



## **IN-16POEWM**

### **User Manual**



**16 Port Fast Ethernet + 2 Combo Gigabit RJ-45/SFP**  
**PoE Web Smart Switch**

## **FCC Warning**

This Equipment has been tested and found to comply with the limits for a Class-A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if the equipment is not installed and used in accordance with the instructions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## **CE Mark Warning**

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

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# Introduction

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## Product Overview

This switch provides 16 10/100Mbps RJ-45 ports and can support 2 Combo Gigabit RJ-45/SFP to uplink. This web-smart switch includes auto-MDI/MDIX crossover detection function. 16 of those ports are all built with PoE functionality, providing the ultimate choice in network flexibility. With this added PoE feature, this switch is an ideal solution for building wireless, IP surveillance, and VoIP networks.

It also provides port-based and 802.1Q tag VLAN function to provide better traffic management, reduces latency, improve security and save bandwidth. This is also a cost-saving feature as it reduces the need to add additional hardware to the network.

These 16 10/100Mbps RJ-45 support the IEEE 802.3af PoE protocol. Each port can transmit a maximum power 15.4 watts. User can also enable or disable power supply on PoE ports from UI.

## Web Management Features

- Port Management
  - Port Configuration
  - Port Mirroring
  - Bandwidth Control
  - Broadcast Storm Control
  - PoE On/Off Setting
- VLAN Setting
  - Port-based/ Tag-based
  - VLAN ID: 1~4094
- Trunking
  - Link Aggregation Setting
  - 2 groups (1~4 port for each group)
- QoS Setting
  - Priority Mode
  - Class of Service Configuration
  - TCP/UDP Port-based
- Security Setting

MAC address filtering  
TCP/UDP Port filtering

- STP/RSTP
- Spanning Tree Protocol
- Backup Recovery Configuration

## **Specifications**

- Standard
  - IEEE 802.3 10BaseT
  - IEEE 802.3u 100BaseTX
  - IEEE 802.ab 1000BaseT
  - IEEE 802.3z 1000BaseSX/LX
  - IEEE 802.3x Full-duplex and Flow Control
  - IEEE 802.af PoE
  - IEEE 802.3ad Link Aggregation
  - IEEE 802.1d Spanning tree protocol
  - IEEE 802.1w Rapid Spanning tree protocol
  - IEEE 802.1x Port-based Network Access Control
  - IEEE 802.1Q VLAN
  - IEEE 802.1p Class of Service
- Number of Port
  - 16-port 10/100BaseTX with PoE
  - 2-port Combo Gigabit uplink (RJ-45/SFP)

## **Mechanical**

- LED Indicator
  - Per Port: Link/ Act
  - PoE Port: Act/Status
  - Per Unit: Power
- Power Consumption: 260Watts (Max)
- Power Input: 100~240V/AC, 50~60HZ
- Power Output: 48V/DC per Port Output – 15.4W Max per Port
- Product Dimensions/ Weight
  - 45 x 440 x 330 mm (H x W xD) / 4.4kg

## Performance

- MAC Address: 4K
- Buffer Memory: 2.75Mb
- Transmission Method: Store and Forward

## Package Contents

Before you start to install this switch, please verify your package that contains the following items:

- One Fast Ethernet PoE Switch
- One Power Cord
- A User Manual CD
- Rack-mount kit



# Hardware Description

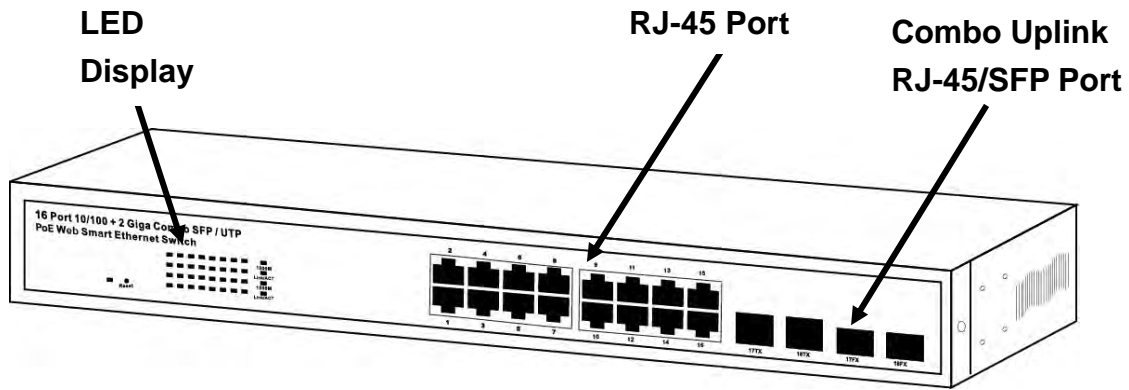
This section mainly describes the hardware of the 16 PoE port Ethernet Combo Web-Smart Switch and gives a physical and functional overview on the certain switch.

## Physical Dimensions/ Weight

45 x 440 x 330 mm (H x W xD) / 4.4kg

## Front Panel

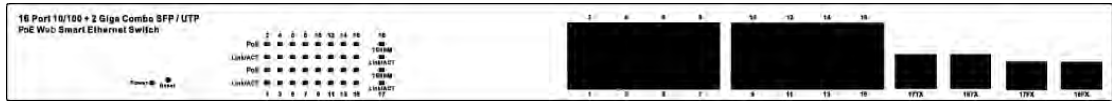
The front panel of the web smart switch consists of 16 10/100Base-TX RJ-45 ports and 2 combo gigabit uplink RJ-45/SFP ports. The LED Indicators are also located on the front panel.



## LED Indicators

The LED Indicators present real-time information of systematic operation status. The following table provides description of LED status and their meaning.

LED	Status	Description	No. Of LED
Power	On	Power on	Power
1000M	On	Link 1000Mbps	2 (17~18)
	off	Link 10/100Mbps	
Link/ ACT	On	Link	18 (1~18)
	Flashing	Data activating	18 (1~18)
PoE	On	Port is linked to Power Device	16 (1~16)
	Off	No Power Device is connected	16 (1~16)



## Rear Panel

The 3-pronged power plug is placed at the rear panel of the switch right side shown as below.



## Hardware Installation

Set the switch on a large flat space with a power socket close by. The flat space should be clean, smooth, level and sturdy. Make sure there is enough clearance around the switch to allow attachment of cables, power cord and allow air circulation. The last, use twisted pair cable to connect this switch to your PC then user could start to operate the switch.

# User Log In

This part instructs user how to set up and manage the switch through the web user interface. Please follow the description to understand the procedure.

At the first, open the web browser, and go to 192.168.2.1 site then the user will see the login screen. Key in the password to pass the authentication then clicks the **OK**. The log in process is completed and comes out the sign “Password successfully entered”.

## Log in

ID: admin

Password: admin

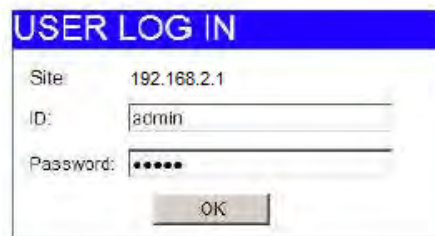


Figure 1-1

※Note: It will show error message if you key in wrong user name or password.



Figure 1-2

## Main Page

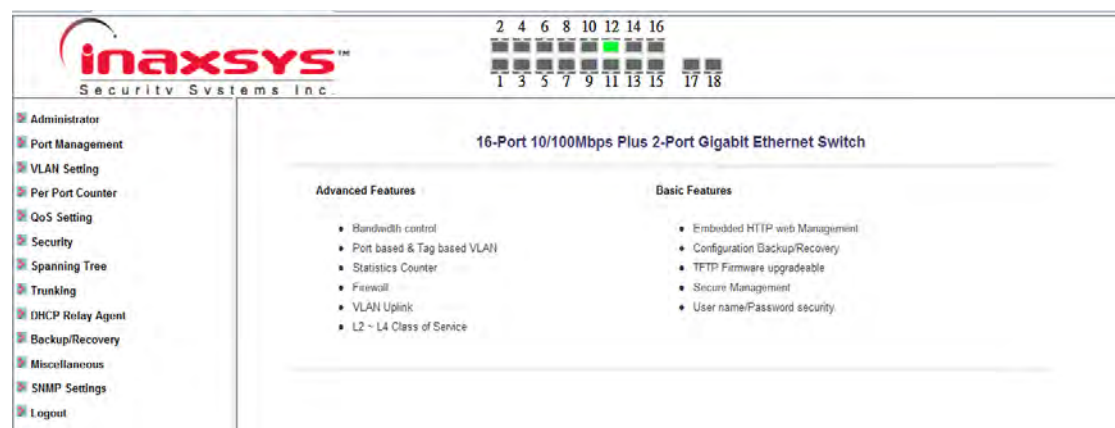


Figure 1-3

# Administrator

## Authentication Configuration

This page shows authentication configuration information. User can set new Username and Password in this page.

### Authentication Configuration

Setting	Value
Username	<input type="text" value="admin"/> max:15
Password Confirm	<input type="password" value="••••"/> max:15 <input type="password" value="••••"/>
<input type="button" value="Update"/>	

**Note:**

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

Figure 2-1

## System IP Configuration

This page shows system configuration including the current IP address and sub-net mask and gateway.

### System IP Configuration

Setting	Value
IP Address	<input type="text" value="192"/> <input type="text" value="168"/> <input type="text" value="2"/> <input type="text" value="1"/>
Subnet Mask	<input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/>
Gateway	<input type="text" value="192"/> <input type="text" value="168"/> <input type="text" value="1"/> <input type="text" value="X"/>
<input type="button" value="Update"/>	

Figure 2-2

User can configure the IP settings, Subnet Mask, Gateway as below:

- IP address: Manually assign the IP address that the network is using. The default IP is 192.168.2.1
- Subnet Mask: Assign the subnet mask to the IP address.

- Gateway: Assign the network gateway for industrial switch.

If you change the IP address of this switch and then press **Update**. It will show “**update successfully**” then press **Reboot** button. It will enter user login screen automatically

### System Status

This page displays the information about the switch of MAC address, how many ports it has, system version and. Besides, users can also fill in up to 15 characters in the Comment, Contact and Location field for note.

**System Status**

MAC Address	10:10:13:10:18:26
Number of Ports	16+2
Comment	switch MAX:15
System Version	V110615
<input type="checkbox"/> Idle Time Security	Idle Time: 0 (1-30 Minutes) <input type="checkbox"/> Auto Logout(Default) <input type="checkbox"/> Back to the last display.

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

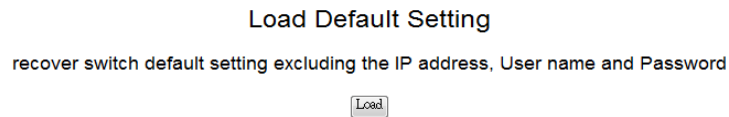
**Figure 2-3**

- MAC Address: Displays the unique hardware address assigned by manufacturer (default).
- Number of Ports: Displays number of ports in the switch.
- System Version: Displays the switch’s firmware version.
- Idle Time Security: User can set the time security. When user leave the computer for a moment, the software will auto logout or back to the last display.

And then click **Update** button.

## Load Default Setting

Clicking the **Load** button will make the switch being set to the original configuration.



**Figure 2-4**

※ Note: It exclude to change user name, password and IP configuration. If you want to restore default setting including IP and user name password, then you can press the reset button for hardware base reset.

More detail information about Load Default Setting - Hardware Base is described as following.

The purpose of this function is to provide a method for the network administrator to restore all configurations to the default value.

- (1) To activate this function, the user should follow the following procedures. Press the "Load default" button for 3 seconds until you see the LED blinking.
- (2) When LED starts blinking, it means the CPU is executing the "load default" procedure. You can release the button now.

After completing this procedure, all the factory default value will be restored. It includes the IP address, the user name, the password and all switch configurations.

## Firmware Update

Before the firmware update procedure is executed, you should enter the password twice and then press **Update** button. The smart switch will erase the flash memory. There is a self-protection mechanism in the Boot Loader, so the Boot Loader will keep intact. Even though the power is turned off or the cable link fails during the firmware update procedure, the Boot loader will restore the code to firmware update page.

### Firmware Update

Please input the password to continue the Firmware Update process.

Password   
ReConfirm

Notice: After clicking the "UPDATE" button, IF the firmware update webpage is not redirected correctly or is shown as "Webpage not found". Please connect to <http://192.168.2.1>

Figure 2-5

After pressing Update button, the old web code will be erased. Then you can select the image file and press "update" button to update the firmware you need.

Firmware Update by Web	
Select the image file:	<input type="text"/>
	<input type="button" value="Browse..."/>
<input type="button" value="UPDATE"/>	
If the update process somehow goes wrong(Ex: power failure), please connect to <a href="http://192.168.2.1">http://192.168.2.1</a> to restart.(If possible, reset device first.)	

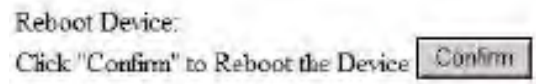
  

Firmware Update by TFTP	
(TFTP client)Use MS Windows' Command Prompt window to run tftp client program.	
Syntax: c:\tftp -i 192.168.1.1 put FILE_DIRECTORY\FILENAME.bin	

Figure 2-6

## Reboot Device

Click **Confirm** button to reboot the device.



**Figure 2-7**

※Note: The reboot is for software base instead of hardware base.



- Setting Status: Displays current status.

Click **Update** to make the configuration effective.

### Port Mirroring

The Port mirroring is a method for monitoring traffic in switched networks. That Traffic through ports can be monitored by any of the ports means traffic goes in or out monitored (source) ports will be duplicated into mirroring (destination) port.

**Port Mirroring**

Dest Port	1	2	3	4	5	6	7	8	9
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10	11	12	13	14	15	16	17	18
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitored Packets	Disable ▾								
Source Port	1	2	3	4	5	6	7	8	9
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10	11	12	13	14	15	16	17	18
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="button" value="Update"/>									
Multi to Multi Sniffer function									

**Figure 3-2**

- Destination (mirroring) port for monitoring Rx only, Tx only or both RX and TX traffic which come from the source port. Users can connect the mirroring port to LAN analyzer or Netxray.
- Monitored Packets: Pull down the selection menu to choose what kind of packet is to be monitored.
- Source Port: The ports that the user wants to monitor. All monitored port traffic will be copied to mirroring (destination) port. Users can select multiple source ports by ticking the check boxes beneath the port number label to be monitored.

And then, click **Update** to have the configuration take effect.

### Bandwidth Control

This page allows the setting of the bandwidth for each port. The TX rate and Rx rate can be filled with the number ranging from 1 to 255. This number should be multiplied by the selected bandwidth resolution to get the actual bandwidth.

### Bandwidth Control

Port No	Tx Rate	Rx Rate
01	(0-255) (0.Full Speed)	(0-255) (0.Full Speed)
Speed Base	Low: (1)32Kbps Tx/Rx bandwidth resolution for port 1~ port 18. Actual Tx/Rx bandwidth =Rate value x 32 kbps. The rate value is 1-255. High: (1)256Kbps Tx/Rx bandwidth resolution for port 1~ port 16. Actual Tx/Rx bandwidth=Rate value x 256Kbps. The rate value is 1-255. When link speed is 10MB. The rate value is 1-39. (2)the bandwidth resolution is 2048Kbps for port 17, port 18. Actual Tx/Rx bandwidth=Rate value x 2048Kbps. The rate value is 1-255. When link speed is 10MB. The rate value is 1-4. When link speed is 100MB. The rate value is 1-48.	
<input type="button" value="Update"/> <input type="button" value="LoadDefault"/>		
If the link speed of selected port is lower than the rate that you setting, this system will use the value of link speed as your setting rate.		

Port No.	Tx Rate	Rx Rate	Link Speed	Port No.	Tx Rate	Rx Rate	Link Speed
1	Full Speed	Full Speed	---	10	Full Speed	Full Speed	---
2	Full Speed	Full Speed	---	11	Full Speed	Full Speed	---
3	Full Speed	Full Speed	---	12	Full Speed	Full Speed	100M
4	Full Speed	Full Speed	---	13	Full Speed	Full Speed	---
5	Full Speed	Full Speed	---	14	Full Speed	Full Speed	---
6	Full Speed	Full Speed	---	15	Full Speed	Full Speed	---
7	Full Speed	Full Speed	---	16	Full Speed	Full Speed	---
8	Full Speed	Full Speed	---	17	Full Speed	Full Speed	---
9	Full Speed	Full Speed	---	18	Full Speed	Full Speed	---

Figure 3-3

### Broadcast Storm Control

The switch implements a broadcast storm control mechanism. Tick the check boxes to have them beginning to drop incoming broadcast packets if the received broadcast packet counts reach the threshold defined. Each port's broadcast storm protection function can be enabled individually by ticking the check boxes.

#### Broadcast Storm Control

Threshold	63 1-63								
Enable Port	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10	11	12	13	14	15	16	17	18
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="button" value="Update"/>									
This value indicates the number of broadcast packet which is allowed to enter each port in one time unit. One time unit is 50us for Gigabit speed, 500 us for 100Mbps speed and 5000us for 10Mbps speed									
<b>Note:</b> This effect may be not significant for long broadcast packet, since the broadcast packet count passing through the switch in a time unit is probably less than the specified number.									

Figure 3-4

The broadcast packet is only checked at the selected port and the number of broadcast packets is counted in every time unit. One time unit is 500 us for 10Mbps speed and 5ms for 100Mbps. The excessive broadcast packet will be discarded. For those broadcast packets incoming from the un-selected port, the switch treats it as the normal traffic.

- Threshold: Type in the threshold in the range between 1 and 63 to limit the maximum byte counts, which a port can send or receive in a period of time.
- Enable Port: Having ticked the boxes, the port will stop transmitting or receiving data when their sending byte counts or receiving byte counts reach the defined threshold.

Click **Update** to have the configuration take effect.

## PoE

User could know per PoE port out power status in this page and also enable or disable per port.

### POE Configuration

Port	01	02	03	04	05	06	07	08
Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PSE Current	No Load	No Load	No Load	No Load	No Load	No Load	No Load	No Load
Minimum Output Power	---	---	---	---	---	---	---	---
POE Class	---	---	---	---	---	---	---	---
Port	09	10	11	12	13	14	15	16
Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PSE Current	No Load	No Load	No Load	No Load	No Load	No Load	No Load	No Load
Minimum Output Power	---	---	---	---	---	---	---	---
POE Class	---	---	---	---	---	---	---	---

**Update:** Update the power control function.  
**Enable** : Power On  
**Enable** : Power Off

**Figure 3-5**

# VLAN Setting

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain, which would allow you to isolate network traffic, so only the members of the same VLAN will receive traffic from the ones of the same VLAN. Basically, creating a VLAN from a switch is logically equivalent of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plugged into the same switch physically.

## VLAN Mode

You may select the VLAN Mode of the switch. Port-based VLAN is for separating traffic only on this single switch. There is no handover of network traffic within VLAN groups to other switches. For the handover to other switches use Tag Based VLAN. In VLAN Mode you can switch from Tag to Port Based VLAN. Port Based VLAN is the default mode.

After having switched to Tag Based VLAN Mode, the screen changes. On this screen you can now define and configure your Up- and Downlink ports. These are important since here the handover between the switches of your network takes place.

### VLAN Mode

VLAN Mode	Port Based VLAN	<input type="button" value="Change VLAN mode"/>
-----------	-----------------	---

Figure 4-1

### VLAN Mode

VLAN Mode	Tag Based VLAN <input type="button" value="Change VLAN mode"/>								
Tag Mode	Port 01	Port 02	Port 03	Port 04	Port 05	Port 06	Port 07	Port 08	Port 09
	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag
	Port 10	Port 11	Port 12	Port 13	Port 14	Port 15	Port 16	Port 17	Port 18
	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag	<input type="radio"/> Add Tag <input checked="" type="radio"/> don't care <input type="radio"/> Remove Tag
	<input type="button" value="Update"/>								

**Note:**

If the link partner is a network interface card, it probably cannot recognize the VLAN tag. In this case, it is strongly recommended the network administrator to remove the VLAN tag of the corresponding port.

Figure 4-2

- VLAN Mode: Displays VLAN mode: port based/Tag based VLAN. Here you can also switch back to Port Based VLAN Mode
- Add tag means the outgoing packet of the selected port will be inserted a 802.1Q tag. Use this setting for your Up- and Downlink Ports in your VLAN

Tagged Network.

- Don't care means the outgoing packet of the selected port keep the original packet received at the source port. This is the default setting when starting VLAN configuration. You should change to either Add or Remove Tag.
- Remove tag means the 802.1Q tag of the outgoing packet of the selected port will not be sent. Use this setting for your Network Connections to PCs. Only packets of the VLAN Group the Port is member of will be sent.

## VLAN Member

The ports need to be made member of your VLAN groups. This is for Tag Based and Port Based VLAN Mode. The screen here looks different whether you run Tag Based or Port Based Mode.

## VLAN Member in Port Based Mode

VLAN Member Setting (Port Based)

Port	01	02	03	04	05	06	07	08	09
01	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
02	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
04	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
07	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
08	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
09	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Port	VLANMEMBER								VLANMEMBER									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Figure 4-3

In Port Based Mode you see a matrix of your 8 Ports. Simply select the port on top screen you want to configure, click on Read, and then select or deselect the ports that are on the same VLAN group. In this configuration mode you do not need to worry about defining VLAN groups and VLAN IDs.

## VLAN Member in Tag Based Mode

In Tag Based Mode you need to define and configure your VLAN groups. Since you want the handover to other switches take place smoothly, the VLAN IDs (Numbers) need to be like on the rest of your network. On other switches

you may have the chance to configure names. These are just for your reference. Only the numbers are important!

There firstly add your VLAN Groups (identified throughout your network by unique and constant numbers). Start with IDs from 100 and up. Keep in mind that some switches use “1” as the default, while others use “4095” or “4096” as default. Starting with 100 gives you enough free room and less compatibility issues.

So enter “100” in the field right of VID Setting, then select or deselect which ports are member of that group. Your up- and downlink ports need to member of every existing group! Then click on add. The new group with its setting will be displayed at the bottom of the screen.

With the PVID Setting you define to which VLAN group incoming traffic belongs. Consider the example that Port 1 is member of group 100 and 101. A simple PC is connected to Port 1. If that PC is now sending out data, with PVID you define if that data is for group 100 or 101.

**VLAN Member Setting (Tag Based)**

VID:

Add: Enter a VID, select the VLAN member for this entry and then press this button to add a VLAN entry to the table.  
 Del: Select a VID in the table and then press this button to remove a VID entry from the table.  
 Update: Modify the existing VID entry, select VID and then press the button.

VLAN Member Port	01	02	03	04	05	06	07	08	09
select	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VLAN Member Port	10	11	12	13	14	15	16	17	18
select	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Note: If you do not select any port, this VID will be treated as a VID embedded in a 802.1Q tag.

VID Source port	01	02	03	04	05	06	07	08	09
select	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VID Source port	10	11	12	13	14	15	16	17	18
select	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Port VID Map.									
Port	01	02	03	04	05	06	07	08	09
VID	---	---	---	---	---	---	---	---	---
Port	10	11	12	13	14	15	16	17	18
VID	---	---	---	---	---	---	---	---	---

VLAN MEMBER																		
VID \ Port	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8

**Figure 4-4**

## Multi to 1 Setting

Multi to 1 VLAN is used in CPE side of Ethernet-to-the-Home and is exclusive to VLAN setting on **VLAN Member Setting**. When VLAN member Setting is updated, multi to 1 setting will be void and vice versa. The disable port means the port which will be excluded in this setting. All ports excluded in this setting are treated as the same VLAN group. In a normal Tag Based VLAN network you will not need this configuration option.

### Multi to 1 Setting

Destination PortNo.	Port-									
Current Setting	Port-									
Disable Port	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: 'Disabled port' defines the switch physical port which is disabled.

1. A example for Multi-to-1 structure

2. The original setting of the VLAN Group will be cleared and replaced by this special structure if you enable this function. On the other hand, if you set the VLAN Group again, this special structure will be cleared and replaced by your newest setting.

Figure 4-5

# Per Port Counter

## Port Counter

This page provides port counter of each port. There are 4 categories: Receive Packet & Transmit Packet/ Transmit & Collision / Receive Packet & Drop /Receive & CRC error. Once you change the counter category, the counter will be cleared automatically.

### Counter Category

Counter Mode Selection: Transmit Packet & Receive Packet <input type="button" value="Update"/>			
Port	Transmit Packet / Receive Packet		
01	0		0
02	0		0
03	0		0
04	0		0
05	0		0
06	0		0
07	0		0
08	0		0
09	0		0
10	0		0
11	0		0
12	2496		4154
13	0		0
14	0		0
15	0		0
16	0		0
17	0		0
18	0		0

**Figure 5-1**

- Transmit packet & Receive packet: This category shows both the received packet count (excluding the incorrect packet) and the transmitted packet count.
- Collision Count & Transmit packet: This category shows the packets outgoing from the switch and the count of collision.
- Drop packet & Receive packet: This category shows the number of received valid packet and the number of dropped packet.
- CRC packet & Receive packet: This category shows the received correct packet and received CRC error.
- Clear: Press “clear” will clear all counters.
- Refresh: Press “Refresh” button will aggregate the number of the counter for all ports.

# QoS Setting

Here you can configure QoS policy priority mode and CoS (Class of Service) configuration. QoS (Quality of Service) refers to mechanisms in the network software that make the actual determination of which packets have priority. CoS refers to feature sets, or groups of services, that are assigned to users based on company policy. If a feature set includes priority transmission, then CoS winds up being implemented in QoS functions within the routers and switches in the network. In an enterprise network, class of service (CoS) differentiates high-priority traffic from lower-priority traffic. Tags may be added to the packets to identify such classes, but they do not guarantee delivery as do quality of service (QoS) functions, which are implemented in the network devices.

## Priority Mode

There are three priority modes available to specify the priority of packets being serviced. Those include First-In-First-Out, All-High-Before-Low, and Weight-Round-Robin.

### Priority Mode

Priority Mode	
Mode	<input checked="" type="radio"/> First-In-First-Out <input type="radio"/> All-High-before-Low <input type="radio"/> Weight-Round-Robin. Low weight: 0 High weight: 0
<a href="#">Update</a>	
<small>Note: When the queue weight is set to "0", it will be treated as "8". The "low weight" and "high weight" means the ratio of the packet in the transmit queue. For example, if "low weight" and "high weight" are set to "3" and "5", the ratio of the transmit packet for the low priority to high priority is 3/5.</small>	

Figure 6-1

- First-In-First-Out: Packets are placed into the queue and serviced in the order they were received.
- All-high-before-low(Strict priority) : All packets will be assigned to either high priority queue (Queue 2) or low priority queue (Queue 1). The packet on the low priority queue will not be forwarded until the high priority queue is empty.
- WRR mode: There are 4 priority queues for Weighted-and-round-robin (WRR) mode. When this mode is selected, the traffic will be forwarded according to the number set in each queue.

## Port, 802.1p, IP/DS based

### Class of Service Configuration

=Enable High Priority

Port No./Mode	Port Base	VLAN Tag	IP / DS	Port No./Mode	Port Base	VLAN Tag	IP / DS
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As long as any of three COS schemes(802.1p,IP TOS/DS or Port Base) is mapped to "high", the data packet will be treated as the high priority.  
 VLAN Tag priority: high priority -> 4~7 ; low priority -> 0~3  
 IPv4 DS and IPv6 TC: high priority -> 10,18,26,34,46,48,56 ; low priority -> others

Figure 6-2

## TCP/UDP Port Based

### Class of Service Configuration

Protocol	Option			
FTP(20,21)	F-I-F-O			
SSH(22)	F-I-F-O			
TELNET(23)	F-I-F-O			
SMTP(25)	F-I-F-O			
DNS(53)	F-I-F-O			
TFTP(69)	F-I-F-O			
HTTP(80,8080)	F-I-F-O			
POP3(110)	F-I-F-O			
NEWS(119)	F-I-F-O			
SNTP(123)	F-I-F-O			
NetBIOS(137-139)	F-I-F-O			
IMAP(143,220)	F-I-F-O			
SNMP(161,162)	F-I-F-O			
HTTPS(443)	F-I-F-O			
MSN(1863)	F-I-F-O			
XRD_RDP(3389)	F-I-F-O			
QQ(4000,8000)	F-I-F-O			
ICQ(5190)	F-I-F-O			
Yahoo(5050)	F-I-F-O			
BOOTP_DHCP(67,68)	Low			
User_Define_a	F-I-F-O			
User_Define_b	F-I-F-O			
User_Define_c	F-I-F-O			
User_Define_d	F-I-F-O			
User_Define Port number (1-65535) Mask(0-255)	User_Define_a Port: <input type="text"/> Mask:0 <input type="text"/>	User_Define_b Port: <input type="text"/> Mask:0 <input type="text"/>	User_Define_c Port: <input type="text"/> Mask:0 <input type="text"/>	User_Define_d Port: <input type="text"/> Mask:0 <input type="text"/>

Note:The mask defines which bit is ignored within the IP address bit 0 ~ bit 7.  
 For example, UDP/TCP port = 65535 and mask = 5, this means 65530, 65531, 65534 and 65535 are all taken into account.  
 UDP/TCP port =65535 and mask=0, this means only 65535 is taken into account.  
 TCP/UDP port QoS function

Note:When the "override" item is selected, the Port\_based, Tag\_based, IP TOS\_based, CoS listed above will be ignored.

The Class of Service for TCP/UDP port number allows the network administrator to assign the specific application to a priority queue.  
**F-I-F-O:** The incoming packet will be forwarded in first-in-first-out scheme.  
**Discard:** The incoming packet will be discarded at the source port.  
**High:** The incoming packet will be forwarded with the high priority.  
**Low:** The incoming packet will be forwarded with the Low priority.

# Security

## MAC Address Binding

### MAC Address Binding

Port No.	MAC Address
1	<input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> <input type="button" value="Read"/>
Select Port 01 Binding Disble <input type="button" value="Update"/>	

Note: If you enable the MAC address binding function, the address learning function will be disabled automatically.

Port No.	Binding Status	Port No.	Binding Status
1	Disble	10	Disble
2	Disble	11	Disble
3	Disble	12	Disble
4	Disble	13	Disble
5	Disble	14	Disble
6	Disble	15	Disble
7	Disble	16	Disble
8	Disble	17	Disble
9	Disble	18	Disble

Note: The MAC address of current management connection is 00:26:6c:48:af:57 at port 12.

Figure 7-1

- Port No: Displays the port number being assigned the MAC addresses.
- MAC Address: Users can assign up to 3 MAC addresses to the port.
- Read: Pull down the selection bar to choose a port number and click the read button to show the MAC addresses bound with the port or modify the MAC addresses.
- Select Port: Pull down the selection menu bar to choose a port number to be set.
- Binding: Enable or disable the binding function.

Click **Update** to have the configuration take effect.

## TCP/UDP Filter

**TCP\_UDP Filter Configuration**

Function Enable:  Disable  Enable

Port Filter Rule:  Enable  Disable

Note: (1) The outgoing packet with selected protocol will be either forwarded or dropped at source WAN port as the figure shows below. (2) "Aggressive" means the selected protocol will be dropped and other protocols will be forwarded. (3) "Normal" means the selected protocol will be forwarded and other protocols will be dropped.

Protect	Secure WAN port
<input type="checkbox"/> FTP(21) <input type="checkbox"/> SSH(22) <input type="checkbox"/> TELNET(23) <input type="checkbox"/> SMTP(25) <input type="checkbox"/> DNS(53) <input type="checkbox"/> FTP(69) <input type="checkbox"/> HTTP(80) <input type="checkbox"/> POP3(110) <input type="checkbox"/> NTP(123) <input type="checkbox"/> R-4000(137-139) <input type="checkbox"/> MA(143,220) <input type="checkbox"/> RDP(135,136) <input type="checkbox"/> HTTP(443) <input type="checkbox"/> SSO(443) <input type="checkbox"/> BOOTP(67,68) <input type="checkbox"/> User_Dinma... <input type="checkbox"/> User_Dinma... <input type="checkbox"/> User_Dinma... <input type="checkbox"/> User_Dinma...	<input type="checkbox"/> Port0 <input type="checkbox"/> Port1 <input type="checkbox"/> Port2 <input type="checkbox"/> Port3 <input type="checkbox"/> Port4 <input type="checkbox"/> Port5 <input type="checkbox"/> Port6 <input type="checkbox"/> Port7 <input type="checkbox"/> Port8

Note: The description of Secure WAN port is shown below:

Figure 7-2

# Spanning Tree

## STP Bridge Settings

### STP Bridge Settings

Spanning Tree Settings				
STP Mode	Bridge Priority (0-61440)	Hello Time (1~10 Sec)	Max Age (6~40 Sec)	Forward Delay (4~30 Sec)
▼	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Submit"/>				
<i>Note: 2*(Forward Delay-1) &gt;= Max Age,            Max Age &gt;= 2*(Hello Time+1)            Bridge Priority must be multiples of 4096</i>				

Note: If you enable the MAC address binding function, the address learning 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	32768:00:0F:C9:05:BE:57	2	20	15

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

Figure 8-1

- **Bridge Priority:** This parameter configures the spanning tree priority globally for this switch. The device with the highest priority becomes the STP root device. However, if all devices have the same priority, the device with the lowest MAC address will then become the root device. Number between 0 - 61440 in increments of 4096. Therefore, there are 16 distinct values.
- **Hello Time:** Interval (in seconds) at which the root device transmits a configuration message (BPDU frame). Number between 1-10 (default is 2).
- **Max Age –** The maximum time (in seconds) a device can wait without receiving a configuration message before attempting to reconfigure. That also means the maximum life time for a BPDU frame. Number between 6-40 (default is 20).
- **Forward Delay:** The maximum time (in seconds) the root device will wait before changing states (i.e., discarding to learning to forwarding). Number between 4 – 30 (default is 15)

## STP Port Settings

### STP Port Settings

STP Port Settings		
Port No.	Priority (0~240)	RPC (1~200000000) 0=AUTO
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Submit"/>		
Priority should be a multiple of 16		

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:0	0x80	-	Disable	-	-
7	Auto:0	0x80	-	Disable	-	-
8	Auto:0	0x80	-	Disable	-	-
9	Auto:0	0x80	-	Disable	-	-
10	Auto:0	0x80	-	Disable	-	-
11	Auto:0	0x80	-	Disable	-	-
12	Auto:0	0x80	-	Disable	-	-
13	Auto:0	0x80	-	Disable	-	-
14	Auto:0	0x80	-	Disable	-	-
15	Auto:0	0x80	-	Disable	-	-
16	Auto:0	0x80	-	Disable	-	-
17	Auto:0	0x80	-	Disable	-	-
18	Auto:0	0x80	-	Disable	-	-

**Figure 8-2**

- Port No: The port ID. It cannot be changed. Aggregations mean any configured trunk group.
- Root Path Cost: This parameter is used by the STP to determine the best path between devices. Therefore, lower values should be assigned to ports attached to faster media, and higher values assigned to ports with slower media. Set the RSTP path cost on the port. Number between 0 - 200000000. 0 means auto generated path cost.
- State: Show the current port state includes designated port, root port or blocked port.
- Status: Show the current port status includes forwarding, disable etc...

## Loopback Detection Settings

### Loopback Detection Settings

<b>Loopback Detect Function</b>	Disable ▾
<b>Auto Wake Up</b>	Disable ▾
<b>Wake-Up Time Interval</b>	10 sec ▾
<input type="button" value="Submit"/>	

- 5 sec
- 10 sec
- 30 sec
- 60 sec

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

Figure 8-3

# Trunking

Port trunk allows multiple links to be bundled together and act as a single physical link for increased throughput. It provides load balancing, and redundancy of links in a switched inter-network. Actually, the link does not have an inherent total bandwidth equal to the sum of its component physical links. Traffic in a trunk is distributed across an individual link within the trunk in a deterministic method that called a hash algorithm. The hash algorithm automatically applies load balancing to the ports in the trunk. A port failure within the trunk group causes the network traffic to be directed to the remaining ports. Load balancing is maintained whenever a link in a trunk is lost or returned to service. This switch may use Port ID, Source MAC Address, Destination MAC Address, or a combination of Source MAC Address and Destination MAC Address to be the selection for Trunk Hash Algorithm. Traffic pattern on the network should be considered carefully before applying it. When a proper hash algorithm is used, traffic is kind of randomly decided to be transmitted across either link within the trunk and load balancing will be seen. This managed switch supports two trunk group, each trunk consists of 2~4 ports. Trunk hash algorithm can be selected according to 4 different methods.

## Trunking

System Priority	1 (1~65535)
Link Aggregation Algorithm	MAC Src&Dest
Submit	

Refresh

Member	Link Group	
	P17	P18
State	Disable	Disable
Type	Static	Static
Operation Key	(1~65535)	
Time Out	Long Time Out	
Activity	Passive	
Submit		

Note: If you enable LACP on some specified ports and their link partners are normal port without LACP, these specified ports cannot transmit packet to/receive packet from the link partner.

Figure 9-1

# Backup/Recovery

This function provides the user with a method to backup/recovery the switch configuration. The user can save configuration file to a specified file. If the user wants to recover the original configuration, which is saved at the specified path, just enter the password and then press the “upload” button. Finally the original configuration of the switch will be recovered.

## Configuration Backup/Recovery

**Backup(Switch→PC)**

Please check "Download" to download EEPROM contents.

**Recovery(PC→Switch)**

Select the image file :

Password:

Figure 10-1

# Miscellaneous

Miscellaneous setting is used to configure output queue aging time, VLAN stride and IGMP snooping.

## Miscellaneous Setting

Output Queue Aging Time								
Aging time Default: ms	The output queue aging function allows the administrator to select the aging time of a packet stored in the output queue. A packet stored in the output queue for a long time will lower the free packet buffer, resulting in the poor utilization of the buffer and the poor switch performance.							
VLAN Striding								
VLAN Striding Default:	When this function is enabled, the switch will forward a uni-cast packet to the destination port. No matter whether the destination port is in the same VLAN group.							
IGMP Snooping V1 & V2								
IGMP Snooping Default:	IGMP Snooping V1 & V2 function enable							
IGMP Leave Packet Default:	Leave packet will be forwarded to IGMP router ports.							
VLAN Uplink Setting								
Port 01 Uplink1 Uplink2	Port 02 Uplink1 Uplink2	Port 03 Uplink1 Uplink2	Port 04 Uplink1 Uplink2	Port 05 Uplink1 Uplink2	Port 06 Uplink1 Uplink2	Port 07 Uplink1 Uplink2	Port 08 Uplink1 Uplink2	Port 09 Uplink1 Uplink2
Port 10 Uplink1 Uplink2	Port 11 Uplink1 Uplink2	Port 12 Uplink1 Uplink2	Port 13 Uplink1 Uplink2	Port 14 Uplink1 Uplink2	Port 15 Uplink1 Uplink2	Port 16 Uplink1 Uplink2	Port 17 Uplink1 Uplink2	Port 18 Uplink1 Uplink2
<input type="checkbox"/> Clear Uplink1 <input type="checkbox"/> Clear Uplink2								
<input type="button" value="Update"/>								

Figure 11-1

- Output queue aging: This function is used to avoid the poor utilization of the switch. When a packet is stored in a switch for a long time, it will expire from the allowable time defined by the protocol and become a useless packet. To prevent these packets from wasting the bandwidth, this switch provide an option for the administrator to enable the queue aging function.
- VLAN Striding: By selecting this function, the switch will forward uni-cast packets to the destination port, no matter whether destination port is in the same VLAN.
- IGMP Snooping: When this function is enabled, the switch will execute IGMP snooping version 1 and version 2 without the intervention of CPU. The IGMP report and leave packets are automatically handled by the switch.

# Logout

The administrator has write access for all parameters governing the onboard agent. User should therefore assign a new administrator password as soon as possible, and store it in a safe place.

## When you forgot your IP or password, please use the reset button for the factory default setting?

Please take the following steps to reset the Web Smart Switch back to the original default:

### Step 1:

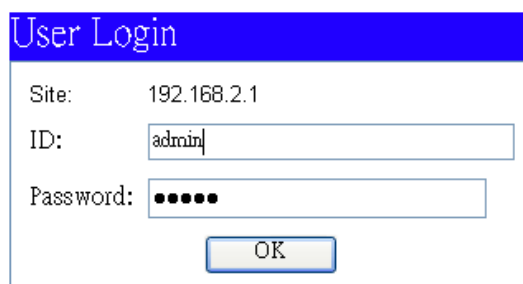
Turn on the Web Smart Switch

### Step 2:

Press and hold the reset button continuously for 5 seconds and release the reset button.

### Step 3:

The switch will reboot for 20 seconds and the configuration of switch will back to the default setting.



The image shows a 'User Login' dialog box with a blue title bar. It contains three input fields: 'Site' with the value '192.168.2.1', 'ID' with the value 'admin', and 'Password' with five black dots. An 'OK' button is located at the bottom center of the dialog.

Figure 12-1

Key in the user ID and the password to pass the authentication; the user ID and the password are “admin”

IP: 192.168.2.1

ID: admin

Password: admin