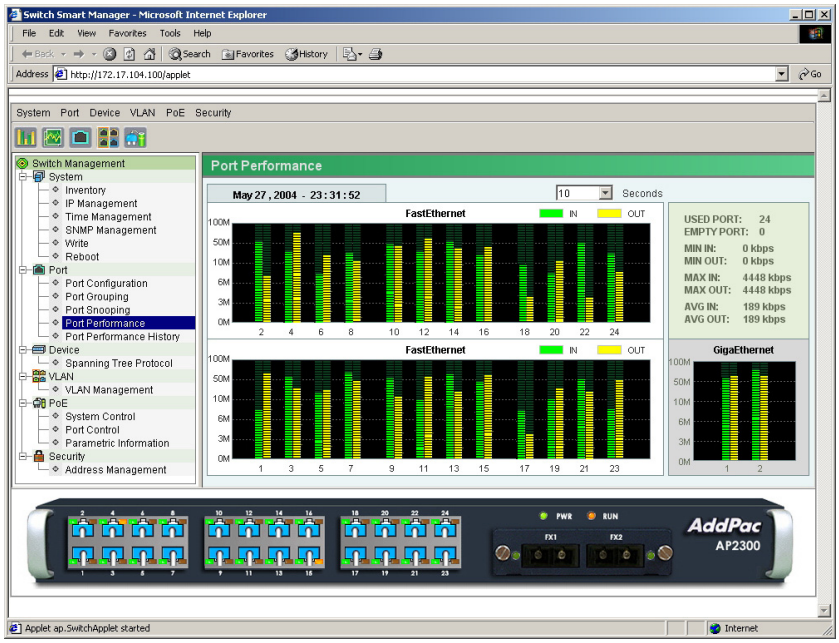
Smart Manager Operation Guide for AP2300 Ethernet Switch

Release 1.00 May, 2004



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Chapter 1. AP2300 & AP-PSU48 Introduction

AP2300 PoE Layer2 Switch Overview

AddPac AP2300 PoE Layer2 Switch is a next-generation Layer 2 Switch offering high network availability, enhanced QoS (Quality of Service) and adoptability. It can be either deployed at the large scale network environment as a powerful workgroup level networking solution by interoperating with the core switch, or a backbone switch at the small scale network. Especially, it complies with IEEE802.3af PoE (Power over Ethernet) standard supplying powers to IP phones and wireless LAN AP(access point) over Ethernet cable.

AP2300 Product Highlights

1. PoE for next-generation IP appliances

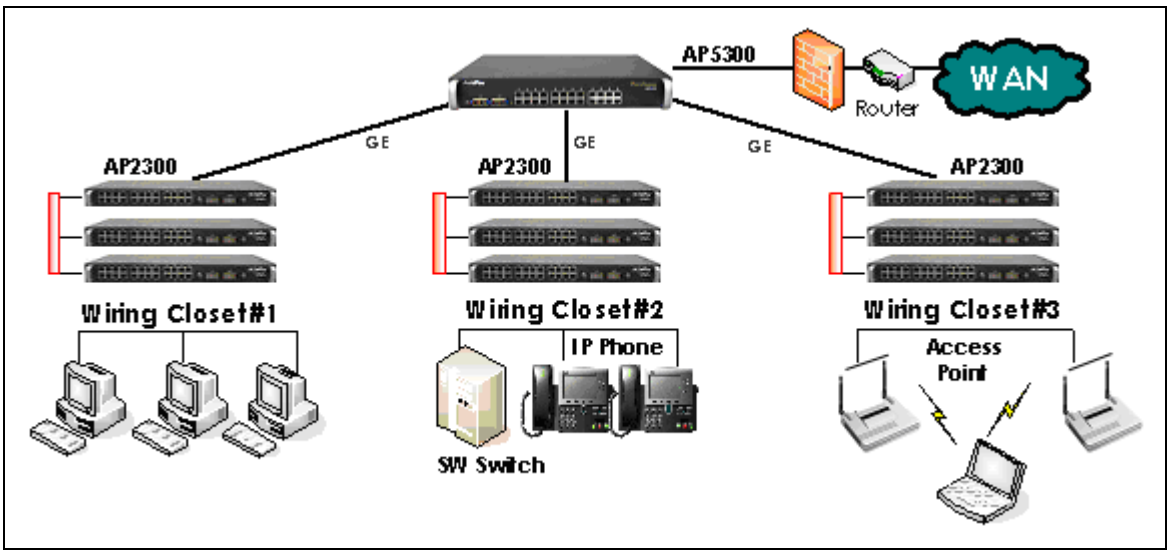
AP2300 PoE Layer2 Ethernet Switch features standard PoE (Power over Ethernet) capability. It provides 48V DC power to IP phones and wireless LAN access points using external AP-PSU48 power equipment. AP-PW48 power equipment supplies 15W power over standard Category 5 unshielded twisted-pair (UTP) cable to the edge applications such as IP phones and wireless access points without wall power. When AP-PSU48 power equipment is interfacing with UPS (Uninterruptible Power Supply), the users enjoy continuous IP telephony service during the power failure.

2. Ethernet switch with Unprecedented QoS and Powerful Security

AP2300 prioritizes time-sensitive traffic such as IP telephony and video, and offers bandwidth control to all the related interfaces. Especially, it offers automatic QoS feature which realizes optimum traffic queuing by monitoring IP phones, V^{2}oIP Gateway and IP videophones to ensure maximum performance of these equipment. Blocking unauthorized users and delicately managing permitted users are the security features of AP2300 LAN switch.

3. Easy management and scalability

Moreover, AP2300 Intelligent Ethernet Switch is equipped with comprehensive management tools of Cisco style CLI(Command Line Interface) and Java based Smart Manager. Its built-in Java based Smart Manager realizes easy and quick deployment of equipment without relying on complicated CLI interface from anywhere by accessing Internet. Last but not least, AP2300's dual 100Base-FX Ethernet interfaces support uplink stacking, thus realizes flexible port augmentation. Also, the AP2300 wiring closet is easily interoperated with the core switch with GBIC module offering high-speed connectivity via 2-port 1000Base-X.



(Figure 1-1) AP2300 Switch Network Diagram

AP2300 Feature Highlights

- Ethernet Interface: 24-port 10/100Base-TX
- Uplink Interface: 2-port 100Base-FX or 1000Base-X GBIC
- High Performance RISC Processor
- Supports IEEE802.3af PoE (Power over Ethernet)
- Automatic QoS feature for optimized streaming packet service
- Java based management and setting
- Load balancing with packing analysis
- Link Aggregation to prevent service termination due to a single line error
- 19" Rack Mountable system

AP2300 Hardware Specification

<Table 1-1> AP2300 Hardware Specification

Microprocessor	High Performance RISC Microprocessor	
Memory	Flash Memory	4 Mbytes
	SDRAM Memory	32 Mbytes
Network Interface	LAN Interface : 24-Port 10/100Base-TX Ethernet Interface (RJ-45)	
	Up Link Module	2-Port 100Base-FX Interface
		2-Port 1000Base-X GBIC Interface
	Console Interface : 1-port RS-232C Interface	
Backplace Throughput	12.8 Gbps	
Number of Slot	One(1) Network Interface Slot for Up Link Including GBIC	
Power Supply	Dual 110~220 VAC, 50/60Hz, 50 Watt	
PoE	In-line DC 48V Power Supply based on 802.3af PoE (Power over Ethernet) standard via Ethernet cable (Optional Power Switch Module)	
Operating Temp.	0 ~ 50 ℃ (32 ~ 122 ˚F)	
Storage Temp.	-40 ~ +85 ℃ (-40 ~ +185 ˚F)	
Humidity	5 ~ 95 %	
Dimension	45 mm x 440 mm x 256 mm (HxWxD)	

- High-performance 32bit RISC Microprocessor
- 4Mbyes Flash Memory & 32Mbytes SDRAM Memory ensuring reliable performance
- 24-port 10/100Base-TX Ethernet Interface for switching
- High-performance Up Link module of 2 Port 100Base-FX & 2 Port 1000Base-X GBIC Interface
- Console Interface for CLI(Command Line Interface)
- 110~220VAC Free Volt
- PoE feature complying with IEEE 802.3af standard

AP2300, Supported Protocols & Service

<Table 1-2> AP2300, Supported Protocols & Service

Network Protocol	IEEE 802.1D STP (Spanning Tree Protocol)
	IEEE 802.1p QoS (Quality of Service)
	IEEE 802.3 CSMA/CD
	IEEE 802.3u Fast Ethernet
	IEEE 802.3z Gigabit
	IEEE 802.3x Flow Control
	IEEE 802.3ad Link Aggregation
	802.3af PoE (Power over Ethernet)
Security Functions	MAC Address based Group Access Control and Blocking
	Port and Protocol based VLAN feature
	ACL Blocking Unauthorized Data Traffic
	Auto-disconnection of Telnet/Console Sessions
	Multi-Level User Account Management
	Blocking System Configuration Change by Unauthorized Users
	Enhanced Network Security with MIB II , Syslog
Network Managements	Java based Smart Manager for Web-based Management and Control
	Remote Network Management via RMON
	Standard SNMP Agent Supports (MIB v1/2)
	Remote Management via Console, Rlogin, Telnet
QoS & Scalability Features	Traffic Management Feature
	Supports 802.1p CoS (Class of Service)
	WRR(Weighted Round Robin) & Transmission Queuing via Priority Scheduling
	Weighted Random Early Detection for Traffic Congestion Management
	DHCP Server and Relay Feature
	Cisco style CLI(Command Line Interface)
Easy Operation	System Monitoring & Debugging feature
	Back-up of Configuration Information (FTP, TFTP)
	System Software Remote Upgrade

AP-PSU48 Overview

AddPac Technology is now introducing a new 48 -volt DC power supply, AP-PSU48, designed for Layer2 Switch supporting PoE (Power over Ethernet) feature. The new power supply is equipped with dual DC power module slots realizing power redundancy.

AP-PSU48 Product Highlights

1. Various network appliances such as IP phones, Wireless LAN AP (Access Points) and Network Cameras are now rapidly emerging to the enterprise networks. In stead of requiring wall power, these new appliances can utilize the power provided from the In-line power system over standard Category 5 UTP cables. AP-PSU48 is optional entity supplying in-line power to the Layer2 Ethernet switch.

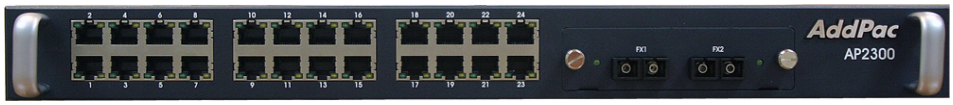
2. AddPac's Layer 2 switch series such as AP2300 deliver IEEE 802.3af standard-based PoE feature. With this feature, customers do not need to provide wall power for a newly introduced device such as IP phones or wireless LAN APs. Only connect the Ethernet cable and the customers are ready to enjoy the new application. It offers maximum 500W DC power, along with load sharing and hot-swapping features for reliable In-line IP appliance environment.

3. Today, greater flexibility and mobility are requested for the network. PoE delivers standards-based integrated power to new devices and applications, thus eliminating the cost for additional electrical cabling. That is, with lower operation cost, the flexible and rapid deployment of feature-rich devices is made possible.

AP-PSU48 Feature Highlights

- LED and LCD for Operation Monitoring
- Designed based on Standard IEEE802.3af PoE (Power over Ethernet)
- DC 48V, 500W Redundancy Power for Reliable Power Supply
- Load Sharing & Hot Swapping
- Dual DC power slots for Emergency Power Backup
- 19" Rack Mountable Architecture

AP2300 & AP-PSU48 Images



(Figure 1-2) AP2300 PoE Layer2 Ethernet Switch



(Figure 1-3) AP-PSU48 DC48 Power Supply



(Figure 1-4) AP2300 & AP-PSU48

Chapter 2. Access to Smart Manager

Smart Manager Introduction

AddPac Smart Manager program is designed for easy control of AP2300 PoE Layer2 Switch. Even the first time users enable to easily access and configure AP2300 via GUI (Graphic User Interface) without CLI(Command Line Interface).

Smart Manager Features

- Java based Web Management
- Port based real time monitoring of link status and PoE status
- Management IP assignment feature
- SNMP agent based management
- Ethernet port and uplink port control
- Bandwidth expansion with port grouping
- Port snooping for packet capture
- Real time graphic display of port based performance and history data
- Supports STP (Spanning Tree Protocol)
- Client group segmentation via VLAN management
- Port based PoE control
- Port based PoE operation monitoring
- MAC address based host and group blocking

System Requirement for Smart Manager

<Table 2-1> Hardware Requirement

CPU	Intel Pentium II 300Mhz or higher system
MEMORY	128MB or more
Hard Disk	10GB or more

<Table 2-2> Software Requirement

Operating System	MS Windows 2000 / XP / Server 2003
	Java 2 Runtime Environment SE v1.4.2
	Web browser such as Microsoft Internet Explorer

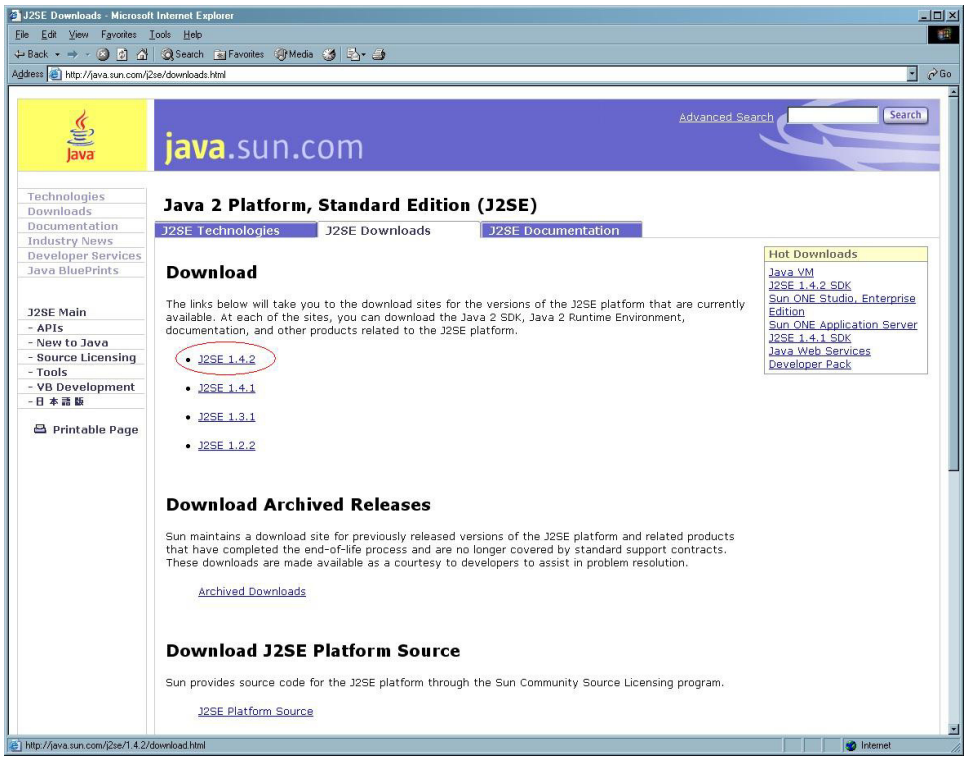
Java 2 Runtime Environment v1.4.2 Download

To access to Smart Manager, Java Virtual Machine is required to execute Java applet on web browser. SUN distributes Java Virtual Machine with the name of J2RE (Java 2 Runtime Environment).

The J2RE version used this guide is J2RE v1.4.2, the latest version. Visit at "http://java.sun.com/j2se/downloads.html" and download the program.
* J2SE is "Java 2 Platform Standard Edition," one of the J2RE.

Step 1

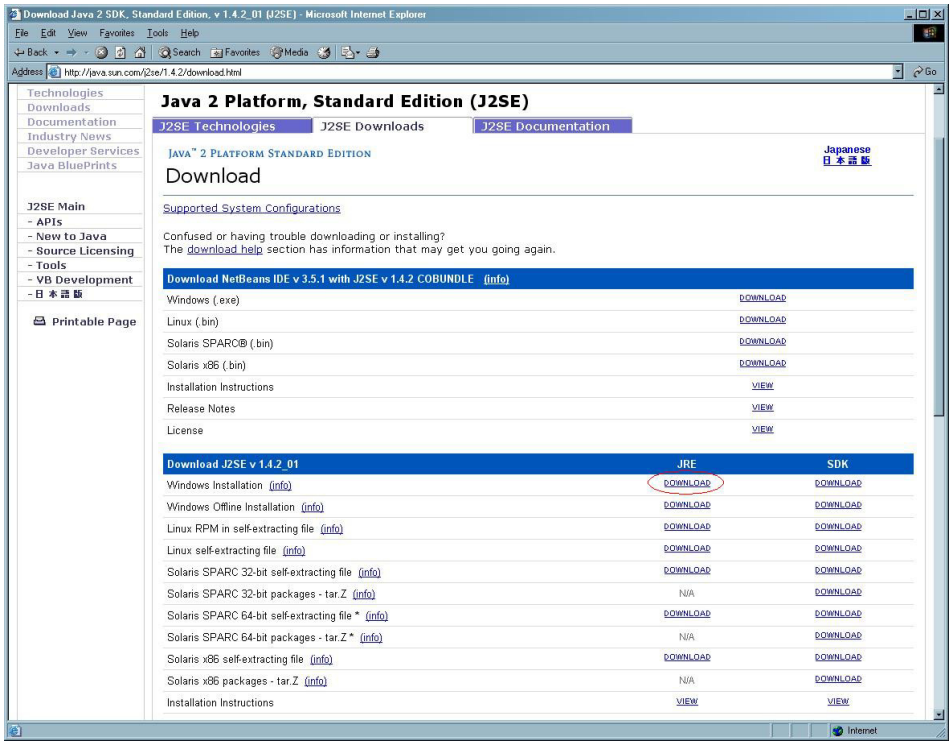
Select "J2SE 1.4.2" as shown below.



(Figure 2-1) Select Java 2 Platform Standard Edition

Step 2

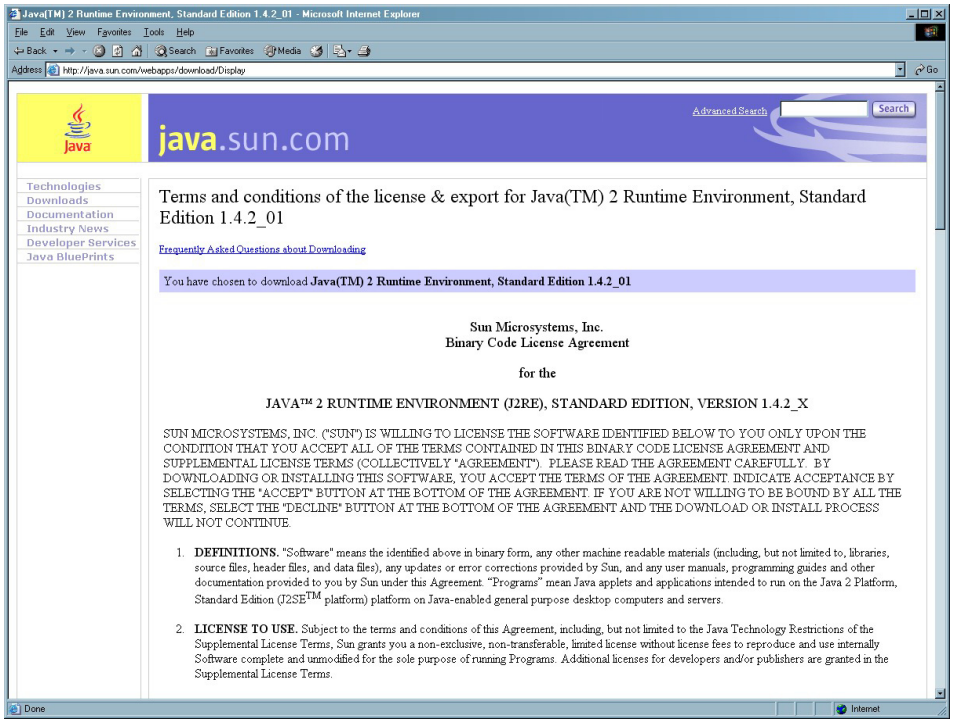
Select "J2SE Windows."



(Figure 2-2) Select J2SE for Windows

Step 3

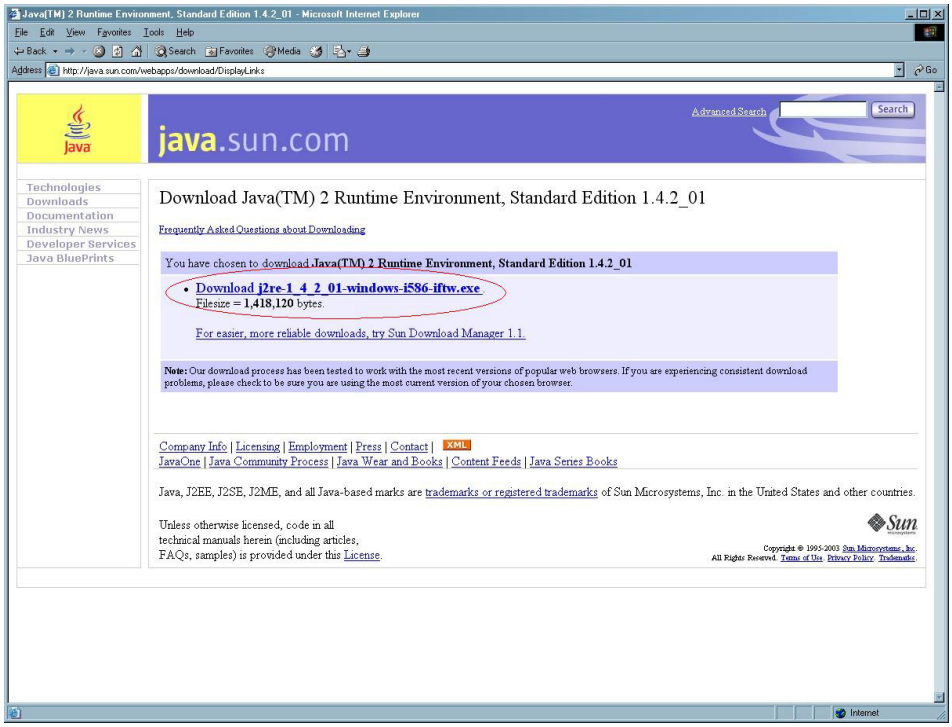
Carefully review "Terms and conditions of the license~" and select "agree."



(Figure 2-3) License Agreement for J2RE

Step 4

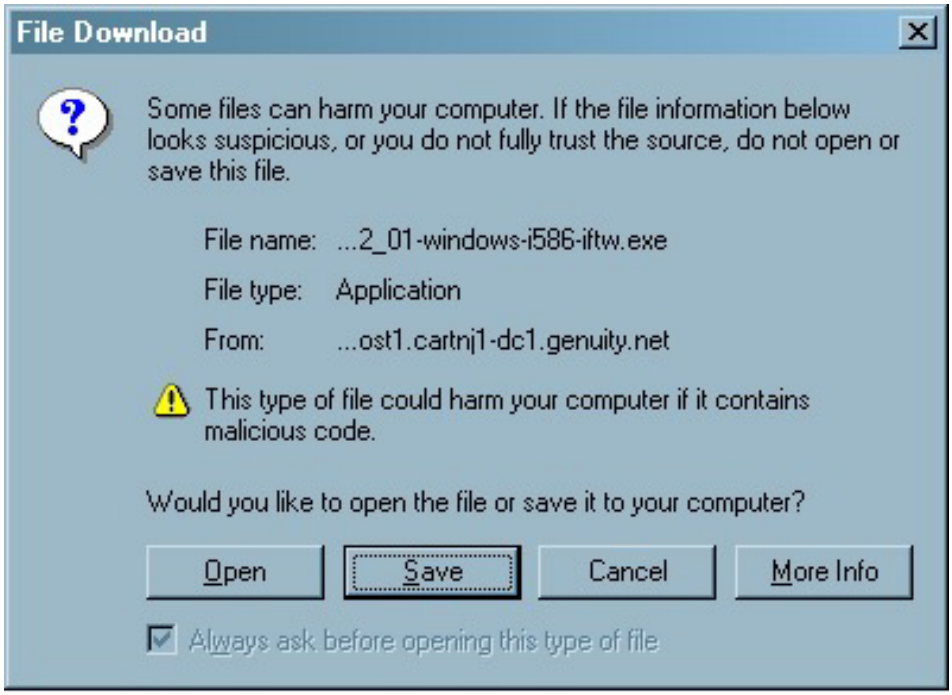
Download "Java 2 Runtime Environment, Standard Edition v1.4.2_01"



(Figure 2-4) Download "Java 2 Runtime Environment, SE v1.4.2_01"

Step 5

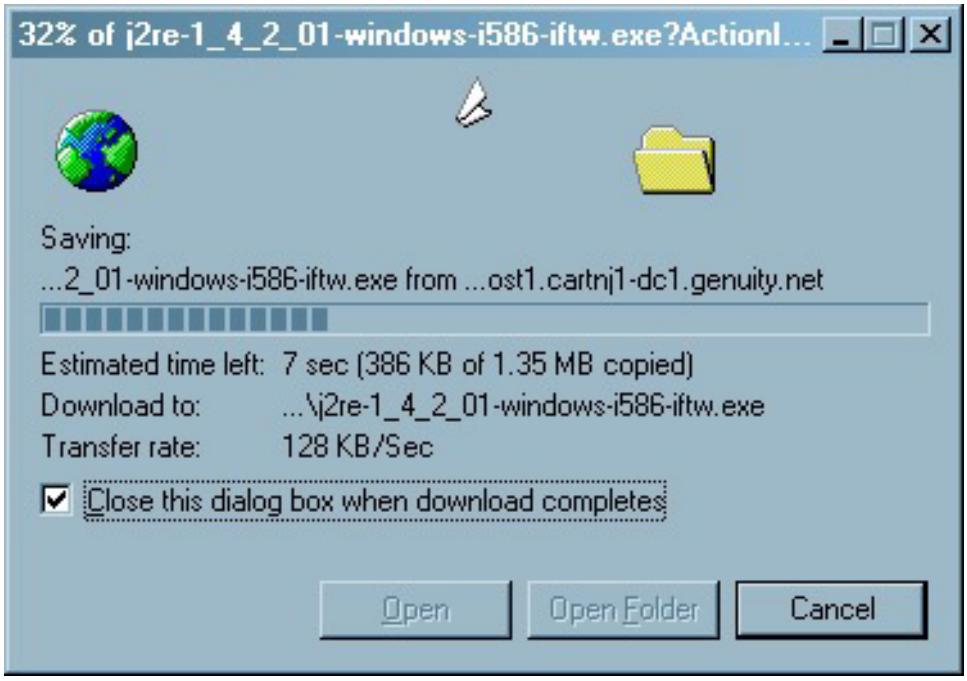
"File Download" dialog box appears. Click "Save" to save the program at the PC.



(Figure 2-5) File Download Dialog Box

Step 6

Then the program is downloaded.



(Figure 2-6) Downloading the file

Java 2 Runtime Environment v1.4.2 Installation

This part explains how to install "J2RE v 1.4.2" at the PC.

Step 1

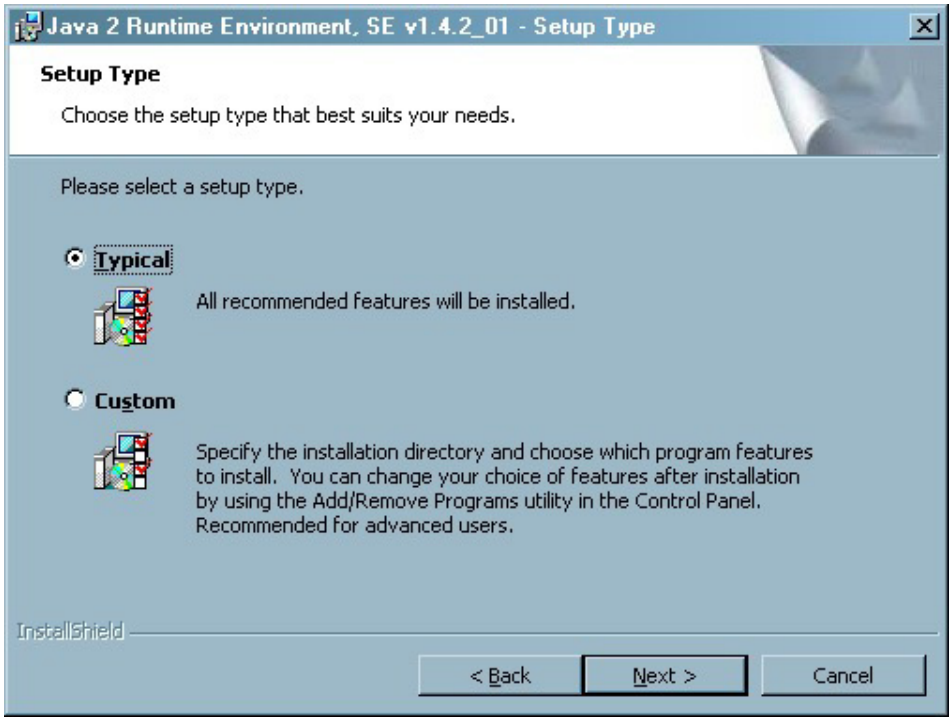
Execute "j2re-1_4_2_01-windows-i586-iftw.exe"file. Then the License Agreement appears. Review it carefully and select "I accept~." Then click "Next>" button to proceed.



(Figure 2-7) Java 2 Runtime Environment – License

Step 2

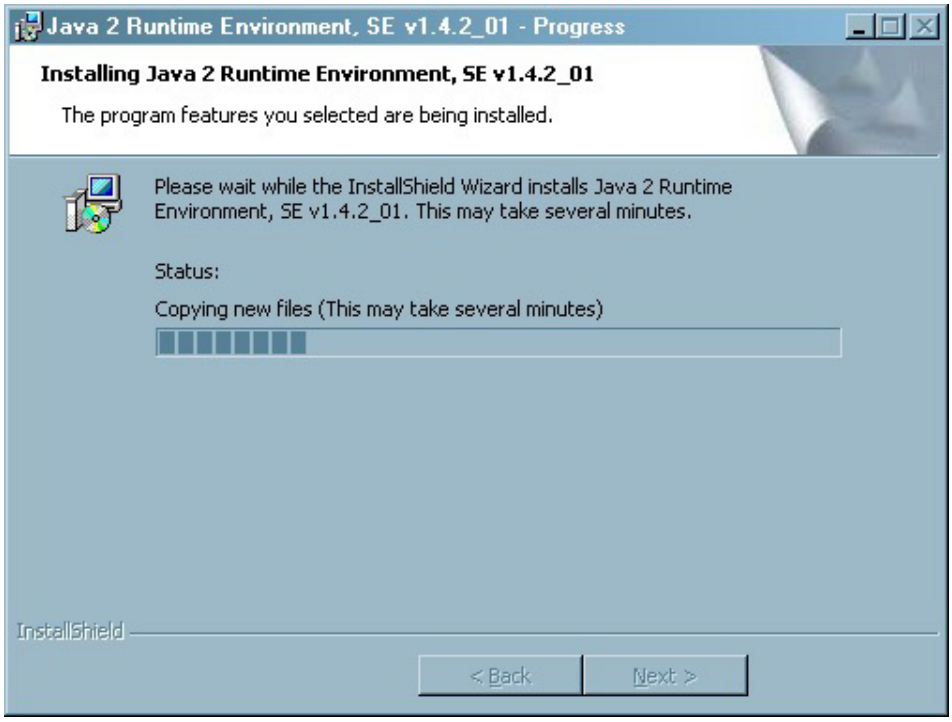
Select "Setup Type" as "Typical" and click "Next>" button.



(Figure 2-8) Select Java 2 Setup Type

Step 3

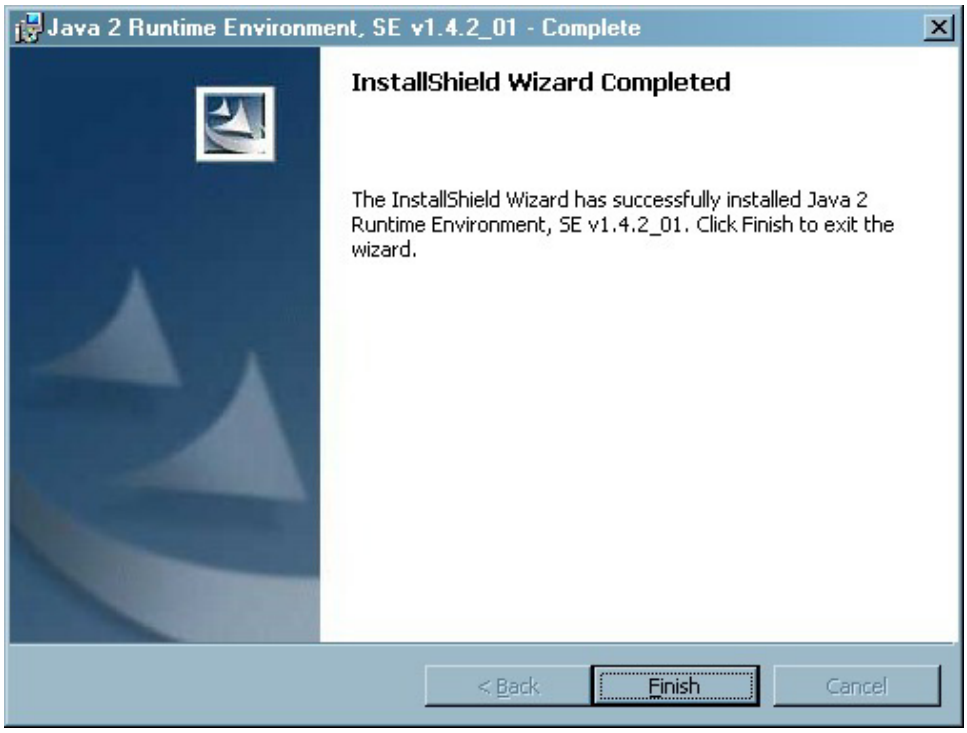
The program is being installed.



(Figure 2-9) Java 2 Installation Progress

Step 4

Click "Finish" to exit the wizard.

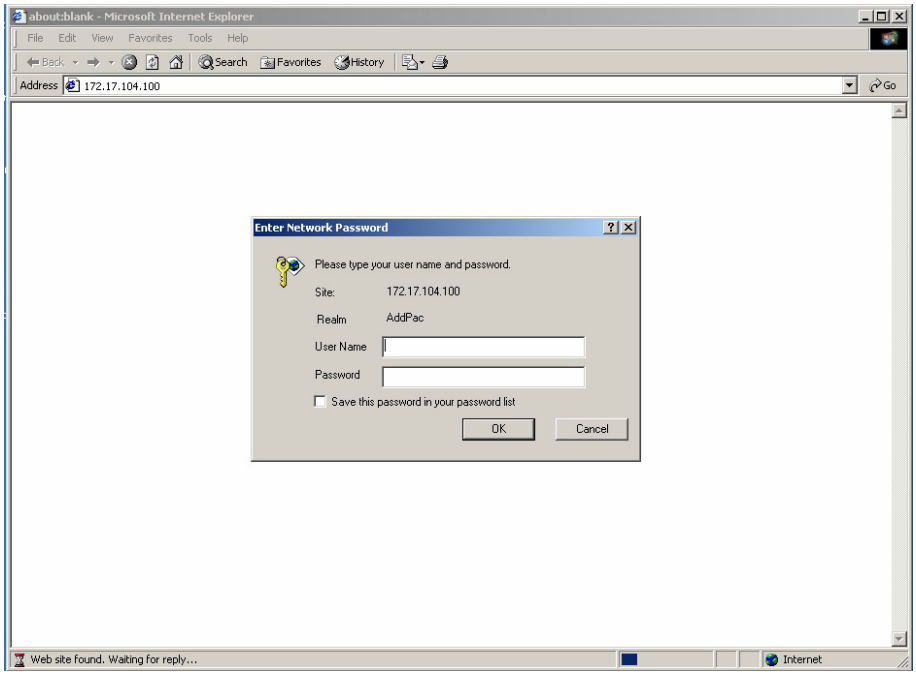


(Figure 2-10) Complete Java 2 Runtime Installation

Smart Manager Access

Step 1

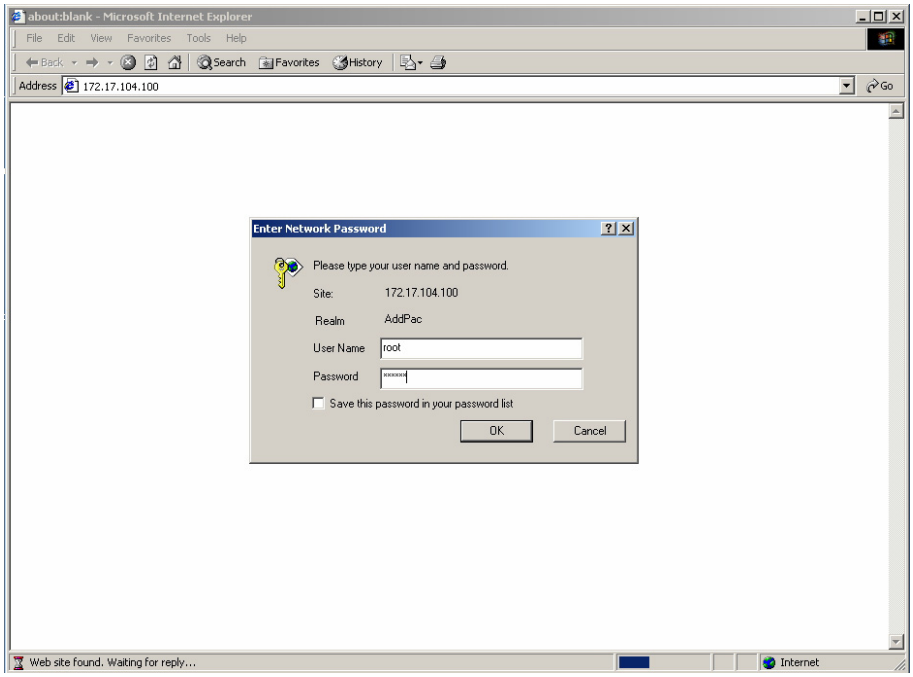
Enter the IP address of AP2300 Ethernet Switch at the address bar of the web browser.



(Figure 2-11) Web Management System Access

Step 2

Enter User Name ("root") and Password ("router"). Click "OK" button. The User Name and Password are changeable by users.

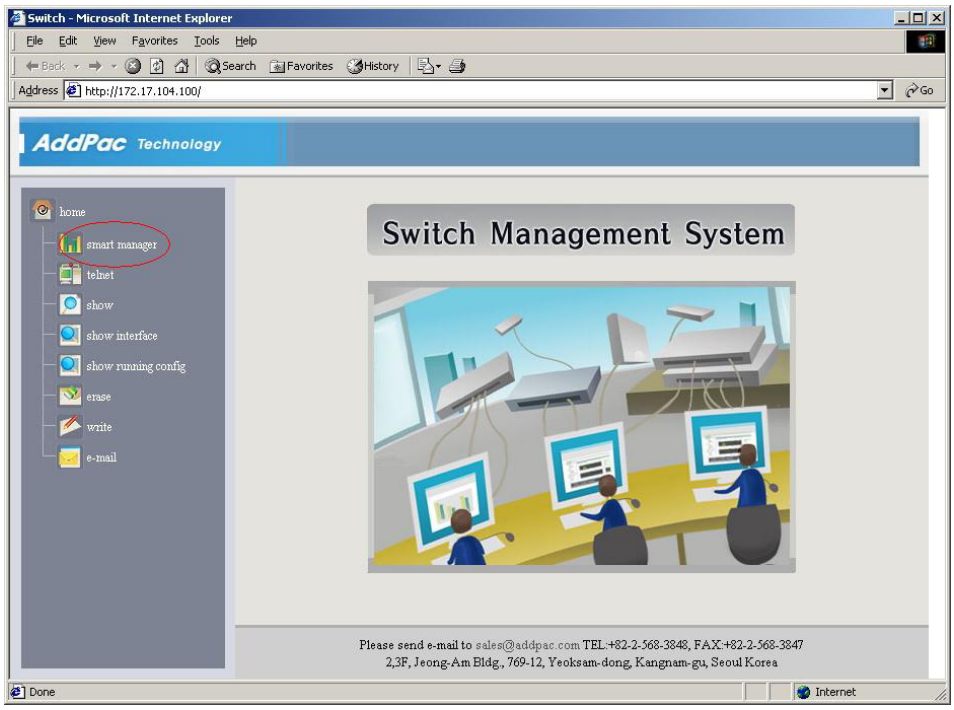


(Figure 2-12) Web Management System Login

Step 3

The Switch Management System widow appears.

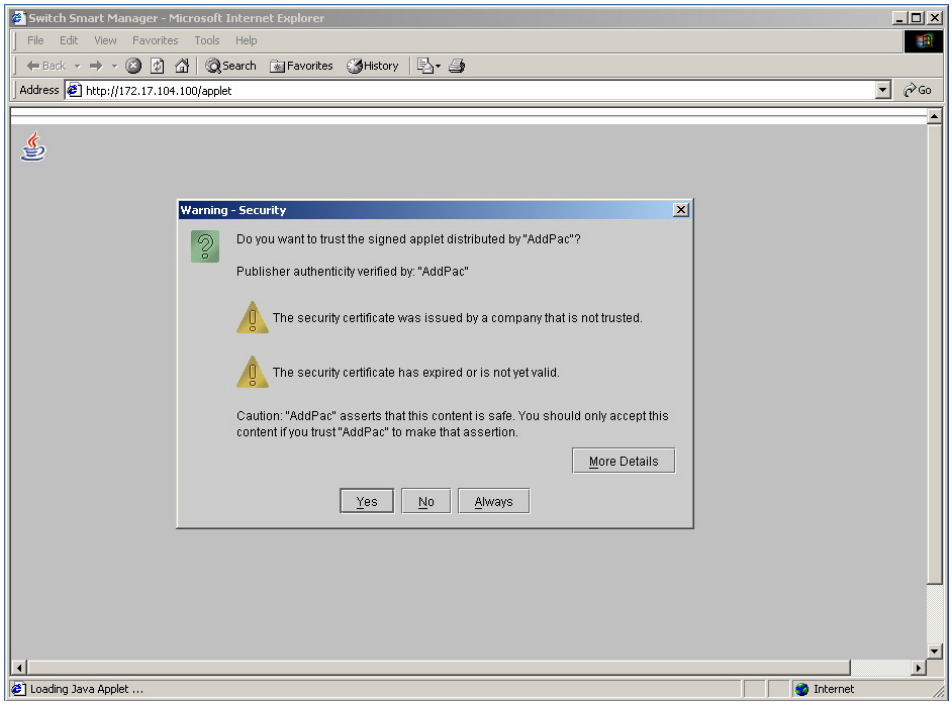
Select "Smart Manager" from the tree menu.



(Figure 2-13) Main Window of Web Management System

Step 4

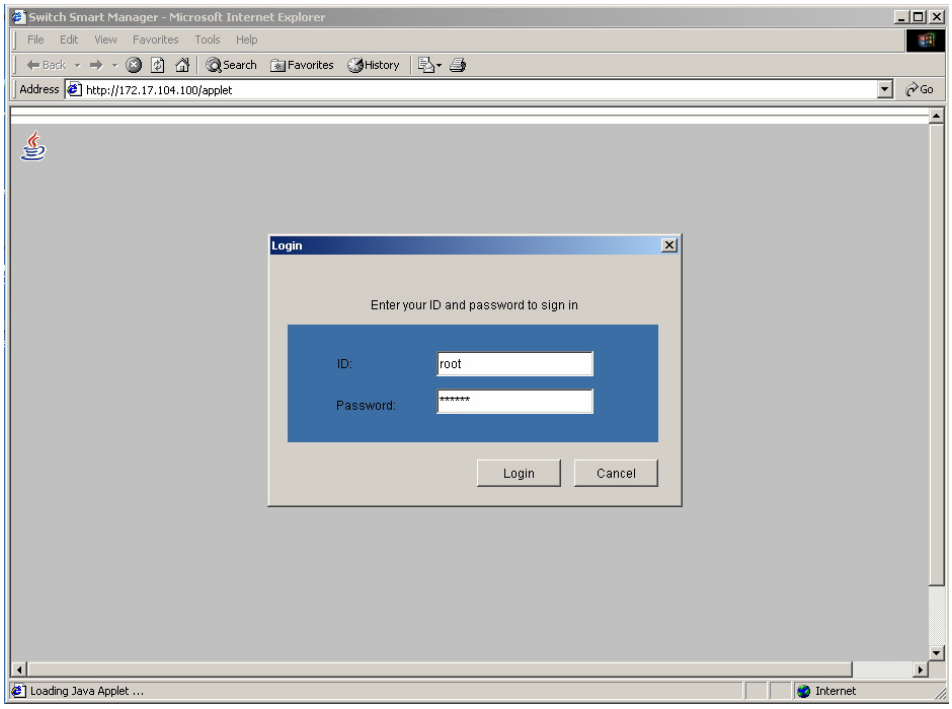
Java Applet is running and the "Warning-Security" dialog box appears. Select "Yes" or "Always."



(Figure 2-14) Java Applet Security Warning

Step 5

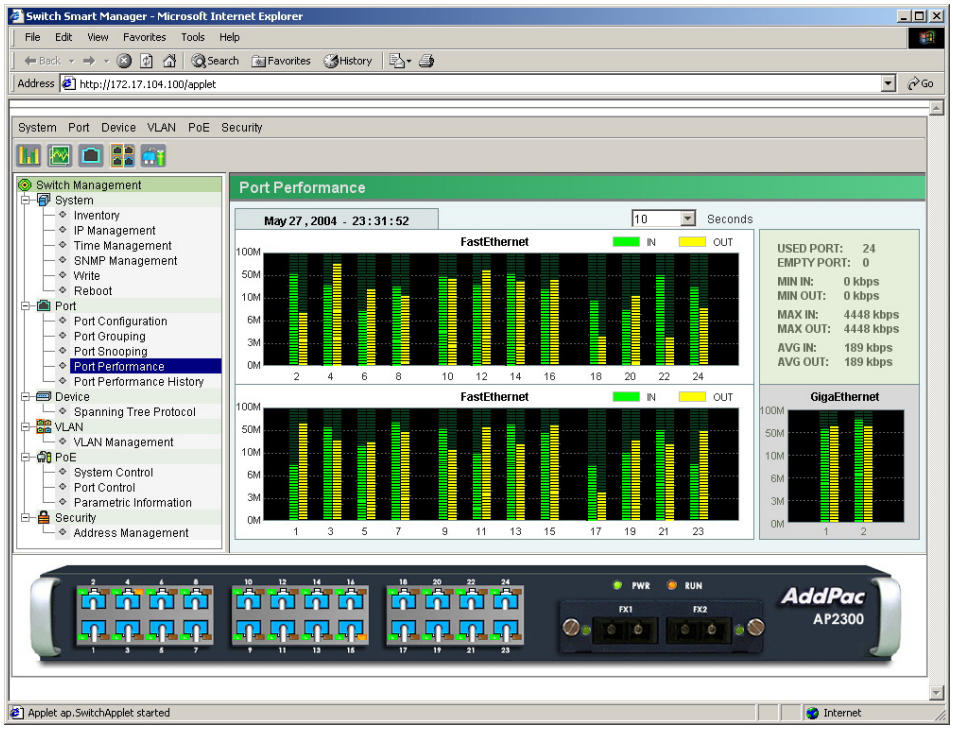
Login prompt for Smart Manager appears. Enter the same User ID and Password used for the Switch Management System login.



(Figure 2-15) Java Applet Login

Step 6

It moves to the Smart Manager main page.

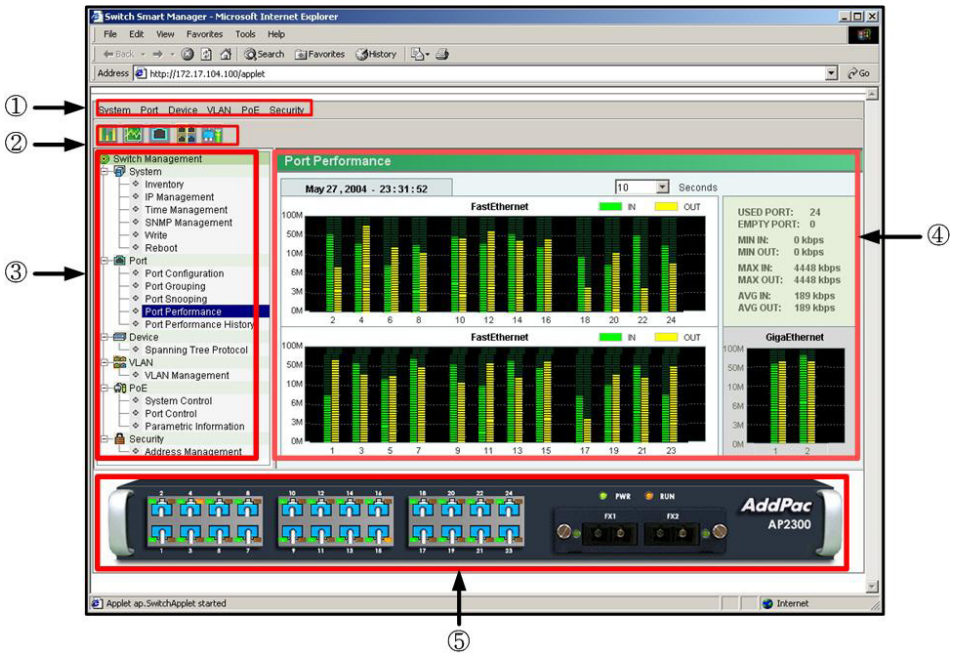


(Figure 2-16) Main page of the Smart Manager

Chapter 3. Smart Manager Menus

Smart Manager Screen Elements

Smart Manager consists of 5 sections.



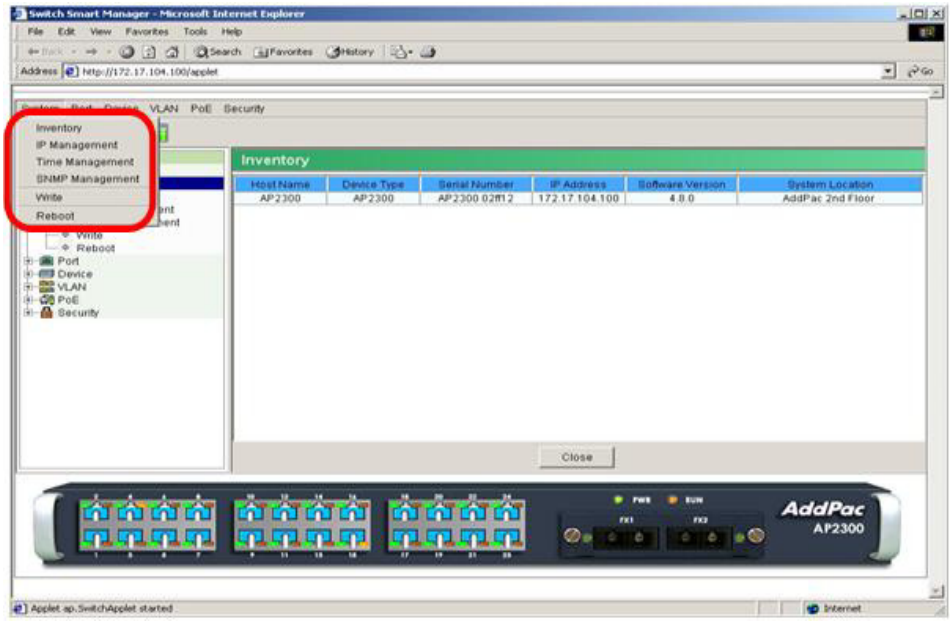
(Figure 3-1) Smart Manager Main Page Elements

<Table 3-1> Smart Manager Main Page Elements and Descriptions

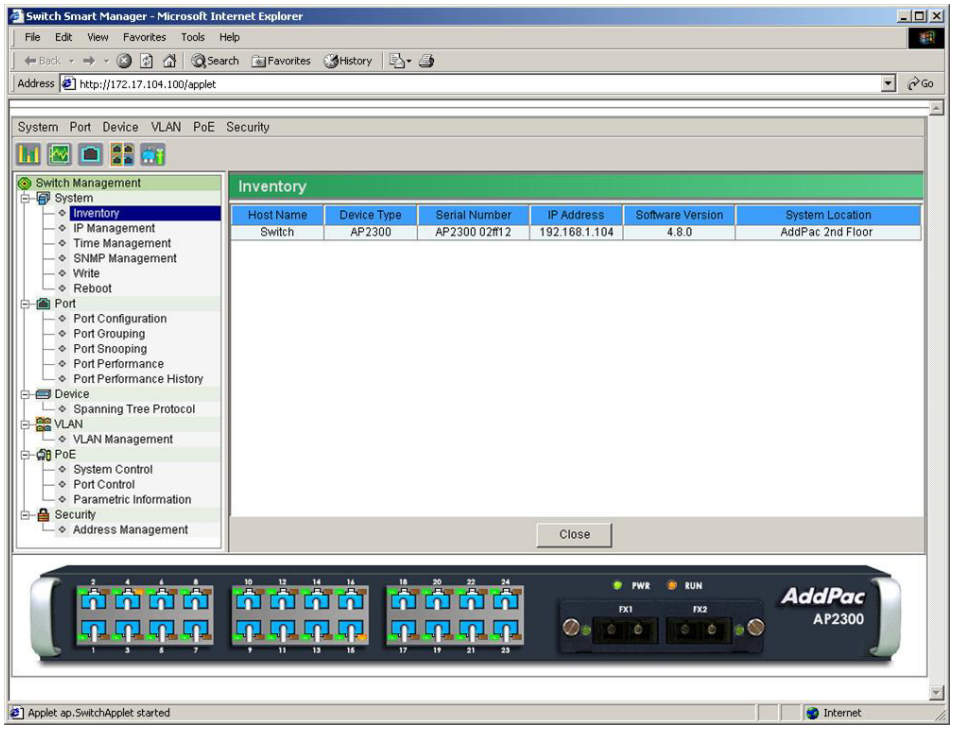
Section	Description
①	Pull-down menu to access sub-menus of the Smart Manager. The menus are same as the tree type menu at ③.
②	Shortcut Icons for Port Performance, Port Performance History, Port Configuration, VLAN Management and Parametric Information.
③	Tree type menu for sub-menus of the Smart Manager.
④	Main data entry or display area.
⑤	Real-time monitoring of port link status and PoE status. With the mouse right-click, "Port Configuration", "Port Snooping", and "Port Performance History" can be selected.

How to Use Pull-down Menu

Click the desired menu from the menu bar, and then relevant sub-menus are displayed. Select the right category, and then future information is displayed on the main display area.

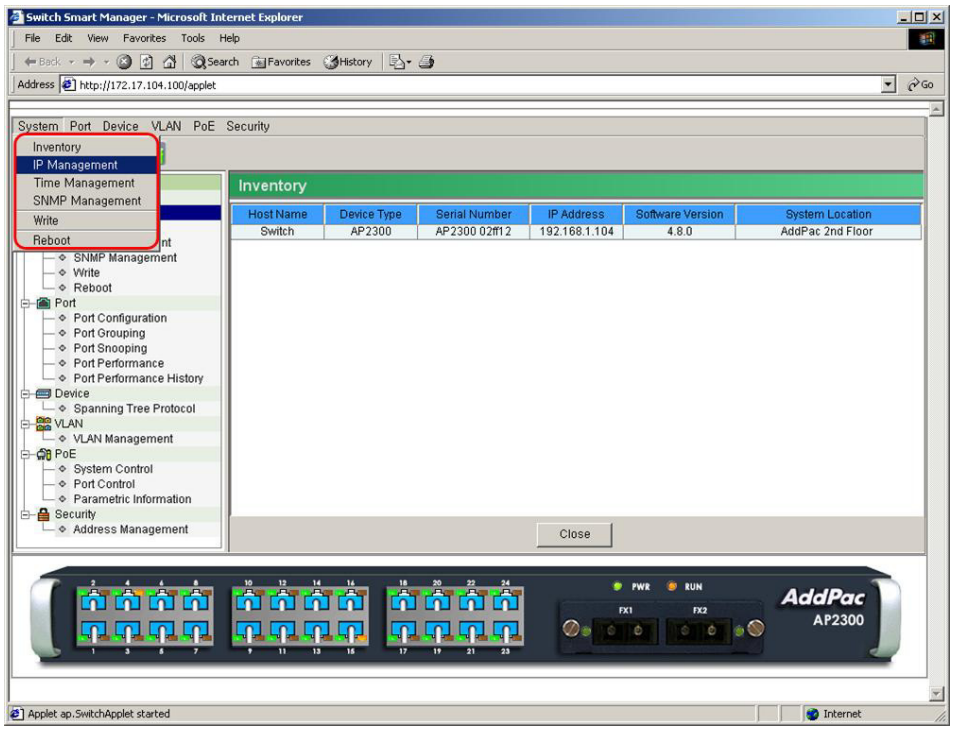


(Figure 3-2) Pull-down Menu: System

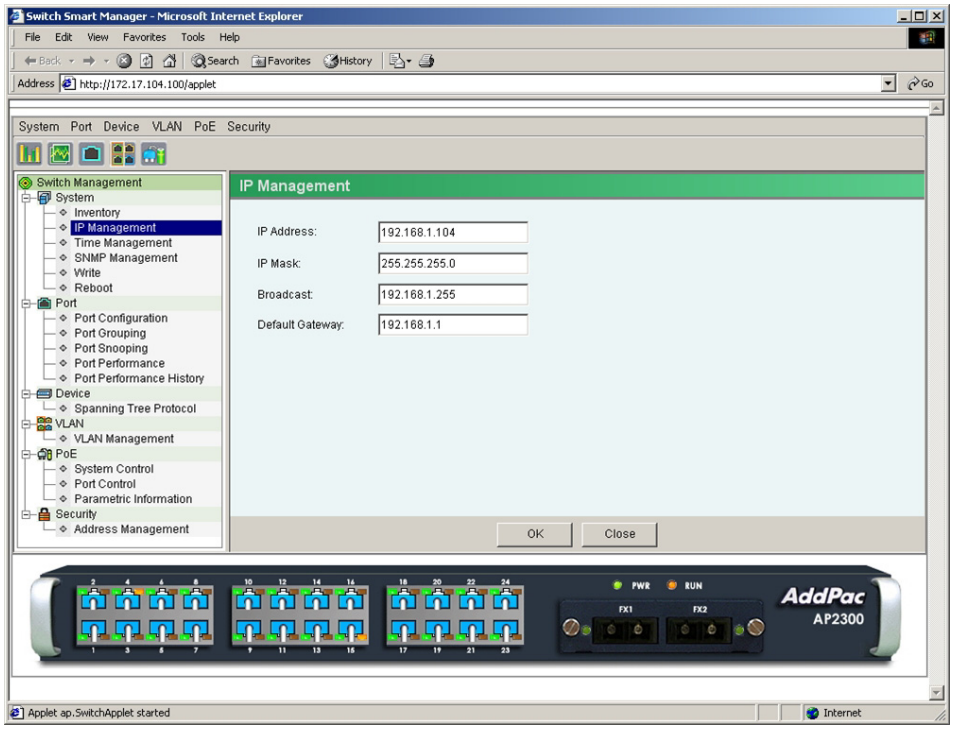


(Figure 3-3) Pull-down Menu: System -> Inventory

At the below Figure 3-4, "IP Management" is selected from the pull-down menu.

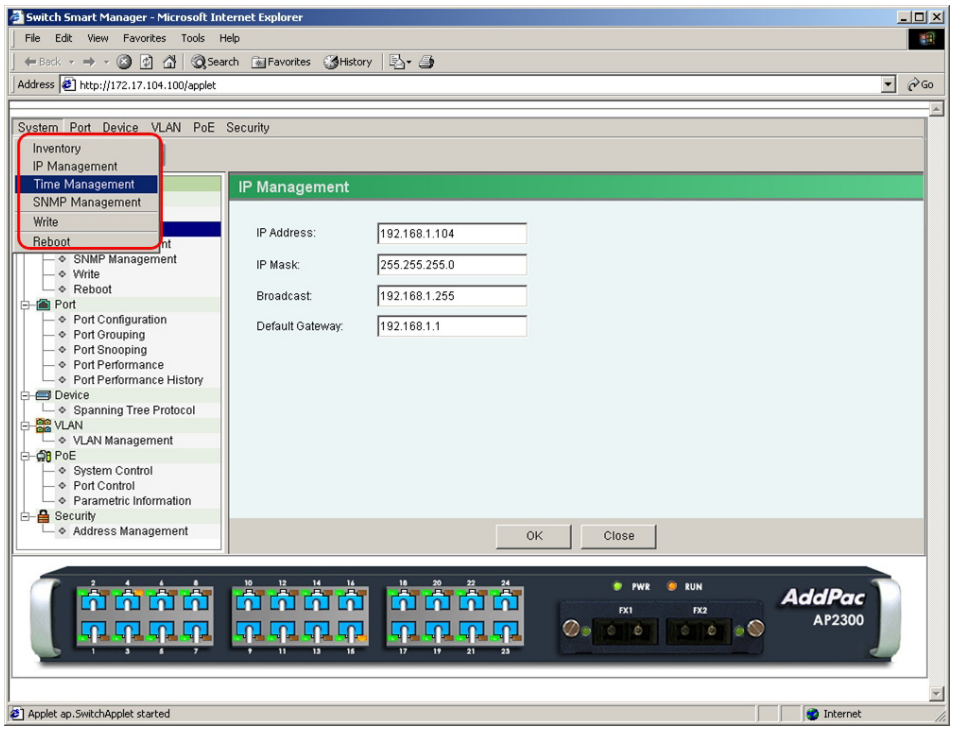


(Figure 3-4) Pull-down Menu: System -> IP Management

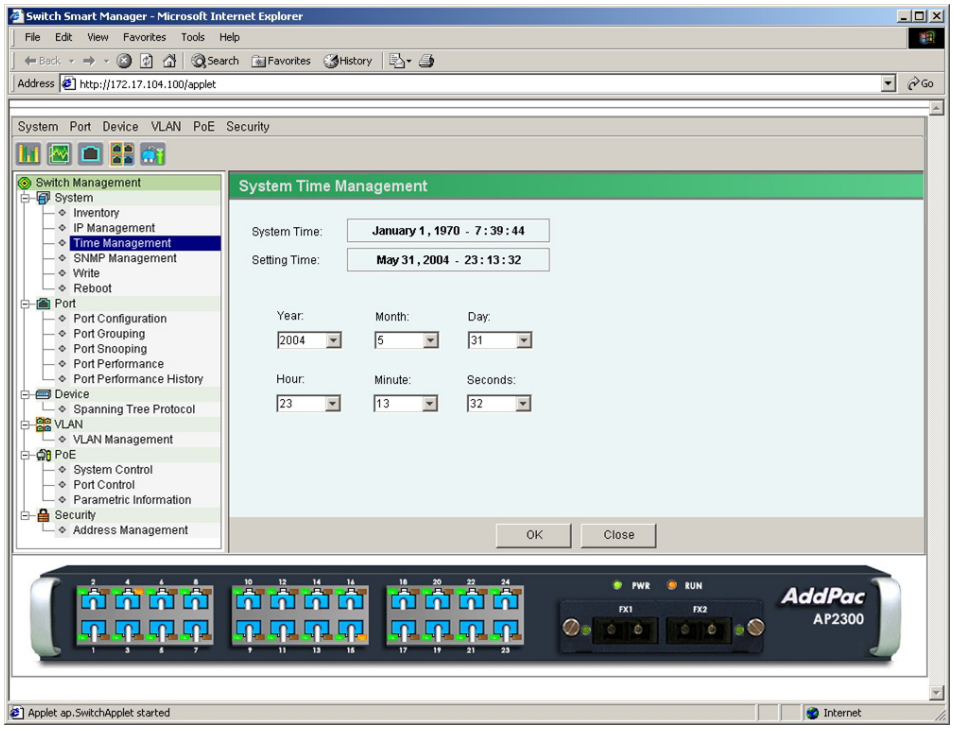


(Figure 3-5) IP Management Page

At the below Figure 3-6, "Time Management" is selected from the pull-down menu.

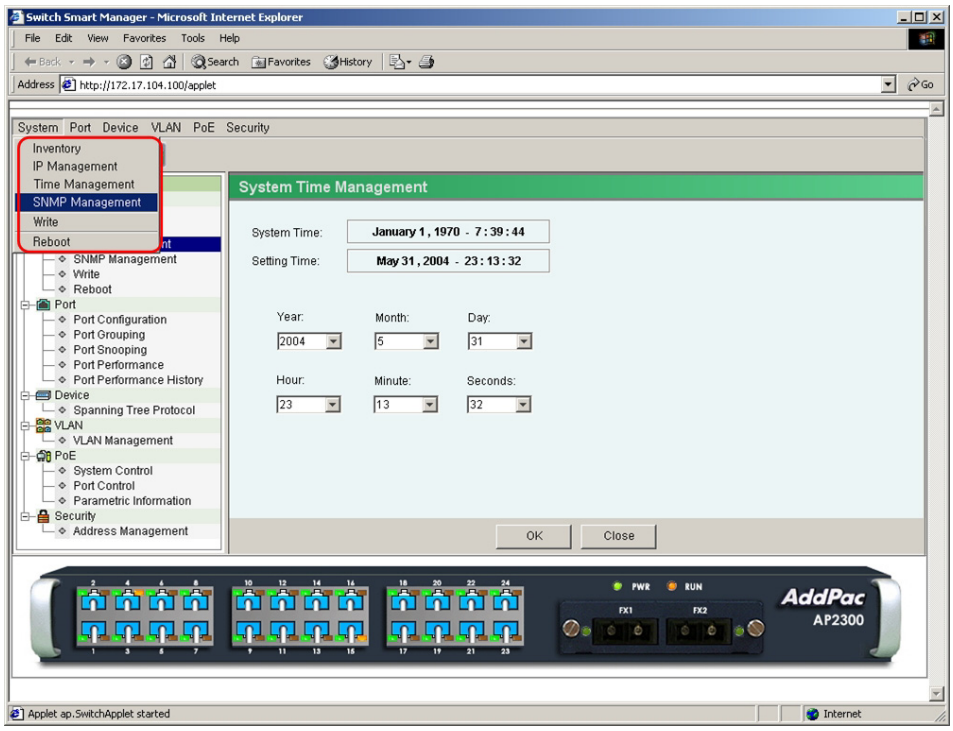


(Figure 3-6) Pull-down Menu: System -> Time Management

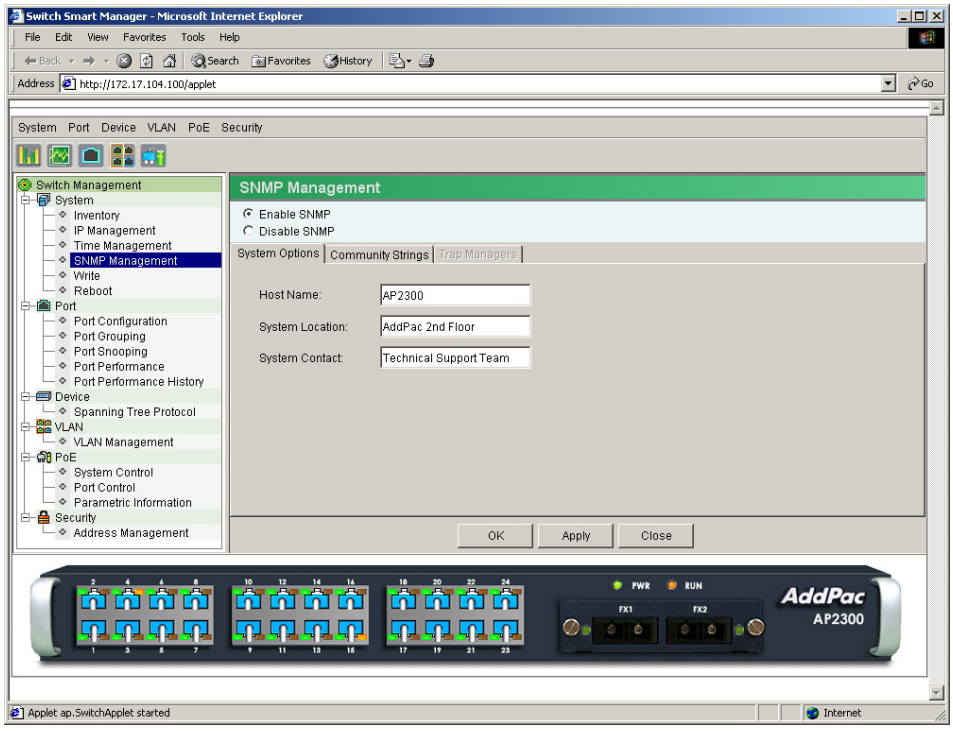


(Figure 3-7) System Time Management Page

At the below Figure 3-8, "SNMP Management" is selected from the pull-down menu.

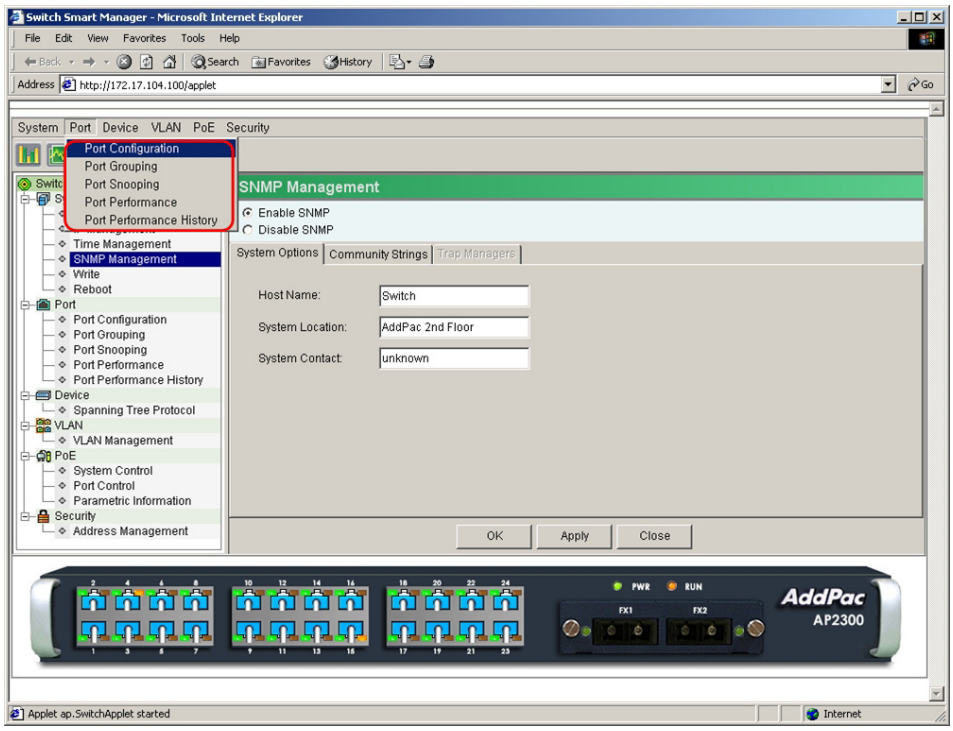


(Figure 3-8) Pull-down Menu: System -> SNMP Management

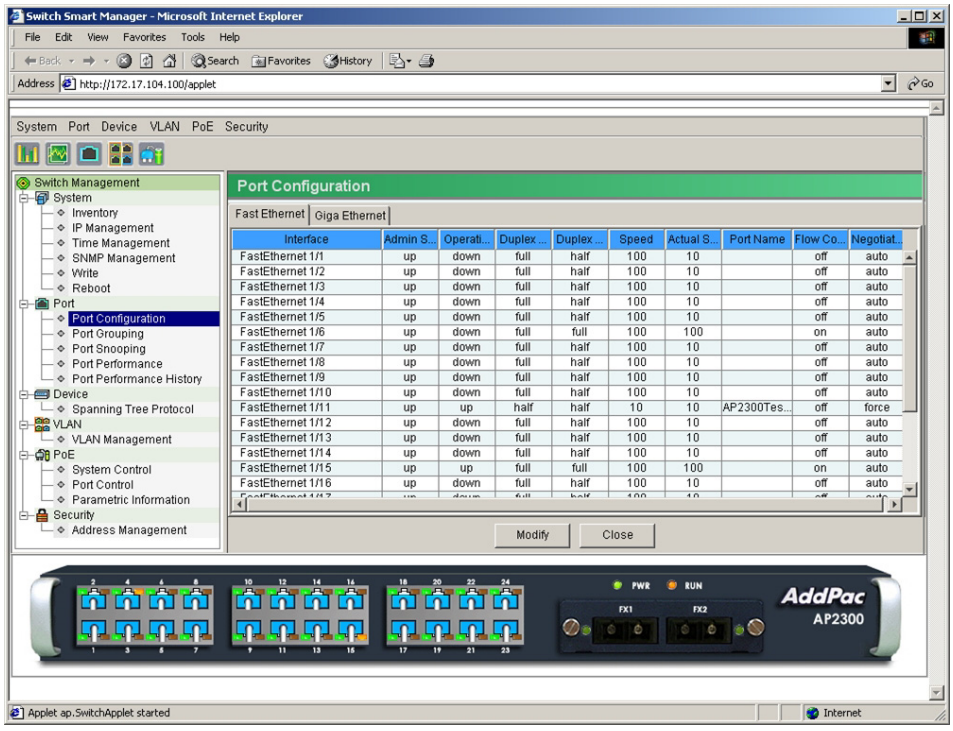


(Figure 3-9) SNMP Management Page

At the below Figure 3-10, "Port Configuration" is selected from the pull-down menu.

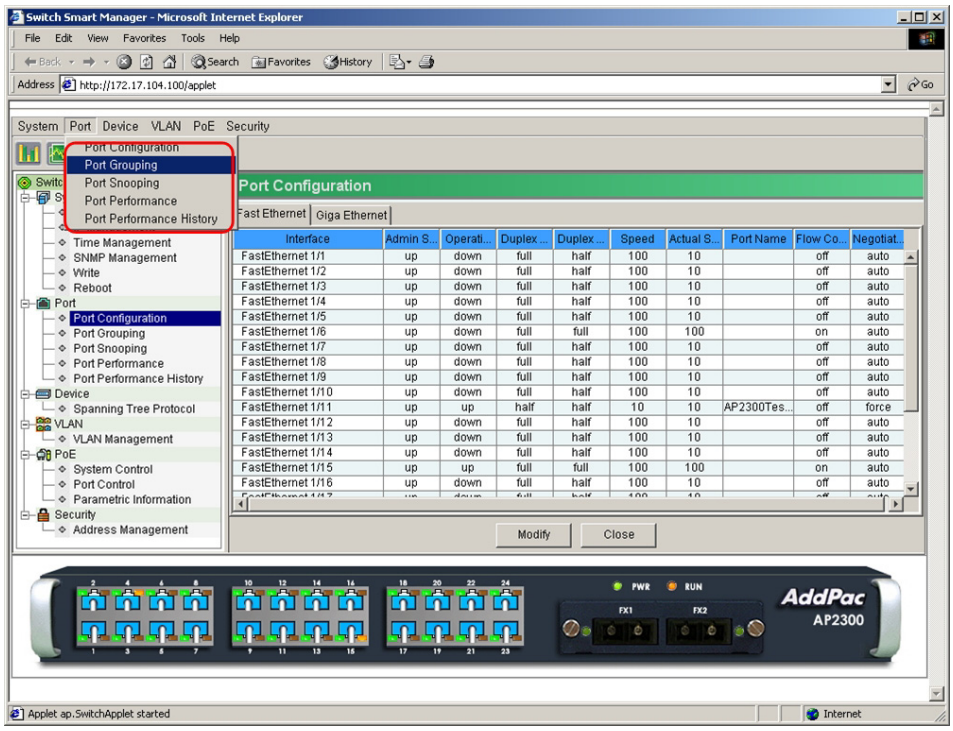


(Figure 3-10) Pull-down Menu: Port -> Port Configuration

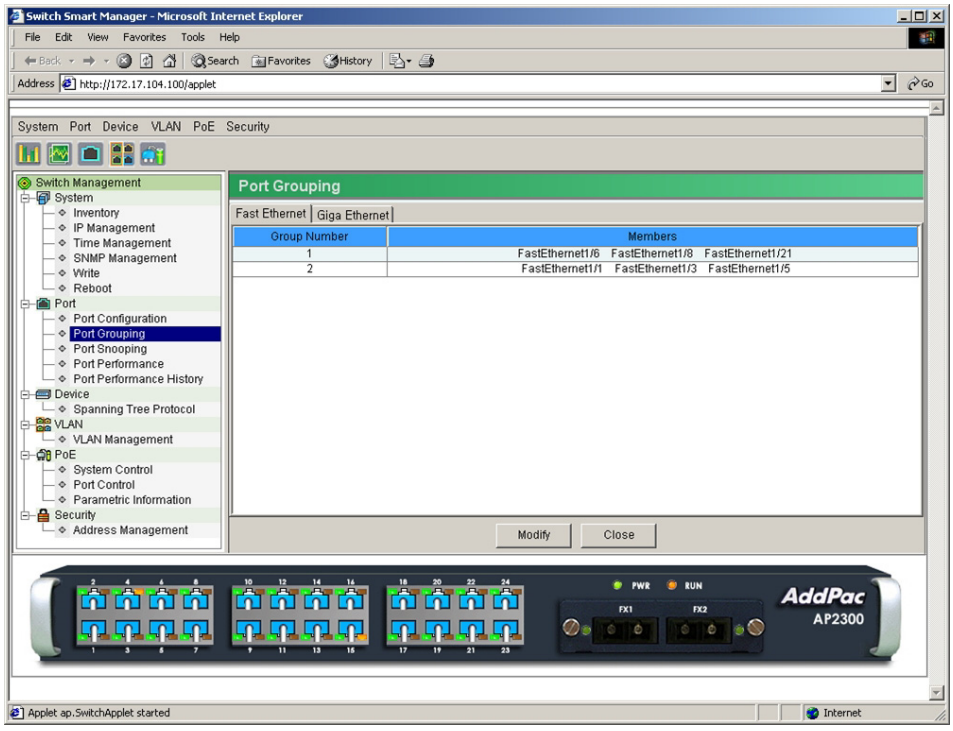


(Figure 3-11) Port Configuration Page

At the below Figure 3-12, "Port Grouping" is selected from the pull-down menu.

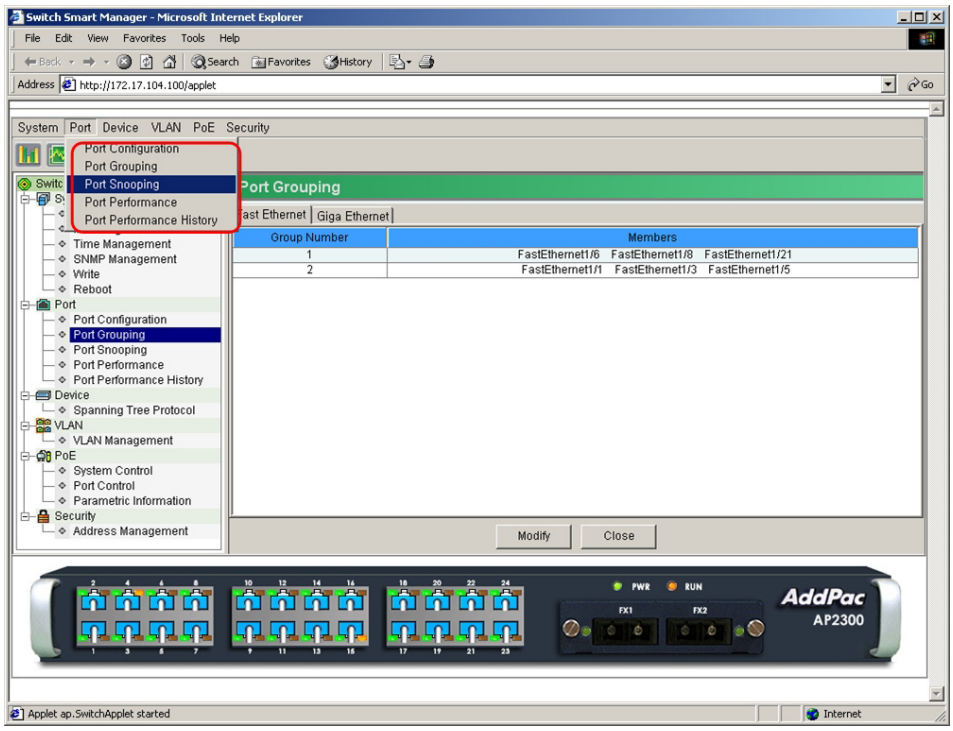


(Figure 3-12) Pull-down Menu: Port -> Port Grouping

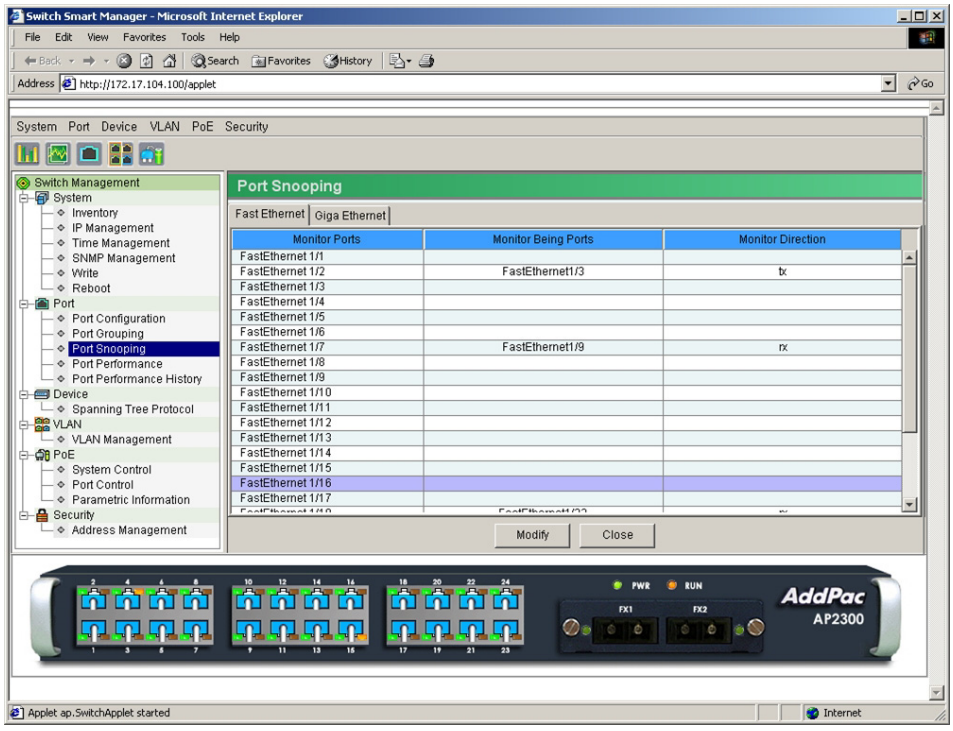


(Figure 3-13) Port Grouping Page

At the below Figure 3-14, "Port Snooping" is selected from the pull-down menu.

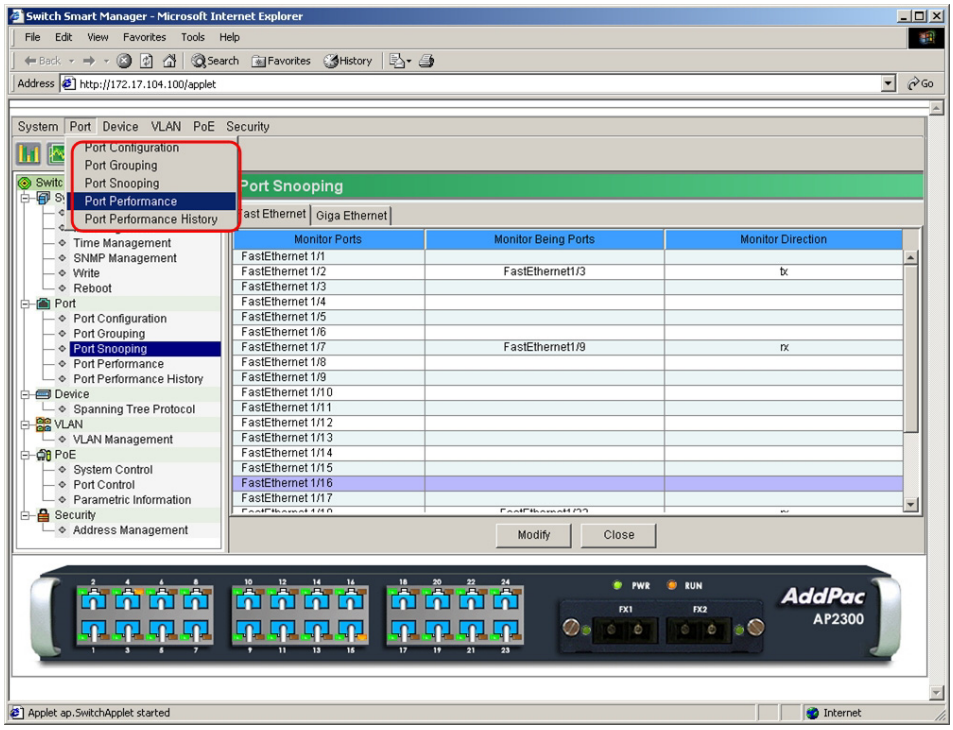


(Figure 3-14) Pull-down Menu: Port -> Port Snooping

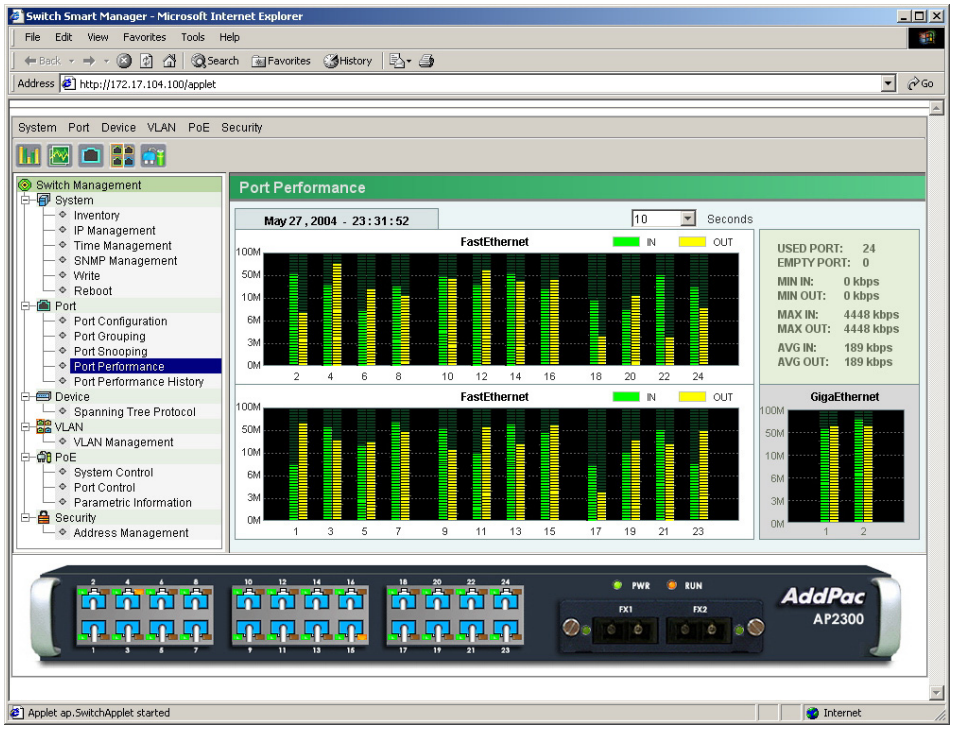


(Figure 3-15) Port Snooping Page

At the below Figure 3-16, "Port Performance" is selected from the pull-down menu.

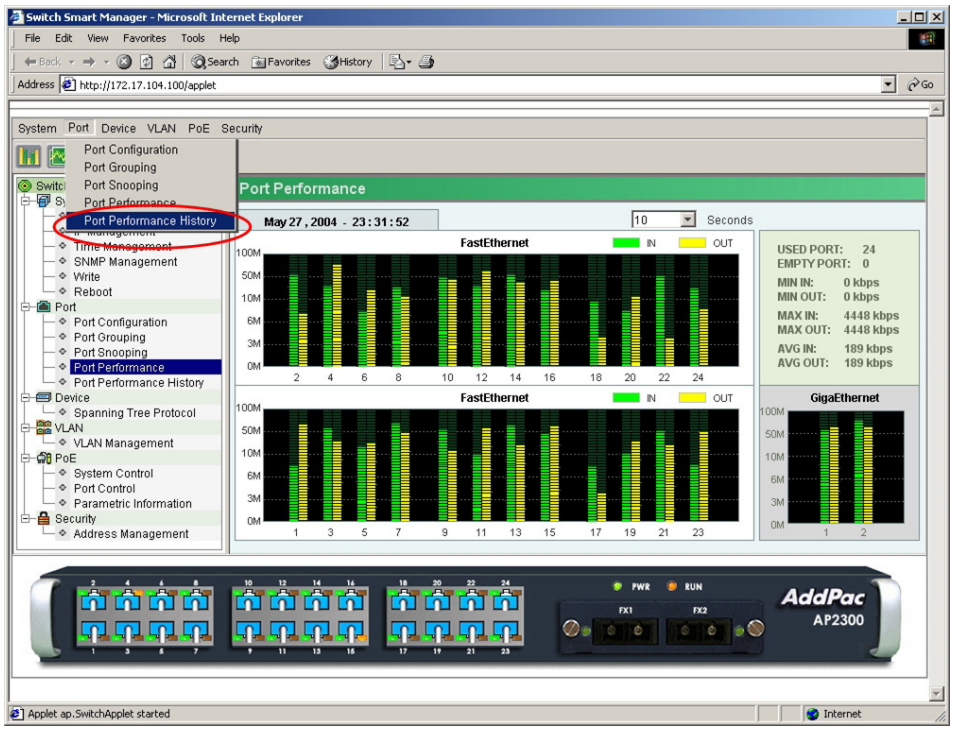


(Figure 3-16) Pull-down Menu: Port -> Port Performance



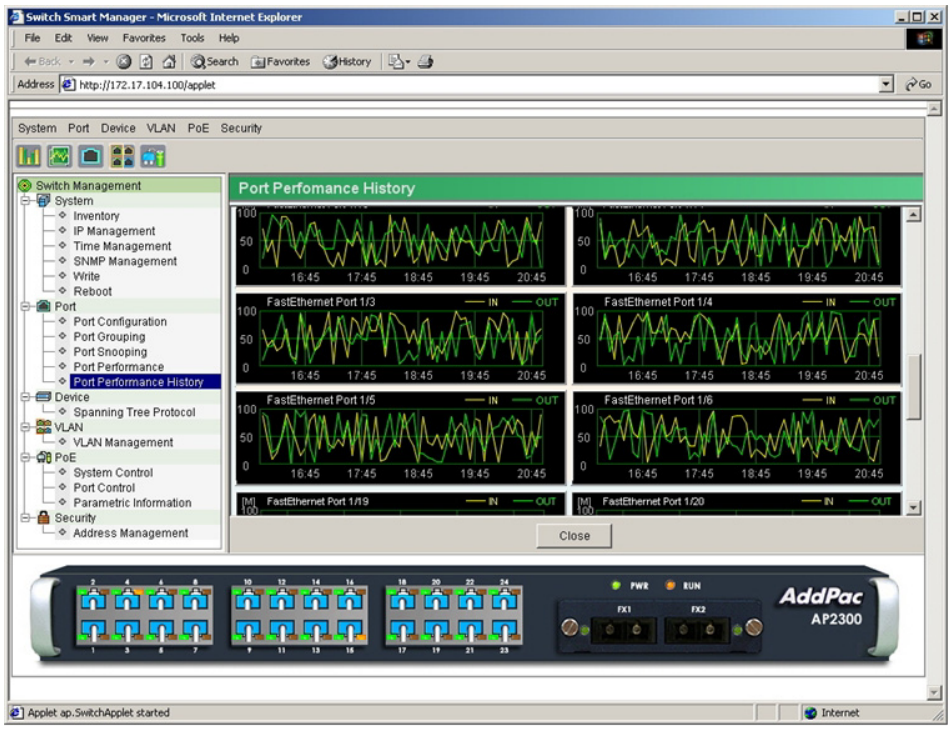
(Figure 3-17) Port Performance Page

At the below Figure 3-18, "Port Performance History" is selected from the pull-down menu.



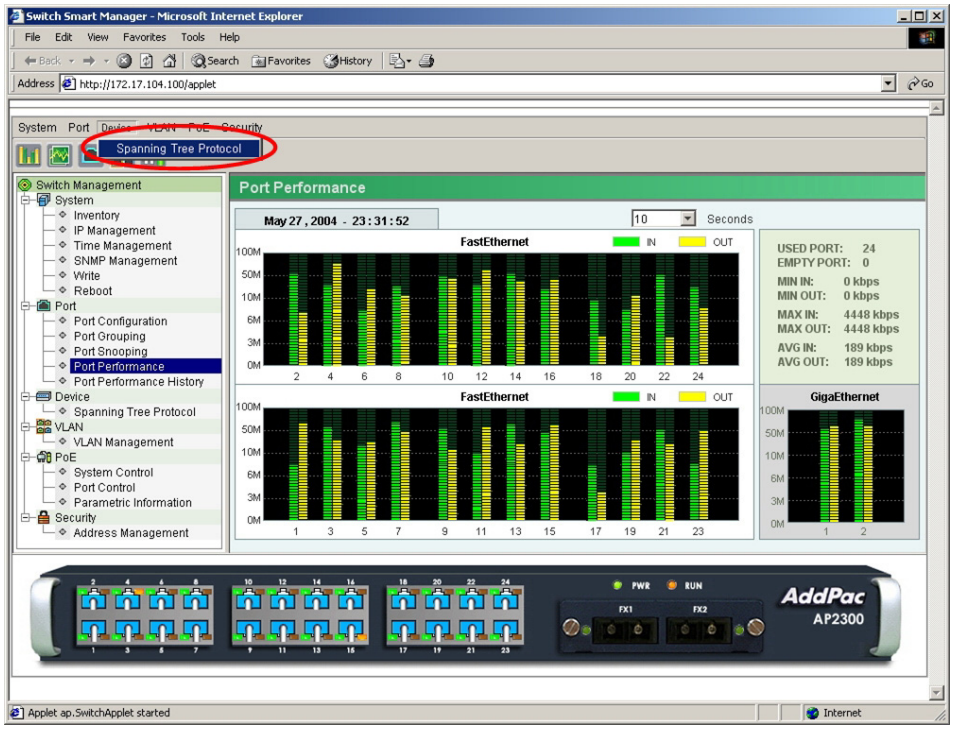
(Figure 3-18) Pull-down Menu: Port -> Port Performance History

The below is an example page of the Port Performance History.



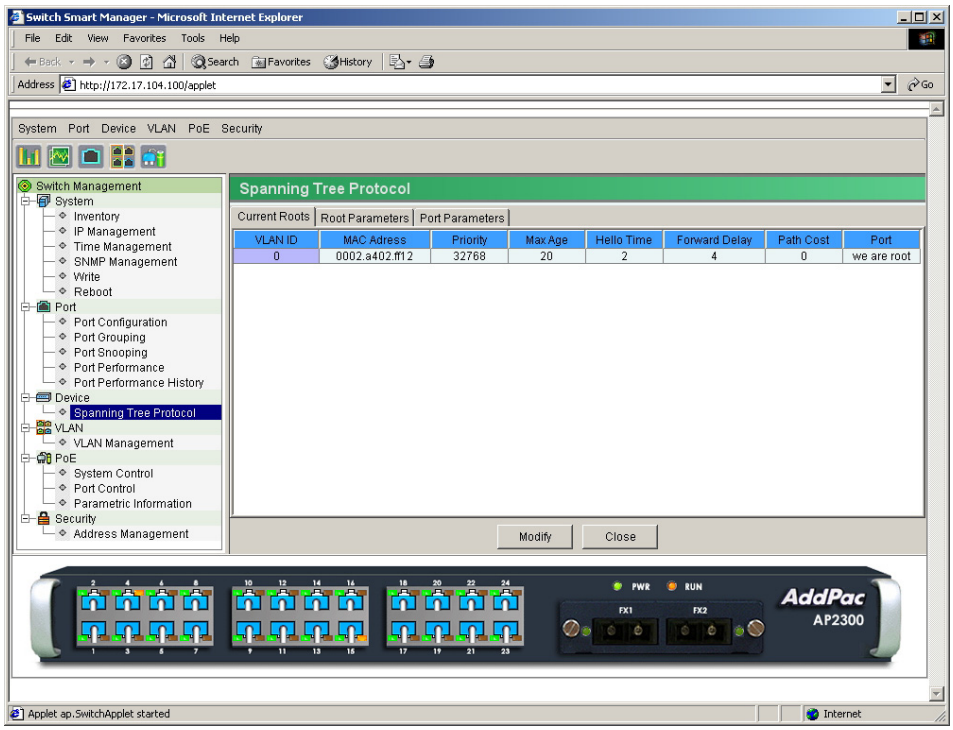
(Figure 3-19) Port Performance History Page

At the below Figure 3-20, "Spanning Tree Protocol" is selected from the pull-down menu.



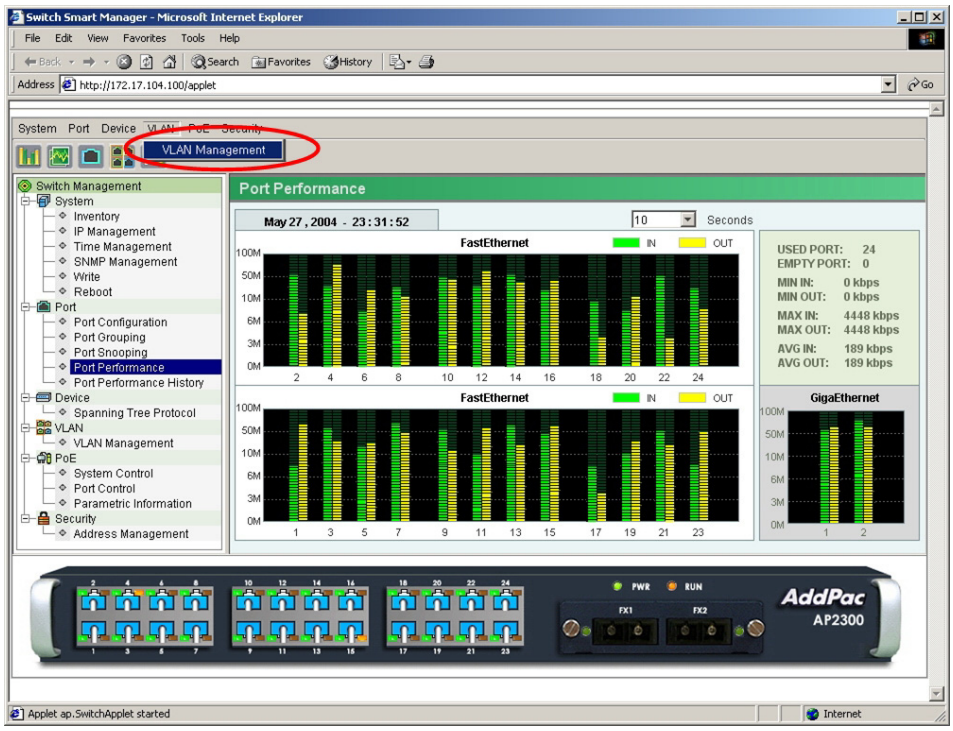
(Figure 3-20) Pull-down Menu: Device -> Spanning Tree Protocol

The below is an example of the Spanning Tree Protocol page.

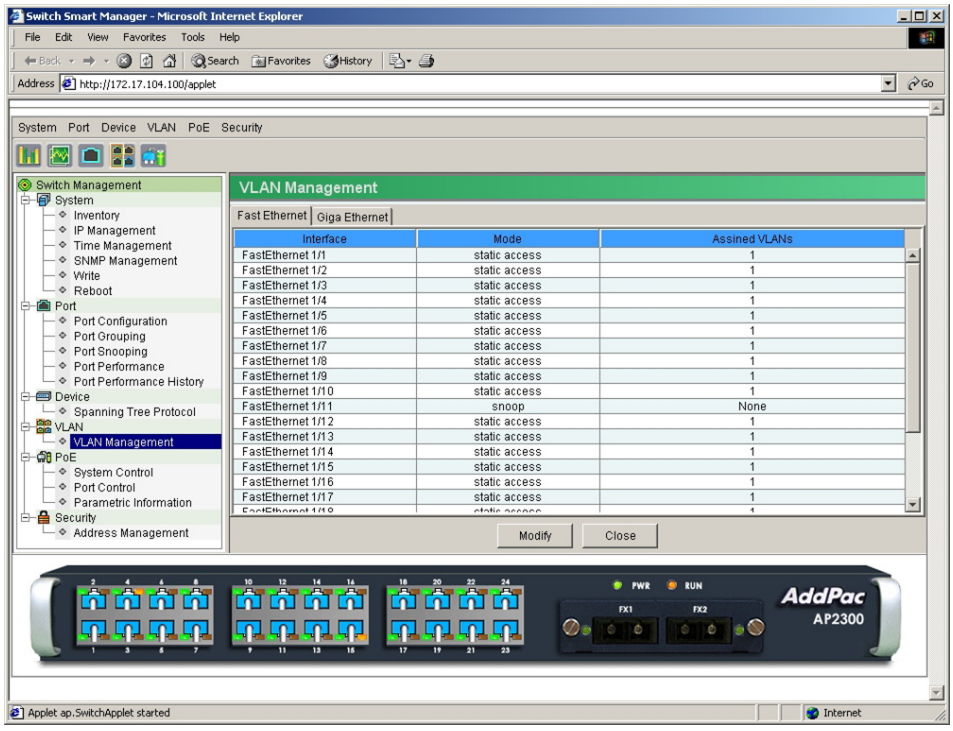


(Figure 3-21) Pull-down Menu: Spanning Tree Protocol Page

At the below Figure 3-22, "VLAN Management" is selected from the pull-down menu.

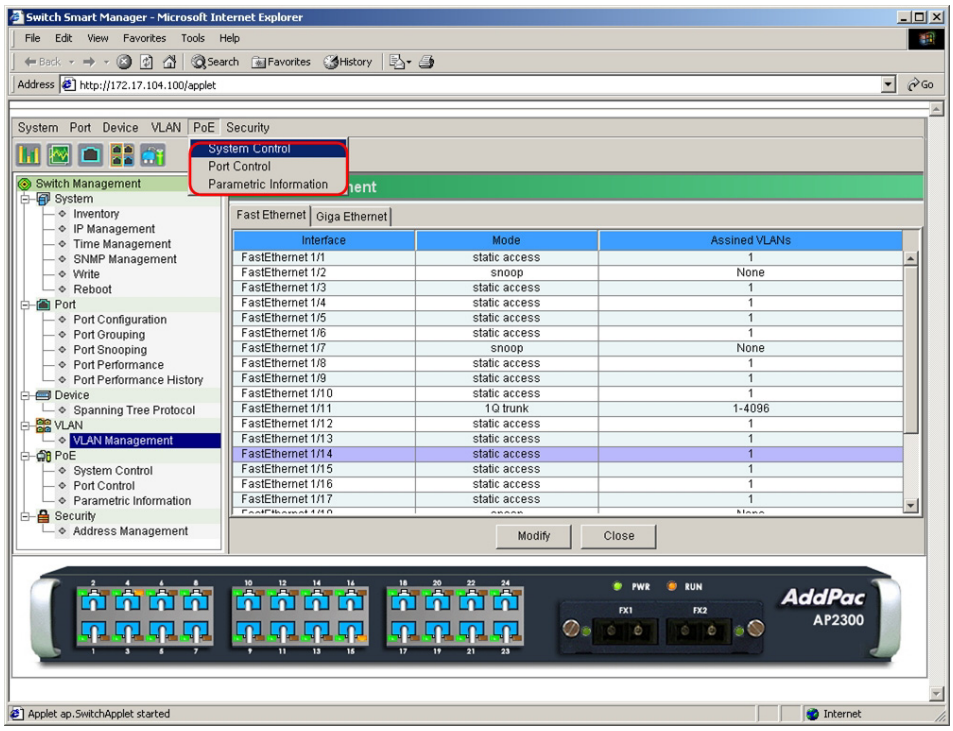


(Figure 3-22) Pull-down Menu: VLAN -> VLAN Management

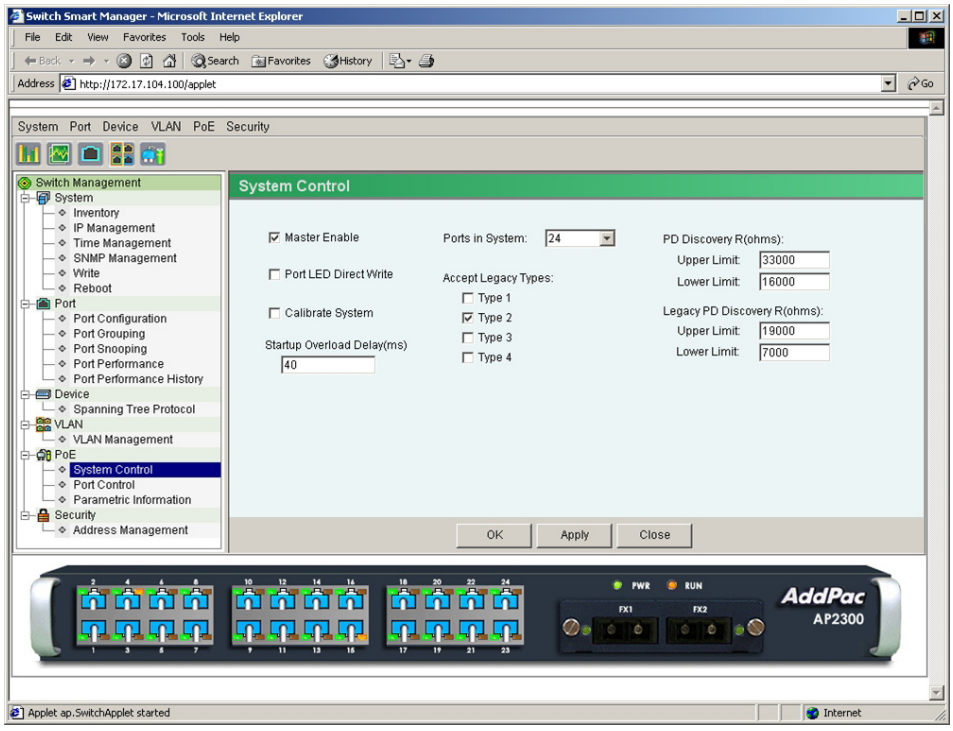


(Figure 3-23) VLAN Management Page

At the below Figure 3-24, "System Control" is selected from the pull-down menu.

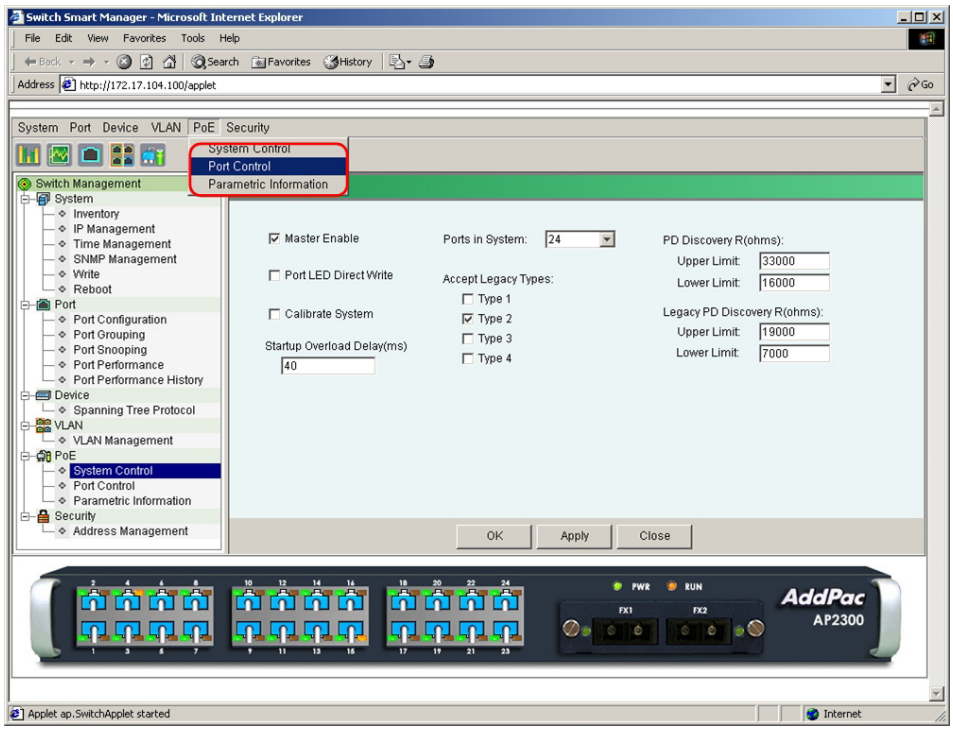


(Figure 3-24) Pull-down Menu: PoE -> System Control

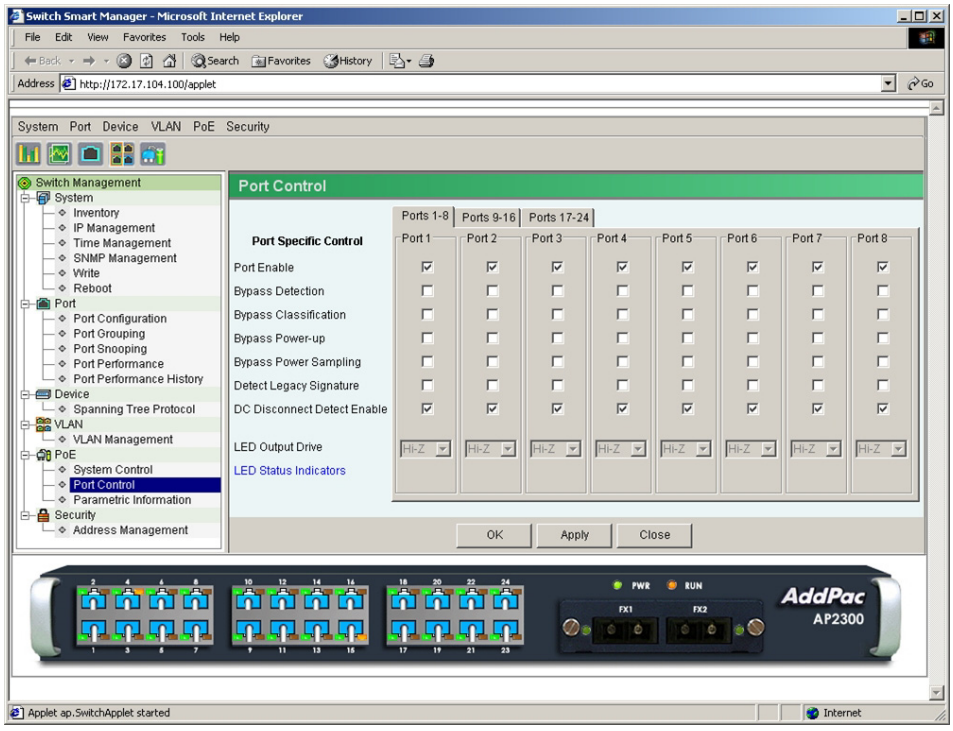


(Figure 3-25) System Control Page

At the below Figure 3-26, "Port Control" is selected from the pull-down menu.

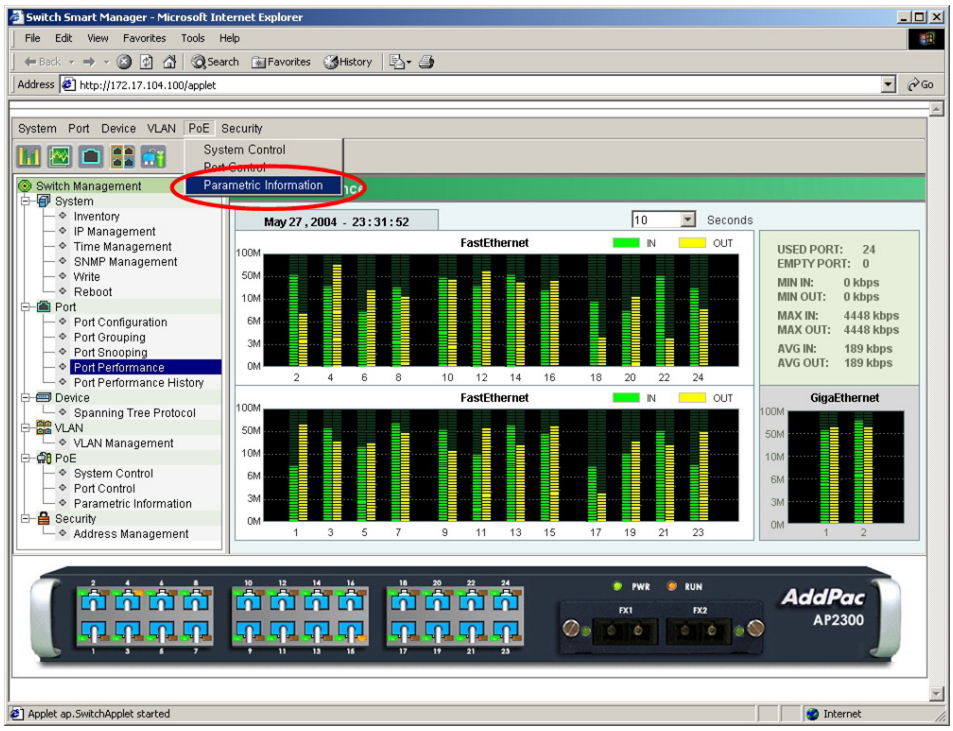


(Figure 3-26) Pull-down Menu: PoE -> Port Control

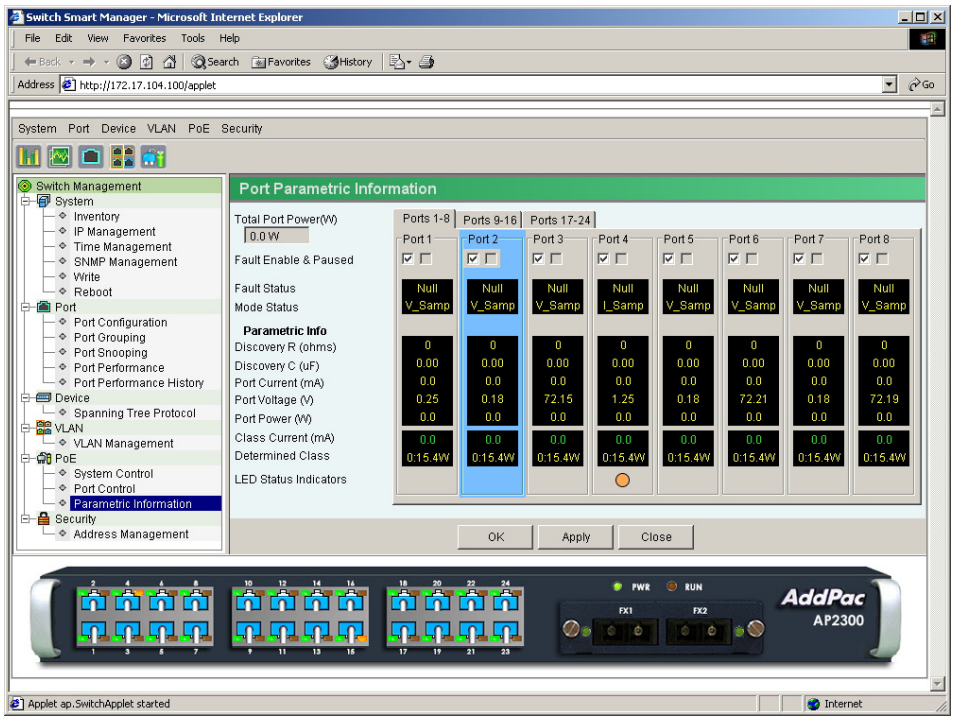


(Figure 3-27) Port Control Page

At the below Figure 3-28, "Parametric Information" is selected from the pull-down menu.

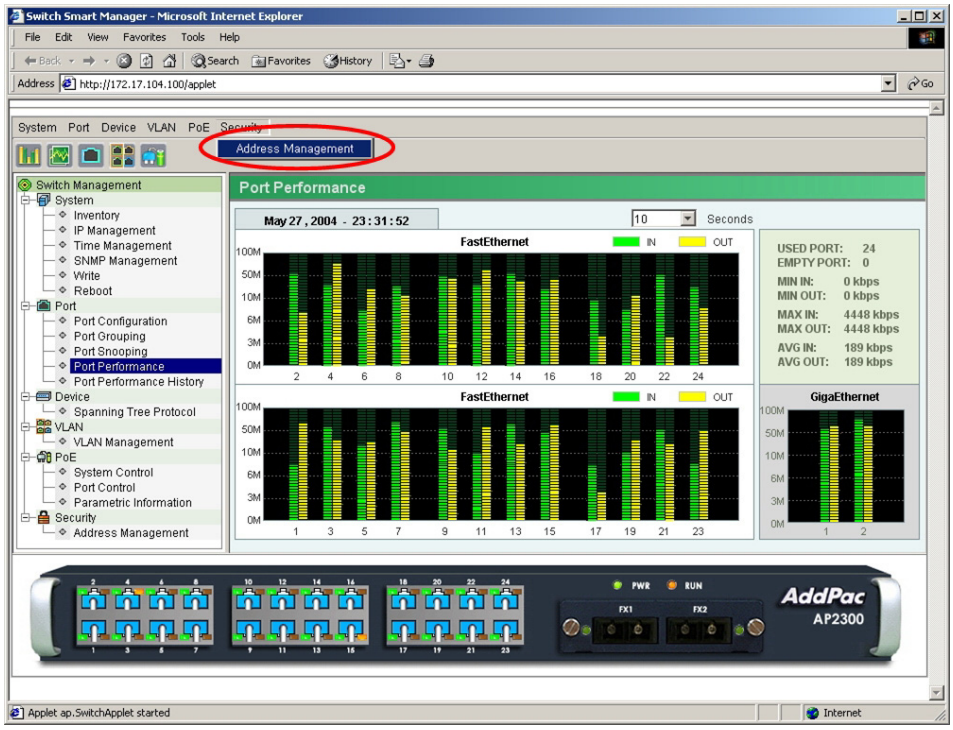


(Figure 3-28) Pull-down Menu: PoE -> Parametric Information

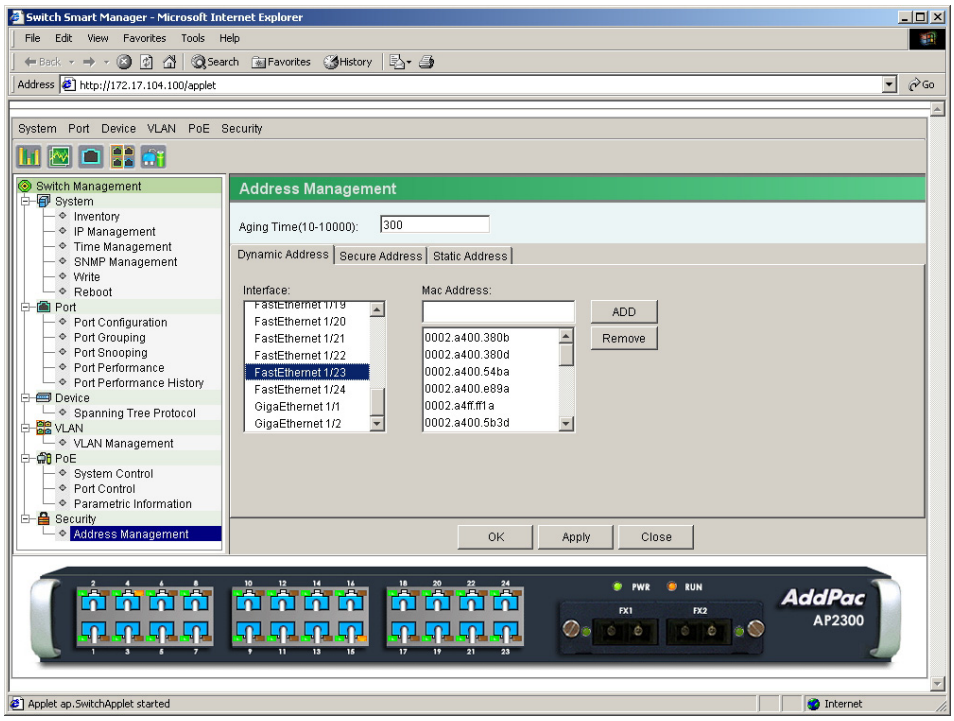


(Figure 3-29) Parametric Information Page

At the below Figure 3-30, "Address Management" is selected from the pull-down menu.



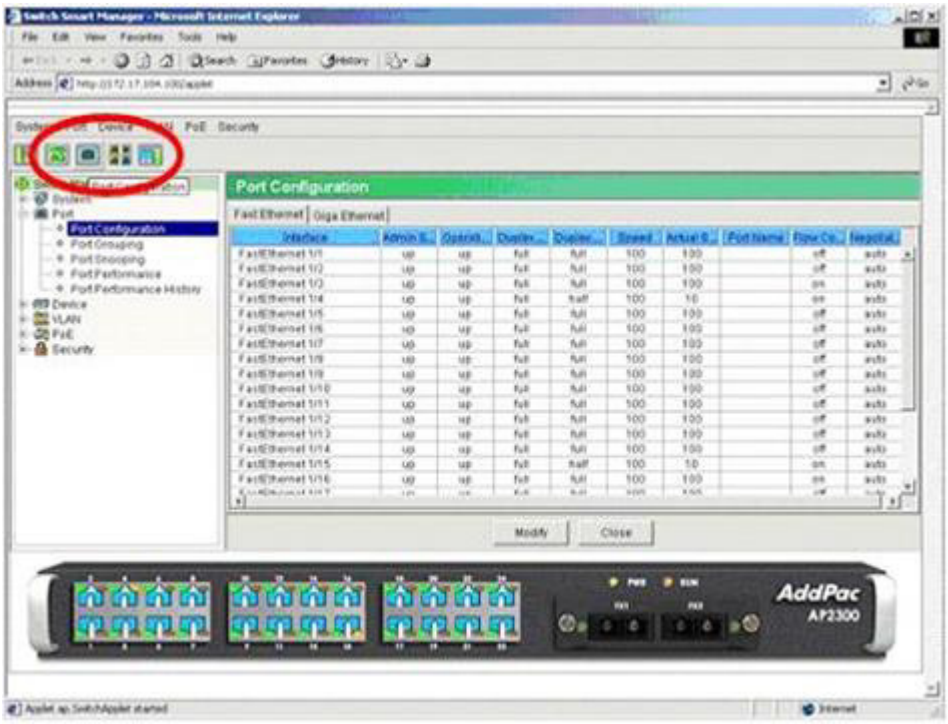
(Figure 3-30) Pull-down Menu: Security -> Address Management



(Figure 3-31) Address Management Page

How to Use Shortcut Icons

Frequently used configuration items such as Port Configuration, Port Performance, Port Performance History, VLAN Management and PoE Parametric Information are listed as shortcut icons under the pull-down menu bar.

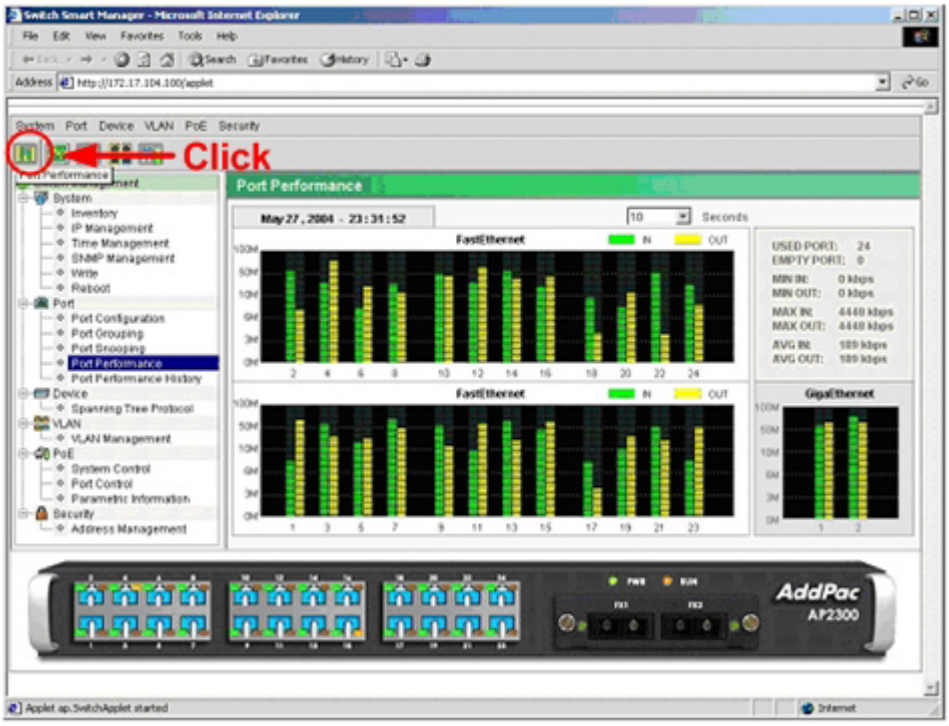


(Figure 3-32) Shortcut Icons

<Table 3-2> Shortcut Icons & Description

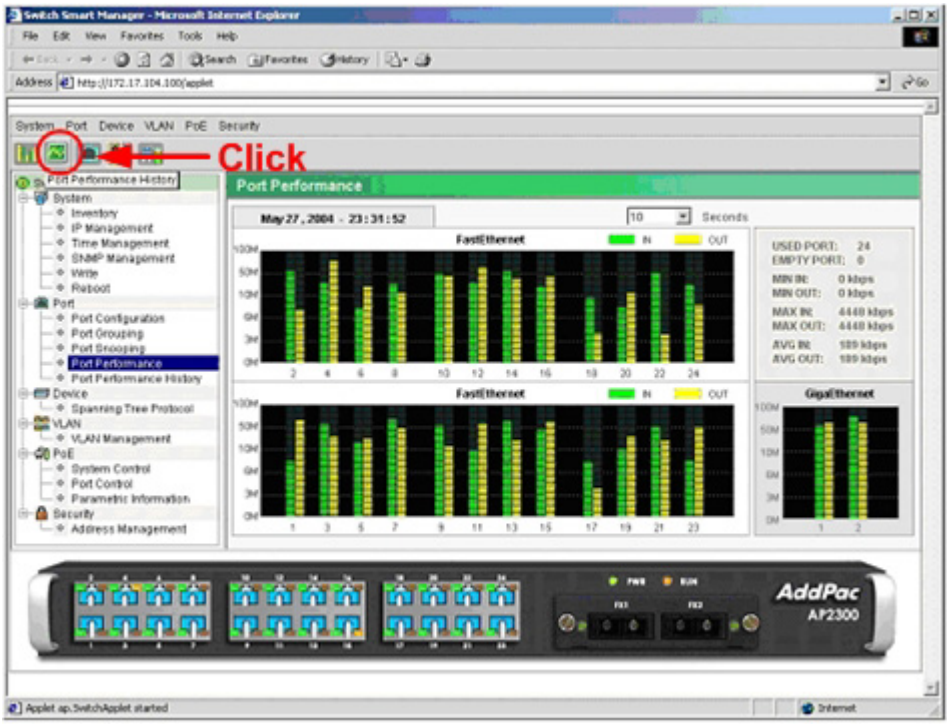
Icons	Description
	Move to Port Performance menu.
	Move to Port Performance History menu.
	Move to Port Configuration menu.
	Move to VLAN Management menu.
	Move to PoE Parametric Information menu.

Port Performance page is the default page of the Smart Manager program. Click "", to move to Port Performance page.



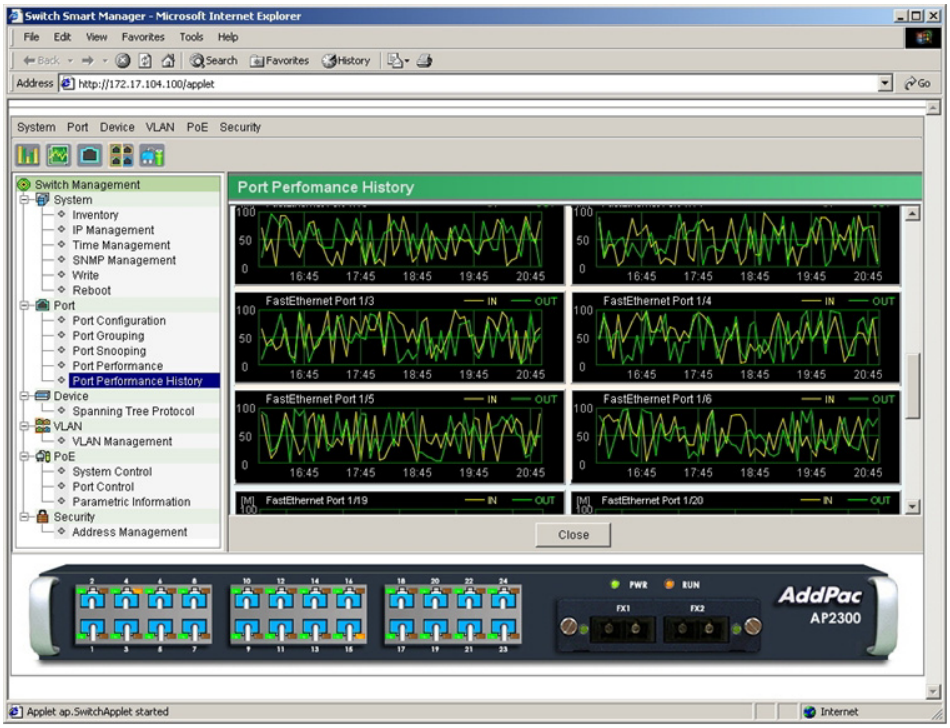
(Figure 3-33) Port Performance Icon

At the below Figure 3-34, the Port Performance History icon is clicked.



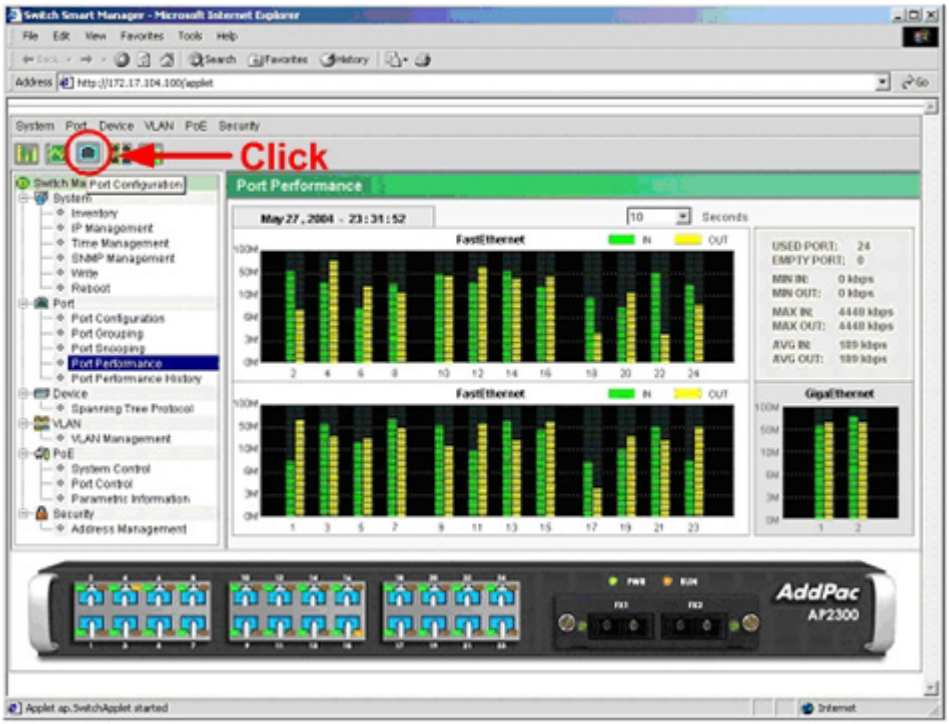
(Figure 3-34) Port Performance History Icon

It moves to Port Performance History page.



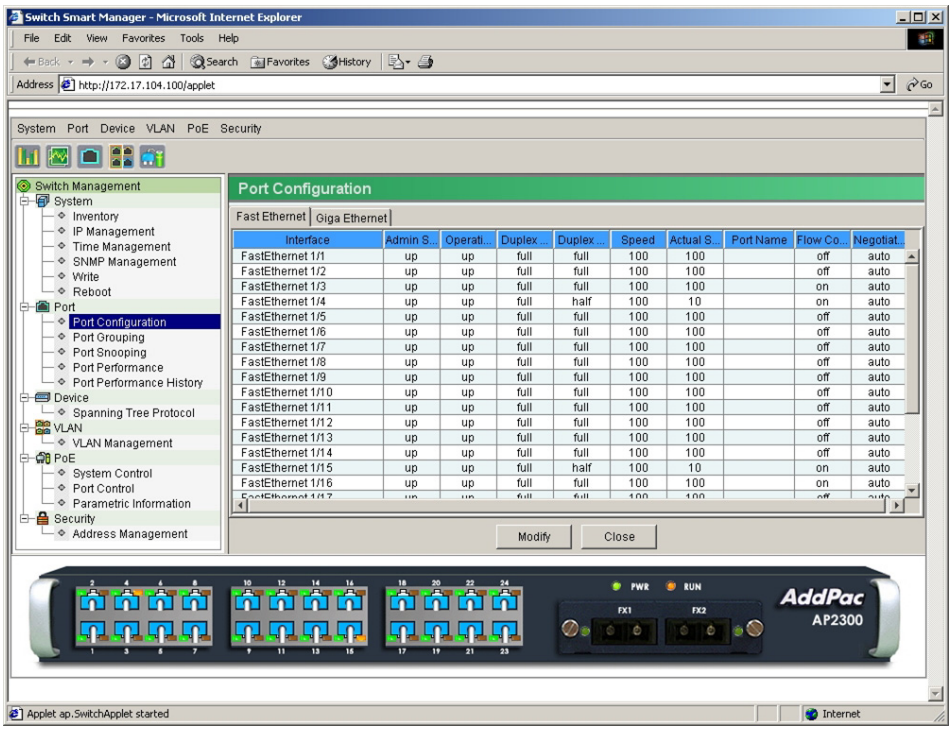
(Figure 3-35) Port Performance History Page

At the below Figure 3-36, the Port Configuration icon is clicked.



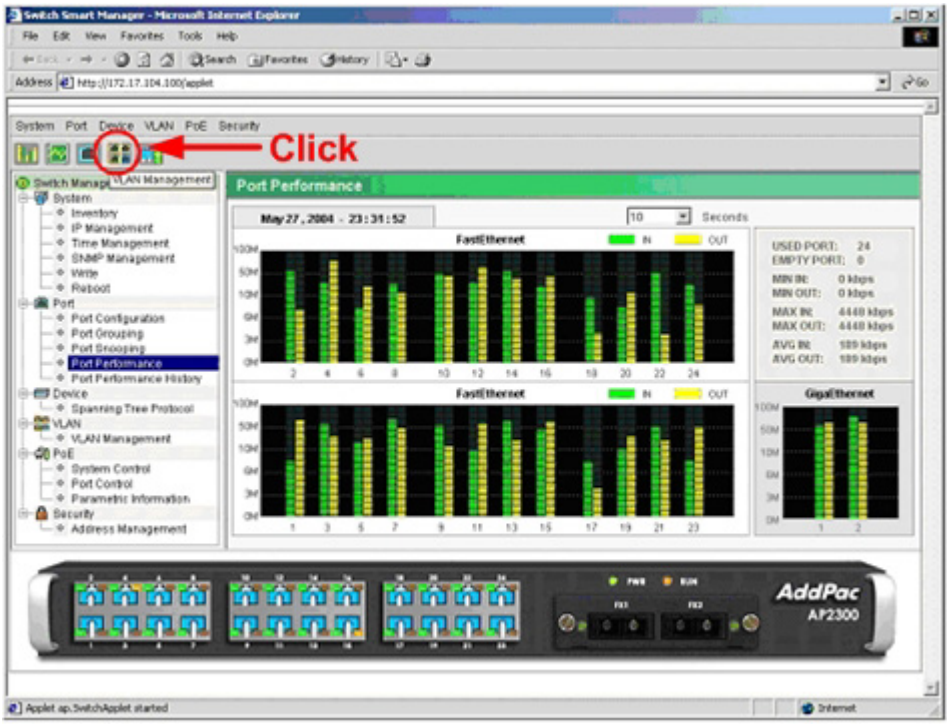
(Figure 3-36) Port Configuration Icon

It moves to Port Configuration page.



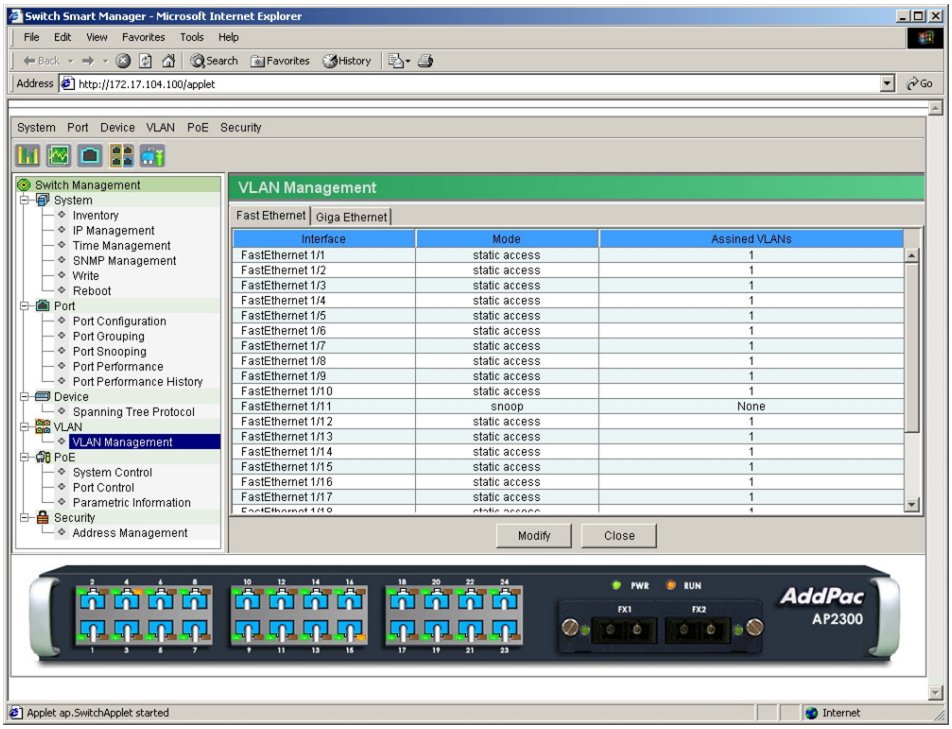
(Figure 3-37) Port Configuration Page

At the below Figure 3-38, the VLAN Management icon is clicked.



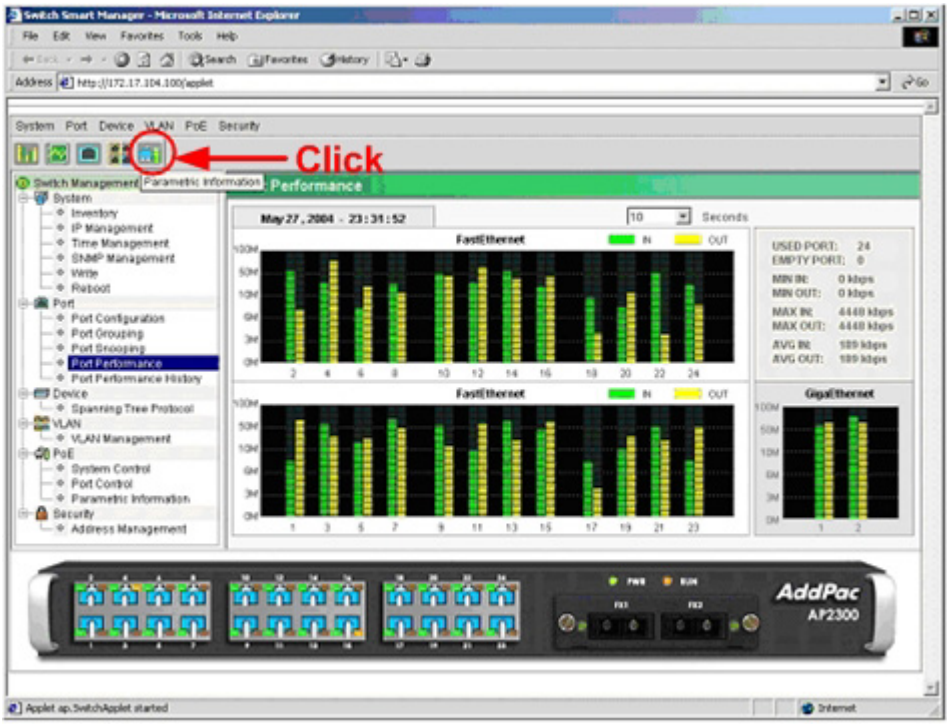
(Figure 3-38) VLAN Management Icon

It moves to VLAN Management page.



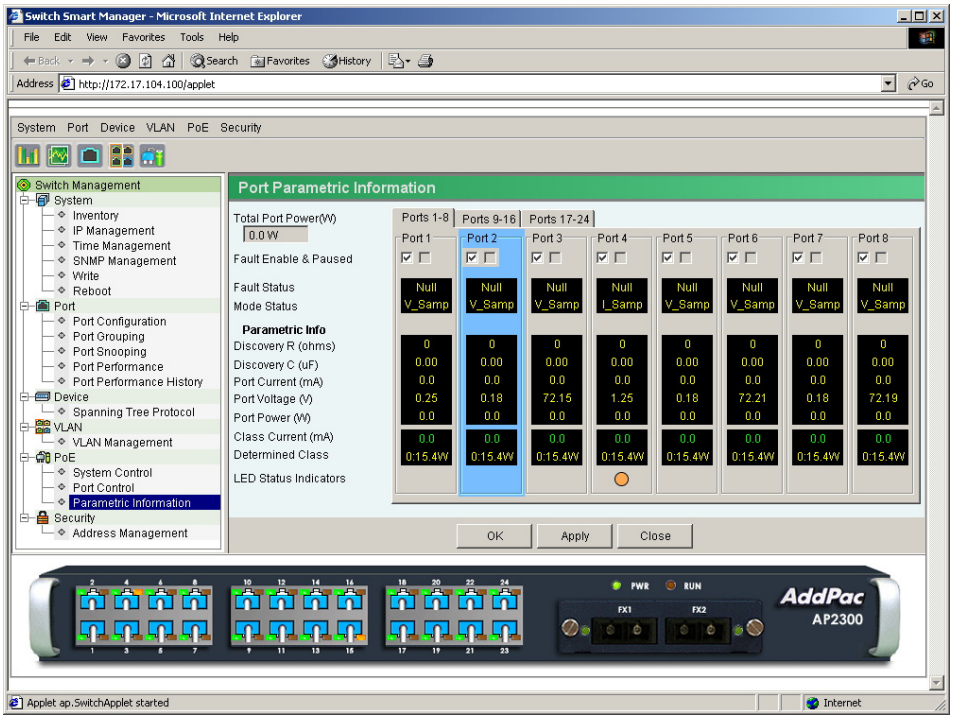
(Figure 3-39) VLAN Management Page

At the below Figure 3-40, the PoE Parametric Information icon is clicked.



(Figure 3-40) PoE Parametric Information Icon

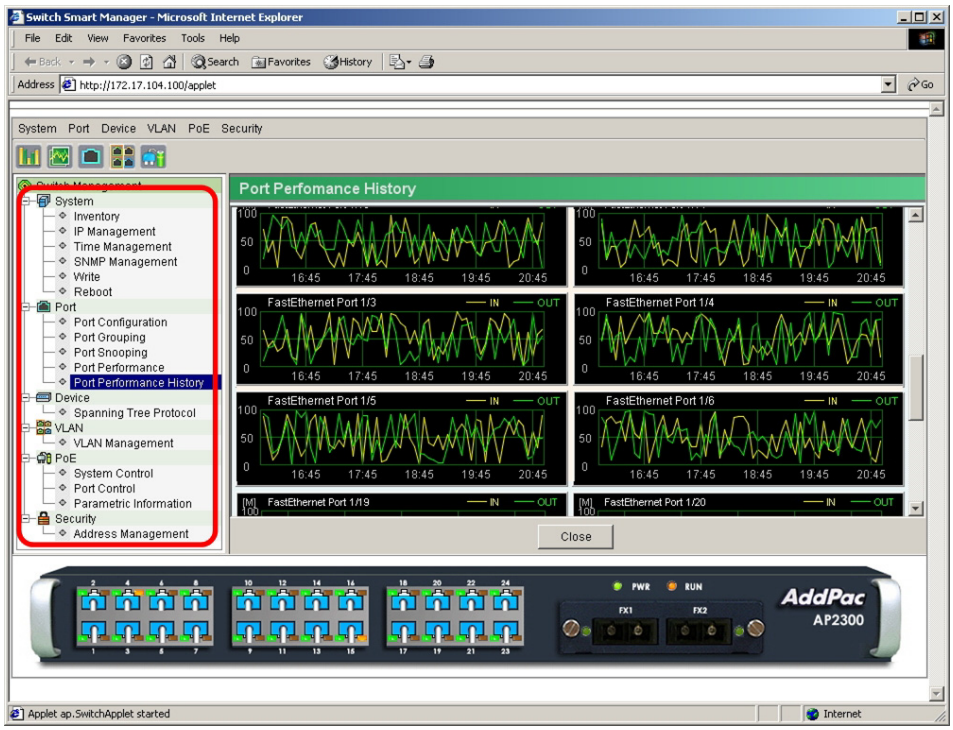
It moves to PoE Parametric Information page.



(Figure 3-41) PoE Parametric Information Page

How to Use Tree Menu

The users enable to control and access overall features of AP2300 PoE Layer2 switch with the tree menu. This tree menu is divided by 6 parts and the detailed description is listed at the Table 3-3.



(Figure 3-42) Tree Menu of AP2300

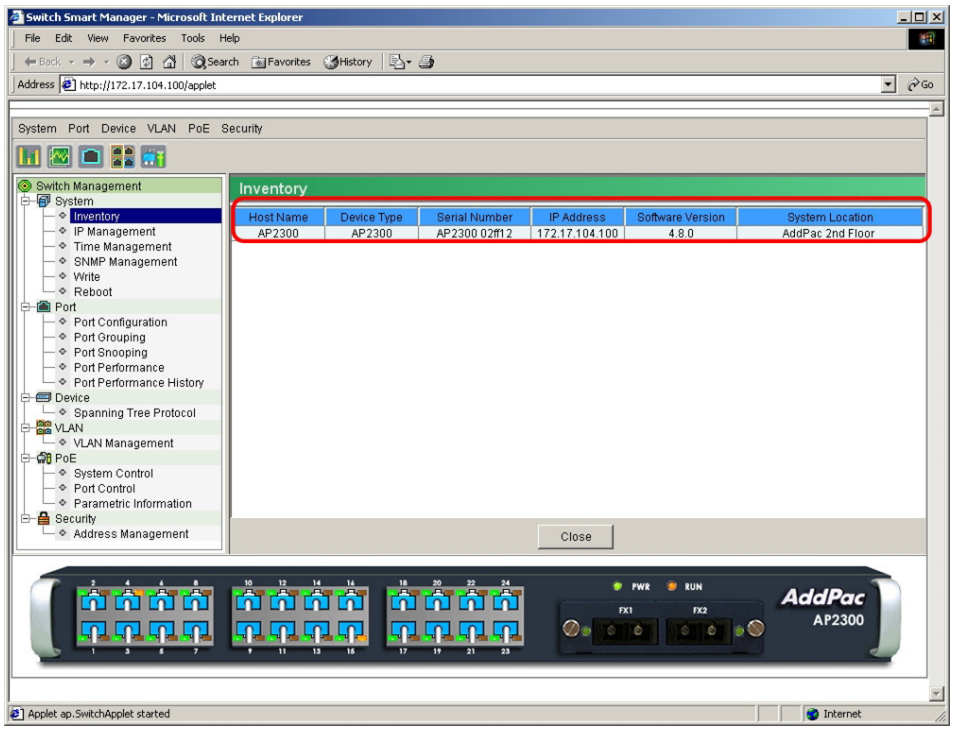
<Table 3-3> Tree Menu & Description

Menu	Description
System	Basic configuration parameters of AP2300. IP Management, Time Management, SNMP Management, Write and Reboot menus are included.
Port	Port Configuration, Port Grouping and Port Snooping setting of 24 Ethernet ports and 2 uplink ports. Also, it offers performance and performance history information.
Device	Configure STP (Spanning Tree Protocol) related parameters.
VLAN	Port based VLAN configuration.
PoE	PoE Global Configuration, Port Control and monitoring.
Security	MAC addresses monitoring and blocking of hosts based on the MAC addresses.

System Menu

Inventory

"Inventory" offers the brief information of AP2300 Ethernet Switch.



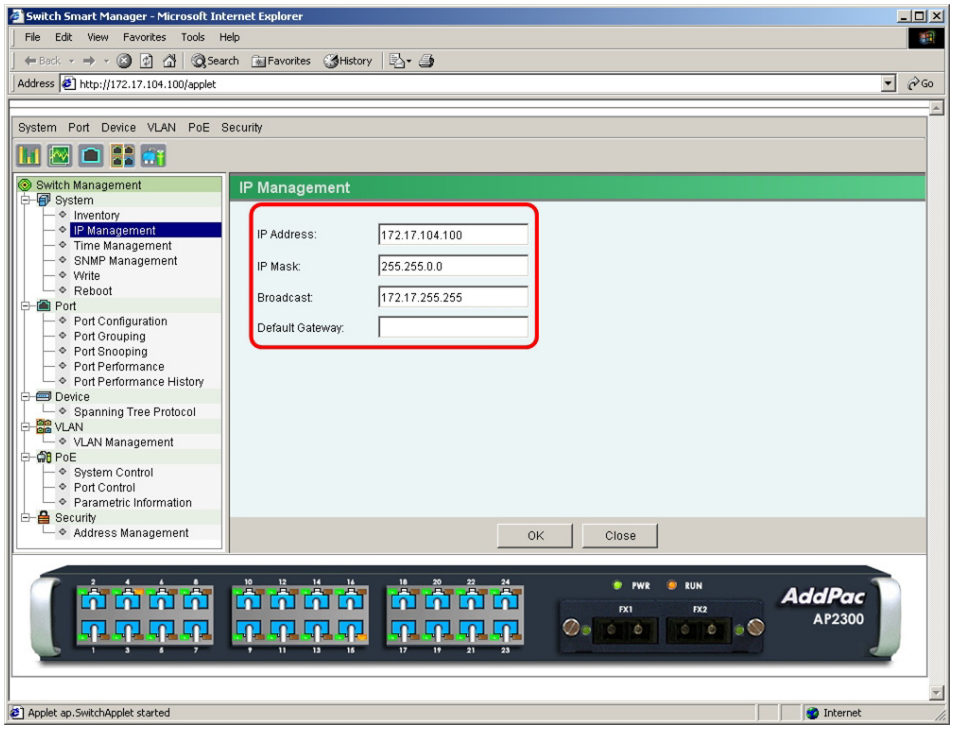
(Figure 3-43) System- Inventory Menu

<Table 3-4> Inventory Fields

Fields	Description
Host Name	The Host Name of AP2300. The user enables to change it from the SNMP Management Page.
Device Type	The Device Type of AP2300. It is configured as "AP2300" as default.
Serial Number	The Global MAC Address of AP2300.
IP Address	The IP address for management.
Software Version	The APOS version of AP2300.
System Location	The System Location information from SNMP Management page.

IP Management

Change or enter the Management IP address at the IP Management page. Smart Manager is accessible with IP address. So be careful with the IP address change. After entering necessary parameters, click "OK" button.



(Figure 3-44) IP Management Page

<Table 3-5> IP Management Parameters

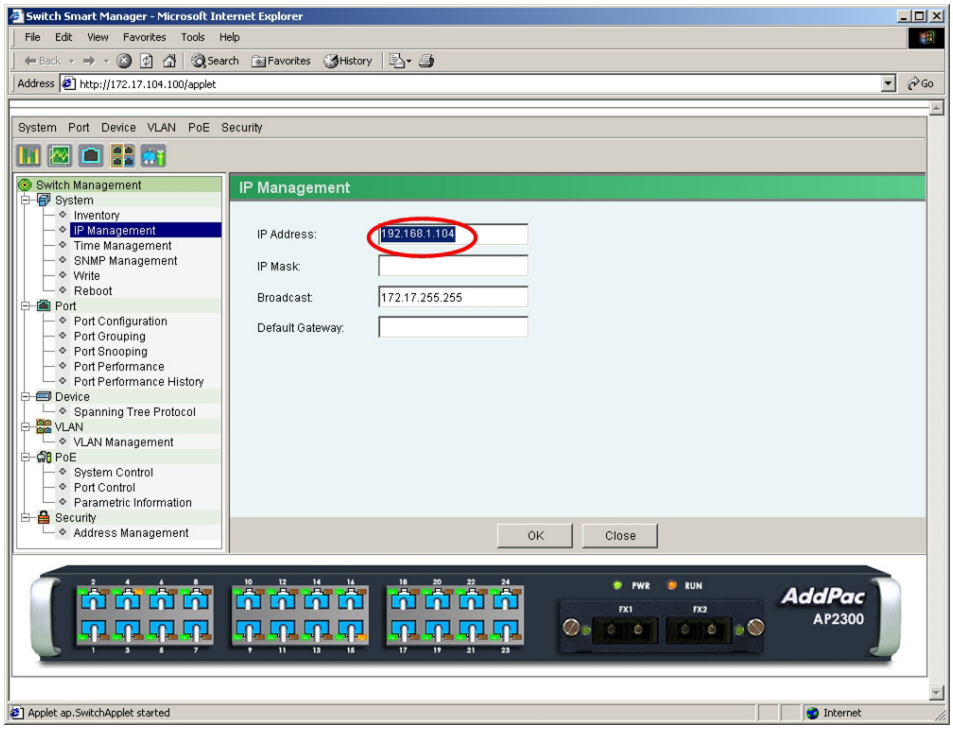
Parameters	Description
IP Address	Enter a new IP address for the switch management.
IP Mask	Enter a subnet mask (IP mask) for the switch.
Broadcast	Enter a broadcast address for the switch. The switch uses this address to send messages to all stations.
Default Gateway	Enter the IP address of the default gateway for packet routing.

Caution!

1. Smart Manager is an application running on the TCP/IP connection of the management PC and AP2300 switch.
2. Changing the management IP address ends the manager software session. Restart the manger software by entering the new IP address in the browser.
3. The Broadcast parameter is changed automatically according to the new IP Address and IP Mask.
4. Check the IP address of the PC. The IP address should be on the same network of the Management IP address.
5. IP Management parameters are only related to Smart Manager software program. They do not affect the Hosts connected to the switch.

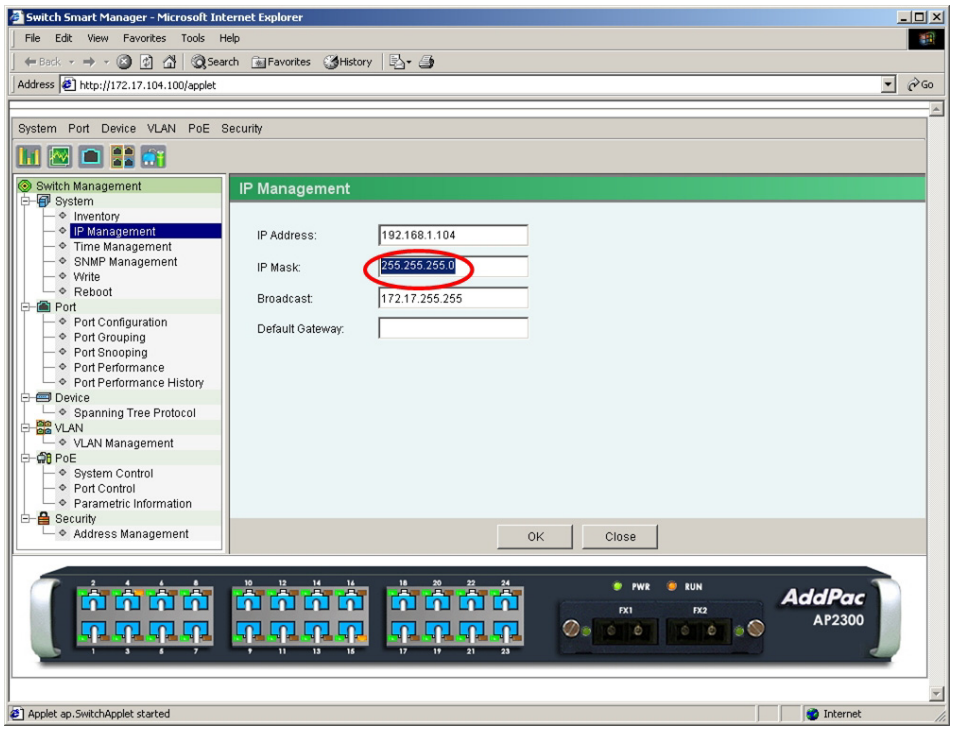
At the below example, the IP management information is changed to "IP Address 192.168.1.104, IP Mask 255.255.255.0, Broadcast 192.168.1.255, Default Gateway 192.168.1.1."

Input "192.168.1.104" at the IP Address field.



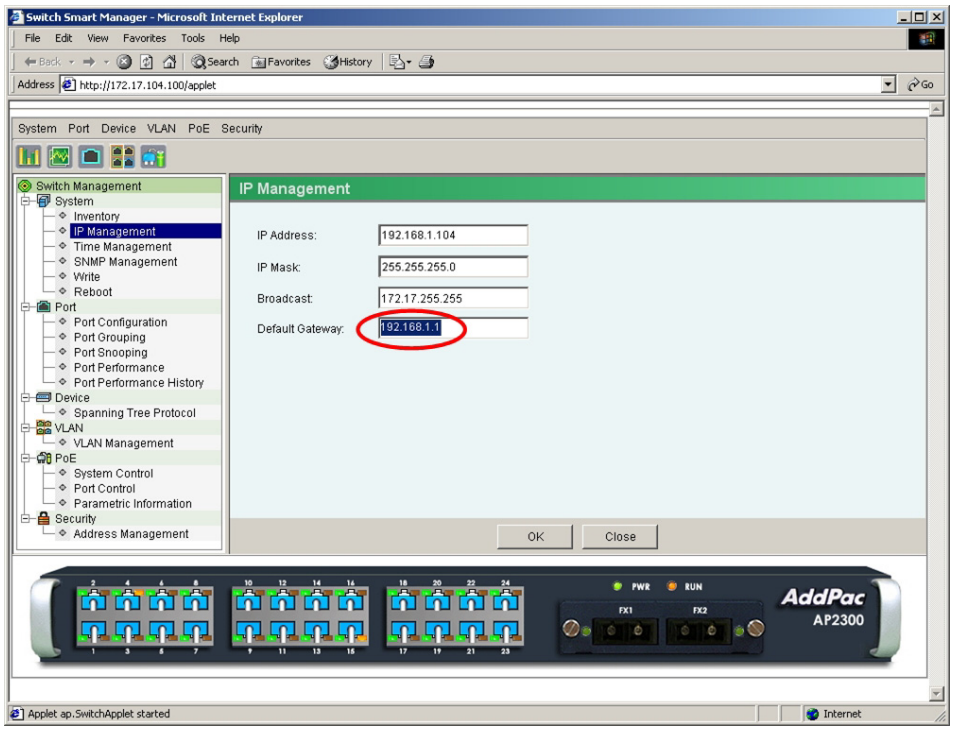
(Figure 3-45) Input IP Address

Input "255.255.255.0" at the IP Mask field.



(Figure 3-46) Input IP Mask

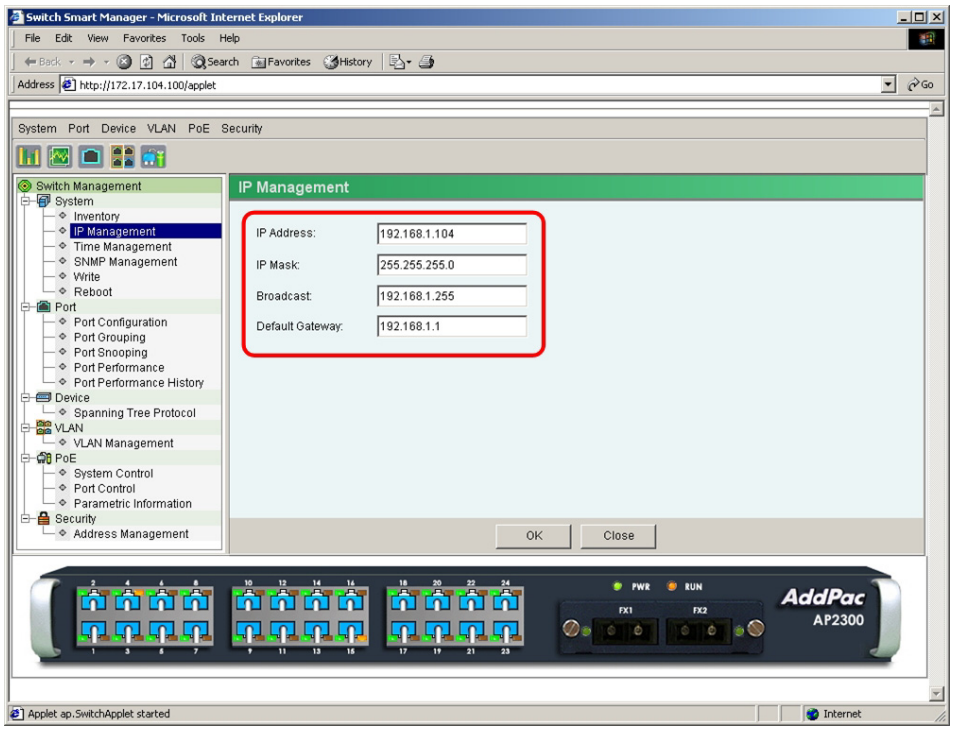
Input "192.168.1.1" at the Default Gateway field and click "OK" button.



(Figure 3-47) Input Default Gateway

To restart Smart Manager, input "192.168.1.104" at the address bar of Internet Explorer.

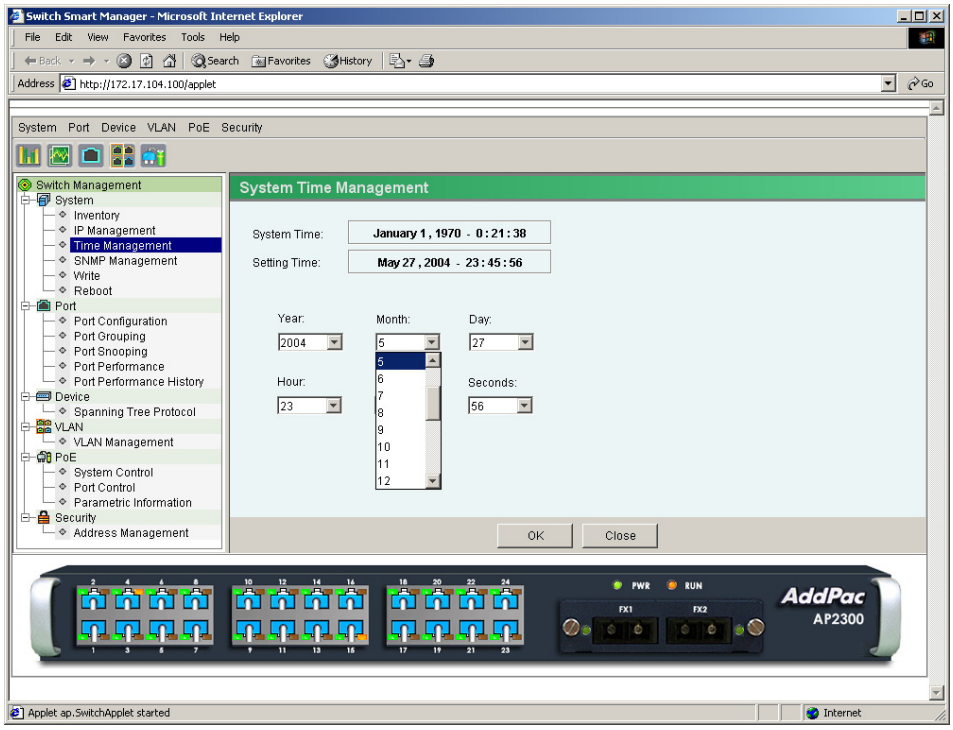
After re-login to Switch Management system, check the changed IP Management information as shown below.



(Figure 3-48) Changed IP Management Information

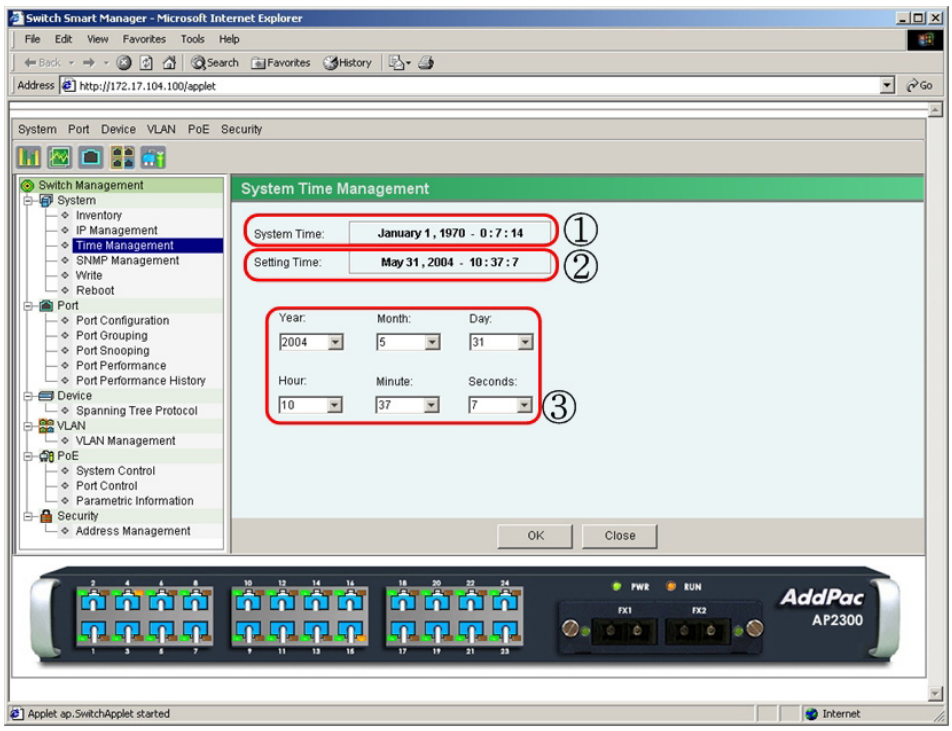
Time Management

Time Management changes the system time of AP2300 PoE Layer2 Switch. With each pull-down menu, users enable to change the year, month, day, hour and second information of the switch. Click "OK" button to save the values.



(Figure 3-49) Time Management Page

The Time Management page elements are described below.



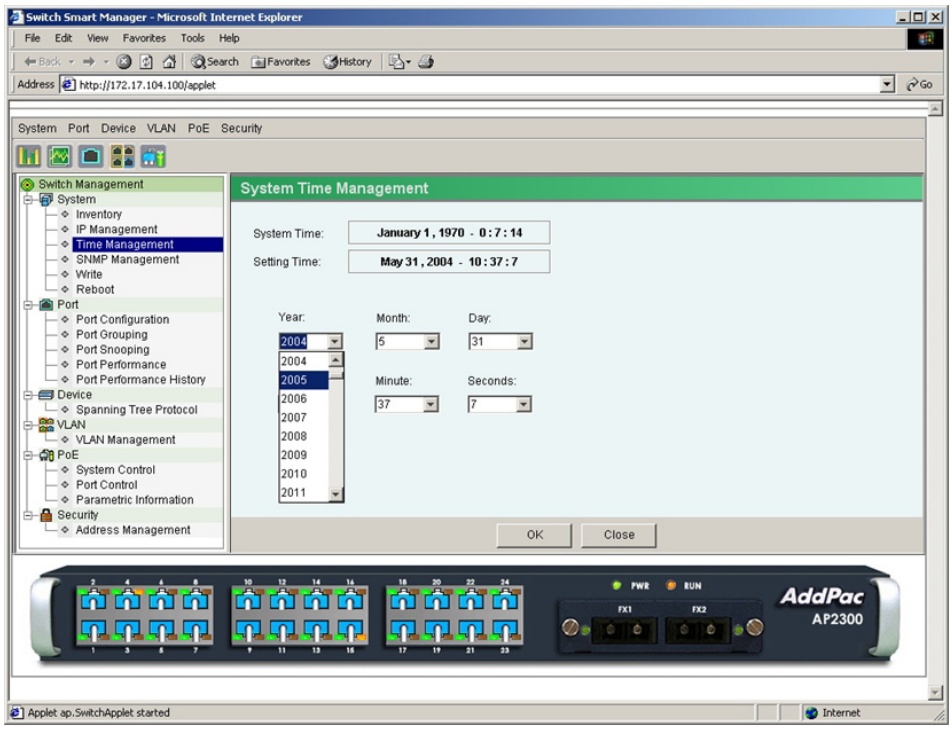
(Figure 3-50) Time Management Page Elements

<Table 3-6> Time Management Page Elements & Description

Elements	Description
① System Time	The current system time of AP2300 switch.
② Setting Time	The system time configured by the user. The default time is synchronized with that of PC.
③ Year, Month, Day, Hour, Minute, Seconds	Set the year, month, day, hour, minute and seconds with the pull-down menu.

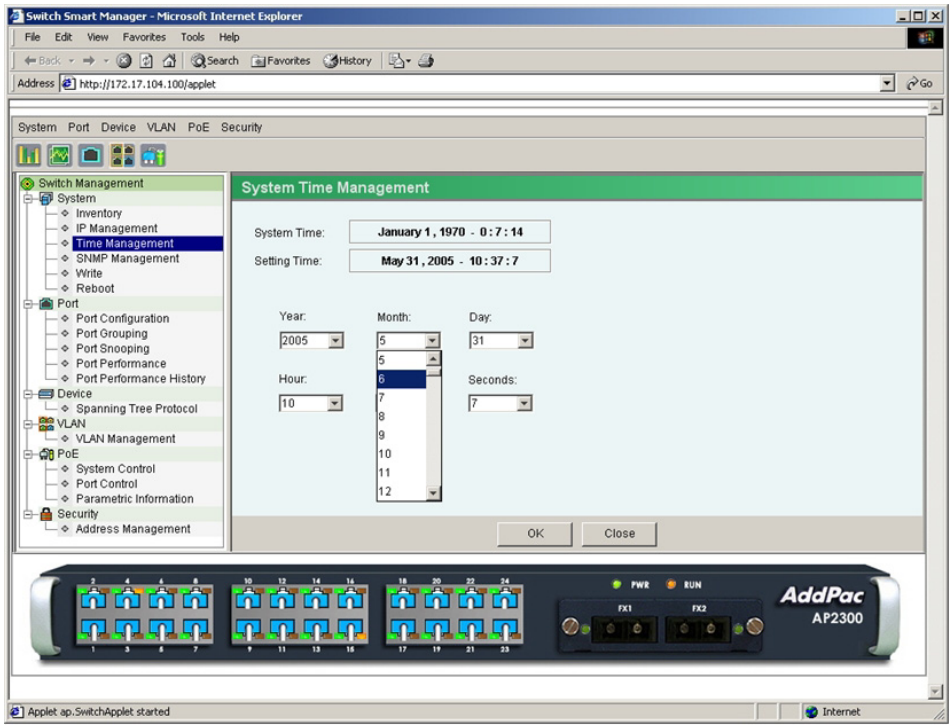
The below example describes how to change the Time Management information.

Select "2005" from the pull-down menu for "Year."



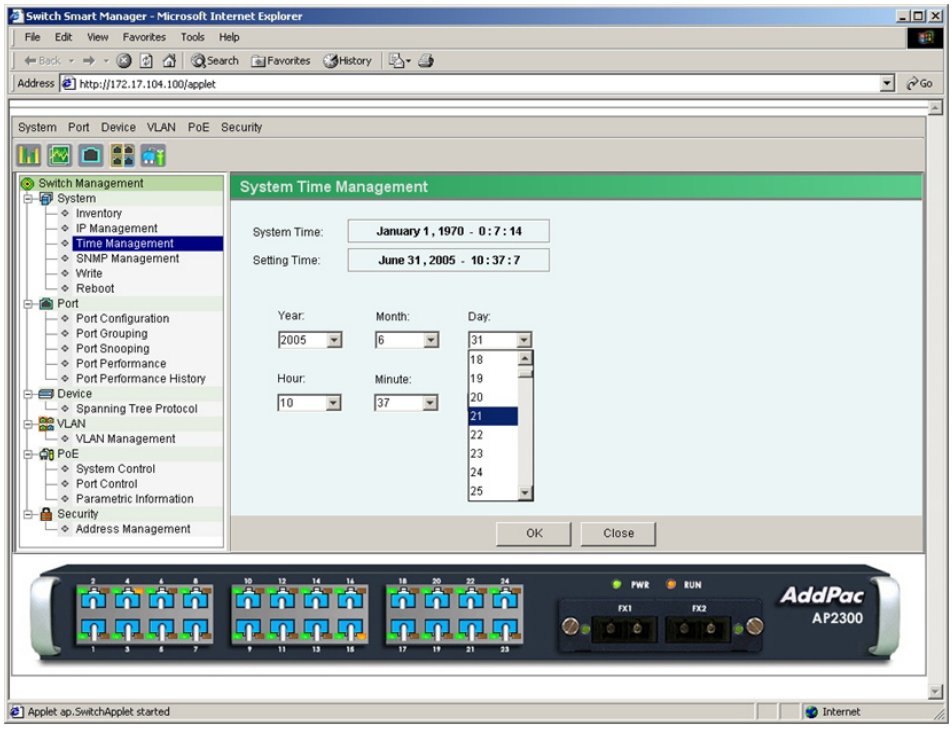
(Figure 3-51) System Time Management: Year

Select "6" from the pull-down menu for "Month."



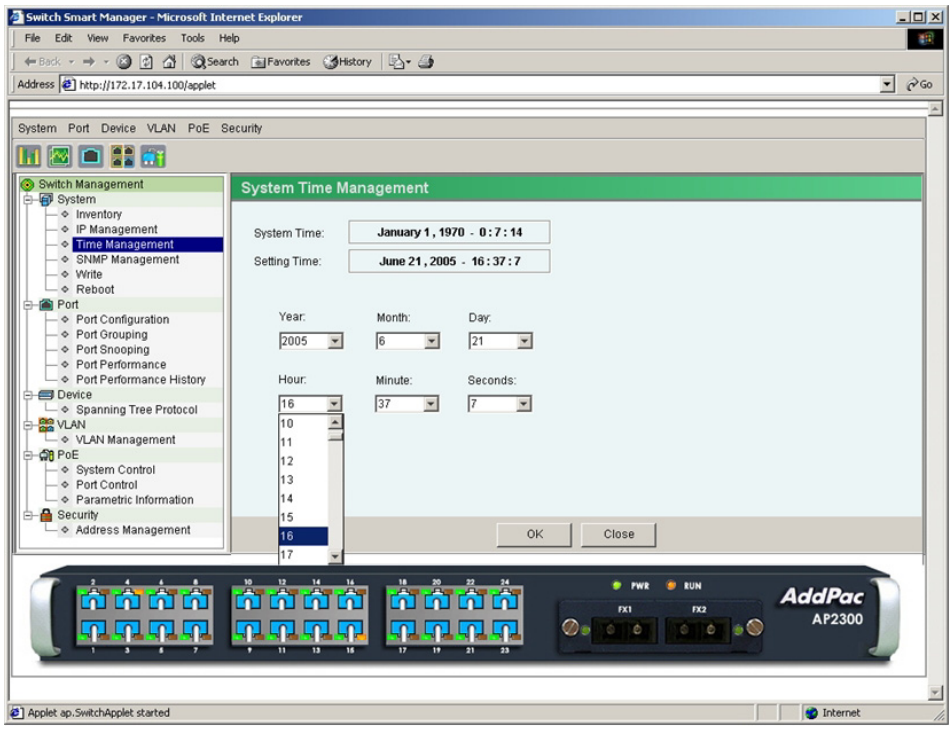
(Figure 3-52) System Time Management: Month

Select "21" from the pull-down menu for "Day."



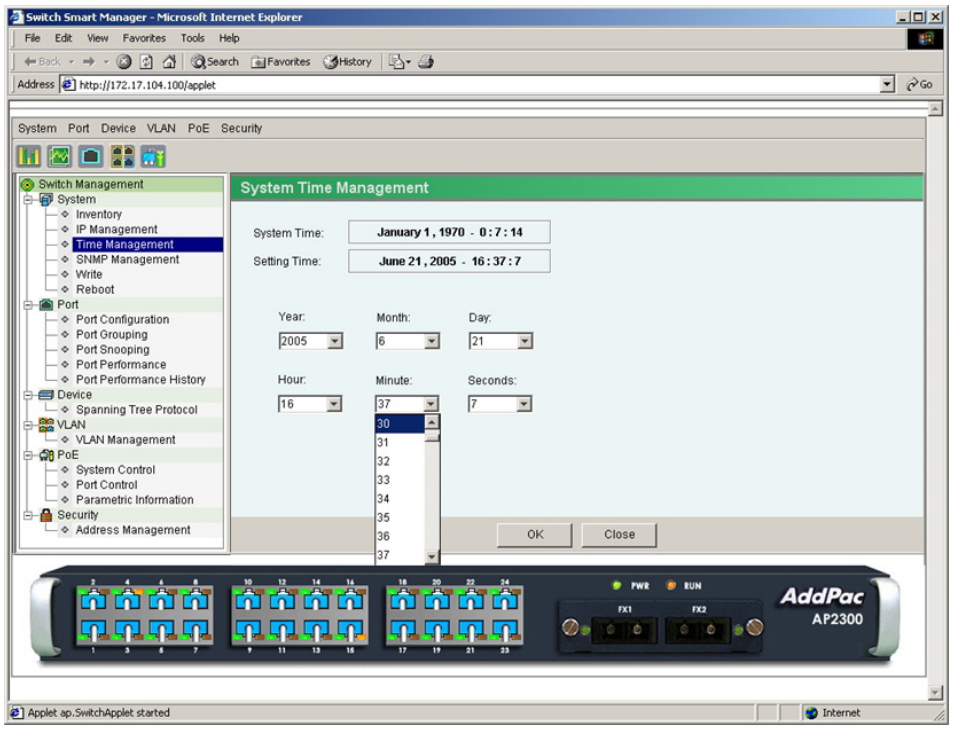
(Figure 3-53) System Time Management: Day

Select "16" from the pull-down menu for "Hour."



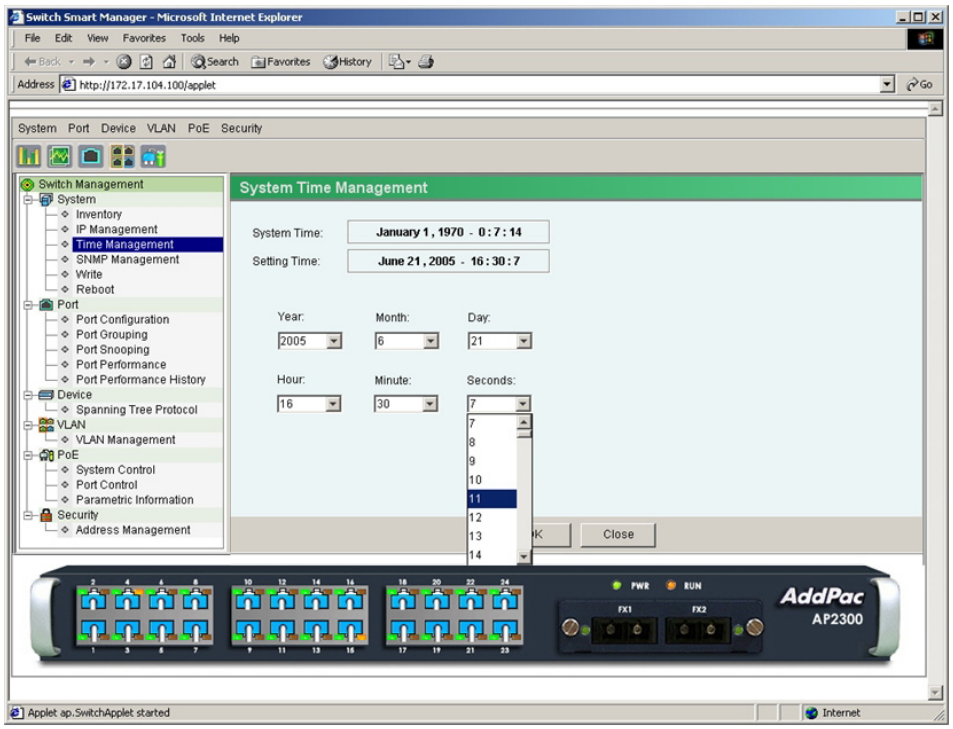
(Figure 3-54) System Time Management: Hour

Select "30" from the pull-down menu for "Minute."



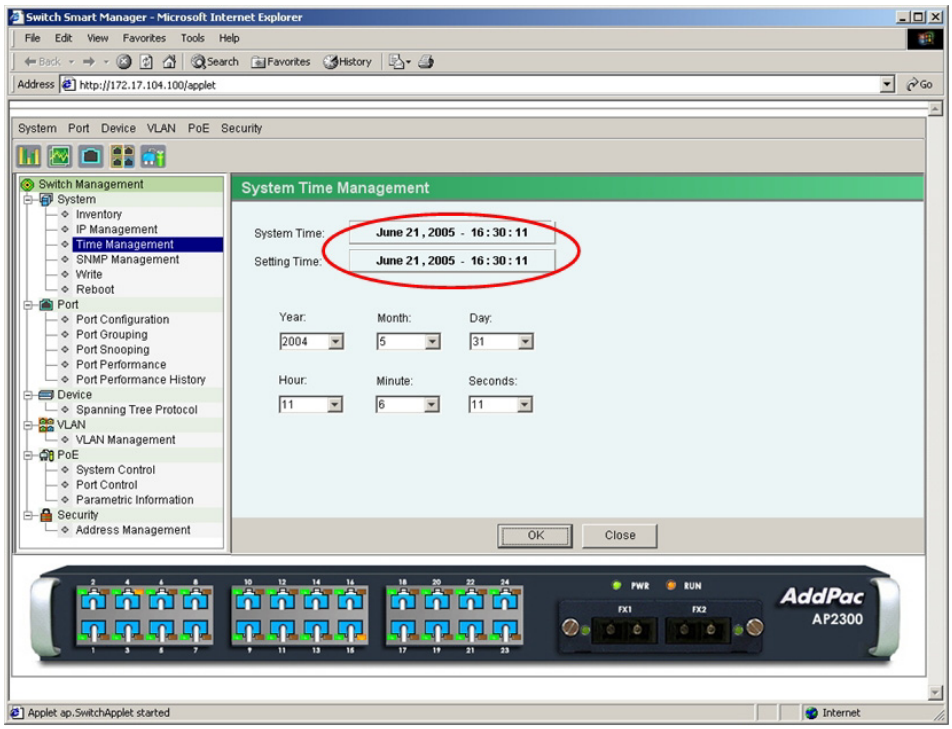
(Figure 3-55) System Time Management: Minute

Select "11" from the pull-down menu for "Seconds."



(Figure 3-56) System Time Management: Seconds

Click "OK" button and verify the changed time from "Setting Time."



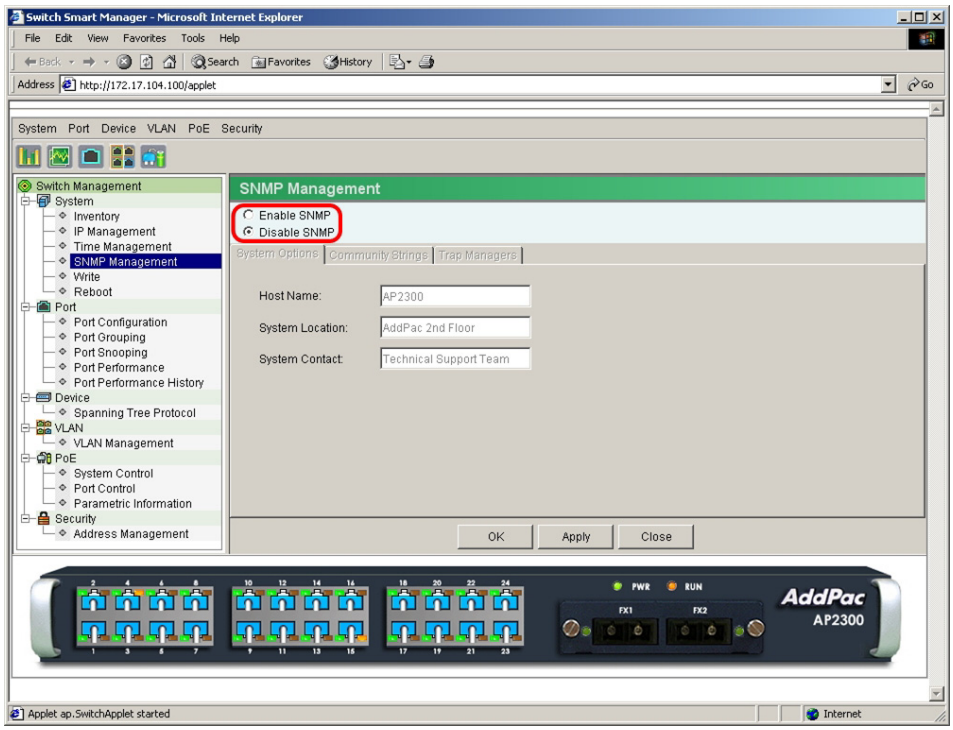
(Figure 3-57) Verify System Time

SNMP Management

SNMP Management changes the SNMP agent information of AP2300 PoE Layer2 Switch. SNMP Server makes possible easy remote management of AP2300. As default, SNMP Agent is disabled.

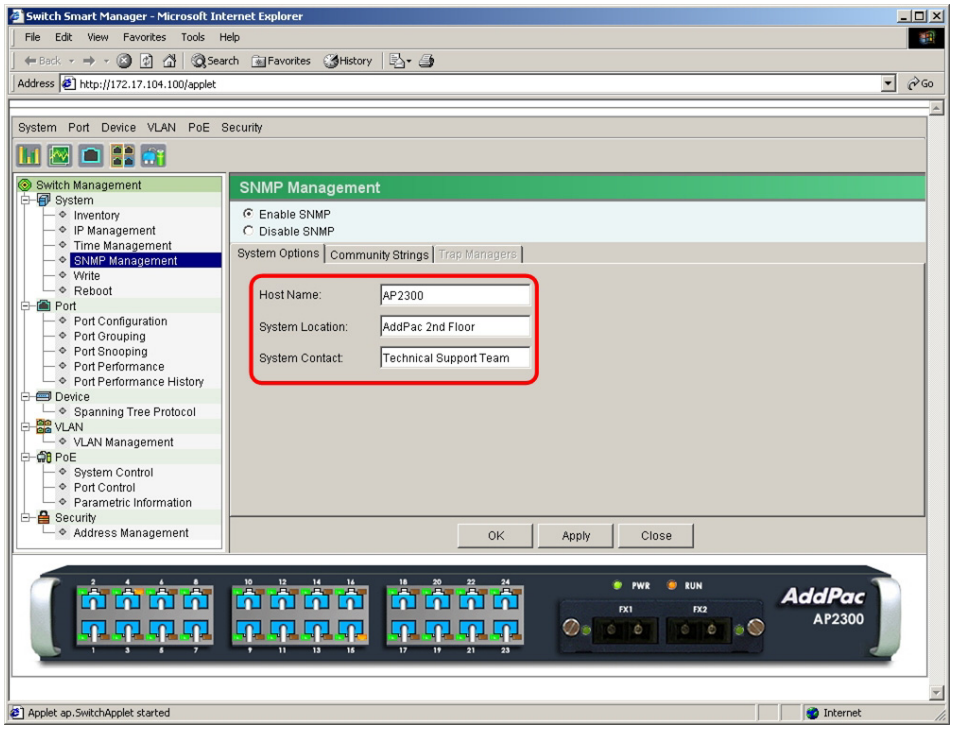
The below Figure 3-58 is the default page of SNMP Management.

Select "Enable SNMP" and input the necessary parameters.



(Figure 3-58) SNMP Management Main Page

Click "System Options" tab.

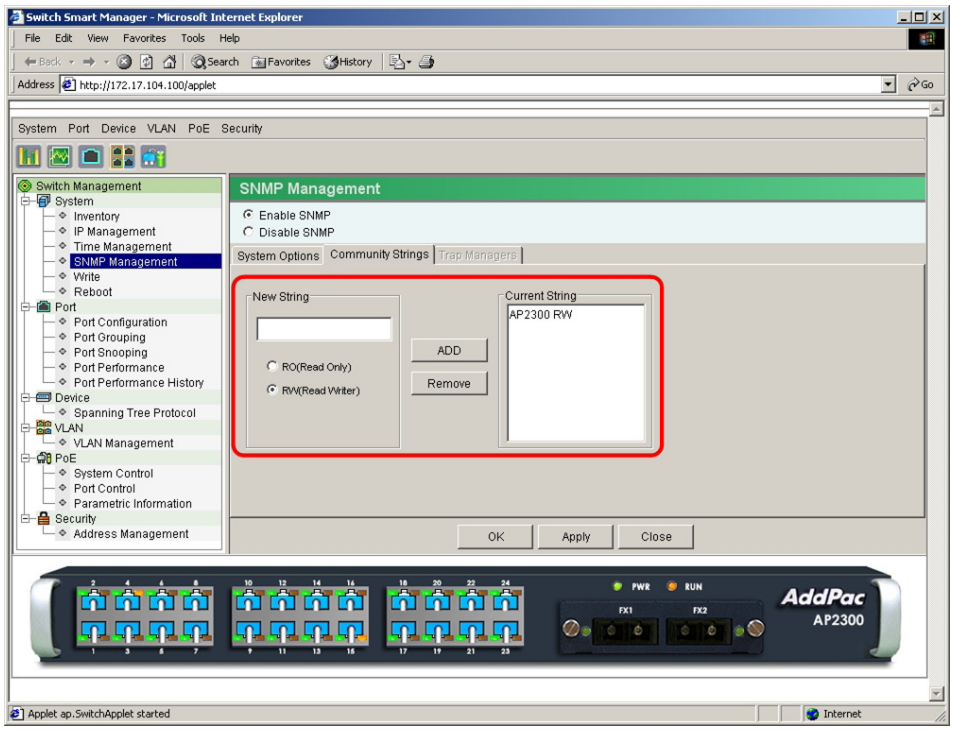


(Figure 3-59) SNMP Management -> System Options

<Table 3-7> System Options Parameters & Description

Parameters	Description
Host Name	Set Host Name of AP2300 switch. It is also displayed at "Inventory." Both English characters and numeric numbers are available.
System Location	The physical location of AP2300 switch.
System Contact	The contact information in case of AP2300 switch failures.

Click "Community Strings" tab.



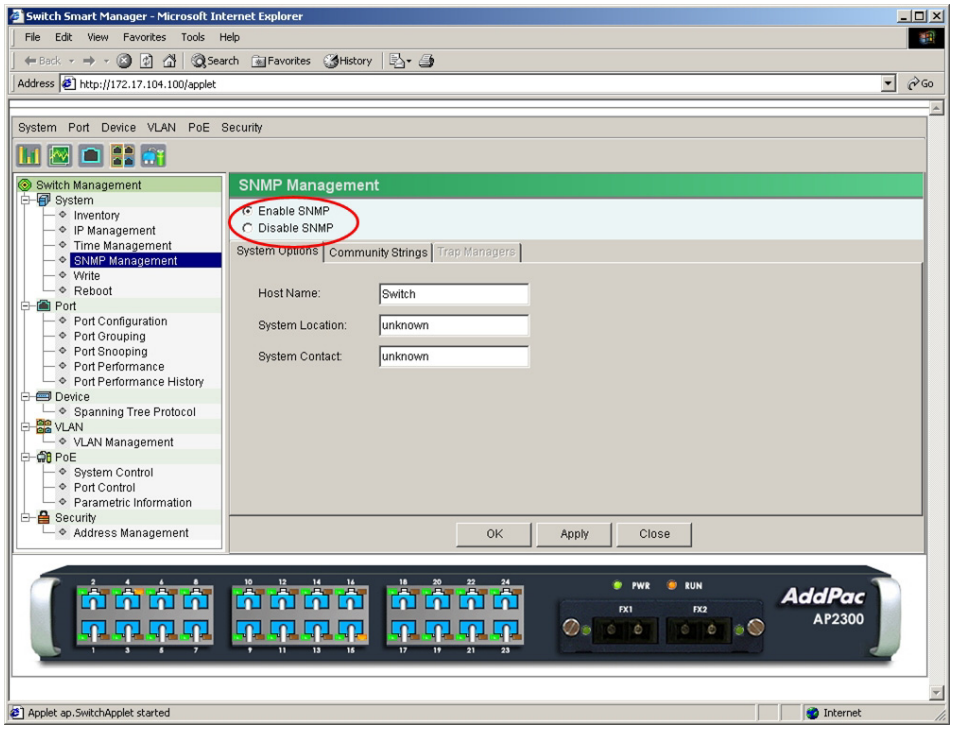
(Figure 3-60) SNMP Management -> Community String

<Table 3-8> Community String Parameters & Description

Parameters	Description
New String	Input SNMP Community String. Select either RO(Read Only) or RW(Read Write), and then click "ADD" button to add the string.
Current String	Displays current Community Strings. Select a Community String and click "Remove" button to remove it from the list.

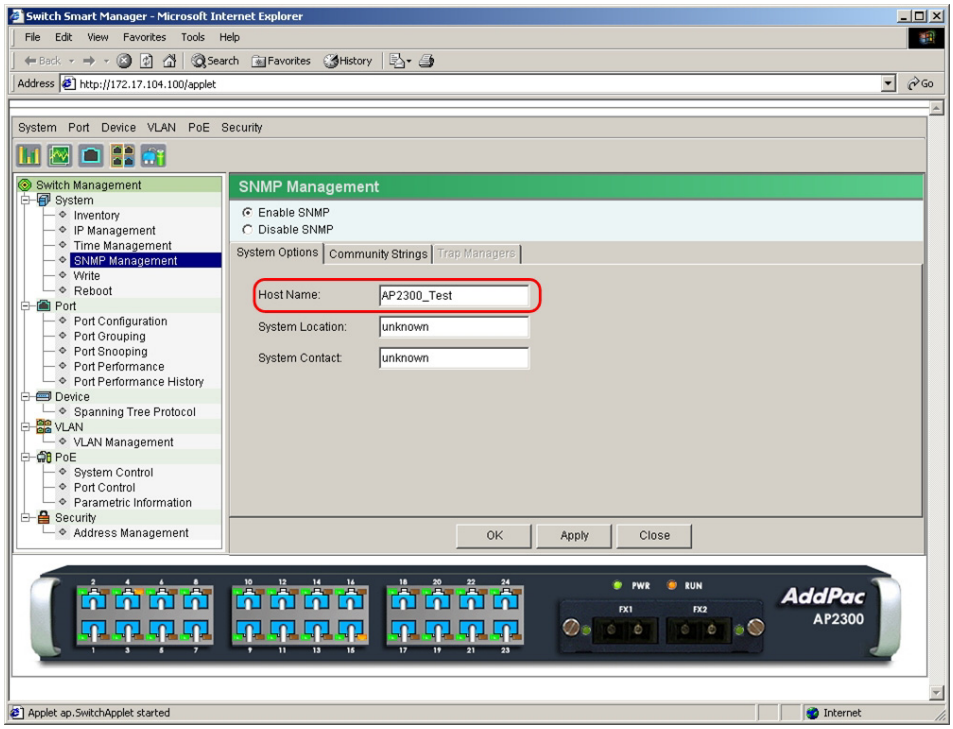
The below example describes how to change the System Options information from SNMP Management page.

Select "Enable SNMP."



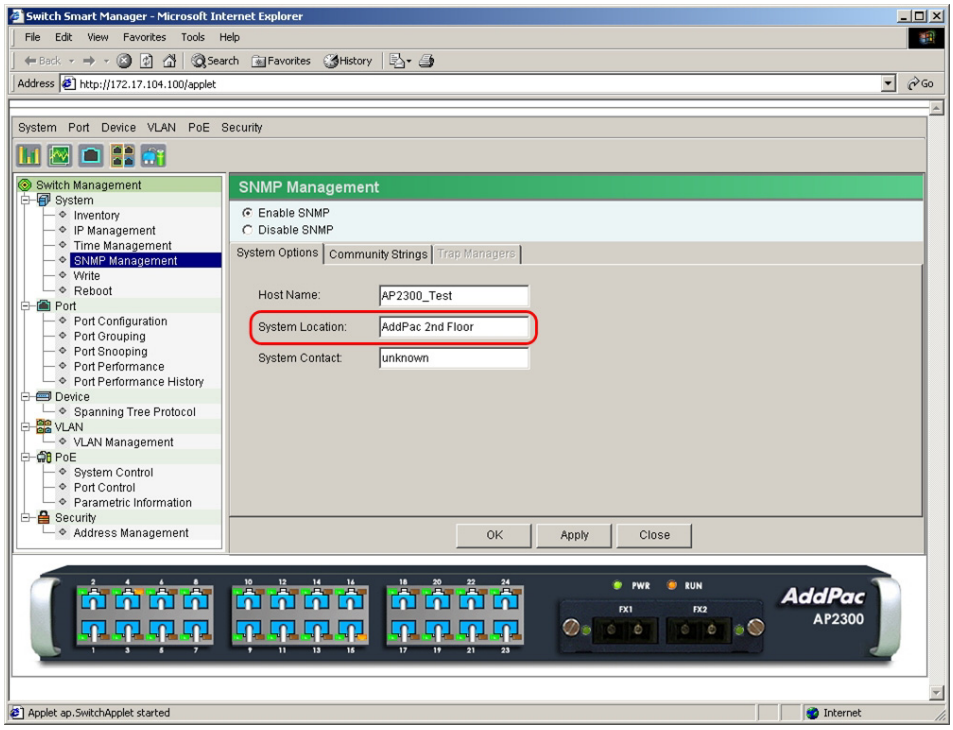
(Figure 3-61) SNMP Enable

Input "AP2300_Test" for Host Name.



(Figure 3-62) Input SNMP Host Name

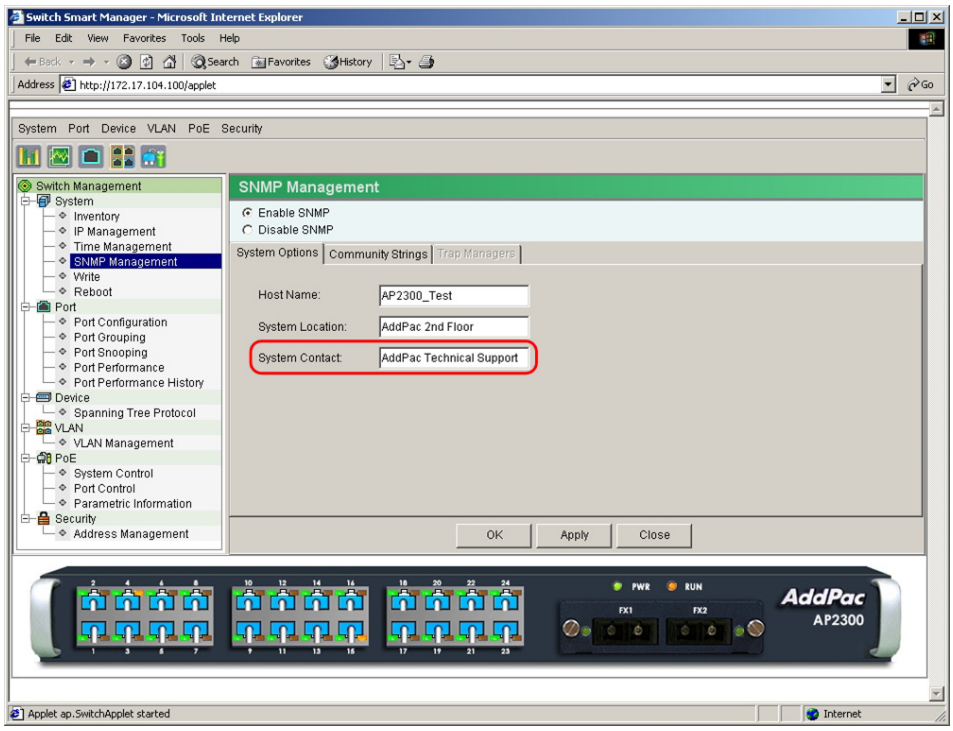
Input "AddPac 2nd Floor" for System Location.



(Figure 3-63) SNMP System Location

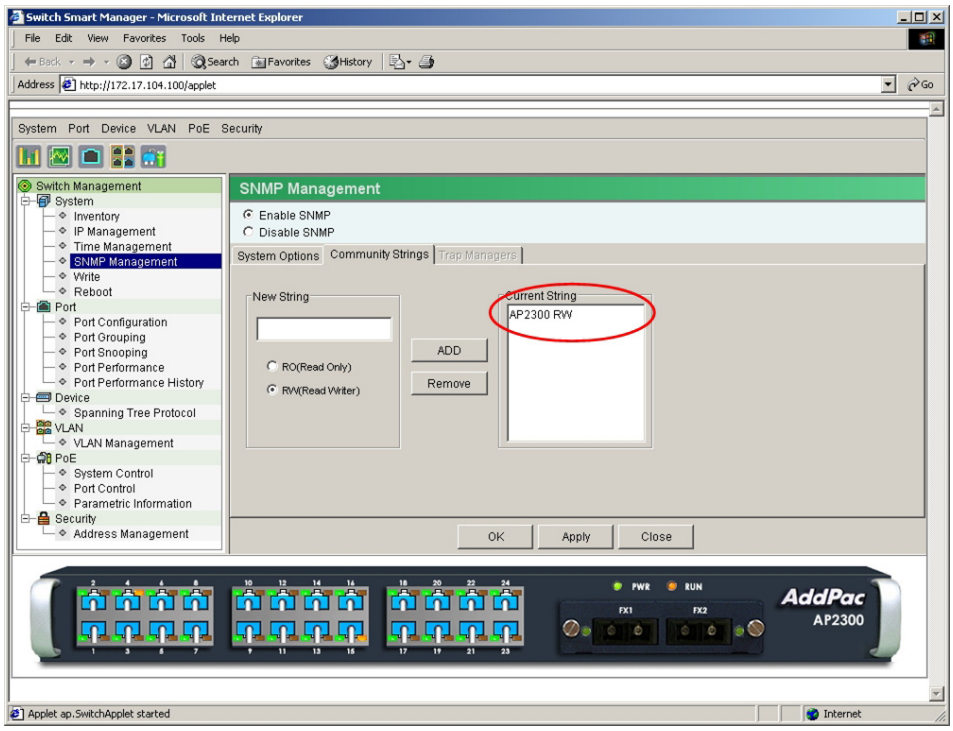
Input "AddPac Technical Support" for System Contact.

Click "OK" or "Apply" button to save the configuration.



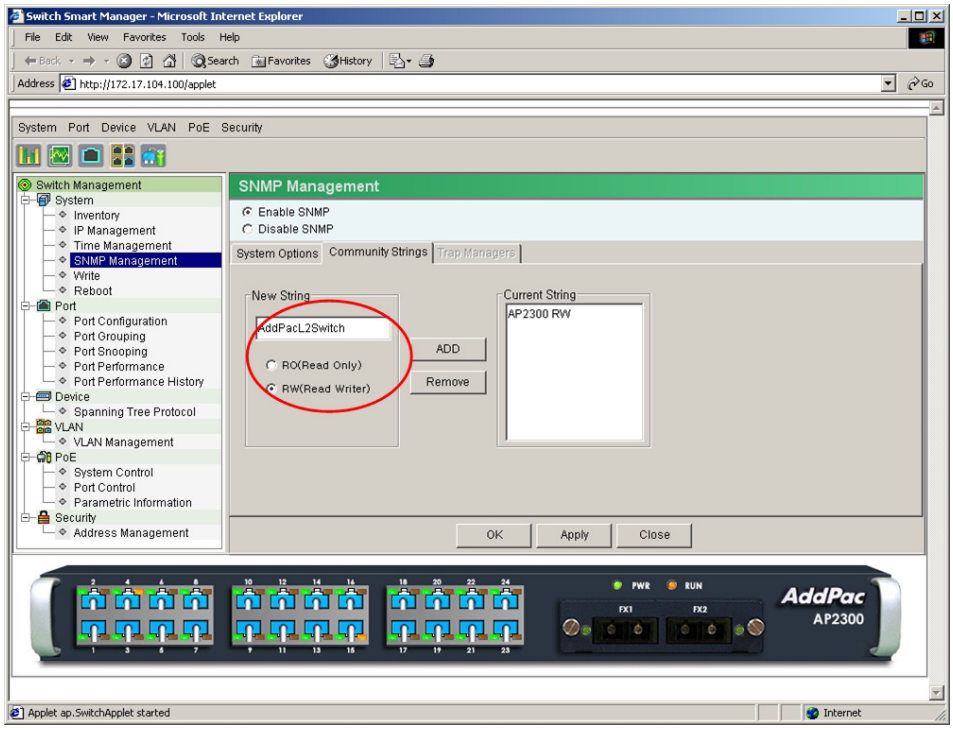
(Figure 3-64) SNMP System Contact

The below example describes how to add or delete Community String. A Community String is already listed.



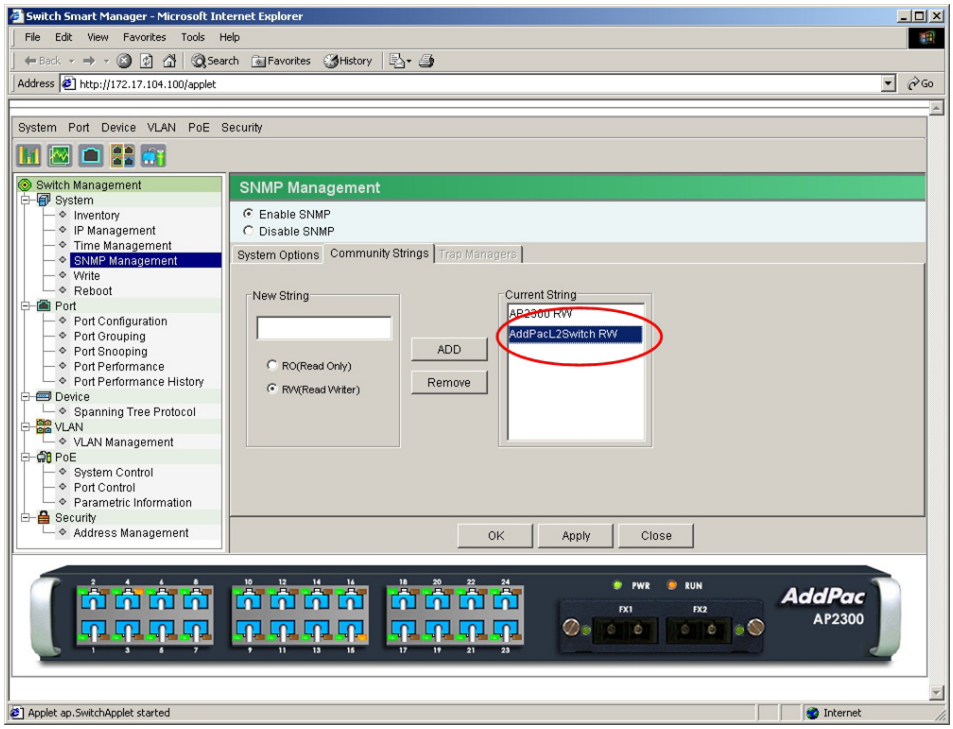
(Figure 3-65) SNMP Community String

Input "AddPacL2Switch" at New String and select "Read/Write." Click "Add" button to update Current String.



(Figure 3-66) Add SNMP Community String

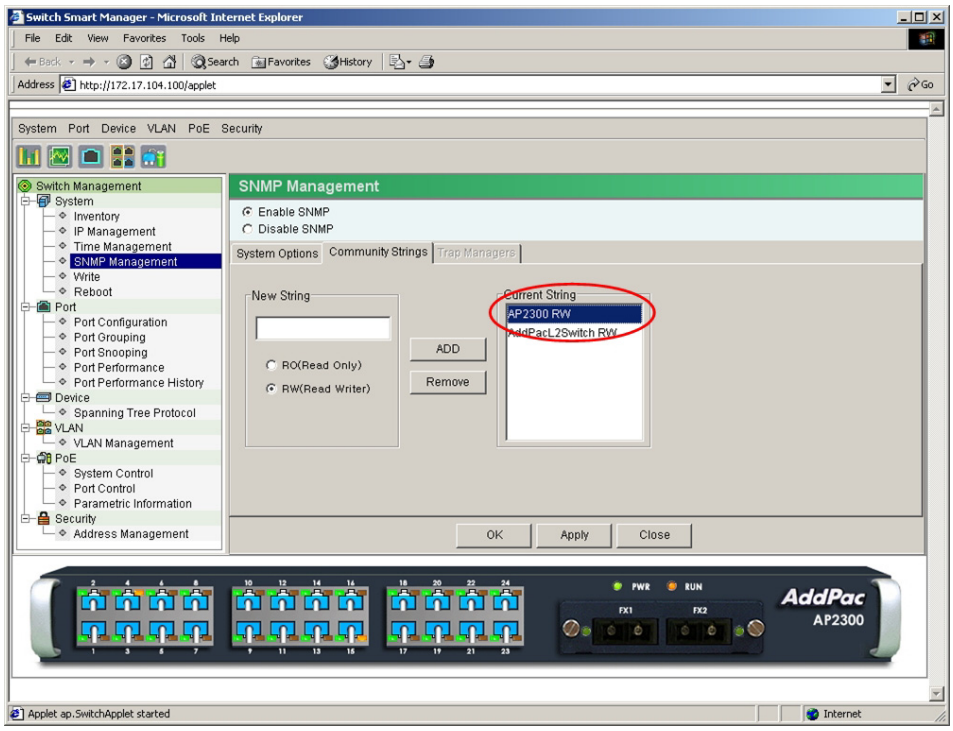
"AddPacL2Switch" is added at Current String list.



(Figure 3-67) Verify Community String List

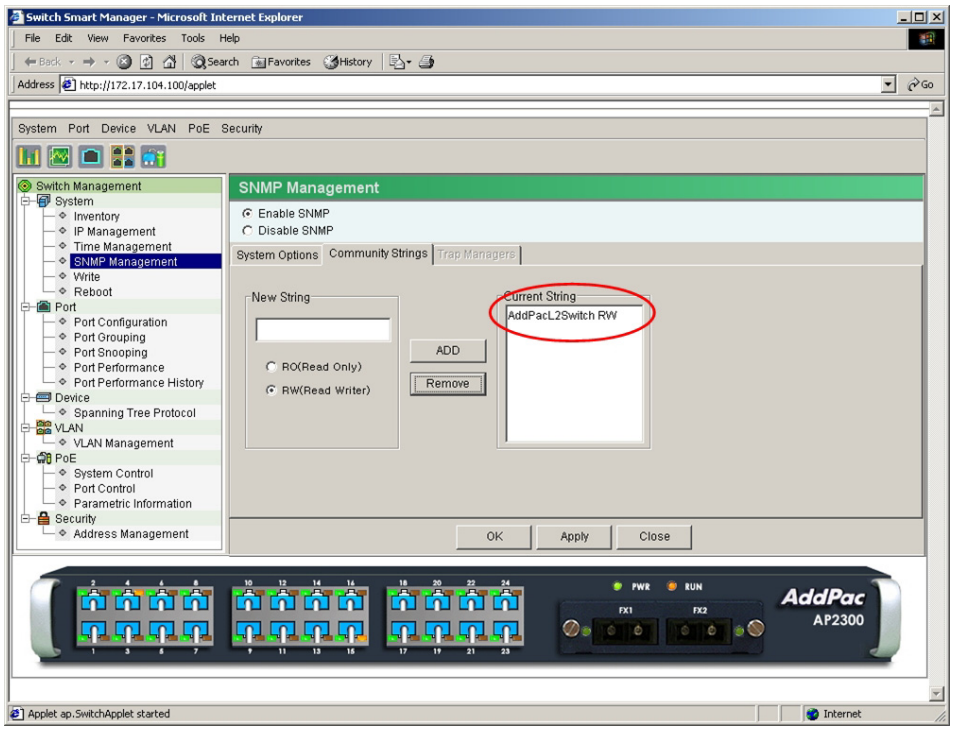
The below example describes how to delete "AP2300" from Current String.

Select "AP2300" from Current String list.



(Figure 3-68) Select from Current String

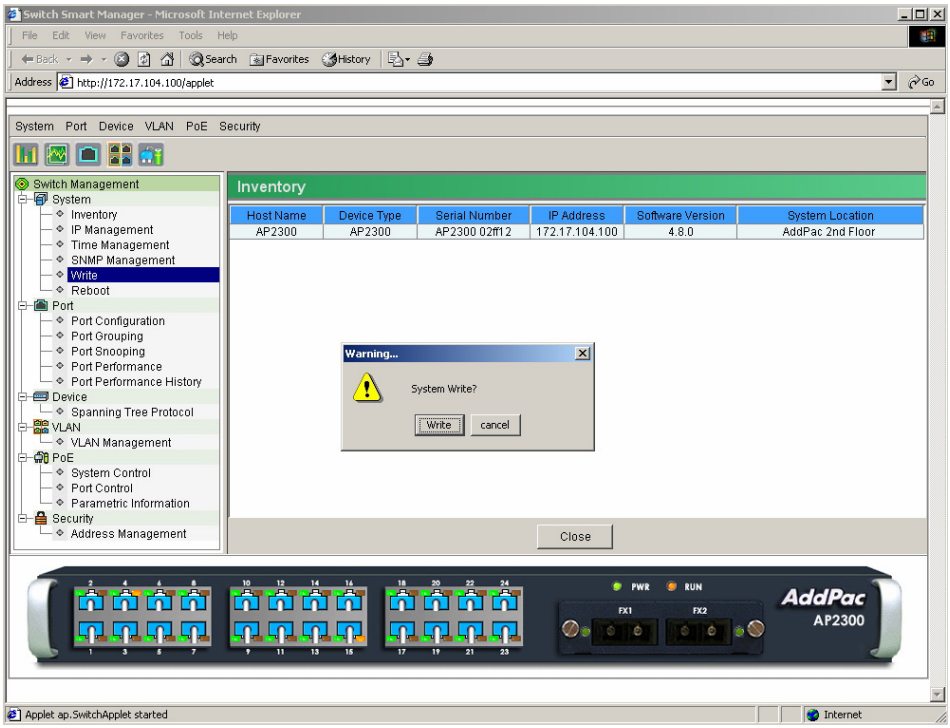
Click "REMOVE" button to delete the string.



(Figure 3-69) Delete Current String

Write

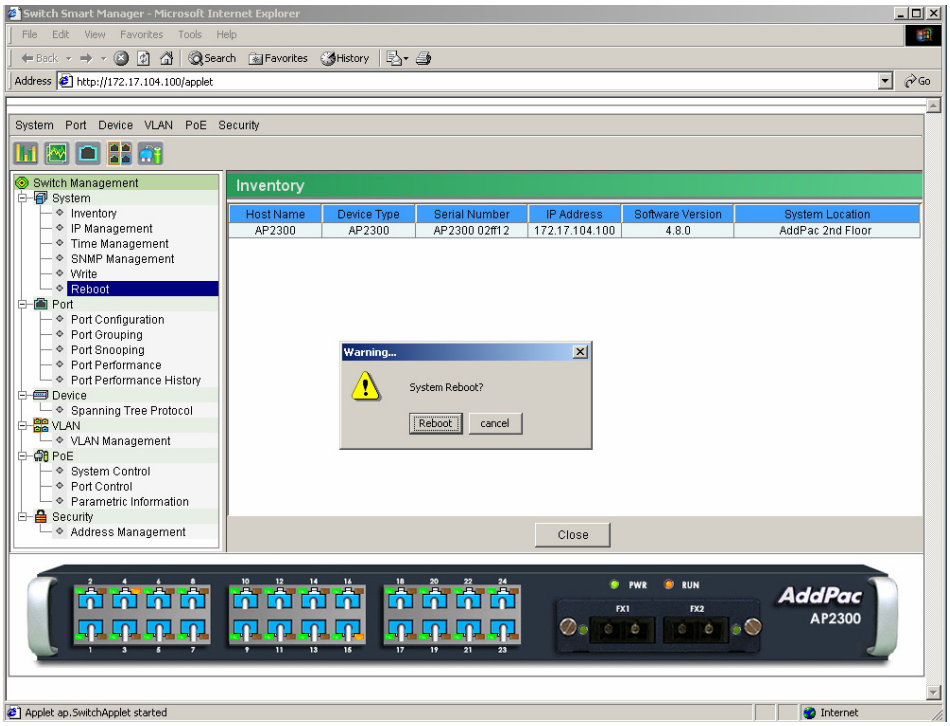
The updated parameter values of System, Port, Device, VLAN, PoE and Security menus are saved at the main memory temporarily. Make sure to save the values permanently with Write command. Otherwise, the new values are removed when AP2300 switch is turned off.



(Figure 3-70) System -> Write Menu

Reboot

Use “Reboot” menu to restart AP2300 PoE Layer2 Switch for soft reboot or warm reset.



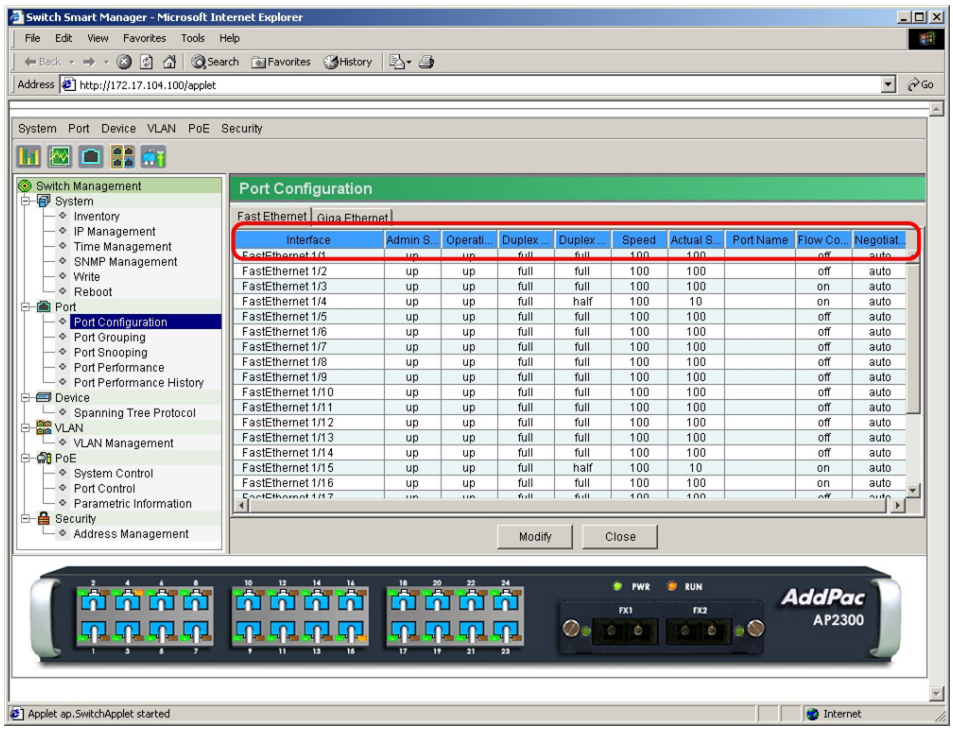
(Figure 3-71) System -> Reboot Menu

Port Menu

Port Menu consists of Port Configuration, Port Grouping, Port Snooping, Port Performance, and Port Performance History. The user enables to monitor and control all the ports of AP2300 switch.

Port Configuration

Port Configuration monitors the link status and controls the AP2300 switch ports. Select the desired port and click "Modify" button to change the configuration.



(Figure 3-72) Port Configuration Main Page

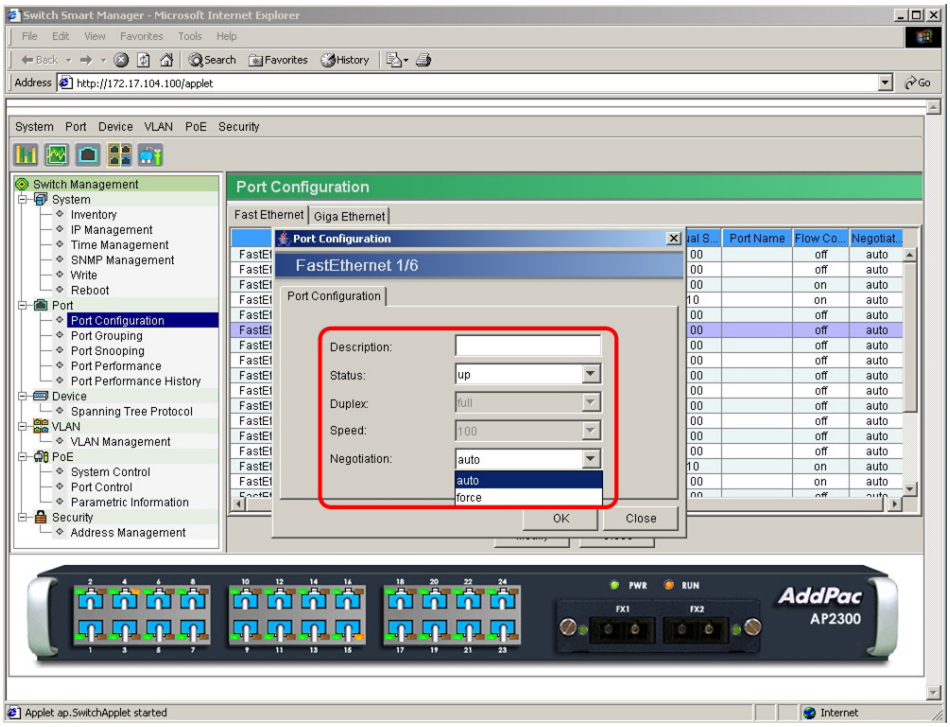
++

The below table describes each parameters of Port Configuration.

<Table 3-9> Port Configuration Parameters

Parameters	Description
Interface	A specific Ethernet Port.
Admin Status	The port status configured by the administrator.
Operational Status	The real port status.
Duplex Admin Status	The duplex status configured by the administrator.
Duplex Actual Status	The real duplex status. Applicable only the interface link is up.
Speed	Link speed of the port.
Actual Speed	The real link speed of the port. The port with Auto Negotiation shows the actual speed according to the peer interface type.
Port Name	The name of a specific port assigned by the administrator.
Flow Control	The Flow Control status.
Negotiation	Automatically negotiates link speed and duplex when connecting the Peer Interface.

The below example describes how to modify Fast Ethernet 1/6 port.

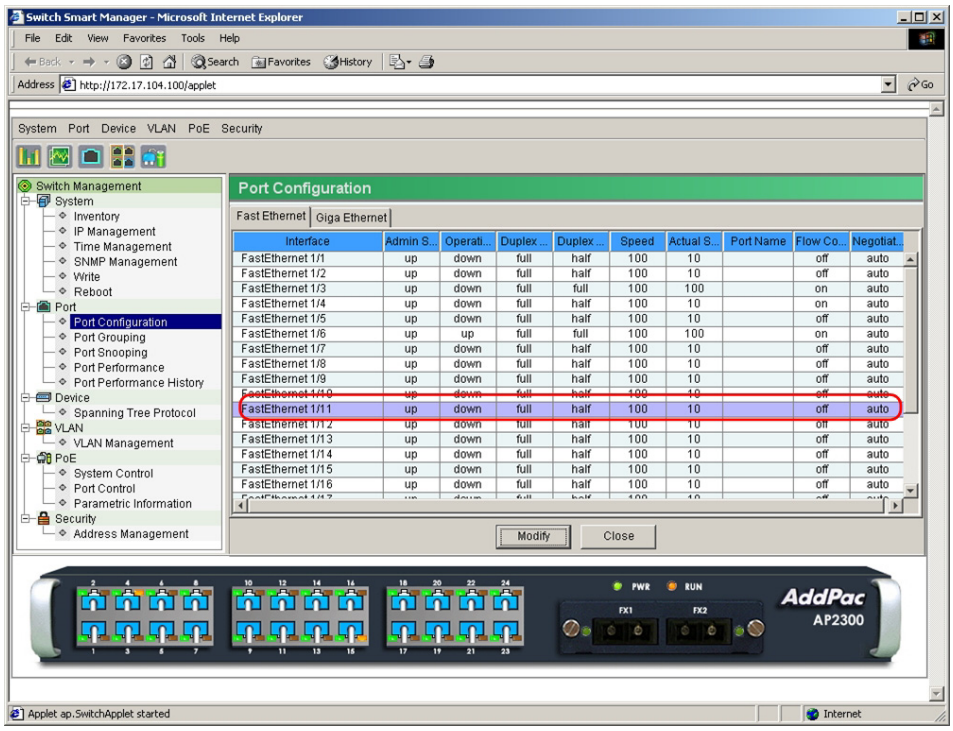


(Figure 3-73) Fast Ethernet 1/6 Modify

<Table 3-10> Fast Ethernet 1/6 Modification Parameters

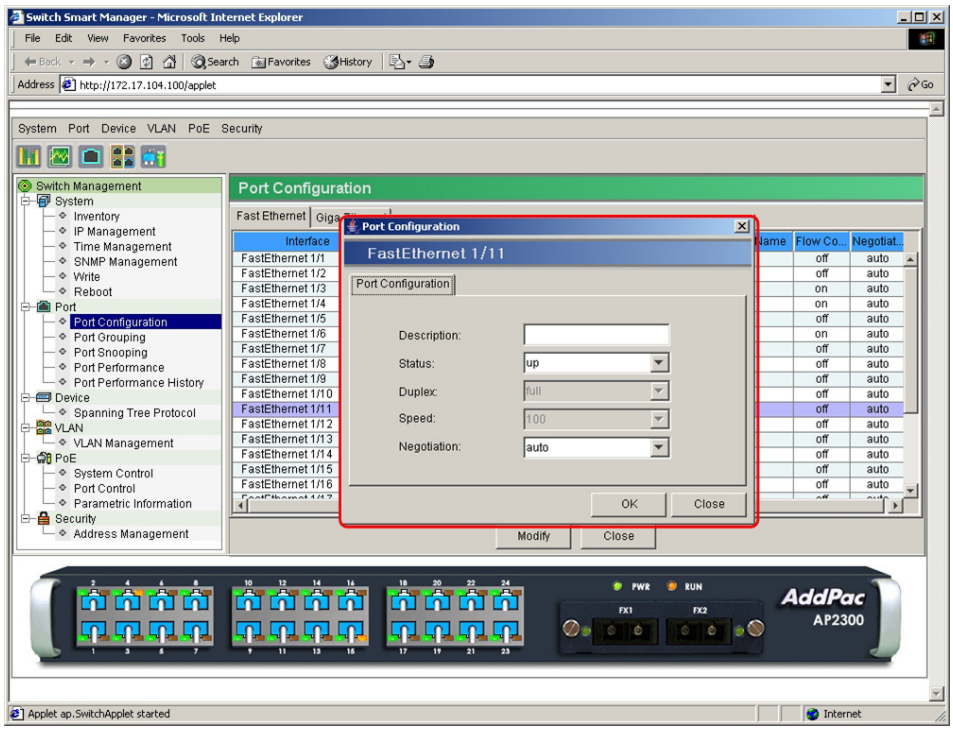
Parameters	Description
Description	Add description on a specific port.
Status	Select Up/Down status of the port. The default value is Up.
Duplex	Set either Full Duplex or Half Duplex. If Negotiation is configured as "auto," it is not selectable.
Speed	Set the link speed. If Negotiation is configured as "auto," it is not selectable.
Negotiation	Link Speed and Duplex mode is configured automatically according to the peer interface. The default value is "auto" and selects "Force" to manually configure Link Speed and Duplex mode.

The below example describes port configuration of Fast Ethernet 1/11 Port. Select "Fast Ethernet 1/11" and click "Modify" button.



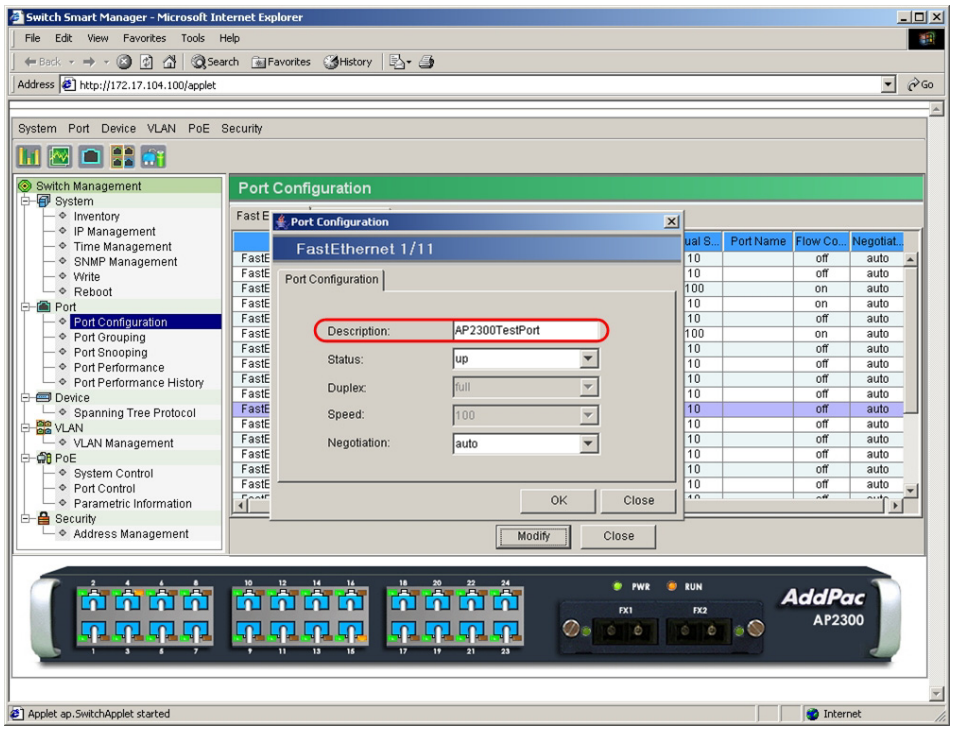
(Figure 3-74) Fast Ethernet Port Configuration

A dialog box of Port Configuration appears as shown below.



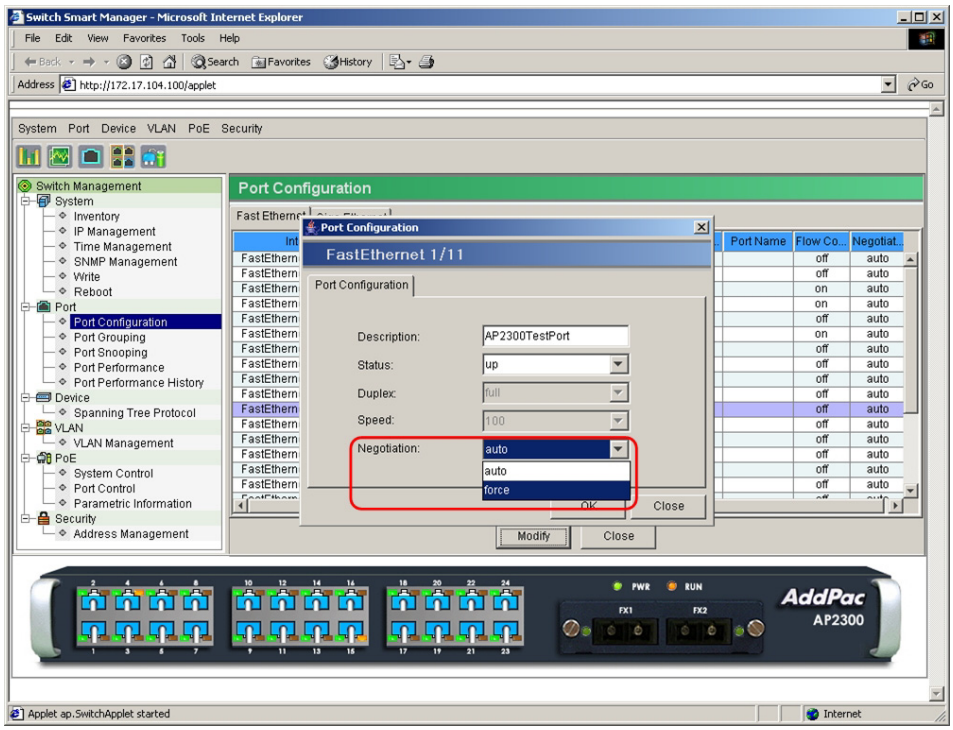
(Figure 3-75) Fast Ethernet 1/11 Port Configuration

Input "AP2300TestPort" at Description.



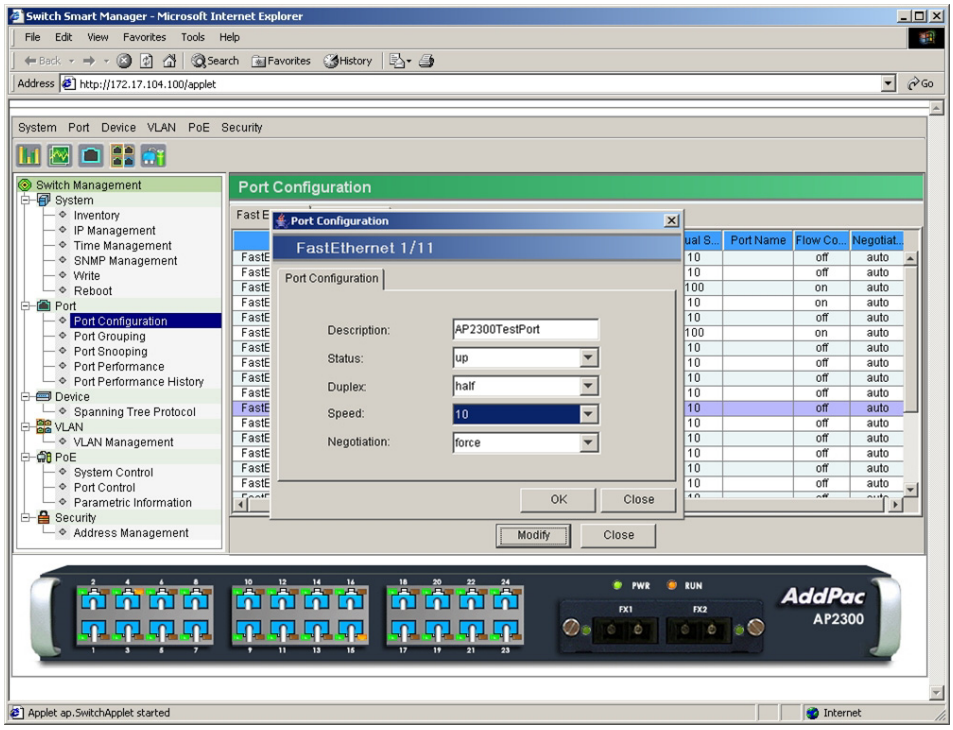
(Figure 3-76) Input Port Description

Select "Force" from Negotiation.



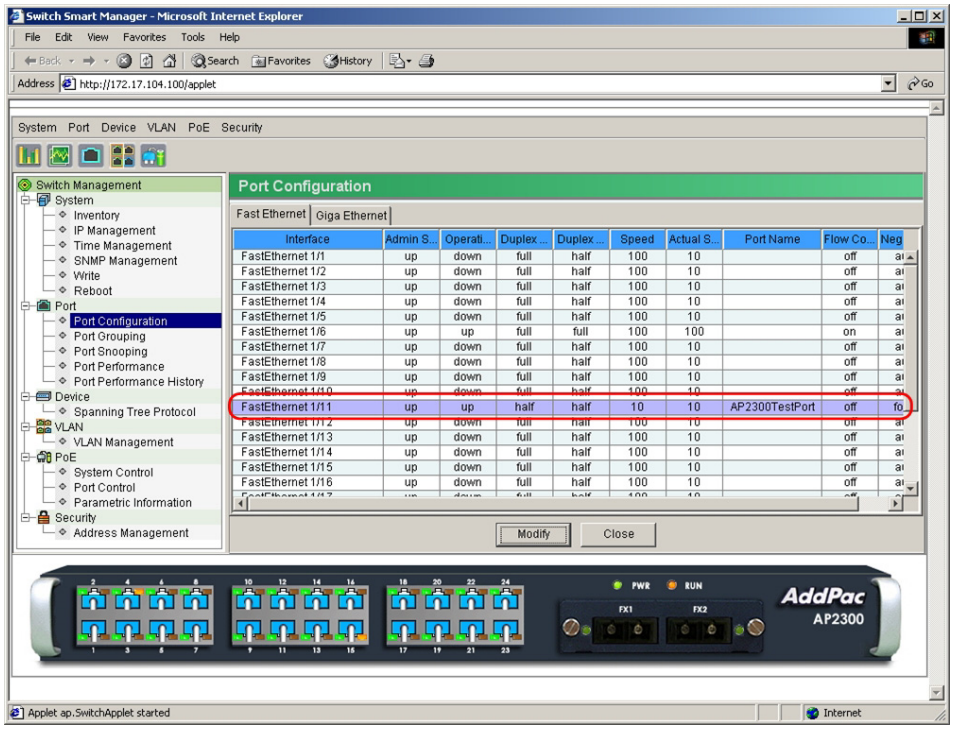
(Figure 3-77) Set Negotiation Parameter

Set "Half" for Duplex and "10" for Speed. Click "OK" button.



(Figure 3-78) Set Port Link Speed

Verify Fast Ethernet 1/11 Port configuration.

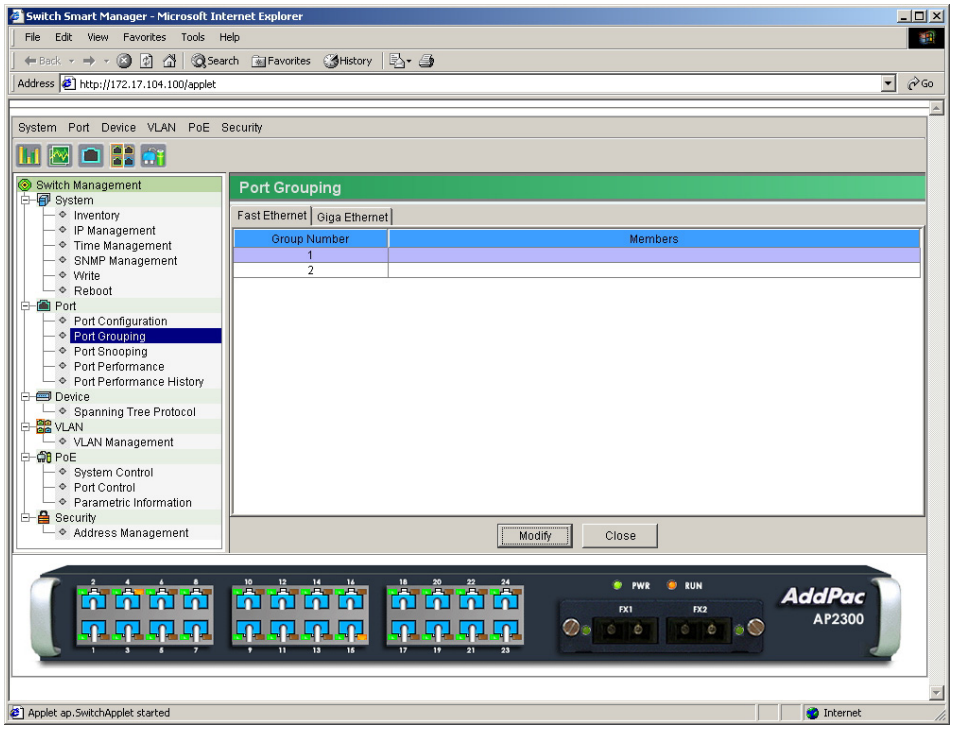


(Figure 3-79) Verify Fast Ethernet 1/11 Port Configuration

Port Grouping

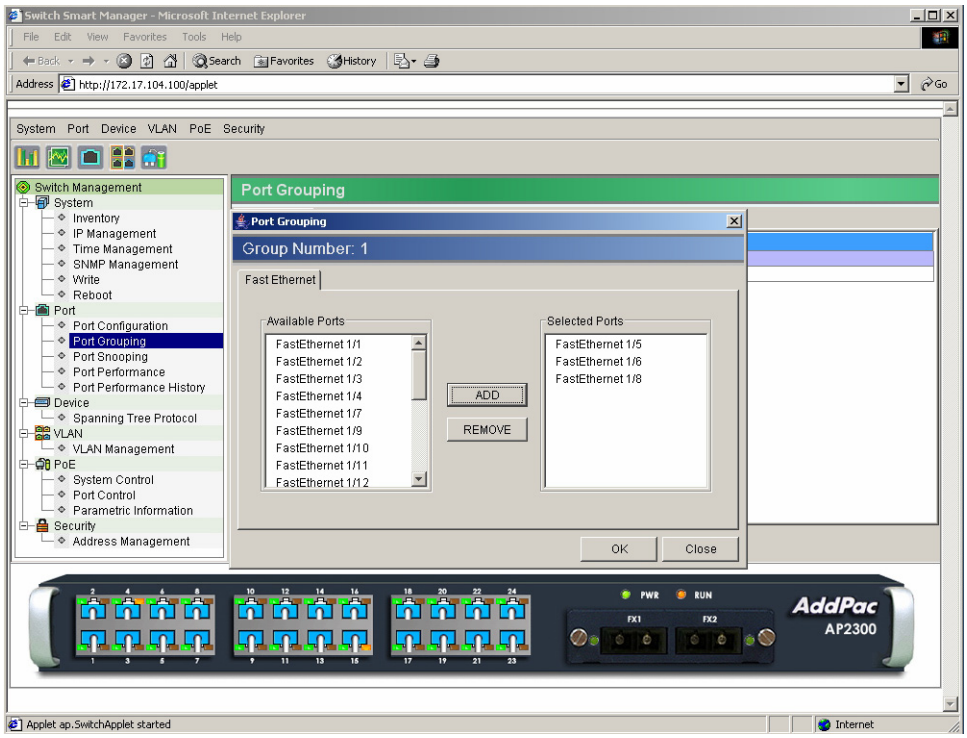
Port Grouping makes one logical interface by grouping maximum 4 Ethernet interfaces. AP2300 supports 2 groups with maximum 4 Fast Ethernet Interfaces and 1 group with maximum 2 Giga Ethernet interfaces.

The below is the main page of Port Grouping.



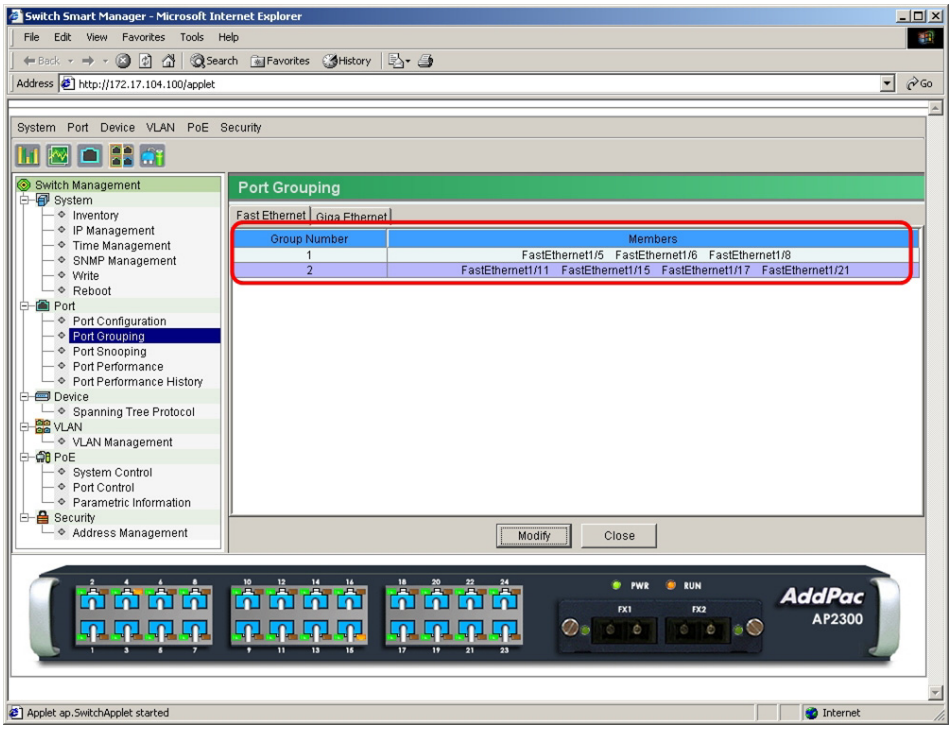
(Figure 3-80) Port Grouping Page

Select a group and click "Modify" button. To add interfaces to a group, select the desired interfaces from Available Ports and click "ADD" button. To remove interfaces from a group, select the desired interfaces from Selected Ports and click "REMOVE" button.



(Figure 3-81) Port Grouping Sub-window

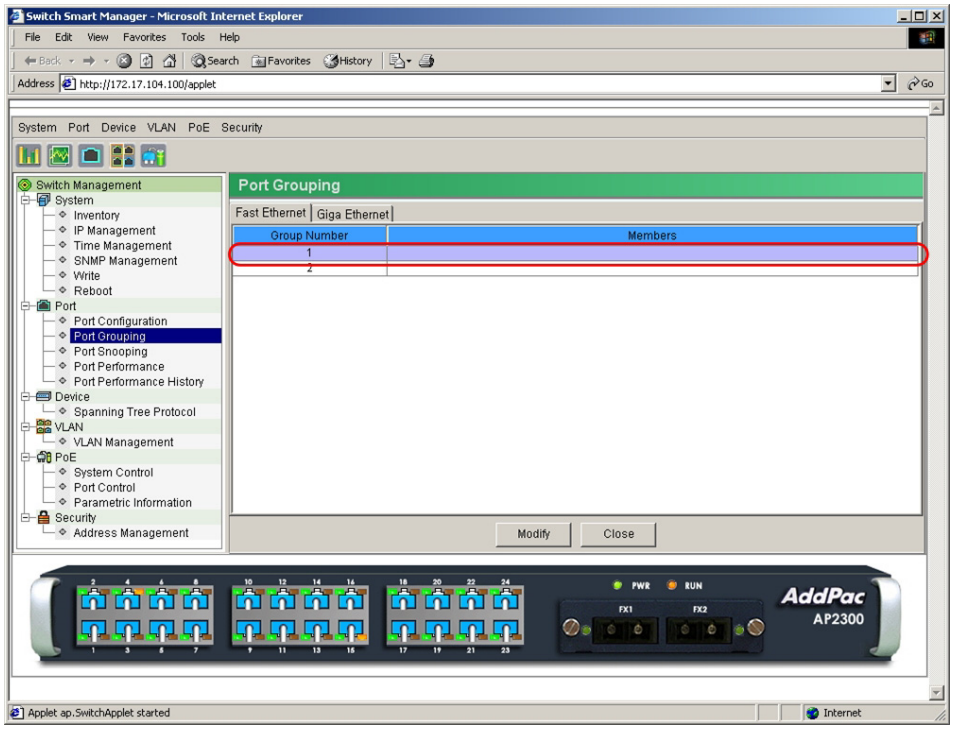
Click "OK" and then verify the changed port group information.



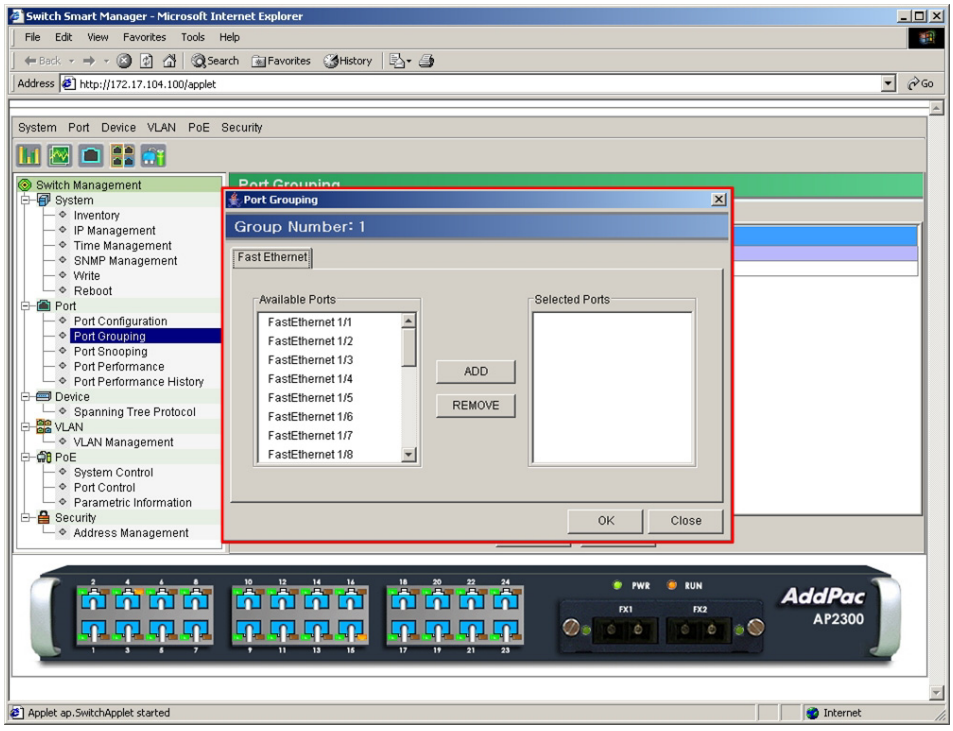
(Figure 3-82) Changed Port Group

The below example describes the procedures of adding Fast Ethernet 1/5, 1/6, 1/8, 1/21 to Group 1.

Select Group Number 1 and click "Modify" button.

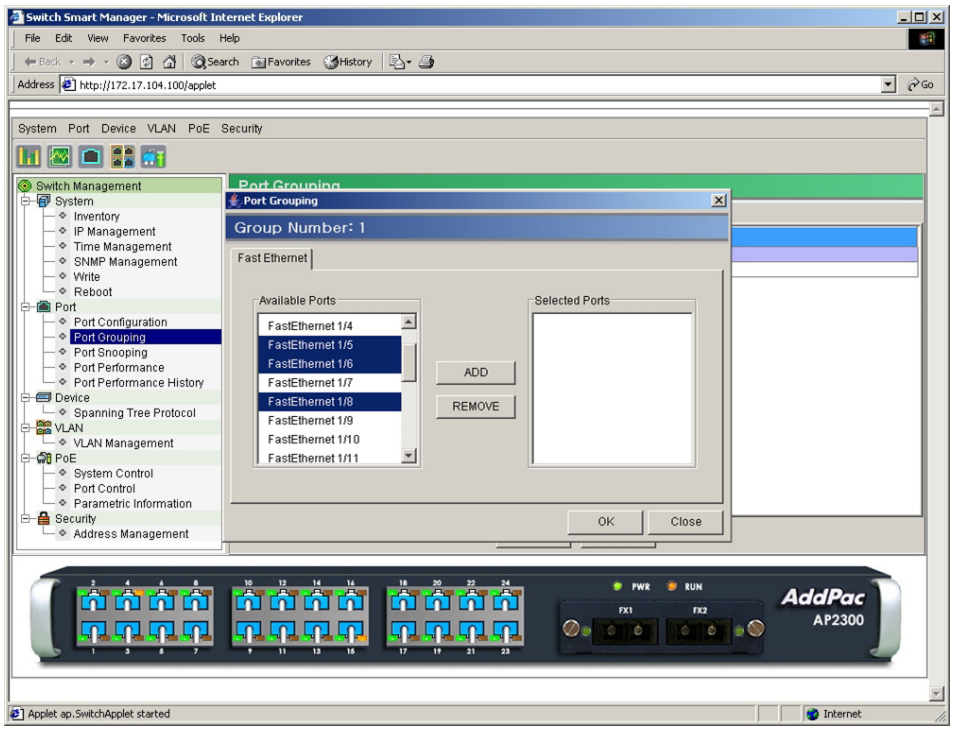


(Figure 3-83) Select Group 1



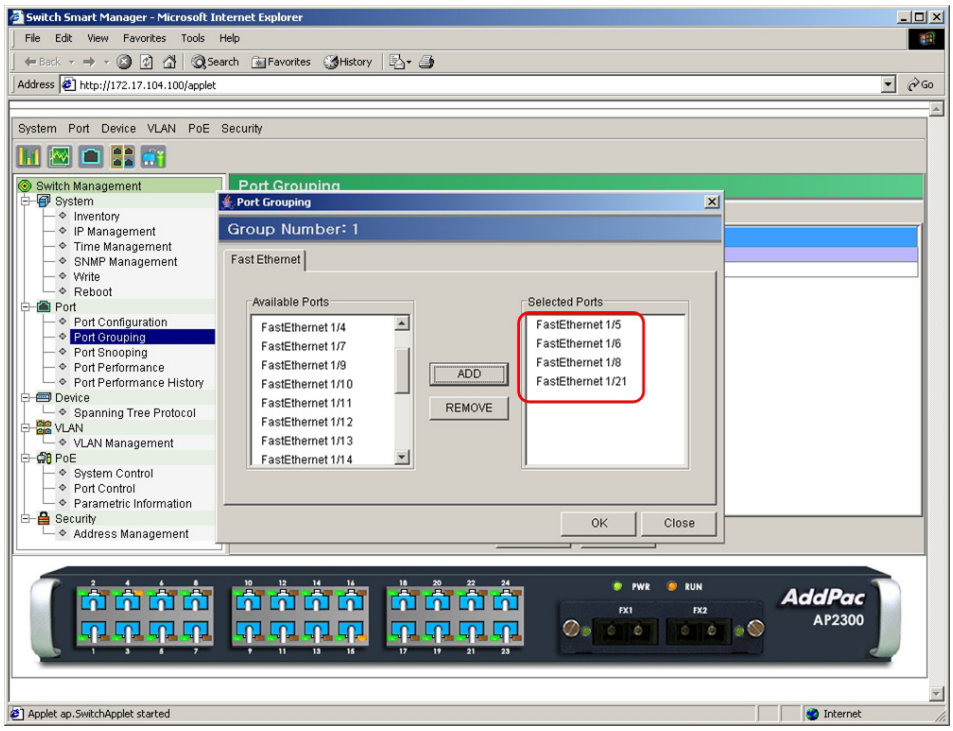
(Figure 3-84) Group 1 Sub-window

Use Ctrl button and the mouse to select Fast Ethernet 1/5, 1/6, 1/8 and 1/21. Click "ADD" button.



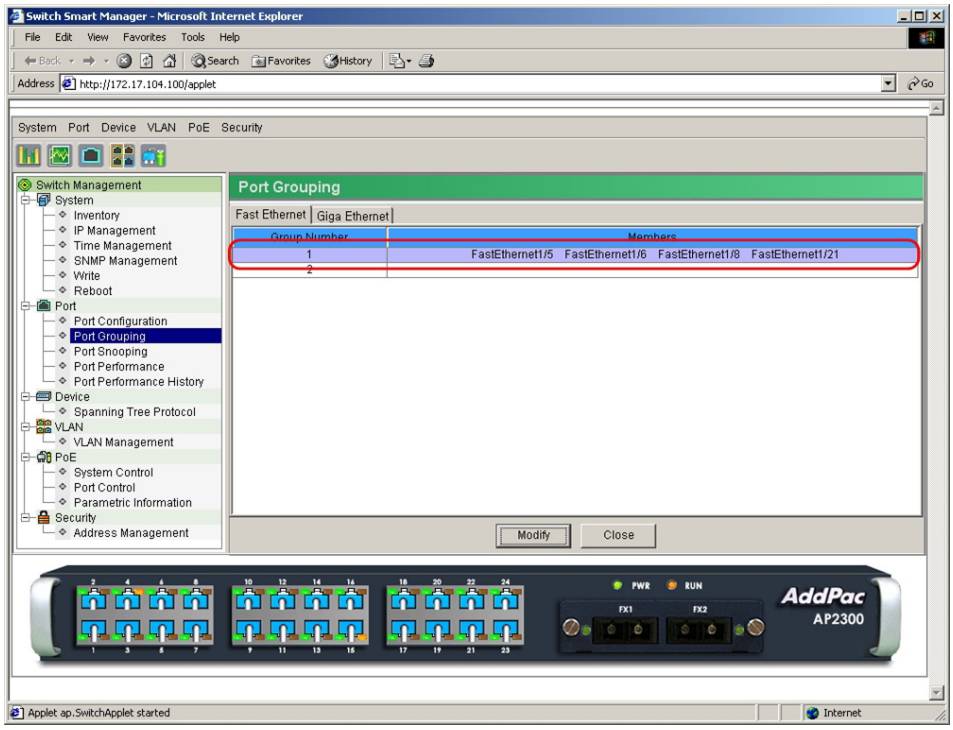
(Figure 3-85) Select Fast Ethernet Ports

4 Fast Ethernet ports are added to Selected Ports.



(Figure 3-86) Selected Ports

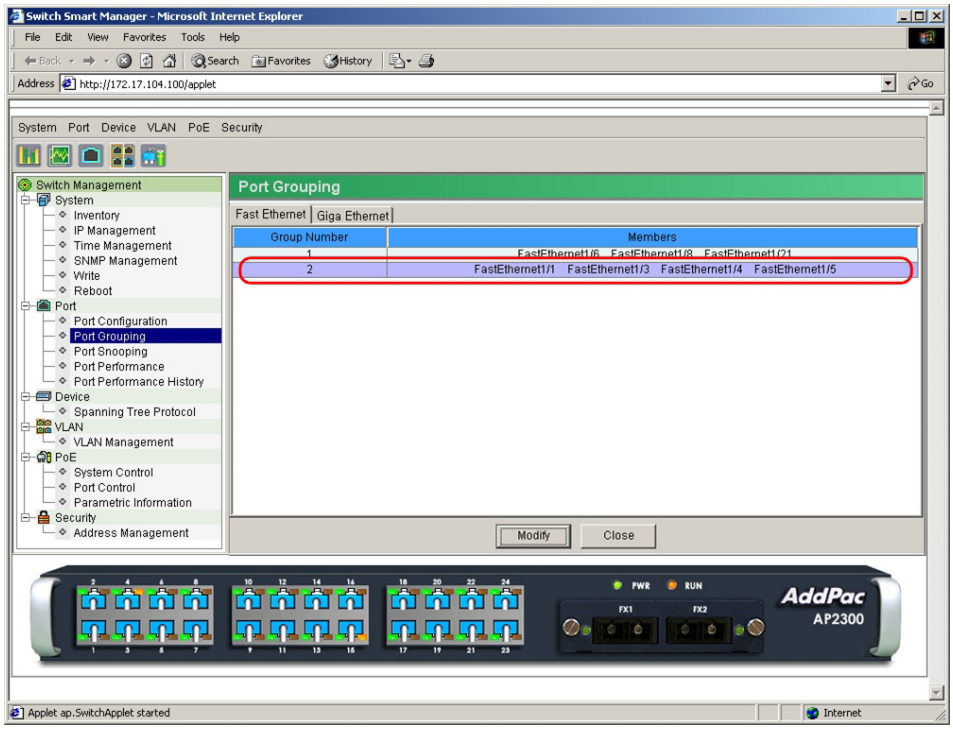
Click "OK" button and verify Group 1 from the Port Grouping page.



(Figure 3-87) Modified Group 1

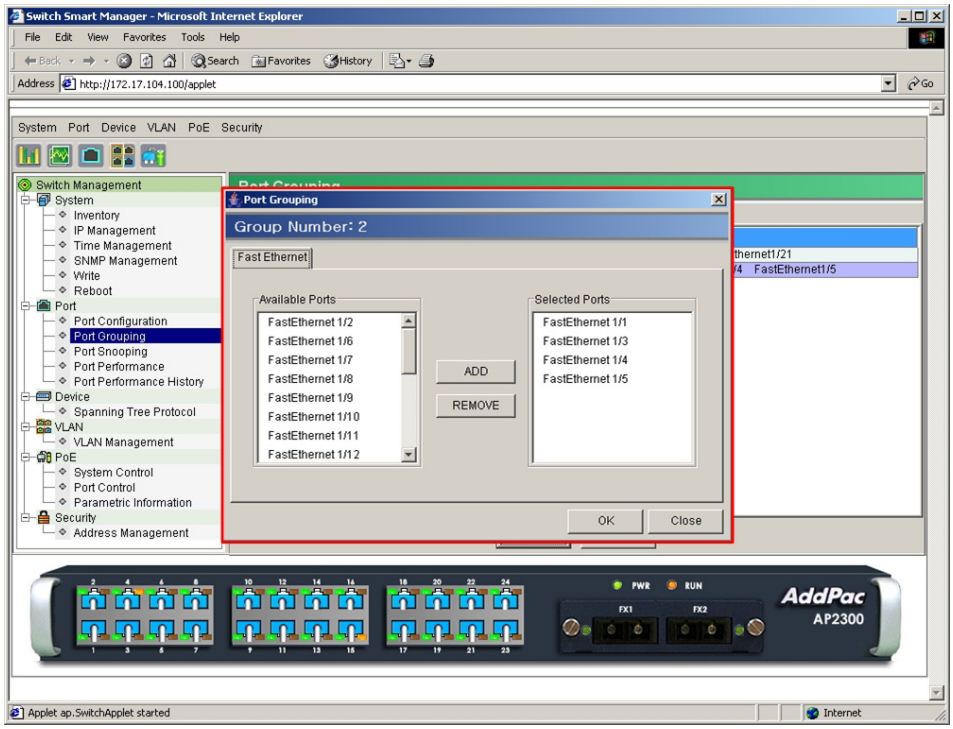
The below example describes the procedures of deleting Fast Ethernet 1/4 from Group 2.

Select Group 2 and click "Modify" button.



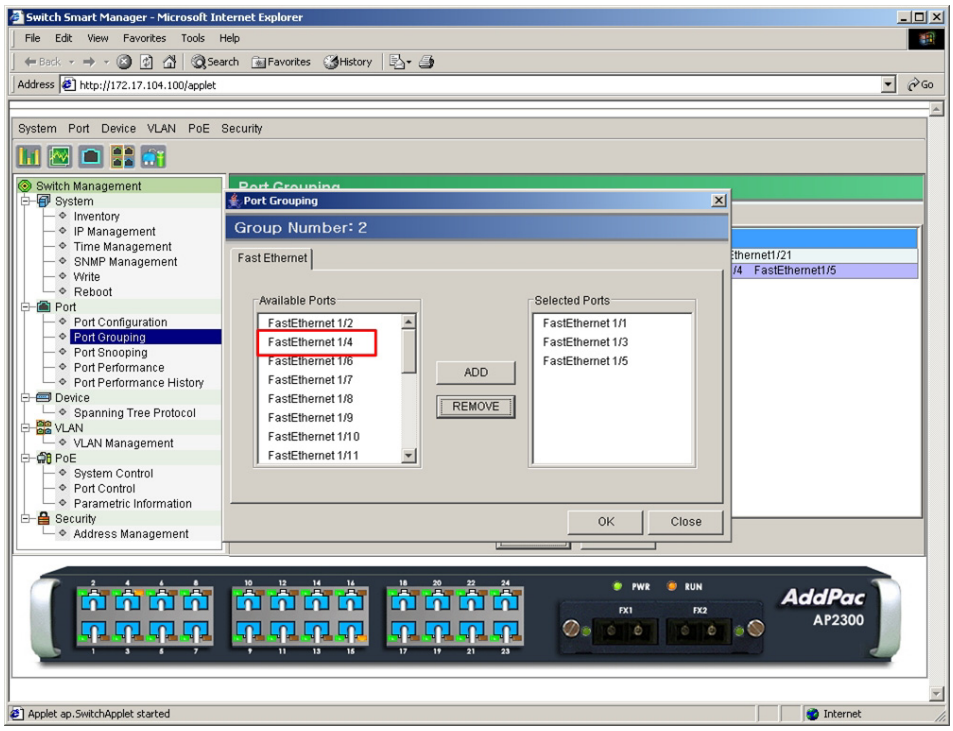
(Figure 3-88) Select Group 2

Check the ports listed under Group 2.



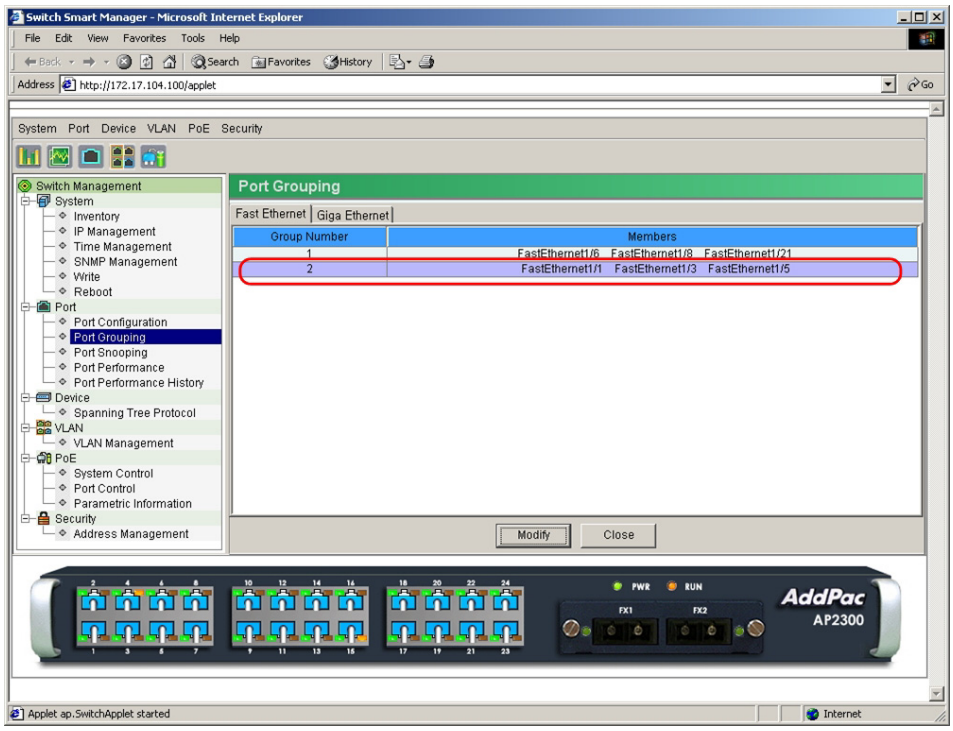
(Figure 3-89) Ports under Group 2

Select Fast Ethernet 1/4 and click "REMOVE" button.



(Figure 3-90) Delete Fast Ethernet 1/4 from Group 2

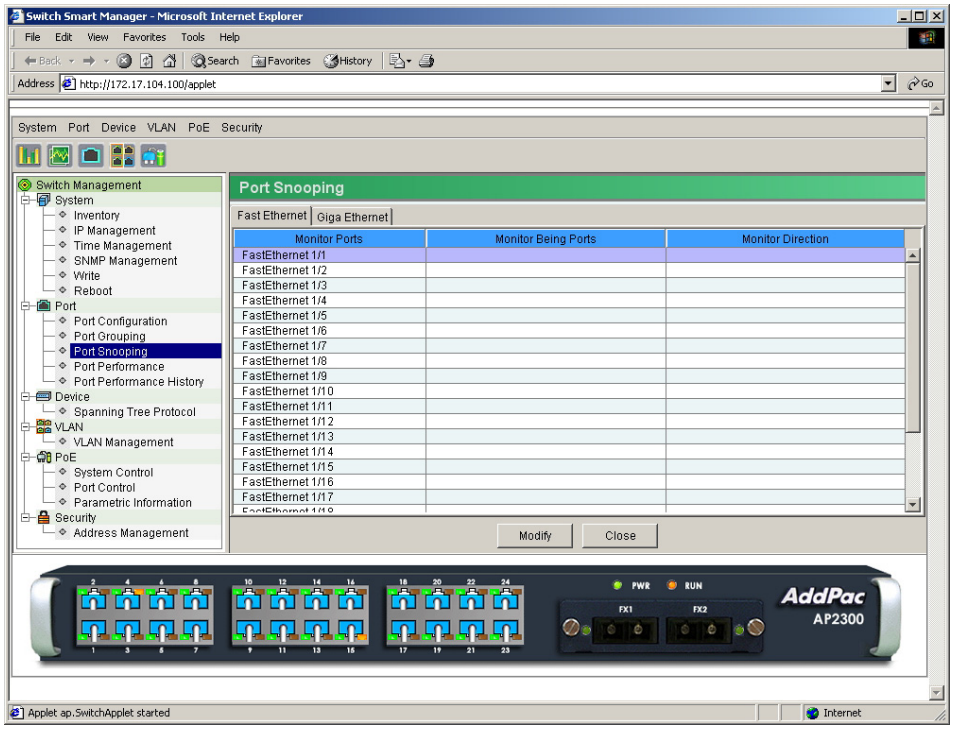
Click "OK" button and verify Group 2.



(Figure 3-91) Verify Group 2

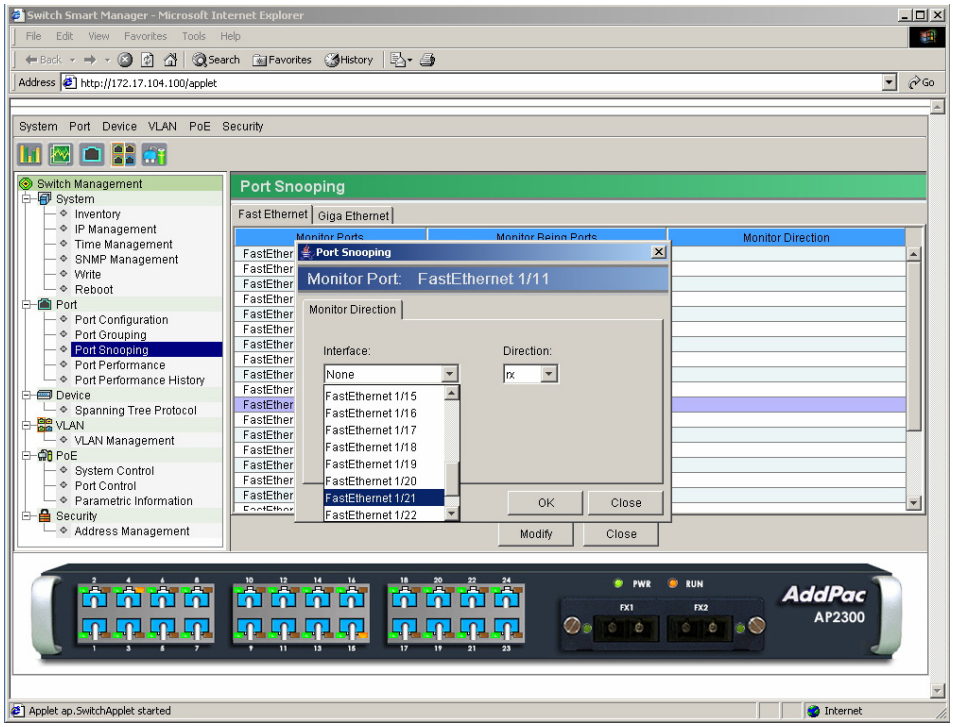
Port Snooping

Port Snooping lets administrators transparently mirror packets forwarded to a specific ports and forcefully switch over the ports. With this feature, administrators randomly capture the packets and block the ports with harmful packets with Access-List feature.



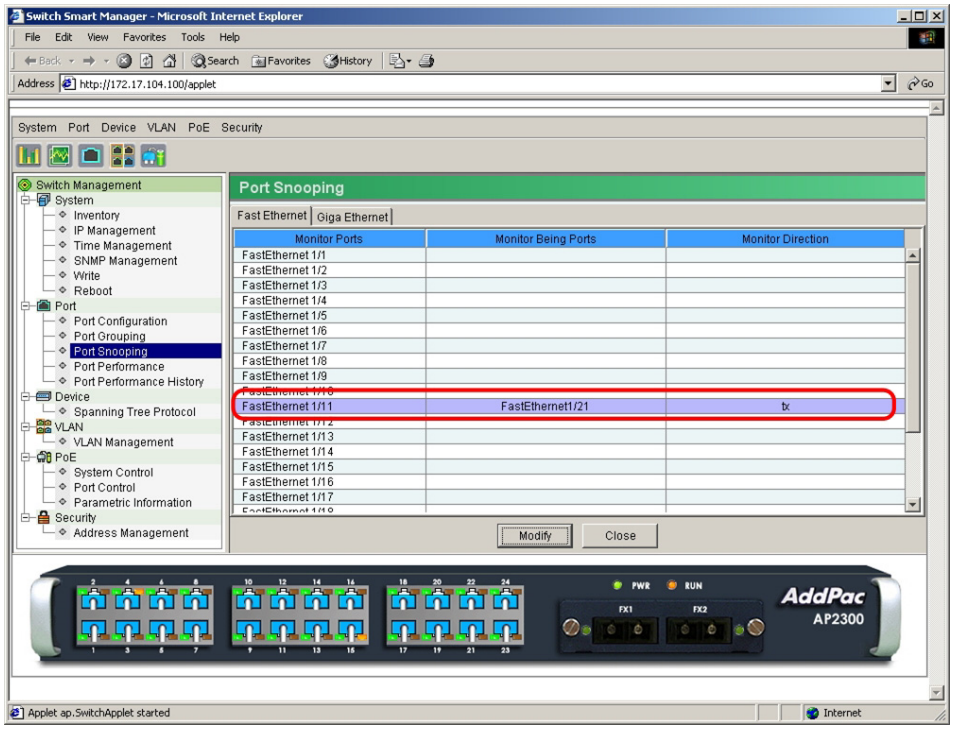
(Figure 3-92) Port Snooping Main Page

Select the port used as the snooping destination port and click "Modify" button. With the pull-down menu, select a source port monitored by the snooping operation. Select Tx or Rx for Direction and click "OK" button.



(Figure 3-93) Set the Snooping Source Port

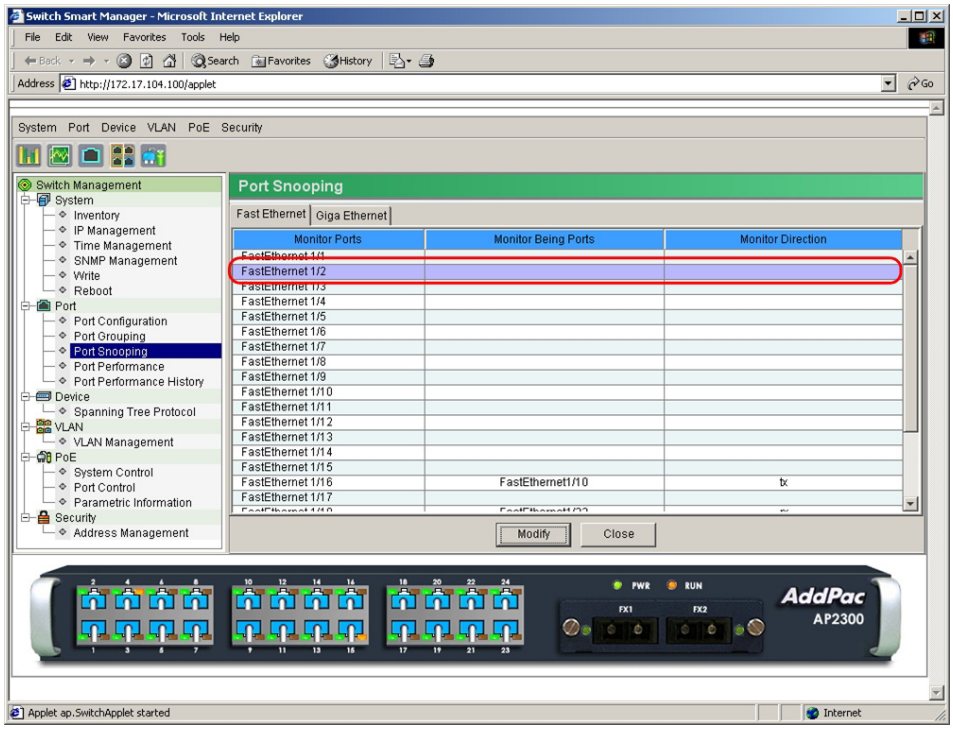
At the below figure, Fast Ethernet 1/21 port is the source port monitored by the destination port, Fast Ethernet 1/11.



(Figure 3-94) Verify Port Snooping Setting

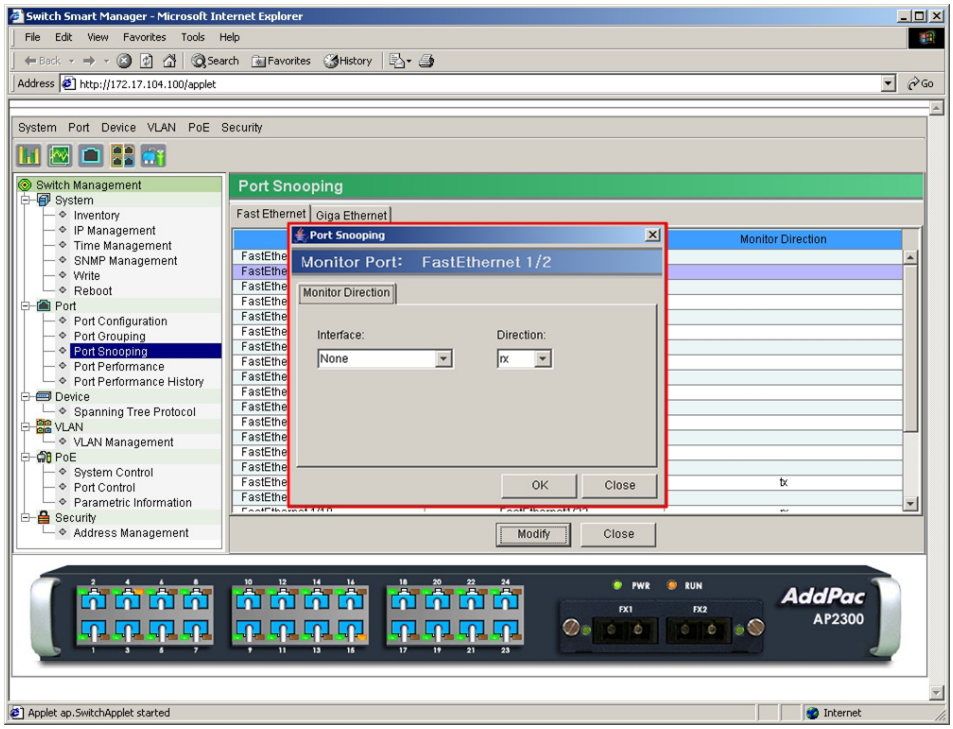
At the below figure, Tx of Fast Ethernet 1/3 port is the source port monitored by the destination port, Fast Ethernet 1/2.

Select Fast Ethernet 1/2.



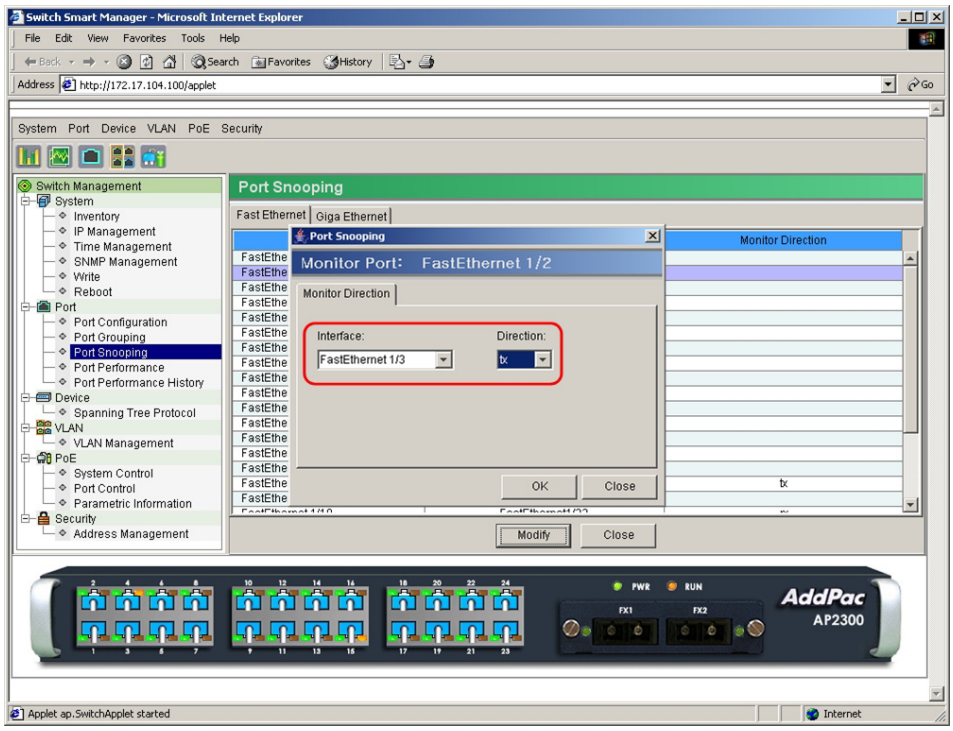
(Figure 3-95) Select Fast Ethernet 1/2

Click "Modify" button.



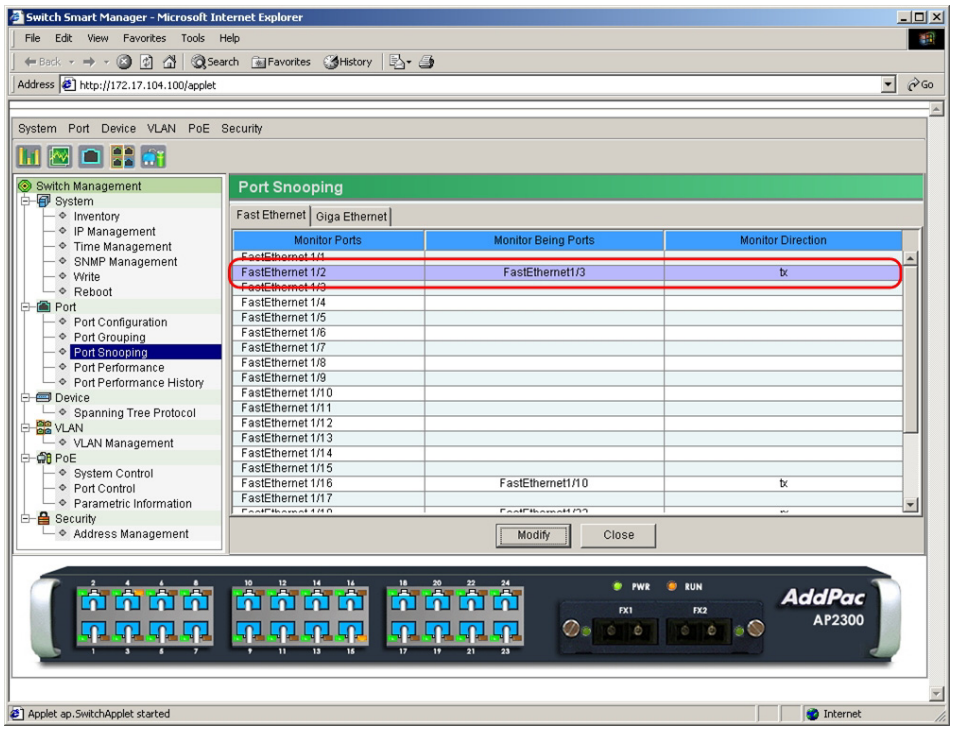
(Figure 3-96) Fast Ethernet 1/2 Port Snooping Setting

Select Fast Ethernet 1/3, Direction Tx for the source port and click "OK" button.



(Figure 3-97) Port Snooping Setting

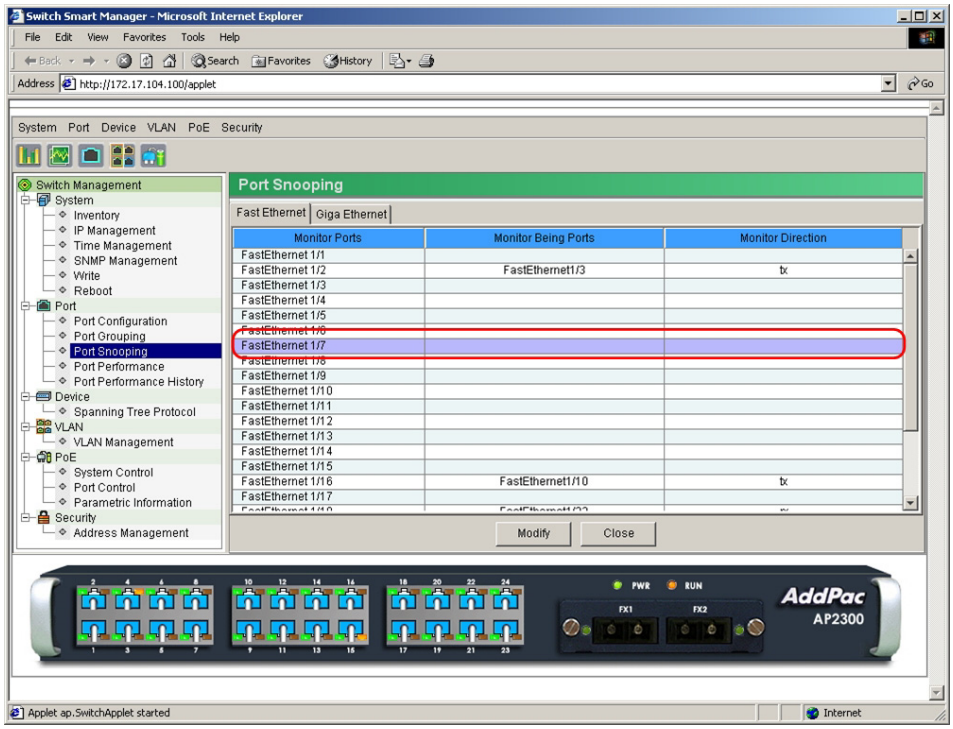
Verity the port snooping setting on Fast Ethernet 1/2.



(Figure 3-98) Verify Fast Ethernet 1/2 Port Snooping Setting

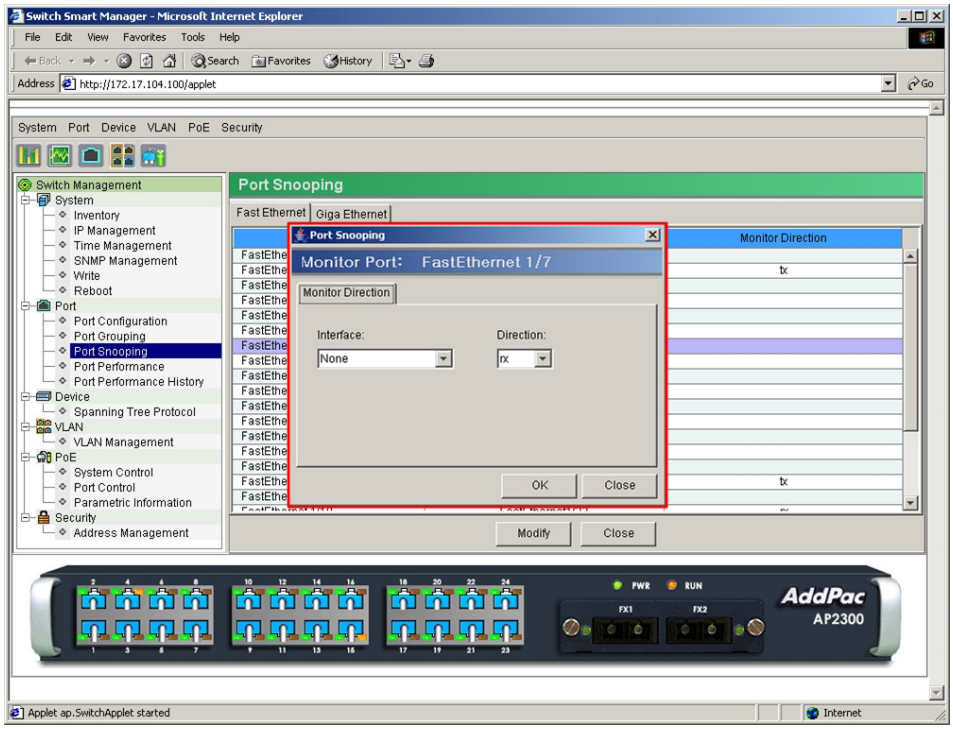
At the below figure, Rx of Fast Ethernet 1/9 port is the source port monitored by the destination port, Fast Ethernet 1/7.

Select Fast Ethernet 1/7 port.



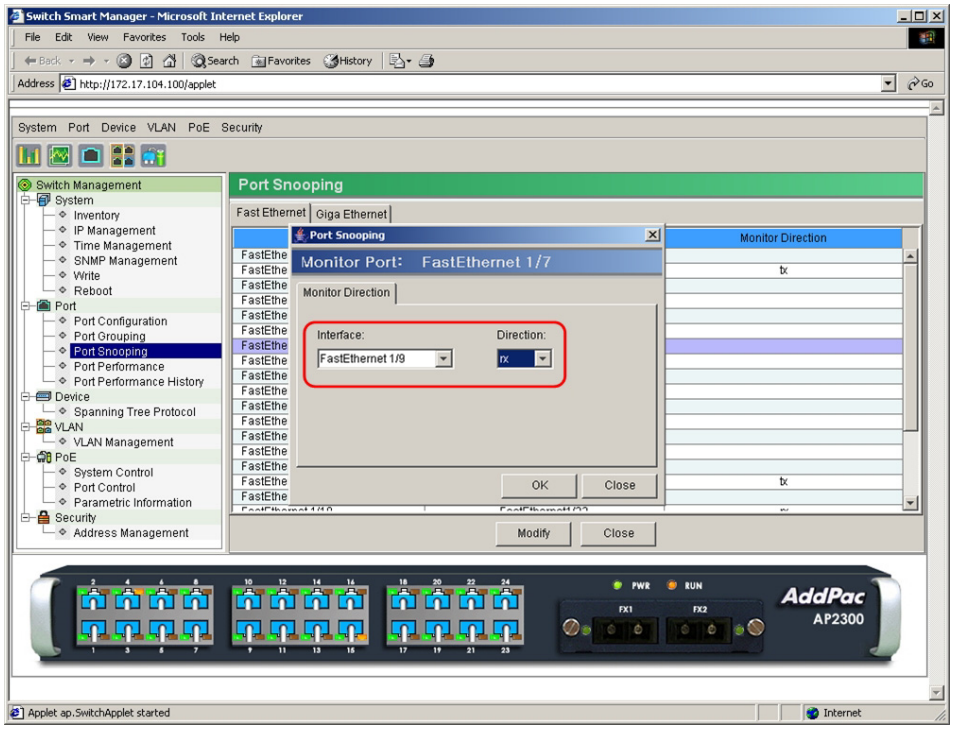
(Figure 3-99) Select Fast Ethernet 1/7

Click "Modify" button.



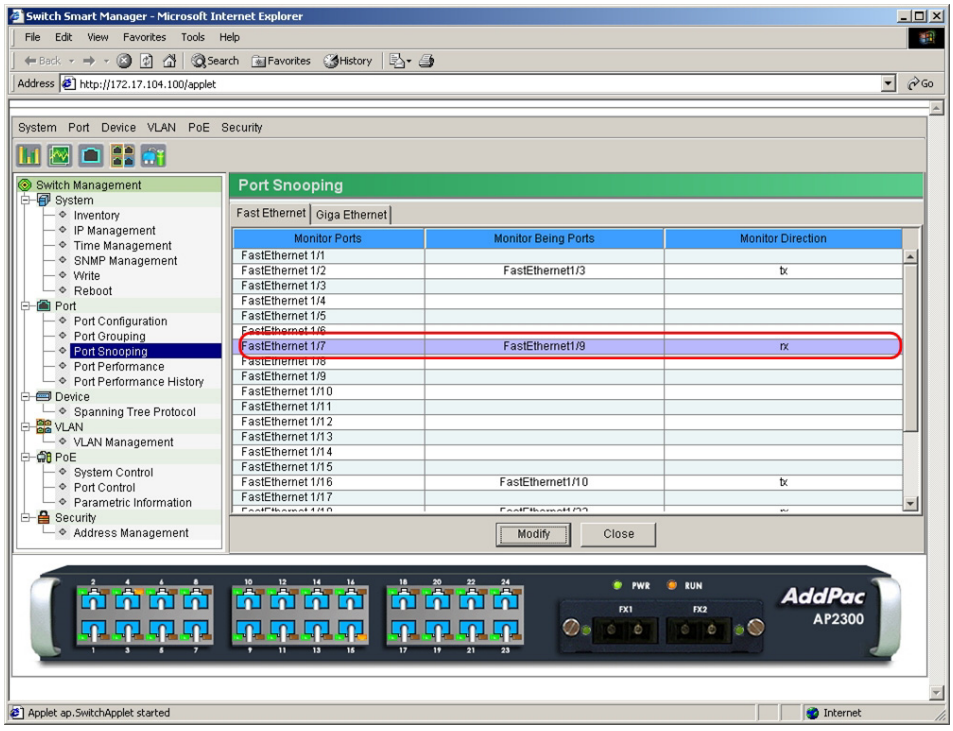
(Figure 3-100) Fast Ethernet 1/7 Port Snooping Setting

Select Fast Ethernet 1/9, Direction Rx for the source port and click "OK"



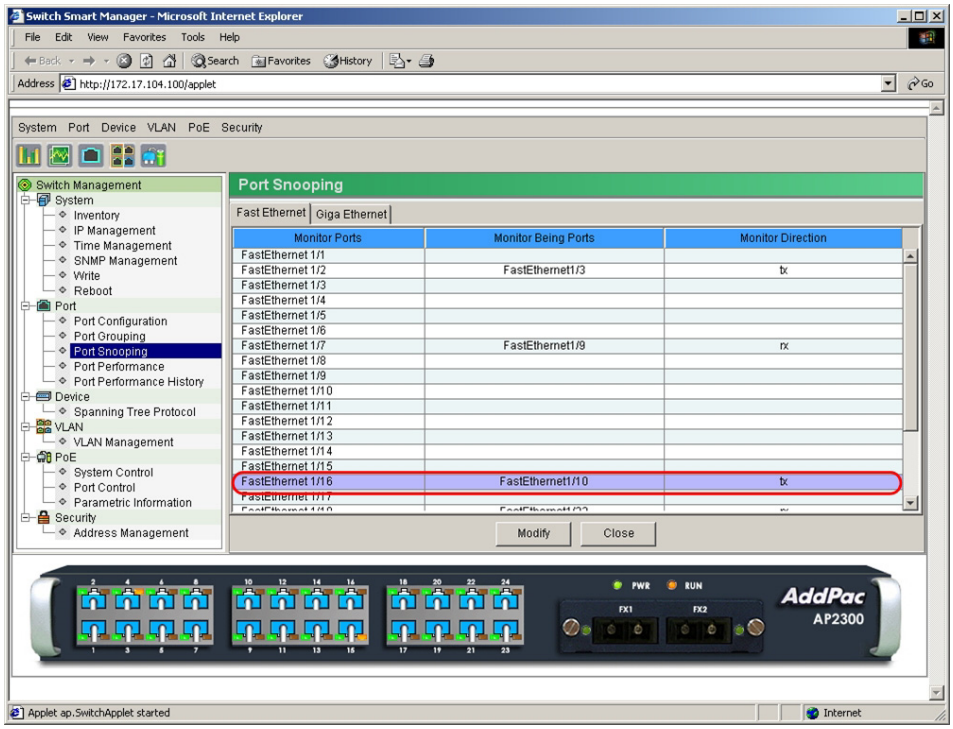
(Figure 3-101) Port Snooping Setting

Verify port snooping setting on Fast Ethernet 1/7.



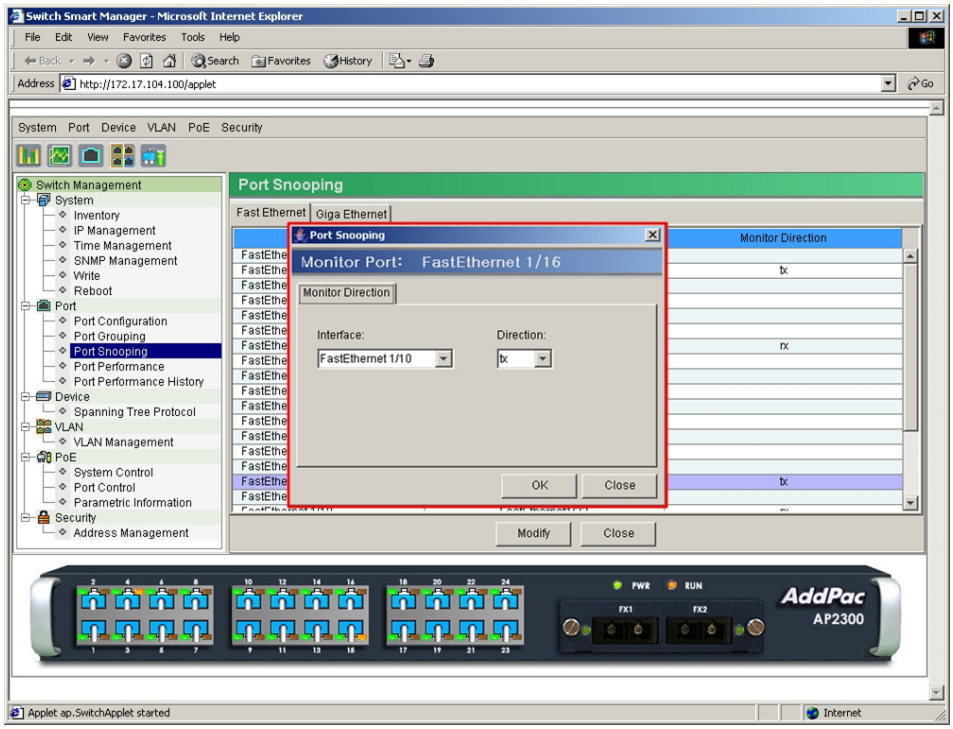
(Figure 3-102) Verify Fast Ethernet 1/7 Port Snooping Setting

The below figure describes how to disable port snooping setting on Fast Ethernet 1/16.



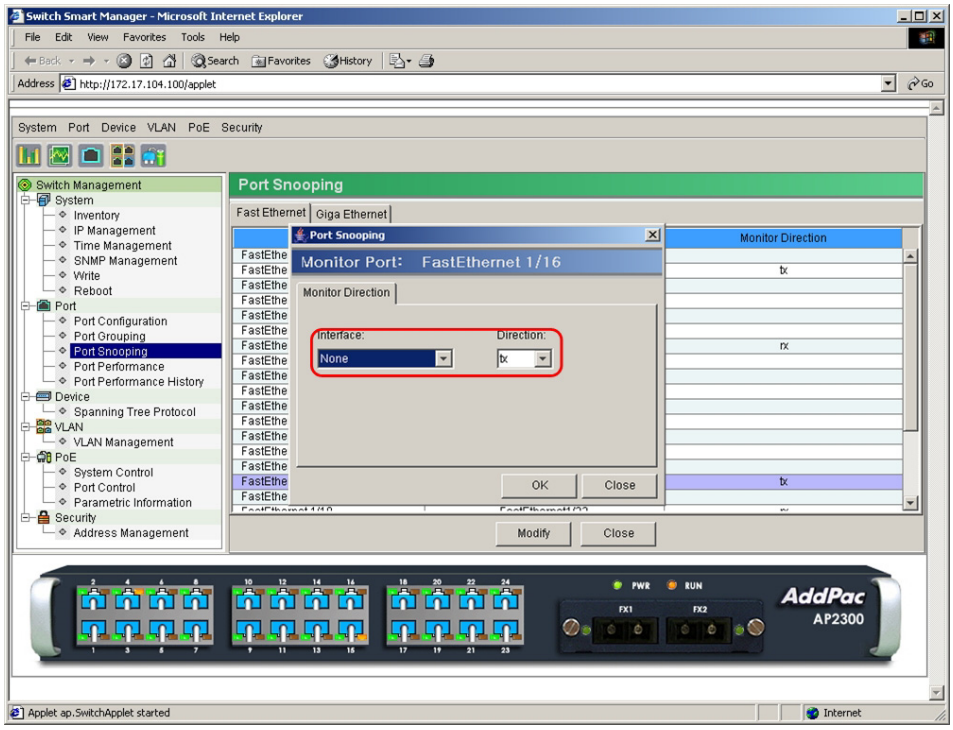
(Figure 3-103) Select Fast Ethernet 1/16

Click "Modify" button.



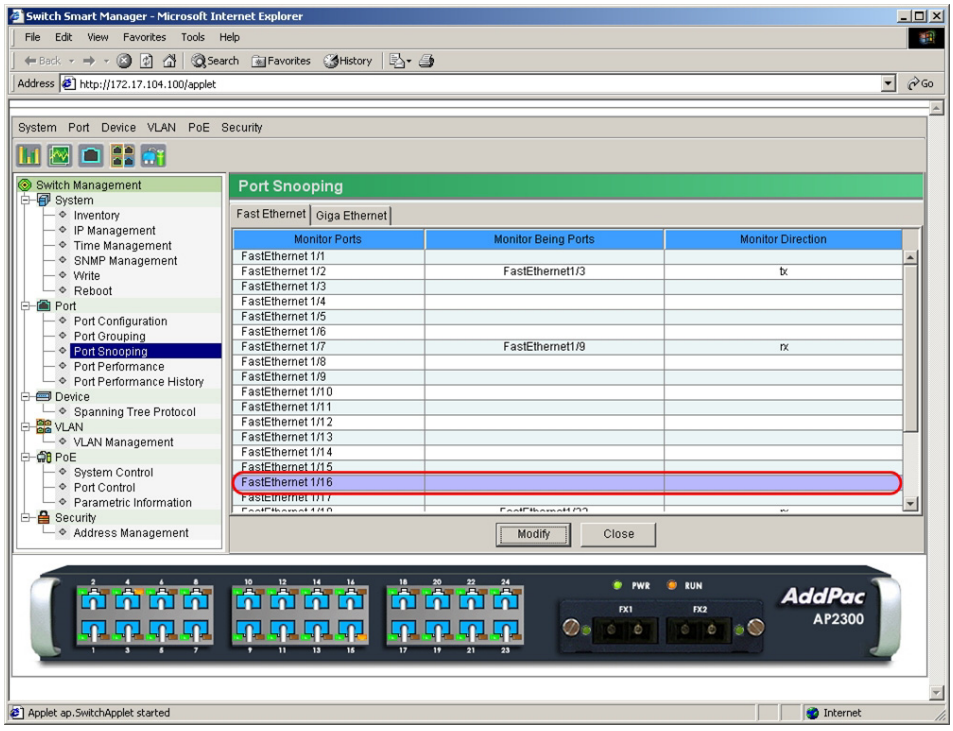
(Figure 3-104) Fast Ethernet 1/16 Port Snooping Setting

Select Interface None from the pull-down menu and click "OK" button.



(Figure 3-105) Disable Fast Ethernet 1/16 Port Snooping Setting

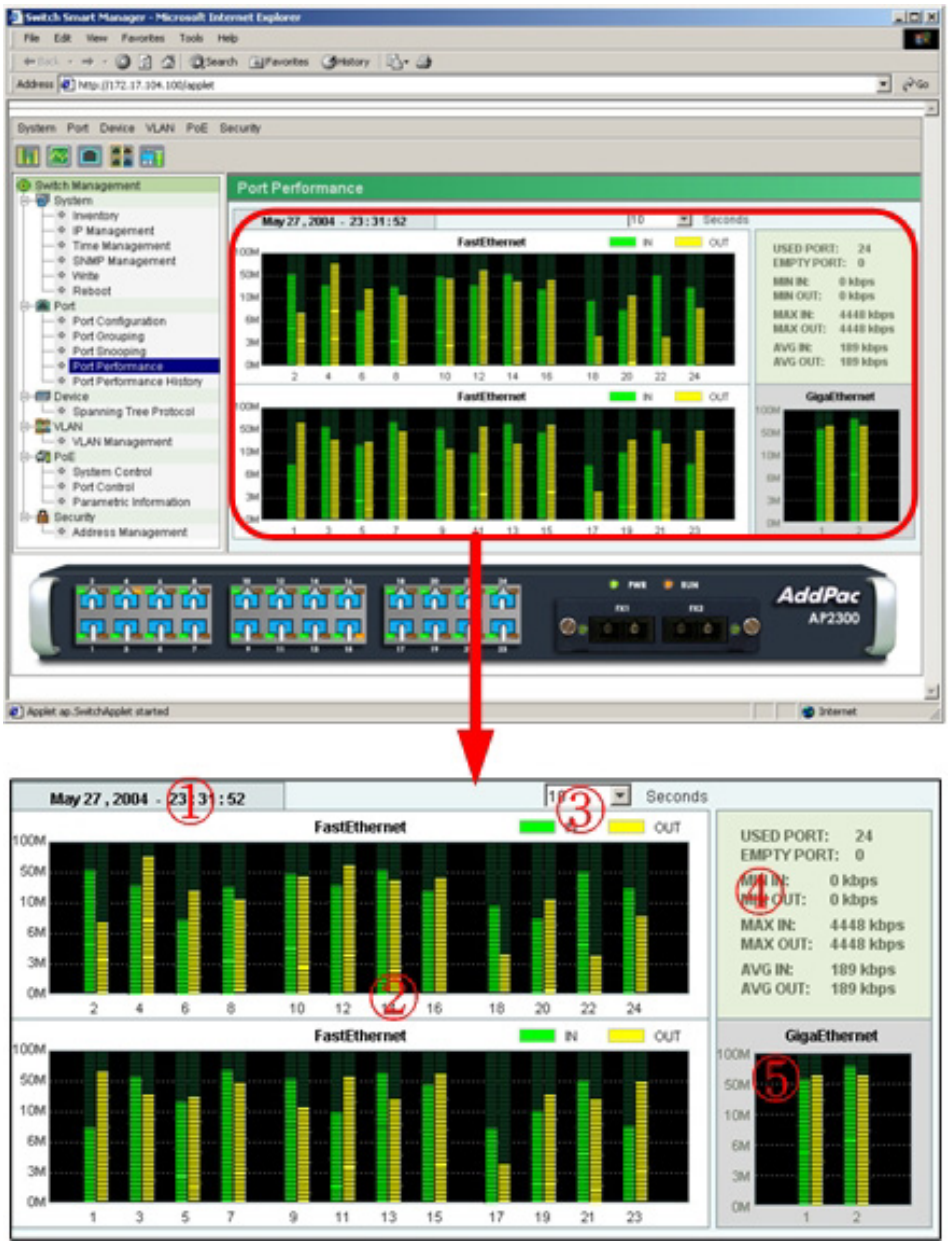
Verify the disabled port snooping setting on Fast Ethernet 1/16.



(Figure 3-106) Verify Disabled Port Snooping on Fast Ethernet 1/16

Port Performance

Port Performance graphically displays Tx/Rx rate of all Ethernet ports of AP2300 PoE Layer2 switch as bar chart. The refresh time is selectable from 10 sec, 30 sec and 60 sec. Moreover, the Port Performance data is automatically accumulated at Port Performance History by each port.

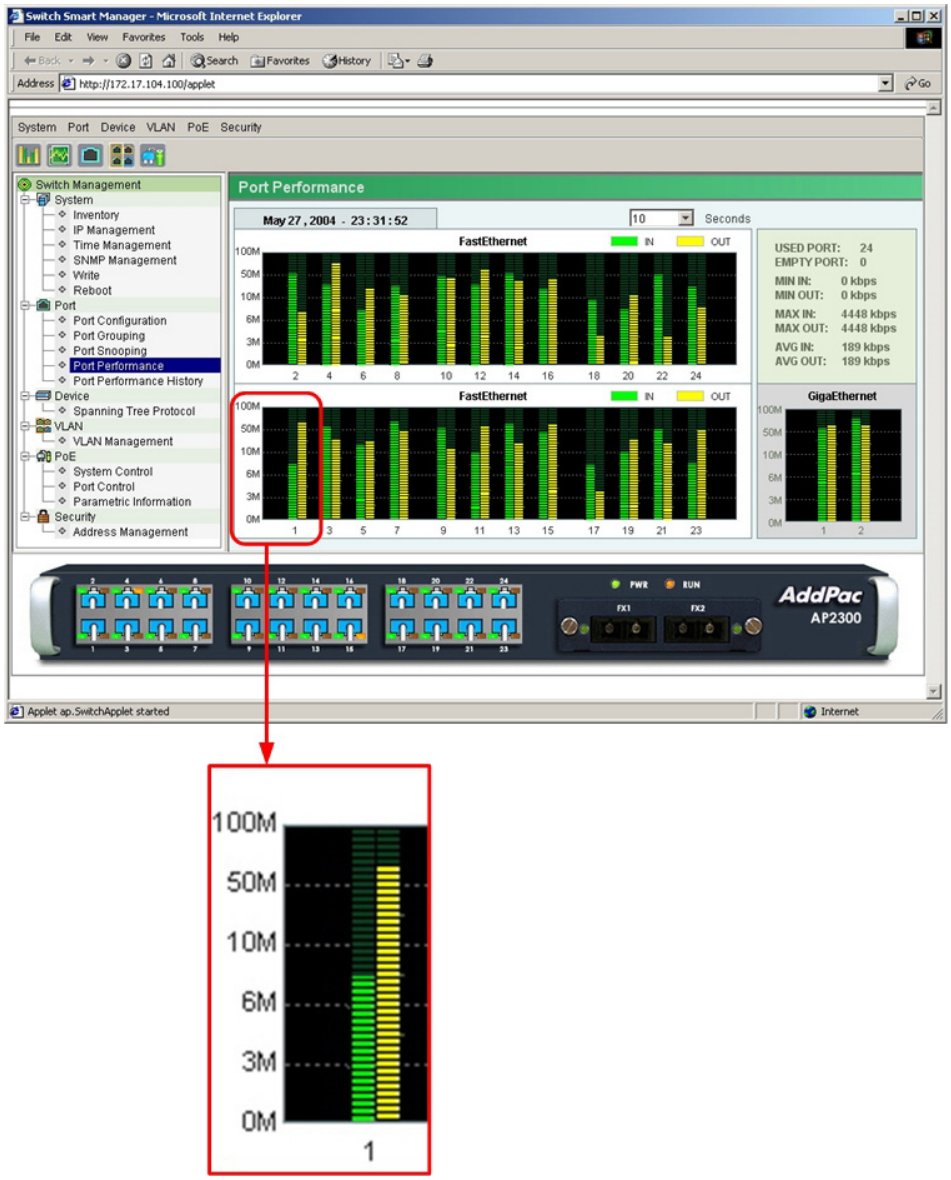


(Figure 3-107) Port Performance Page

<Table 3-11> Port Performance Graph Description

No.	Description
①	The current system date and time.
②	Port based bar chart of Tx/Rx rate. The horizontal scale indicates Ethernet Ports and the vertical scale indicates Tx/Rx rate/sec (bps). Green bar mans "Rx" and yellow bar mean "Tx."
③	Set the refresh time of the Performance chart. The available refresh time is 10, 30 and 60, and the default value is 10 seconds.
④	The overall information on the total ports used and Rx/Tx packets of AP2300 switch.
⑤	The Tx/Rx rate chart for Giga Ethernet ports. The horizontal scale indicates the ports and the vertical scale indicates Tx/Rx rate/sec (bps). The green bar mans "Rx" and the yellow bar mean "Tx."

Refer to the Fast Ethernet 1/1 from be below figure.



(Figure 3-108) Fast Ethernet 1/1 Port Performance Bar Chart

The green bar indicates "Rx" and the yellow bar indicates "Tx." According to the chart, the Rx rate is 8Mbps and Tx rate is 70Mbps.

Port Performance History

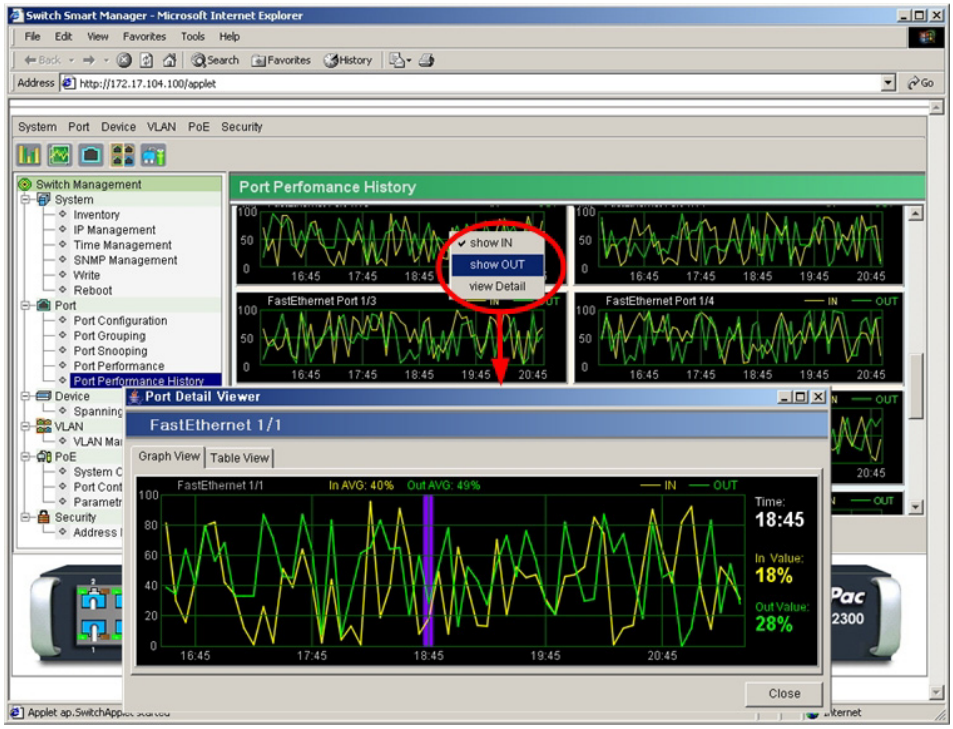
Port Performance History shows accumulated Tx/Rx rate by line chart for the easy monitoring of packets on the interfaces.

The horizontal scale indicates time and the vertical scale indicates packet rate. The green line indicates "Rx" and the yellow line indicates "Tx."



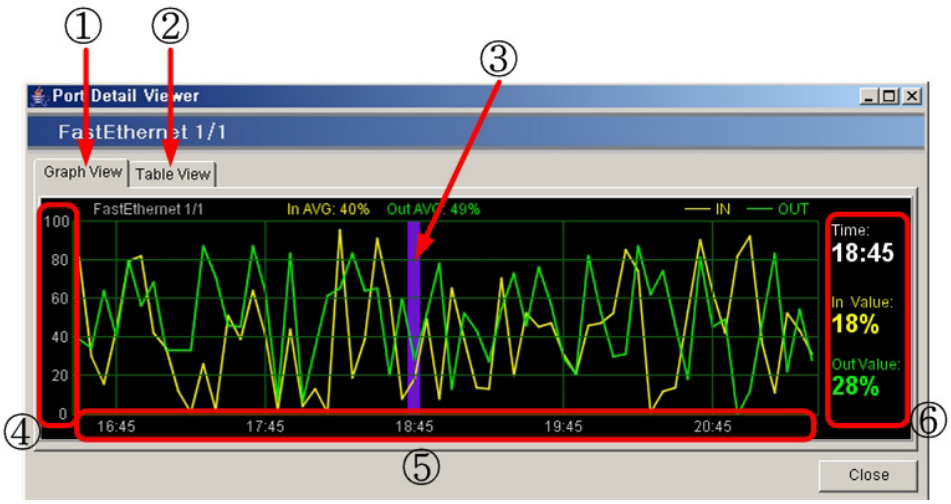
(Figure 3-109) Fast Ethernet 1/3 Port Performance History Line Chart

To see more detailed information on a specific port, place the mouse on a specific chart. Then click the right button of the mouse and select "Show out" to see the Port Detail Viewer.



(Figure 3-110) Fast Ethernet 1/1 Port Detail Viewer

The elements and descriptions of Port Detail Viewer are provided below.

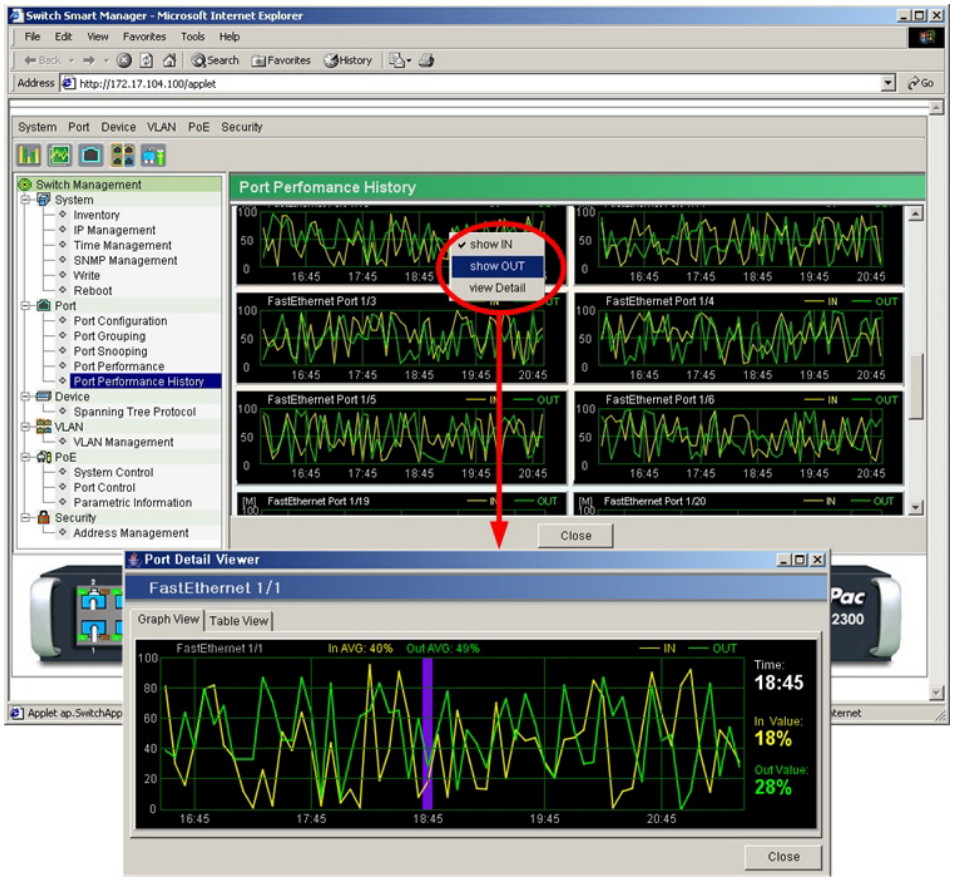


(Figure 3-111) Port Detail Viewer Elements

<Table 3-12> Port Detail Viewer Elements & Description

No.	Description
①	Show Tx/Rx rate as line chart.
②	Show Tx/Rx rate as table.
③	Use this line to see a specific time and packet rate. Just place the mouse at the desired position of the chart.
④	Tx/Rx rate. Unit: Mbps
⑤	The operation time.
⑥	The time and Rx/Tx rate selected by the selecting line.

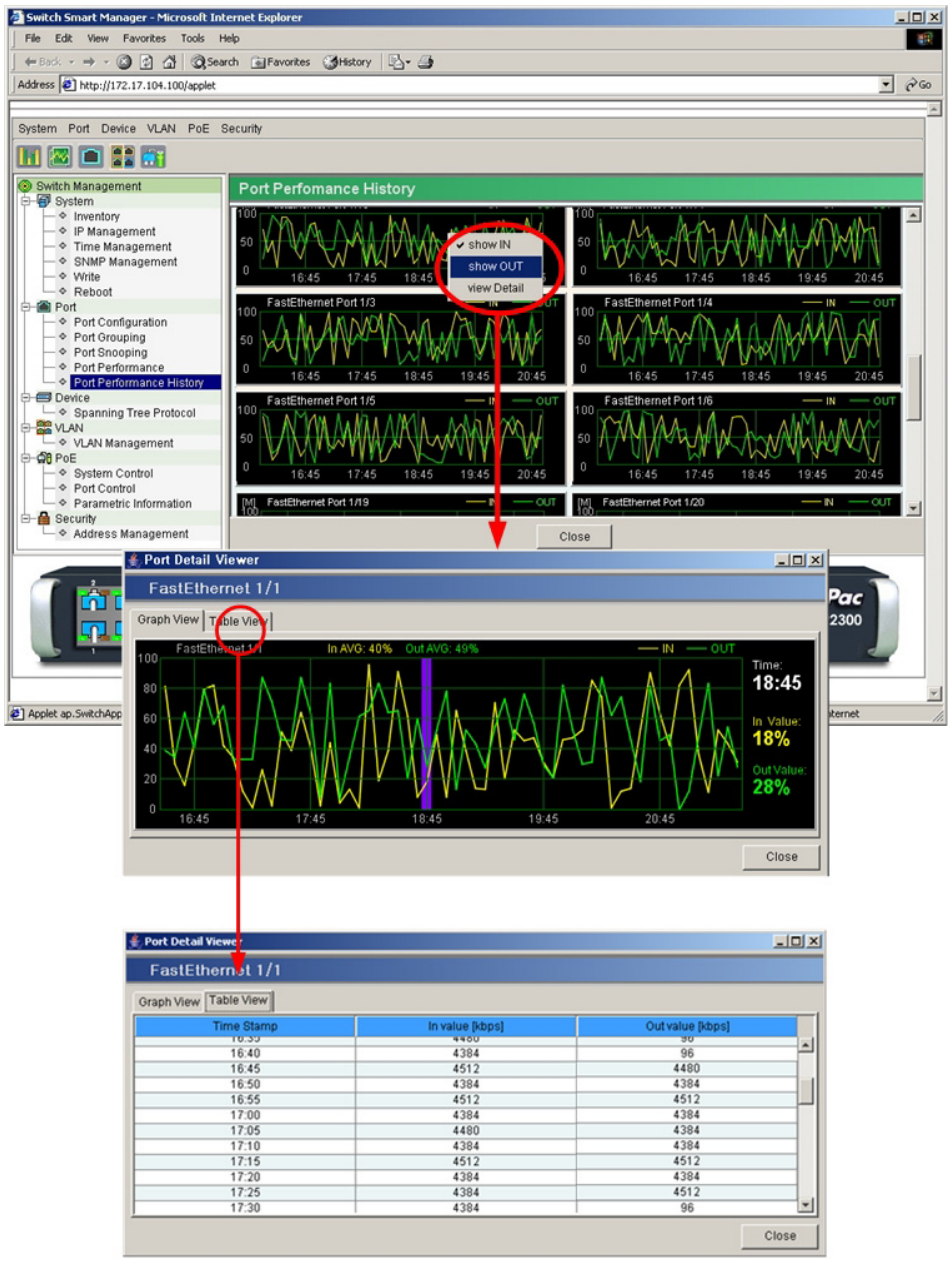
The below example shows Port Performance History of Fast Ethernet 1/1. Click the mouse right button and select Show Out. Port Detail Viewer is appeared as a separate box.



(Figure 3-112) Fast Ethernet 1/1 Port Detail Viewer

With the mouse pointer, check the exact time and packet rate from the Port Detail Viewer.

Select Table View tab of the Port Detail Viewer. Then the Tx/Rx rate is shown as numeric data on a table.



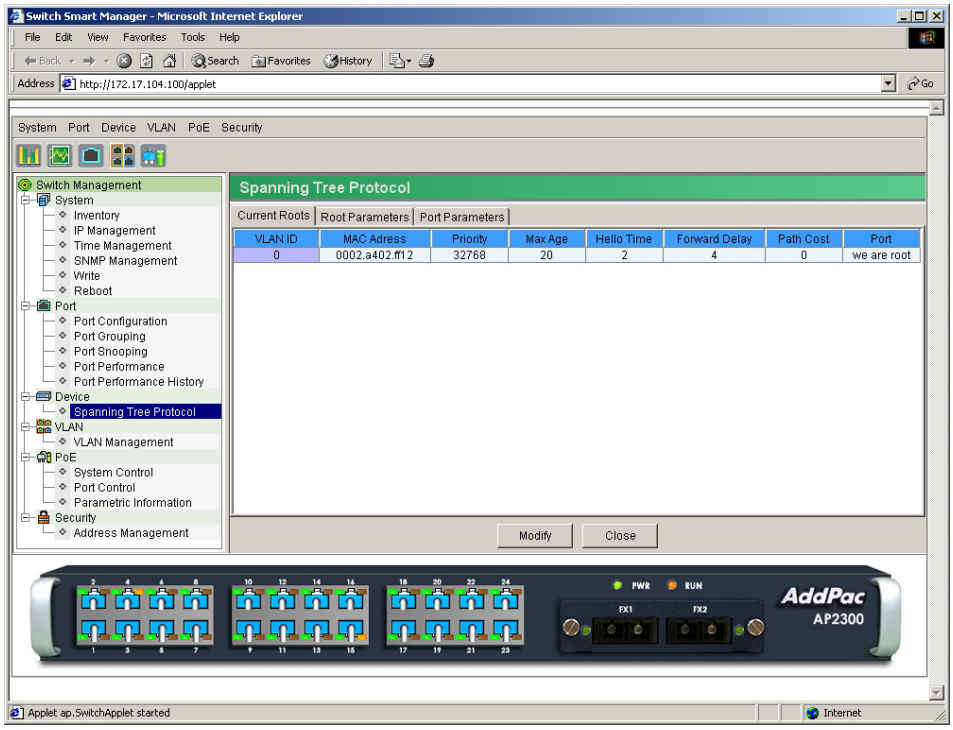
(Figure 3-113) Table View of Port Detail Viewer

Device Menu

Spanning Tree Protocol

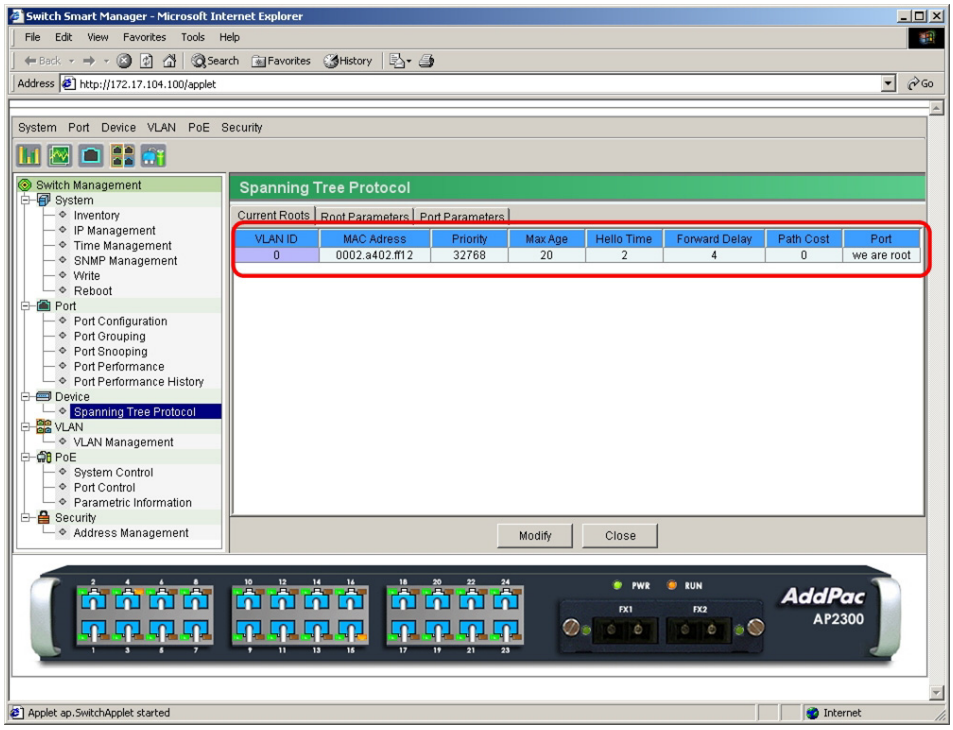
STP (Spanning Tree Protocol) is IEEE 802.1D Standard which prevents loops from being formed when switches or bridges are interconnected via multiple paths. The Spanning Tree Algorithm calculates the best loop-free path for the Bridge or Switch. If the selected path is filed, STP selects another path.

Spanning Tree Protocol menu consists of Current Roots, Root Parameters, and Port Parameters.



(Figure 3-114) Spanning Tree Protocol Main Pag

Spanning Tree Protocol -> Current Root page is shown below.

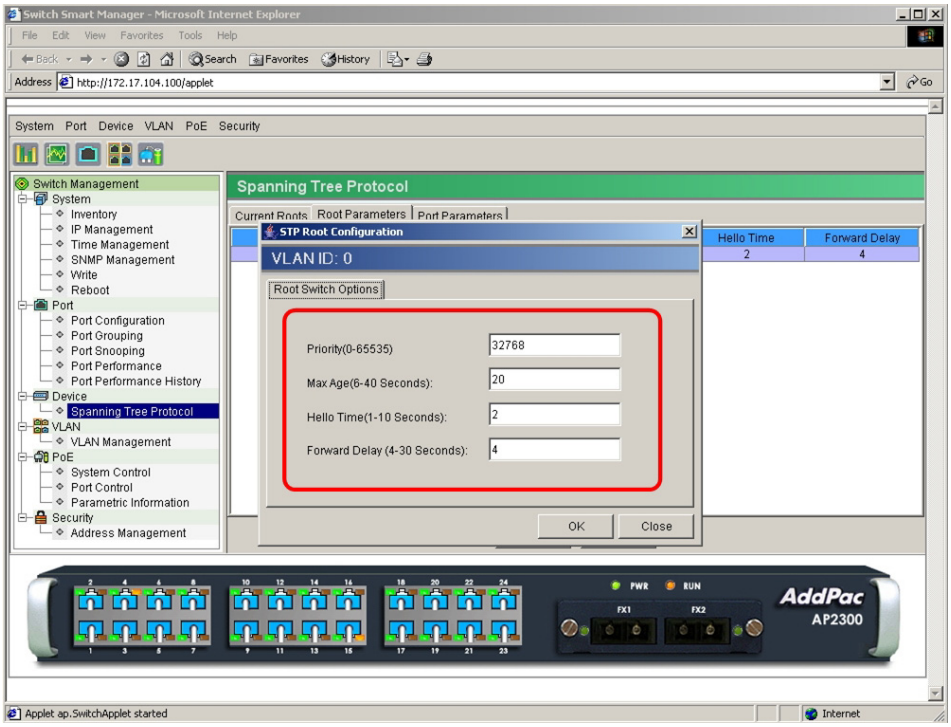


(Figure 3-115) Current Root Page

<Table 3-13> Spanning Tree Protocol: Current Root Parameters & Description

Parameters	Description
VLAN ID	VLAN ID. The default value is "0."
MAC Address	The MAC address of the equipment.
Priority	The priority information of the Spanning Tree Protocol.
Max Age	Determines the amount of time the switch stores protocol information received on an interface.
Hello Time	Determines how often the switch broadcasts hello messages.
Forward Delay	Determines how long each of the listening and learning states last before the interface begins forwarding.
Path Cost	Shows the Path cost of the interface.
Port	Indicates whether current interface is Root path.

At Root Parameters tab, configure the parameters for Spanning Tree Protocol. Click "Modify" button to open Root Switch Options box.

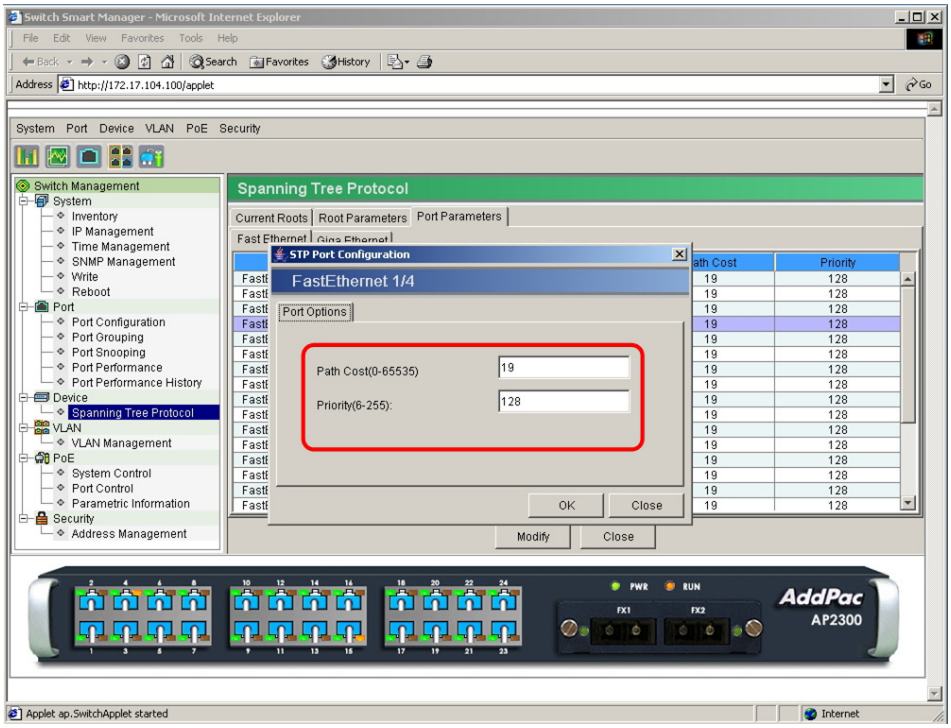


(Figure 3-116) Root Parameters -> Root Switch Options Box

<Table 3-14> Spanning Tree Protocol Parameters & Descriptions

Parameters	Description
Priority	The priority information of the Spanning Tree Protocol. The default value is "32768" and the available range is "0~65535."
Max Age	Determine the amount of time the switch stores protocol information received on an interface. The default is "20 seconds" and the available range is "6~40 seconds."
Hello Time	Determine how often the switch broadcasts hello messages. The default is "2 seconds" and the available range is "1~10 seconds."
Forward Delay	Set the Forward Delay value. The default is "4 seconds" and the available range is "4~30 seconds."

At Port Parameters tab, configure Priority and Path Cost of each Ethernet interface and monitors Port State information. Click "Modify" button to open Port Options box and click "OK" button to save the configuration.



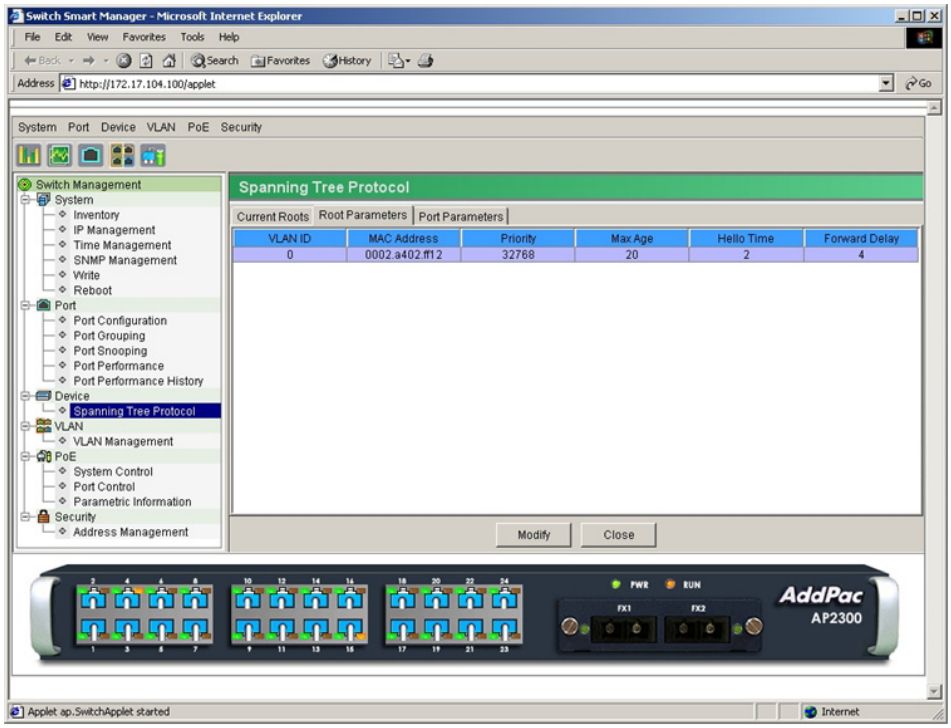
(Figure 3-117) Port Parameters -> Port Options Box

<Table 3-15> Ethernet Port Parameters & Description

Parameters	Description
Path Cost	Set the Path Cost of the interface. The available range is "0~65535" and the port with lower path cost has higher priority of the path. The default path cost is "19."
Priority	Set the priority of the interface. The available range is "6~255" and the default priority value is "128."

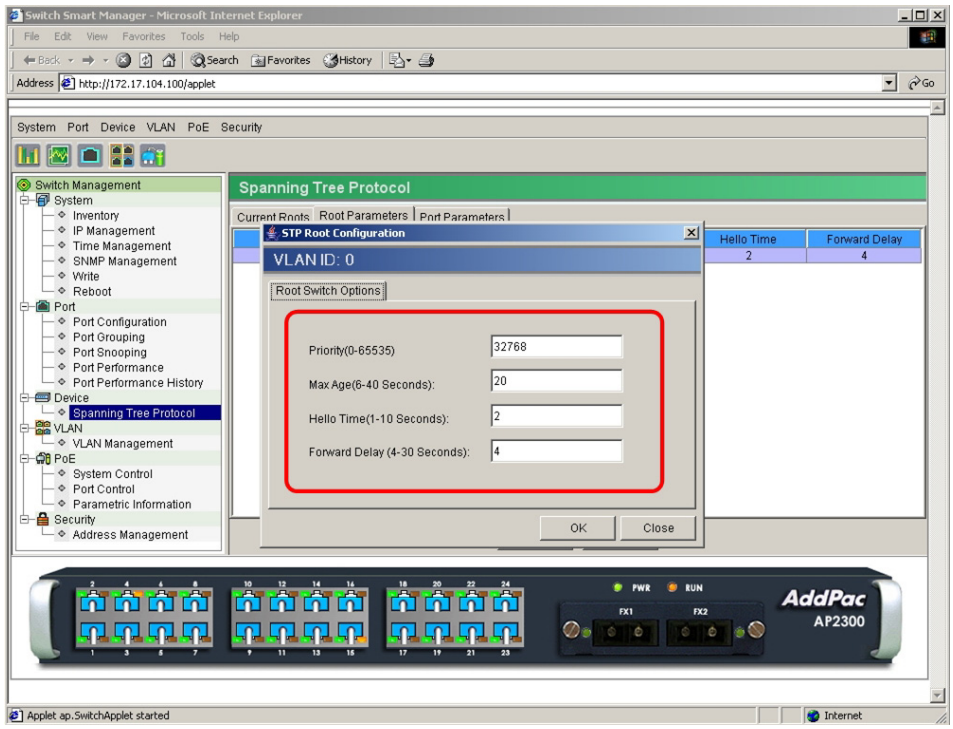
The below example describes how to change the Root Parameters of Spanning Tree Protocol.

Select Root Parameters tab from Spanning Tree Protocol page.



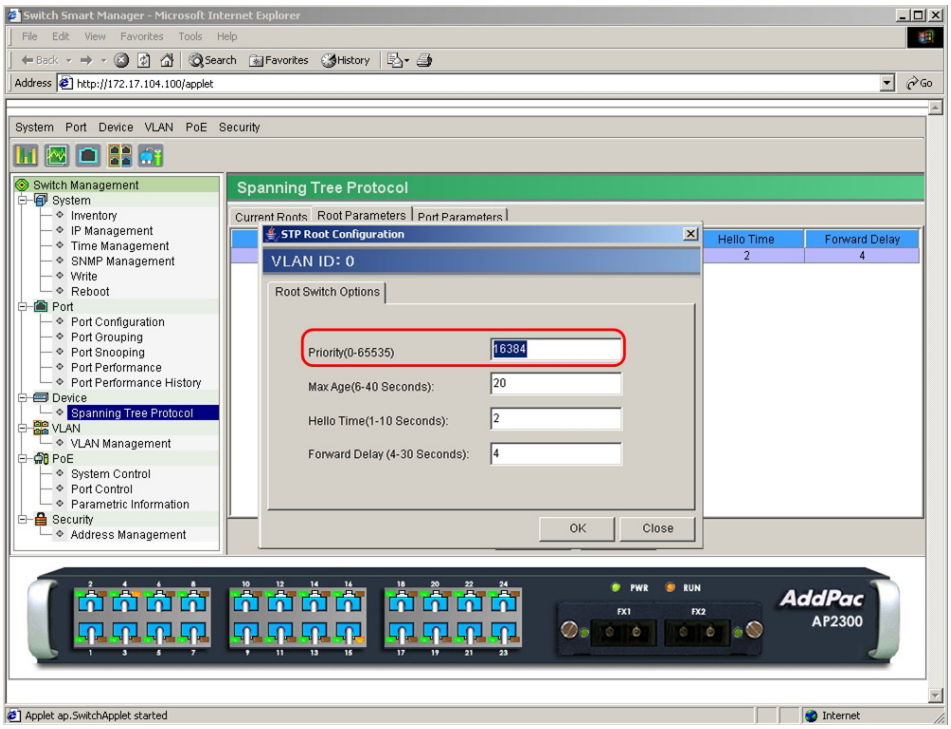
(Figure 3-118) Select Root Parameters Tab

Click "Modify" button.



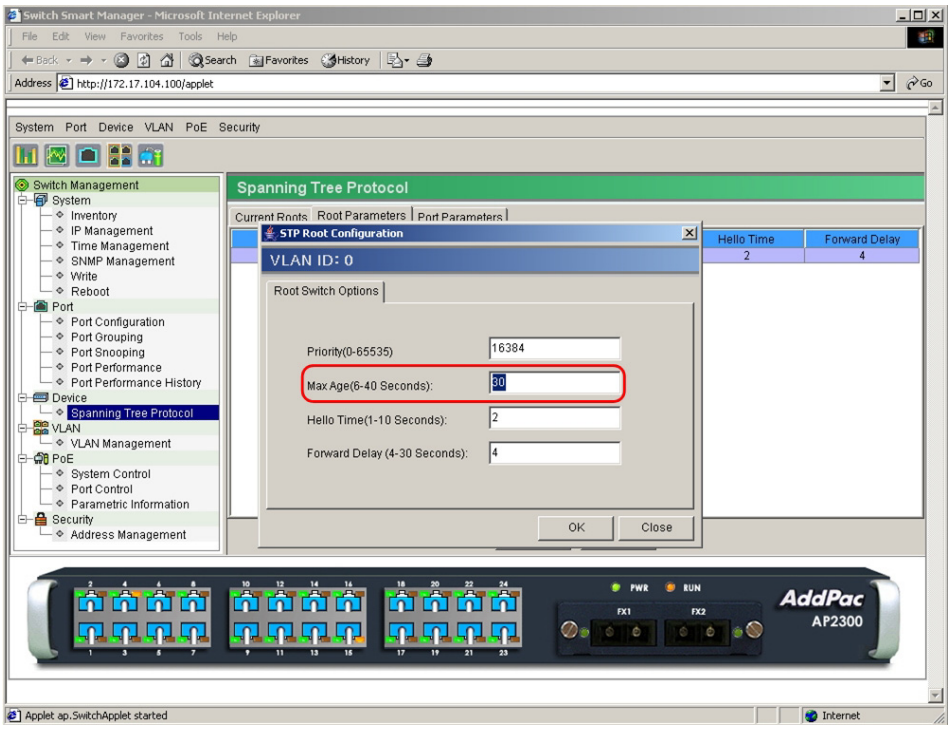
(Figure 3-119) Root Switch Options Box

Change Priority to "16384."



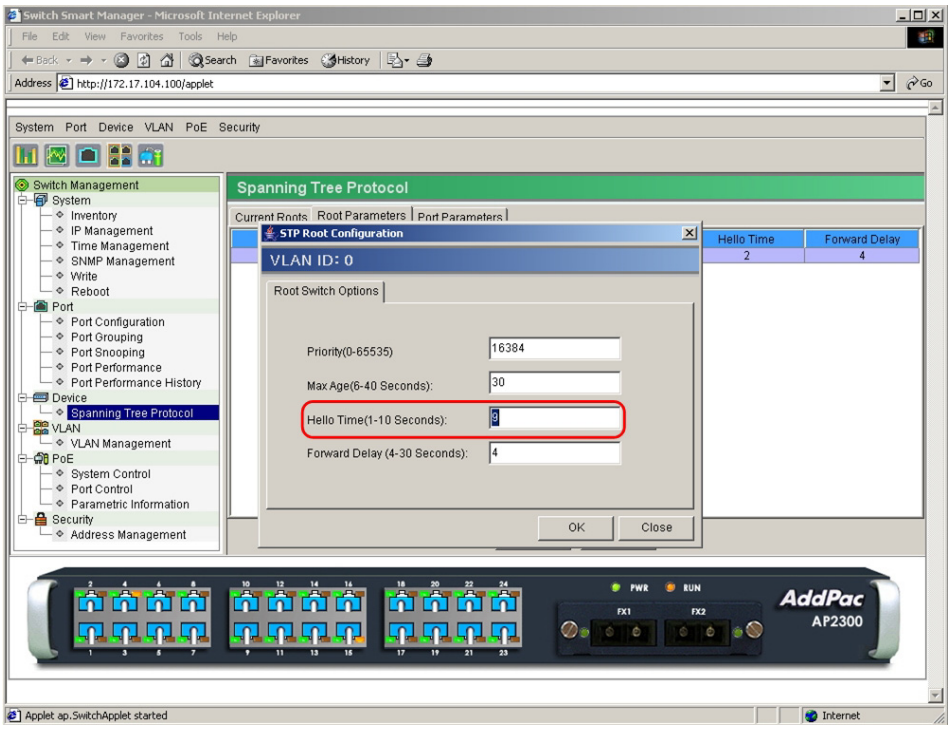
(Figure 3-120) Input Root Parameters: Priority

Set Max Age Time as "30 seconds."



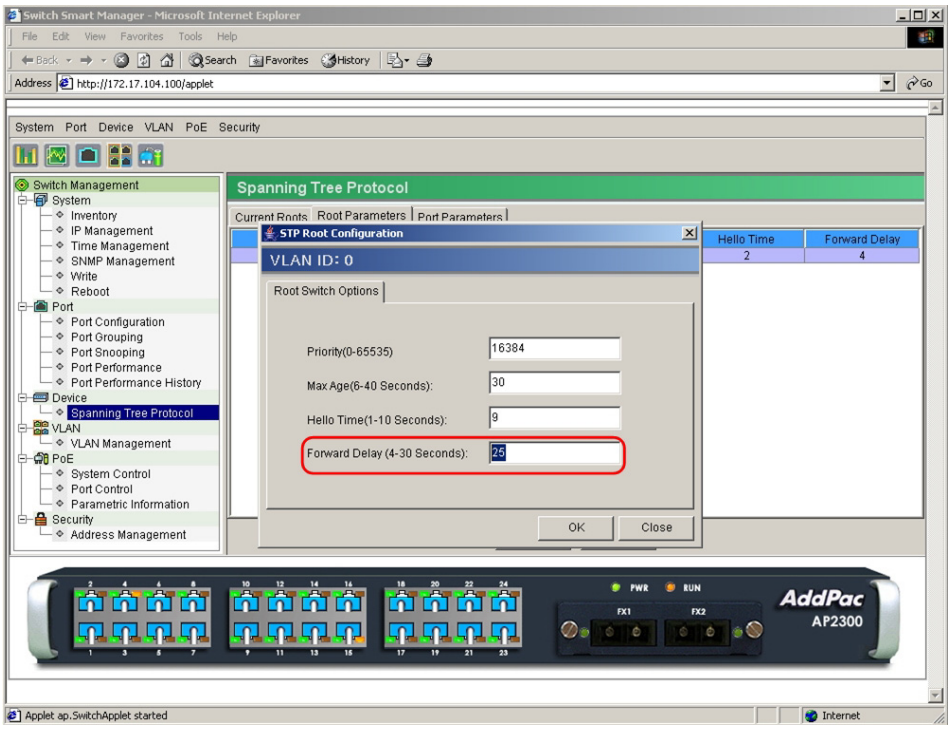
(Figure 3-121) Input Root Parameters: Max Age

Change the Hello Time as "9 seconds."



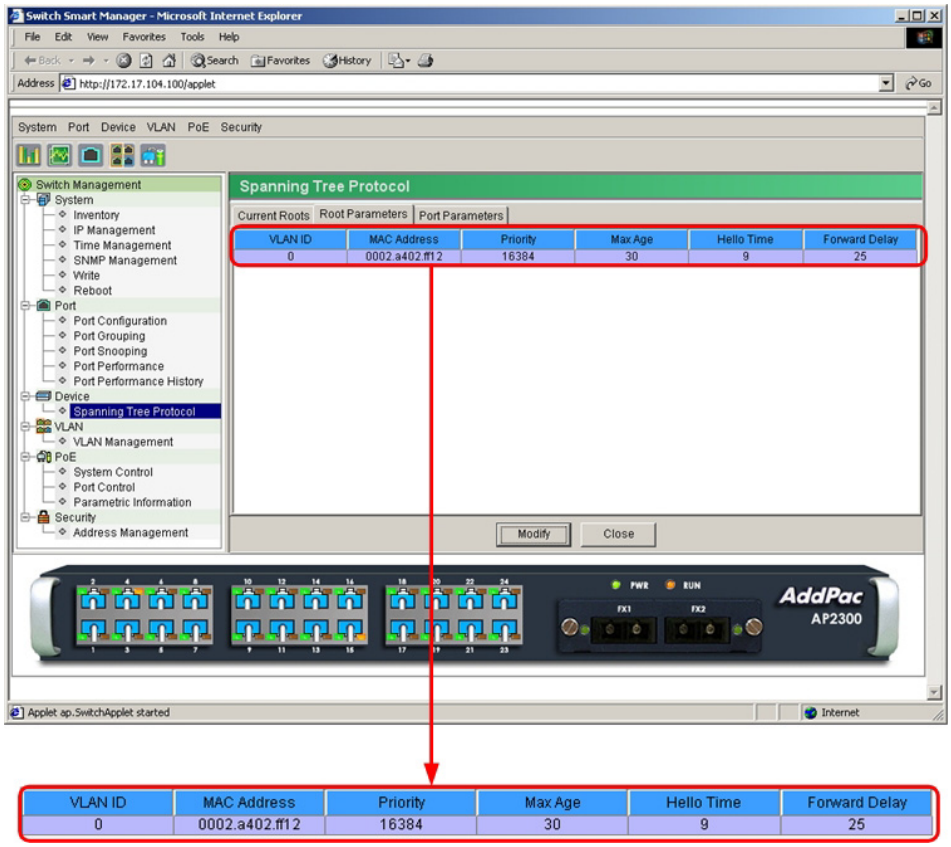
(Figure 3-122) Input Root Parameters: Hello Time

Change Forward Delay to "25 seconds" and click "OK" button.



(Figure 3-123) Input Root Parameters: Forward Delay

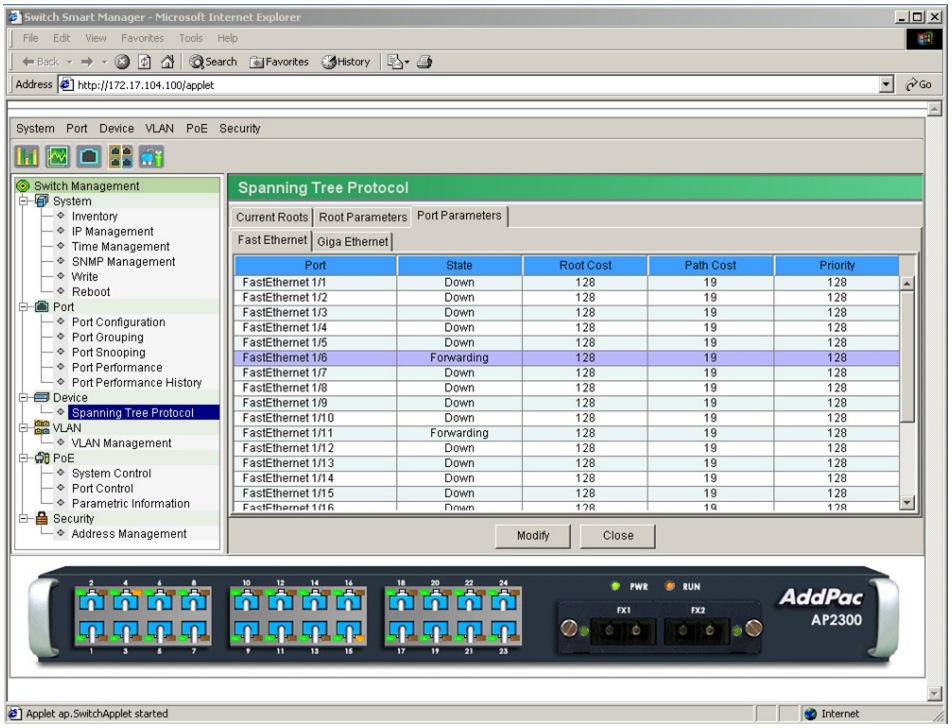
Verify the changed Root Parameters values.



(Figure 3-124) Verify Root Parameters

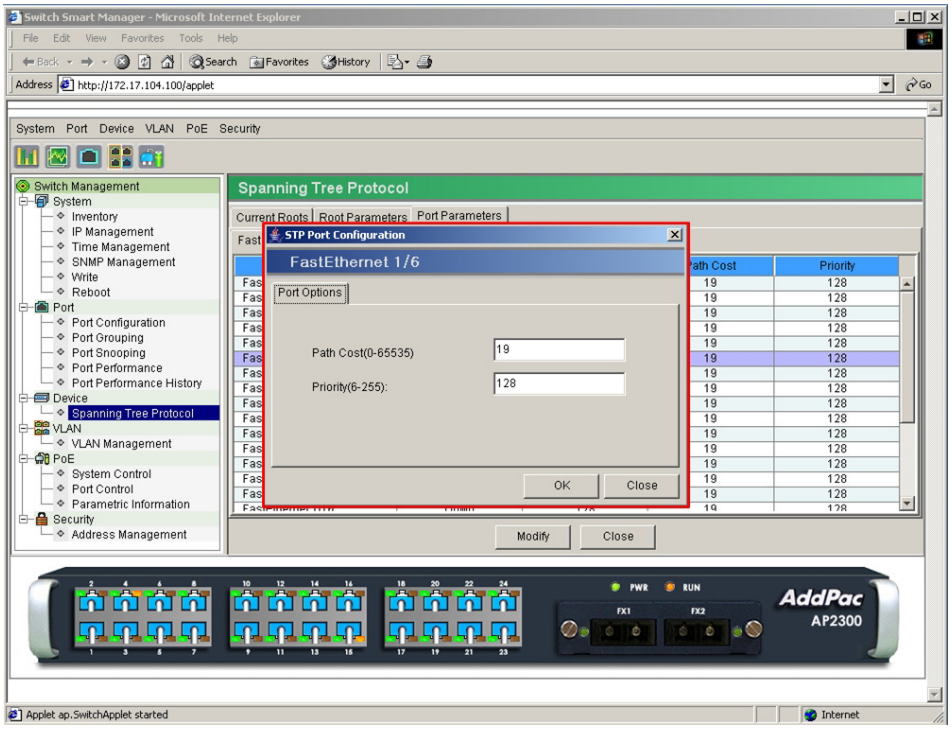
The below example describes how to set Spanning Tree Protocol information of Fast Ethernet 1/6 at Port parameters page.

Select Fast Ethernet 1/6 from Port Parameters page.



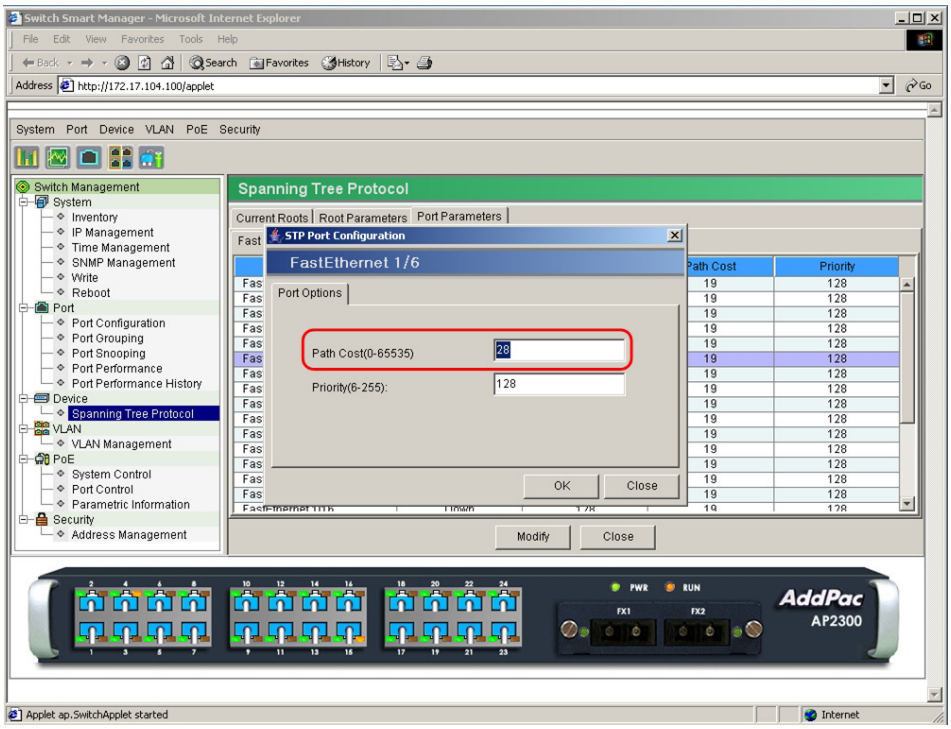
(Figure 3-125) Select Fast Ethernet 1/6 Port Parameters

Click "Modify" button.



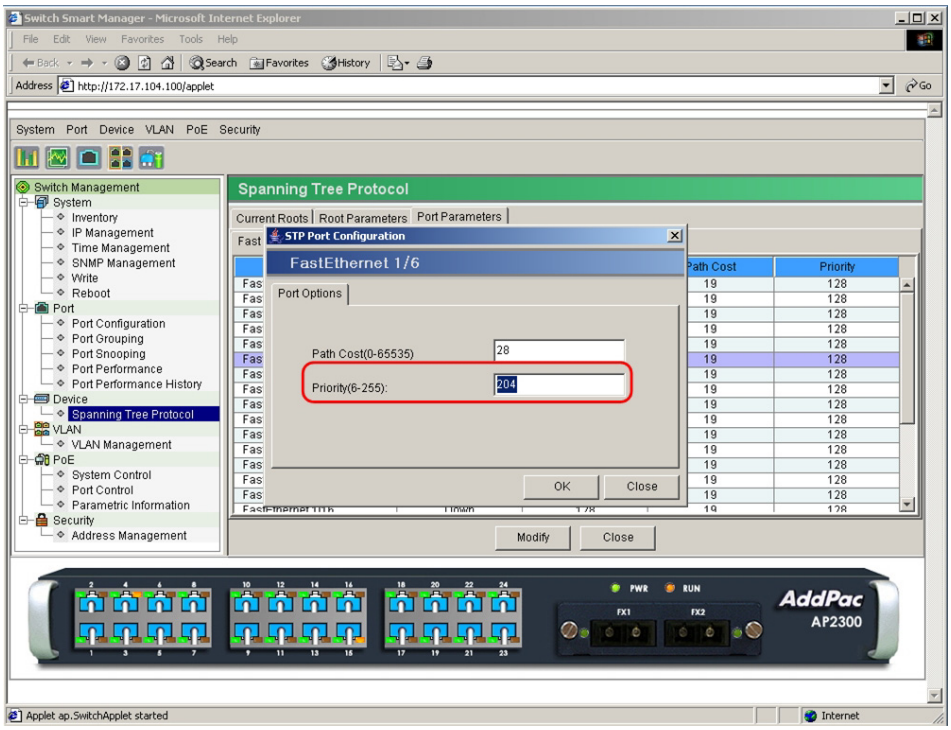
(Figure 3-126) Port Parameters -> Port Options Box

Change Path Cost to "28."



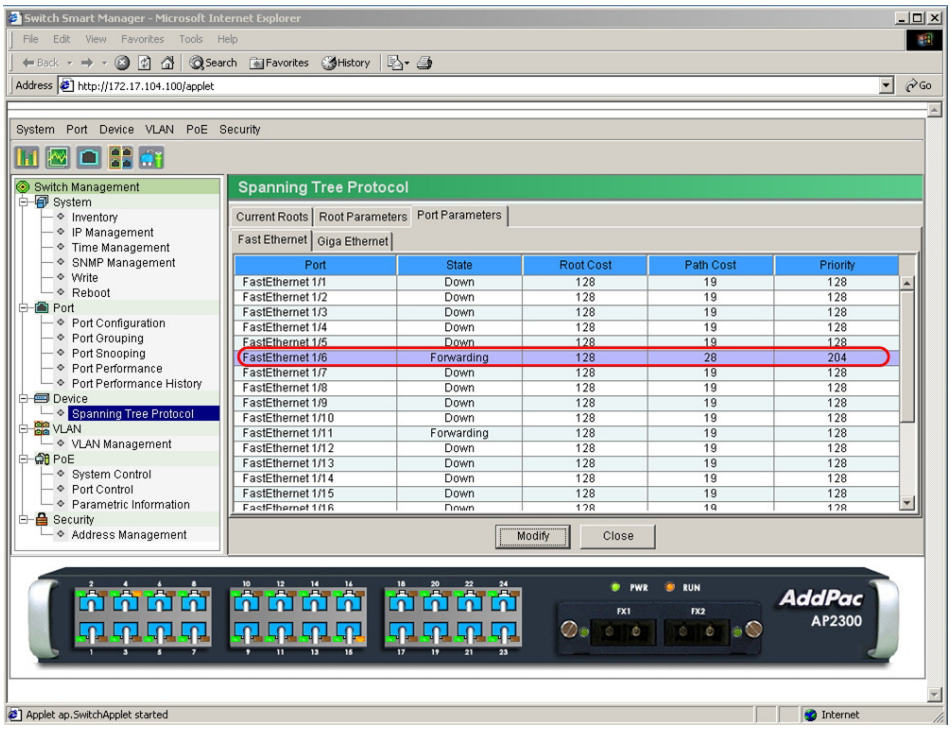
(Figure 3-127) Input Path Cost

Change Priority to "204," and click "OK" button.



(Figure 3-128) Input Port Priority

Verify the changed Port Parameters values of Fast Ethernet 1/6.



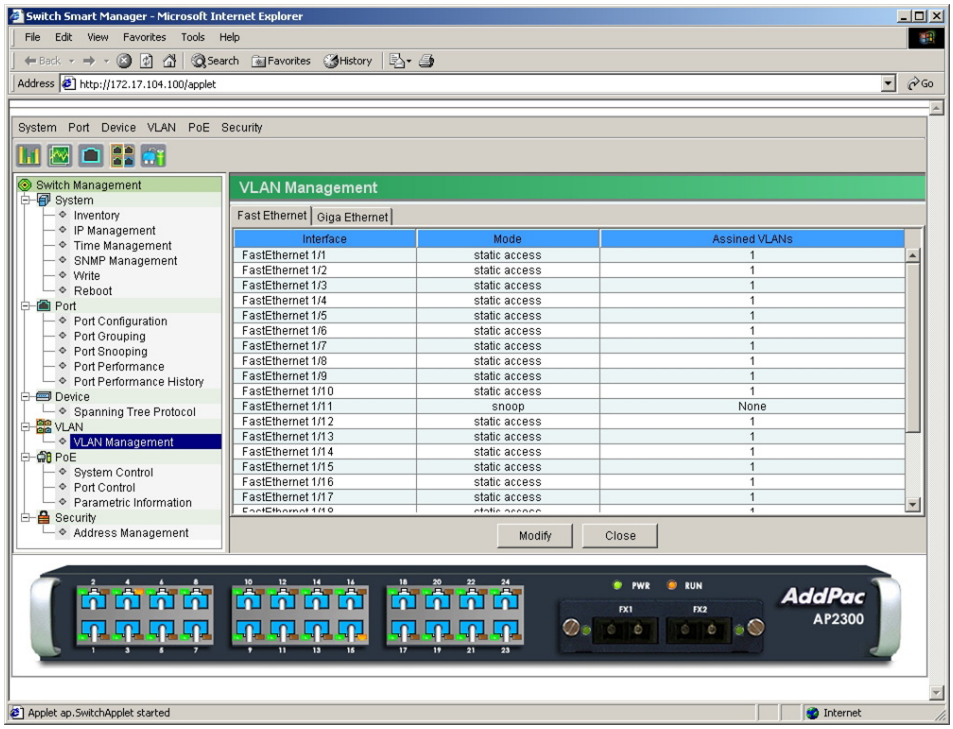
(Figure 3-129) Verify Port Parameters

VLAN Menu

VLAN Management

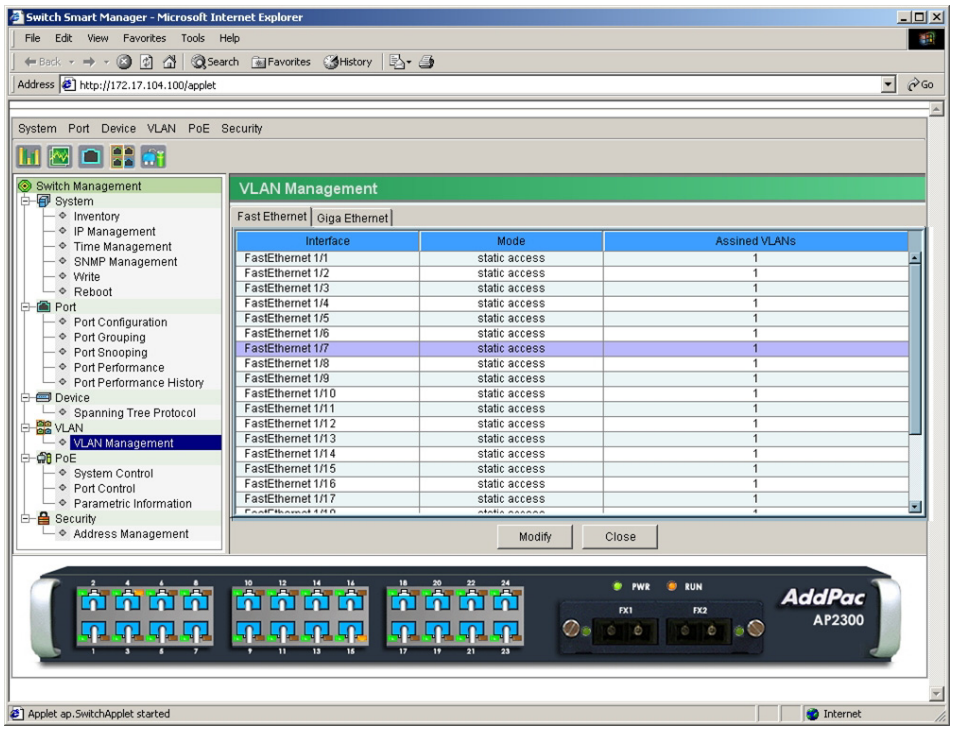
AP2300 PoE Layer2 Switch supports Virtual LAN. With VLAN, hosts on same physical network can form number of logically independent groups according to the VLAN ID. Because VLANs are based on logical instead of physical connections, they are extremely flexible and easy to manage. Set VLAN Tag on the desired interface at VLAN Management page.

The below is the main page of VLAN Management.



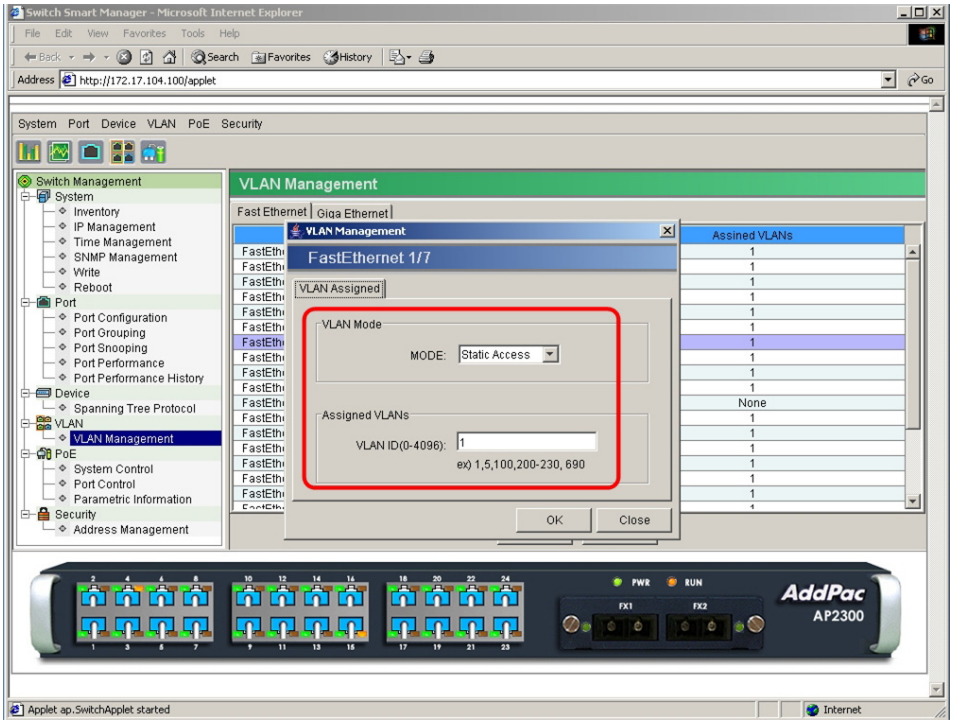
(Figure 3-130) VLAN Management Main Page

Select the interface to add or modify VLAN ID and click "Modify" button.



(Figure 3-131) Select the Interface for VLAN ID Change

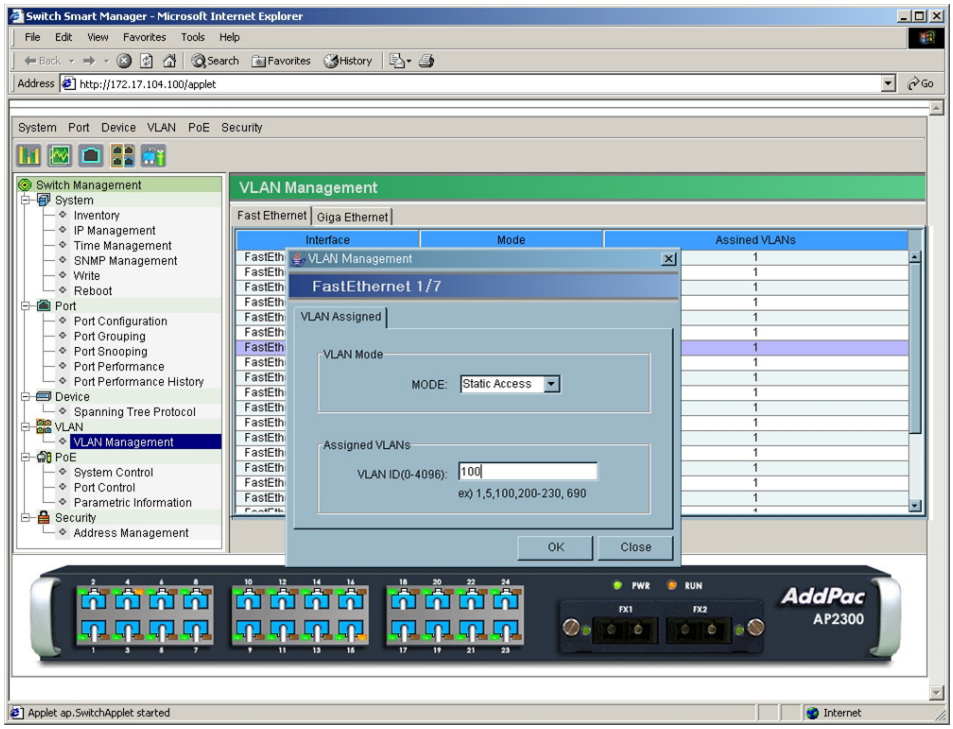
Select the VLAN Mode ("Static Access" or "Trunk") and VLAN ID (0~4096).



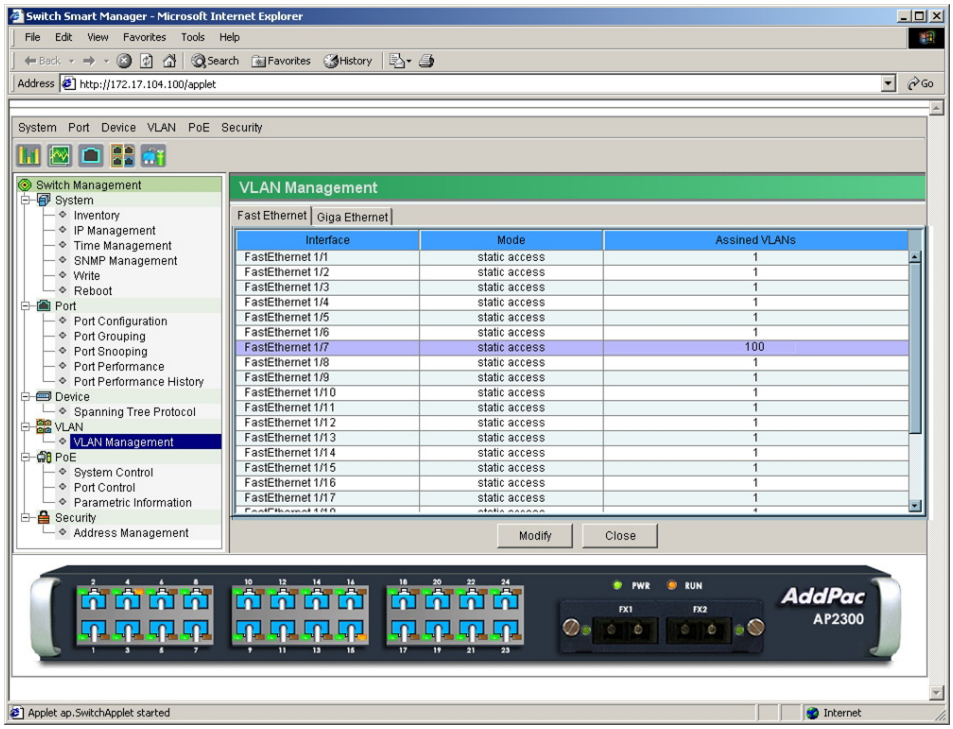
(Figure 3-132) VLAN Assigned Box

The below example describes how to change the VLAN Mode and VLAN ID for the Interface 1/7 and Interface 1/9.

Select Interface 1/7 and click "Modify" button. Select "Static Access Mode" and "VLAN ID 100" from the pull-down menu.

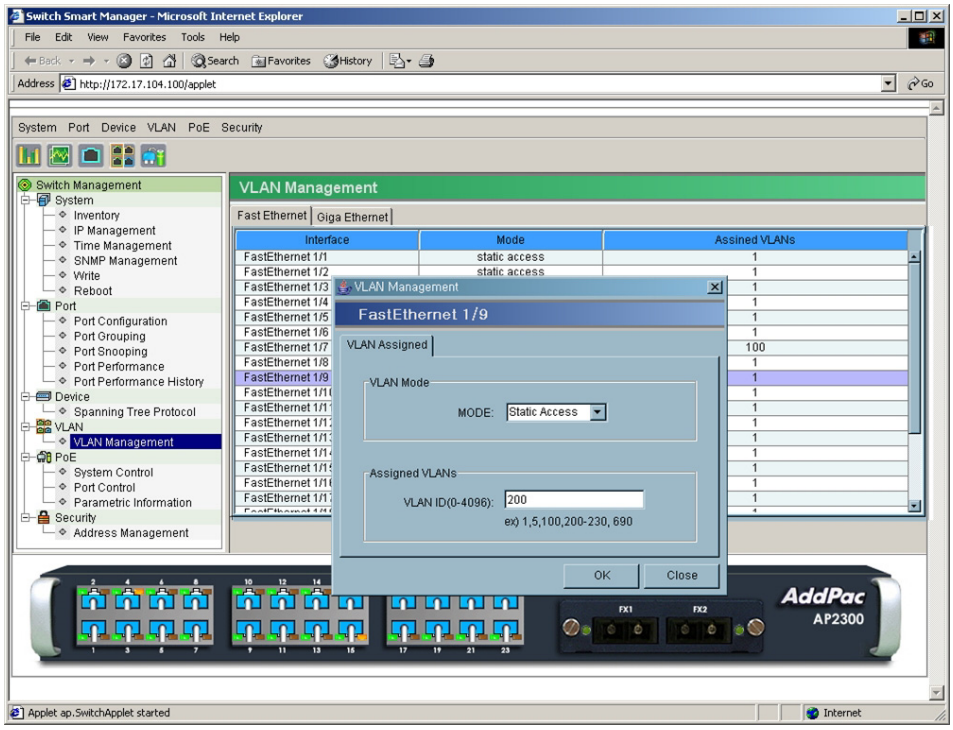


(Figure 3-133) Fast Ethernet 1/7 VLAN Mode and ID Change



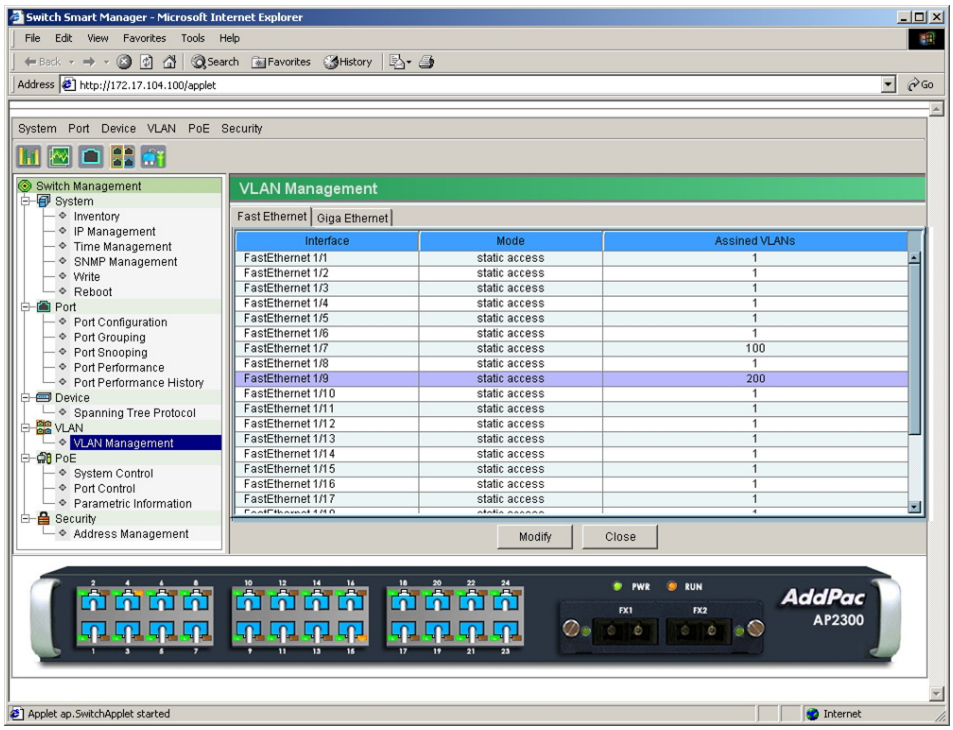
(Figure 3-134) Verify Fast Ethernet 1/7 VLAN Mode and ID

Select Interface 1/9 and click "Modify" button. Select "Static Access Mode" and "VLAN ID 200" from the pull-down menu.



(Figure 3-135) Fast Ethernet 1/9 VLAN Mode and ID Change

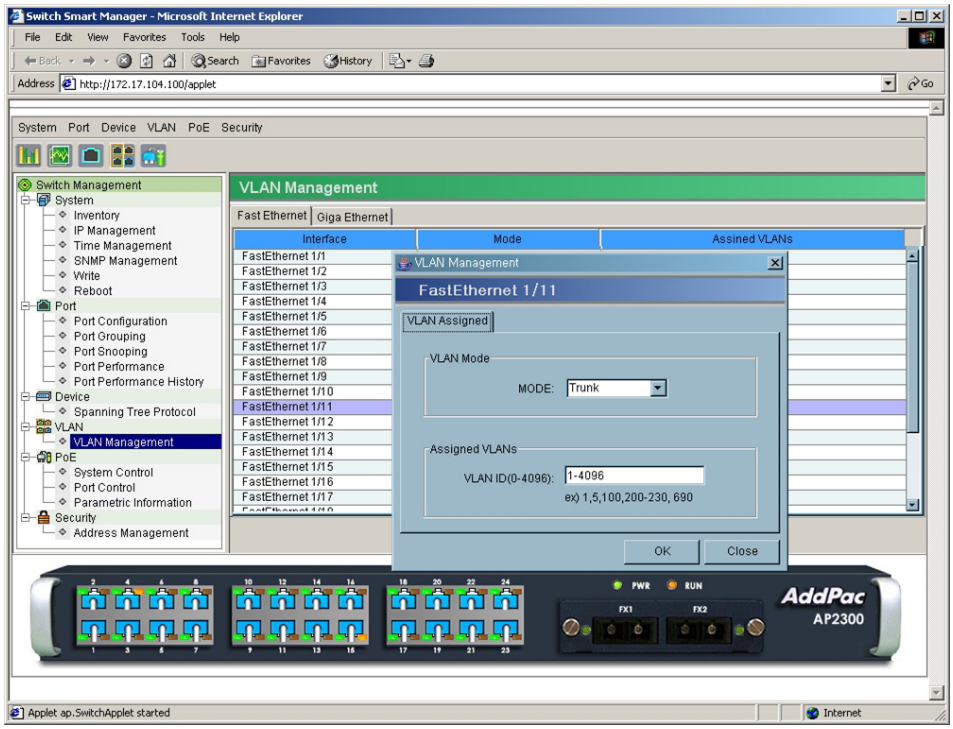
Click "OK" button to save and verify the setting.



(Figure 3-136) Verify Fast Ethernet 1/9 VLAN Mode and ID

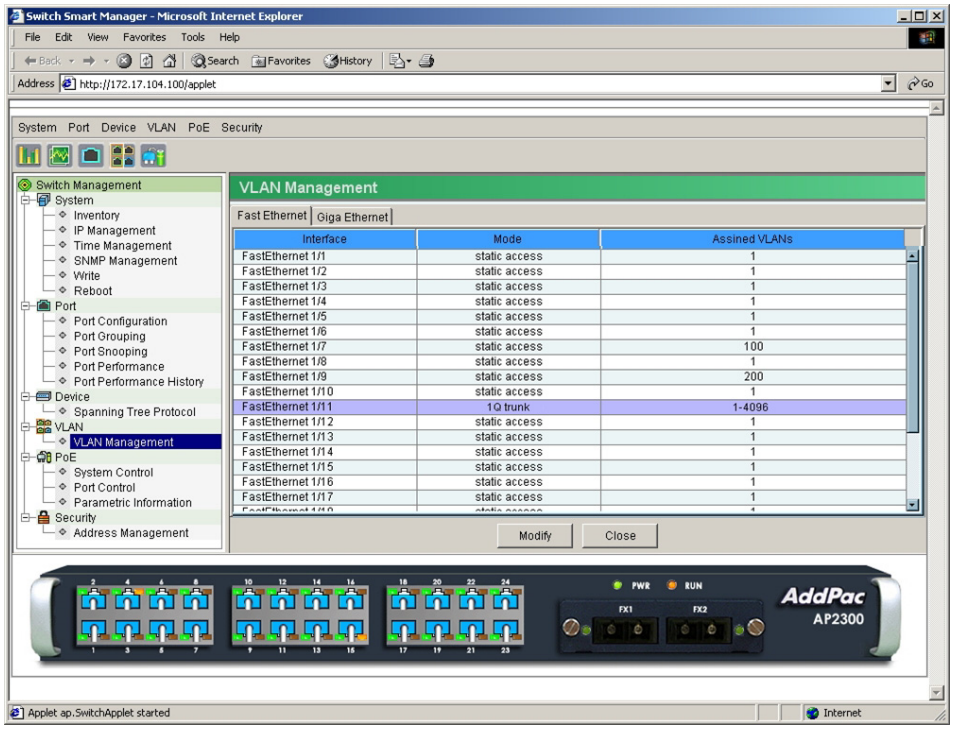
Select Interface 1/11 and click "Modify" button. Select "Trunk Mode" and "VLAN ID 1-4096" from the pull-down menu.

Be careful with VLAN ID at the Trunk Mode because the ports are used for uplink.



(Figure 3-137) Fast Ethernet 1/11 VLAN Mode and ID Change

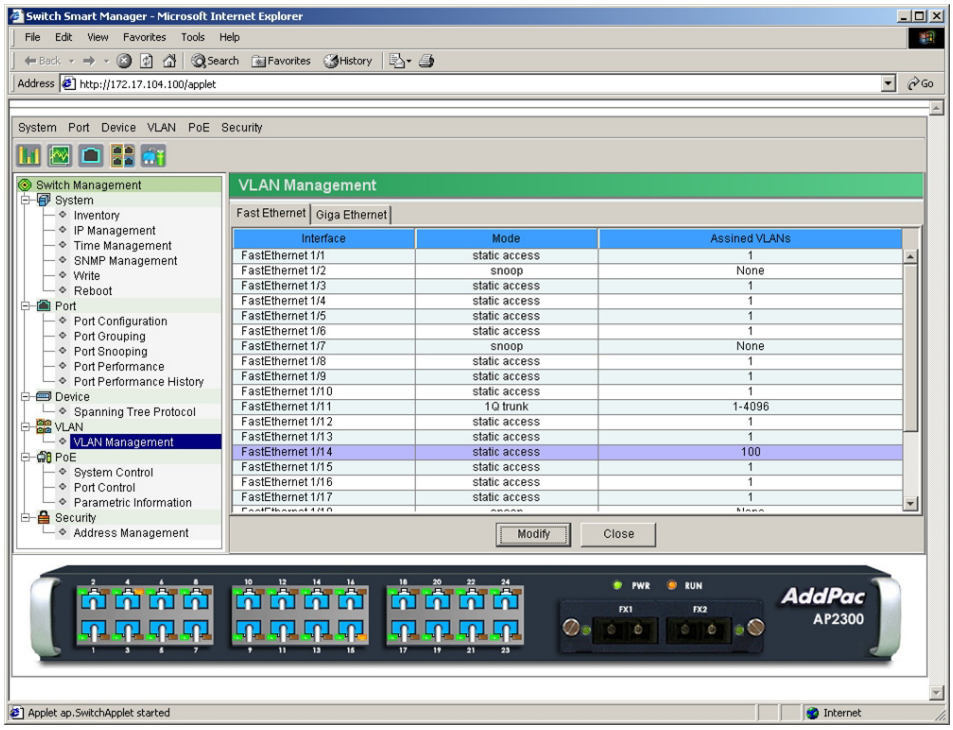
Verify the VLAN setting of Interface 1/11.



(Figure 3-138) Verify Fast Ethernet 1/11 VLAN Mode and ID Change

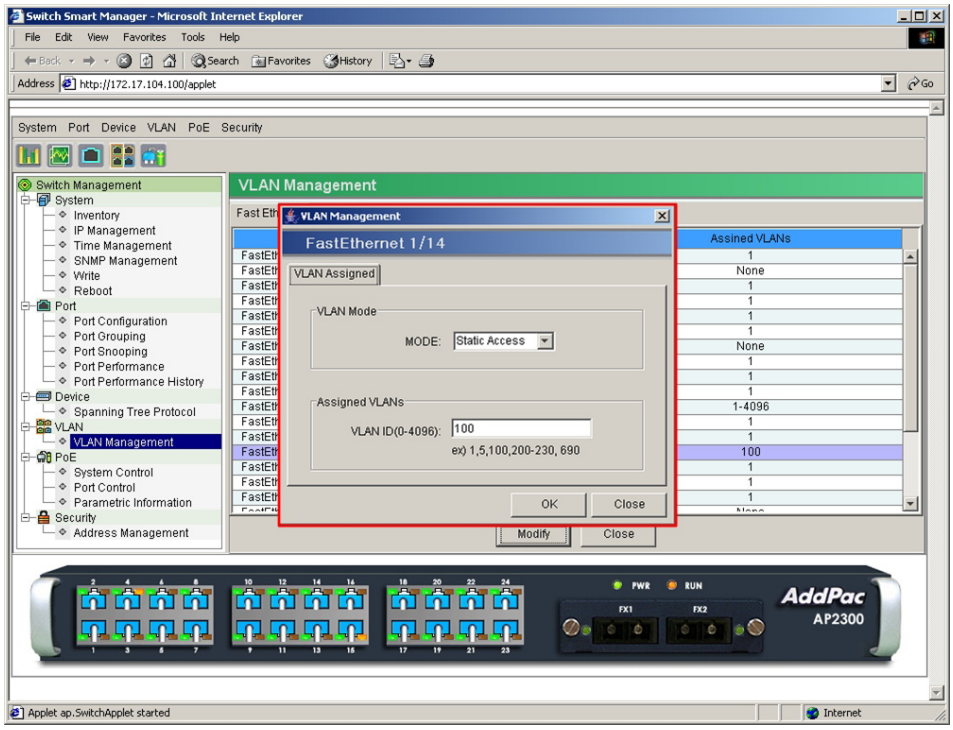
The below example describes how to disable VLAN setting on Fast Ethernet 1/14.

Select Fast Ethernet 1/14 from VLAN Management page.



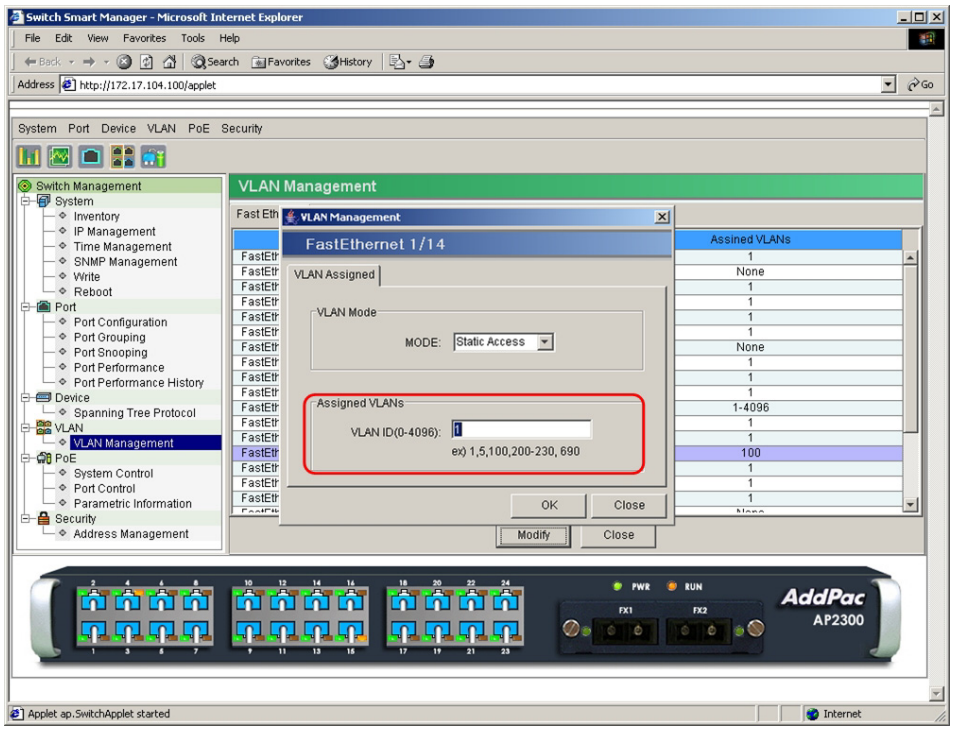
(Figure 3-139) Select Fast Ethernet 1/14

Click "Modify" button.



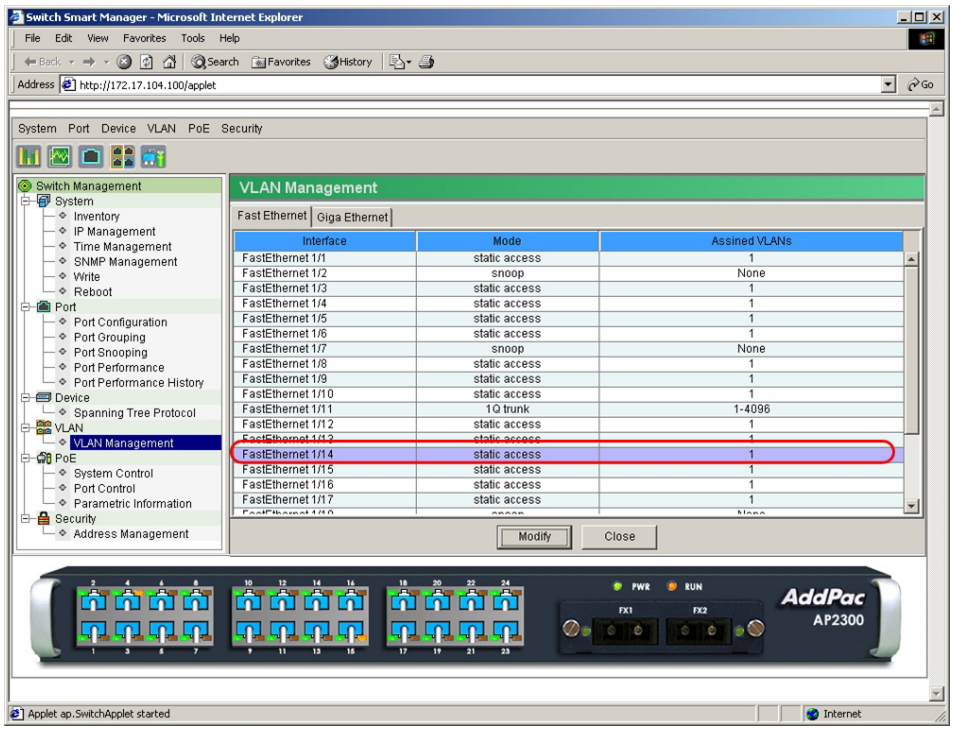
(Figure 3-140) Fast Ethernet 1/14 VLAN Assigned Box

Select "1" from the VLAN ID and click "OK" button.



(Figure 3-141) Set The Default VLAN ID for Fast Ethernet 1/14

Verify the VLAN ID of Fast Ethernet 1/14.

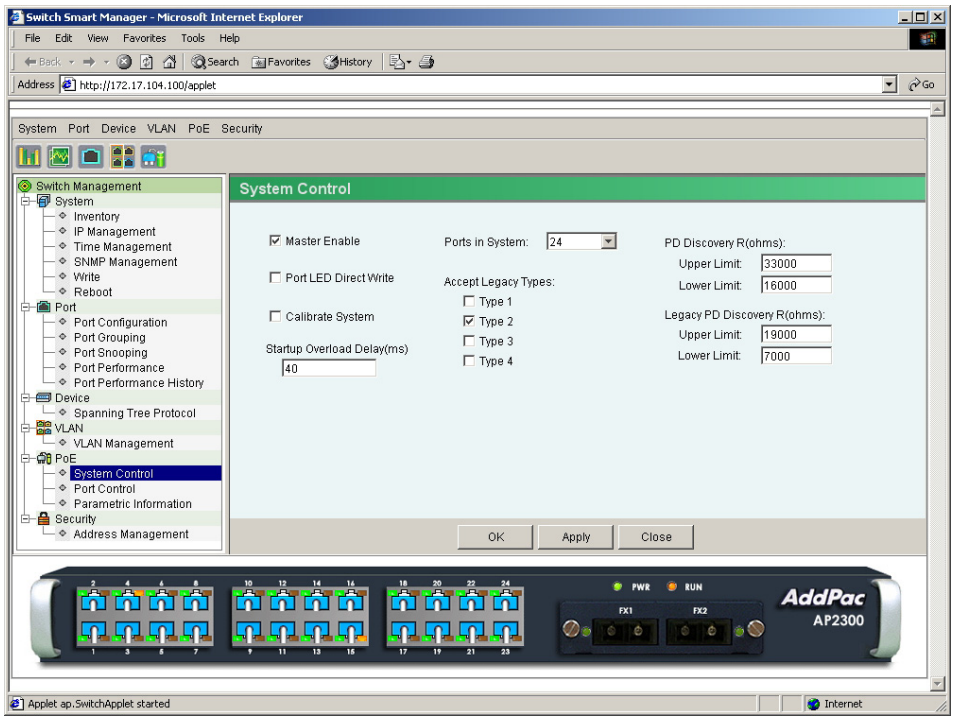


(Figure 3-142) Verify Fast Ethernet 1/14 VLAN ID

PoE Menu

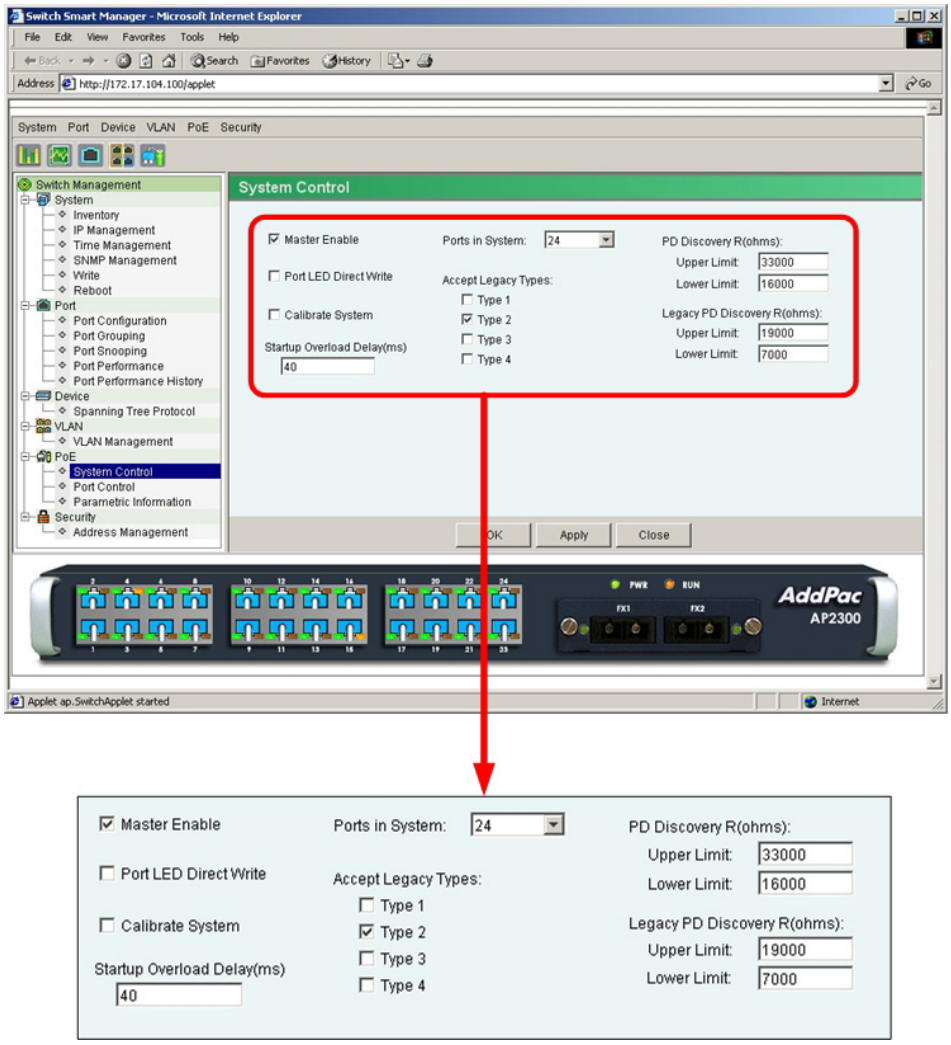
System Control

PoE System Control parameters are Global PoE Control parameters which applied to all the Ethernet Port of the switch.



(Figure 3-143) PoE System Control Main Page

The below shows the elements of PoE System Control page.



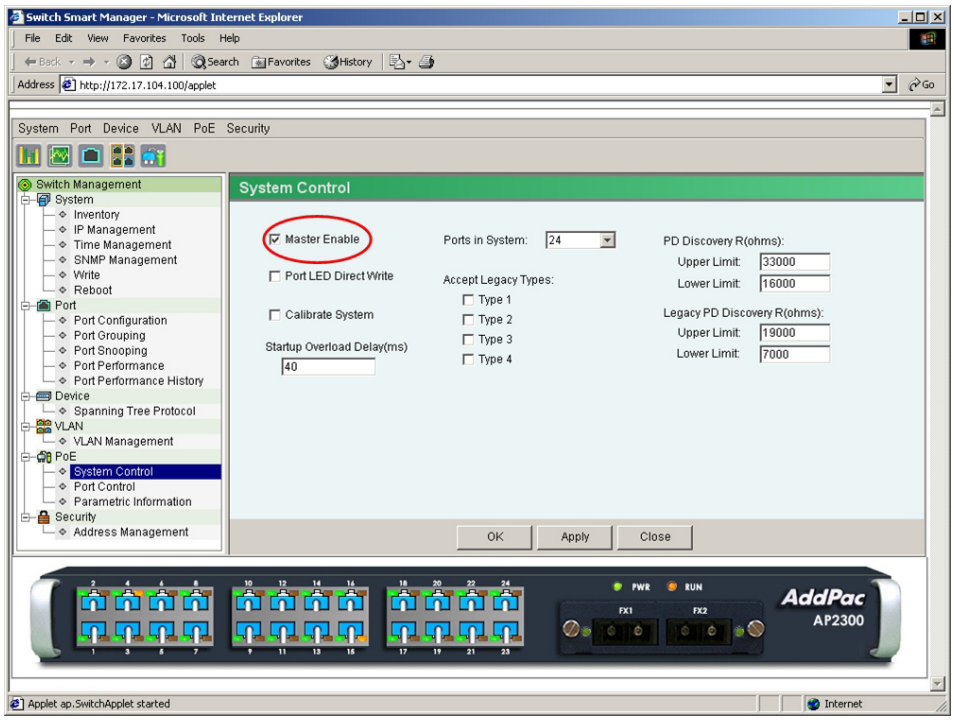
(Figure 3-144) PoE System Control Elements

<Table 3-16> PoE System Control Elements and Description

Elements	Description
Master Enable	Disable/Enable PoE features. This setting is applied to all Ethernet Ports of the switch.
Port LED Direct Write	Manually configures PoE LEDs on the front panel of AP2300.
Calibrate System	PoE initialization of each port. AP2300 passes the initialization process before the shipment, so refer to the place of purchase before using this feature.
Startup Overload Delay(ms)	The time interval of transmitting PoE device detection signal. Unit: "msec." The default value is "40ms."
Ports in System	AP2300 PoE Layer2 switch is equipped with 2-port of uplink Port and 24-port Ethernet port. It applies PoE to 8 or 16-port out of 24-port of Ethernet interfaces. PoE is applied to the ports on the left.
Accept Legacy Type	AP2300 PoE Layer2 switch supports IEEE 802.3af PoE standard. Also, it interoperates with non-standard devices. Available types are "1~4."
PD Discovery R	The resistance value range used to detect standard PoE Device. The user enables to change the range. Unit: ohms.
Legacy PD Discovery R	The resistance value range used to detect non-standard PoE Device. The user enables to change the range. Unit: ohms.

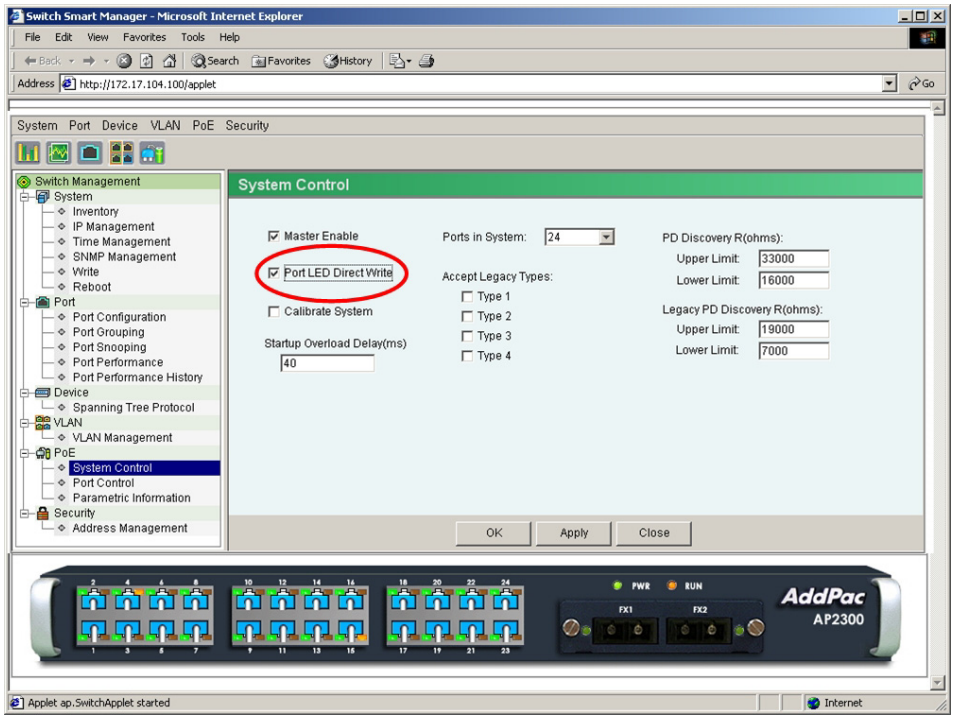
The below is the configuration example of System Control.

Enable PoE Master by checking the box on the left.



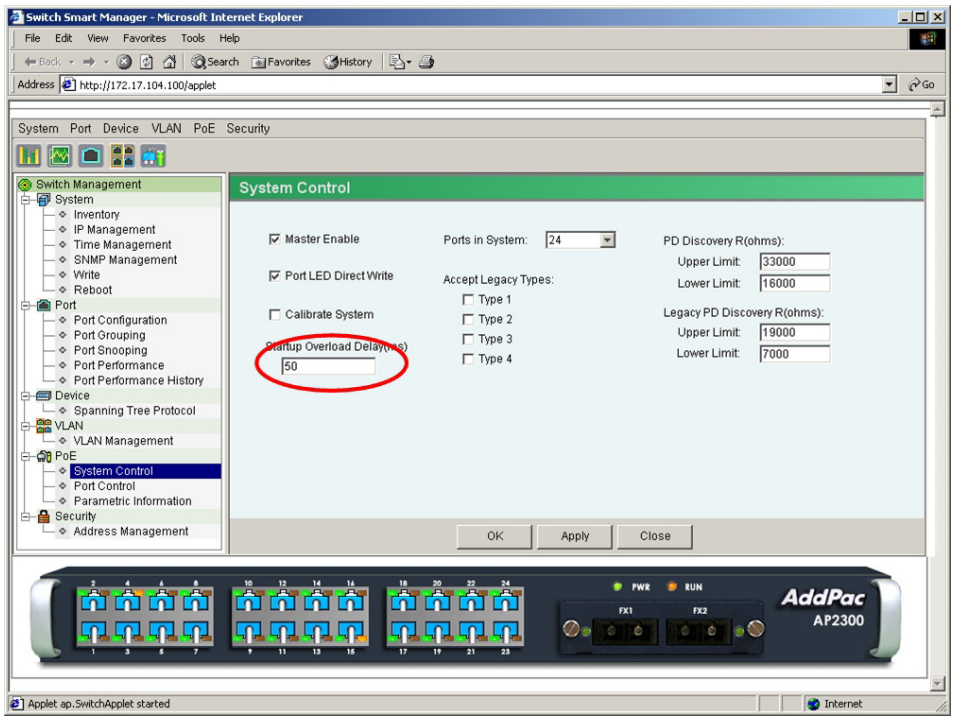
(Figure 3-145) Enable PoE Master

Enable Port LED Direct Write by checking the box on the left.



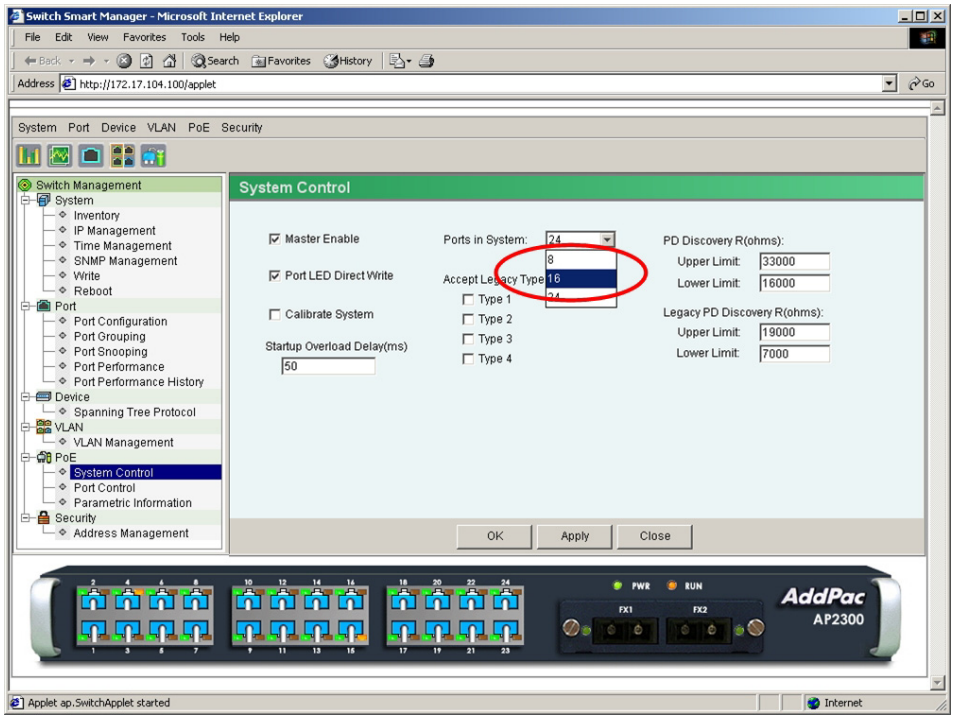
(Figure 3-146) Enable PoE Port LED Direct Write

Input "50" for Startup Overload Delay (ms).



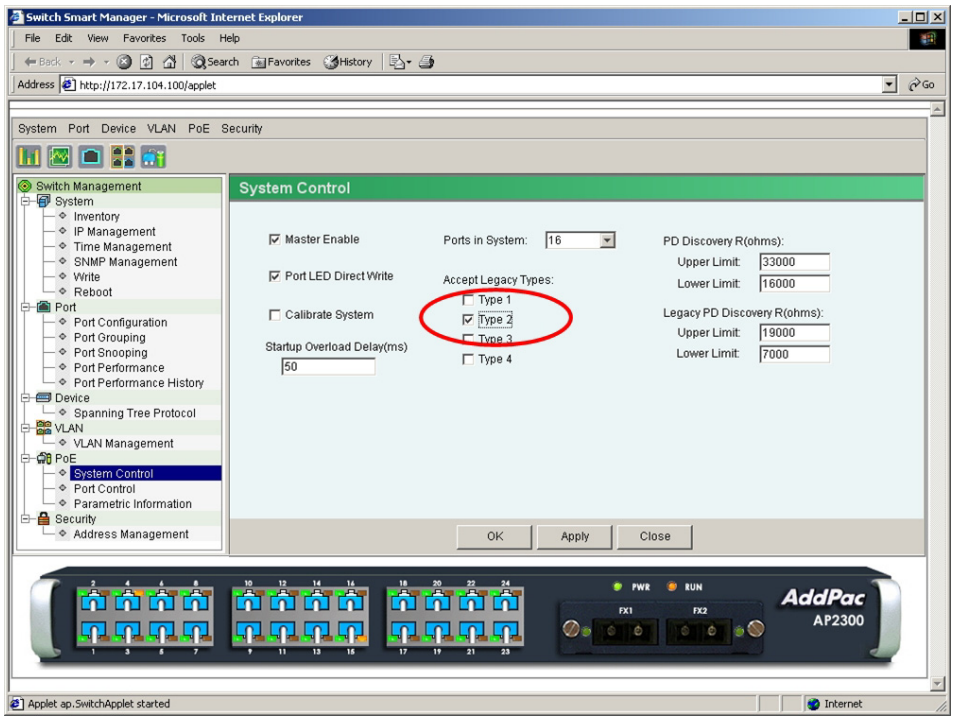
(Figure 3-147) Input PoE Startup Overload Delay

Change Ports in System from "24" to "16."



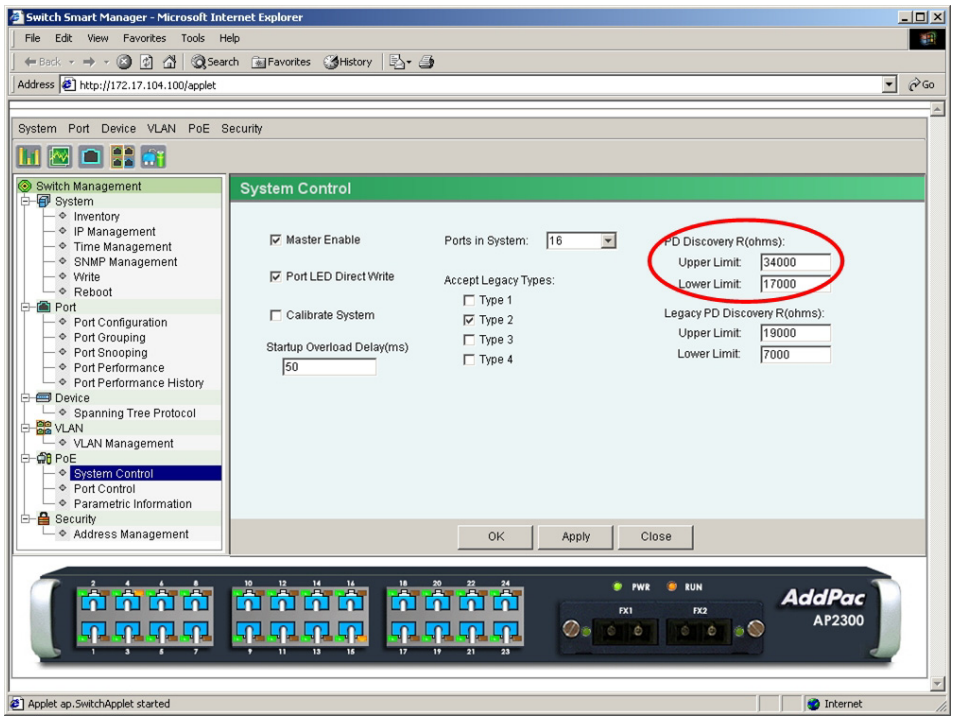
(Figure 3-148) Set number of Ports to use PoE

Select "Accept Legacy Type 2" for non-standard PoE Device Type 2.



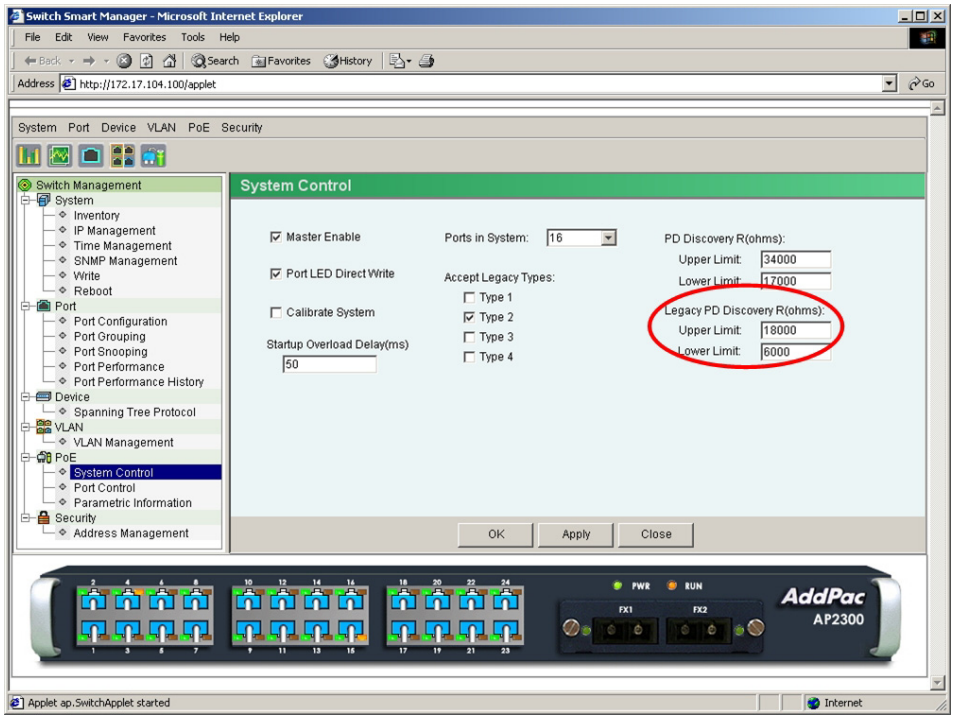
(Figure 3-149) Set the Legacy PoE Device Type

Set the upper limit of PD Discovery R as "34000" and Lower Limit as "17000."



(Figure 3-150) Set Upper Limit, Lower Limit of PD Discovery R

Set the upper limit of Legacy PD Discovery R as "18000" and Lower Limit as "6000." Click "Apply" button to save the configuration.

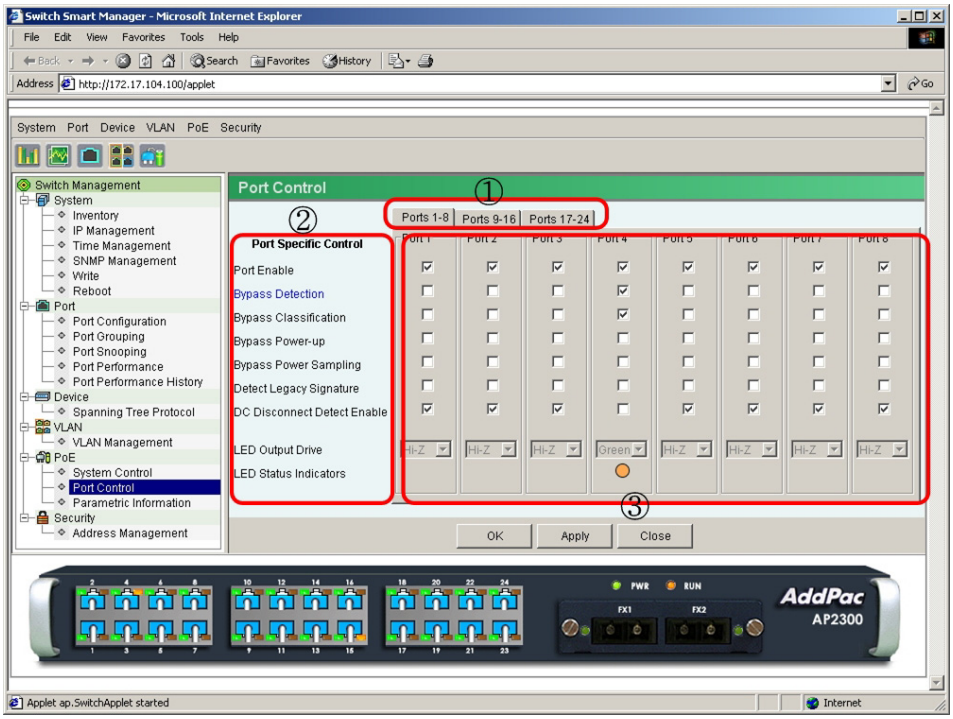


(Figure 3-151) Set Upper Limit, Lower Limit of Legacy PD Discovery R

Port Control

Port Control configures PoE feature for each interface of AP2300 PoE Layer2 switch.

The below is the main page of Port Control.



(Figure 3-152) PoE Port Control Main Page

<Table 3-17> PoE Port Control Main Page Description

No.	Description
①	8 interfaces are shown at one page. Click the tab to control the ports 9~16 or 17~24.
②	Detailed control options for PoE. Refer to <Table 3-18> for the detailed description.
③	Check the boxes according to the each control item on ②. Also, the orange LED indicates the normal power supply of the PoE Device.

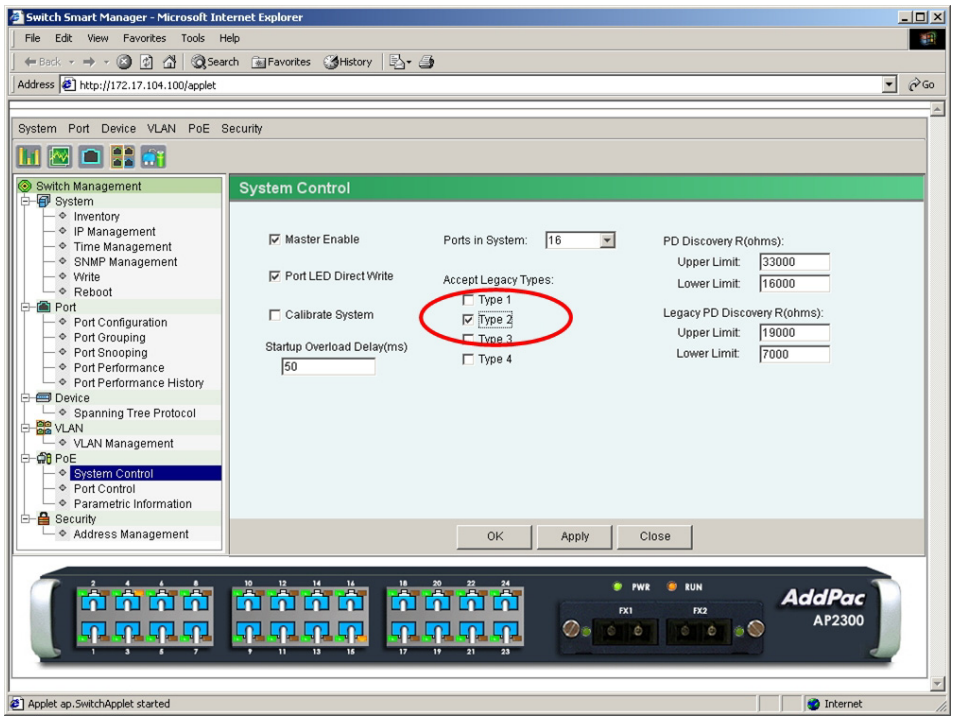
The below table offers detailed description on PoE Port Control.

<Table 3-18> PoE Port Control Items and Description

Items	Description
Port Enable	Enable/Disable PoE for the port. Even though Master Enable is selected from the System Control, the user can disable PoE on certain ports by removing the check marks.
Bypass Detection	Bypass the detection of PoE Devices.
Bypass Classification	Bypass the PoE Device classification. AP2300 recognizes powered end devices and classifies the devices according to the power requirements. Check the box to disable the feature.
Bypass Power-up	Bypass the PoE Power-Up process.
Bypass Power Sampling	Bypass the PoE Power Sampling process.
Detect Legacy Signature	Bypass non-standard PoE Device detection. Even though the legacy type is selected from System Control, AP2300 does not support the device type by removing the check mark.
DC Disconnect Detect Enable	Automatically disconnect DC power supply when PoE device is not connected to the port.
LED Output Drive	Automatically activated when "Port LED Direct Write" is enabled at System Control. It controls the LED output of the port. Select from "Hi-Z," "Red," "Green" and "Err."
LED Status Indicators	Indicates the current DC supply status of the port.

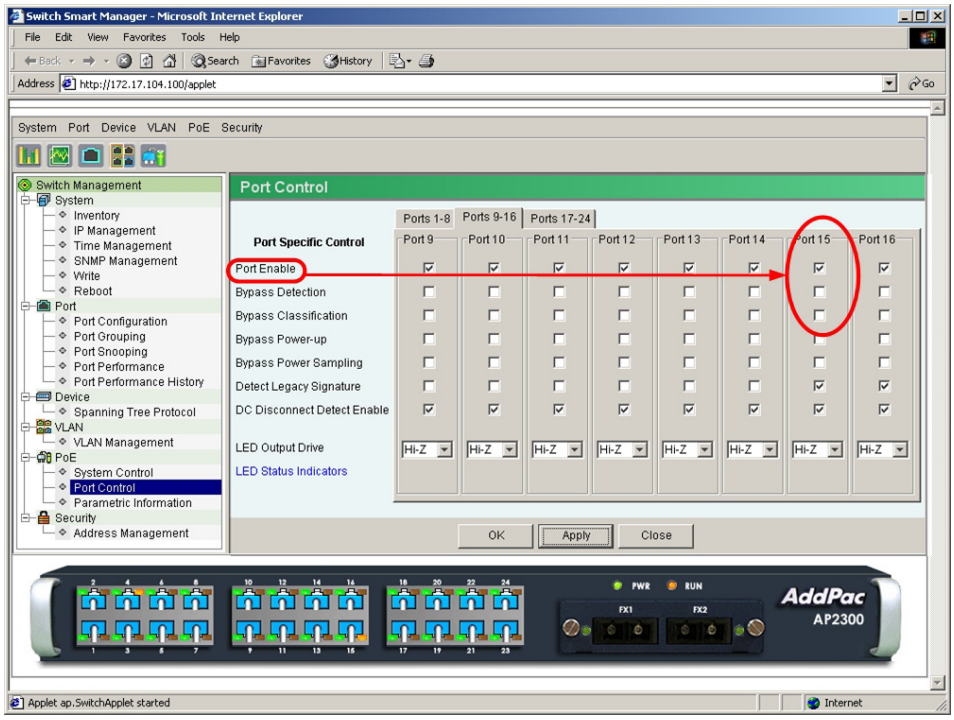
The below example describes how to set Legacy Type 2 at Fast Ethernet 1/15.

Check "Accept Legacy Type 2" from System Control page.



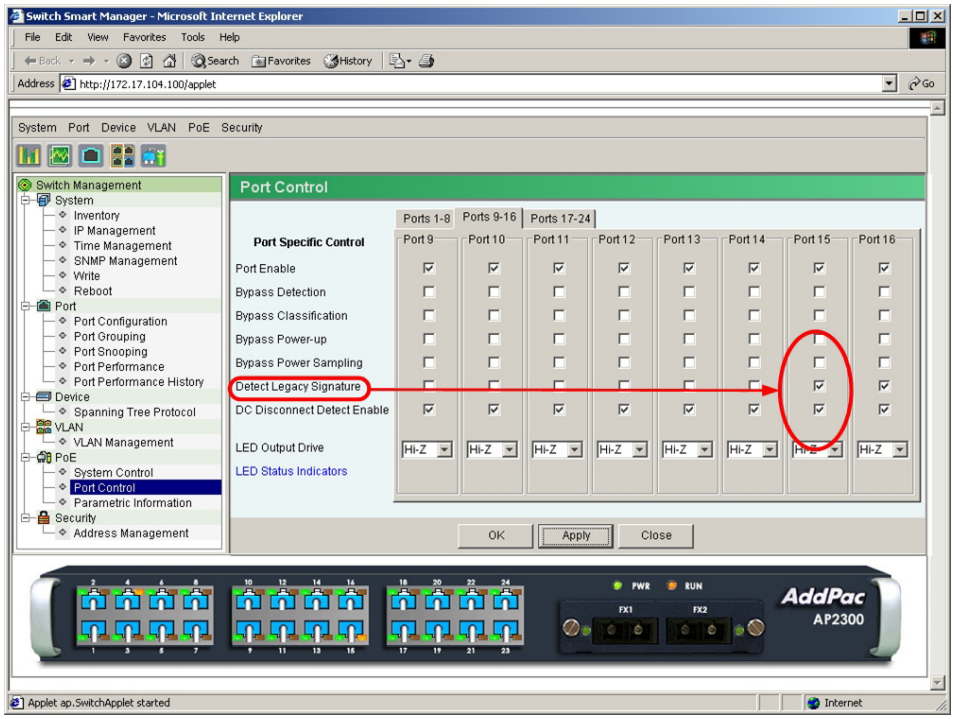
(Figure 3-153) Select Legacy Type 2

Move to Port Control page and check "Port Enable" for Fast Ethernet 1/15.



(Figure 3-154) Select Port Enable for Fast Ethernet 1/15

Check “Detect Legacy Signature” for Fast Ethernet 1/15 and click “Apply” button.

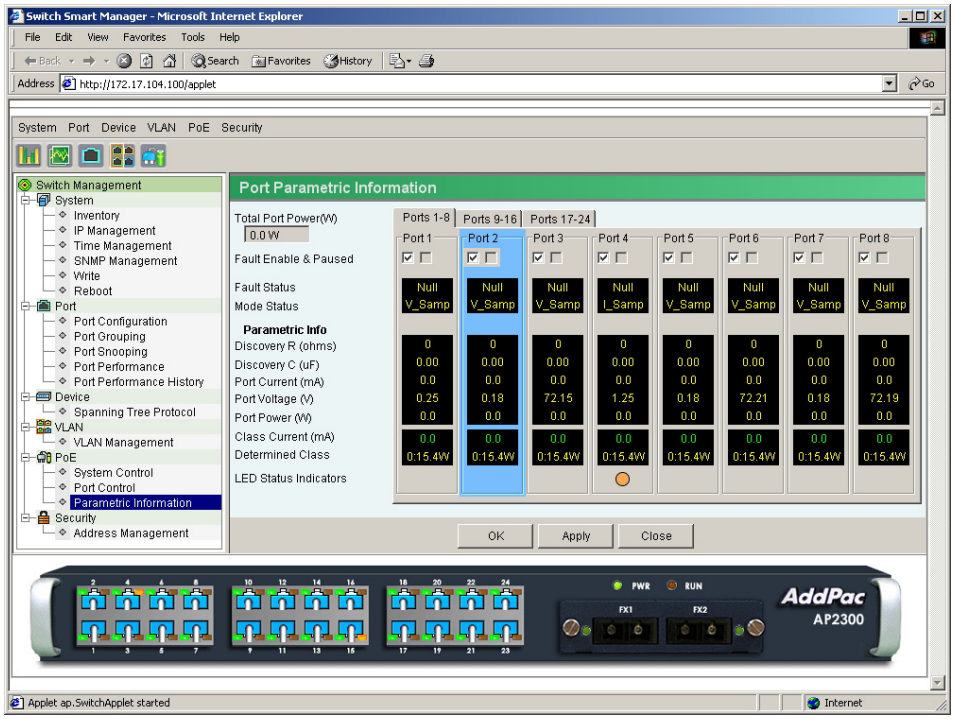


(Figure 3-155) Select Detect Legacy Signature for Fast Ethernet 1/15

Parametric Information

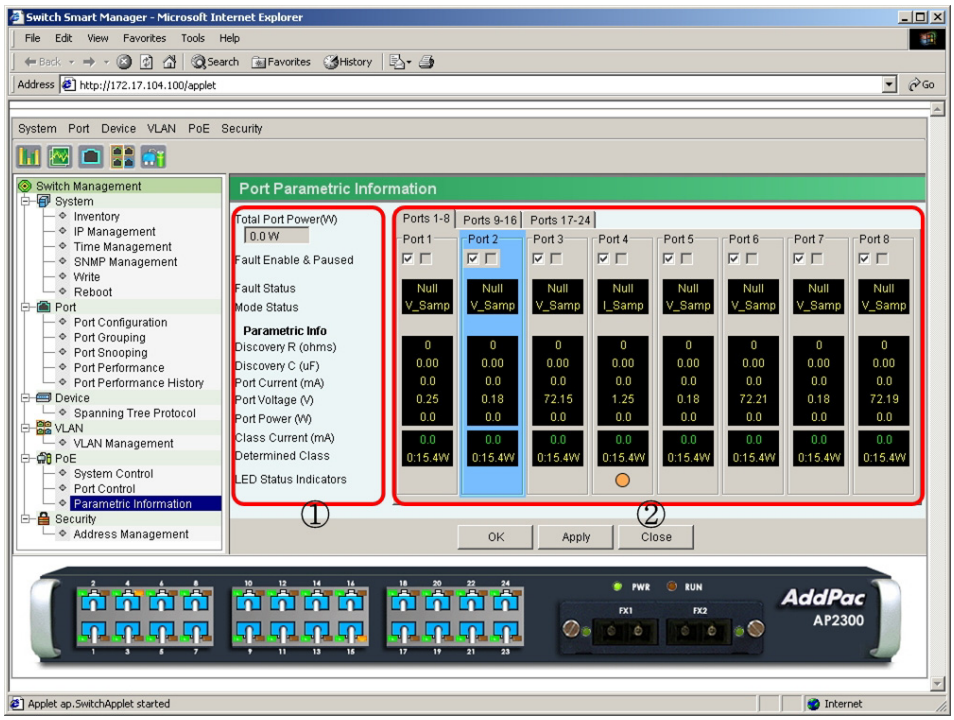
Parametric Information regularly monitors the operation status of PoE. The users can monitor the PoE status of 24 Ethernet Ports. Parametric Information includes PoE Fault State, Mode State, Port Current, Port Voltage, Port Power, Class Current, Determined Class and LED Status.

The below is the main page of Parametric Information.



(Figure 3-156) PoE Parametric Information Main Page

There are 2 sections on Parametric Information page.



(Figure 3-157) PoE Parametric Information Elements

Section ② displays each port status according to the parameters on Section ①.

The Table 3-19 offers detailed information on section ①.

<Table 3-19> PoE Parametric Information Description

Parameters	Description
Total Port Power	Total power supplied to the 24-port of the switch. Unit: Watt.
Fault Enable & Pause	Automatically stop PoE operation in case of failure with a specific port. To enable PoE operation again, remove the check mark on box for Pause.
Fault Status	Display error message in case of PoE failure.
Mode Status	Display PoE status of the port.
Discovery R	Display the resistance value of the PoE Device.
Discovery C	Display the capacity value of the PoE Device.
Port Current	Display the current of the port.
Port Voltage	Display the voltage of the port.
Port Power	Display the power of the port.
Class Current	Display the current value of the class when the device supports IEEE 802.3af PoE standard. The

	Class range is "1~5."
Determined Class	Display the class information of the PoE Device.
LED Status Indicator	Display PoE status with LED.

The Table 3-20 offers detailed information on the Fault Status.

<Table 3-20> PoE Fault Status

Status	Description
Null	Null status.
UV/OV 2ms	Spike above 44~57V occurred within 2msec.
UV/OV 5ms	Spike above 44~57V occurred within 500usec.
OI Short	Failed due to current above 475mA within 10usec.
Overload	Overload Failed due to the current above 475mA within 50msec.
DR Fail	Fail to detect resistance.
CI Fail	Over current during Port Classification process.
Disconnect	Disconnect statue due to current under 8mA.
DR A/D Fail	Failed Port Discovery A/D Conversation.
CI A/D Fail	Failed Port Classification A/D Conversation.
SA A/D Fail	Failed Sample A/D Conversation.
DF A/D Fail	Device failed in relations to A/D Conversation failure.
Error	Undefined failures.

The <Table 3-21> offers detailed information on the Mode Status.

<Table 3-21> PoE Mode Status

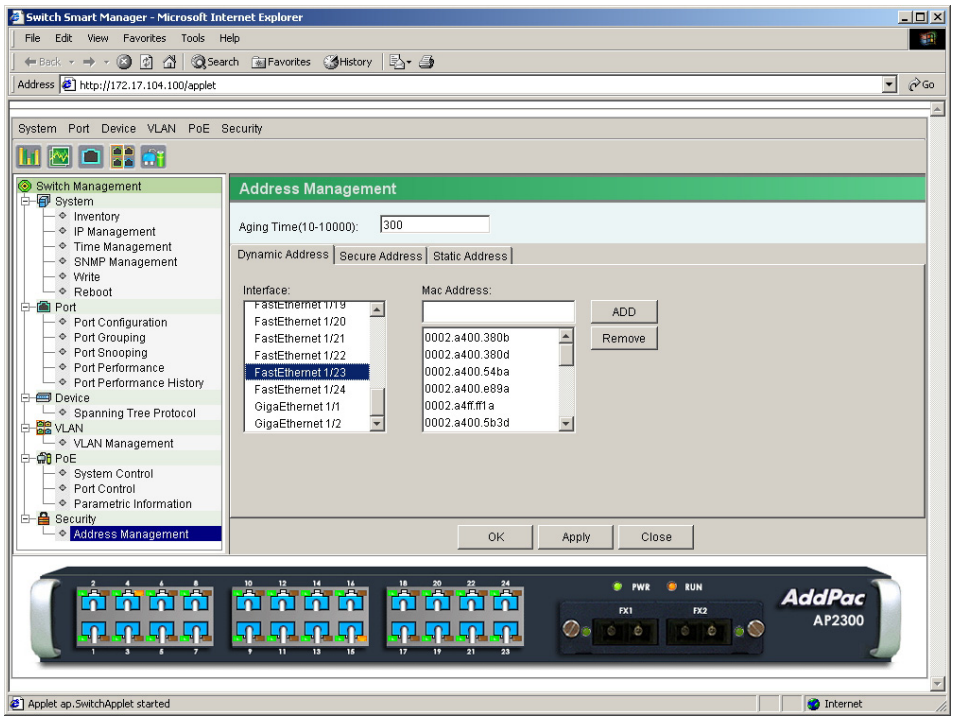
Status	Description
Port Off	The port is link down status and PoE is not under operation.
R Detect	Detecting resistance of the PoE Device.
C Detect	Detecting capacity of the PoE Device.
Classify	Detecting Class of the PoE Device.
Ramp Up	Ascending the Ramp voltage.
Ramp Down	Descending the Ramp voltage.
I Sample	Detecting the current required for the PoE Device.
V Sample	Detecting the voltage required for the PoE Device.
Error	Undefined failures.

Security Menu

Address Management

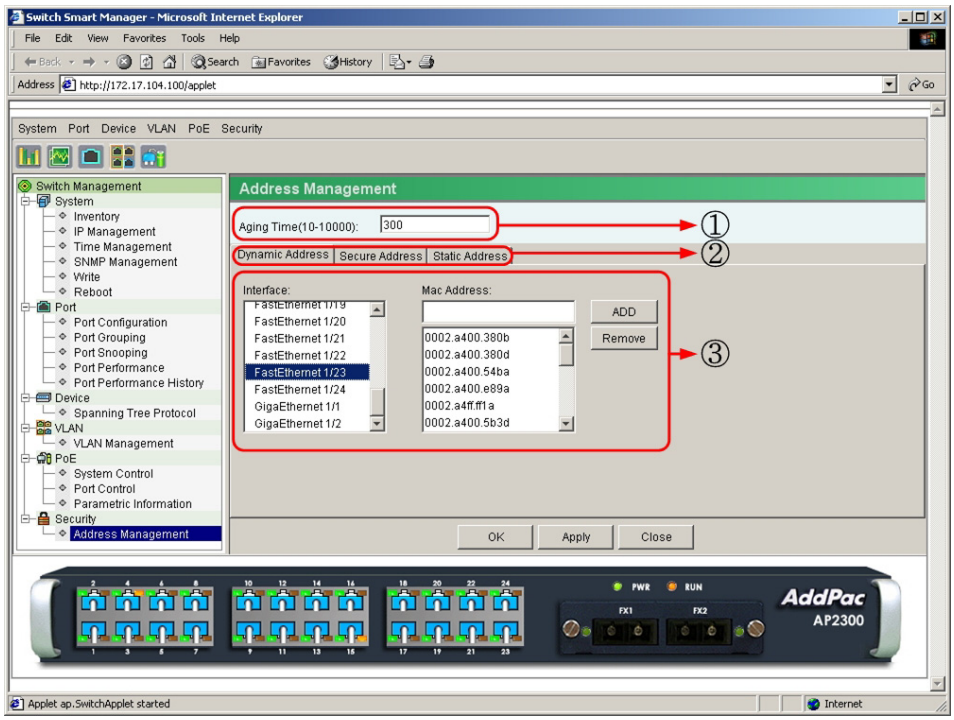
AP2300 PoE Layer2 manages the MAC address of the host connected to an Ethernet port. It can be used to manually block the access for a host with the MAC address.

The below is the main page of the Address Management.



(Figure 3-158) Secure Address Management Main Page

Address Management page consists of Aging Time, Address menus and MAC Address display, add and remove sections



(Figure 3-159) Secure Address Management Page Elements

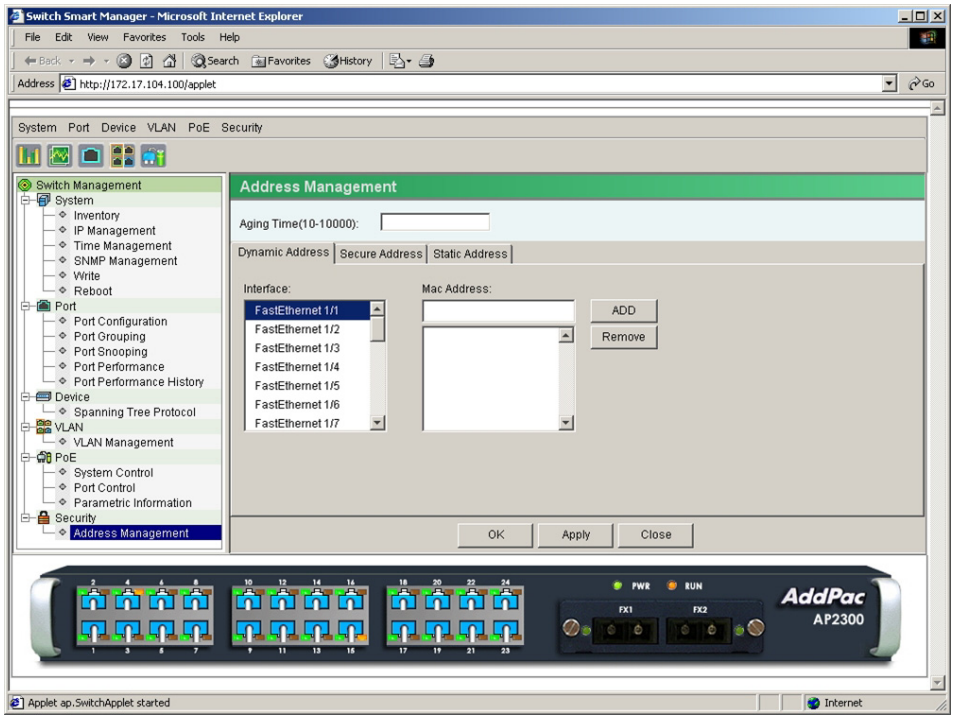
Make sure to save the configuration with "OK" or "Apply" button. Also, use "Write" command to save the configuration at the Flash memory before restarting the switch.

The below is the detailed description on the three elements of the Address Management page.

<Table 3-22> Address Management Page Description

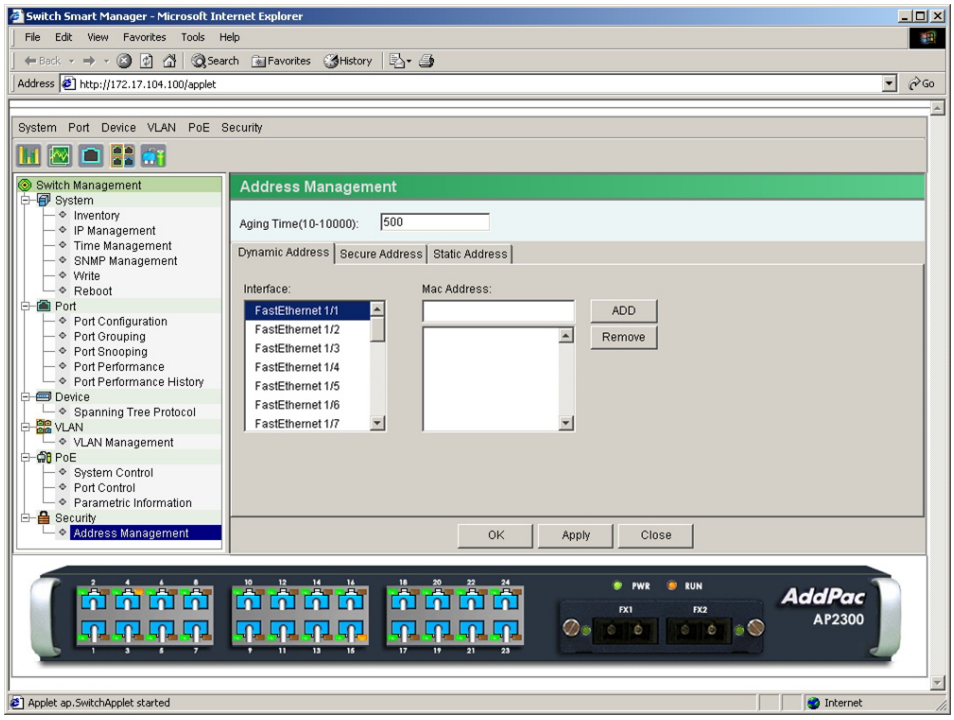
Element		Description
① Aging Time		Set Aging Time. Aging Time for all the registered MAC address of the hosts. The available range is "10~10000" and the default is "300." Unit: second.
②	Dynamic Address	Display all the MAC addresses of the hosts connected to AP2300 interfaces. Select an interface to see the registered MAC address, or use "REMOVE" button to remove a specific MAC Address.
	Secure Address	Secure Address hides a host's MAC address from other hosts.
	Static Address	Static Address manually registers MAC addresses of the hosts which are not connected to the switch.
③ Interface, Address		The sub-menu of Dynamic Address, Secure Address, Static Address menus. Use "ADD" and "REMOVE" button to control the menus.

The below example describes how to change the aging time. The default value is 300 seconds.



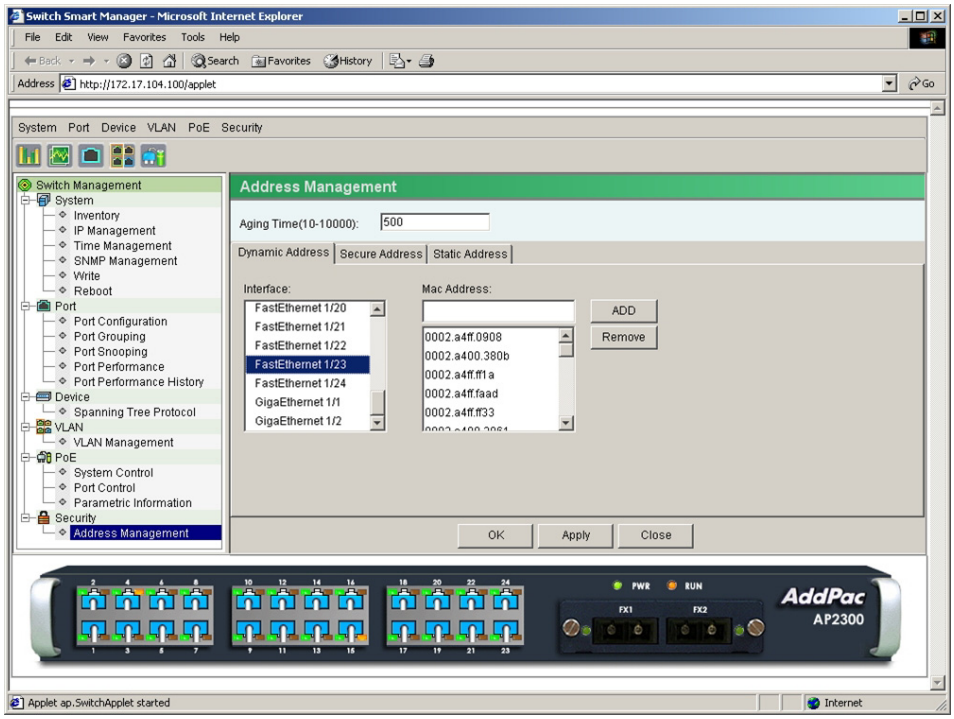
(Figure 3-160) Address Management -> Aging Time

Change the Aging Time to "500 seconds." Click "Apply" button to save the time.



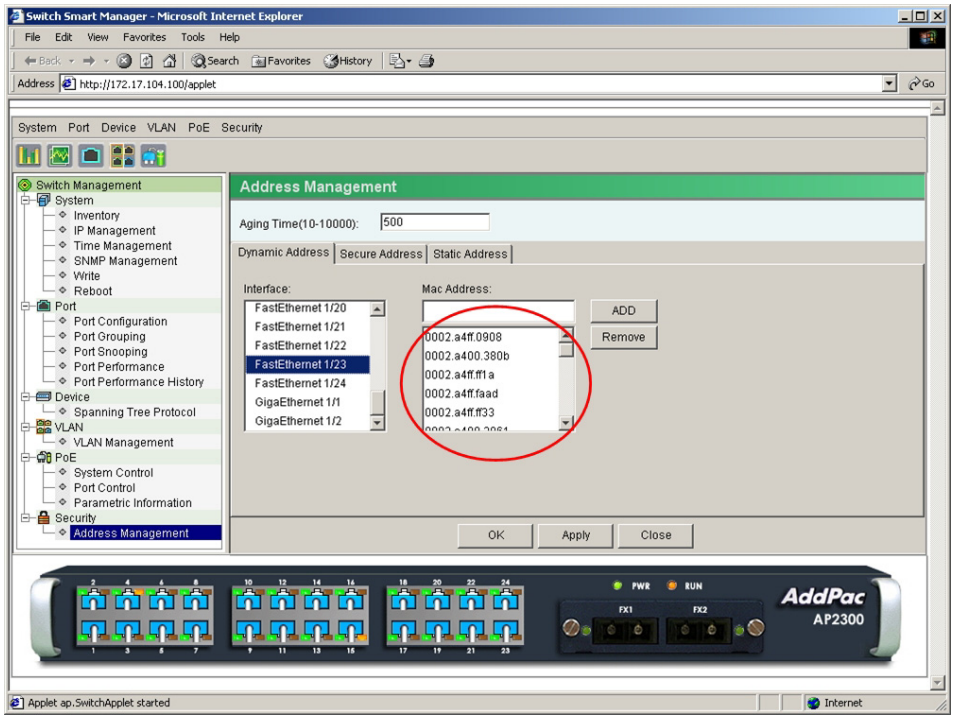
(Figure 3-161) Input Aging Time

The below example describes how to check the MAC address information of Fast Ethernet 1/23 on Dynamic Address tab.



(Figure 3-162) Dynamic Address Checking

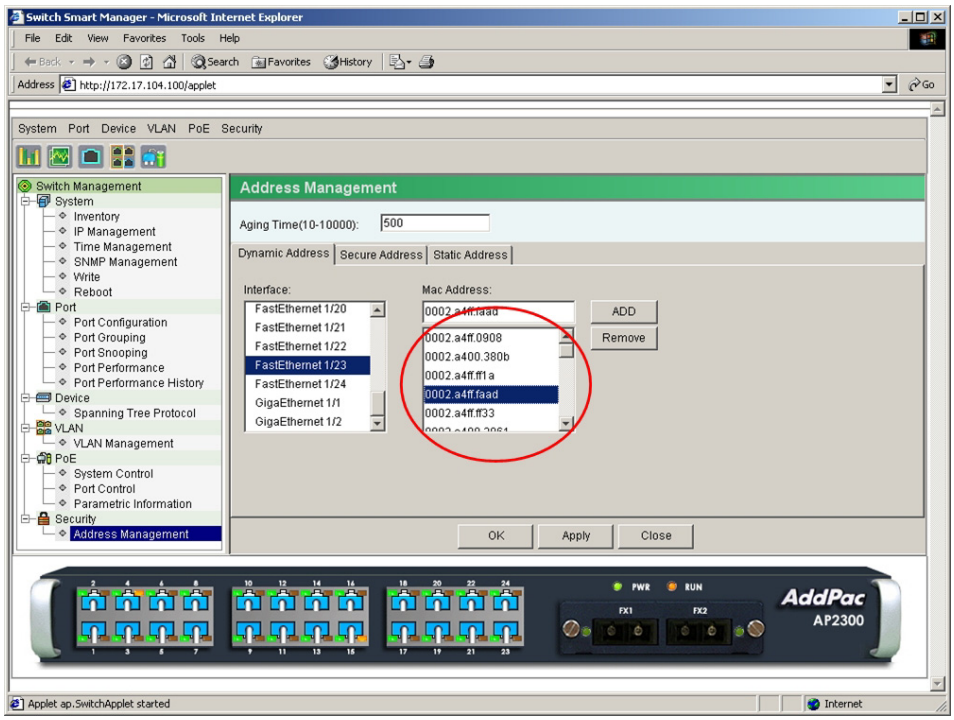
At the below figure, number of MAC addresses are registered at Fast Ethernet 1/23. Use "REMOVE" button to remove a MAC address.



(Figure 3-163) Fast Ethernet 1/23 MAC Address Checking

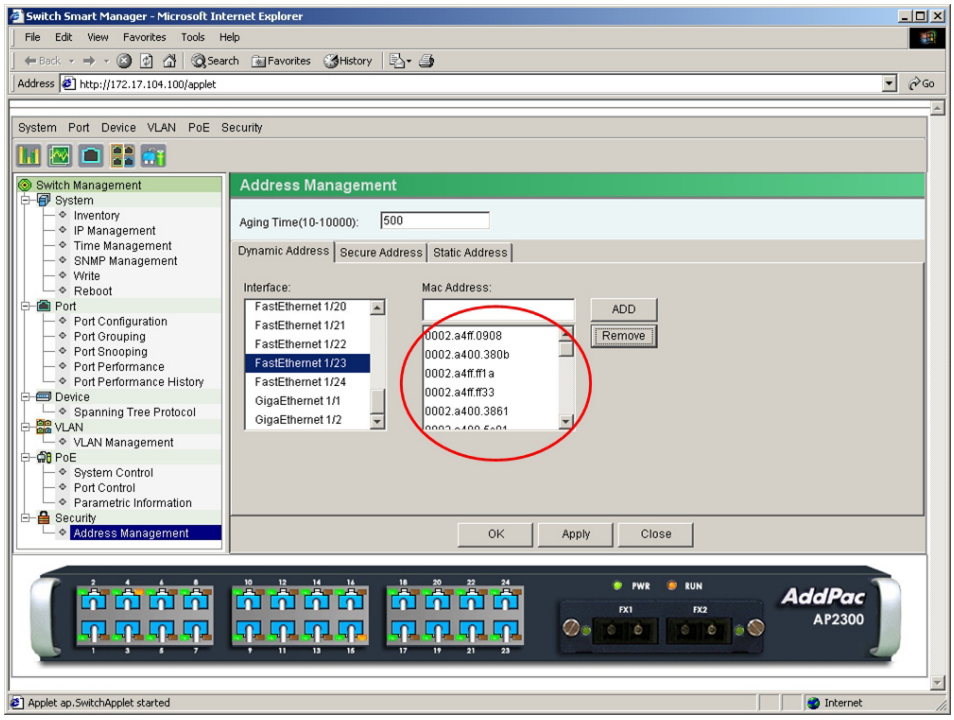
The below example describes how to delete the MAC address ("0002.a4ff.faad") from the MAC address list.

Select the MAC address to delete.



(Figure 3-164) Select a MAC Address

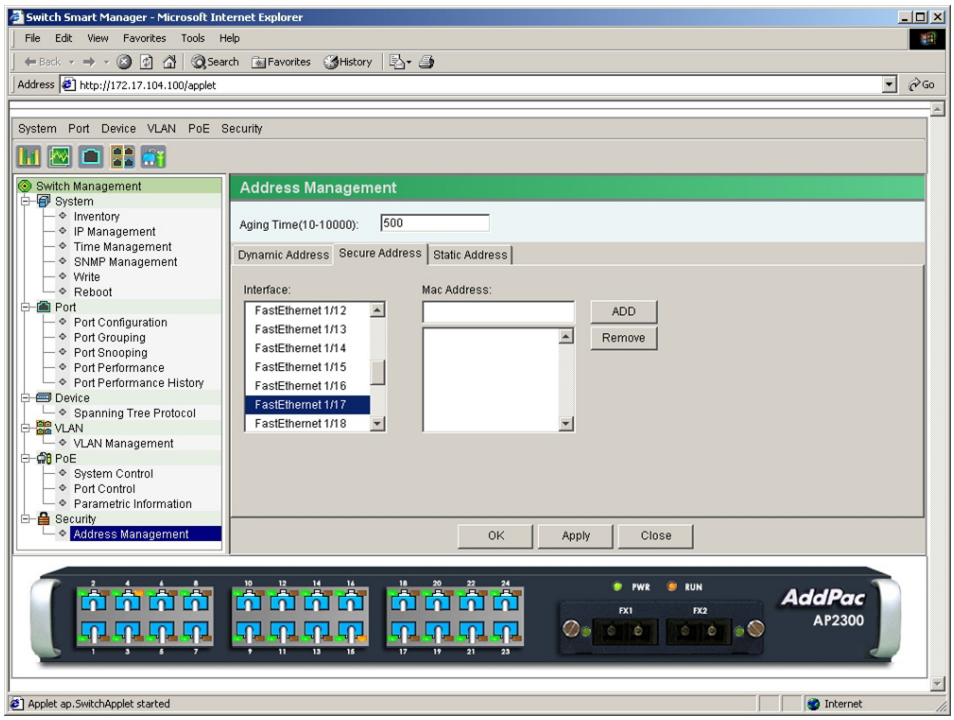
Click "REMOVE" button to remove the MAC address.



(Figure 3-165) Remove a MAC Address

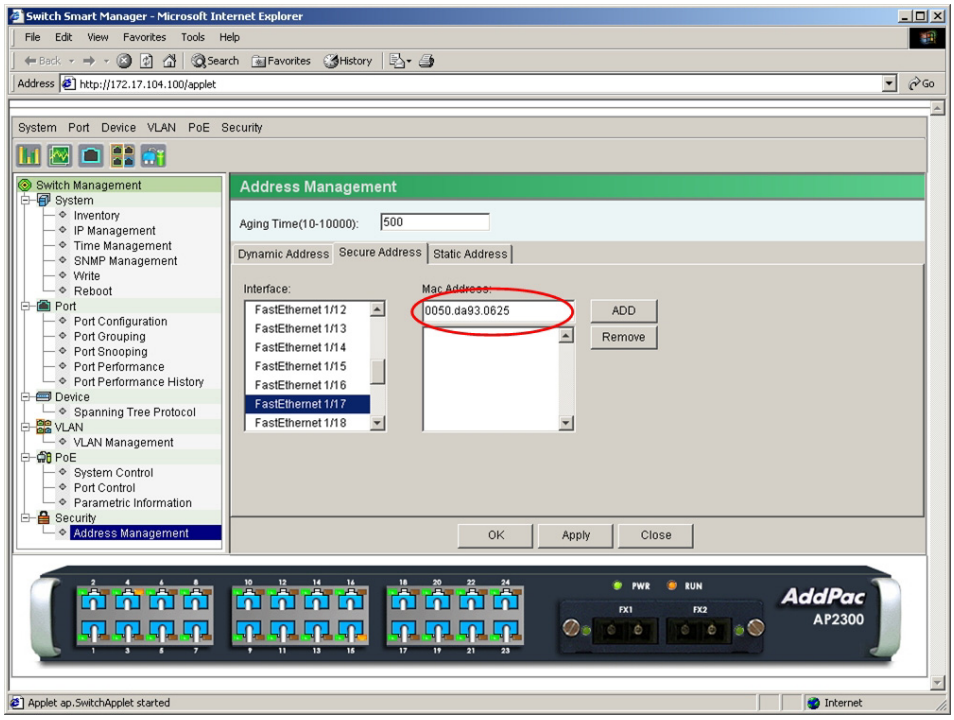
The below example describes how to register a MAC address on Secure Address tab.

Select the interface to add MAC address on Secure Address tab.



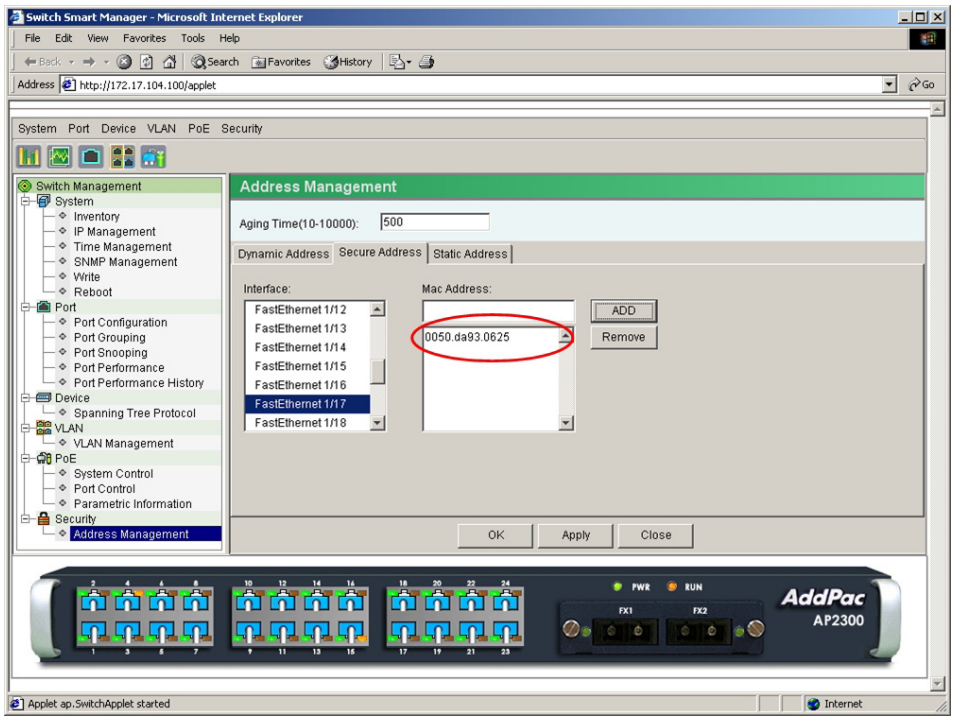
(Figure 3-166) Select Fast Ethernet 1/17 from Secure Address Tab

Input the MAC Address ("0050.da93.0625") to register.



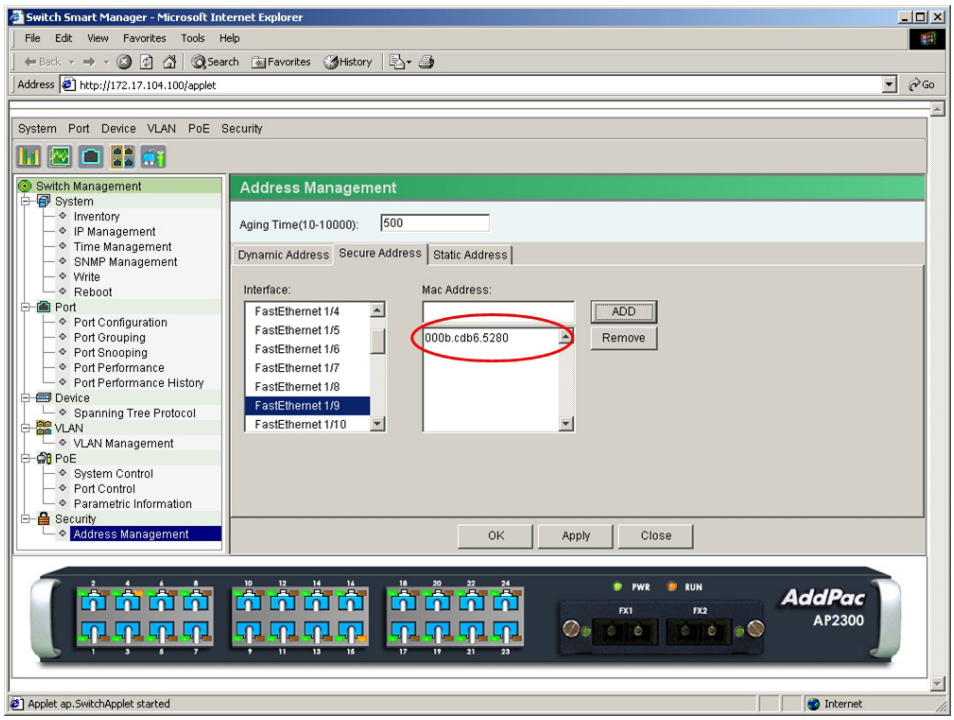
(Figure 3-167) Input Secure MAC Address

Click "ADD" button to register the MAC address.



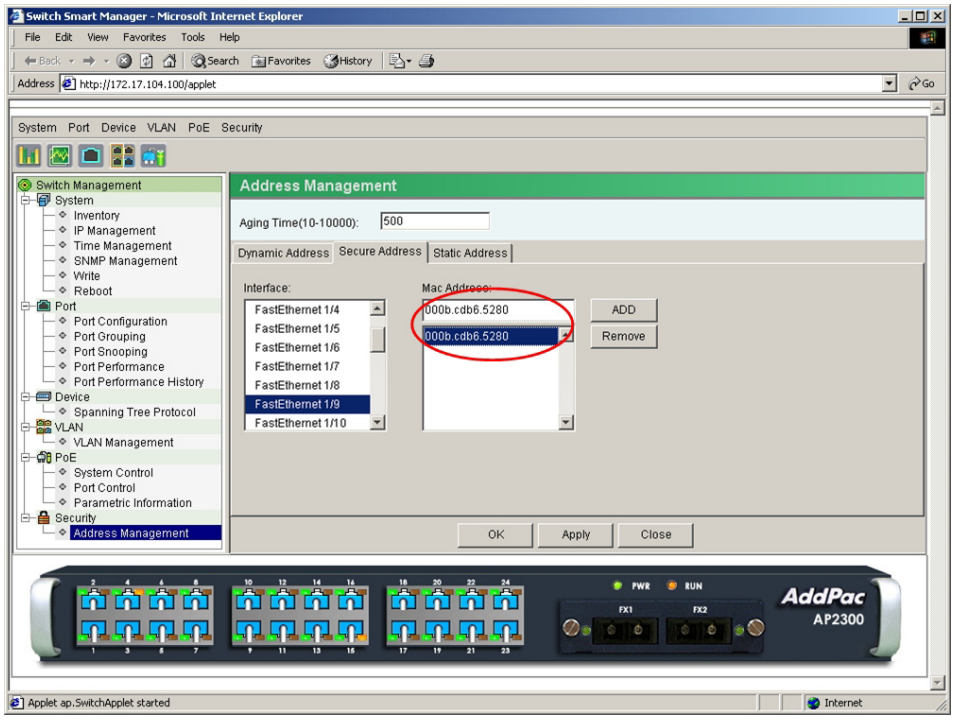
(Figure 3-168) Add Secure MAC Address

The below example describes how to delete a MAC address ("000b.cdb6.5280") registered at Fast Ethernet 1/9 from Secure Address tab.



(Figure 3-169) Select Secure MAC Address

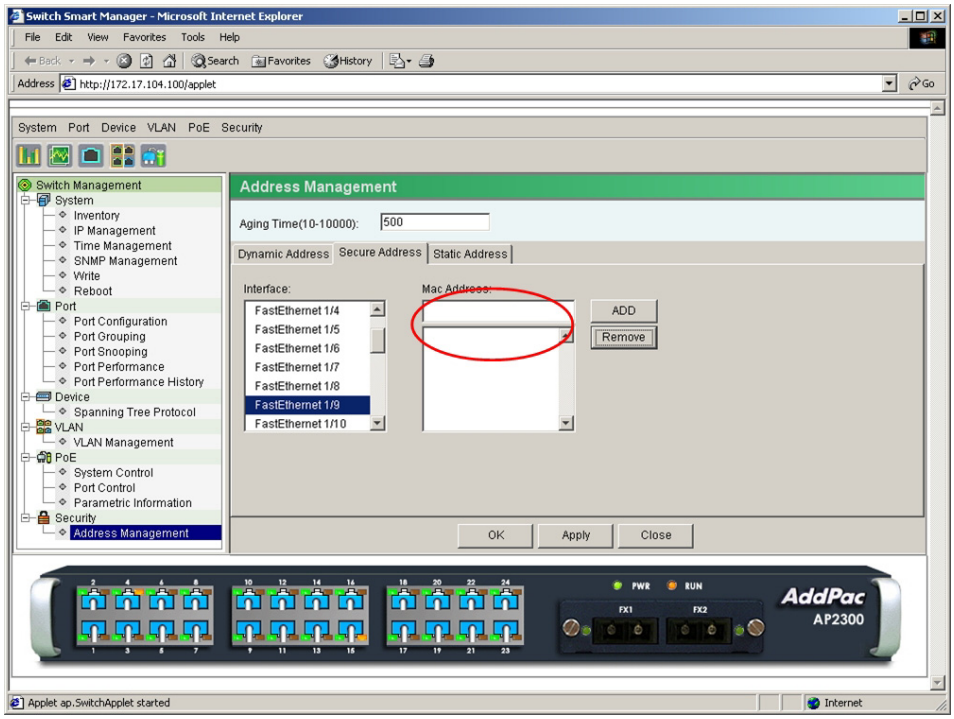
Select the MAC address from Fast Ethernet 1/9.



(Figure 3-170) Delete Secure MAC Address

Click "REMOVE" button to remove the MAC address, "000b.cdb6.5280."

The MAC address is removed from MAC Address list.



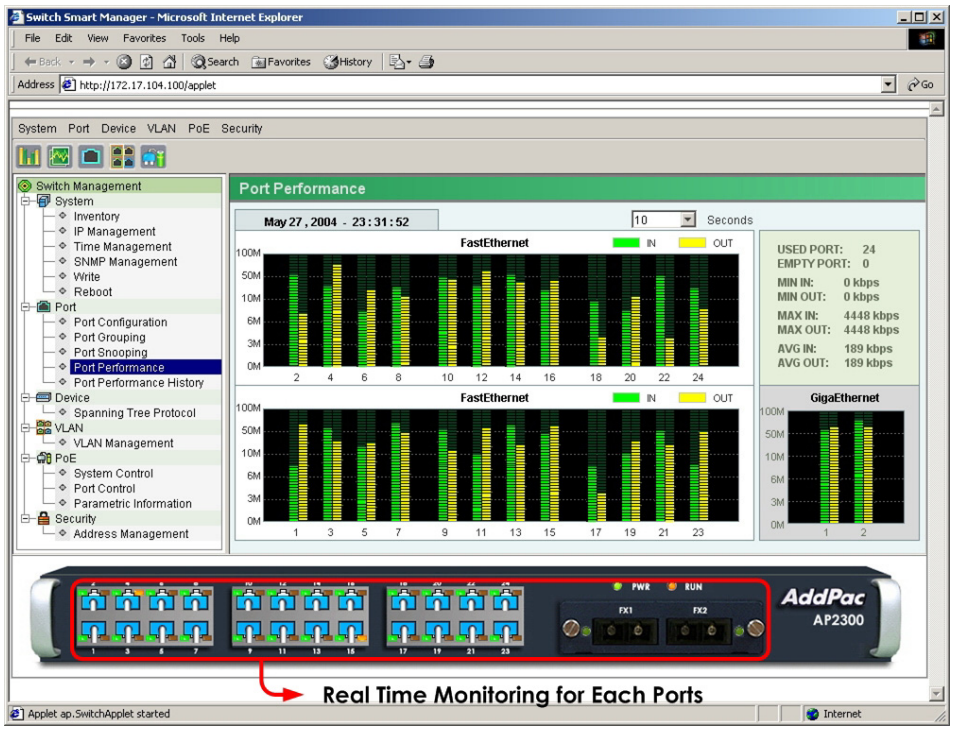
(Figure 3-171) Verify the Deleted Secure MAC Address

AP2300 Control with the Front Panel Image

AP2300 Front Panel

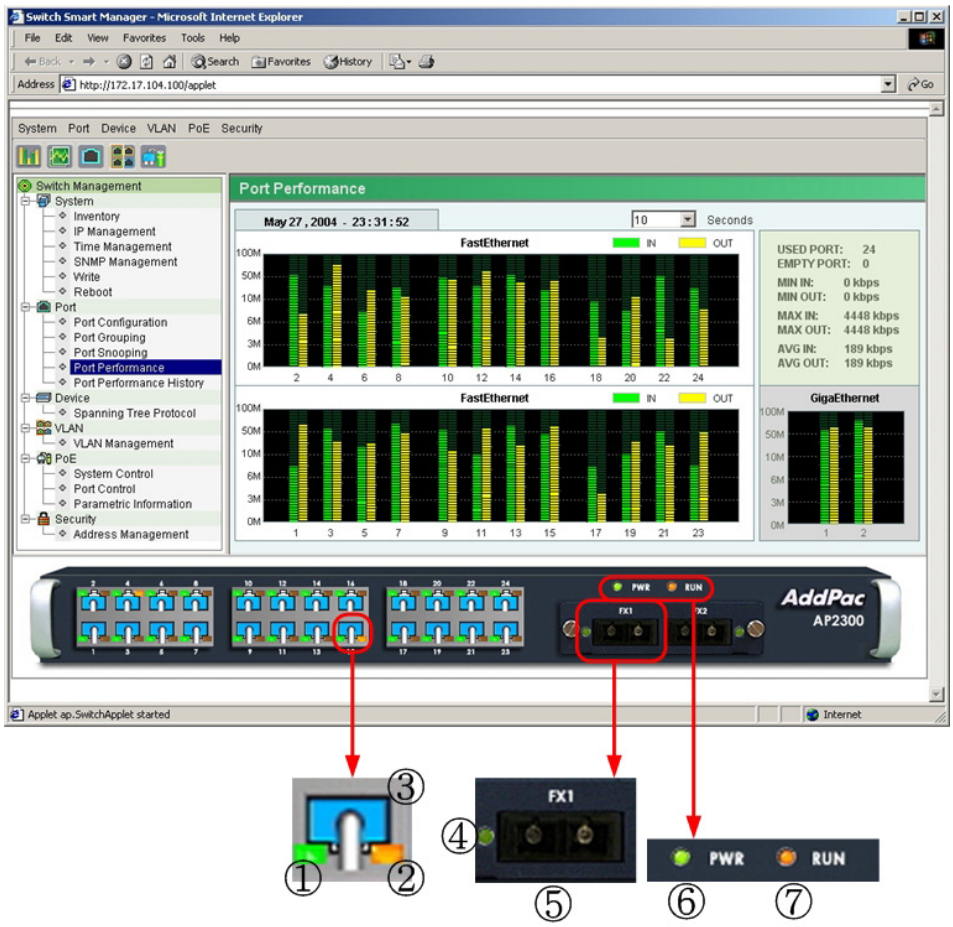
AP2300 controls AP2300 operation, Link state of the port, and PoE status from the front panel image on the Smart Manager page below. By clicking the mouse right button on a specific port, it directly moves to the Port Configuration, Port Snooping and Port Performance History menus.

The below is the front panel image on Smart Manager page.



(Figure 3-172) AP2300 Front Panel Image

The Table 3-23 offers detailed explanation on each part of the front panel.

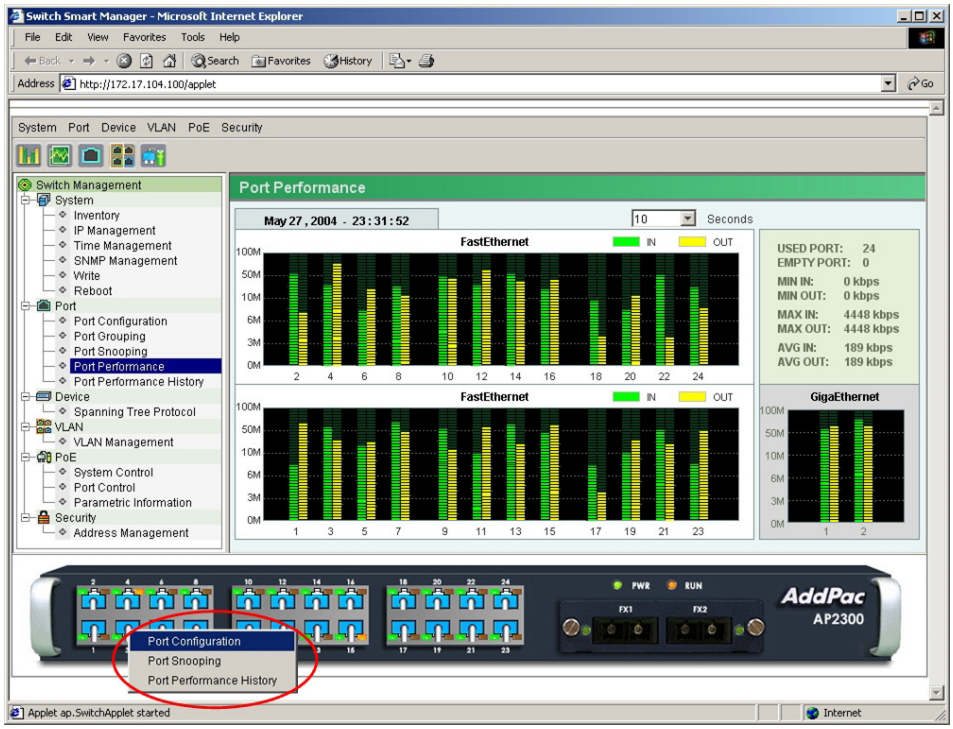


(Figure 3-173) AP2300 Front Panel Parts

<Table 3-23> AP2300 Front Panel Description

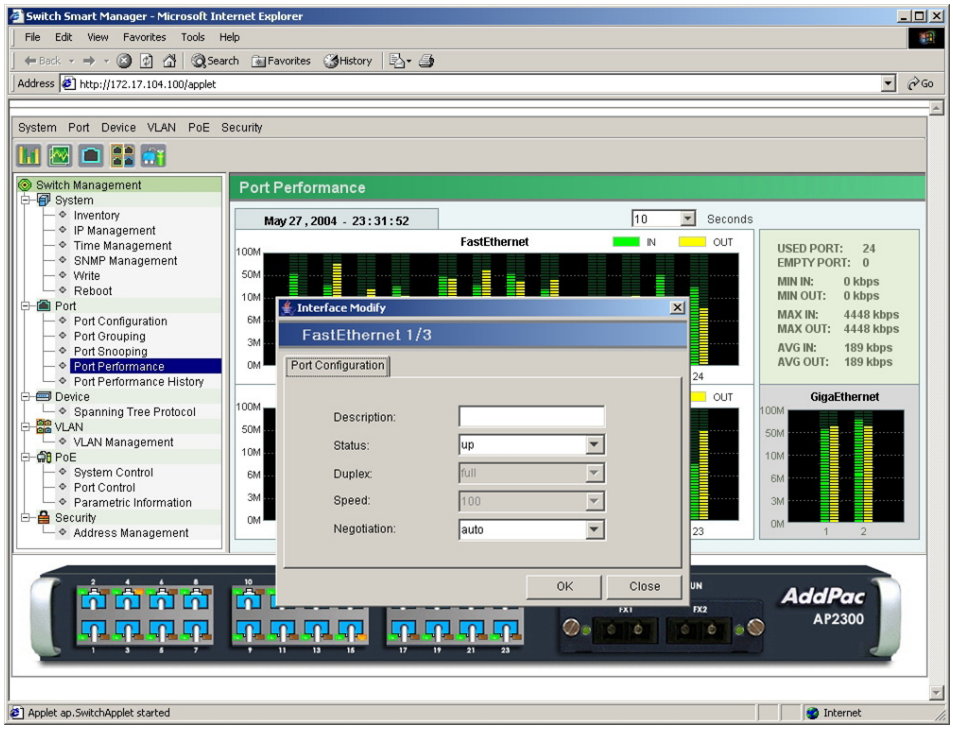
Part	Description
① Link LED	The link state of the port. It is turned off when the link is down, and it blinks in green when the link is up.
② PoE LED	The PoE state of the port. The yellow LED is on when the PoE is under operation.
③ Connect	Marked as connected UTP cable when the port is linked up and marked as blank when the link is down.
④ Link LED	The link state of FX port. It blinks in green when the link is up and turns off when the link is down.
⑤ Connect	Marked as connected FX cable when the FX Port is linked up and marked as blank when the link is down.
⑥ Power LED	Power LED of AP2300. The green LED is on during the operation and turned off when the power is off.
⑦ Run LED	Run LED of AP2300. The yellow LED regularly blinks in case of normal operation.

Place the mouse point on the desired port and click the right button. Then it directs to Port Configuration, Port Snooping and Port Performance History commands.



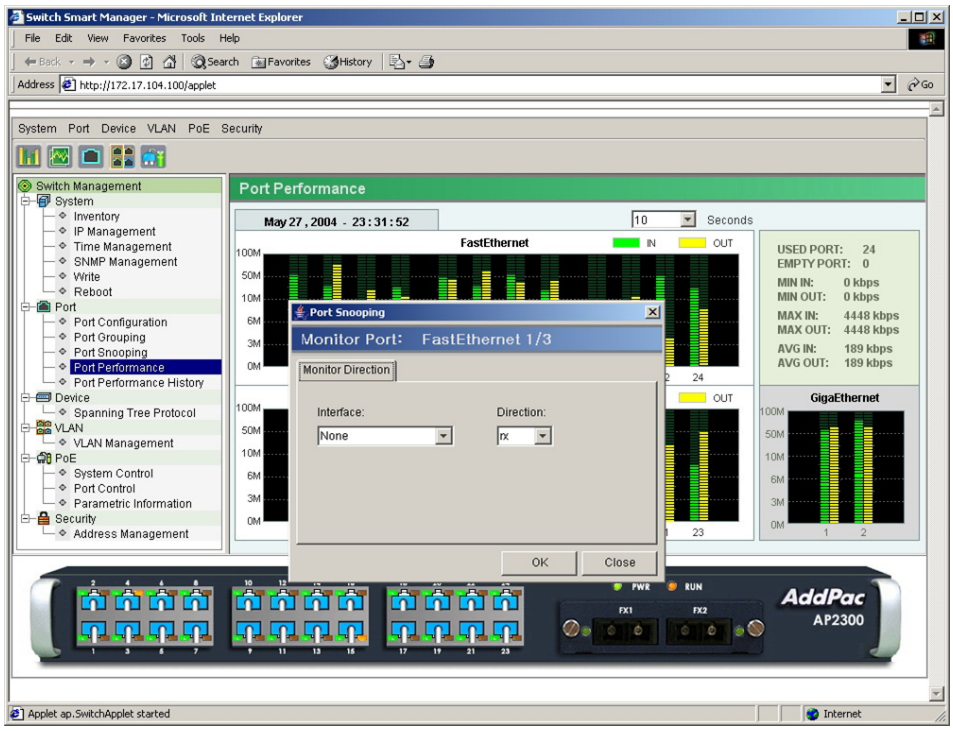
(Figure 3-174) Select Port Configuration from the Front Panel

The Port Configuration box appears.



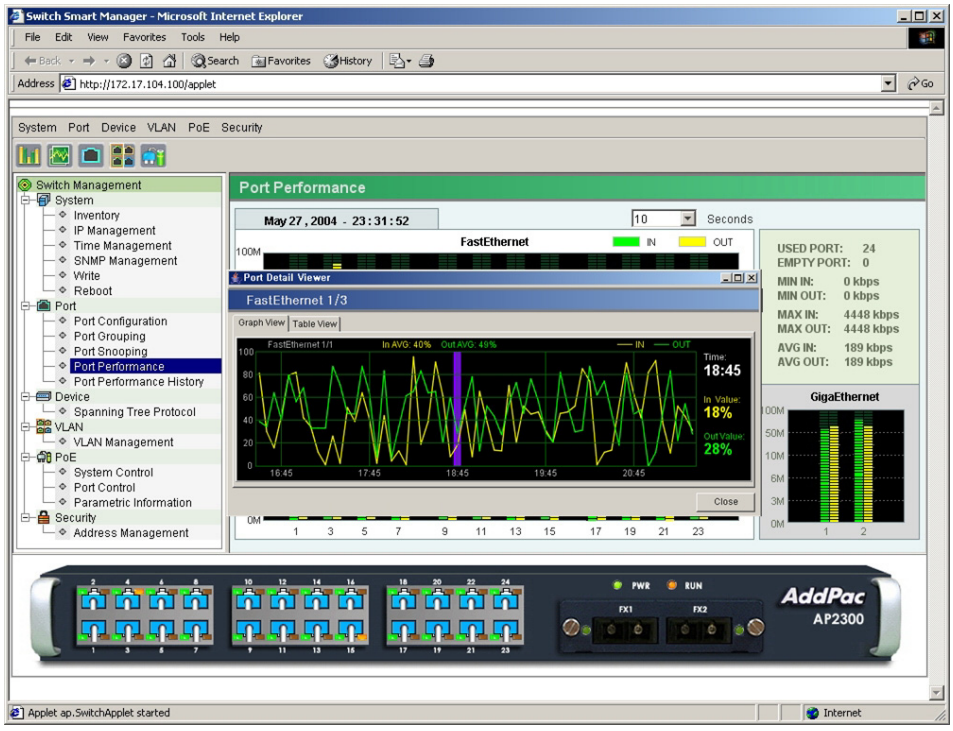
(Figure 3-175) Port Configuration

The Port Snooping box appears when selecting Port Snooping with the mouse right button.



(Figure 3-176) Port Snooping

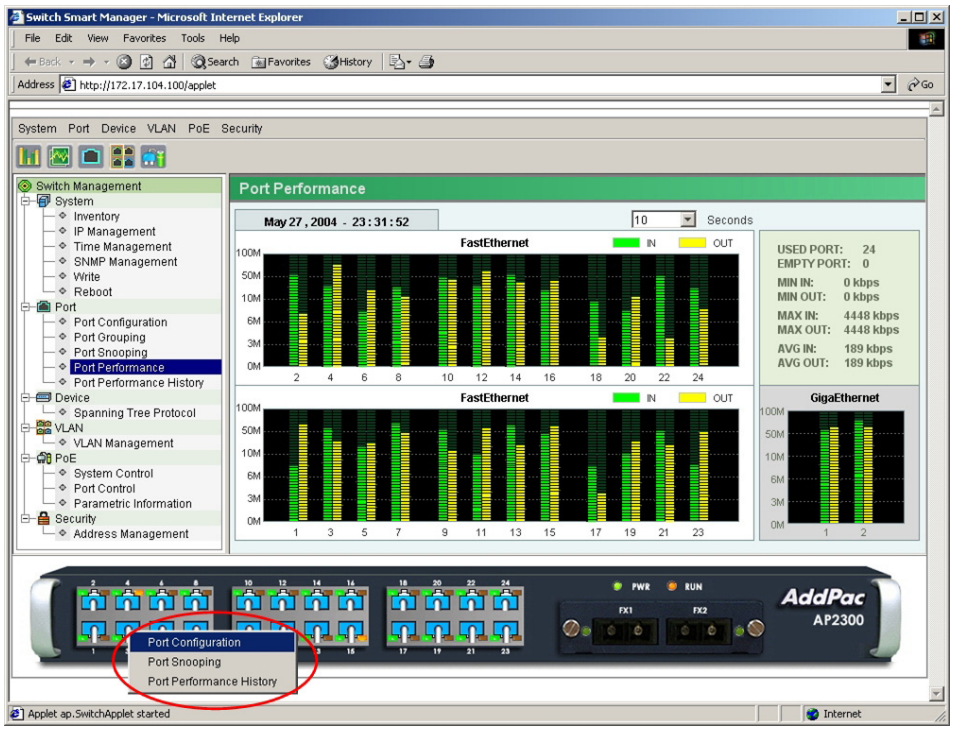
The Port Performance History box appears when selecting Port Performance History with the mouse right button.



(Figure 3-177) Port Performance History

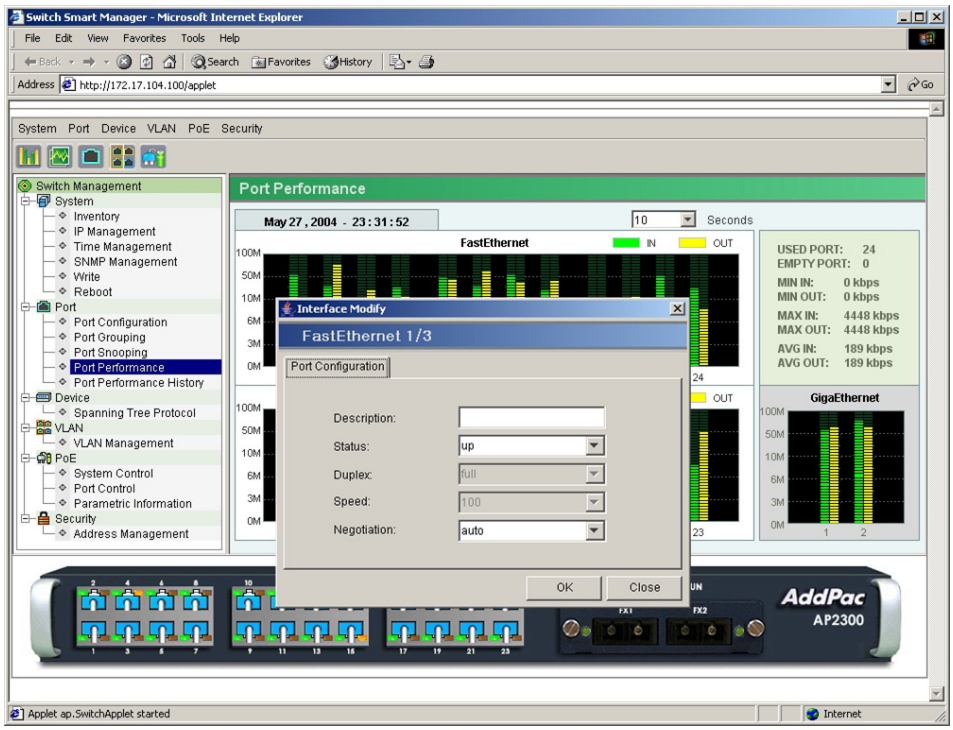
The below example describes how to use Port Configuration, Port Snooping and Port Performance History commands of Fast Ethernet 1/2 from AP2300 front panel image.

Place the mouse pointer on Fast Ethernet 1/3 Port and click the right button.



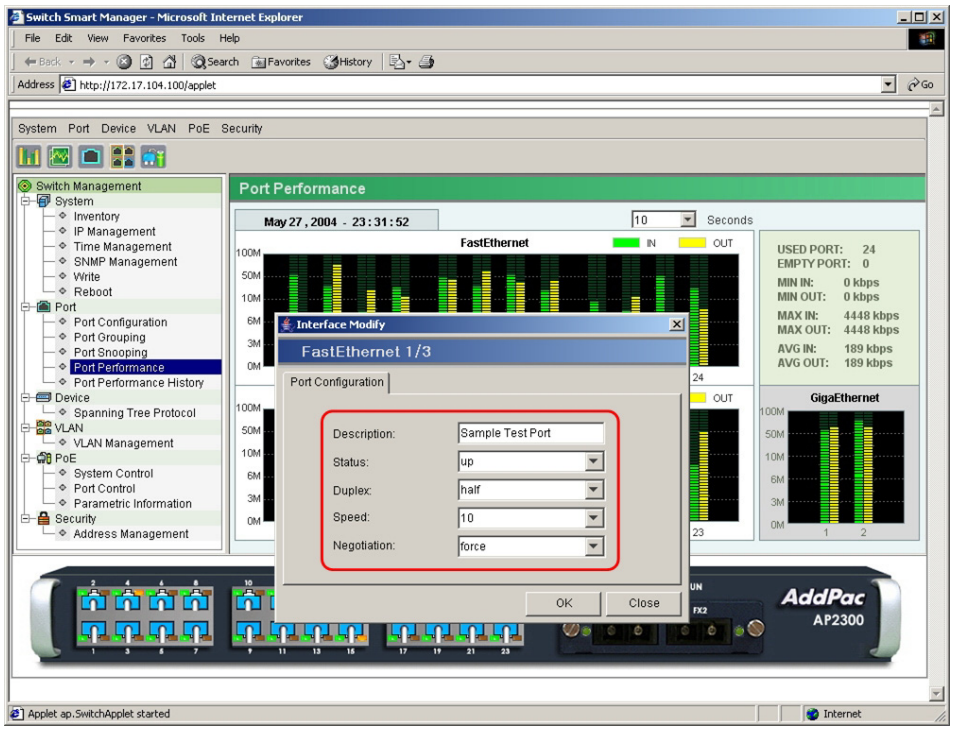
(Figure 3-178) Select Fast Ethernet 1/3

Select Port Configuration.



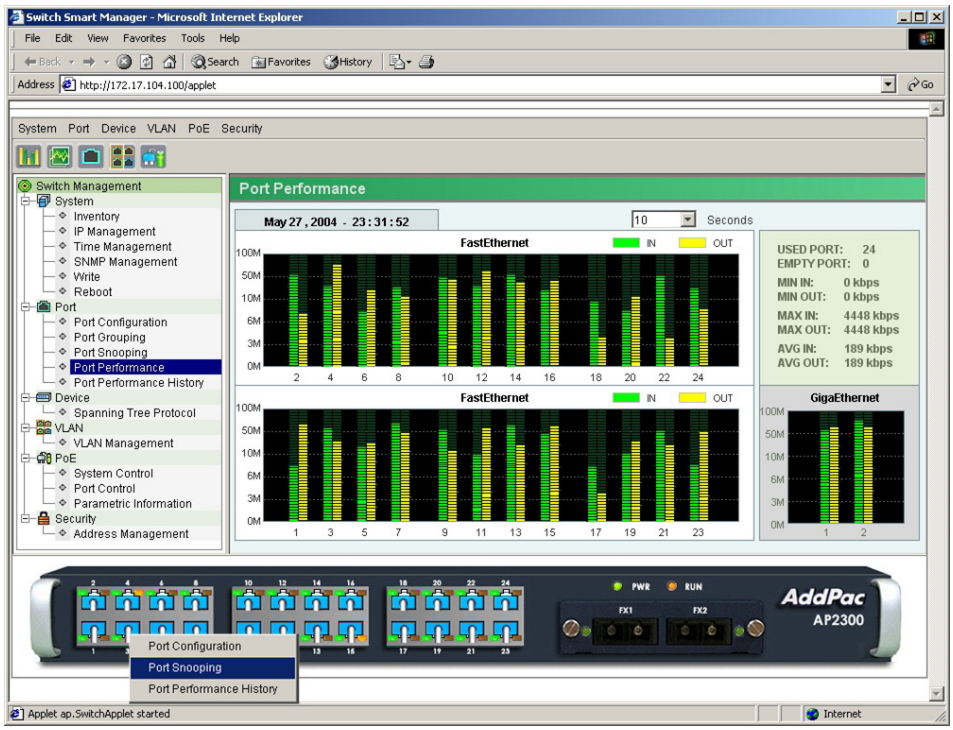
(Figure 3-179) Port Configuration

Input the desired values and click "OK" button.



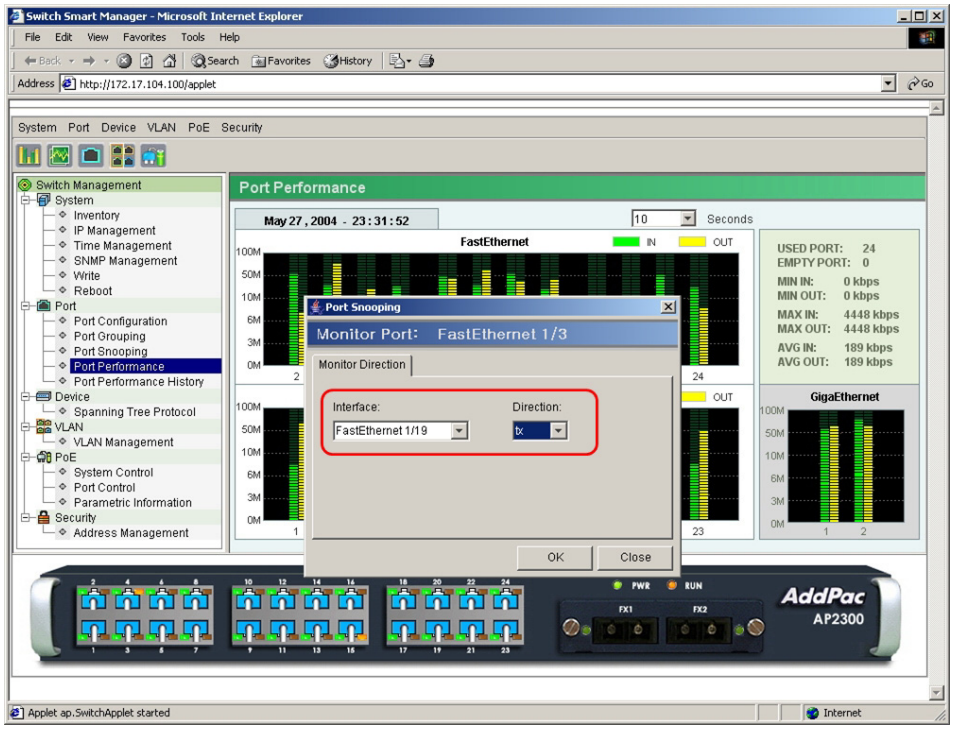
(Figure 3-180) Fast Ethernet 1/3 Port Configuration

Select Port Snooping with the mouse right button.



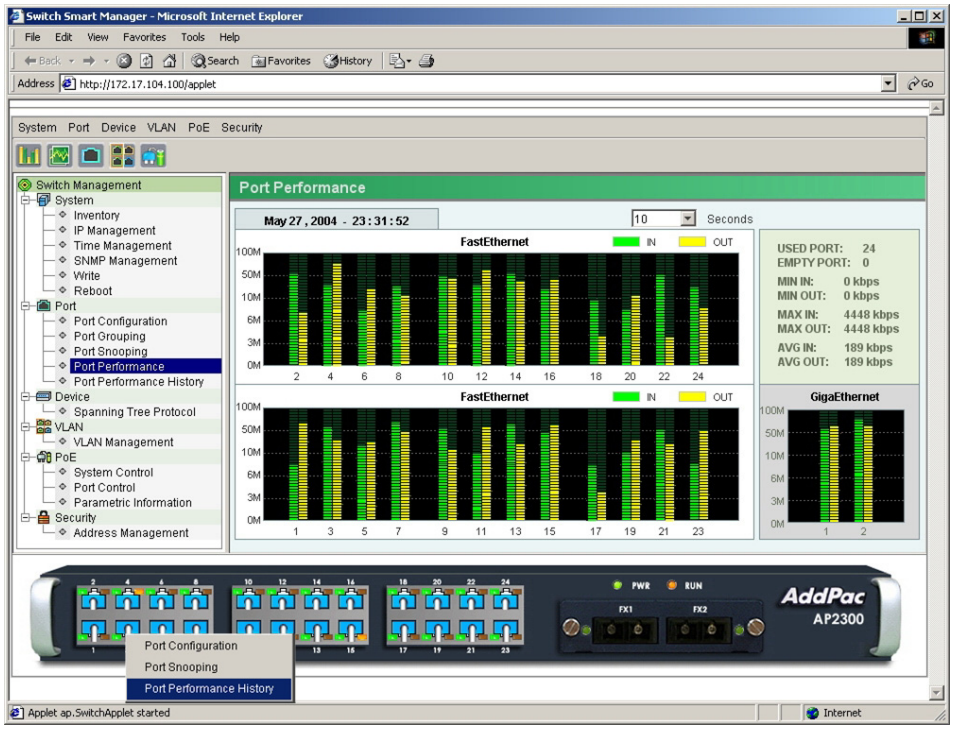
(Figure 3-181) Fast Ethernet 1/3 Port Snooping

Set the Port Snooping parameters and click "OK" button.



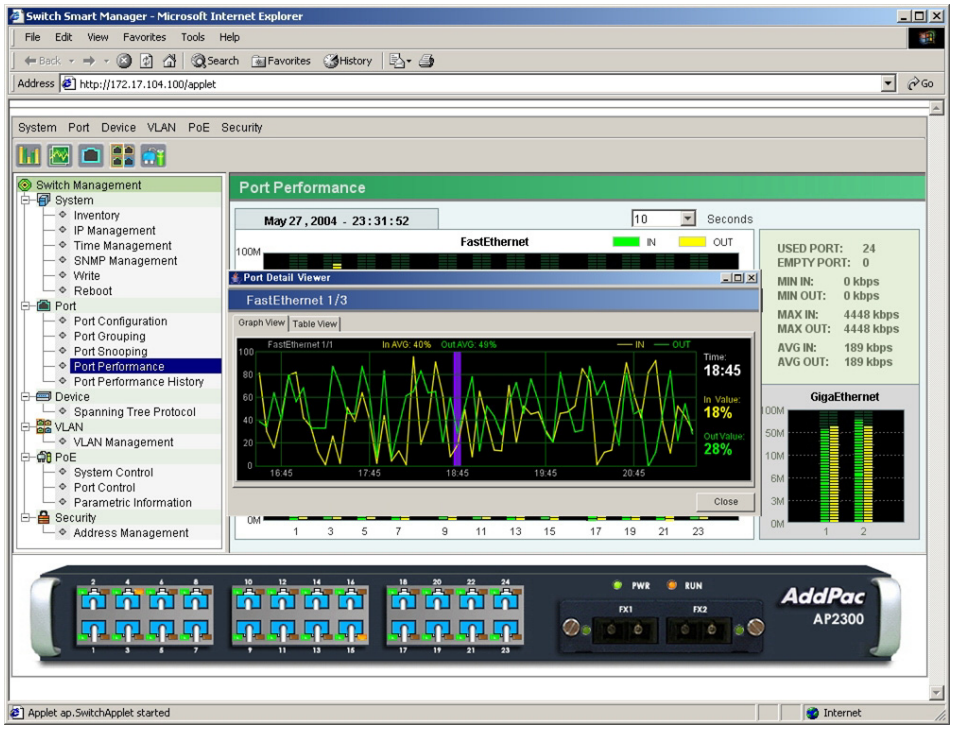
(Figure 3-182) Port Snooping

Select Port Performance History with the mouse right button.



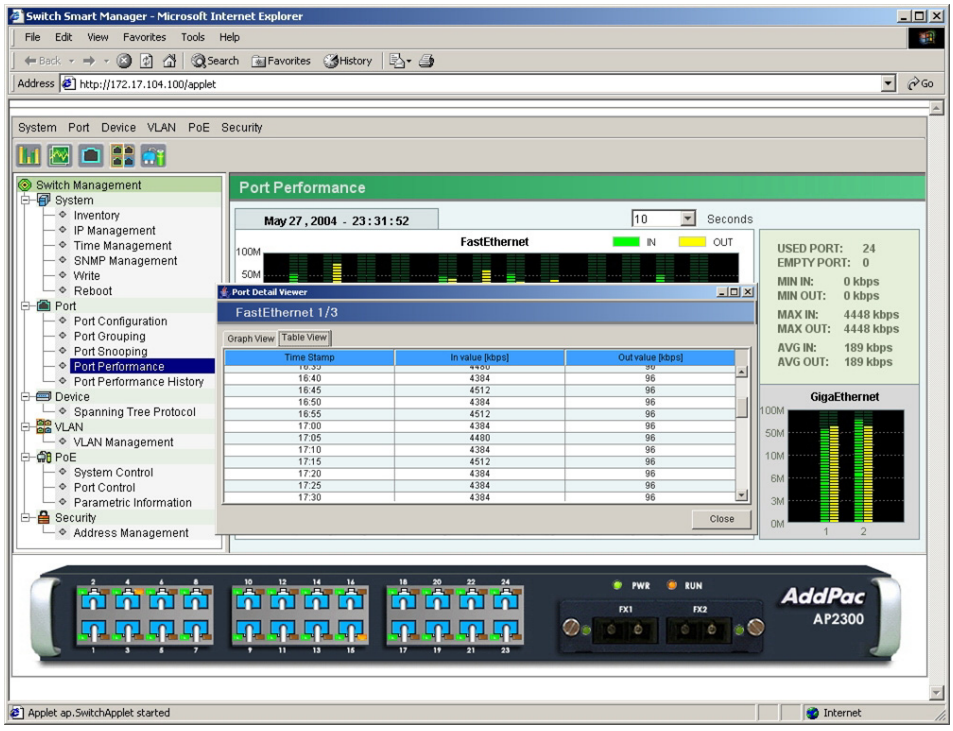
(Figure 3-183) Fast Ethernet 1/3 Port Performance History

The Performance History of Fast Ethernet 1/3 is displayed as shown below.



(Figure 3-184) Fast Ethernet 1/3 Port Detail Viewer

click the Table View to check numerically displayed Performance History.



(Figure 3-185) Table View of Port Performance History

Smart Manager Troubleshooting

Smart Manager is TCP/IP connection based manager software. If the TCP/IP connection is abnormal, check for the below mentioned items.

1. Check whether the IP address for AP2300 switch management and the IP address of PC are on the same local network.

2. Perform the ping test and check for the reply packets.

3. Check the HTTP Server status with Console Terminal.

```
Switch# show running-config
hostname switch
------------------------skip-------------------------
ip http server
ip http user login root password router
```

(Figure 3-186) Check the HTTP Server status with CLI

4. If the HTTP Server is "Disable," follow the below configuration. The default login account ID and PW is "root/router."

```
Switch#
Switch# config terminal
Switch(config)# ip http server
Switch(config)# ip http user login root password router
Switch(config)# end
Switch#
```

(Figure 3-187) Enable HTTP Server with CLI