

ES2426-31

**24-port 10/100M PoE + 2 Gigabit Copper/SFP Combo Rackmount
Web Smart PoE Switch**

User's Manual



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EVERFOCUS ELECTRONICS CORPORATION

ES2426-31

User's Manual

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- 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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1. Introduction

1.1 Product Overview

This switch provides 24 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. 24 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 24 10/100Mbps RJ-45 support the IEEE 802.3at PoE protocol. Each port can transmit a maximum power 30 watts. User can also enable or disable power supply on PoE ports from UI.

1.2 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

1.3 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.at 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
 - 24-port 10/100BaseTX with PoE
 - 2-port Combo Gigabit uplink (RJ-45/SFP)

1.4 Mechanical

- LED Indicator
 - Per Port: Link/ Act
 - PoE Port: Act/Status
 - Per Unit: Power
- Power Consumption: 400Watts (Max)
- Power Input: 100~240V/AC, 50~60HZ
- Power Output: 48V/DC per Port Output – 30W Max per Port
- Product Dimensions/ Weight
 - 44 × 440 × 332 mm (H × W ×D) / 4.7kg

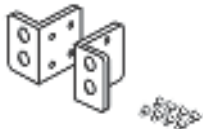
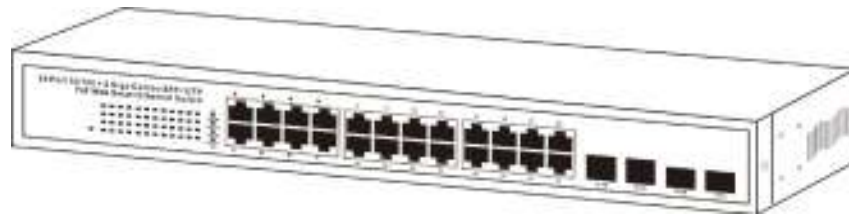
1.5 Performance

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

1.6 Package Contents

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

1. One Fast Ethernet PoE Switch
2. One Power Cord
3. One User Manual
4. One pair Rack-mount kit + 8 Screws



2. Hardware Description

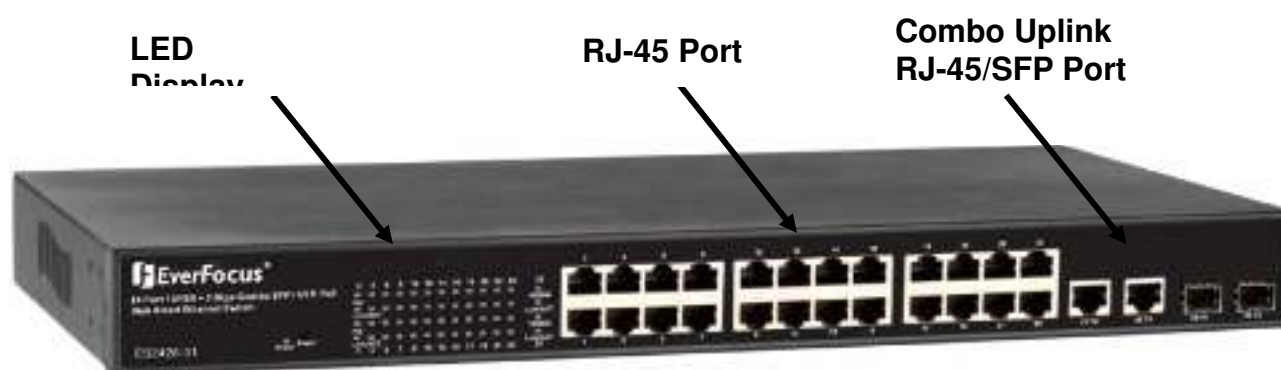
This section mainly describes the hardware of the 8 PoE port Ethernet Combo Web-Smart Switch and gives a physical and functional overview on the certain switch.

2.1 Physical Dimensions/ Weight

44 × 440 × 332 mm (H × W ×D) / 4.7kg

2.2 Front Panel

The front panel of the web smart switch consists of 24 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.



2.3 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 (25~26)
	off	Link 10/100Mbps	
Link/ ACT	On	Link	26 (1~26)

	Flashing	Data activating	26 (1~26)
PoE	On	Port is linked to Power Device	24 (1~24)
	Off	No Power Device is connected	24 (1~24)



2.4 Rear Panel

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



2.5 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.

Chapter 3

3. 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

4. Administrator

4.1 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	<div> <input type="password" value="•••••"/> <input type="password" value="•••••"/> </div> max:15
<input type="button" value="Update"/>	

Note:

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

Figure 2-1

4.2 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.

4.3 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	00-03-cw-01-28-d9
Number of Ports	24+2
Comment	<input type="text"/> MAX 15
System Version	V101210.
<input type="checkbox"/> Idle Time Security	idle time: <input type="text"/> (1-60 Minutes) <input type="radio"/> Auto Logout(Default) <input type="radio"/> Back to the last display.
<input type="button" value="Update"/>	

Note:
Commented content will not be shown on the LCD screen.

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.

4.4 Load Default Setting

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

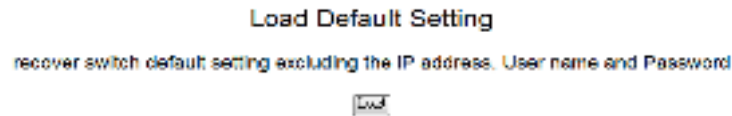


Figure 2-4

- ※ 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.

4.5 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.



The image shows a web page titled "Firmware Update". It contains a form with two input fields labeled "Password" and "ReConfirm", followed by an "Update" button. Below the form, there is a notice: "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.



The image shows two web pages. The top page is titled "Firmware Update by Web" and contains a "Select the image file:" label, a text input field, a "Browse..." button, and an "UPDATE" button. Below the "UPDATE" button, there is a notice: "If the update process somehow goes wrong(Ex: power failure), please connect to <http://192.168.2.1> to restart.(If possible, reset device first)". The bottom page is titled "Firmware Update by TFTP" and contains the text: "(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

4.6 Reboot Device

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



The image shows a web page titled "Reboot Device:". It contains a button labeled "Confirm". Below the button, there is a text label: "Click 'Confirm' to Reboot the Device".

Figure 2-7

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

Chapter

5

5. Port Management

Port Management includes Port Configuration, Port Mirroring, Bandwidth Control, Broadcast Storm Control and PoE

5.1 Port Configuration

In Port Configuration, you can set and view the operation mode for each port.

Port Configuration

Port	Speed	Duplex	Pause	Backpressure	TX Capability	Address Learning
Port 0	10/100	Full	Enable	Enable	Enable	Enable
Port 1	10/100	Full	Enable	Enable	Enable	Enable
Port 2	10/100	Full	Enable	Enable	Enable	Enable
Port 3	10/100	Full	Enable	Enable	Enable	Enable
Port 4	10/100	Full	Enable	Enable	Enable	Enable
Port 5	10/100	Full	Enable	Enable	Enable	Enable
Port 6	10/100	Full	Enable	Enable	Enable	Enable
Port 7	10/100	Full	Enable	Enable	Enable	Enable
Port 8	10/100	Full	Enable	Enable	Enable	Enable
Port 9	10/100	Full	Enable	Enable	Enable	Enable
Port 10	10/100	Full	Enable	Enable	Enable	Enable
Port 11	10/100	Full	Enable	Enable	Enable	Enable
Port 12	10/100	Full	Enable	Enable	Enable	Enable
Port 13	10/100	Full	Enable	Enable	Enable	Enable
Port 14	10/100	Full	Enable	Enable	Enable	Enable
Port 15	10/100	Full	Enable	Enable	Enable	Enable
Port 16	10/100	Full	Enable	Enable	Enable	Enable
Port 17	10/100	Full	Enable	Enable	Enable	Enable
Port 18	10/100	Full	Enable	Enable	Enable	Enable
Port 19	10/100	Full	Enable	Enable	Enable	Enable
Port 20	10/100	Full	Enable	Enable	Enable	Enable
Port 21	10/100	Full	Enable	Enable	Enable	Enable
Port 22	10/100	Full	Enable	Enable	Enable	Enable
Port 23	10/100	Full	Enable	Enable	Enable	Enable
Port 24	10/100	Full	Enable	Enable	Enable	Enable
Port 25	10/100	Full	Enable	Enable	Enable	Enable
Port 26	10/100	Full	Enable	Enable	Enable	Enable
Port 27	10/100	Full	Enable	Enable	Enable	Enable
Port 28	10/100	Full	Enable	Enable	Enable	Enable
Port 29	10/100	Full	Enable	Enable	Enable	Enable
Port 30	10/100	Full	Enable	Enable	Enable	Enable
Port 31	10/100	Full	Enable	Enable	Enable	Enable

Figure 3-1

- Auto-Negotiation: Enable and Disable. Being set as 'Enable', the Speed, Duplex mode, Pause, Backpressure, TX Capability and Address Learning are negotiated automatically. When you set it as 'Disable', you have to assign those items manually.
- Speed: When the Auto-Negotiation column is set as Disable, users have to set the connection speed to the ports ticked.
- Duplex: When the Auto-Negotiation column is set as Disable, users have to set the connection mode in Half/Full to the ports ticked.
- Pause: Flow Control for connection at speed of 10/100Mbps in Full-duplex mode.
- Backpressure: Flow Control for connection at speed of 10/100Mbps in Half-duplex mode.
- TX/RX Capability: When the Auto-Negotiation column is set as Disable, users have to set this

column as Enable or Disable.

- Addr. Learning: When the Auto-Negotiation column is set as Disable, users have to set this column as Enable or Disable.
- Select Port No.: Tick the check boxes beside the port numbers being set.
- Click Update to have the configuration take effect.
- Current Status: Displays current port status.
- Setting Status: Displays current status.

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

5.2 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	10	11	12	13
	14	15	16	17	18	19	20	21	22	23	24	25	26
Monitored Packets	<div> <input type="text" value="All"/> </div>												
Source Port	1	2	3	4	5	6	7	8	9	10	11	12	13
	14	15	16	17	18	19	20	21	22	23	24	25	26
<input type="button" value="Update"/>													
Status: No Traffic on this Channel													

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.

5.3 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	Link Speed	Port No.	Tx Rate	Rx Rate	Link Speed
1	Full Speed	Full Speed	---	14	Full Speed	Full Speed	---
2	Full Speed	Full Speed	---	15	Full Speed	Full Speed	---
3	Full Speed	Full Speed	---	16	Full Speed	Full Speed	---
4	Full Speed	Full Speed	---	17	Full Speed	Full Speed	---
5	Full Speed	Full Speed	---	18	Full Speed	Full Speed	---
6	Full Speed	Full Speed	---	19	Full Speed	Full Speed	---
7	Full Speed	Full Speed	---	20	Full Speed	Full Speed	100M
8	Full Speed	Full Speed	---	21	Full Speed	Full Speed	---
9	Full Speed	Full Speed	---	22	Full Speed	Full Speed	---
10	Full Speed	Full Speed	---	23	Full Speed	Full Speed	---
11	Full Speed	Full Speed	---	24	Full Speed	Full Speed	---
12	Full Speed	Full Speed	---	25	Full Speed	Full Speed	---
13	Full Speed	Full Speed	---	26	Full Speed	Full Speed	---

Figure 3-3

5.4 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	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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	14	15	16	17	18	19	20	21	22	23	24	25	26

Update

This value indicates the number of broadcast packet which is allowed to enter each port in one time unit. One time unit is 60us for Gigabit speed, 500 us for 100Mbps speed and 5000us for 10Mbps speed.

Note: 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.

5.5 PoE

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

POE Configuration

Port	1	2	3	4	5	6	7	8
Enable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IEEE Current	0K Load	0K Load	0K Load	0K Load	0K Load	Port A to 15Watt	No Load	No Load
Maximum Output Power	---	---	---	---	---	50W	---	---
POE Class						Class 4		
Port	9	10	11	12	13	14	15	16
Enable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IEEE Current	0K Load	0K Load	0K Load	0K Load	0K Load	No Load	No Load	No Load
Maximum Output Power	---	---	---	---	---	---	---	---
POE Class	---	---	---	---	---	---	---	---

Figure 3-5

Chapter 6

6. 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.

6.1 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



Figure 4-1

VLAN Mode

VLAN Mode	Tag Based VLAN <input type="button" value="Change VLAN mode"/>											
Tag Based	Port 11 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 12 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 13 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 14 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 15 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 16 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 17 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 18 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 19 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 20 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 21 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 22 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag
	Port 23 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 24 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 25 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 26 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 27 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 28 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 29 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 30 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 31 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 32 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 33 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 34 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag
	Port 35 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 36 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 37 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 38 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 39 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 40 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 41 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 42 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 43 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 44 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 45 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag	Port 46 <input type="radio"/> Add Tag <input type="radio"/> Don't care <input type="radio"/> Remove Tag

Note:
If the table is empty, it is not possible to select the VLAN tag.
In this case, the table is empty, and the network administrator is required to select 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

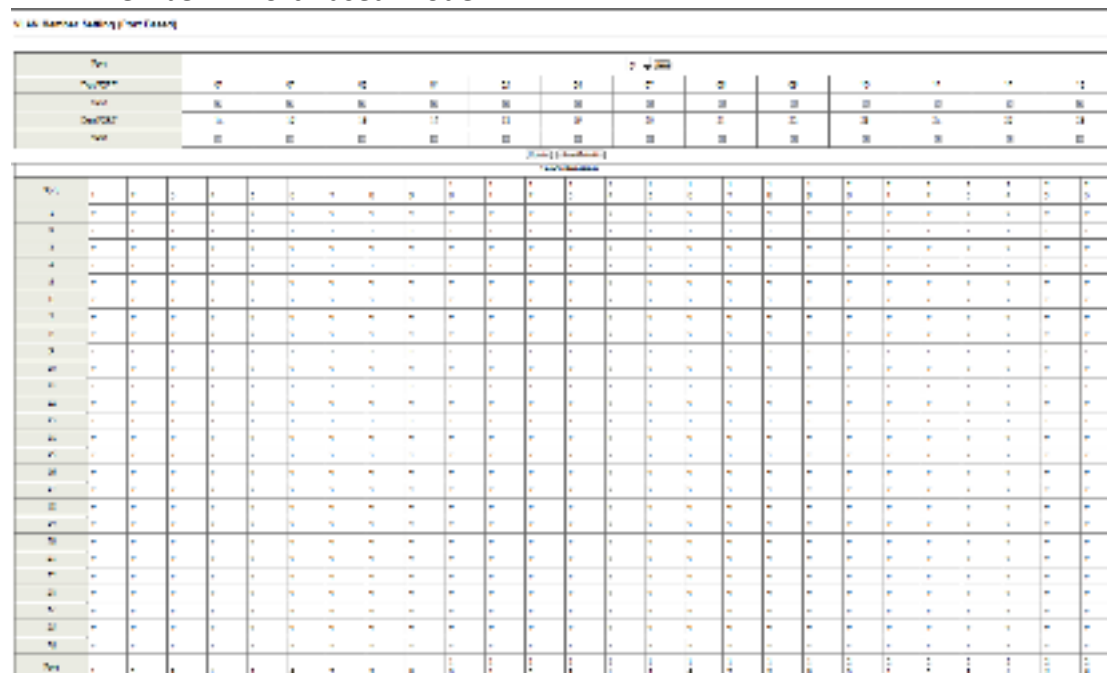
the source port. This is the default setting when starting VLAN configuration. You should change to either Add or Remove Tag.

- 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.

6.2 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



Port	VLAN
1	1
1	2
1	3
1	4
1	5
1	6
1	7
1	8
1	9
1	10
1	11
1	12
1	13
1	14
1	15
1	16
1	17
1	18
1	19
1	20
1	21
1	22
1	23
1	24
2	1
2	2
2	3
2	4
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2	6
2	7
2	8
2	9
2	10
2	11
2	12
2	13
2	14
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2	19
2	20
2	21
2	22
2	23
2	24
3	1
3	2
3	3
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3	6
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3	10
3	11
3	12
3	13
3	14
3	15
3	16
3	17
3	18
3	19
3	20
3	21
3	22
3	23
3	24
4	1
4	2
4	3
4	4
4	5
4	6
4	7
4	8
4	9
4	10
4	11
4	12
4	13
4	14
4	15
4	16
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4	20
4	21
4	22
4	23
4	24
5	1
5	2
5	3
5	4
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5	21
5	22
5	23
5	24
6	1
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7	24
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8	21
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8	23
8	24
9	1
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11	24
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23	23
23	24
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24	16
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24	19
24	20
24	21
24	22
24	23
24	24

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 (Tap Name)

VID: 1000

When Remove VID is selected, the VID number for this entry will disappear and cannot be added again. If you select the VID for this entry, the VID number will be added back. If you select the VID for this entry, the VID number will be added back.

VLAN Member	1	2	3	4	5	6	7	8
VLAN 1000	<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 1001	<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 1002	<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 1003	<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 1004	<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 1005	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When you click on the Add button, the VID number will be added back. If you select the VID for this entry, the VID number will be added back.

VLAN Member	1	2	3	4	5	6	7	8
VLAN 1000	<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 1001	<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 1002	<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 1003	<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 1004	<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 1005	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For PVID

Port	1	2	3	4	5	6	7	8
VLAN 1000	<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 1001	<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 1002	<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 1003	<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 1004	<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 1005	<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 PVID

Port	1	2	3	4	5	6	7	8
VLAN 1000	<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 1001	<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 1002	<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 1003	<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 1004	<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 1005	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 4-4

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.

MARCH 30, 1945 (19)

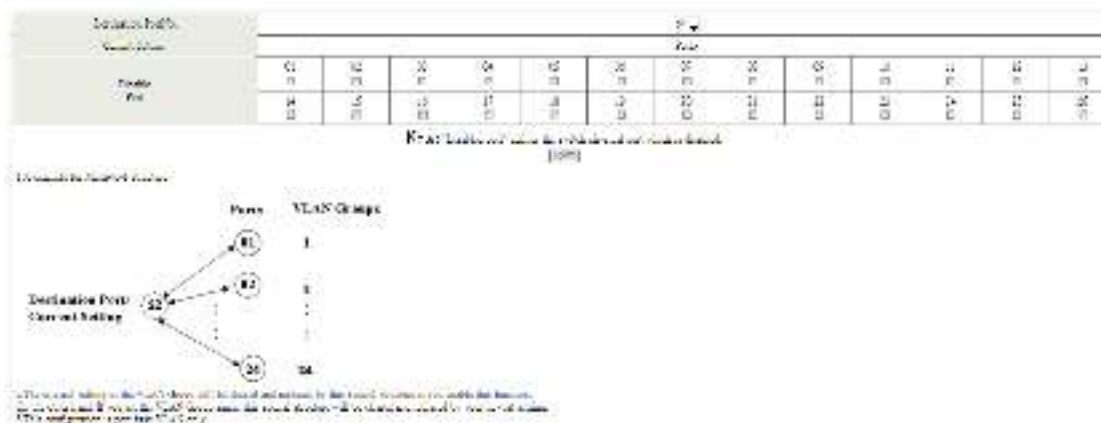


Figure 4-5

Chapter 7

7. Per Port Counter

7.1 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

Port	Receive Packet	Transmit Packet	Collision	Drop	CRC Error
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
22	0	0	0	0	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0
26	0	0	0	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.

Chapter 8

8. 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.

8.1 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

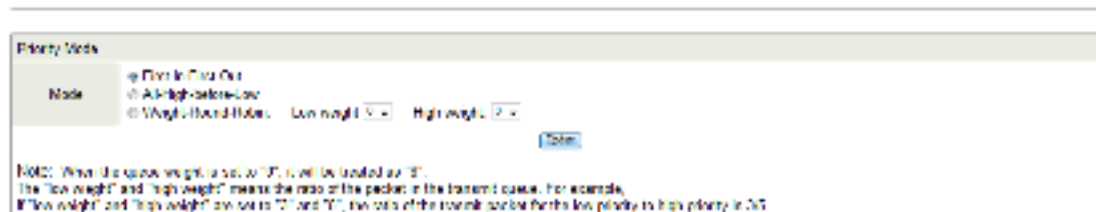


Figure 6-1

- 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.

8.2 Port, 802.1p, IP/DS based

Class of Service Configuration

8-Create High Priority							
Port No./Mask	802.1p	802.1Q	IP/DS	Port No./Mask	Port No.	802.1Q	IP/DS
1	15	15	15	14	15	15	15
2	15	15	15	15	15	15	15
3	15	15	15	16	15	15	15
4	15	15	15	17	15	15	15
5	15	15	15	18	15	15	15
6	15	15	15	19	15	15	15
7	15	15	15	20	15	15	15
8	15	15	15	21	15	15	15
9	15	15	15	22	15	15	15
10	15	15	15	23	15	15	15
11	15	15	15	24	15	15	15
12	15	15	15	25	15	15	15
13	15	15	15	26	15	15	15

Legend

As long as any of these 327 addresses (255 IP Code) are Port 15, it suggests High, this port person will always be at the high priority.

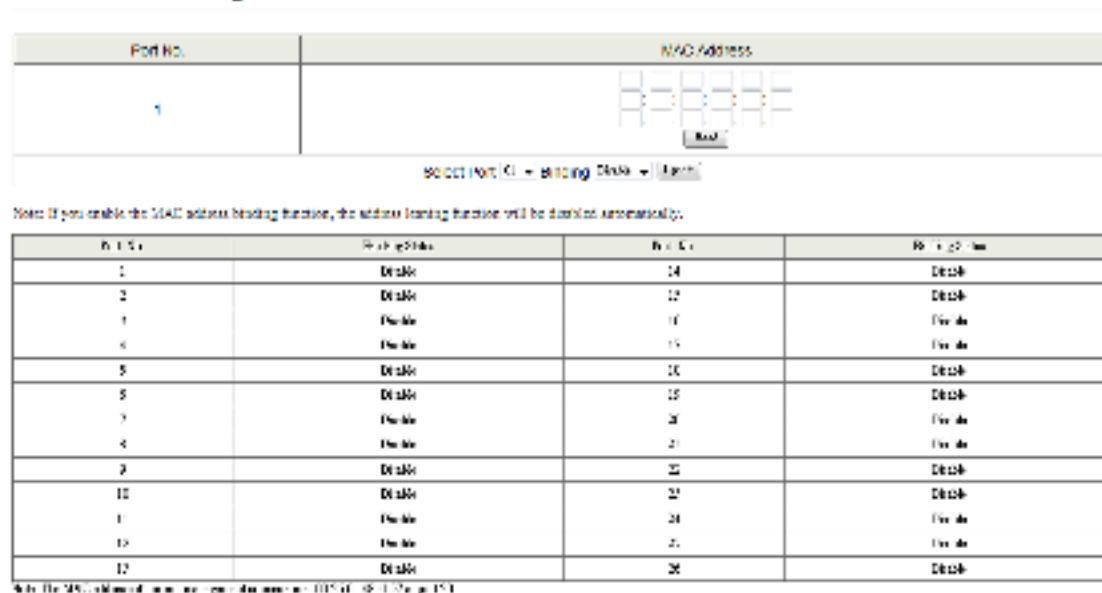
Figure 6-2

Chapter 9

9.Security

9.1 MAC Address Binding

MAC Address Binding



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	Disable	14	Disable
2	Disable	15	Disable
3	Disable	16	Disable
4	Disable	17	Disable
5	Disable	18	Disable
6	Disable	19	Disable
7	Disable	20	Disable
8	Disable	21	Disable
9	Disable	22	Disable
10	Disable	23	Disable
11	Disable	24	Disable
12	Disable	25	Disable
13	Disable	26	Disable

File: The MAC address binding configuration screen - 001 of 001 Page 151

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.

9.2 CP/UDP Filter

[illegible]

Figure 7-2

Chapter 10

10. Spanning Tree

10.1 STP Bridge Settings

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
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

After 2-Forward Delay time, the bridge will transition to the Forwarding state.

Max Age = 20 Sec (default)

Bridge Priority = 32768 (default)

Spanning Tree Mode: STP (default) or RSTP (default) or MSTP (default) or LACP (default)

Bridge Status				
STP Mode	Bridge ID	Max Age	Max Age	Forward Delay
STP	32768 (default)	2	20	15

Root Status			
Bridge ID	Max Age	Max Age	Forward Delay
32768 (default)	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)

10.2 STP Port Settings

STP Port Settings

STP Port Settings		
Port No.	Priority (1-240)	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	--	--
19	Auto:0	0x80	--	Disable	--	--
20	Auto:200000	0x80	Designated Port	Forwarding	--	--
21	Auto:0	0x80	--	Disable	--	--
22	Auto:0	0x80	--	Disable	--	--
23	Auto:0	0x80	--	Disable	--	--
24	Auto:0	0x80	--	Disable	--	--
25	Auto:0	0x80	--	Disable	--	--
26	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...

10.3 Loopback Detection Settings

Loopback Detection Settings

Loopback Detect Function	Disable ▼
Auto Wake Up	Disable ▼
Wake-Up Time Interval	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

Chapter 11

11. 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/Dst	
<input type="button" value="Submit"/>		

	Link Group 1				Link Group 2				Link Group 3	
Member	P1	P2	P3	P4	P5	P6	P7	P8	P25	P26
	<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"/>

State	Disable				Disable				Disable	
Type	LACP				LACP				LACP	
Operation Key	1 (1-65535)				2 (1-65535)				3 (1-65535)	
Time Out	Short Time Out				Short Time Out				Short Time Out	
Activity	Passive				Passive				Passive	
<input type="button" value="Submit"/>										

Note: If you enable LACP on some specified ports and their link partners are normal port without LACP, these specified ports cannot trunk.

Figure 9-1

Chapter 12

12. 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

Chapter 13

13. Miscellaneous

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

Miscellaneous Setting

Default Configuration Table

Output Queue Aging Time
 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 expire the this packet. Enable, enabling the function of output queue aging time. (Unit: second)
☐ Enable

VLAN Striding
 When this function is enabled, the switch will forward uni-cast packets to the destination port. To enable or disable the function, please refer to the VLAN group.
☐ Enable

IGMP Snooping
 IGMP Snooping let the switch enable.
☐ Enable

VLAN Striding Setting

Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port 7	Port 8	Port 9	Port 10	Port 11	Port 12	Global Setting
Port 1 VLAN Striding VLAN Striding	Port 2 VLAN Striding VLAN Striding	Port 3 VLAN Striding VLAN Striding	Port 4 VLAN Striding VLAN Striding	Port 5 VLAN Striding VLAN Striding	Port 6 VLAN Striding VLAN Striding	Port 7 VLAN Striding VLAN Striding	Port 8 VLAN Striding VLAN Striding	Port 9 VLAN Striding VLAN Striding	Port 10 VLAN Striding VLAN Striding	Port 11 VLAN Striding VLAN Striding	Port 12 VLAN Striding VLAN Striding	Global Setting VLAN Striding

Save

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.

Chapter 14

14. 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' window with a blue header. It contains three input fields: 'Site:' with the value '192.168.2.1', 'ID:' with the value 'admin', and 'Password:' with masked characters '*****'. Below these fields is a button labeled 'OK'.

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

Chapter 15

15. Specification

Model Name	ES2426-31
Standards	<p>Ethernet: IEEE 802.3 10BaseT, IEEE 802.3u 100BaseTX, IEEE 802.3ab 1000BaseT, IEEE 802.3z 1000BaseSX/LX</p> <p>IEEE 802.3x Flow Control</p> <p>IEEE 802.3ad Link Aggregation Control Protocol</p> <p>IEEE 802.1Q VLAN</p> <p>IEEE 802.1p Class of Service</p> <p>IEEE 802.1D Spanning Tree Protocol</p> <p>IEEE 802.1w Rapid Spanning Tree Protocol</p> <p>IEEE 802.3at Power Over Ethernet (PoE+)</p>
Features	<p>Number of Ports: 26</p> <p>10/100BaseTX with RJ-45 Connectors: 24 port with PoE+</p> <p>Gigabit Uplink: 2x 10/100/1000BaseT RJ-45 / Gigabit SFP Combo Port</p> <p>MAC Address: 4K</p> <p>Buffer Memory: 2.75Mb</p> <p>Transmission Method: Store and Forward</p>
Smart Features	<p>Port Based VLAN: 26</p> <p>Tagged Based VLAN: 32, VID = 1~4094</p> <p>STP/RSTP</p> <p>IGMP Snooping V1&V2</p> <p>Link Aggregation: 3 groups</p> <p>Quality of Service(QoS): High & Low queues, 802.1p</p> <p>Security: Port & MAC binding, 3 MAC per port</p> <p>Port: Port State, Speed/Duplex, Flow Control</p> <p>Port Mirroring</p> <p>Bandwidth Control</p> <p>Broadcast Storm Control</p> <p>PoE Control: PoE Port Enable/Disable, PoE Status</p>

	Management: Web Management, password protected access, Configuration backup/restore, TFTP firmware upgrade
Filtering/Forwarding Rates	1000Mbps port – 1,488,000pps, 100Mbps port - 148,800pps, 10Mbps port - 14,880pps
Transmission Media	10/100BaseTX Cat. 5 UTP/STP 1000BaseT Cat. 5 / Cat. 5E UTP/STP
LED Indicators	Per Port: Link/Act, PoE : Act / Status, Per Unit: Power
Power Input	100~240 V/AC, 50~60Hz
Power Output	53V DC Per Port Output
Power Consumption	400 Watt (Max.)
Dimensions	44 × 440 × 332 mm (H x W x D)
Operating Temperature	0 to 40°C
Storage Temperature	-20 to 90°C
Humidity	10 to 90% RH (non-condensing)
Certifications	FCC Class A, CE
Weight	4.7kg

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