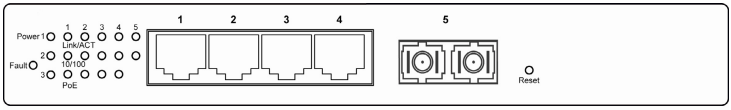
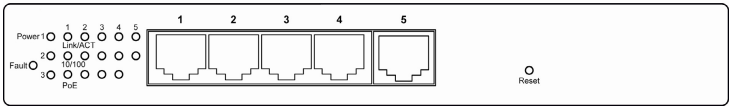
Quick Start Guide

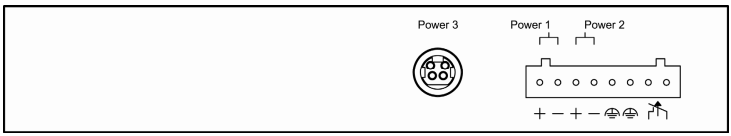
This quick start guide describes how to install and use the Hardened Web-Smart High Power PoE (Power over Ethernet) Ethernet Switch. This is the switch of choice for harsh environments constrained by space.

Physical Description

The Port Status LEDs and Power Inputs





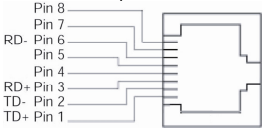


LED	State	Indication
Power1 **Power2** **Power3**	Steady	Power on.
	Off	Power off.
Fault	Steady	Power redundant system failure occurred.
	Off	Power redundant system failure is not occurred.
10/100Base-TX, 100Base-FX/BX		
Link/ACT	Steady	A valid network connection established.
	Flashing	Transmitting or receiving data. ACT stands for ACTIVITY.
10/100	Steady	Valid port connection at 100Mbps.
	Off	Valid port connection at 10Mbps.
PoE	Steady	Powered Device (PD) is connected.
	Off	Powered Device (PD) is disconnected.

Power Input Assignment			
Power3		55VDC	DC Jack
Power2	+	55VDC	Terminal Block
	−	Power Ground	
Power1	+	55VDC	
	−	Power Ground	
⏚		Earth Ground	
Relay Output Rating			1A @ 24VDC
Relay Alarm Assignment			
FAULT	*Warning signal disable for following: The relay contact closes if Power1 and Power2 are both failed but Power3 on. The relay contact closes if Power3 is failed but Power1 and Power2 are both on.		

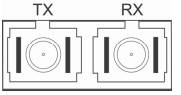
The 10/100Base-TX and 100Base-FX/BX Connectors

The 10/100Base-TX Connections
The following lists the pinouts of 10/100Base-TX ports.

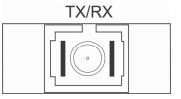


Pin	PoE Ports (Port 1-4)	Non-PoE Port (Port 5)
1	Output Transmit Data +	Output Transmit Data +
2	Output Transmit Data -	Output Transmit Data -
3	Input Receive Data +	Input Receive Data +
4	Positive (VCC+)	
5	Positive (VCC+)	
6	Input Receive Data -	Input Receive Data -
7	Negative (VCC-)	
8	Negative (VCC-)	

The 100Base-FX Connections
The fiber port pinouts
The Tx (transmit) port of device I is connected to the Rx (receive) port of device II, and the Rx (receive) port of device I to the Tx (transmit) port of device II.



The WDM 100Base-BX Connections
The fiber port pinouts
Only one optical fiber is required to transmit and receive data.



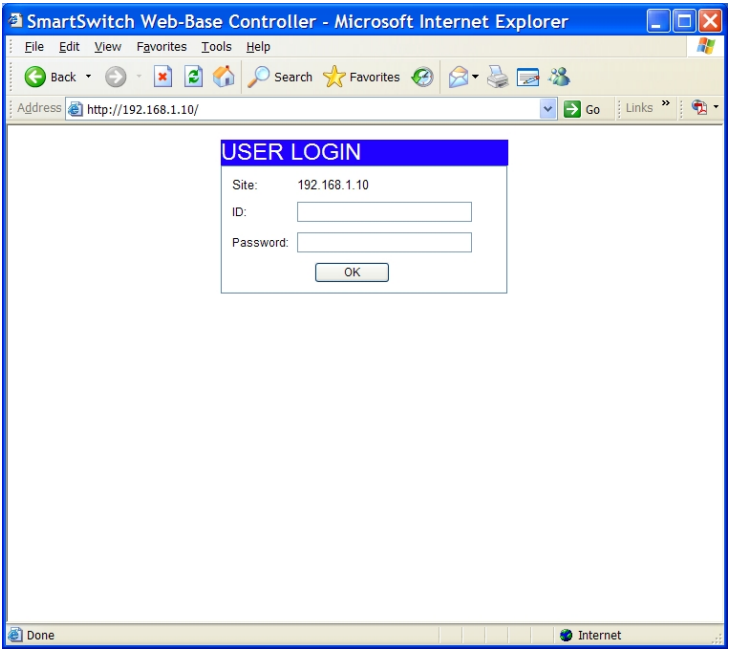
Functional Description

- Meets NEMA TS2 Environmental requirements such as temperature, shock, and vibration for traffic control equipment.
- Meets EN61000-6-2 & EN61000-6-4 EMC Generic Standard Immunity for industrial environment.
- Manageable via Web browser interface.
- Port 1 – 4 support Power over Ethernet (PoE) Power Sourcing Equipment (PSE).
- High Power PoE design up to 30W.
- Supports 802.3/802.3u/802.3x. Auto-negotiation: 10/100Mbps, full/half-duplex. Auto MDI/MDIX.
- 100Base-FX: Multi mode/Single mode SC or ST type. 100Base-BX: WDM Multi mode/Single mode SC type.

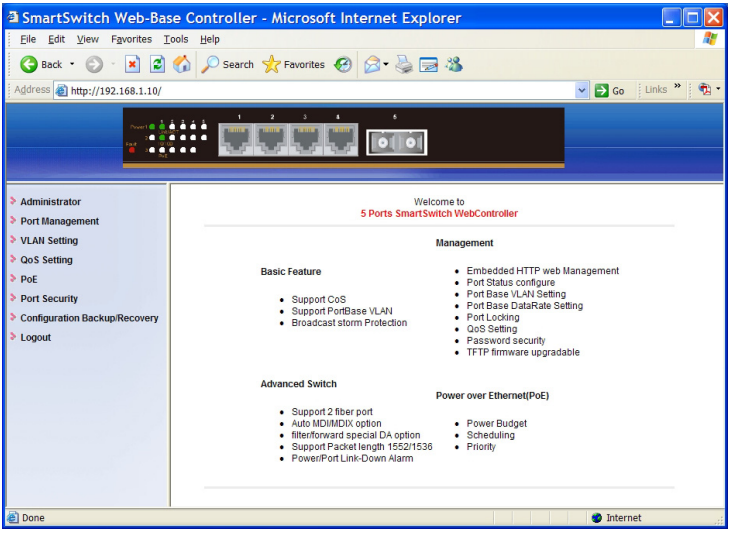
- Supports 1024 MAC addresses. Provides 512K bits memory buffer.
- Alarms for power and port link failure by relay output.
- Power Supply: Redundant 55VDC Terminal Block power inputs and 55VDC DC JACK with optional 100-240VAC external power supply.
- Operating voltage and Max. current consumption: 2.36A @ 55VDC. Power consumption: 130W Max.
- -40℃ to 75℃ (-40℉ to 167℉) operating temperature range. Tested for functional operation @ -40℃ to 85℃ (-40℉ to 185℉).
- Supports Wall and Desktop Mounting installation.

Web Configuration

- Login the switch:
  Specify the default IP address (192.168.1.10) of the switch in the web browser. A login window will be shown as below:



- Enter the factory default user name: admin.
  Enter the factory default password: admin.
  Then click on the “OK” button to log on to the switch.



Preface

This manual describes how to install and use the Hardened Web-Smart High Power PoE Ethernet Switch. This switch introduced here is designed to deliver full scalability with web-based management functions. Capable of operating at temperature extremes of -40℃ to +75℃, this is the switch of choice for harsh environments constrained by space.

Port 1 to port 4 on this switch supports Power over Ethernet (PoE) Power Sourcing Equipment (PSE) and can detect a Powered Device (PD). Using external 55VDC power inputs through Terminal Block or Power Jack, data and power can be transmitted to a Powered Device (PD) over the same twisted-pair Ethernet cable through port 1 to port 4 on the switch.

To get the most out of this manual, you should have an understanding of Ethernet networking concepts.

In this manual, you will find:

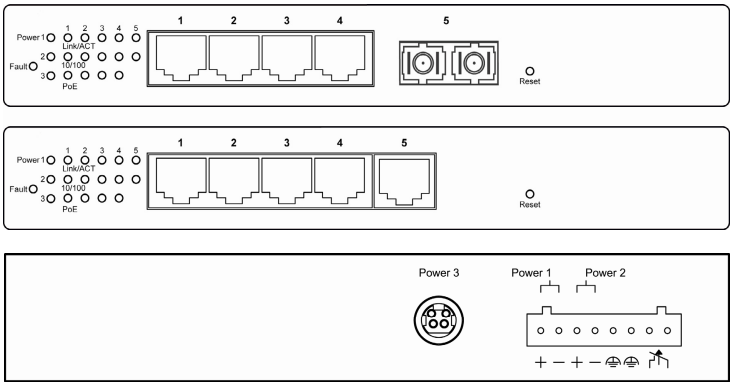
Features on the Hardened Web-Smart High Power PoE Ethernet Switch

- Illustrative LED functions
- Installation instructions
- Management Configuration
- Specifications

Table of Contents

Product Overview

Hardened Web-Smart High Power PoE Ethernet Switch



Front and Back View

Package Contents

When you unpack the product package, you shall find the items listed below. Please inspect the contents, and report any apparent damage or missing items immediately to your authorized reseller.

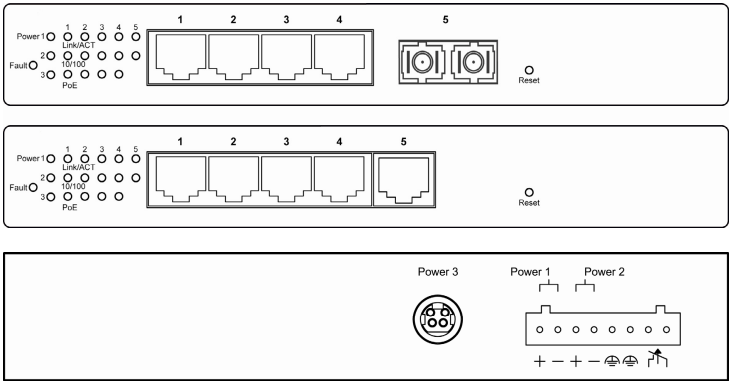
- The Hardened Web-Smart High Power PoE Ethernet Switch
- User's Manual

Product Highlights

Basic Features

- Meets NEMA TS2 Environmental requirements such as temperature, shock, and vibration for traffic control equipment.
- Meets EN61000-6-2 & EN61000-6-4 EMC Generic Standard Immunity for industrial environment.
- Manageable via Web browser interface.
- Port 1 – 4 support Power over Ethernet (PoE) Power Sourcing Equipment (PSE).
- High Power PoE design up to 30W.
- Supports 802.3/802.3u/802.3x. Auto-negotiation: 10/100Mbps, full/half-duplex. Auto MDI/MDIX.
- 100Base-FX: Multi mode/Single mode SC or ST type. 100Base-BX: WDM Multi mode/Single mode SC type.
- Supports 1024 MAC addresses. Provides 512K bits memory buffer.
- Alarms for power and port link failure by relay output.
- Power Supply: Redundant 55VDC Terminal Block power inputs and 55VDC DC JACK with optional 100-240VAC external power supply.
- Operating voltage and Max. current consumption: 2.36A @ 55VDC. Power consumption: 130W Max.
- -40℃ to 75℃ (-40℉ to 167℉) operating temperature range. Tested for functional operation @ -40℃ to 85℃ (-40℉ to 185℉).
- Supports Wall and Desktop Mounting installation.

Front Panel Display



- Power (Power1, Power2, Power3)

This LED comes on when the switch is properly connected to power and turned on.

- . Port Status LEDs

The LEDs are located on the front panel, displaying status for each respective port. Please refer to the following table for more details.

LED	State	Indication
Power1 Power2 Power3	Steady	Power on.
	Off	Power off.
Fault	Steady	Power redundant system failure occurred.
	Off	Power redundant system failure is not occurred.
10/100Base-TX, 100Base-FX/BX		
Link/ACT	Steady	A valid network connection established.
	Flashing	Transmitting or receiving data. ACT stands for ACTIVITY.
10/100	Steady	Valid port connection at 100Mbps.
	Off	Valid port connection at 10Mbps.
PoE	Steady	Powered Device (PD) is connected.
	Off	Powered Device (PD) is disconnected.

Physical Ports

The Hardened Web-Smart High Power PoE Ethernet Switch provides:

CONNECTIVITY

- RJ-45 connectors on TX ports
- ST or SC connector on 100Base-FX fiber port
- SC connector on 100Base-BX fiber port

MODE SELECTION

- 10Base-T full-duplex mode
- 10Base-T half-duplex mode
- 100Base-TX full-duplex mode
- 100Base-TX half-duplex mode
- 100Base-FX full-duplex mode
- Auto-negotiating mode

Switch Management

Web-based browser interface

The switch also boasts a point-and-click browser-based interface that lets user access full switch configuration and functionality from a Netscape or Internet Explorer browser.

Installation

This chapter gives step-by-step instructions about how to install the switch:

Selecting a Site for the Switch

As with any electric device, you should place the switch where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

-The ambient temperature should be between -40℃ to 75℃ (-40℉ to 167℉).

-The relative humidity should be less than 95 percent, non-condensing.

-Surrounding electrical devices should not exceed the electromagnetic field (RFC) standards.

-Make sure that the switch receives adequate ventilation. Do not block the ventilation holes on each side of the switch.

Connecting to Power

Redundant DC Terminal Block Power Inputs or 55VDC DC Jack:

Redundant DC Terminal Block Power Inputs

There are two pairs of power inputs for use with redundant power sources. You only need to have one power input connected to run the switch.

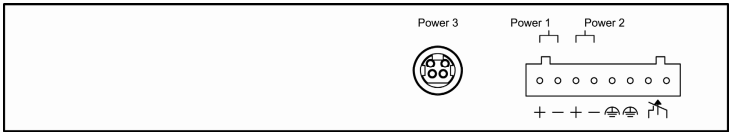
Step 1: Connect the DC power cord to the plug-able terminal block on the switch, and then plug it into a standard DC outlet.

Step 2: Disconnect the power cord if you want to shut down the switch.

55VDC DC Jack

Step 1: Connect the supplied AC to DC power adapter to the receptacle on the back side of the switch.

Step 2: Connect the power cord to the AC to DC power adapter and attach the plug into a standard AC outlet with the appropriate AC voltage.



Back View

Alarms for Power and Port Link Failure

Step 1: There are two pins on the terminal block used for power failure detection. It provides the normally closed output when the power source is active. Use this as a dry contact application to send a signal for power failure detection.

Power Input Assignment			
Power3		55VDC	DC Jack
Power2	+	55VDC	Terminal Block
	−	Power Ground	
Power1	+	55VDC	
	−	Power Ground	
⏚		Earth Ground	
Relay Output Rating			1A @ 24VDC
Relay Alarm Assignment			
FAULT	*Warning signal disable for following: The relay contact closes if Power1 and Power2 are both failed but Power3 on. The relay contact closes if Power3 is failed but Power1 and Power2 are both on.		

Special note:
The relay output is normal open position when there is no power to the switch. Please do not connect any power source to this terminal to prevent shorting your power supply.

Connecting to Your Network

Cable Type & Length

It is necessary to follow the cable specifications below when connecting the switch to your network. Use appropriate cables that meet your speed and cabling requirements.

Cable Specifications

Speed	Connector	Port Speed Half/Full Duplex	Cable	Max. Distance
10Base-T	RJ-45	10/20 Mbps	2-pair UTP/STP Cat. 3, 4, 5	100 m
100Base-TX	RJ-45	100/200 Mbps	2-pair UTP/STP Cat. 5	100 m
100Base-FX	ST, SC	200 Mbps	MMF (50 or 62.5μm)	2 km
100Base-FX	ST, SC	200 Mbps	SMF (9 or 10μm)	20 or 40 km
100Base-BX	SC	200 Mbps	MMF (50 or 62.5μm)	2 or 5 km
100Base-BX	SC	200 Mbps	SMF (9 or 10μm)	20 or 40 km

Cabling

Step 1: First, ensure the power of the switch and end devices are turned off.

<Note> Always ensure that the power is off before any installation.

Step 2: Prepare cable with corresponding connectors for each type of port in use.

Step 3: Consult Cable Specifications Table on previous page for cabling requirements based on connectors and speed.

Step 4: Connect one end of the cable to the switch and the other end to a

desired device.

Step 5: Once the connections between two end devices are made successfully, turn on the power and the switch is operational.

Switch Management

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

This chapter covers the following topics:

- Management Access Overview
- Key Concepts
- Key Guidelines for Implementation
- Web Management Access
- Standards, Protocols, and Related Reading

Management Access Overview

The switch gives you the flexibility to access and manage the switch using any or all of the following methods.

The web browser interface support is embedded in the switch software and is available for immediate use.

Web Management

The switch provides a browser interface that lets you configure and manage the switch remotely.

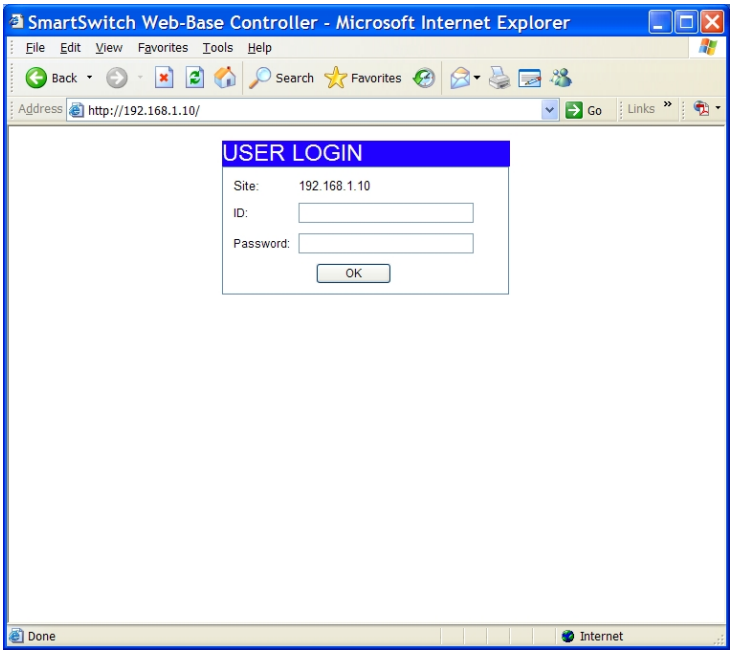
After you set up your IP address for the switch, you can access the switch's web interface applications directly in your web browser by entering the IP address of the switch. You can then use your web browser to list and manage switch configuration parameters from one central location, just as if you were directly connected to the switch's console port.

Web-Based Browser Management

The switch provides a web-based browser interface for configuring and managing the switch. This interface allows you to access the switch using a preferred web browser.

This chapter describes how to configure the switch using its web-based browser interface.

Logging on to the switch



SWITCH IP ADDRESS
In your web browser, specify the IP address of the switch. Default IP address is 192.168.1.10.

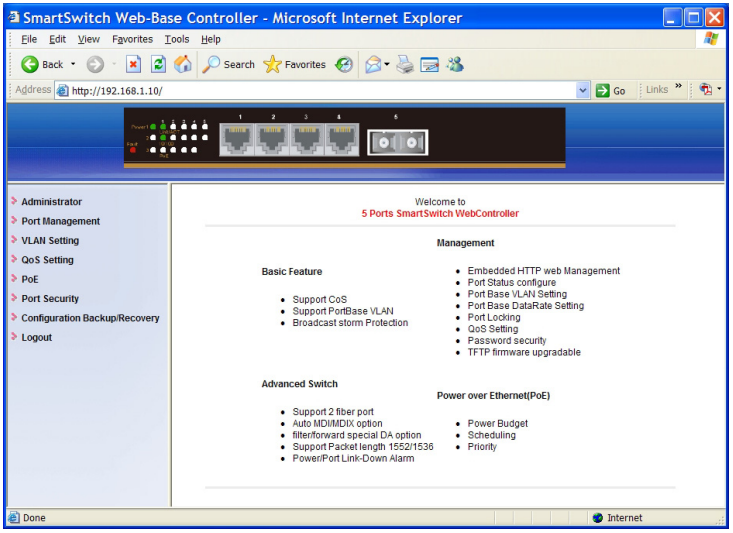
USER NAME
Enter the factory default user name: admin.

PASSWORD
Enter the factory default password: admin.
Or enter a user-defined password if you followed the instructions later and changed the factory default password.

Then click on the “OK” button to log on to the switch.

Understanding the Browser Interface

The web browser interface provides groups of point-and-click buttons at the left field of the screen for configuring and managing the switch.



Administrator
Authentication Configuration, System IP Configuration, System Status, Load Default Setting, Firmware Update, Reset Device

Port Management
Port Configuration, Bandwidth Control, Broadcast Storm Control, Max. Packet Length, Port Alarm Setting

VLAN Setting
Multi to 1 Setting, Tag Based VLAN, Port Based VLAN

QoS Setting
Class of Service Configuration, High Priority Queue Configuration, Customization Diffserv

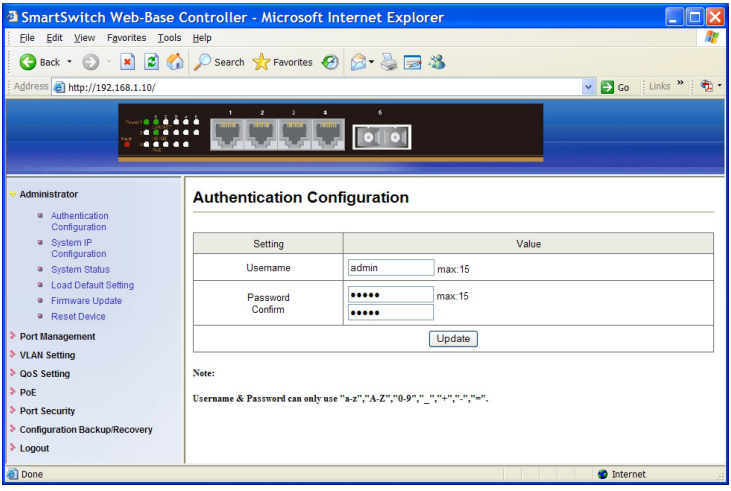
PoE
PoE System Settings, PoE Port Settings, PoE Scheduling

Port Security

Configuration Backup/Recovery

Logout

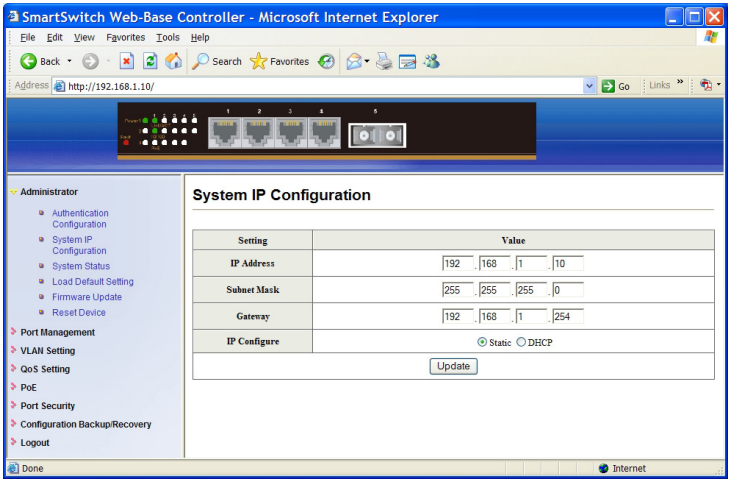
Administrator



Authentication Configuration

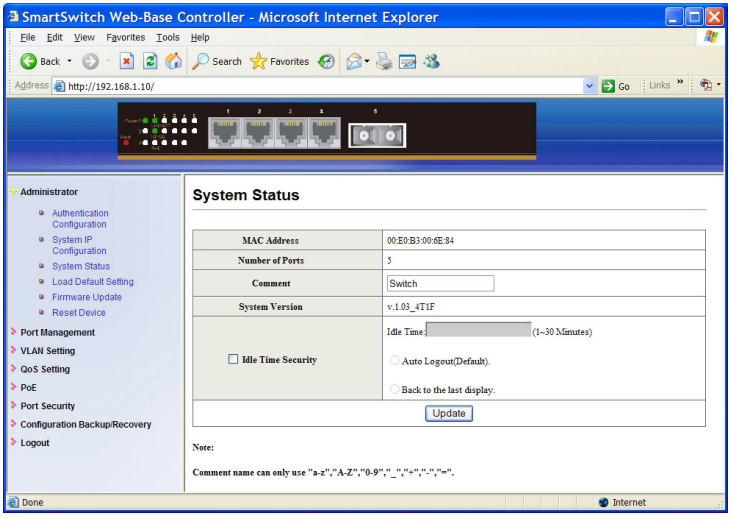
1. Username: Click in “Username” text box and type in a new username.
2. Password: Click in “Password” text box and type in a new password.
3. Confirm: Click in “Confirm” text box. Type the same password in “Password” text box again to verify it.
4. Update: Click “Update” button to update your settings.

<Note> Username & Password can only use “a-z”, “A-Z”, “0-9”, “_”, “+”, “—”, and “=”.



System IP Configuration

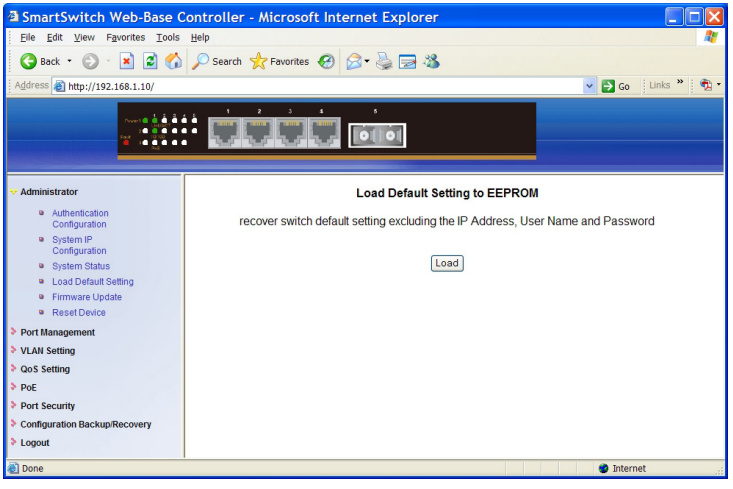
1. IP Address: Click in “IP Address” text box and type a new address to change the IP Address.
2. Subnet Mask: Click in “Subnet Mask” text box and type a new address to change the Subnet Mask.
3. Gateway: Click in “Gateway” text box and type a new address to change the Gateway.
4. IP Configure: Click and choose “Static” or “DHCP” to disable or enable the Switch as DHCP client to be automatically supplied an IP address, gateway address, and subnet mask from DHCP server.
5. Update: Click “Update” button to update your settings.



System Status

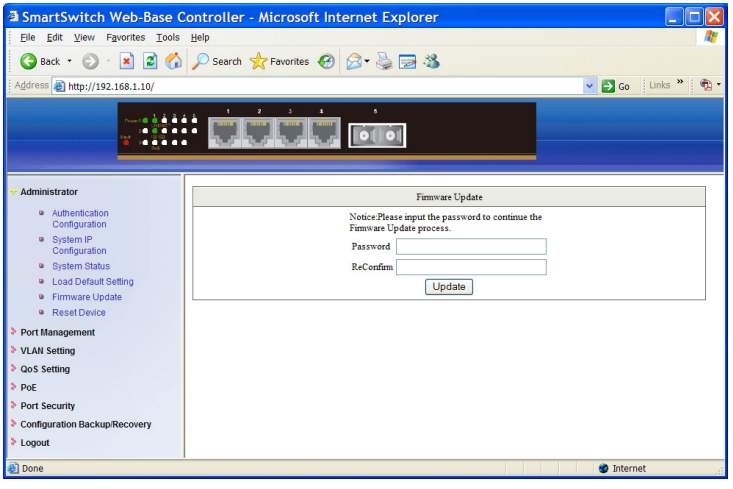
1. Comment: Click in “Comment” text box and type a new comment for this Switch.
2. Idle Time Security: Click and choose “Idle Time Security” to enable or disable protection security for managing the Switch after a period of idle time.
3. Idle Time (1~30 Minutes): Click in “Idle Time” text box and type an idle time. This is for protection security to manage the Switch after a period of idle time.
4. Auto Logout (Default): Click and choose “Auto Logout” to automatically log the user out after a period of idle time. And this is the default setting for Idle Time Security.
5. Back to the last display: Click and choose “Back to the last display” to back to the last displayed web screen before a period of idle time.
6. Update: Click “Update” button to update your settings.

<Note> Comment name can only use “a-z”, “A-Z”, “0-9”, “_”, “＋”, “－”, and “＝”.



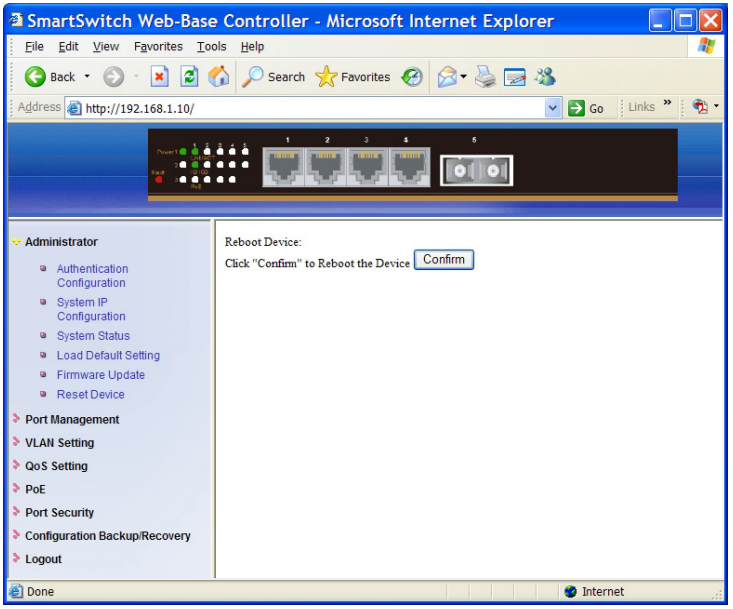
Load Default Setting

Load: Click “Load” button to restore the default setting of the Switch excluding the IP Address, User Name, and Password.



Firmware Update

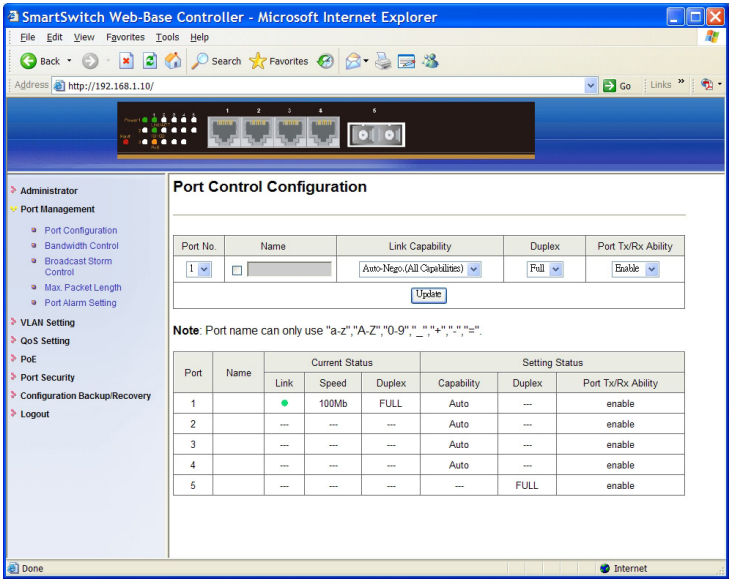
1. Password: Click in “Password” text box and type in the password.
2. ReConfirm: Click in “ReConfirm” text box. Type the same password in “Password” text box again to verify it.
3. Update: Click “Update” button to continue the Firmware Update process.



Reset Device

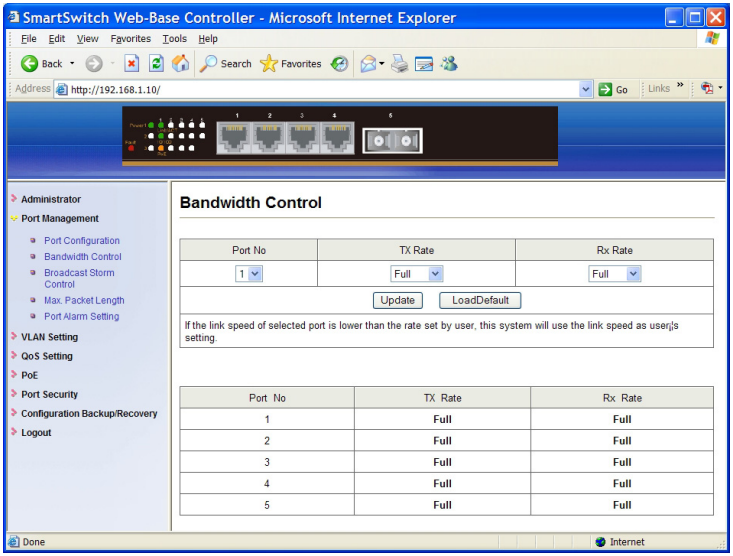
Confirm: Click “Confirm” button to reboot the Switch.

Port Management



Port Configuration

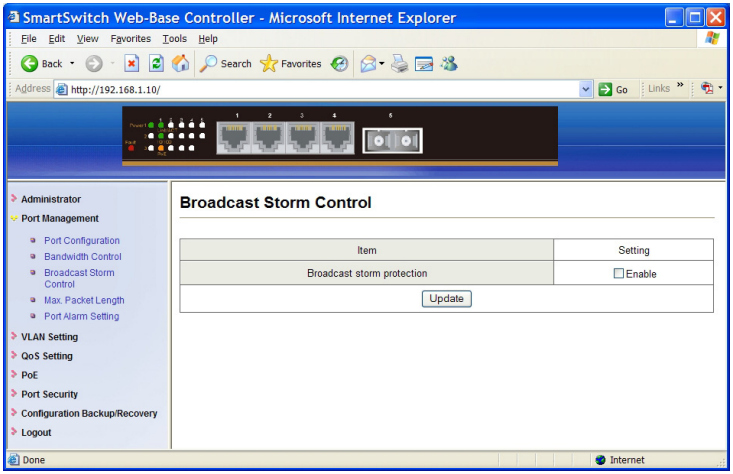
1. Port No.: Click “Port No.” drop-down menu to choose port from “Port No.” drop-down list.
2. Name: Click the “Name” check box. Then click in “Name” text box and type a name for the port. Port name can only use “a-z”, “A-Z”, “0-9”, “_”, “+”, “—”, and “=”.
3. Link Capability: Click “Link Capability” drop-down menu to choose “Auto-Nego.(All Capabilities)”, “Forced 100M”, or “Forced 10M” and change the line speed from the “Link Capability” drop-down list for the port.
4. Duplex: Click “Duplex” drop-down menu to choose “Full” or “Half” from the “Duplex” drop-down list to set Full Duplex mode or Half Duplex mode for the port.
5. Port Tx/Rx Ability: Click “Port Tx/Rx Ability” drop-down menu to choose “Disable” or “Enable” from the “Port Tx/Rx Ability” drop-down list to disable or enable transmitting/receiving ability for the port.
6. Update: Click “Update” button to update your settings.



Bandwidth Control

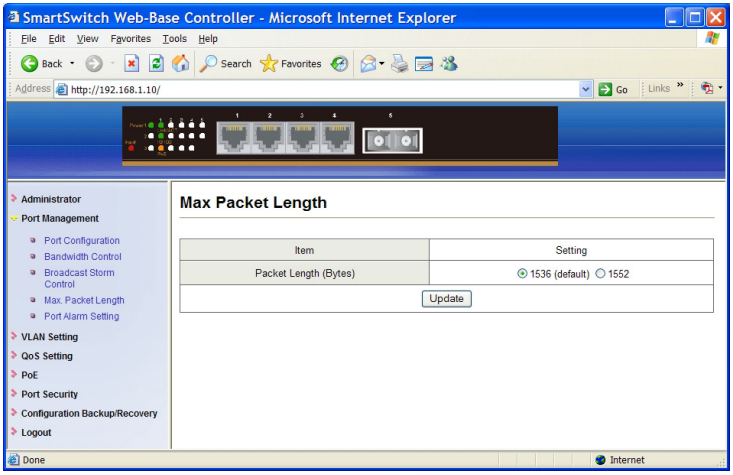
1. Port No.: Click “Port No.” drop-down menu to choose port from “Port No.” drop-down list.
2. TX Rate: Click “TX Rate” drop-down menu to choose the transmission rate from the “TX Rate” drop-down list for the port.
3. RX Rate: Click “RX Rate” drop-down menu to choose the receiving rate from the “RX Rate” drop-down list for the port.
4. Update: Click “Update” button to update your settings.
5. LoadDefault: Click “LoadDefault” button to load default settings.

<Note> If the link speed of selected port is lower than the rate set by user, this system will use the link speed as user’s setting.



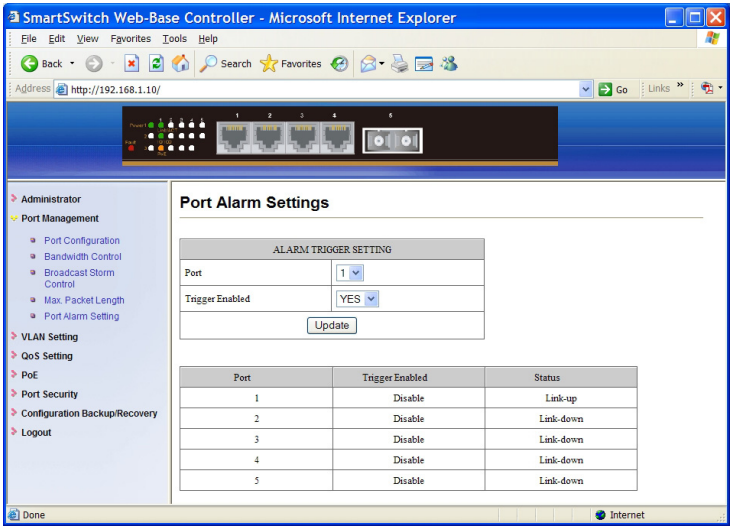
Broadcast Storm Control

1. Broadcast storm protection: Click the “Enable” check box to enable broadcast storm protection for the Switch.
2. Update: Click “Update” button to update your settings.



Max. Packet Length

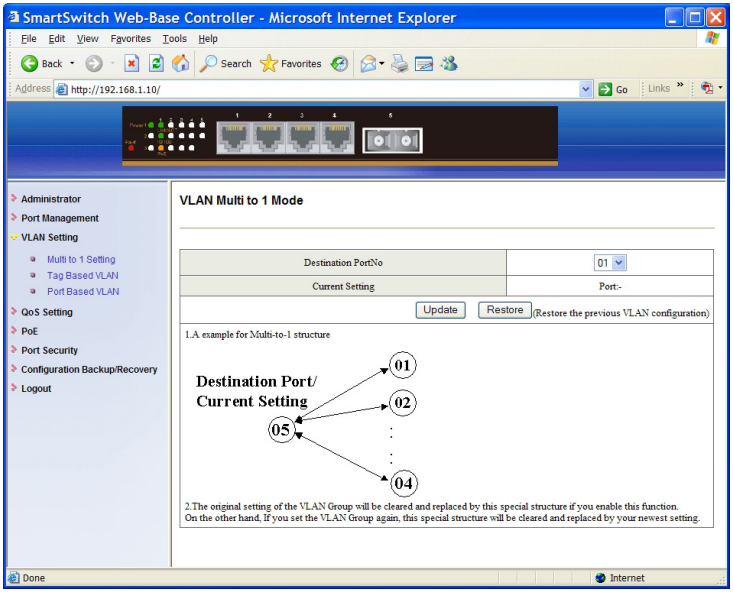
1. Packet Length (Bytes): Click and choose “1536 (default)” or “1552” to set maximum 1536 (default Packet Length for the Switch) or 1552 Bytes packet length for the Switch.
2. Update: Click “Update” button to update your settings.



Port Alarm Setting

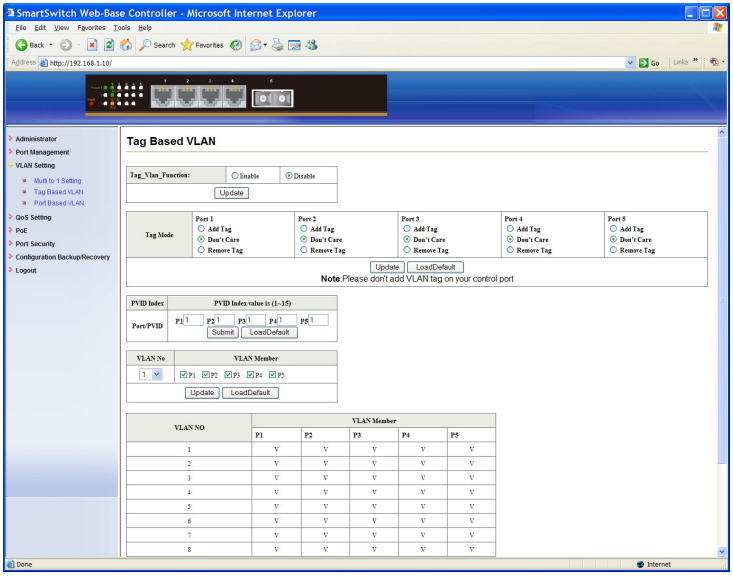
1. Port: Click “Port” drop-down menu to choose port from the “Port” drop-down list.
2. Trigger Enabled: Click “Trigger Enabled” drop-down menu to choose “YES” or “NO” from the “Trigger Enabled” drop-down list to enable or disable Trigger for the port.
3. Update: Click “Update” button to update your settings.

VLAN Setting



Multi to 1 Setting

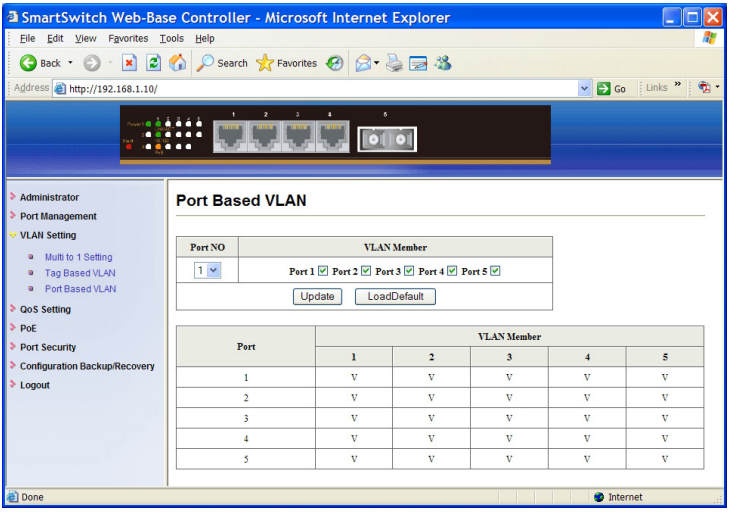
1. Destination PortNo: Click “Destination PortNo” drop-down menu to choose destination port from the “Destination PortNo” drop-down list.
2. Update: Click “Update” button to update your settings.
3. Restore: Click “Restore” button to restore the previous VLAN configuration.



Tag Based VLAN

1. Tag Vlan Function: Click and choose “Enable” or “Disable” to enable or disable Tag Based VLAN for the Switch.
2. Update: Click “Update” button to update your settings.
3. Tag Mode: Click and choose “Add Tag”, “Don’t Care”, or “Remove Tag” for each port.
4. Update: Click “Update” button to update your settings.
5. LoadDefault: Click “LoadDefault” button to load default settings.
6. Port/PVID: Input PVID Index value (1~15) for each port.
7. Submit: Click “Submit” button to submit your settings.
8. LoadDefault: Click “LoadDefault” button to load default settings.
9. VLAN No: Click “VLAN No” drop-down menu to choose VLAN from the “VLAN No” drop-down list.
10. VLAN Member: Click and choose ports to be added to VLAN.
11. Update: Click “Update” button to update your settings.
12. LoadDefault: Click “LoadDefault” button to load default settings.

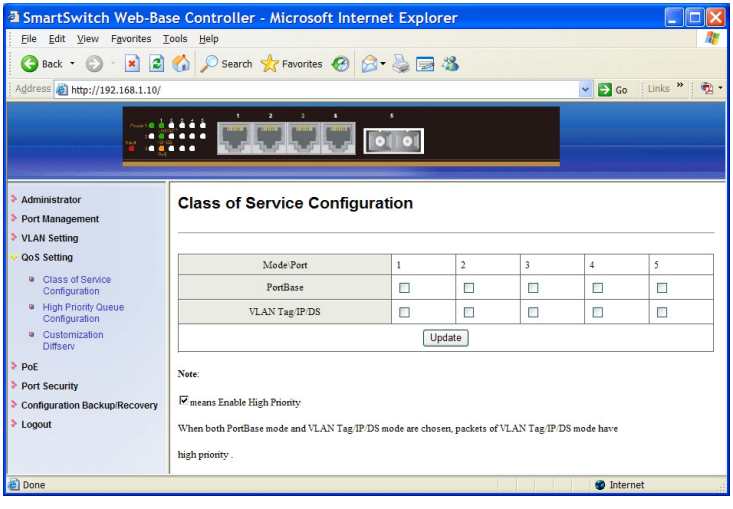
<Note> Please don’t add VLAN tag on your control port.



Port Based VLAN

1. Port NO: Click “Port NO” drop-down menu to choose port from the “Port NO” drop-down list.
2. VLAN Member: Click and choose ports to be added to port number.
3. Update: Click “Update” button to update your settings.
4. LoadDefault: Click “LoadDefault” button to load default settings.

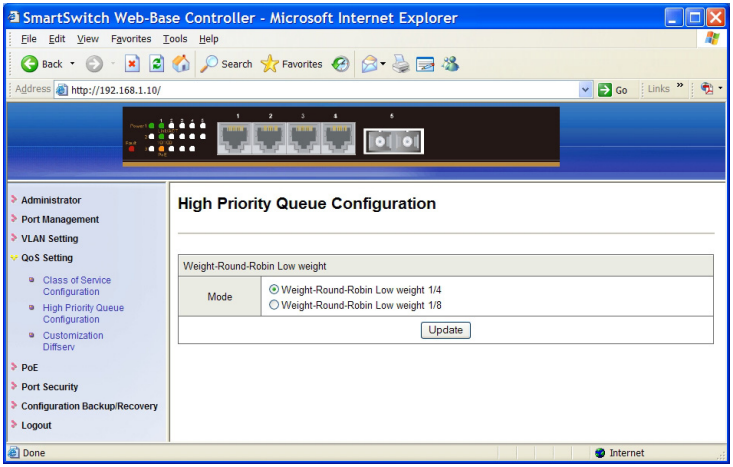
QoS Setting



Class of Service Configuration

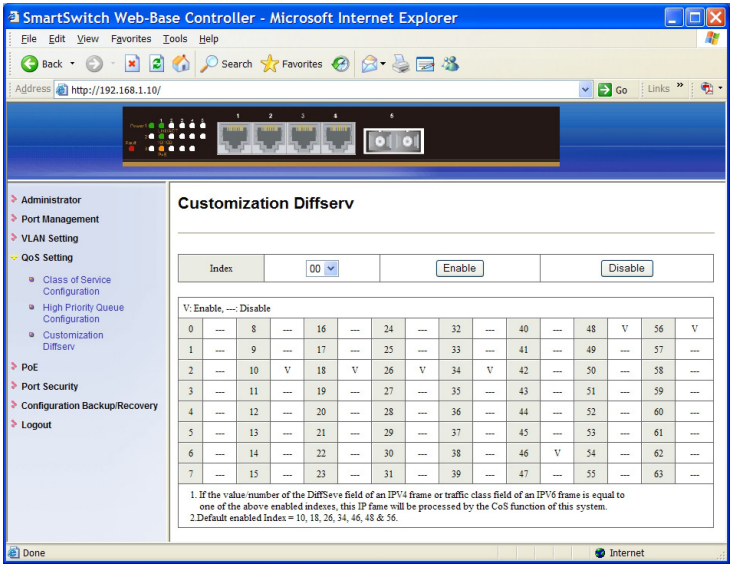
1. PortBase: Click the check box to enable PortBase mode high priority for port.
2. VLAN Tag/IP/DS: Click the check box to enable VLAN Tag/IP/DS mode high priority for port.
3. Update: Click “Update” button to update your settings.

<Note> When both PortBase mode and VLAN Tag/IP/DS mode are chosen for port, packets of VLAN Tag/IP/DS mode have higher priority.



High Priority Queue Configuration

1. Mode: Click and choose Weight-Round-Robin Low weight to 1/4 or 1/8 for the Switch.
2. Update: Click “Update” button to update your settings.

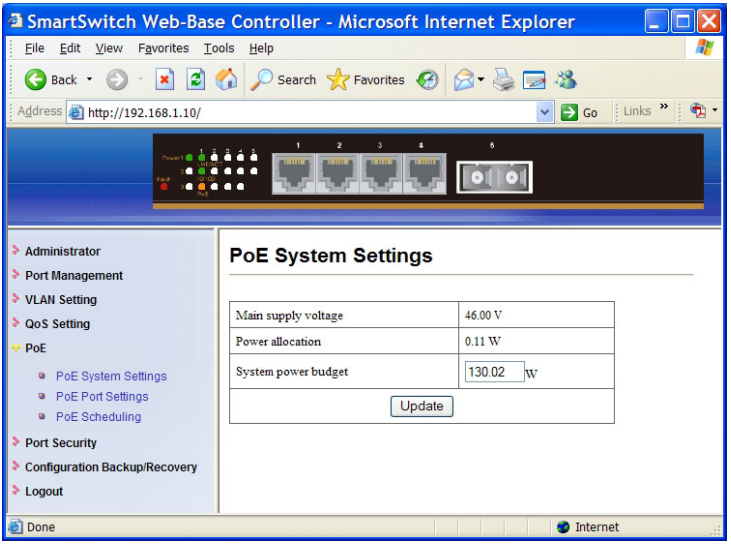


Customization Diffserv

1. Index: Click “Index” drop-down menu to choose DiffServ Index from the “Index” drop-down list.
2. Enable: Click “Enable” button to enable the Diffserv Index.
3. Disable: Click “Disable” button to disable the Diffserv Index.

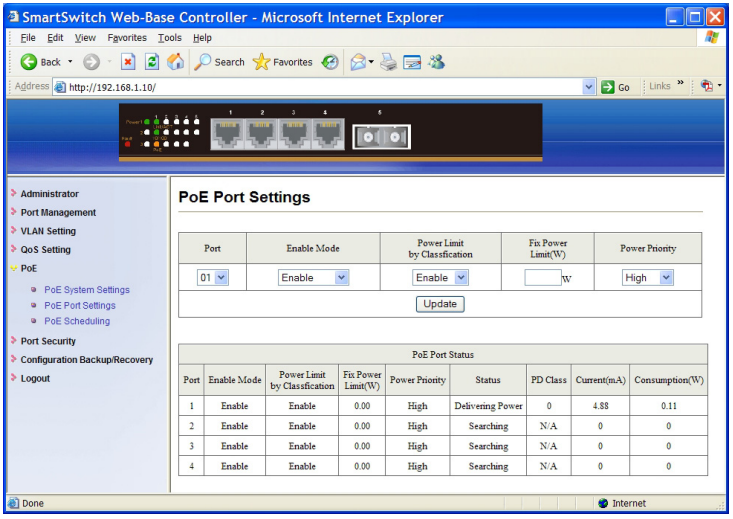
<Note> Default enabled Index: 10, 18, 26, 34, 46, 48, and 56.

PoE



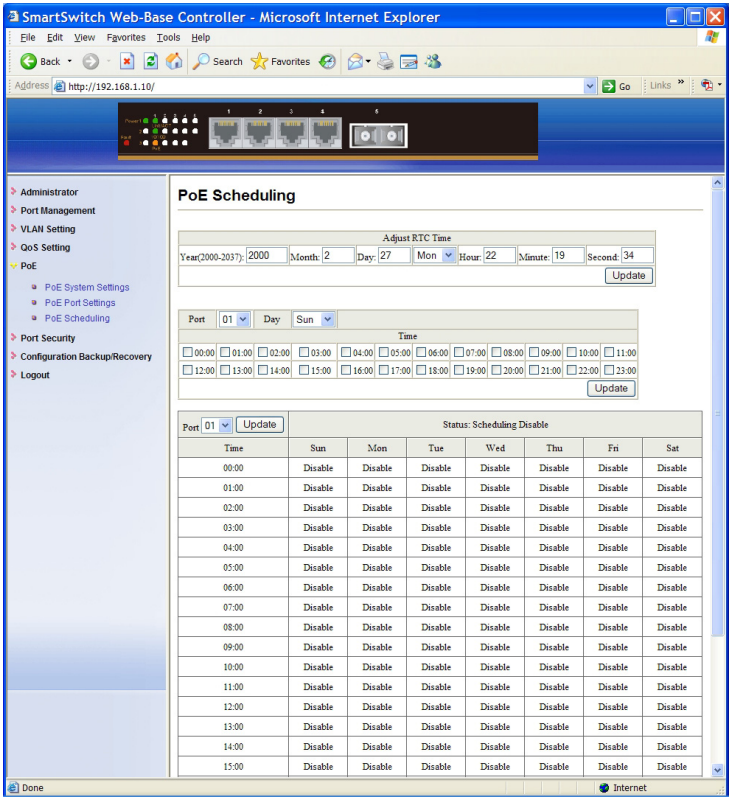
PoE System Settings

1. System power budget: Click in “System power budget” text box and type a new system power budget.
2. Update: Click “Update” button to update your settings.



PoE Port Settings

1. Port: Click “Port” drop-down menu to choose port from the “Port” drop-down list.
2. Enable Mode: Click “Enable Mode” drop-down menu to choose “Enable”, “Disable”, or “Scheduling from the “Enable Mode” drop-down list to enable, disable, or schedule Port 1 ~ Port 4 to discover Powered Device (PD) connected to Port 1 ~ Port 4 of the Switch.
3. Power Limit by Classification: Click “Power Limit by Classification” drop-down menu to choose “Enable” or “Disable” from the “Power Limit by Classification” drop-down list to enable or disable Port 1 ~ Port 4 to provide power to PD according to classification of maximum power range used by PD.
4. Fix Power Limit(W): Click in “Fix Power Limit(W)” text box and type a new fixed power limit for Port 1 ~ Port 4 to provide power to PD.
5. Power Priority: Click “Power Priority” drop-down menu to choose “High”, “Middle”, or “Low” from the “Power priority” drop-down list to determine power priority of Port 1 ~ Port 4.
6. Update: Click “Update” button to update your settings.



PoE Scheduling

Adjust RTC Time: Adjust system time for this Switch.

1. Year(2000-2037): Click in “Year” text box and specify year 2000 to 2037.
2. Month: Click in “Month” text box and specify 1 to 12.
3. Day: Click in “Day” text box and specify 1 to 31. Click drop-down menu to choose “Mon” to “Sun” from the drop-down list.
4. Hour: Click in “Hour” text box and specify 0 to 23.
5. Minute: Click in “Minute” text box and specify 0 to 59.
6. Second: Click in “Second” text box and specify 0 to 59.
7. Update: Click “Update” button when you finished Adjust RTC Time.

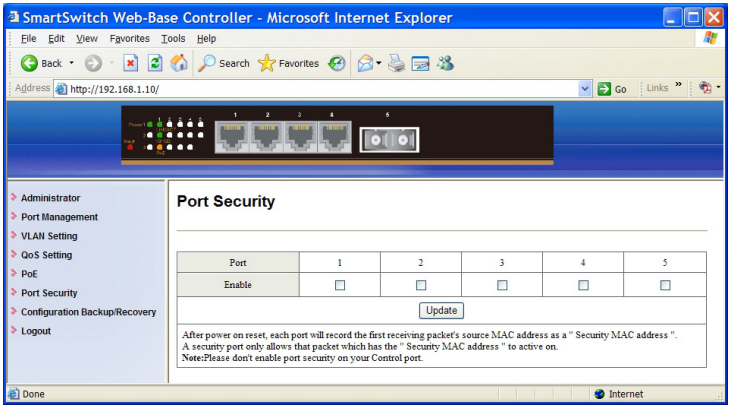
1. Port: Click “Port” drop-down menu to choose port from the “Port” drop-down list.
2. Day: Click “Day” drop-down menu to choose “Mon” to “Sun” from the “Day” drop-down list.

3. Time: Click the “Time” check box to enable PoE scheduling to this port during these time periods.
4. Update: Click “Update” button to update your settings.

Status

1. Port: Click “Port” drop-down menu to choose port from the “Port” drop-down list.
2. Update: Click “Update” button to update the PoE Schduling status of this port.

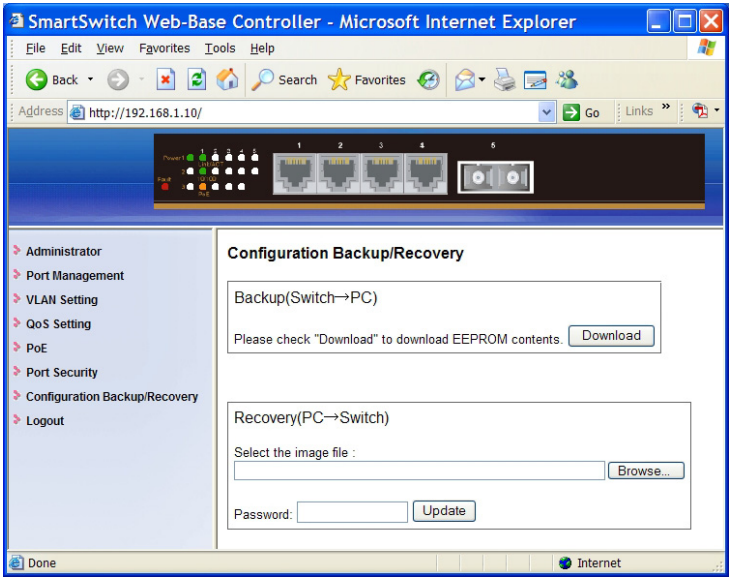
Port Security



1. Port: Click the “Enable” check box to enable Port Security for each port. After power on reset, each port will record the source MAC address of first received packet as a Security MAC address. A security port only allows the packet which has the Security MAC address to active on.
2. Update: Click “Update” button to update your settings.

<Note> Please don’t enable port security on your control port.

Configuration Backup/Recovery

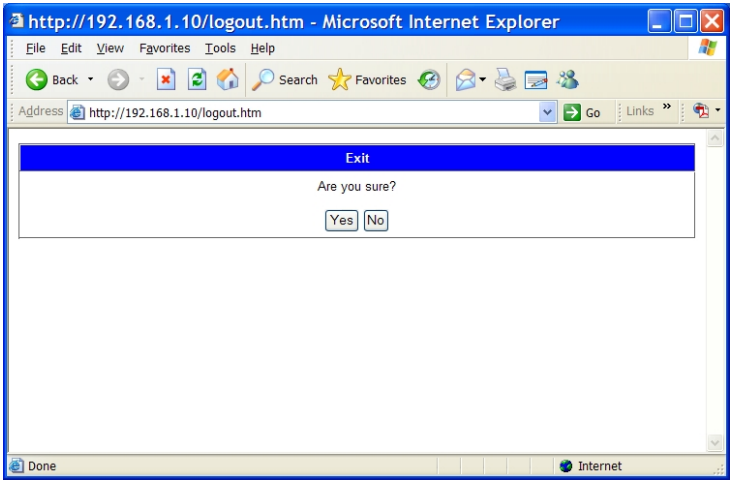


1. Backup(Switch→PC): Click “Download” button to download EEPROM contents.

Recovery(PC→Switch)

1. Select the image file: Click “Browse” button to select the image file to be recovered to the Switch.
2. Password: Click in “Password” text box and type in the password.
3. Update: Click “Update” button to confirm the recovery process.

Logout



1. Yes: Click “Yes” button to logout of the Switch.
2. No: Click “No” button to cancel the logout of the Switch.

Specifications

Applicable Standards	IEEE802.3 10Base-T IEEE802.3u 100Base-TX/FX
Switching Method	Store-and-Forward
Forwarding Rate	
10Base-T	10Mbps half / full-duplex
100Base-TX	100Mbps half / full-duplex
100Base-FX/BX	100Mbps full-duplex
Performance	14,880pps for 10Mbps 148,810pps for 100Mbps
Cable	
10Base-T	4-pair UTP/STP Cat. 3, 4, 5 Up to 100m (328ft)
100Base-TX	4-pair UTP/STP Cat. 5 Up to 100m (328ft)
100Base-FX	MMF (50 or 62.5μm), SMF (9 or 10μm)
100Base-BX	MMF (50 or 62.5μm), SMF (9 or 10μm)
LED Indicators	Per unit – Power status (Power1, Power2, Power3), Fault Per port – 10/100TX: Link/ACT, 10/100, PoE 100FX/BX: Link/ACT, 10/100
Dimensions	200mm (W) x 134.3mm (D) x 35mm (H) (7.87" (W) x 5.29" (D) x 1.38" (H))
Net Weight	0.8Kg (1.76lbs.)
Power Input	Terminal Block: 55VDC DC Jack: 55VDC, External AC/DC required
Operating Voltage & Max. Current Consumption	2.36A @ 55VDC
Power Consumption	130W Max.
Operating Temperature	-40℃ to 75℃ (-40℉ to 167℉) Tested for functional operation @ -40℃ to 85℃ (-40℉ to 185℉)
Storage Temperature	-40°C to 85℃ (-40℉ to 185℉)
Humidity	5%-95% non-condensing
EMI	FCC Part 15, Class A EN61000-6-4: EN55022, EN61000-3-2, EN61000-3-3
EMS	EN61000-6-2: EN61000-4-2 (ESD Standard) EN61000-4-3 (Radiated RFI Standards) EN61000-4-4 (Burst Standards) EN61000-4-5 (Surge Standards) EN61000-4-6 (Induced RFI Standards) EN61000-4-8 (Magnetic Field Standards)
Environmental Test Compliance	IEC60068-2-6 Fc (Vibration Resistance) IEC60068-2-27 Ea (Shock) IEC60068-2-32 Ed (Free Fall)
NEMA TS2 Environmental requirements for traffic control equipment	