

ODOT ES326 Series

Industrial Switch

User's Manual



Sichuan Odot Automation System Co., Ltd.

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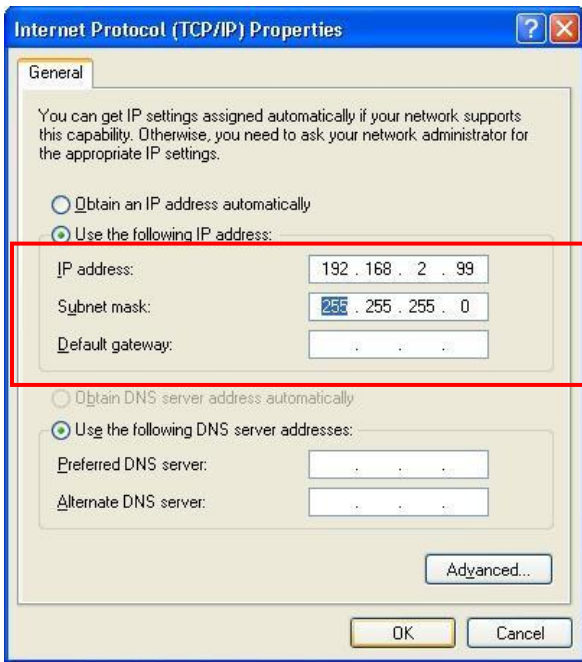
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Administrator

A、PC NIC setting

IP address: 192.168.2.X (X: 1~254)

Subnet mask: 255.255.255.0

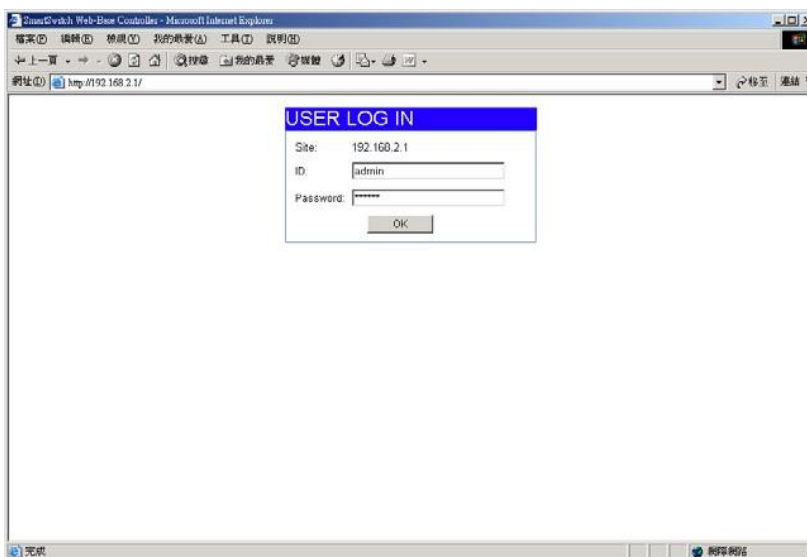


B、Login

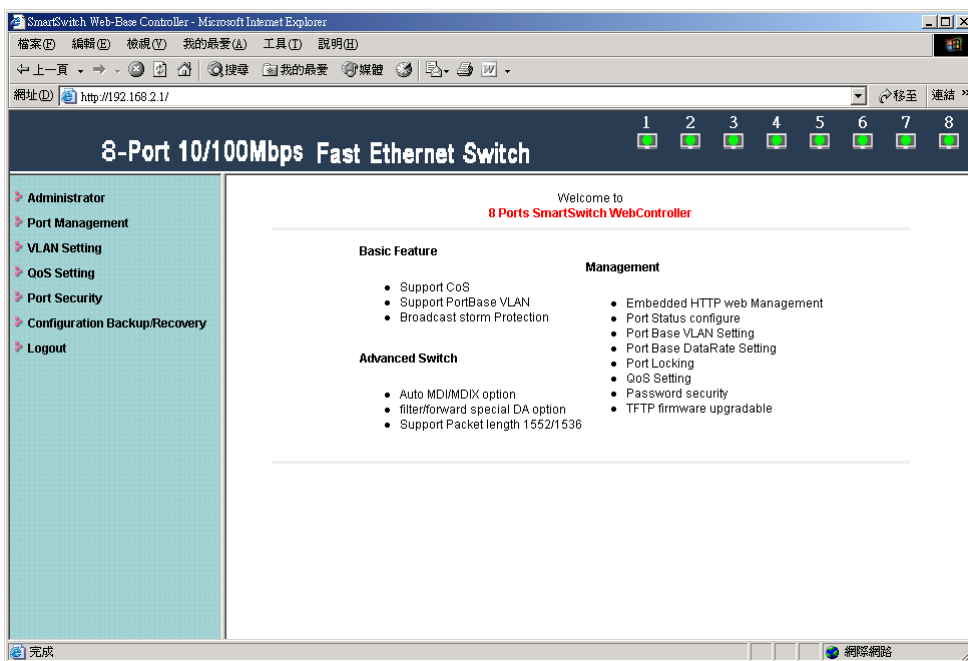
Default IP : 192.168.2.1

Login ID: admin (Lowercase)

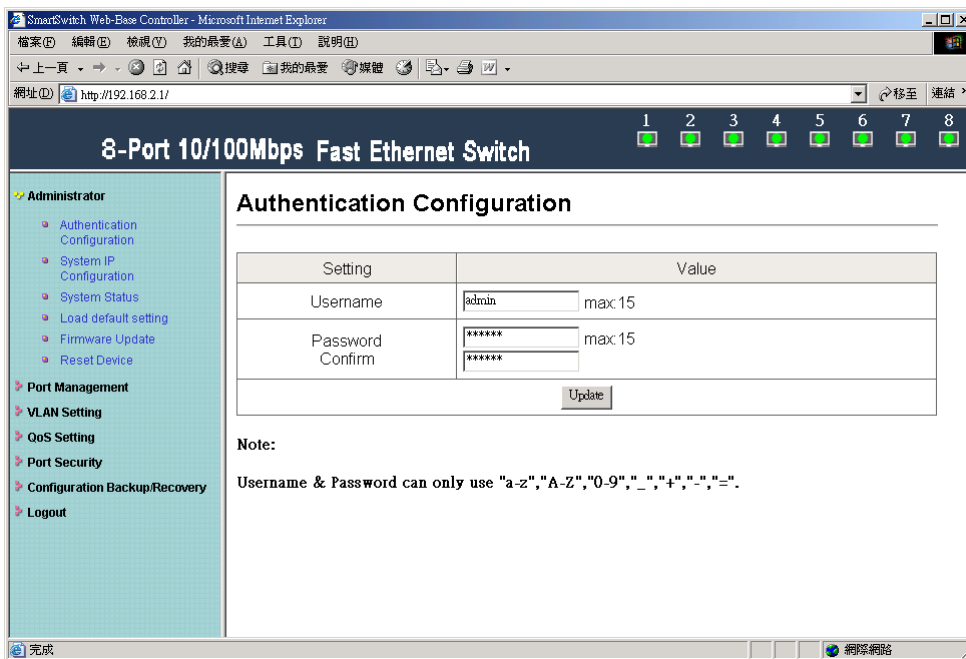
Password: system (Lowercase)



C、Welcome to 8 Port Smart Switch Web Controller



1、 Authentication Configuration



Setting	Value
Username	admin max: 15
Password	***** max: 15
Confirm	*****

Update

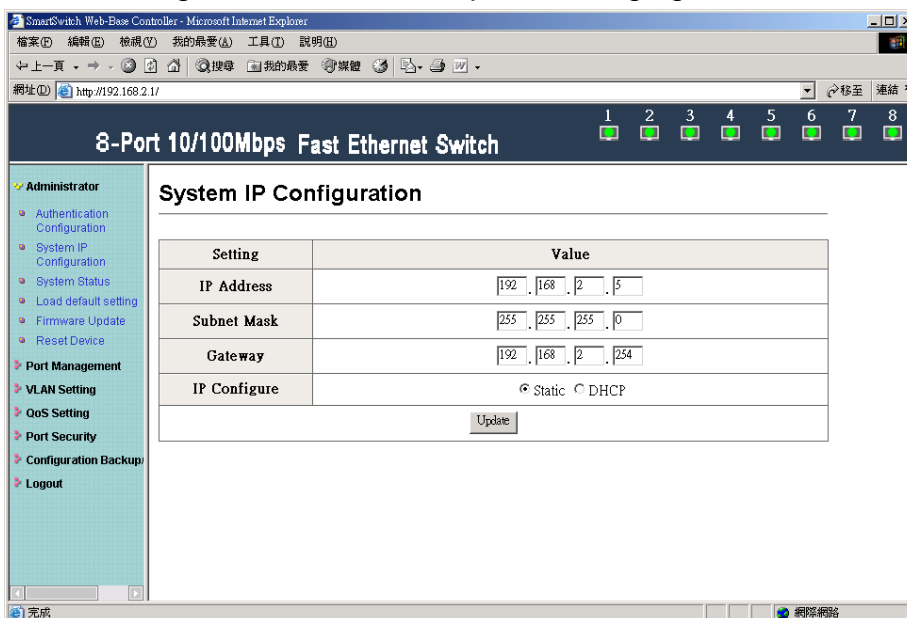
Note:
Username & Password can only use "a-z", "A-Z", "0-9", "_", "+", "-", "=".

(Username & Password max:15 & can only allows "a-z", "A-Z", "0-9", "_", "+", "-", "=".)

2、 System IP Configuration

Default IP: 192.168.2.1

The following screen is the example of changing the IP address to 192.168.2.5.

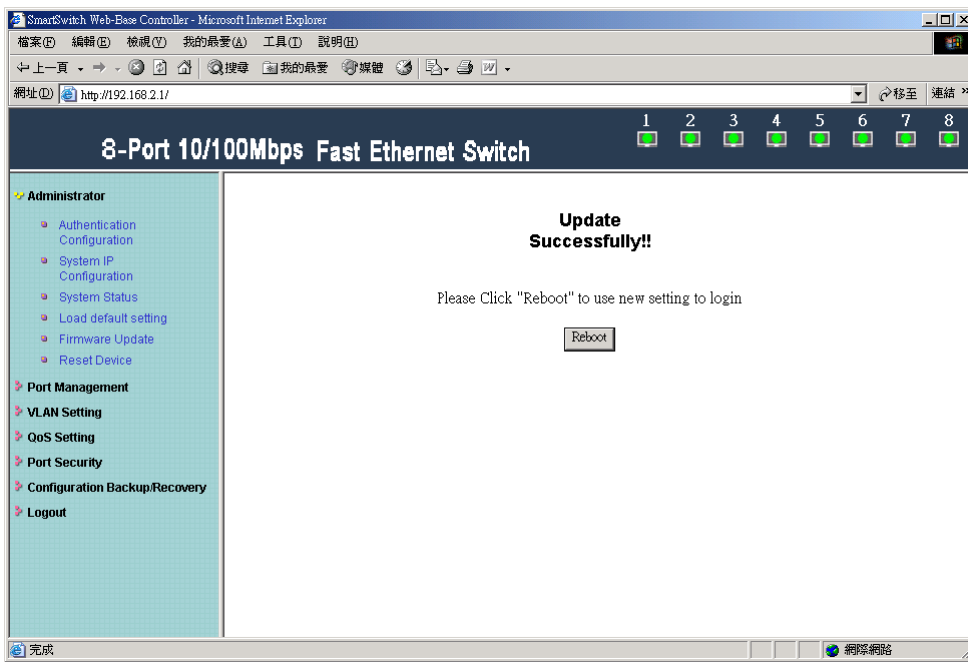


Setting	Value
IP Address	192 . 168 . 2 . 5
Subnet Mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 2 . 254
IP Configure	<input checked="" type="radio"/> Static <input type="radio"/> DHCP

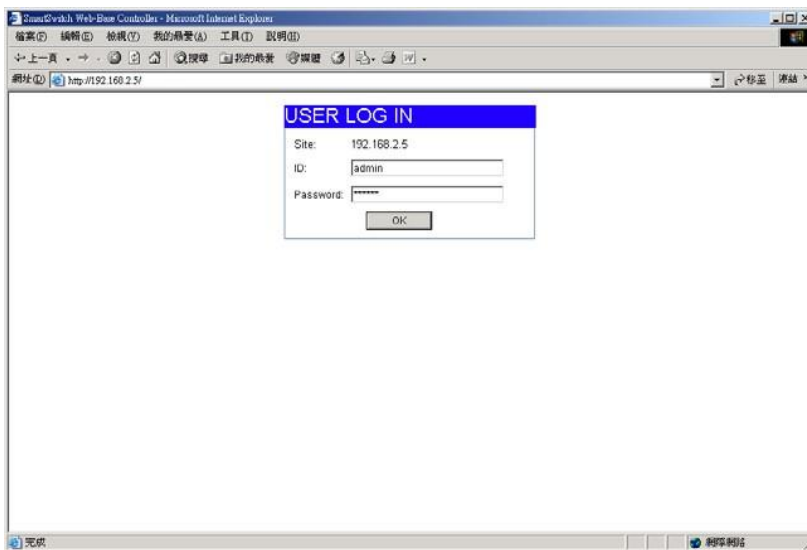
Update

IP address, Subnet Mask, and Gateway at system IP Configuration box can be configured by user. IP178C, and IP178CH also support DHCP methods to get IP address from DHCP server.

After clicking “update”, you will see the system is re-booted.

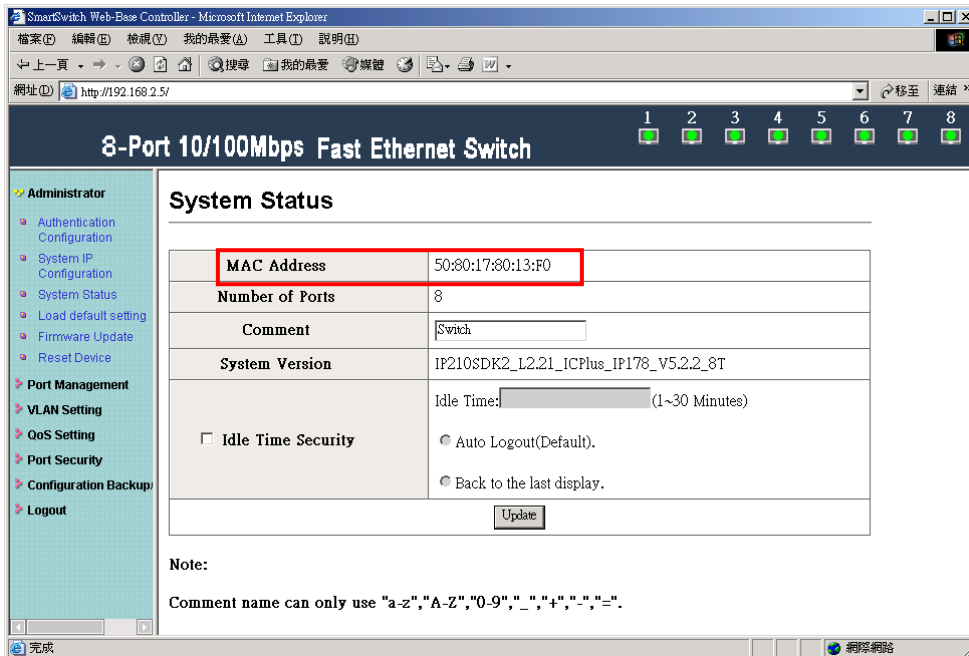


Login in new IP address 192.168.2.5



3、 System Status

Display Switch MAC address, software version.



8-Port 10/100Mbps Fast Ethernet Switch

System Status

MAC Address	50:80:17:80:13:F0
Number of Ports	8
Comment	Switch
System Version	IP210SDK2_L2.21_ICPlus_IP178_V5.2.2_8T
Idle Time Security	<input type="checkbox"/> Idle Time Security Idle Time: (1~30 Minutes) <input type="radio"/> Auto Logout(Default). <input type="radio"/> Back to the last display.

Note:
Comment name can only use "a-z","A-Z","0-9","_","+",",","=".

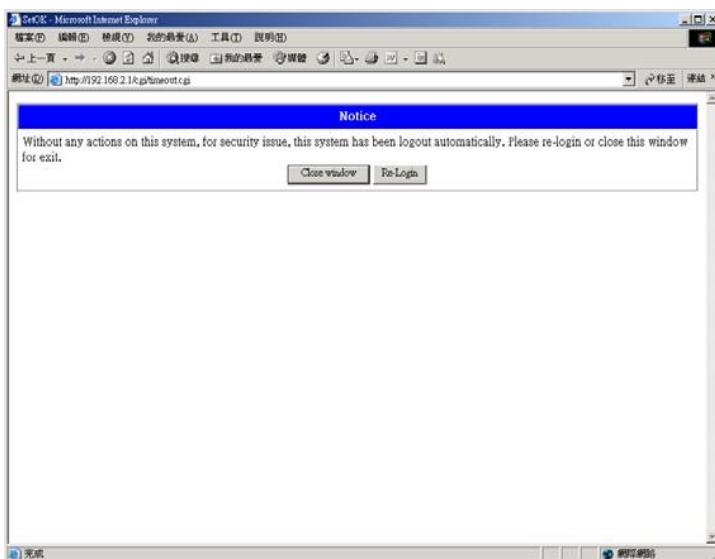
Update

A. Comment: It is a nickname of the management switch you can set.

B. Idle Time Security: It is an AUTO logout timer and the idle time range is 1~30 Minutes. If select Auto Logout and click update without filling in the idle time blank, then the idle time will be the default value.

- Select Auto Logout (Default).

When idle time expires, the following notice will show up.



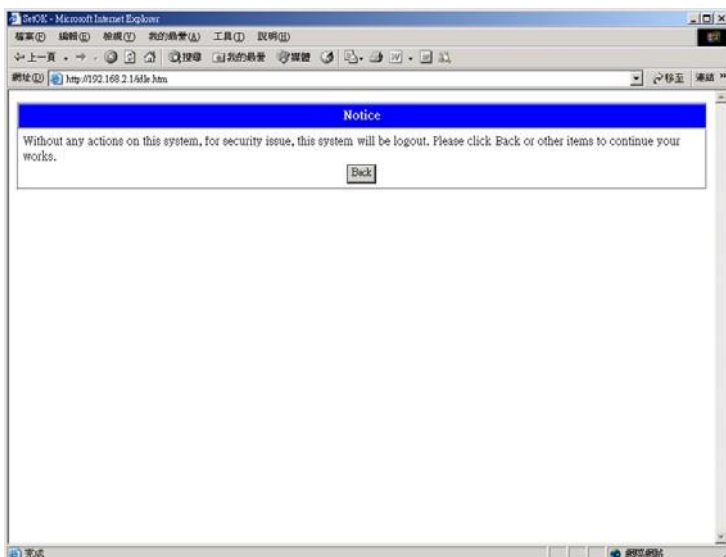
Notice

Without any actions on this system, for security issue, this system has been logout automatically. Please re-login or close this window for exit.

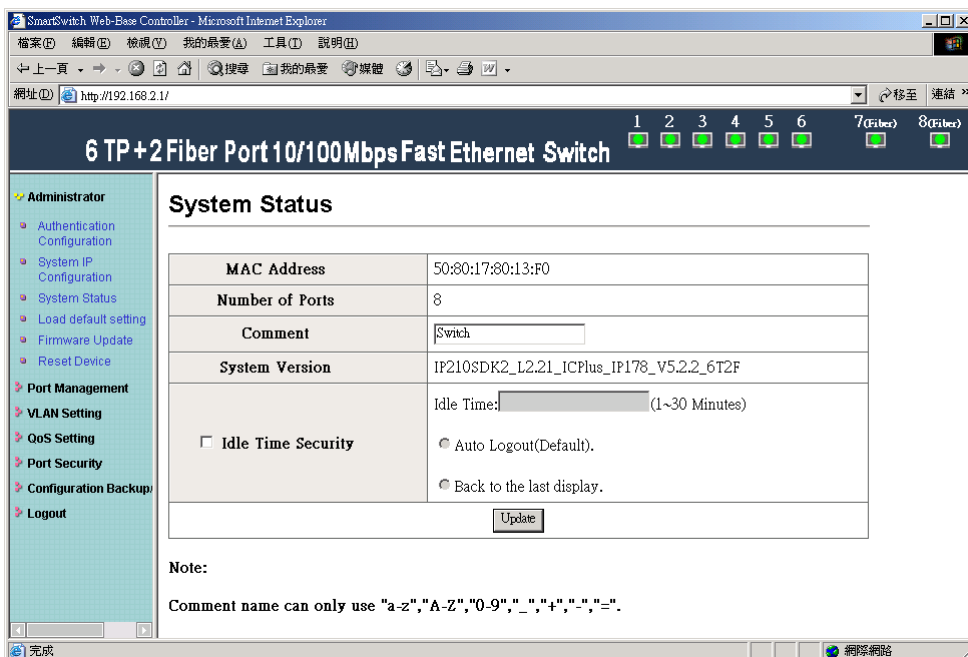
Close Window Re-Login

- Select Back to the last display.

Without any actions on this system, the login screen will show up.



6T+2F



7T+1F

7 TP+1 Fiber Port 10/100Mbps Fast Ethernet Switch

1 2 3 4 5 6 7 8(Fiber)

Administrator

- Authentication Configuration
- System IP Configuration
- System Status
- Load default setting
- Firmware Update
- Reset Device

Port Management

VLAN Setting

QoS Setting

Port Security

Configuration Backup/Recovery

Logout

System Status

MAC Address	50:80:17:80:13:F0
Number of Ports	8
Comment	Switch
System Version	IP210SDK2_L2.21_ICPlus_IP178_V5.2.2_7T1F
Idle Time Security	<p>Idle Time: (1~30 Minutes)</p> <p><input type="checkbox"/> Idle Time Security</p> <p><input checked="" type="radio"/> Auto Logout(Default).</p> <p><input type="radio"/> Back to the last display.</p> <p>Update</p>

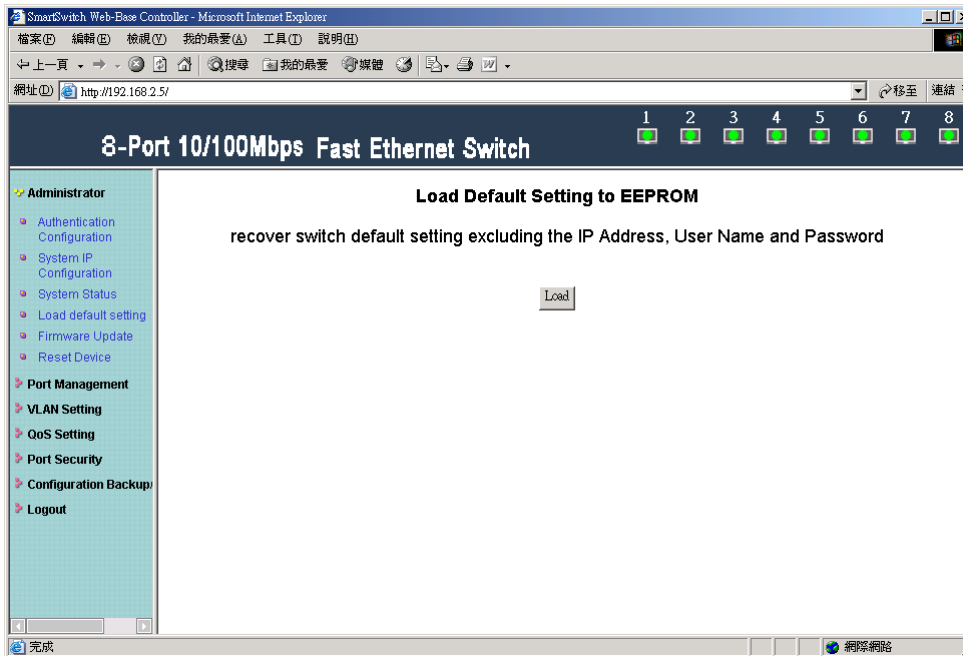
Note:

Comment name can only use "a-z","A-Z","0-9","_","+","-","=".

(Note: Comment name only use "a-z","A-Z","0-9","_","+","-","=".)

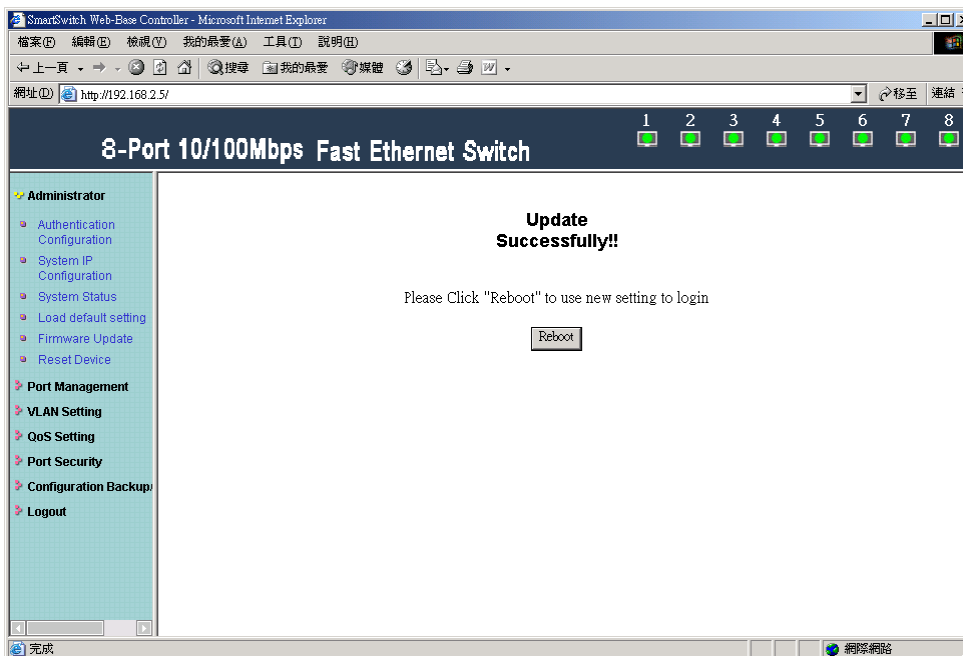
4、 Load default setting

Load Default Setting to EEPROM.



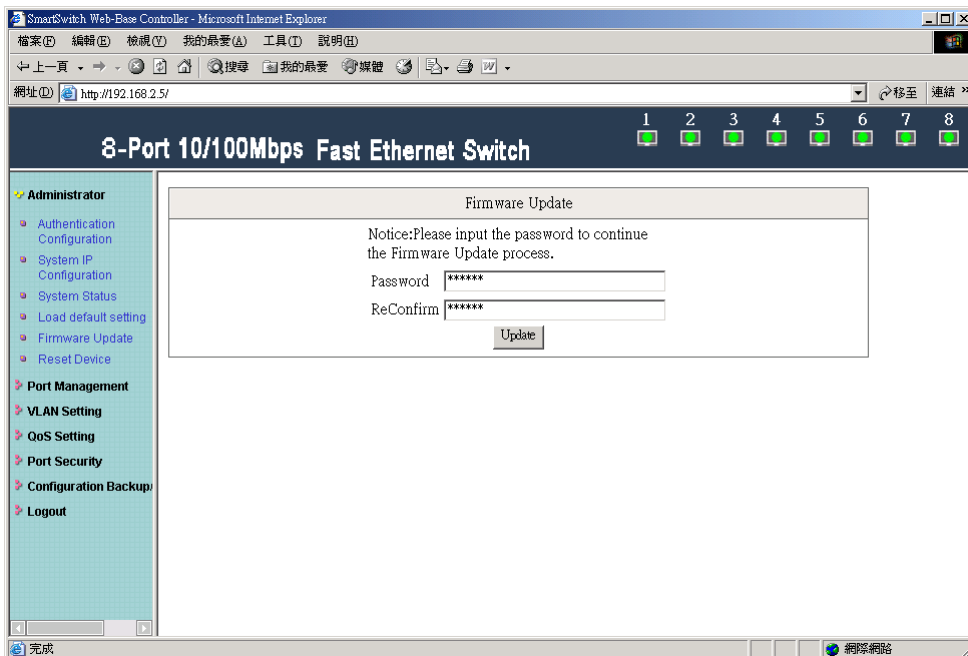
Note: this change only concerns the switch behavior, excluding the change for user name, password and IP configuration.

System Update Successfully! Please Click **Reboot** to use new setting to login.

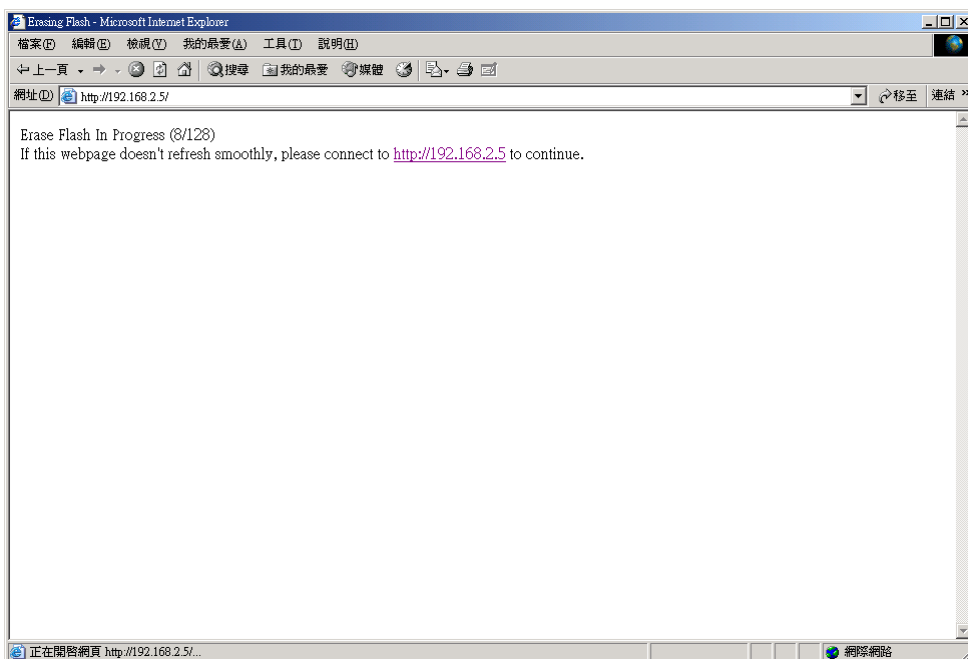


5、 Firmware update

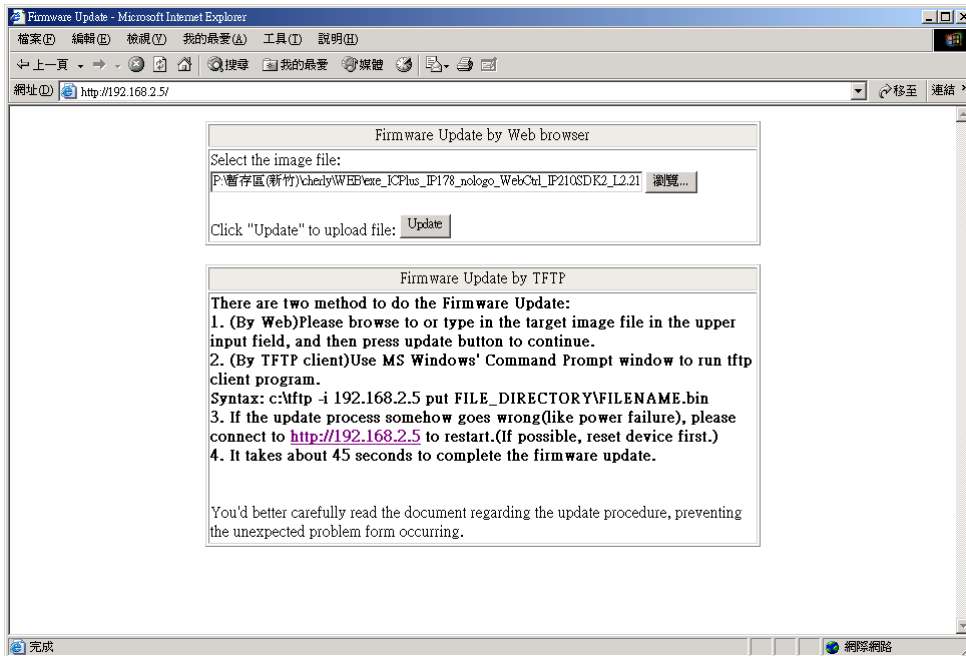
Enter Password & Reconfirm.



Click **Update** button, and then the old web code will be erased.



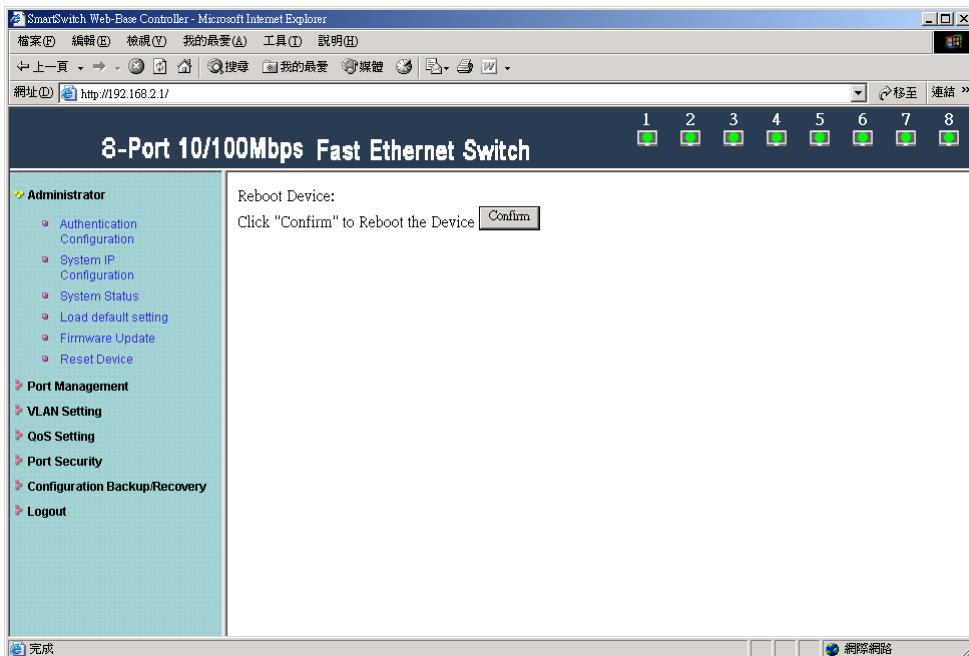
Select the image file(should be “.bin” file) and click **UPDATE**.



Note: You should use the IP address which you previously set; otherwise the firmware update process cannot be completed.

6、Reset Device

Click “Confirm” to Reboot the Device.



Port Management

1、 Port configuration

User can modify the Name、Link Capatilty、Duplex and TX,RX ability for each port.

8T

8-Port 10/100Mbps Fast Ethernet Switch

Port Control Configuration

Port No.	Name	Link Capability	Duplex	Port Tx/Rx Ability
1	IC+	Auto-Nego.(All Capabilities)	Full	Enable

Note: Port name can only use "a-z","A-Z","0-9","_","-",".","=".

Port	Name	Current Status			Setting Status		
		Link	Speed	Duplex	Capability	Duplex	Port Tx/Rx Ability
1	IC+	●	100Mb	FULL	Auto	---	enable
2	100M-Full	●	100Mb	FULL	Forced 100Mb	FULL	enable
3	abc	●	10Mb	FULL	Forced 10Mb	FULL	enable
4	100M_Half	●	100Mb	HALF	Forced 100Mb	HALF	enable
5	123456789	●	10Mb	HALF	Forced 10Mb	HALF	enable
6	NO==	●	-	-	Auto	---	disable
7		●	-	-	Forced 10Mb	HALF	disable
8		●	100Mb	FULL	Auto	---	enable

6T+2F

6 TP+2 Fiber Port 10/100Mbps Fast Ethernet Switch

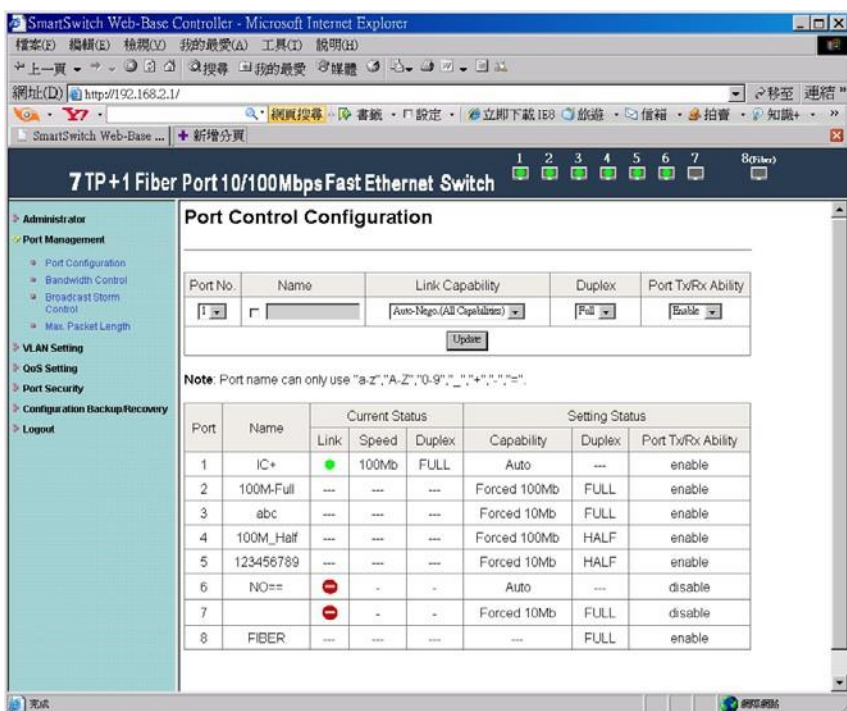
Port Control Configuration

Port No.	Name	Link Capability	Duplex	Port Tx/Rx Ability
1	IC+	Auto-Nego.(All Capabilities)	Full	Enable

Note: Port name can only use "a-z","A-Z","0-9","_","-",".","=".

Port	Name	Current Status			Setting Status		
		Link	Speed	Duplex	Capability	Duplex	Port Tx/Rx Ability
1	IC+	●	100Mb	FULL	Auto	---	enable
2	100M-Full	●	100Mb	FULL	Forced 100Mb	FULL	enable
3	abc	●	10Mb	FULL	Forced 10Mb	FULL	enable
4	100M_Half	●	100Mb	HALF	Forced 100Mb	HALF	enable
5	123456789	●	10Mb	HALF	Forced 10Mb	HALF	enable
6	NO==	●	-	-	Forced 10Mb	HALF	disable
7		---	---	---	---	FULL	enable
8		---	---	---	---	FULL	enable

7T+1F



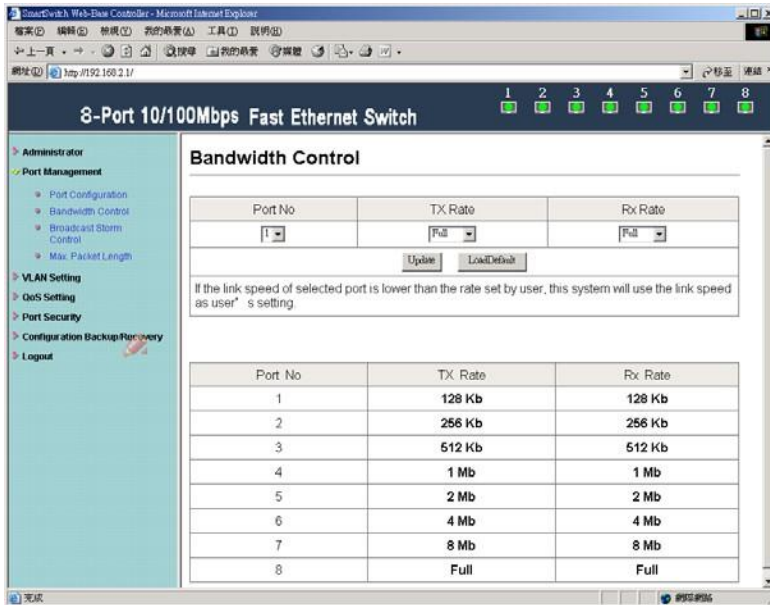
After completing the settings, click update button to take effect. The setting will be reflected at current status window.

2、 Bandwidth Control

The range of bandwidth is from 128K to 8M, Full speed.

Example :

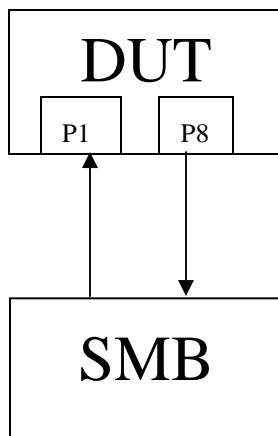
Bandwidth Control setting	Port1	Port2	Port3	Port4	Port5	Port6	Port7	Port8
	128K	256K	512K	1M	2M	4M	8M	Full



To verify the function of bandwidth control, we use a SmartBit to generate the packet traffic. and the network environment is set as the following.

- Equipment
SmartBits : 2000
- Setting
100Mbps, Full duplex, fixed length 60bytes, random data.
The cable connection is depicted as the following figure.
- Cable length
、 120m

Port 1 transmits packets to Port 8.

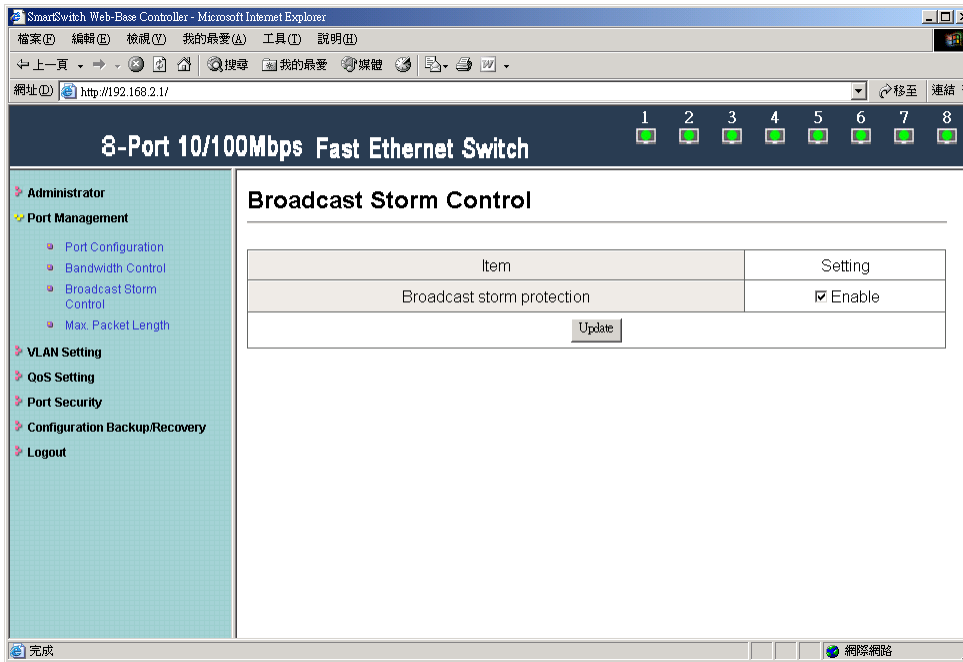


Results:

Rate	TX	RX
128Kb	16,363(bytes)*8,1024=128K ≈128K	16,058(bytes)*8,1024=125K ≈128K
256Kb	31,786(bytes)*8,1024=248K ≈256K	31,468(bytes)*8,1024=246K ≈256K
512Kb	62,066(bytes)*8,1024=485K ≈512K	59,985(bytes)*8,1024=469K ≈512K
1Mb	118,145(bytes)*8,1024=923K ≈1M	123,833(bytes)*8,1024=967K ≈1M
2Mb	231,687(bytes)*8,1024=1810M ≈2M	228,343(bytes)*8,1024=1784K ≈2M
4Mb	460,178(bytes)*8,1024=3595M ≈4M	472,520(bytes)*8,1024=3692M ≈4M
8Mb	947,045(bytes)*8,1024=7399M ≈8M	925,217(bytes)*8,1024=7228M ≈8M
Full	9,523,652(bytes)*8,1024=74403M ≈80M	9,523,650(bytes)*8,1024=74403M ≈80M

3、 Broadcast Storm Control

IP178C, and IP178CH drop the incoming packet if the number of broadcast packet in queue is over the threshold.



- Equipment
SmartBits or IXIA
- Setting
100Mbps, Full duplex, fixed length 60bytes, random data.
Continuous Mode, Fixed Length 60bytes, Custom Background, Inter-packet Gap
0.96 uSec, source address: 00 00 00 00 00 01, destination address: ff ff ff ff ff ff

Results:

A、Broadcast Storm Control = Disable

All Ports	Events	Events	Events	Events	Events	Events	Events	Events	Events
	01 SX-7410	02 SX-7410	03 SX-7410	04 SX-7410	05 SX-7410	06 SX-7410	07 SX-7410	08 SX-7410	
Tx Frames	1,000	0	0	0	0	0	0	0	0
Rx Frames	0	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Rx Bytes	0	793,979	793,979	793,979	793,979	793,979	793,979	793,979	793,979
Rx Triggers	0	0	0	0	0	0	0	0	0
Collisions	0	0	0	0	0	0	0	0	0
CRC Errors	0	0	0	0	0	0	0	0	0
Alignment Errors	0	0	0	0	0	0	0	0	0
OverSize	0	0	0	0	0	0	0	0	0
Frag/UnderSize	0	0	0	0	0	0	0	0	0

Counters for 8 ports Events Only Detail View Updating B4

B、Broadcast Storm Control = Enable

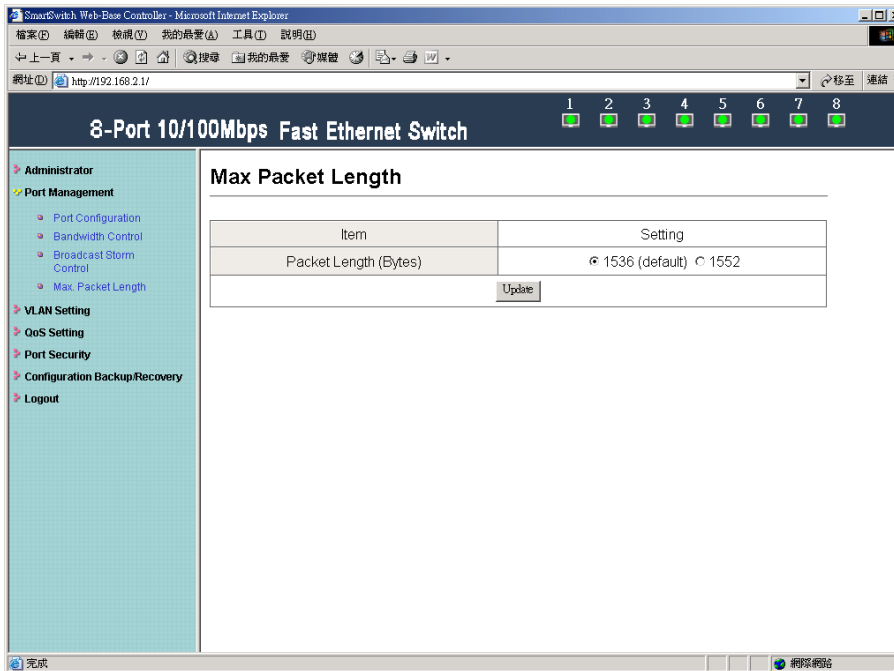
All Ports	Events	Events	Events	Events	Events	Events	Events	Events	Events
	01 SX-7410	02 SX-7410	03 SX-7410	04 SX-7410	05 SX-7410	06 SX-7410	07 SX-7410	08 SX-7410	
Tx Frames	1,000	0	0	0	0	0	0	0	0
Rx Frames	0	316	316	316	316	316	316	316	316
Rx Bytes	0	20,224	20,224	20,224	20,224	20,224	20,224	20,224	20,224
Rx Triggers	0	0	0	0	0	0	0	0	0
Collisions	0	0	0	0	0	0	0	0	0
CRC Errors	0	0	0	0	0	0	0	0	0
Alignment Errors	0	0	0	0	0	0	0	0	0
OverSize	0	0	0	0	0	0	0	0	0
Frag/UnderSize	0	0	0	0	0	0	0	0	0

Counters for 8 ports Events Only Detail View Updating B4

4、 Max Packet length

Two kinds of max packet length: 1536 , 1552 Bytes

A. Packet Length(Bytes): 1536(default)

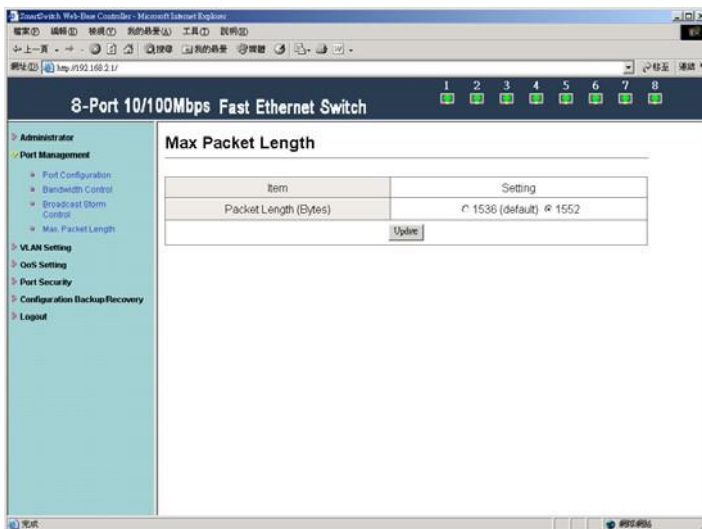


- Equipment
SmartBits or IXIA
- Setting
Single Burst Mode , Fixed Length 1532 bytes because CRC packets occupy 4 bytes. , Custom Background , Interpacket Gap 0.96uSec , source address: 00 00 00 00 00 10 , destination address: 00 00 00 00 00 11

Oversize packet length will show up in Oversize row.

Ports	Events	Events	Events	Events
10 SX-7410	10 SX-7410	11 SX-7410	12 SX-7410	13 SX-7410
11 SX-7410				
12 SX-7410				
13 SX-7410	Tx Frames	1	0	0
14 SX-7410	Rx Frames	0	0	0
15 SX-7410	Rx Bytes	0	1,536	0
16 SX-7410	Rx Triggers	0	0	0
17 SX-7410	Collisions	0	0	0
	CRC Errors	0	0	0
	Alignment Errors	0	0	0
	OverSize	0	1	0
	Frag/UnderSize	0	0	0

B. Packet Length (Bytes): 1552



- Equipment
SmartBits or IXIA
- Setting
Single Burst Mode , Fixed Length 1548 bytes because CRC packets occupy 4 bytes, Custom Background , Interpacket Gap 0.96uSec , source address: 00 00 00 00 00 10 , destination address: 00 00 00 00 00 11

The length of the Oversize packet will show up in Oversize column.

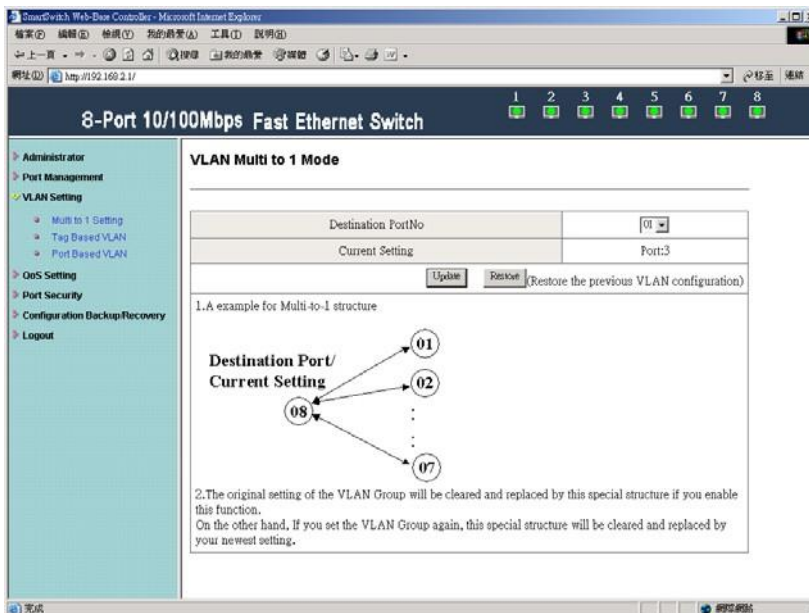
SmartCounters - [Port Counters for 8 ports - (untitled)*]					
File Edit Tree Actions Selection View Format Window Help					
Ports					
10 SX-7410		Events	Events	Events	Events
11 SX-7410		10 SX-7410	11 SX-7410	12 SX-7410	13 SX-7410
12 SX-7410					
13 SX-7410	Tx Frames	1	0	0	0
14 SX-7410	Rx Frames	0	0	0	0
15 SX-7410	Rx Bytes	0	1,552	0	0
16 SX-7410	Rx Triggers	0	0	0	0
17 SX-7410	Collisions	0	0	0	0
	CRC Errors	0	0	0	0
	Alignment Errors	0	0	0	0
	OverSize	0	1	0	0
	Frag/UnderSize	0	0	0	0
Counters for 8 ports		Events Only			

VLAN Setting

1、Multi to 1 Setting

Enabling Multi to 1 setting will force both Tag Based VLAN and Port Based VLAN function to be ineffective.

Set a specific port as a mirroring destination port. All other ports can transmit and receive packets to the mirroring destination port, but they can't communicate with each other.



Example:

Set port 3 as the destination port. When port 0~port 7 transmit packets, only port 3 can receive packets.

The testing environment is listed as following.

- Equipment
SmartBits or IXIA
- Setting
100M Full , Flow control=ON , Single Burst Mode , Random Length , Random Background , Interpacket Gap 0.96 uSec , source address: 00 00 00 00 00 01 , destination address: ff ff ff ff ff ff

Port 1~port 8 transmit packets in turn and only port 3 can receive packets.

Ports	Events	Events	Events	Events	Events	Events	Events	Events	Events
	10 SX-7410	11 SX-7410	12 SX-7410	13 SX-7410	14 SX-7410	15 SX-7410	16 SX-7410	17 SX-7410	
10 SX-7410									
11 SX-7410									
12 SX-7410									
13 SX-7410	Tx Frames	100,000	100,000	0	100,000	100,000	100,000	100,000	100,000
14 SX-7410	Rx Frames	54,454	54,432	700,000	54,450	54,452	54,452	54,454	54,434
15 SX-7410	Rx Bytes	3,485,056	3,483,648	553,520,599	3,484,800	3,484,928	3,484,928	3,485,056	3,483,776
16 SX-7410	Rx Triggers	0	0	700,000	0	0	0	0	0
17 SX-7410	Collisions	0	0	0	0	0	0	0	0
	CRC Errors	0	0	0	0	0	0	0	0
	Alignment Errors	0	0	0	0	0	0	0	0
	OverSize	0	0	0	0	0	0	0	0
	Frag/UnderSize	0	0	0	0	0	0	0	0

Port 3 transmits broadcast packets to port 1~port8 (excluding port 3 itself).

Ports	Events	Events	Events	Events	Events	Events	Events	Events	Events
	10 SX-7410	11 SX-7410	12 SX-7410	13 SX-7410	14 SX-7410	15 SX-7410	16 SX-7410	17 SX-7410	
10 SX-7410									
11 SX-7410									
12 SX-7410									
13 SX-7410	Tx Frames	0	0	100,000	0	0	0	0	0
14 SX-7410	Rx Frames	100,000	100,000	10,554	100,000	100,000	100,000	100,000	100,000
15 SX-7410	Rx Bytes	79,057,028	79,057,028	675,456	79,057,028	79,057,028	79,057,028	79,057,028	79,057,028
16 SX-7410	Rx Triggers	100,000	100,000	0	100,000	100,000	100,000	100,000	100,000
17 SX-7410	Collisions	0	0	0	0	0	0	0	0
	CRC Errors	0	0	0	0	0	0	0	0
	Alignment Errors	0	0	0	0	0	0	0	0
	OverSize	0	0	0	0	0	0	0	0
	Frag/UnderSize	0	0	0	0	0	0	0	0

2、Tag Based VLAN

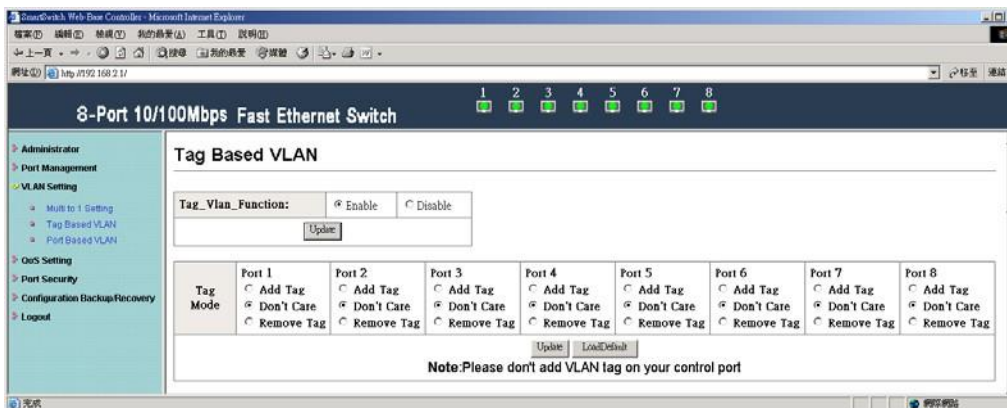
If the Tag Based VLAN function is enabled, Multi to 1 setting and Port Based VLAN will be disabled automatically.

A、Set “Add Tag” , “Don’t Care” , “Remove Tag” function for port 1~port 8

Add tag: The outgoing packet should contain a VLAN tag no matter whether there is a VLAN tag received at the source port.

Don’t care: The outgoing packet will keep unchanged no matter whether there is a VLAN tag received at the source port.

Remove tag: The VLAN tag of the outgoing packet will be removed no matter whether there is a VLAN tag received at the source port.



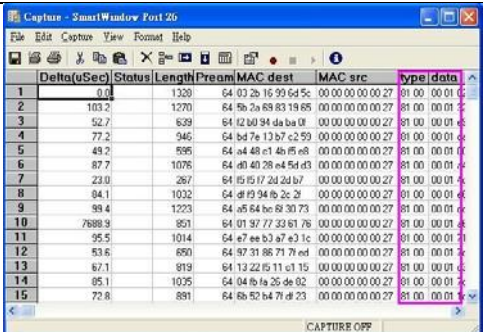
Port	VLAN Tag
1	Don't Care
2	ADD TAG
3	Don't Care
4	Remove TAG
5	Don't Care
6	ADD TAG
7	Don't Care
8	Remove TAG

Example 1:

Port 8 transmits packets with VLAN Tag.

- Equipment
SmartBits or IXIA
- Setting
Single Burst Mode , Fixed Length 60 bytes , Random Background ,
Interpacket Gap 0.96uSec , source address: 00 00 00 00 00 28 , destination
address: ff ff ffff ff ff , packet type 8100 0001

Test result:

<p>Port 1 is set Don't care</p> 	<p>Port 2 is set Add tag</p> 
<p>Port 3 is set Don't care</p> 	<p>Port 4 is set Remove tag</p> 
<p>Port 5 is set Don't care</p> 	<p>Port 6 is set Add tag</p> 
<p>Port 7 is set Don't care</p> 	

Example 2:

Port 7 transmits packets without VLAN Tag.

SMB setting: Single Burst Mode , Fixed Length 60 bytes , Random Background ,
Interpacket Gap 0.96uSec , source address: 00 00 00 00 00 21 ,
destination address: ff ff ff ff ff ff

The image shows the 'Transmit Setup - SmartWindow Port 21' dialog box. The 'Mode' is set to 'Single Burst'. The 'Length (bytes)' is set to 'Fixed 60'. The 'Background' is set to 'Random'. The 'Interpacket Gap' is set to 'Rate: 0.96' and 'Units: uSec'. The 'VFD1 Setup (MAC dest)' has 'State: Off' and 'Start Value: 00 00 00 00 00 21'. The 'VFD2 Setup (MAC source)' has 'State: Static' and 'Start Value: 00 00 00 00 00 21'. The 'VFD3 Setup' has 'State: Off'. The 'Error Generation' section has 'CRC', 'Dribble', 'Alignment', and 'Symbol' all unchecked. The 'Collision' section has 'Enable' unchecked and '# of Packets: 100'. The 'Output Packet' field shows a hex string: '?? ?? ?? ?? ?? ?? 00 00 00 00 00 21 ?? ?? ?? ?? ?? ?? ?? ?? ?? ?? ?? ?? ?? ?? ?? ?? ??'. The 'MII Registers' section has 'VLAN Tx' unchecked, which is highlighted with a red box. The 'Default', 'OK', and 'Cancel' buttons are at the bottom right.

Example 2 results:

port0 is set Don't Care

port1 is set ADD TAG

port2 is set Don't Care

port3 is set Remove TAG

Port4 is set Don't Care

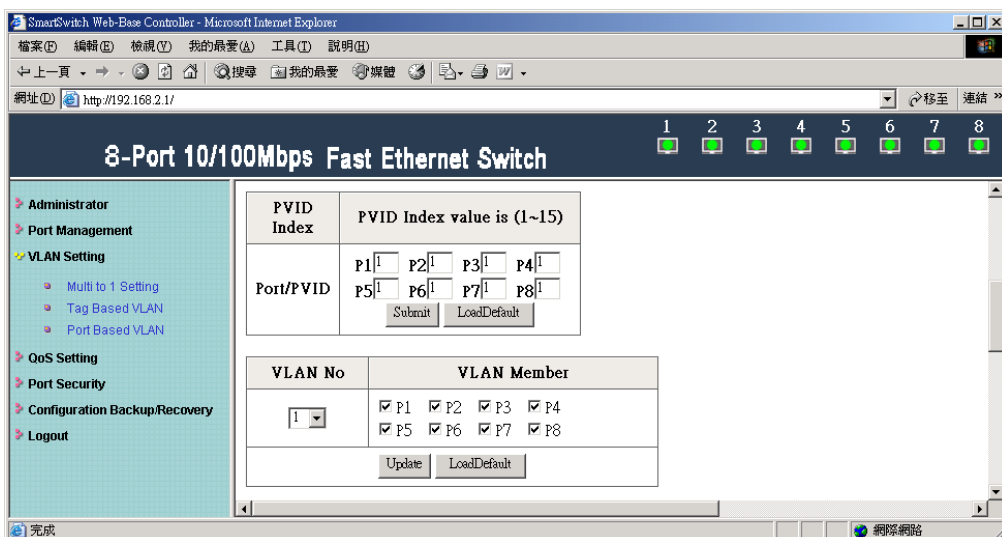
Port5 is set ADD TAG

Port7 is set Remove TAG

B、PVID Index Setting

This setting must match VLAN Member setting.

The valid value of PVID index is 1~15.



Example 1:

Set 9 as the PVID index value of port 5. Port 5 transmits packets without VLAN Tag.

(Length Random , Background Random , DA=Broadcast, SA=05)

The result is that all ports in VLAN Member 9 will receive the packets from port 5.

Ports	Events	Events	Events	Events	Events	Events	Events	Events	Events
	05 SX-7410	06 SX-7410	07 SX-7410	08 SX-7410	10 SX-7410	11 SX-7410	12 SX-7410	13 SX-7410	
05 SX-7410									
06 SX-7410									
07 SX-7410									
08 SX-7410	Tx Frames	0	0	0	0	1,000,000	0	0	0
10 SX-7410	Rx Frames	1,000,000	1,000,000	0	0	0	1,000,000	0	0
11 SX-7410	Rx Bytes	791,001,747	791,001,747	0	0	0	791,001,747	0	0
12 SX-7410	Rx Triggers	0	0	0	0	0	0	0	0
13 SX-7410	Collisions	0	0	0	0	0	0	0	0
	CRC Errors	0	0	0	0	0	0	0	0
	Alignment Errors	0	0	0	0	0	0	0	0
	OverSize	0	0	0	0	0	0	0	0
	Frag/UnderSize	0	0	0	0	0	0	0	0

Example 2:

Set 9 as the PVID index value of port 1. Port 1 transmits packets with VLAN Tag.

(Length Random , Background Random , DA=Broadcast, SA=01 , Type data=8100 0009)

The result is that ports in VLAN Member 9 will receive the packets from port 1.

Capture the transmitted packets and know their type data is 8100 0009.

The screenshot displays two windows from the Odot Automation System. The top window, 'SmartWindow - (untitled)', shows a configuration interface for a network device. It includes a menu bar (File, Edit, Actions, Options, Tests, Admin, View, Help) and a toolbar. The main area is divided into sections for 'Transmit Status', 'Trigger', 'Collision', 'Receive', 'Cro Error', 'Mode', 'Speed', 'Link', 'Card Type', and 'SmartBils'. The 'SmartBils' section shows a table of port configurations for ports 01 through 13, with columns for 'Start' and 'Stop' buttons. The bottom window, 'SmartCounters - [Port Counters for 8 ports - (untitled)*]', shows a table of port statistics for ports 05 SX-7410 through 13 SX-7410. The table has columns for 'Events' and 'Events' for each port. The 'Events' column for port 05 SX-7410 shows a value of 1,107,444. The 'Events' column for port 13 SX-7410 shows a value of 1,107,464. The bottom status bar indicates 'Counters for 8 ports', 'Events Only', 'Detail View', 'Updating', and 'B4'.

Port	Events	Events	Events	Events	Events	Events	Events	Events
05 SX-7410	1,107,444	0	0	0	0	0	0	0
06 SX-7410	0	1,107,447	0	0	1,095,112	1,107,464	0	0
07 SX-7410	0	876,015,974	0	0	866,287,350	876,030,239	0	0
08 SX-7410	0	0	0	0	0	0	0	0
09 SX-7410	0	0	0	0	0	0	0	0
10 SX-7410	0	0	0	0	0	0	0	0
11 SX-7410	0	0	0	0	0	0	0	0
12 SX-7410	0	0	0	0	0	0	0	0
13 SX-7410	0	0	0	0	0	0	0	0

C、VLAN Member

IP178C supports 15 sets of VLAN Group. Member ports in the same VLAN Group can transmit and receive packets from each other but non-member ports cannot.

Following chart shows VLAN Member setting.

VLAN NO	P1	P2	P3	P4	P5	P6	P7	P8
1	V	V	V					
2			V	V	V			
3					V	V	V	
4					V	V	V	V
5	V						V	V
6	V	V						V
7	V	V		V		V		V
8	V		V		V		V	
9	V	V			V	V		
10			V	V			V	V
11	V		V			V		V
12		V		V	V			V
13	V			V	V			V
14		V	V			V	V	
15	V	V	V	V	V	V	V	V

Example:

- Equipment
SmartBits or IXIA
- Setting
Length: Random, Background: Custom , DA=Broadcast, SA=01

Set port 1, port 2, and port 3 in the same VLAN. When port 1 transmits packets, only port 2 and port 3 will receive the packets.

The screenshot displays the Wireshark interface with the NetworkMiner tool active. The top pane shows the packet list, and the bottom pane shows the packet details. The NetworkMiner tool is running on the 'eth0' interface, capturing traffic from the '192.168.0.0/24' network. The tool's status bar indicates it is running on 'eth0' and capturing on '192.168.0.0/24'.

The Packet Setup dialog is open, showing the 'VFD1 Setup (MAC dest)' and 'VFD2 Setup (MAC source)' sections. The 'VFD1 Setup' section has the following settings:

- Mode: Single Burst
- Length (bytes): (without 4 byte CRC)
- Count: 1000000
- Fixed: 1.04 ms
- Random: (unchecked)
- Interpacket Gap: Rate: 0.36, Unit: uSec

The 'VFD2 Setup (MAC source)' section has the following settings:

- State: Static
- Start Value: 00 00 00 00 00 01
- Offset (bits): 48
- Adjacent to VFD1: (unchecked)

The 'VFD3 Setup (Protocol)' section has the following settings:

- State: Off
- Value: (Edit)
- Offset (bits): 36
- Adjacent to VFD2: (unchecked)

The 'Error Generation' section has the following settings:

- CRC: (unchecked)
- Fibble: (unchecked)
- Alignment: (unchecked)
- Symbol: (unchecked)

The 'Collision' section has the following settings:

- Enable: (unchecked)
- # of Packets: 100

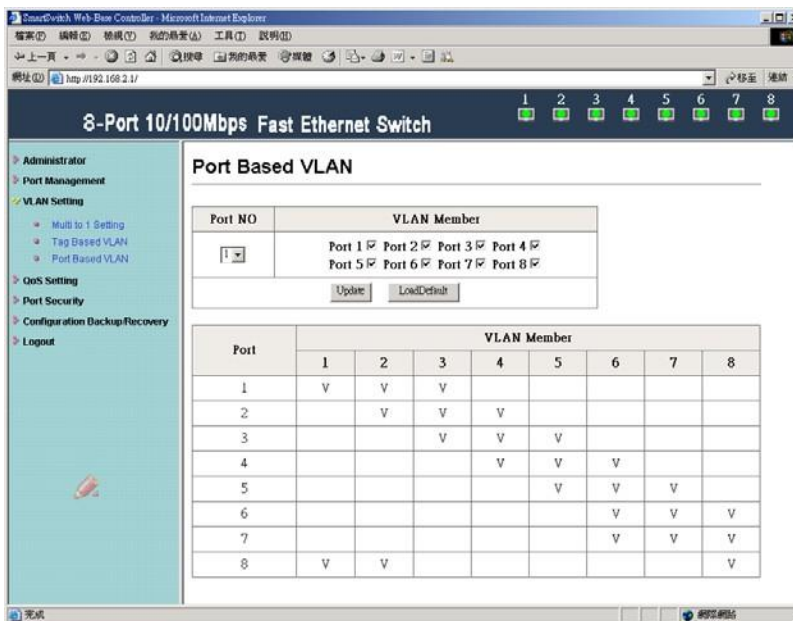
The 'Output Packet' section has the following settings:

- Mill Registers: (unchecked)
- VLAN Tx: (unchecked)
- Default: (button)
- OK: (button)
- Cancel: (button)

3、Port Based VLAN

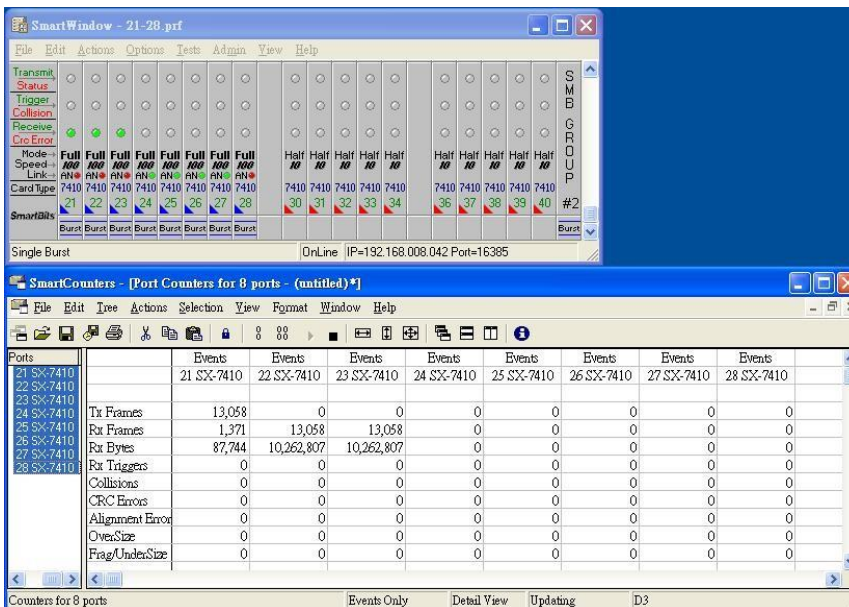
If the port Based VLAN function is enabled, Multi to 1 setting and tag Based VLAN will be disabled automatically.

Set VLAN Member for port 1~port 8.



Example:

Set port 1, port 2, and port 3 in the same VLAN. When port 1 transmits broadcast packets, only port 2 and port 3 will receive the packets.



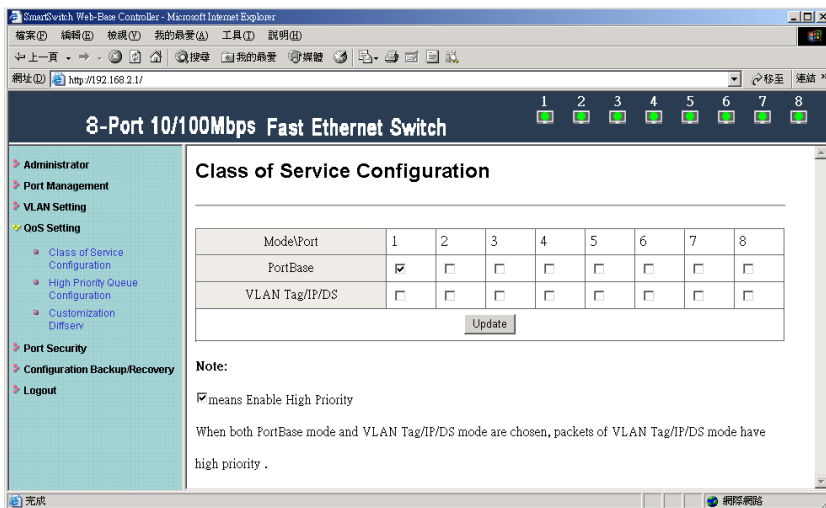
QoS Setting

1、Class of Service Configuration

High priority is a special channel, which can make important packets pass through quickly. To set a packet to high priority, the user should select the its port number or VLAN Tag/IP/DS.

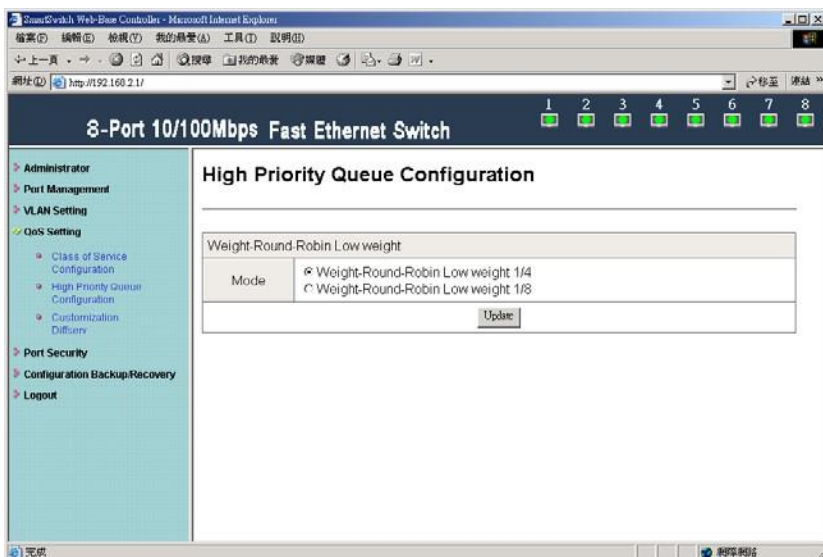
Example:

Select port 1 as the high priority. This means all packets coming from port 1 will be treated as high priority.



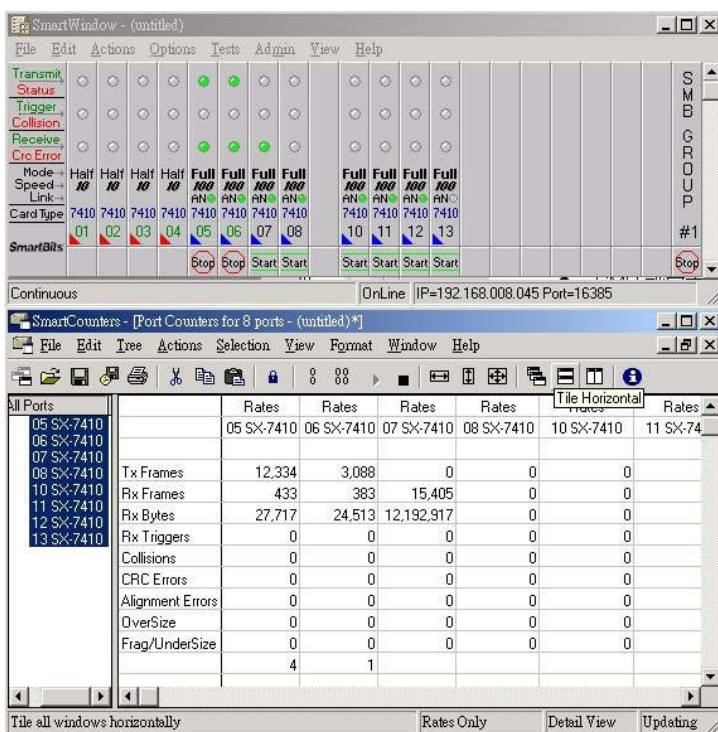
2、High Priority Queue Configuration

The setting in High Priority Queue Configuration must be in conjunction with Class of Service Configuration by selecting VLAN Tag/IP/DS. Weight-Round-Robin Mode sets packets forwarding ratio of High priority to Low priority. The ratio is 4:1 or 8:1.



Example:

Set port 5 and port 6 transmit packets to port 7.



- Equipment
SmartBits or IXIA
- Setting
Continuous Mode , Random Length , Custom Background , Interpacket Gap
0.96uSec , SA=05 , DA=07

Capture port 7 packet data and check MAC src column. Find that the ratio of port 5 (High Priority) and port 6 (Low Priority) is 4:1.

	Delta(uSec)	Status	Length	Pream	MAC dest	MAC src	type	data
4	66.4		810	64	00 00 00 00 00 07	00 00 00 00 00 06	5c bf	b8 2c ed 42 72 5d cf 63 d8 3b e7 (
5	81.5		1000	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
6	11.7		126	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
7	58.8		715	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
8	70.3		858	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
9	65.6		801	64	00 00 00 00 00 07	00 00 00 00 00 06	6f be	11 e6 c1 4b 83 e8 23 80 c8 35 66
10	59.7		726	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
11	49.6		600	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
12	25.6		300	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
13	100.2		1232	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
14	29.8		353	64	00 00 00 00 00 07	00 00 00 00 00 06	96 9f	75 5d 71 84 30 7d bf 03 ac 05 91 c
15	11.4		123	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
16	87.9		1079	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
17	69.2		845	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
18	44.5		536	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00
19	28.1		331	64	00 00 00 00 00 07	00 00 00 00 00 06	22 cd	e8 21 f1 c8 07 ec ec a0 71 e1 8a c
20	12.9		142	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00

Capture port 7 packets and check MAC src column. Find that the ratio of port 5 (High Priority) and port 6 (Low Priority) is 8:1.

The screenshot shows the main window of Wireshark titled "Capture - SmartWindow Port 07". The menu bar includes File, Edit, Capture, View, Format, and Help. Below it are various icons for file operations and network analysis. The central pane displays a list of captured packets:

	Delta(uSec)	Status	Length	Pream	MAC dest	MAC src	type	data
11	109.1		1344	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
12	10.0		105	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
13	68.2		833	64	00 00 00 00 00 07	00 00 00 00 00 06	c9 9a	66 a0 94 b2 b2 bf d8 58 dd 34 3d 2
14	37.4		447	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
15	74.4		910	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
16	62.8		765	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
17	116.9		1442	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
18	54.4		660	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
19	104.6		1287	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
20	78.8		966	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
21	58.1		706	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
22	33.5		398	64	00 00 00 00 00 07	00 00 00 00 00 06	90 ee	3f 4e 6b 94 3e 67 37 b0 7e 7c 02 7
23	50.7		614	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
24	62.2		758	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
25	57.1		694	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
26	57.7		701	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
27	111.4		1373	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c
28	113.4		1397	64	00 00 00 00 00 07	00 00 00 00 00 05	00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 c

A large red "8:1" watermark is overlaid on the right side of the packet list.

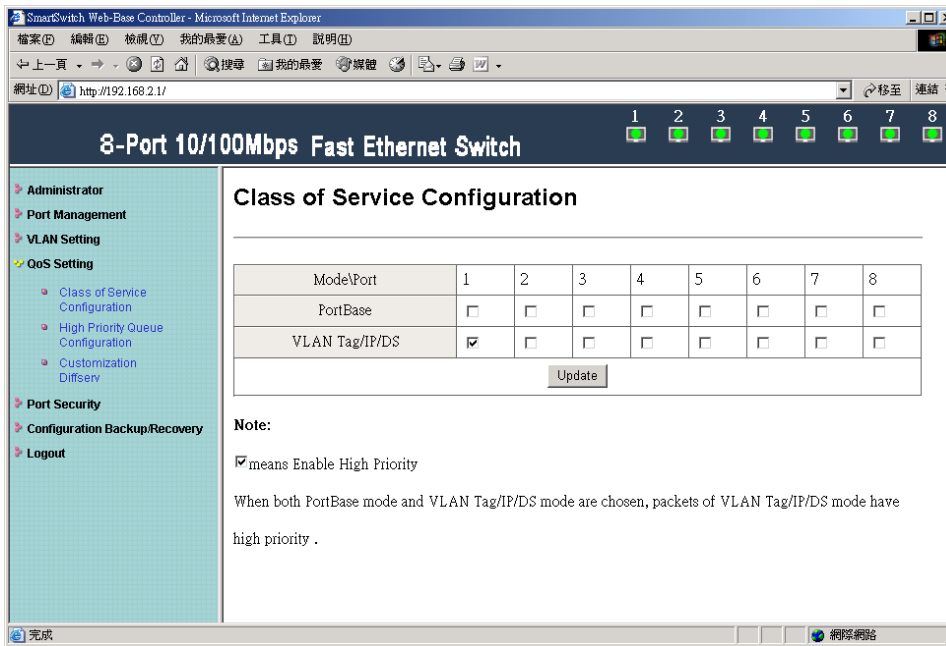
At the bottom of the window, there is a status bar with a button labeled "CAPTURE OFF".

3、Customization DiffServ

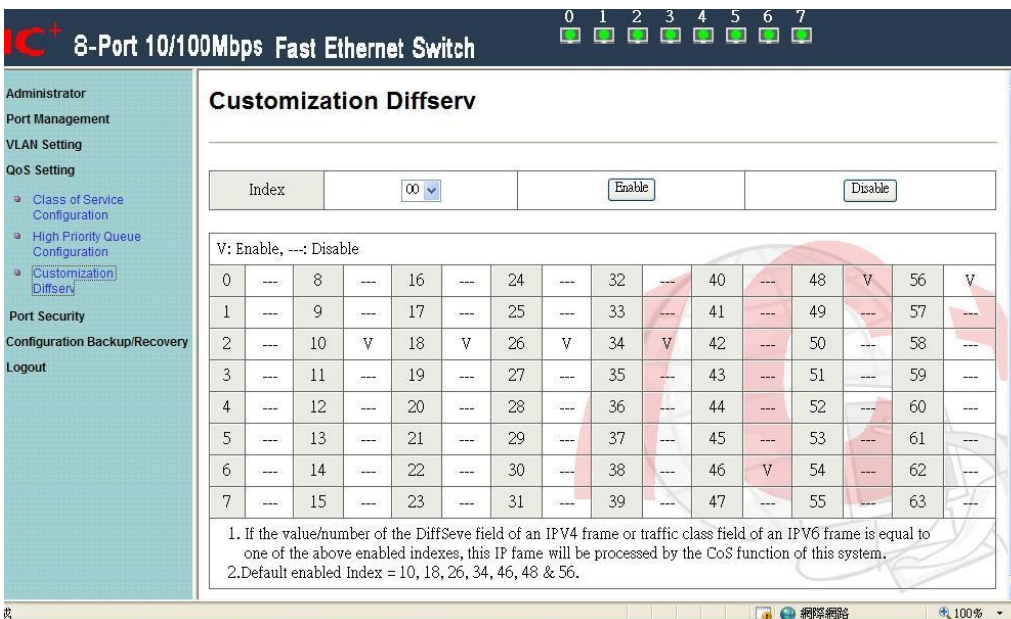
The setting in Customization DiffServe is associated with Class of Service Configuration by selecting VLAN Tag/IP/DS.

Example:

Select the pre-defined VLAN Tag/IP/DS coming from port 1 as the high priority.



There are a 6-bit field in DiffServe, representing 64 possible combinations.

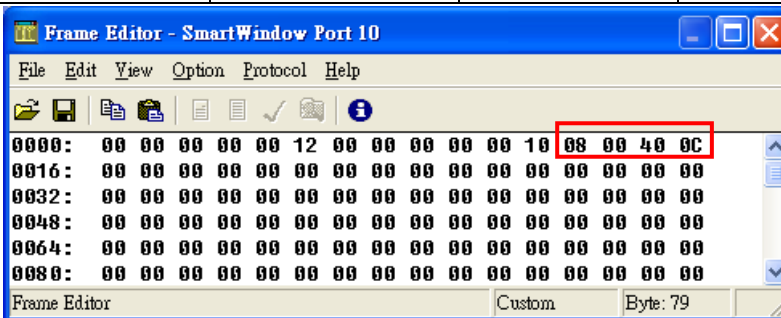


- Equipment
SmartBits or IXIA
- Setting
Continuous Mode , Random Length , Custom Background , Interpacket Gap
0.96uSec , SA=10 , DA=12

I. IPv4 DiffServ

Reference IPv4/IPv6 DiffServ frame format, and then the value is 0100 0000 0000 1100 (2Byte). Therefore, **0800 400C** (4 Byte) is the content of IPv4.

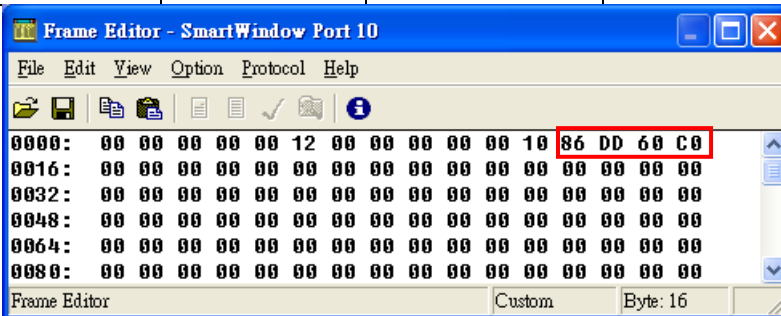
EEPROM DiffServ value(DSCP)		TYPE	VER(0100)+Header size	DiffServ+RES
Decimal	Binary	Hexadecimal	Hexadecimal	Hexadecimal
3	000011	08 00	40	0C



II. IPv6 DiffServ

Reference IPv4/IPv6 DiffServ frame format, and then the value is 0110 0000 1100 0000 (2Byte). Therefore, **86DD 60C0** (4 Byte) is the content of IPv6.

EEPROM DiffServ value		TYPE	VER(0110)+TC[7:4]	TC[3:2]+RES+0000
Decimal	Binary	Hexadecimal	Hexadecimal	
3	000011	86 DD	60	C0



Left frame (in red) shows that WRR is 4:1.

Right frame (in blue) shows the content of IPv4.

	Delta(uSec)	Status	Length	Pream	MAC dest	MAC src	type	data
1	0.0		901	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
2	67.6		826	64	00 00 00 00 00 12	00 00 00 00 00 11	08 00	40 00 07 f2 00 00 00 00 40 72 57 9b c
3	46.8		565	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
4	115.1		1418	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
5	64.3		784	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
6	15.7		177	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
7	57.1		693	64	00 00 00 00 00 12	00 00 00 00 00 11	08 00	40 00 07 f2 00 00 00 00 40 72 57 9b c
8	44.3		534	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
9	47.7		576	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
10	12.8		140	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
11	108.9		1342	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
12	117.7		1451	64	00 00 00 00 00 12	00 00 00 00 00 11	08 00	40 00 07 f2 00 00 00 00 40 72 57 9b c
13	66.4		810	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
14	57.5		699	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
15	70.9		867	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
16	71.9		878	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
17	69.4		848	64	00 00 00 00 00 12	00 00 00 00 00 11	08 00	40 00 07 f2 00 00 00 00 40 72 57 9b c
18	65.8		802	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
19	64.5		787	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
20	68.6		837	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
21	44.6		538	64	00 00 00 00 00 12	00 00 00 00 00 10	08 00	40 0c 07 f2 00 00 00 00 40 72 55 1b c
22	25.1		294	64	00 00 00 00 00 12	00 00 00 00 00 11	08 00	40 00 07 f2 00 00 00 00 40 72 57 9b c

Retrieving Frame 57 of 169 (33%) CAPTURE OFF

Left frame (in red) shows that WRR is 4:1.

Right frame (in blue) shows the content of IPv6.

	Delta(uSec)	Status	Length	Pream	MAC dest	MAC src	type	data
1	0.0		152	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
2	38.2		458	64	00 00 00 00 00 12	00 00 00 00 00 11	08 00	60 00 07 f2 00 00 00 00 40 72 57 9b c
3	14.3		158	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
4	61.9		754	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
5	61.3		746	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
6	56.3		684	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
7	64.7		789	64	00 00 00 00 00 12	00 00 00 00 00 11	08 00	60 00 07 f2 00 00 00 00 40 72 57 9b c
8	88.9		1091	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
9	77.8		953	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
10	46.6		563	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
11	81.3		996	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
12	110.5		1361	64	00 00 00 00 00 12	00 00 00 00 00 11	08 00	60 00 07 f2 00 00 00 00 40 72 57 9b c
13	104.6		1288	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
14	21.9		254	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
15	62.5		761	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
16	34.4		410	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
17	42.6		513	64	00 00 00 00 00 12	00 00 00 00 00 11	08 00	60 00 07 f2 00 00 00 00 40 72 57 9b c
18	53.3		646	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
19	52.4		635	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
20	83.8		1028	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
21	89.7		1101	64	00 00 00 00 00 12	00 00 00 00 00 10	86 dd	60 c0 07 f2 00 00 00 00 40 72 55 1b c
22	31.0		368	64	00 00 00 00 00 12	00 00 00 00 00 11	08 00	60 00 07 f2 00 00 00 00 40 72 57 9b c

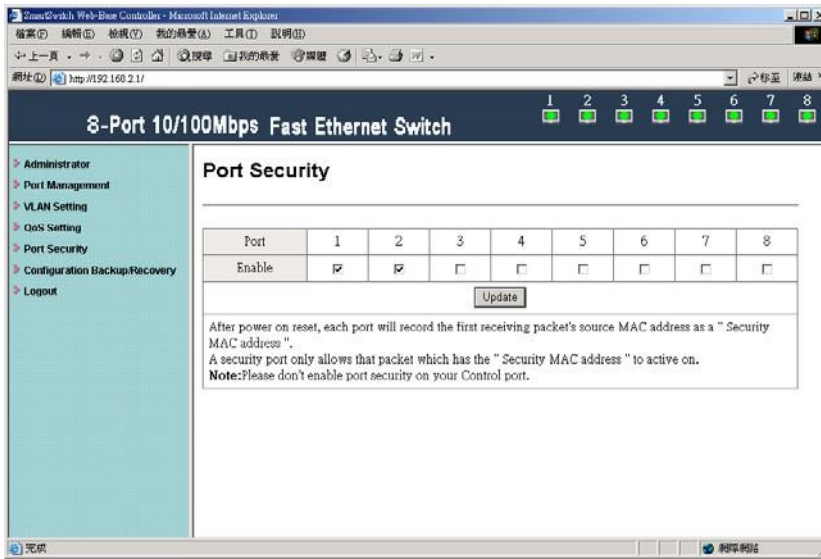
CAPTURE OFF

Port Security

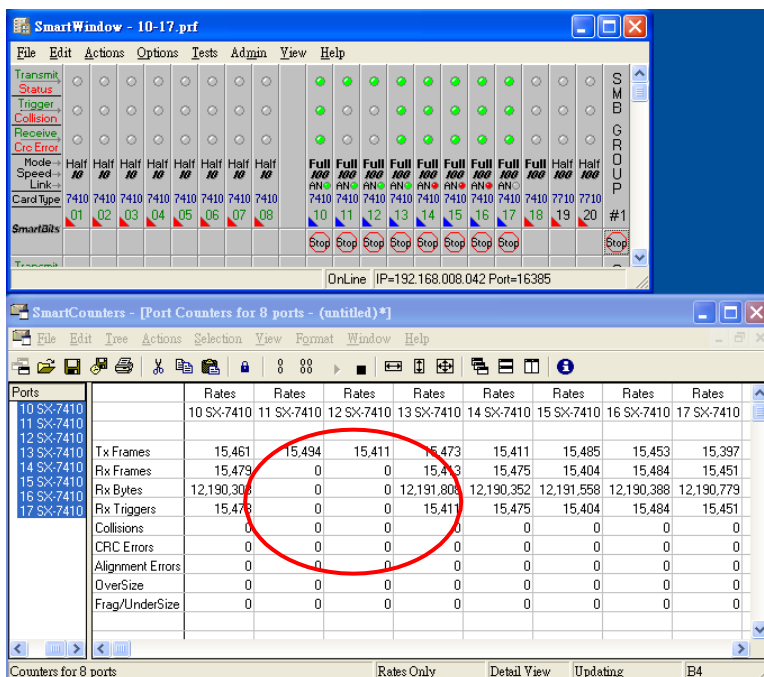
Enabling this function will disable the Tx ability and Rx ability.

Note: Please don't enable port security on the port which is connected to your web management PC.

Example: Enable port 1 and port 2.



Use the test equipment to do Ring test. Check whether port 1 and port 2 can receive packets.

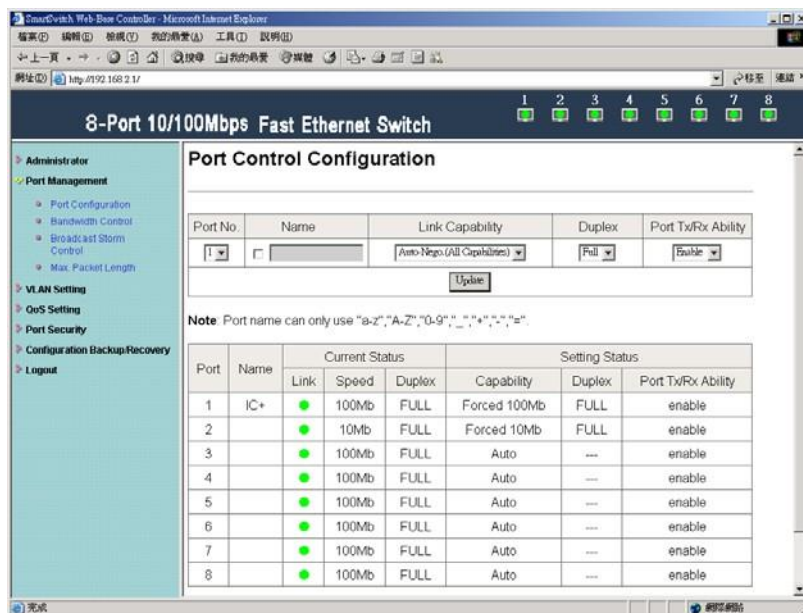


Configuration Backup/Recovery

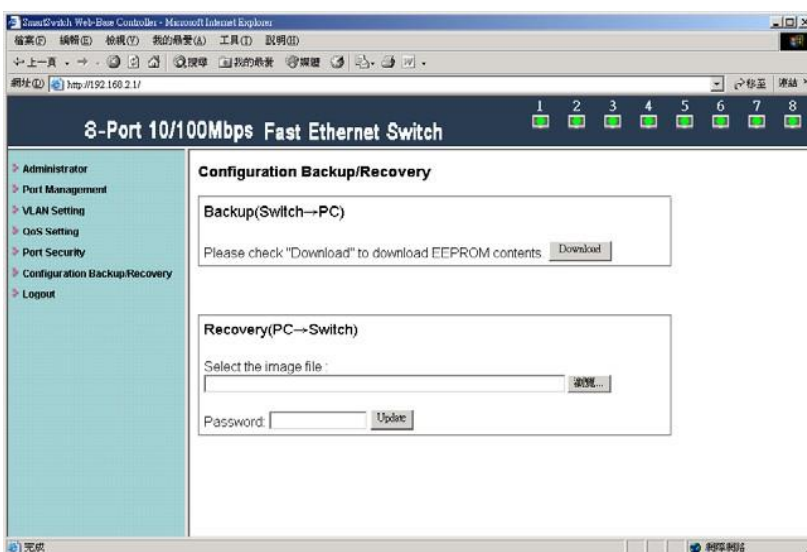
This function can save the switch configuration on your computer or restore the switch configuration by uploading the “.bin” file which is previously save on your computer.

Follow the following steps to verify.

Step 1、Set port 1=Forced 100Mb FULL, port 2=Forced 10Mb FULL. Then plug power cord and enter the same web page for ensuring the new setting take effect.



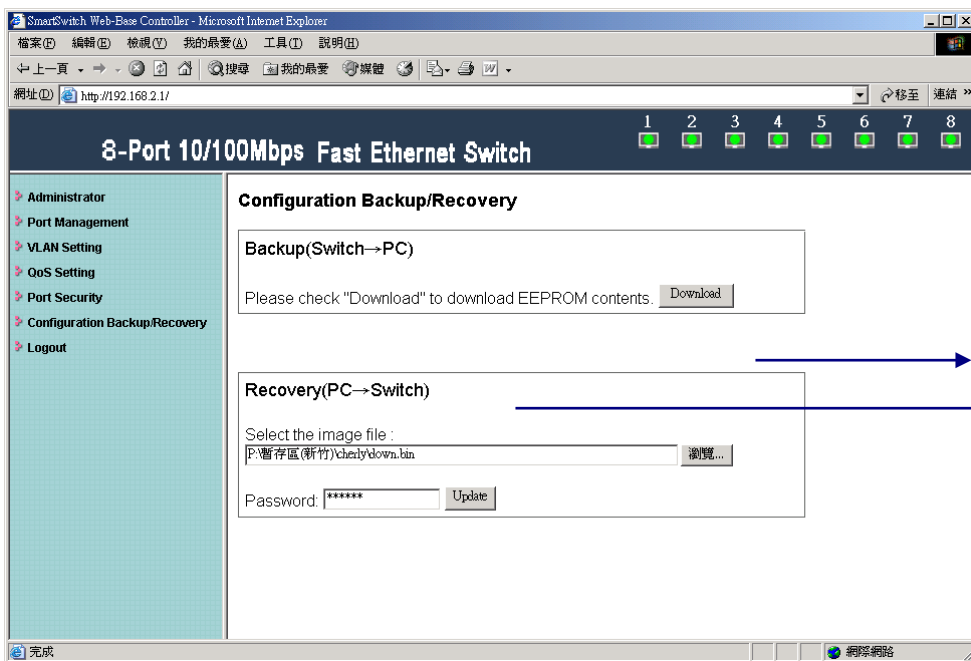
Step 2、Enter Configuration Backup/Recovery web page, and then choose **Download** in Backup(Switch→PC) column for saving this setting.



Step 3、Save the setting and the file name is x.bin



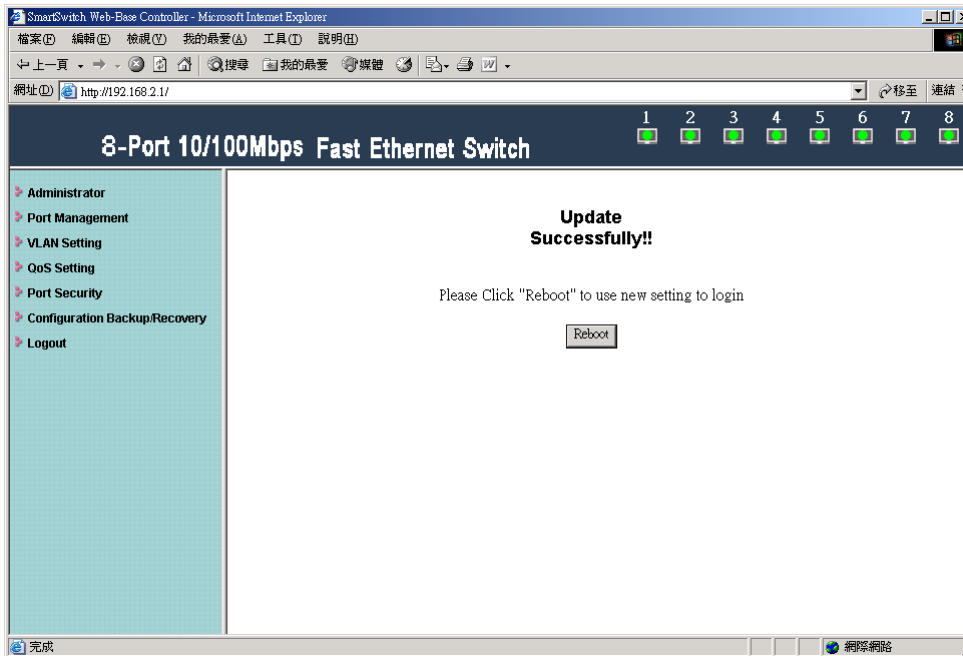
Step 4、Choose the image file, enter password, and click **Update** shown in Recovery(PC->Switch) column for reading EEPROM.



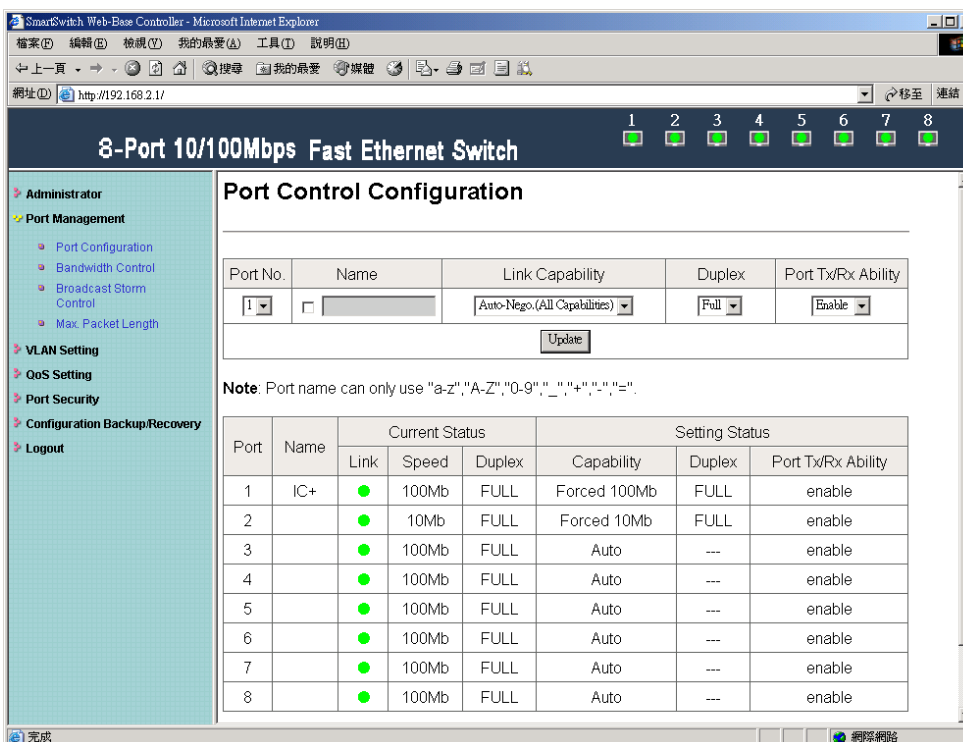
Select the image file

Enter password

Step 5、Click **Reboot** to use new setting to login.

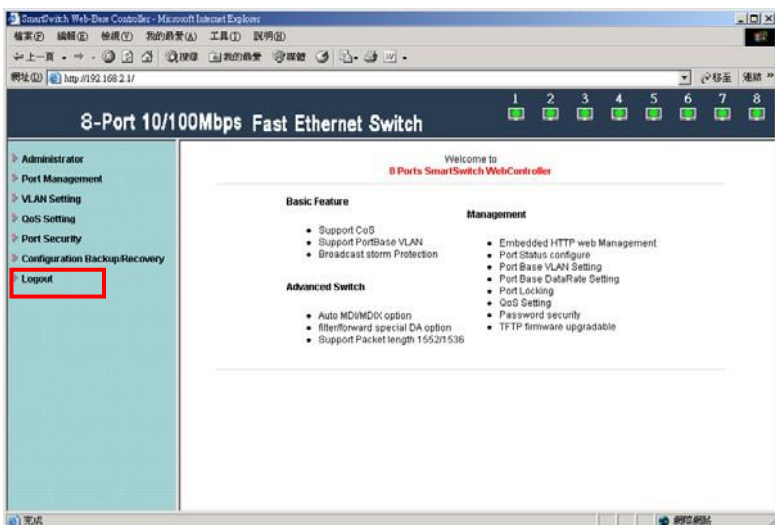


Step 6、Enter following web page and confirm whether this new setting takes effect.



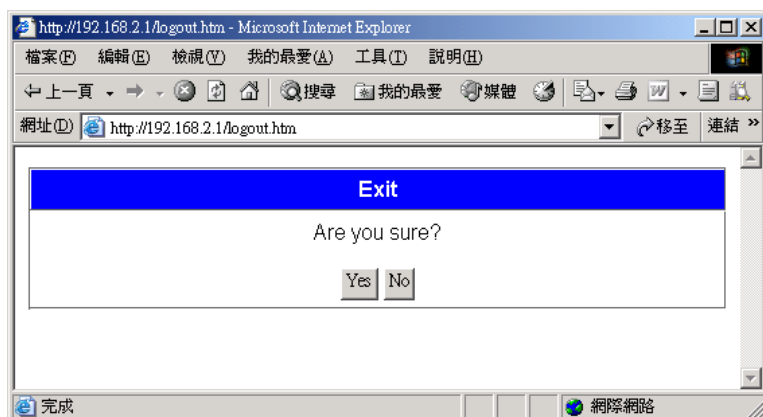
Logout

Choose Logout



Exit web page will appear for further confirmation.

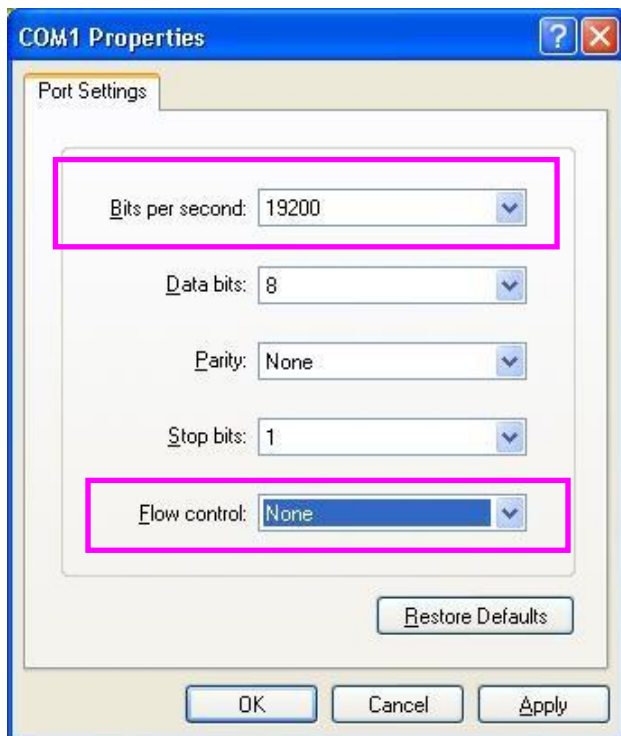
Click **YES** will leave this system. Click **NO** will back to this system.



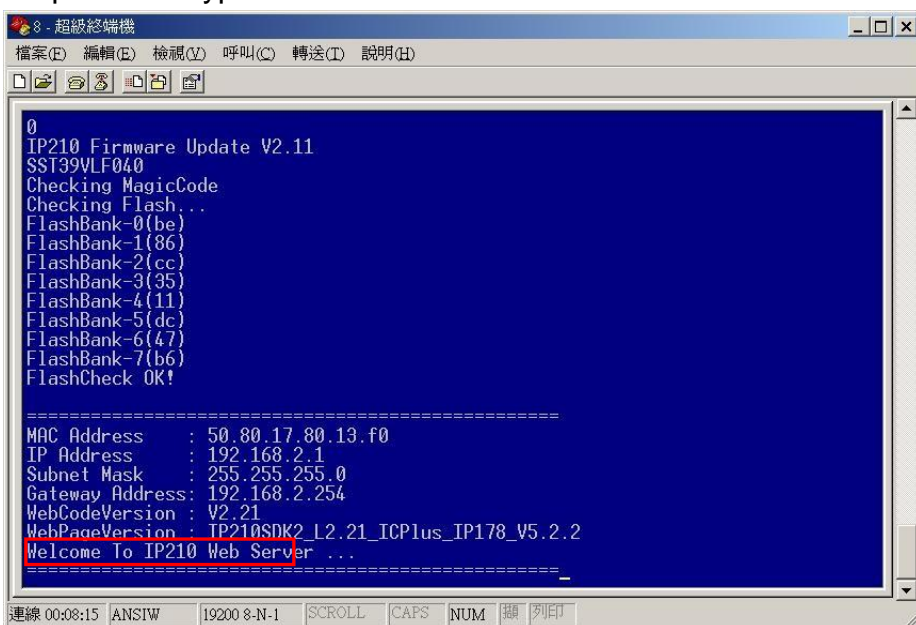
Appendix

Use Hyper Terminal to monitor the status of the switch.

Step 1: Set the COM port as the figure shown below.



Step 2: Use Hyper Terminal to check Web Code Version: **V2.21**



~ABOVE~

Spanning Tree

User can set up a series of attributes such as STP.

6 TP + 2 Fiber Port 10/100Mbps Fast Ethernet Switch

1

2

3

4

5

6

7 (Fiber)

8 (Fiber)

Administrator

Port Management

VLAN Setting

QoS Setting

Port Security

Spanning Tree

STP Bridge Settings

STP Port Settings

Loopback Detection

Configuration Backup/Recovery

Logout

Welcome to

8 Ports SmartSwitch WebController

Basic Feature

- Support CoS
- Support PortBase VLAN
- Broadcast storm Protection

Advanced Switch

- Support 2 fiber port
- Auto MDI/MDIX option
- filter/forward special DA option
- Support Packet length 1552/1536

Management

- Embedded HTTP web Management
- Port Status configure
- Port Base VLAN Setting
- Port Base DataRate Setting
- Port Locking
- QoS Setting
- Password security
- TFTP firmware upgradable

-46-

STP Bridge Settings

1. Choice STP Mode
2. Display the bridge ID

6 TP+2Fiber Port 10/100Mbps Fast Ethernet Switch

1 2 3 4 5 6 7(Fiber) 8(Fiber)

- Administrator
- Port Management
- VLAN Setting
- QoS Setting
- Port Security
- **Spanning Tree**
 - STP Bridge Settings
 - STP Port Settings
 - Loopback Detection
- Configuration Backup/Recovery
- Logout

STP Bridge Settings

Spanning Tree Settings

STP Mode	Bridge Priority	Hello Time	Max Age	Forward Delay
	(0~61440)	(1~10 Sec)	(6~40 Sec)	(4~30 Sec)
<div style="display: flex; align-items: center;"> <div style="border: 1px solid #ccc; width: 40px; height: 20px; margin-right: 5px;"></div> <div style="font-size: 0.8em;">▼</div> </div>				

[Submit](#)

Note: 2*(Forward Delay-1) >= Max Age,
Max Age >= 2*(Hello Time+1)

Note: If you enable the MAC address binding function, the address leaning function will be disabled automatically. Then both RSTP/STP and address learning will be affected.

Bridge Status

STP Mode	Bridge ID	Hello Time	Max Age	Forward Delay
RSTP	32768:50 80 17 80 13 F0	2	20	15

Root Status

Root ID	Hello Time	Max Age	Forward Delay
I'm the root bridge!	2	20	15

Note: If you enable the MAC address binding function, the address leaning function will be disabled automatically. Then both RSTP/STP and address learning will be affected.

STP Port Settings

For viewing and configuring STP Port

1. Select Port No.
2. Confirmation setting
3. Display STP Port state

6 TP+2Fiber Port 10/100Mbps Fast Ethernet Switch

1 2 3 4 5 6 7 (Fiber) 8 (Fiber)

- Administrator
- Port Management
- VLAN Setting
- QoS Setting
- Port Security
- Spanning Tree
 - STP Bridge Settings
 - STP Port Settings
 - Loopback Detection
- Configuration Backup/Recovery
- Logout

STP Port Settings

Port No.	Priority (0~240)	RPC (1~200000000) 0=AUTO
Port 1		
Port 2		
Port 3		
Port 4		
Port 5		

Submit

STP Port Status

Port No.	RPC	Priority	State	Status	Designated Bridge	Designated Port
1	Auto:0	0x80	--	Disable	--	--
2	Auto:0	0x80	--	Disable	--	--
3	Auto:0	0x80	--	Disable	--	--
4	Auto:0	0x80	--	Disable	--	--
5	Auto:0	0x80	--	Disable	--	--
6	Auto:200000	0x80	Designated Port	Forwarding	--	--
7	Auto:0	0x80	--	Disable	--	--
8	Auto:0	0x80	--	Disable	--	--

Loopback Detection

1. Loopback Detection Settings
2. Reset All Ports
3. Display STP Port State

6 TP+2Fiber Port 10/100Mbps Fast Ethernet Switch

Administrator

Port Management

VLAN Setting

QoS Setting

Port Security

Spanning Tree

- STP Bridge Settings
- STP Port Settings
- Loopback Detection

Configuration Backup/Recovery

Logout

Loopback Detection Settings

1

Loopback Detect Function	Disable ▾
Auto Wake Up	Disable ▾
Wake-Up Time Interval	10 sec ▾
<div>Submit</div>	

Reset All Ports

2

Port No.	Status
1	--
2	--
3	--
4	--
5	--
6	--
7	--
8	--

3