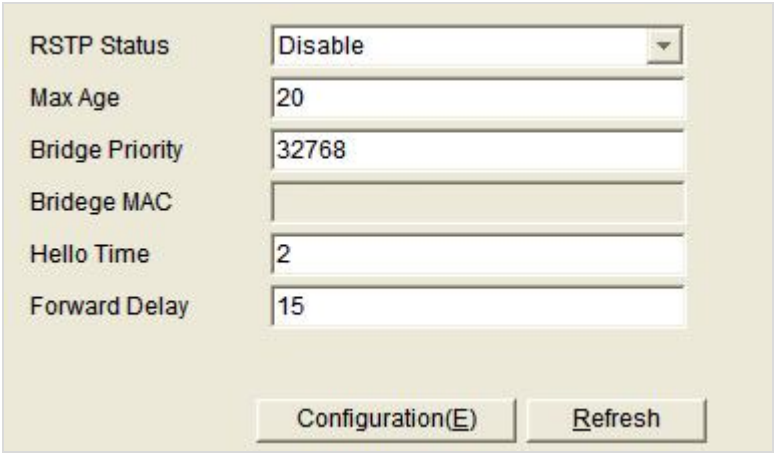


Figure 2-54 RSTP Bridge Configuration

The window includes the following fields:

Object	Description
RSTP Status	Select **Enable** or **Disable** the RSTP. Default is "**Disable**"
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)]
Bridge Priority	Controls the bridge priority. Lower numeric values have better priority. The bridge priority plus the MSTI instance number, concatenated with the 6-byte MAC address of the switch forms a Bridge Identifier.
Bridge MAC	It shows the Bridge MAC address
Hello Time	The time that controls the switch to send out the BPDU packet to check STP current status. Enter a value between 1 and10.
Forward Delay	The delay used by STP Bridges to transit Root and Designated Ports to Forwarding (used in STP 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

2.6.8.2. RSTP Port

This page allows the user to inspect the current RSTP port configurations, and possibly change them as well.

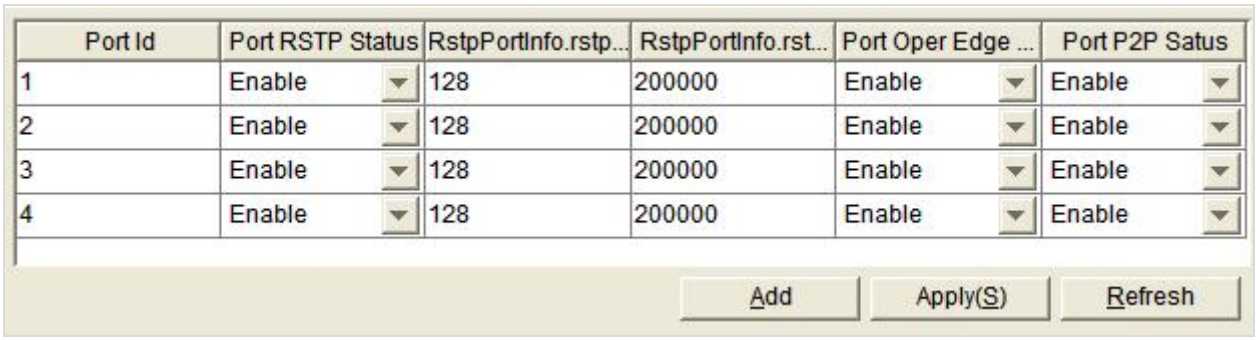


Figure 2-55 RSTP Port

The window includes the following fields:

Object	Description
Port ID	The OLT port number of the logical RSTP port.
Port RSTP Status	Display the current RSTP state. Select **Enable** or **Disable.**
RSTP PortInfo.RSTPPortPrioritySet	Controls the port priority. This can be used to control priority of ports having identical port cost. Default: **128** Range: 0-240, in steps of 16
RSTP PortInfo.RSTPPortCostSet	Controls the path cost incurred by the port. The **Auto** setting will set the path cost as appropriate by the physical link speed, using the 802.1D recommended values. 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 200000.
Port Oper Edge Status	Controls whether the bridge should enable automatic edge detection on the bridge port. This allows operEdge to be derived from whether BPDU's are received on the port or not.
Port P2P Status	Controls whether the port is connected to a point-to-point LAN rather than a shared medium. This can be automatically determined, or forced either true or false. Transitions to the forwarding state are faster for point-to-point LANs rather than shared media.

2.6.8.3. RSTP Port Status

This page shows the RSTP port status.

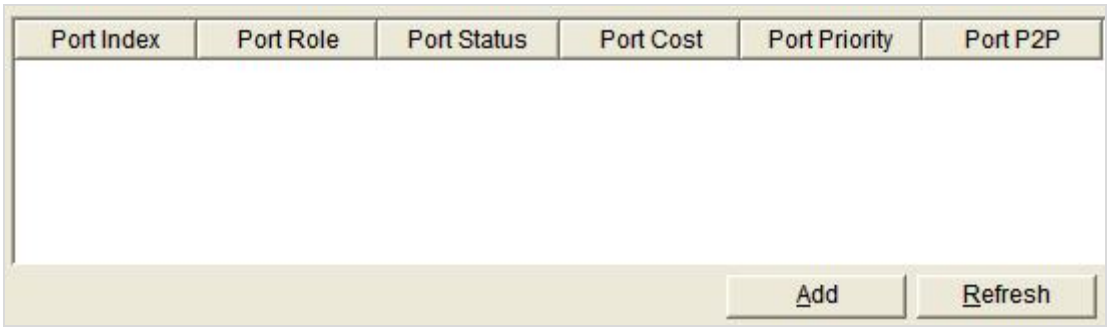


Figure 2-56 RSTP Port Status

2.6.8.4. RSTP Root Bridge

This page shows the RSTP Root Bridge status.

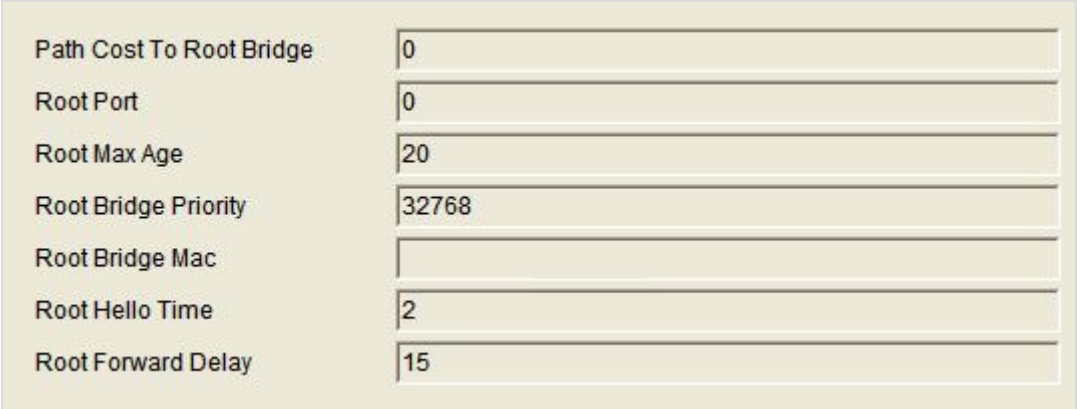


Figure 2-57 RSTP Root Bridge

2.6.9 Static Route Configuration

When configuring the VLAN IP address and then adding the static route, the network in the different network segment can communicate with each other.

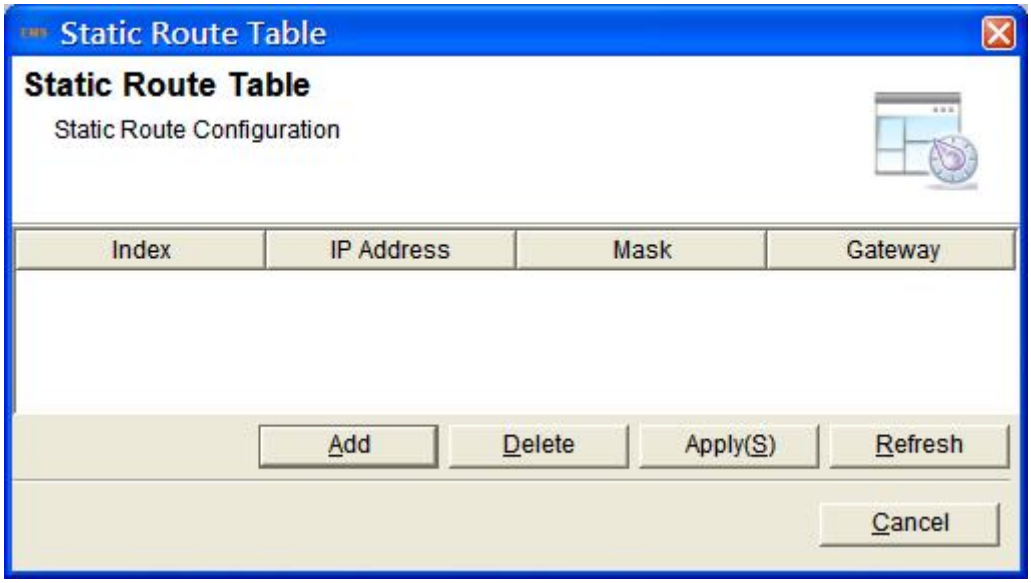


Figure 2-58 Static Route Table

Press “**Add**” and enter the IP address, mask and gateway.

2.6.10 QoS Configuration

Quality of Service (QoS) is an advanced traffic prioritization feature that allows you to establish control over network traffic. QoS enables you to assign various grades of network service to different types of traffic, such as multi-media, video, protocol-specific, time critical, and file-backup traffic.

QoS reduces bandwidth limitations, delay, loss, and jitter. It also provides increased reliability for delivery of your data and allows you to prioritize certain applications across your network. You can define exactly how you want the switch to treat selected applications and types of traffic.

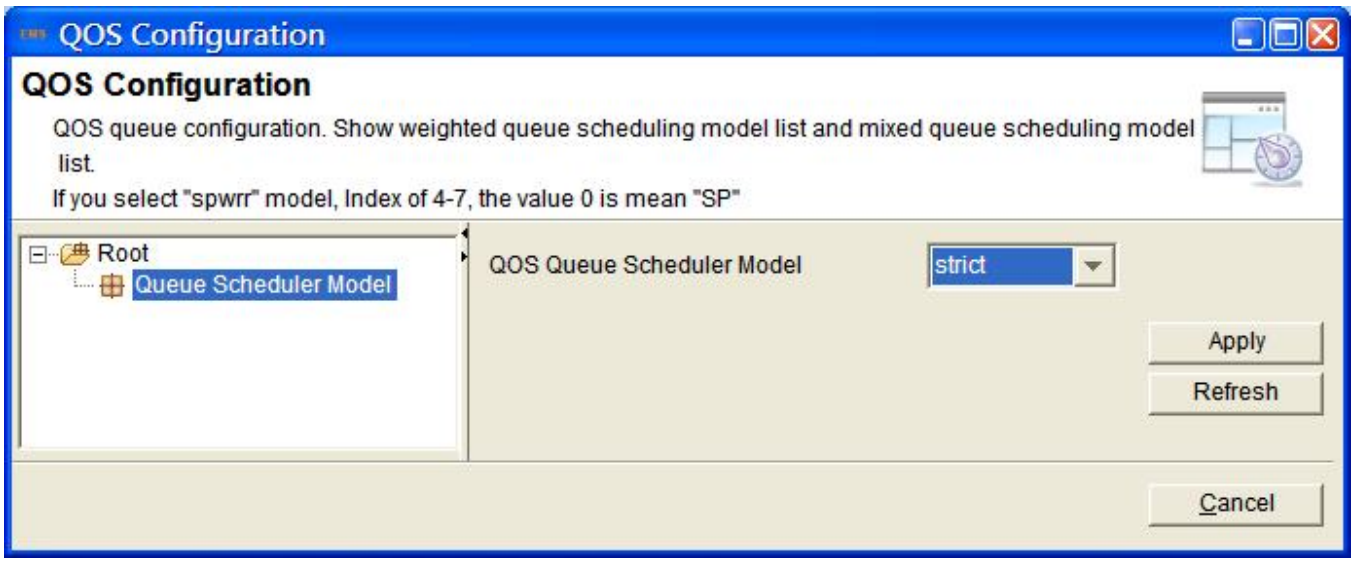


Figure 2-59 QoS Configuration

2.6.10.1. Strict

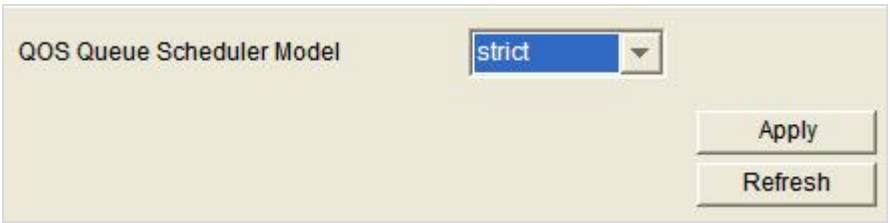


Figure 2-60 QoS Strict Priority

2.6.10.2. Weight

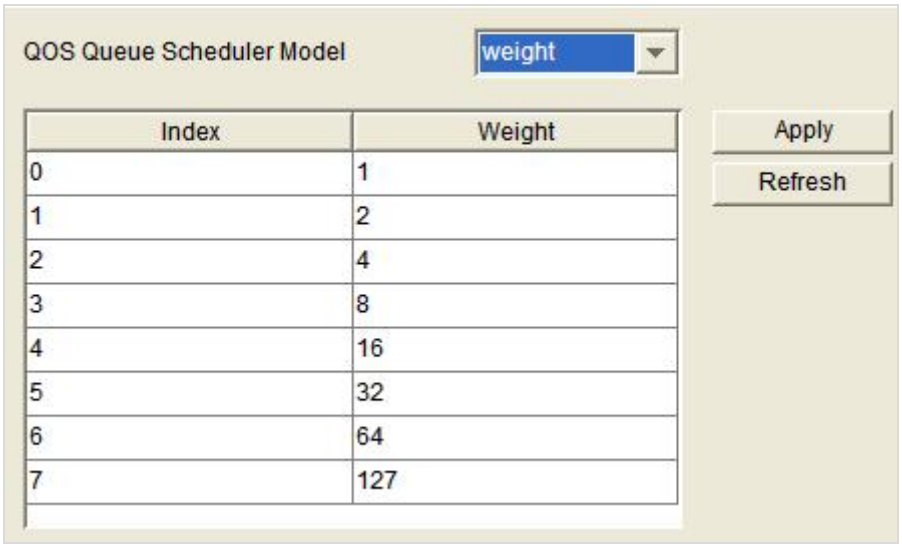


Figure 2-61 QoS Weight

2.6.10.3. SP+WRR

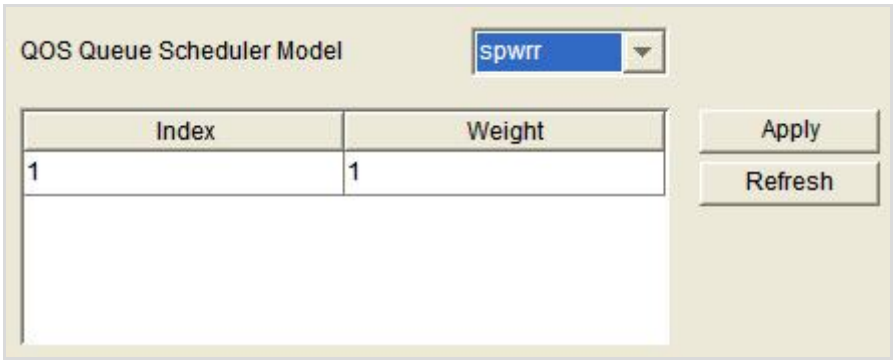


Figure 2-62 QoS SP+WRR

2.6.11 ONU Template Configuration

This page is about the OLT configuring the template for ONU, according to the characteristics of multiple services (data, voice and alarm). Integrated in an ONU, huge quantity terminals and configurations are similar. It can be binded by the user manually.

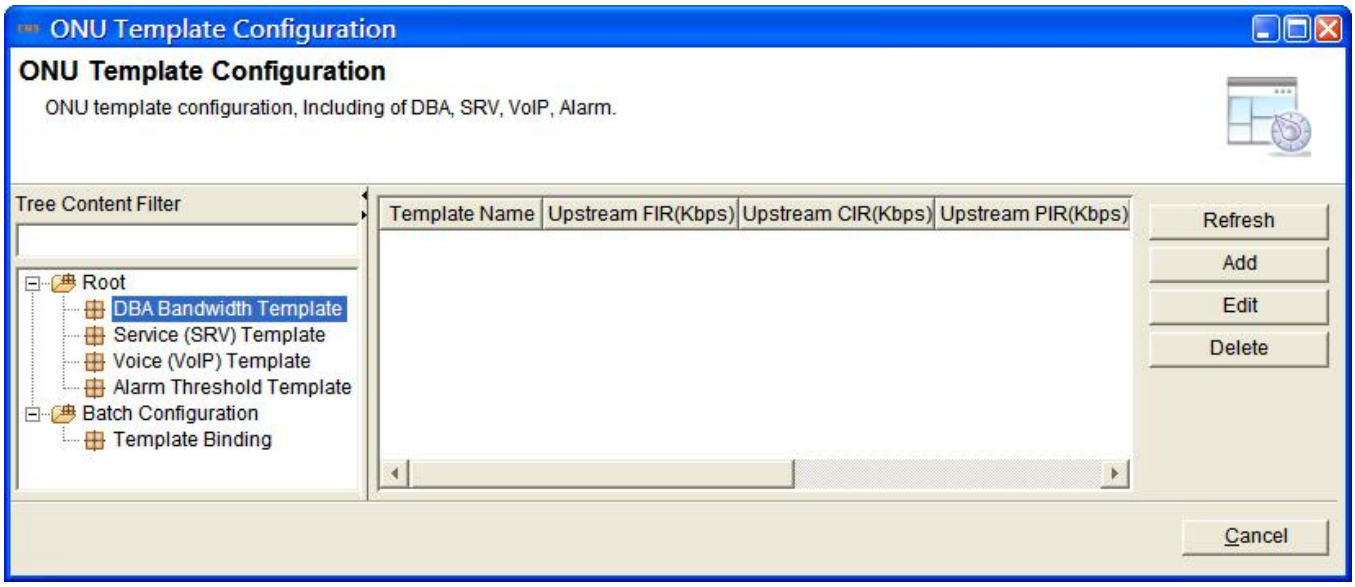


Figure 2-63 ONU Template Configuration

2.6.11.1. DBA Bandwidth Template

Press "**Add**" to edit the DBA bandwidth profile.

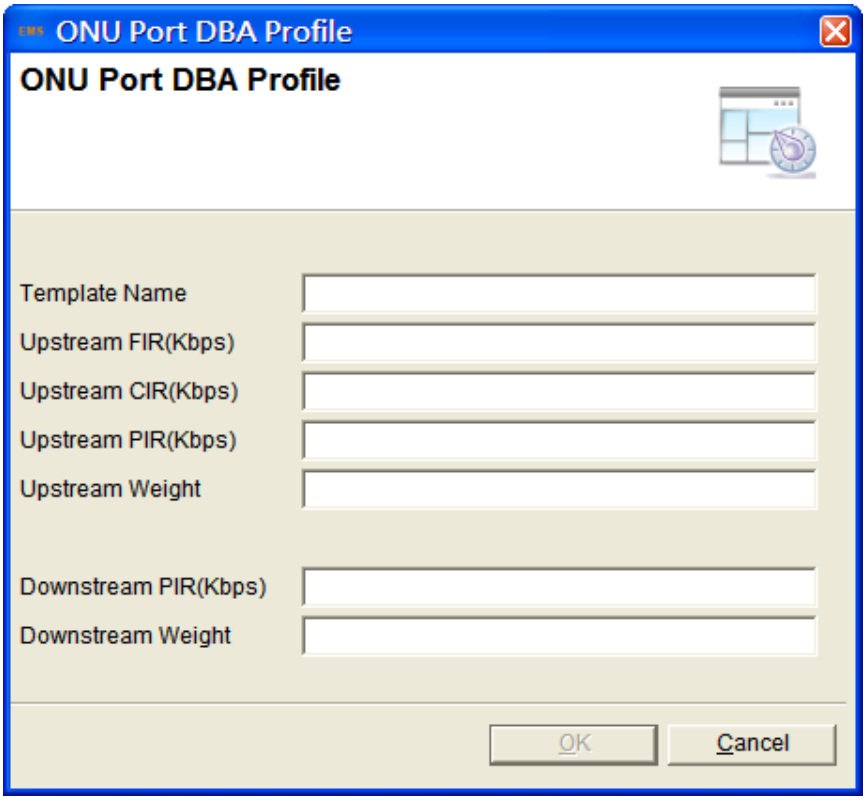


Figure 2-64 DBA Bandwidth Template

The window includes the following fields:

Object	Description
Template Name	Enter the template name
Upstream FIR (Kbps)	Configure the upstream FIR for the template
Upstream CIR (Kbps)	Configure the upstream CIR for the template
Upstream PIR (Kbps)	Configure the upstream PIR for the template
Upstream Weight	Configure the upstream weight for the template
Downstream PIR (Kbps)	Configure the downstream PIR for the template
Downstream Weight	Configure the downstream weight for the template

2.6.11.2. Service (SRV) Template

Press "**Add**" to edit the Service (SRV) template.

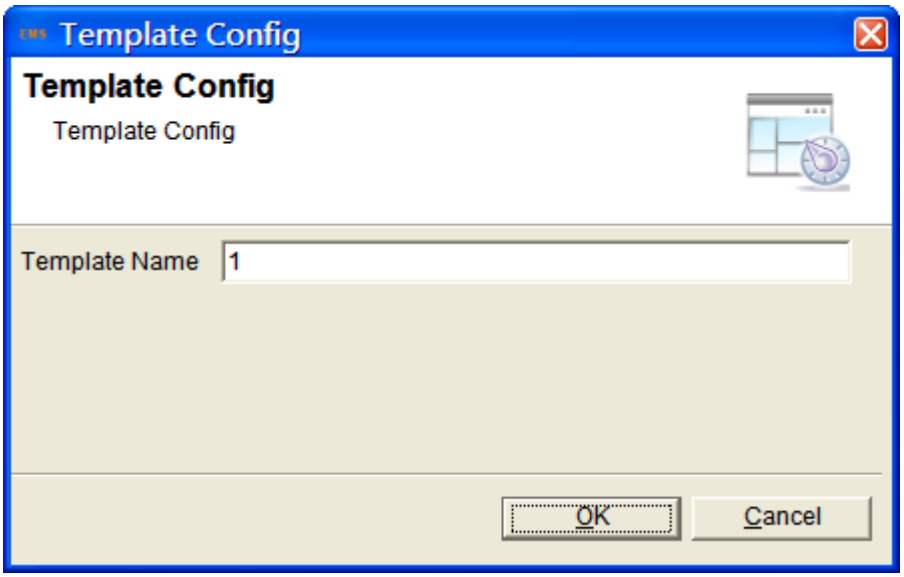


Figure 2-65 Service (SRV) Template

2.6.11.3. Voice (VoIP) Template

Press "**Add**" to edit the Voice (VoIP) template.

Figure 2-66 Service (SRV) Template

2.6.11.4. Alarm Threshold Template

Press “**Add**” to edit the Alarm Threshold template.

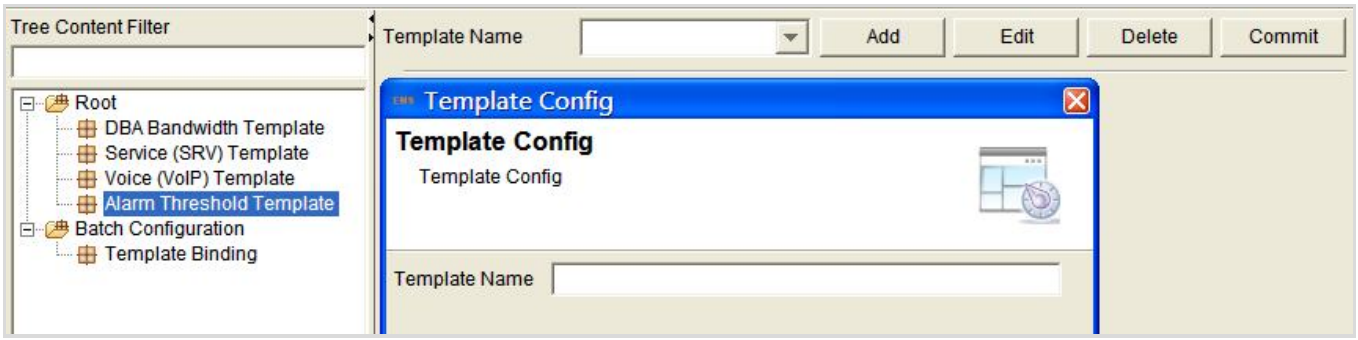


Figure 2-67 Alarm Threshold Template

2.6.11.5. Template Binding

Select the ONU first.

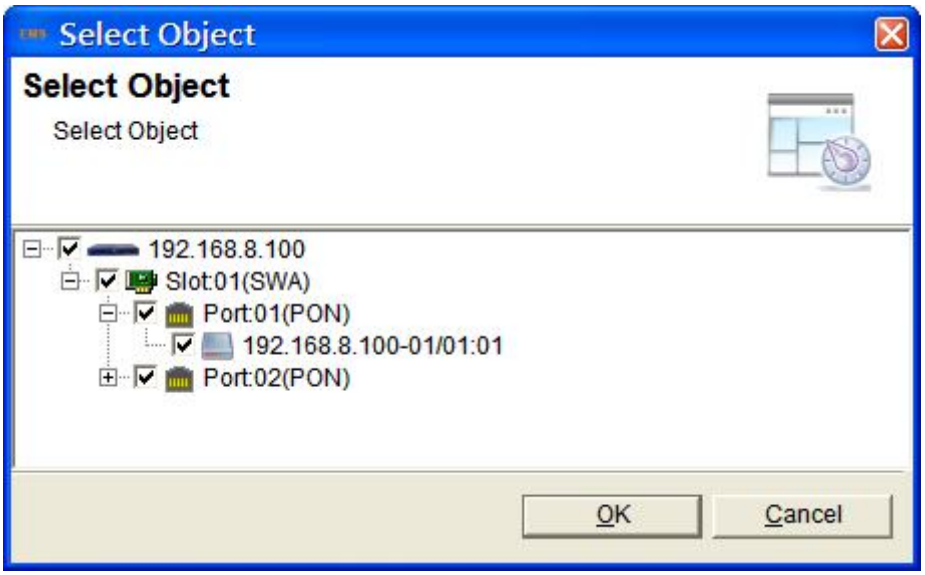


Figure 2-68 Template Binding Select Object

And then configure the profile.

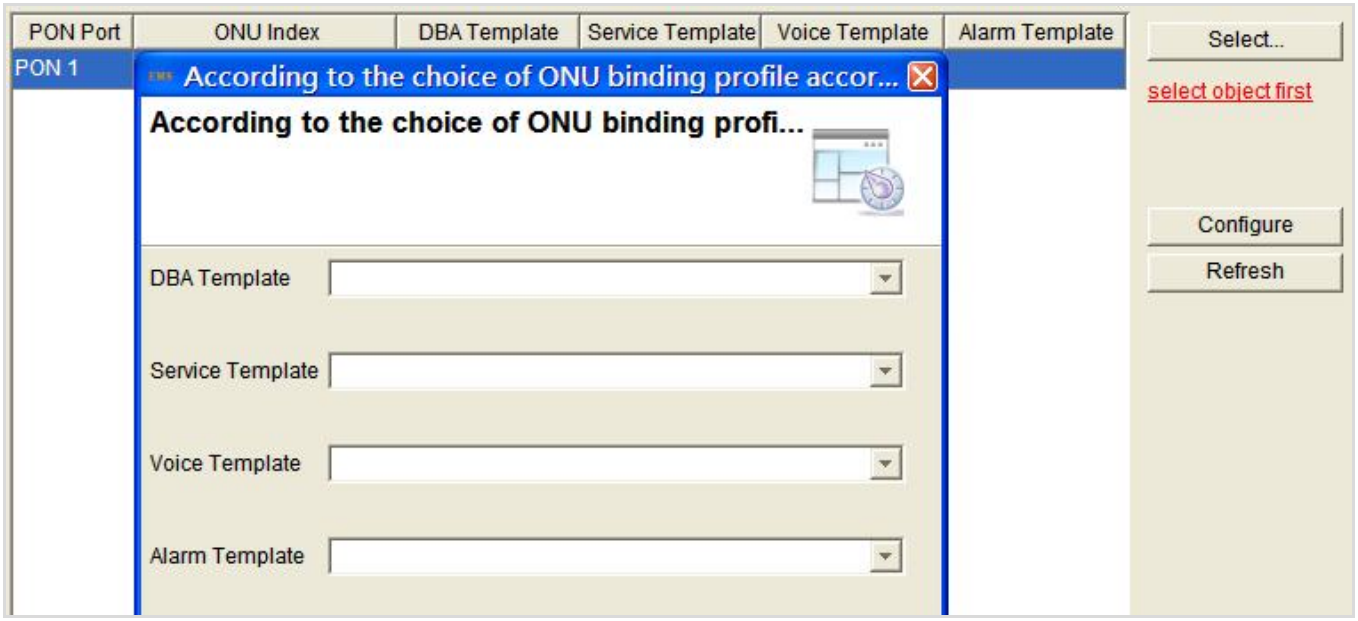


Figure 2-69 Template Binding Configure Profile

2.6.12 Alarm Configuration

Configure all the alarms including OLT system alarm and ONU alarm.

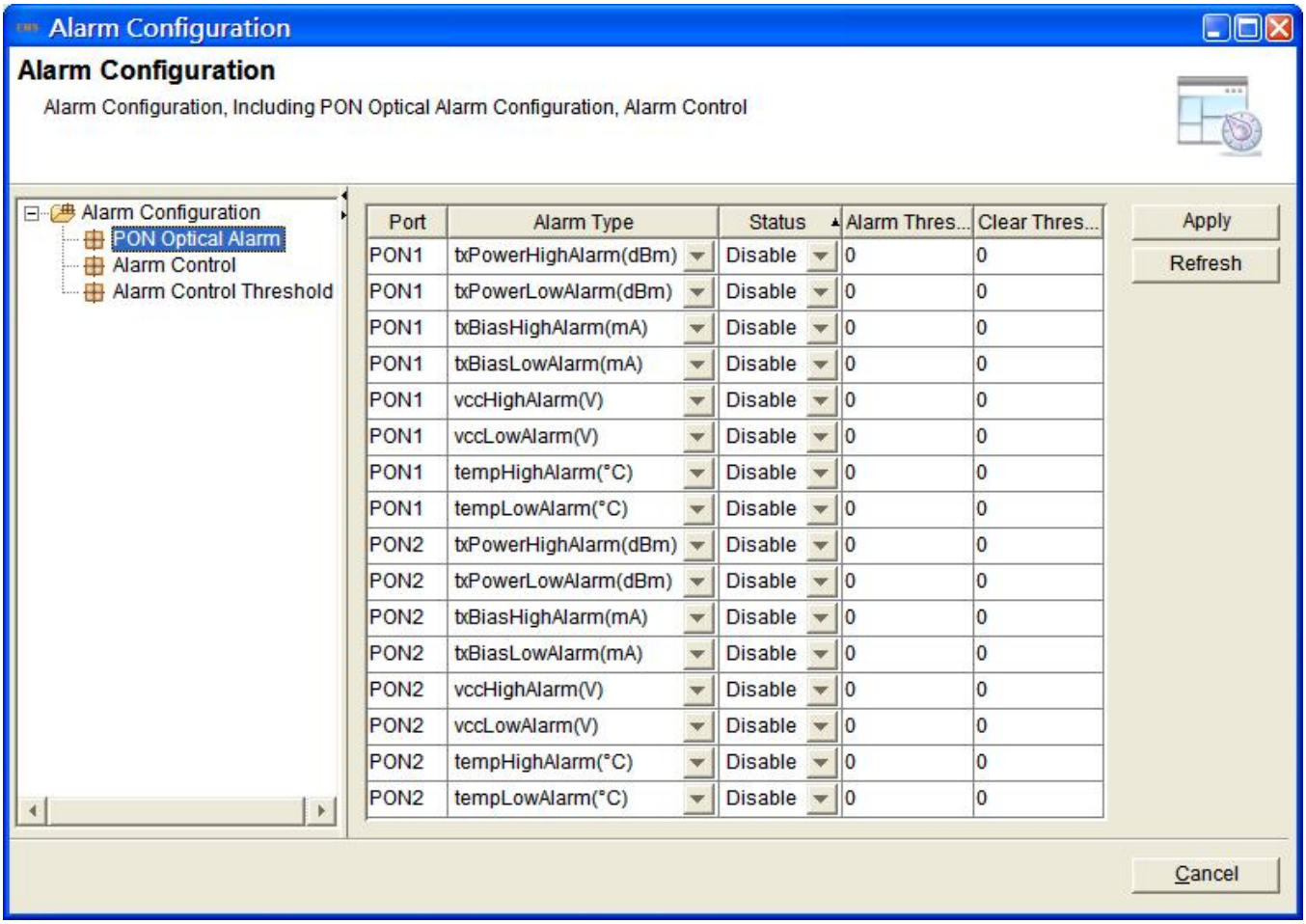
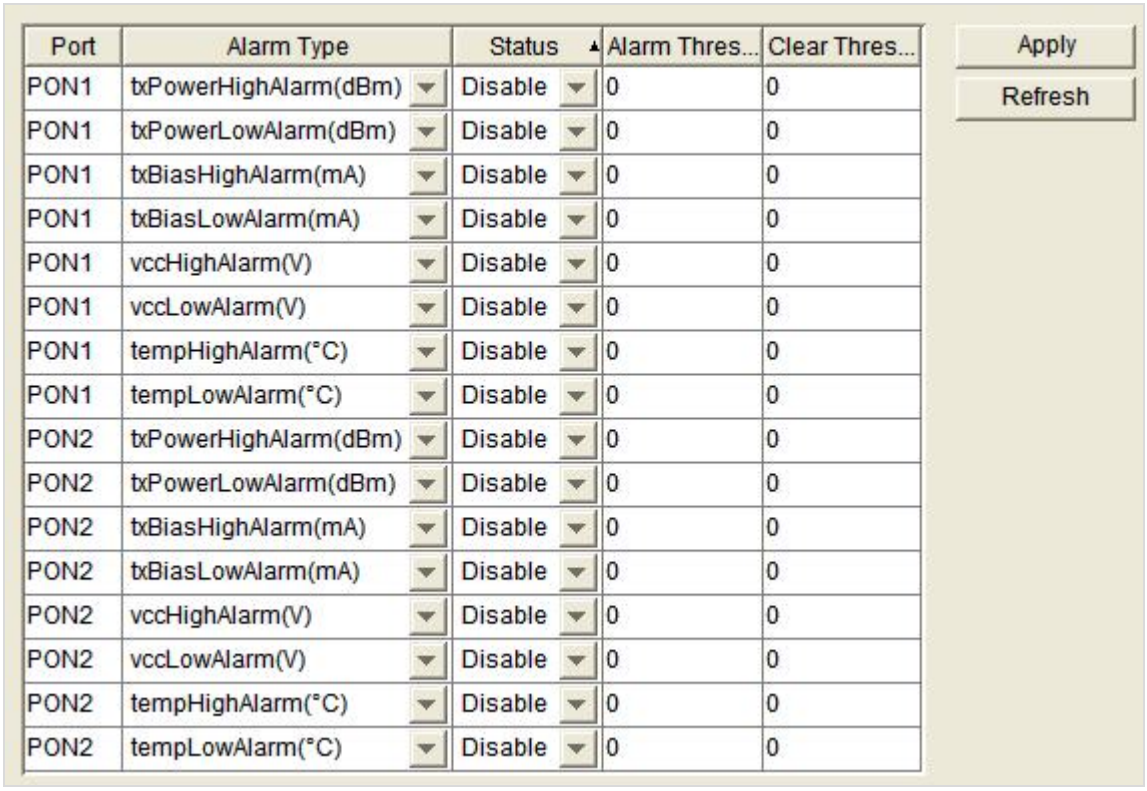


Figure 2-70 Alarm Configuration

2.6.12.1. PON Optical Alarm

The PON alarm can be configured to transmit power,vcc,bias, and high and low alarm for temperature.



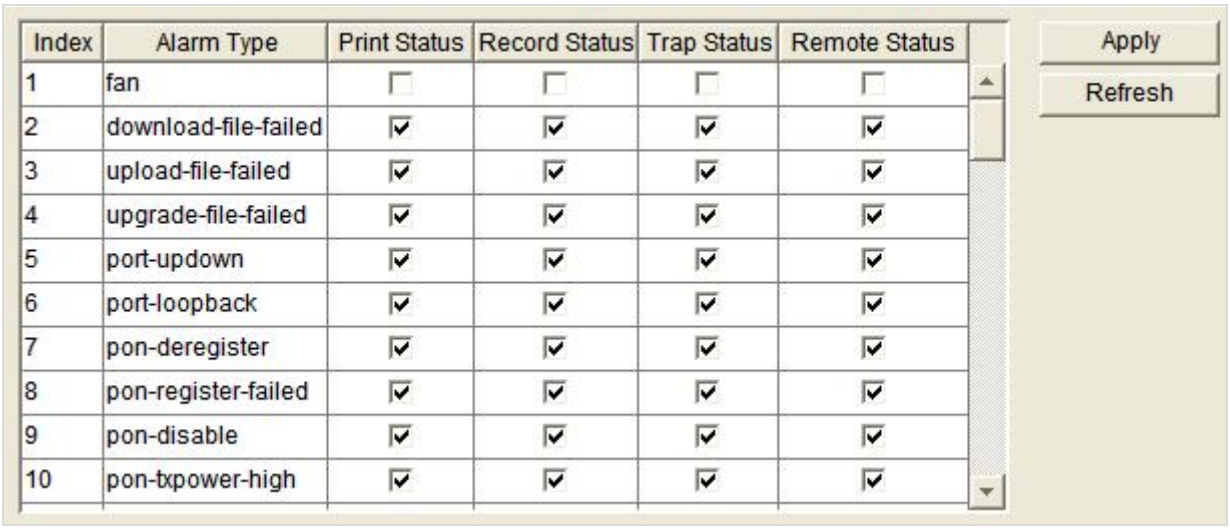
Port	Alarm Type	Status	Alarm Thres...	Clear Thres...
PON1	txPowerHighAlarm(dBm)	Disable	0	0
PON1	txPowerLowAlarm(dBm)	Disable	0	0
PON1	txBiasHighAlarm(mA)	Disable	0	0
PON1	txBiasLowAlarm(mA)	Disable	0	0
PON1	vccHighAlarm(V)	Disable	0	0
PON1	vccLowAlarm(V)	Disable	0	0
PON1	tempHighAlarm(°C)	Disable	0	0
PON1	tempLowAlarm(°C)	Disable	0	0
PON2	txPowerHighAlarm(dBm)	Disable	0	0
PON2	txPowerLowAlarm(dBm)	Disable	0	0
PON2	txBiasHighAlarm(mA)	Disable	0	0
PON2	txBiasLowAlarm(mA)	Disable	0	0
PON2	vccHighAlarm(V)	Disable	0	0
PON2	vccLowAlarm(V)	Disable	0	0
PON2	tempHighAlarm(°C)	Disable	0	0
PON2	tempLowAlarm(°C)	Disable	0	0

Apply
Refresh

Figure 2-71 PON Optical Alarm

2.6.12.2. Alarm Control

This page is the OLT system global alarm configuration and the ONU global alarm.



Index	Alarm Type	Print Status	Record Status	Trap Status	Remote Status
1	fan	☐	☐	☐	☐
2	download-file-failed	☑	☑	☑	☑
3	upload-file-failed	☑	☑	☑	☑
4	upgrade-file-failed	☑	☑	☑	☑
5	port-updown	☑	☑	☑	☑
6	port-loopback	☑	☑	☑	☑
7	pon-deregister	☑	☑	☑	☑
8	pon-register-failed	☑	☑	☑	☑
9	pon-disable	☑	☑	☑	☑
10	pon-txpower-high	☑	☑	☑	☑

Apply
Refresh

Figure 2-72 Alarm Control

2.6.12.3. Alarm Control Threshold

Enable or diable the temp, CPU usage and mem usage alarm type status.

Index	Alarm Type	Print Status	Record Status	Trap Status	Remote Status	Alarm Threshold(0.1°C)	Clear Threshold(0.1°C)
1	Temp_high	Disable	Disable	Disable	Disable		
2	Temp_low	Disable	Disable	Disable	Disable		
3	Cpu_usage_high	Disable	Disable	Disable	Disable		
4	Mem_usage_high	Disable	Disable	Disable	Disable		

Apply
Refresh

Figure 2-73 Alarm Control Threshold

2.6.13 ONU Batch Upgrade

Upgrade the ONU and the upgraded ONUs should be the same type.

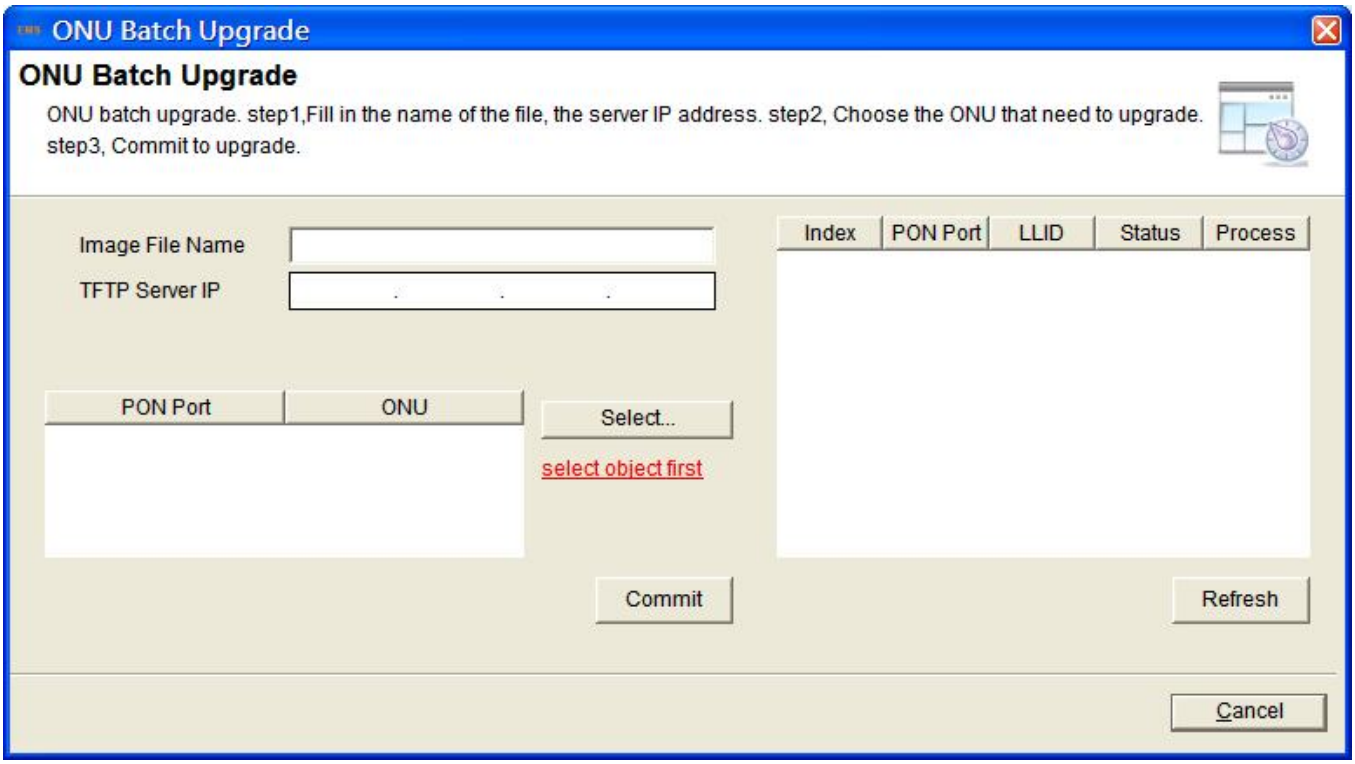


Figure 2-74 ONU Batch Upgrade

2.7 Maintenance Management

2.7.1.1. Upgrade System Software

On this page, you can upgrade the OLT from TFTP.

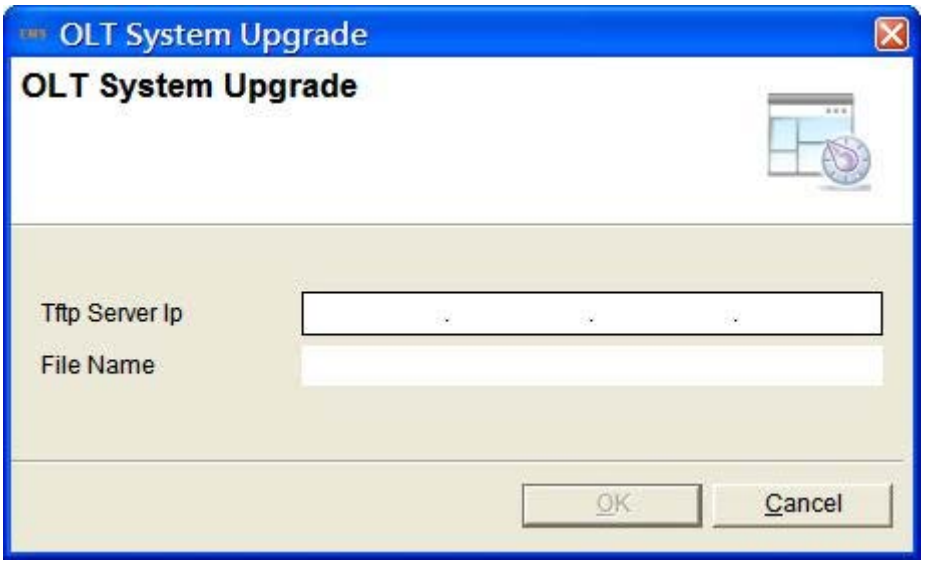


Figure 2-75 OLT System Upgrade

2.7.1.2. Save Device Config

On this page, you can save the OLT config file.

Figure 2-76 Save Device Config

2.7.1.3. Restart

On this page, you can restart the OLT.

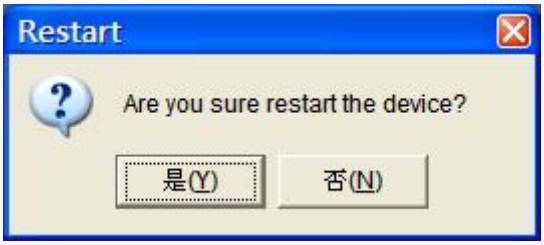


Figure 2-77 Restart

2.7.1.4. PON ONU Operation

Select the PON port to reset, reregister or noauth the ONU.

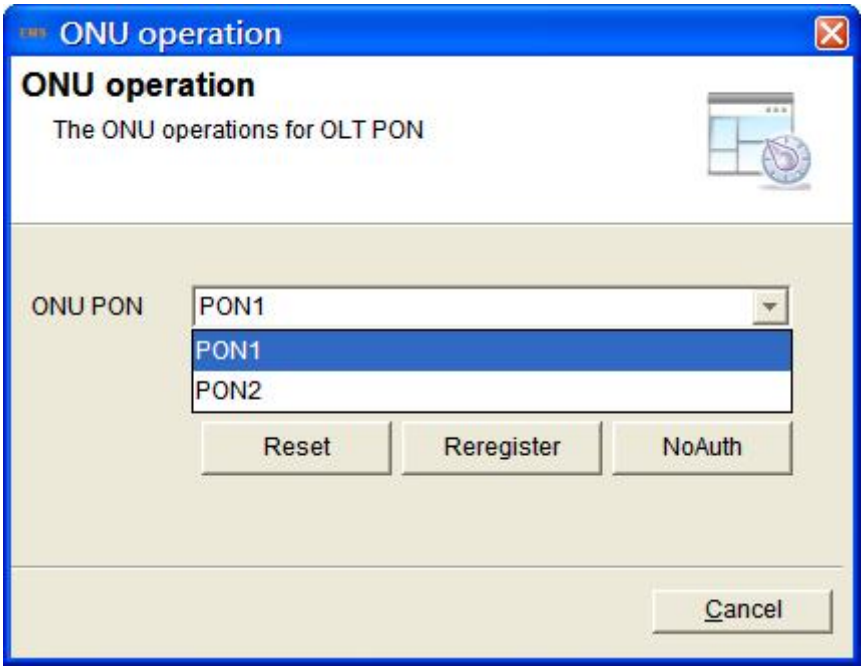


Figure 2-78 PON ONU Operation

2.7.1.5. Clear Flash

On this page, you can clear the flash of OLT. It will erase the configuration and reboot automatically.

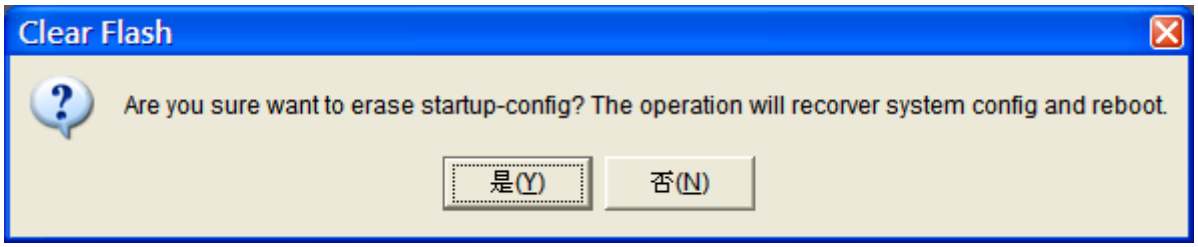


Figure 2-79 Clear Flash

2.7.1.6. Export Config

On this page, you can export the configuration file.

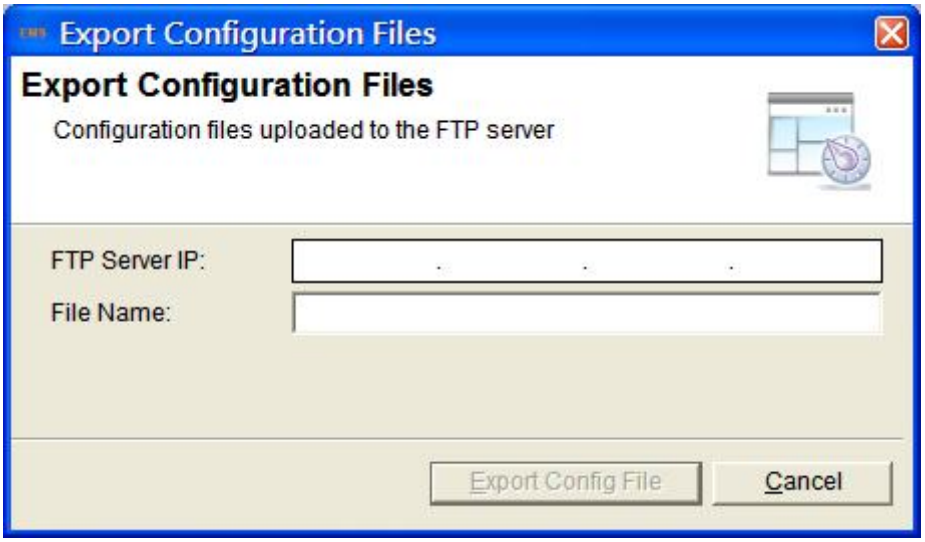


Figure 2-80 Export Config

2.7.1.7. Import Config

On this page, you can import the configuration file.

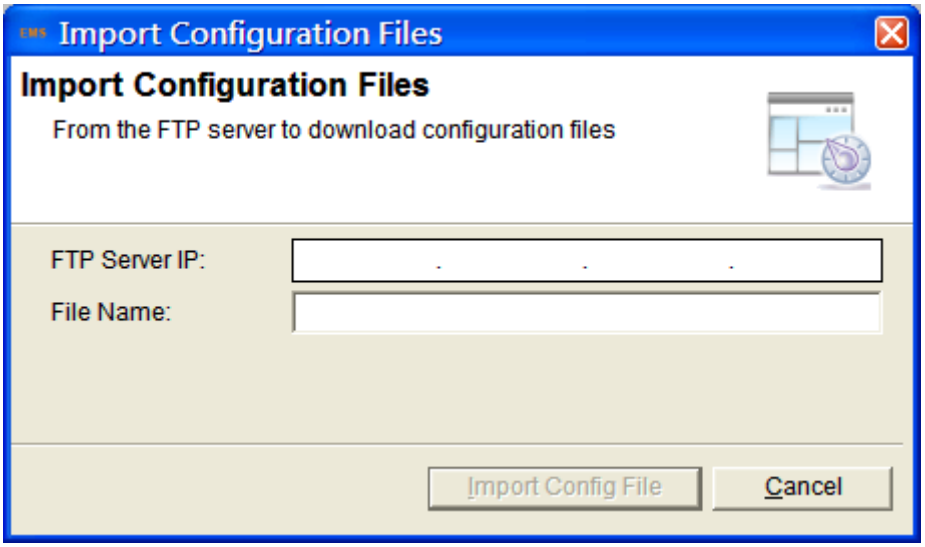


Figure 2-81 Import Config

2.7.1.8. OLT Rename

On this page, you can rename the OLT.

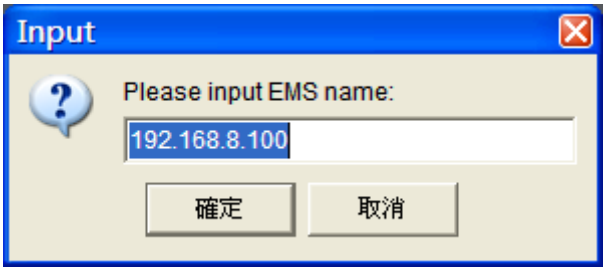


Figure 2-82 OLT Rename

2.7.1.9. Config AUX Port

On this page, you can configure the AUX port.

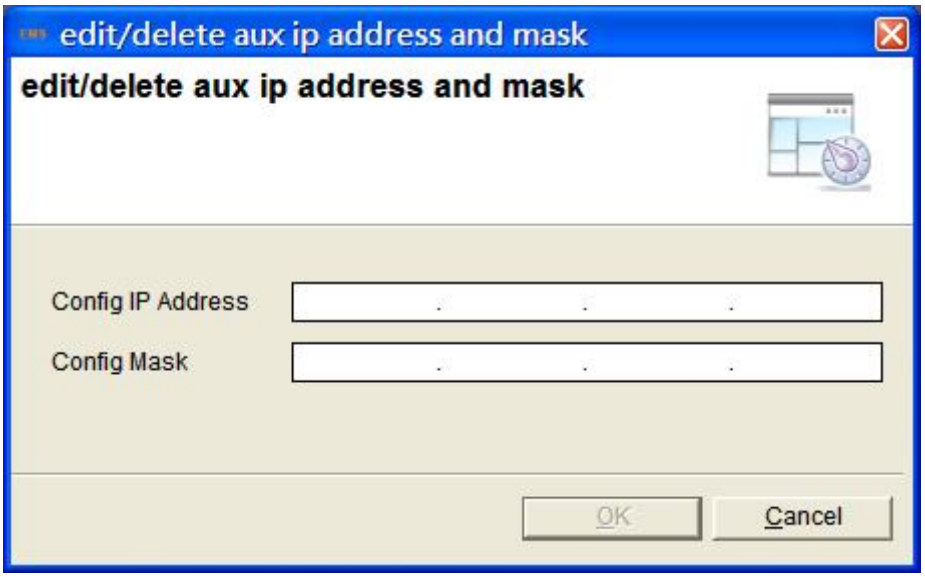


Figure 2-83 Config AUX Port

2.7.1.10. RTC Time Configuration

On this page, you can configure the RTC time.

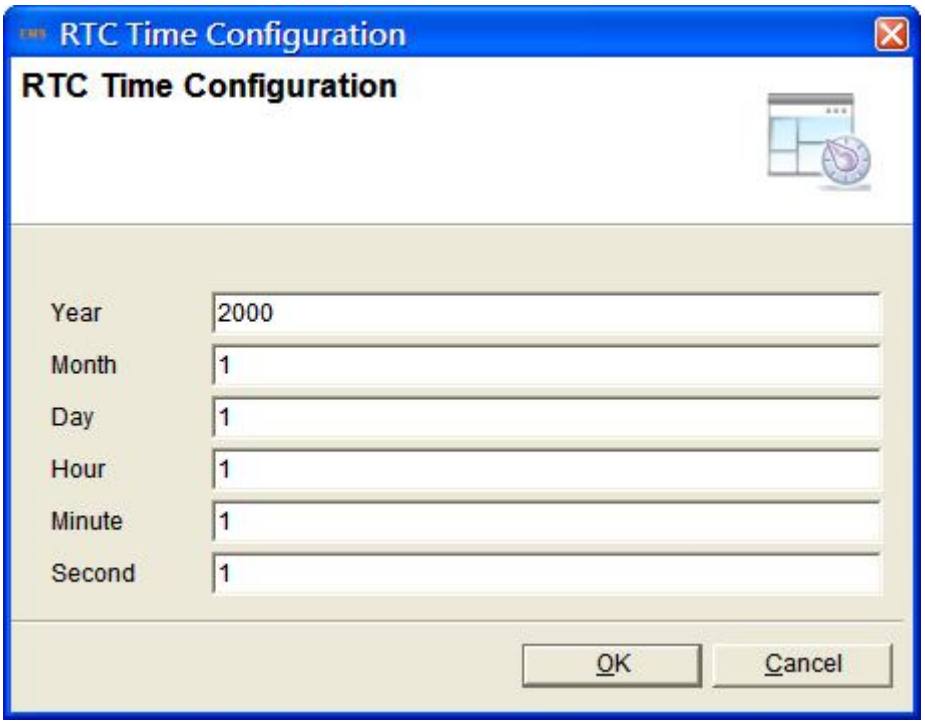


Figure 2-84 RTC Time Configuration

2.7.1.11. Fan Configuration

On this page, you can configure the fan mode of the OLT.

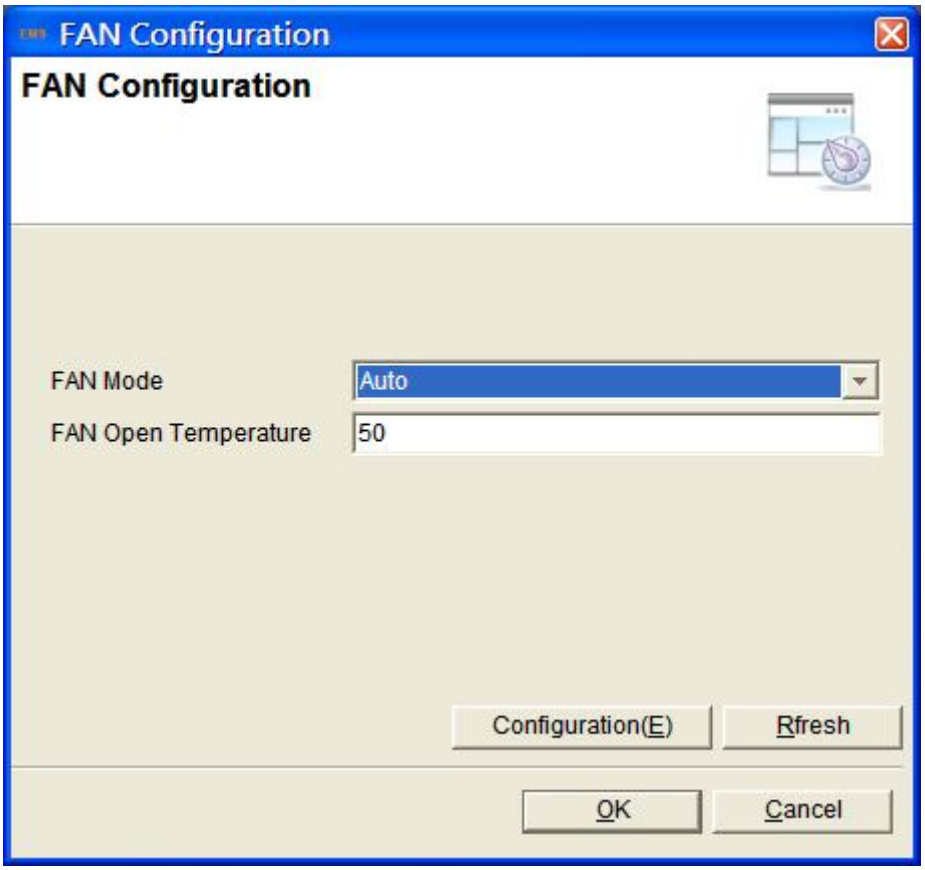


Figure 2-85 Fan Configuration

The window includes the following fields:

Object	Description
Fan Mode	Select **Open**, **Close** or **Auto**. Default is **Auto**.
Fan Open Temperature	Enter the fan working temperature

2.7.1.12. Clear Port Statistic

On this page, you can clear the port statistic.

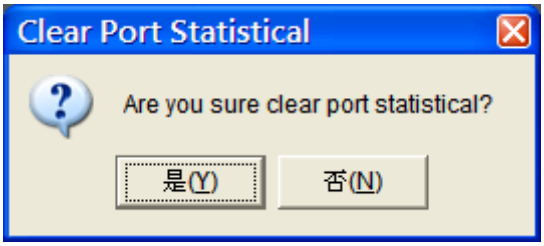


Figure 2-86 Clear Port Statistic

2.8 View Realtime Performance

Press “**View Realtime Performance**” to monitor every port of the OLT.

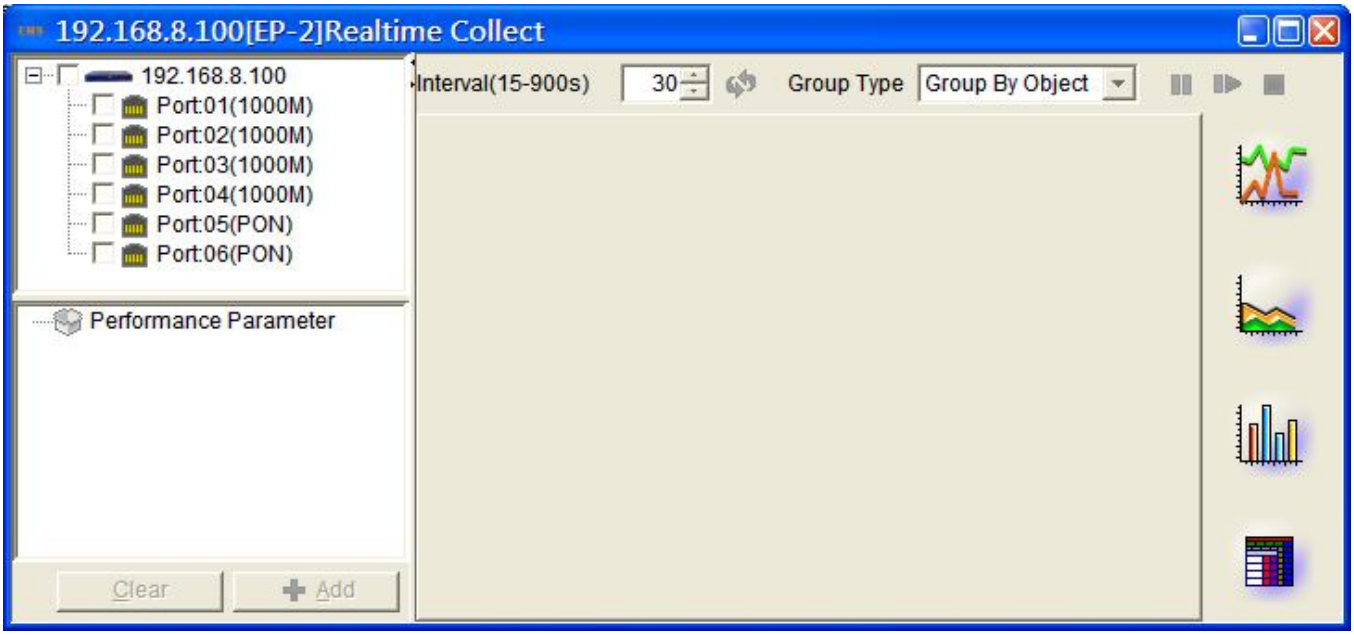


Figure 2-87 Realtime Performance

2.9 View Current Alarm

Press “**View Current Alarm**” to check the alarm information.

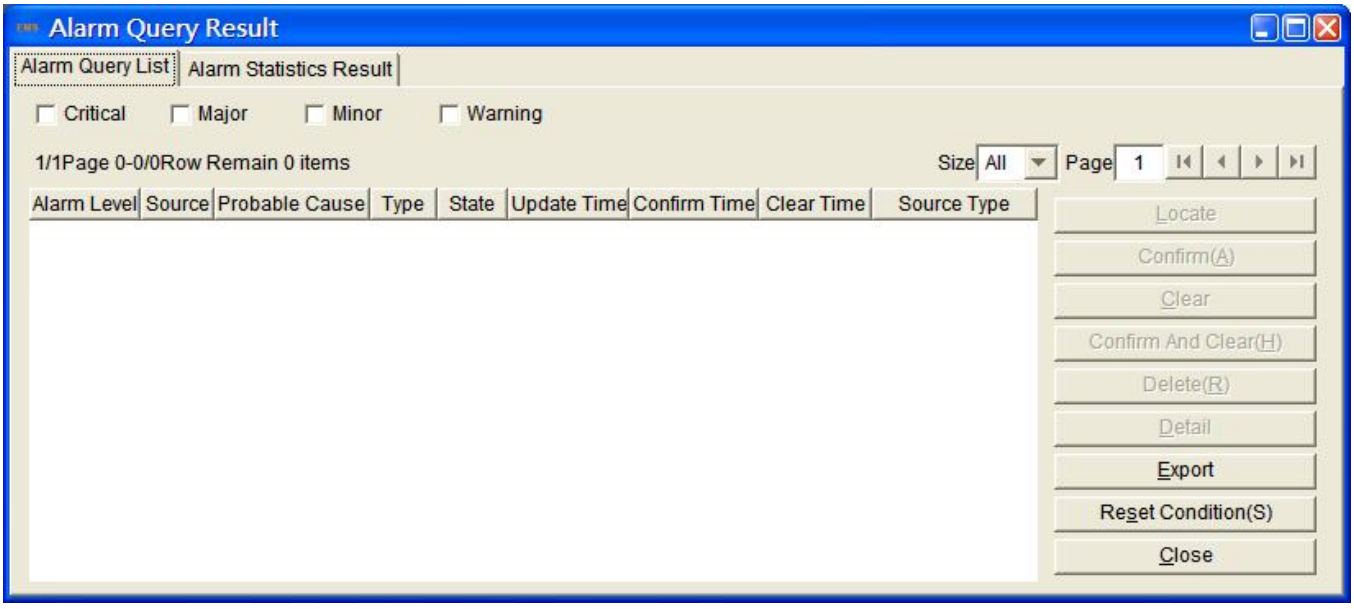


Figure 2-88 Current Alarm

2.10 View History Alarm

Press “**View History Alarm**” to check the history alarm information.

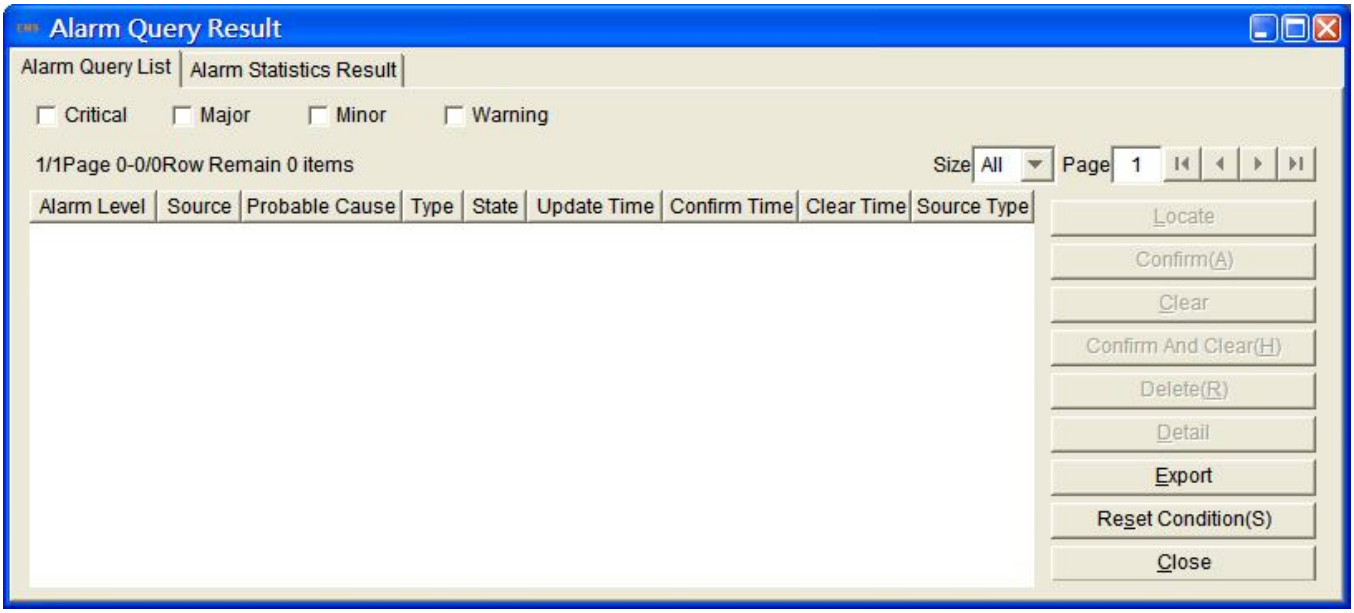


Figure 2-89 History Alarm

2.11 Ping

Press “**Ping**” to show the Windows command line and ping the OLT automatically.

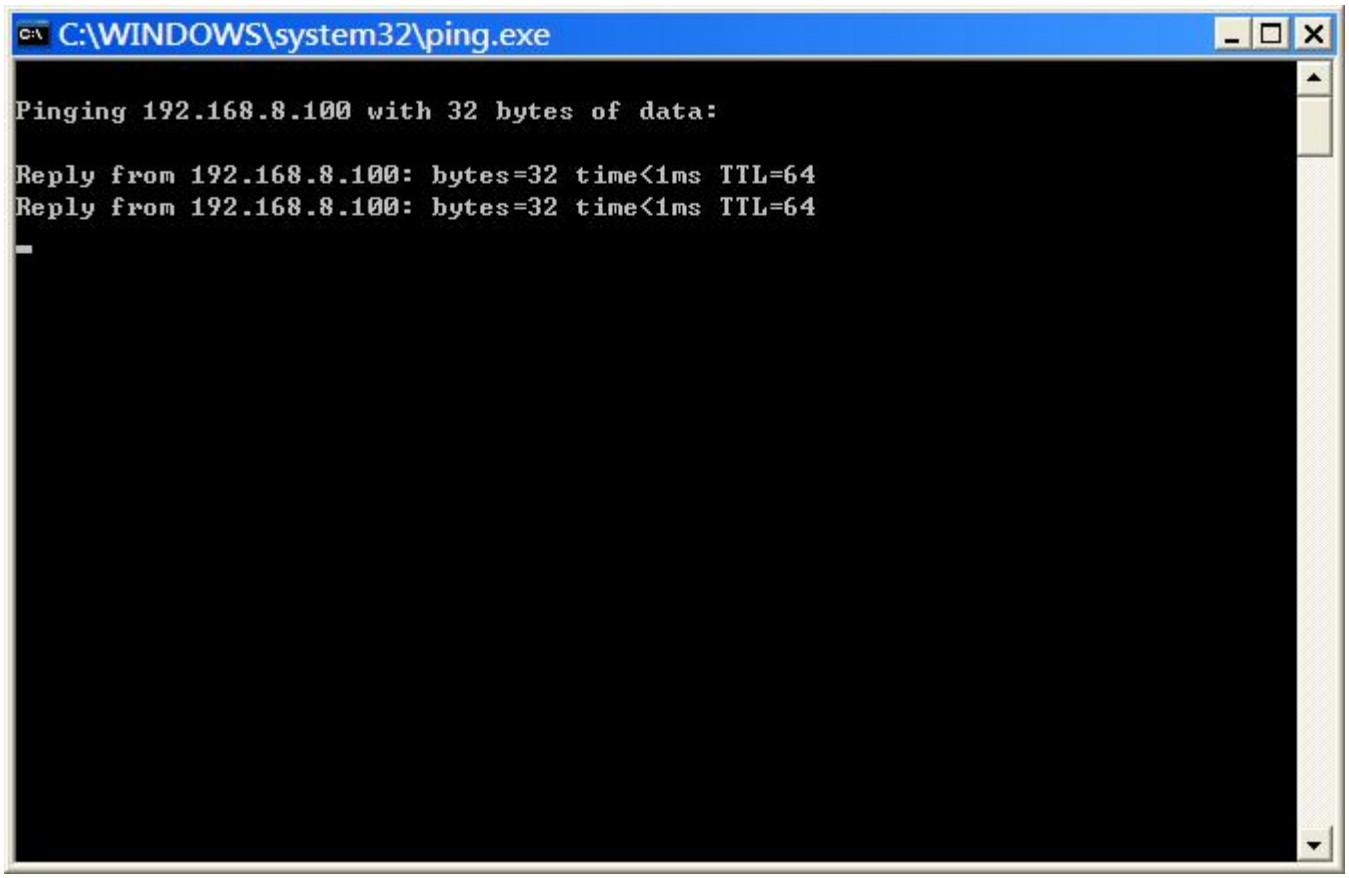


Figure 2-90 Ping

2.12 Telnet

Press “**Telnet**” to activate the telnet function.