

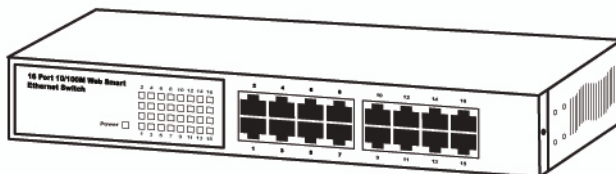


**SW-0016F2**

**User' s Manual**

# 16 Port Nway Fast Ethernet Switch

## Quick Installation Guide



## **FCC Warning**

This device has been tested and found to comply with limits for a Class A digital device, pursuant to Part 2 and 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates and radiates radio frequency energy and, if not installed and used in accordance with the user's manual, it may cause interference in which case users will be required to correct interference at their own expenses.

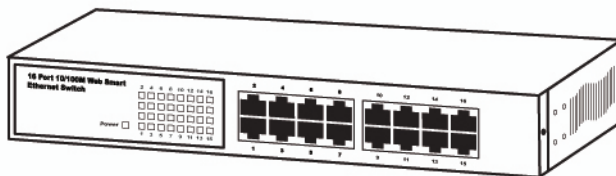
## **CE Warning**

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.

## **Introduction**

This switch provides 16 10/100M ports. It was designed for easy installation and high performance in an environment where traffic is on the network and the number of users increases continuously.

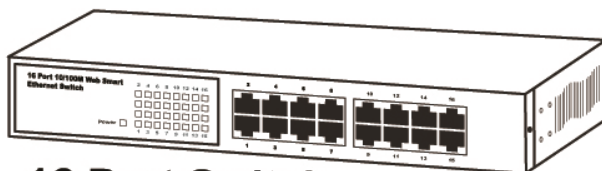
The compact rigid desktop size was specifically designed for small to medium workgroups. It can be installed where space is limited; moreover, it provides smooth network migration and easy upgrade to network capacity.



## Package Contents

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

- One Fast Ethernet Switch
- One Power Cord
- One Safety Warranty
- One pair Rack-mount kit + 8 Screws

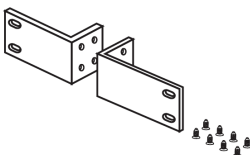


## 16 Port Switch

## Safety Warranty



POWER CORD



Note: If any of these items is found missing or damaged, please contact your local supplier for replacement.



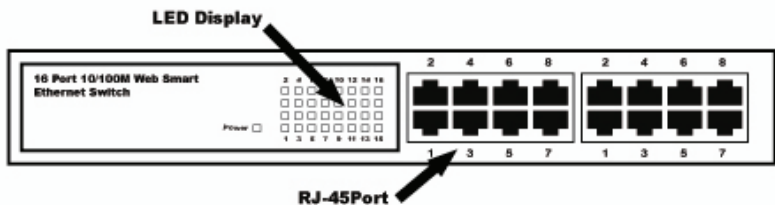
## Key Features

- 16 Port 10/100M Nway (Auto-negotiation) Switch
- 11" Desktop size with metal case
- Can be installed in a 19" cabinet by rack-mount kits
- Auto-learn of networking configurations
- Auto-detect full/half-duplex modes for any port
- Dedicated full-duplex 200Mbps bandwidth
- Store-and-Forward switching methods
- IEEE 802.3x flow control for full-duplex and back-pressure flow control for half-duplex
- Non-blocking & Non-head-of-line blocking full wire speed forwarding
- Auto-MDI/MDI-X function for any port
- Smart plug & play

## Front Panel (LEDs)

### LED Indicators of 16 Port 10/100M Switch

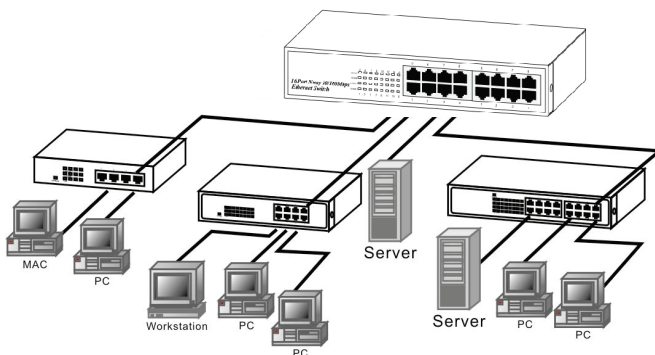
LED	Status	Description
Power	On	Power is on.
	Off	Power is off.
LINK/ACT	On	Port is for connection.
	Off	No connection.
	Flashing	Data is transmitting or receiving
10/100M	On	Port is on 100M status
	Off	Port is on 10M status.



## **Connections**

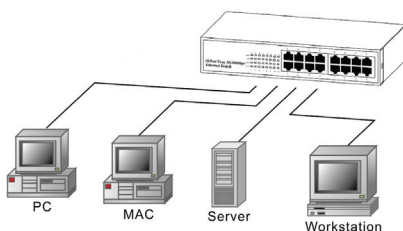
### **Switch/Hub to this 16 Port Fast Ethernet Switch**

This switch provides automatic crossover detection functionality for any port. It is simple and friendly to up-link to another switch without crossover cable.



### **PC/Other devices to this 16 Port Fast Ethernet Switch**

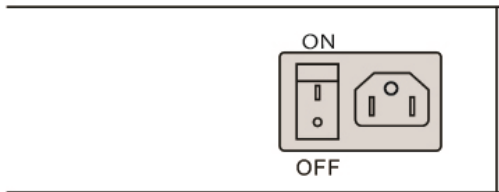
Via a twisted pair cable straight through, this switch can be connected to PCs, servers and other network devices.



## **Rear Panel (Power)**

### **AC input**

AC input (100~240V/AC, 50~60Hz) UL Safety



## **Technical Specifications**

Standards	IEEE 802.3 10BaseT IEEE 802.3u 100BaseTX IEEE 802.3x Flow control
Features	Number of Ports: 16 MAC Address: 4K Buffer Memory: 1.75Mb Method: Store and Forward
Filtering/ Forwarding Rates	100Mbps port – 148,809pps 10Mbps – 14,880pps
Transmission Media	10BaseT Cat. 3, 4, 5 UTP/STP 100BaseTX Cat. 5 UTP/STP
LED Indicators	Per Port: LINK/ACT, 10/100M Per Unit: Power
Power Requirement	100~240V/AC, 50~60Hz
Power Consumption	9 Watts (Max)
Dimensions	44 x 266 x 160 mm ( H x W x D )
Net Weight	1.30 kg
Operating Temperature	0 to 55°C
Storage Temperature	-20 to 90□
Humidity	10 to 90% RH (non-condensing)
Certifications	FCC Class A, CE

# **16 Port Nway Fast Ethernet Web Smart Switch**

## **User's Manual**

## User Log In

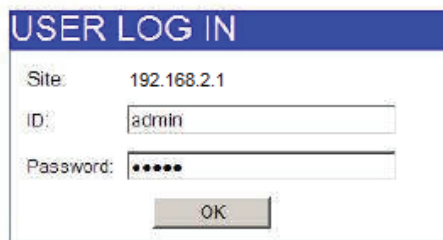
This part instructs user how to set up and manage the switch through the web user interface. Please follow the description to understand the procedure.

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

A screenshot of a web-based login form titled "USER LOG IN" in a blue header. The form contains three fields: "Site:" with the value "192.168.2.1", "ID:" with the value "admin", and "Password:" with five black dots. Below the password field is a grey button labeled "OK".

USER LOG IN	
Site:	192.168.2.1
ID:	admin
Password:	*****
<input type="button" value="OK"/>	

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



# Main Page

- Administrator
- Port Management
- VLAN Setting
- Per Port Counter
- QoS Setting
- Security
- Spanning Tree
- Trunking
- Eoc Detection
- Backup/Recovery
- Miscellaneous
- SNMP Settings
- Logout

16-port 10/100Mbps Ethernet Switch

246810121416

13579111315

16-Port 10/100Mbps Ethernet Switch

Advanced Features

Basic Features

Bandwidth control

Port based & 802.1Q based VLAN

Statistics Counter

Firewall

VLAN Uplink

Embedded HTTP web Management

Backup/Recovery Configuration

TFTP Software upgradeable

Secure Management

Password security

# Administrator: Authentication Configuration

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

16-port 10/100Mbps Ethernet Switch

246810121416

13579111315

Administrator

Authentication Configuration

System IP Configuration

System Status

Load default setting

Firmware Update

Reset Device

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Authentication Configuration

Setting	Value
Username	adminmax15
Password	*****max15
Confirm	*****

Update

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

## Administrator: System IP Configuration

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

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

Administrator

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System IP Configuration

System Status

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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="2"/> <input type="text" value="254"/>
IP Configure	<input checked="" type="radio"/> Static <input type="radio"/> DHCP

Update

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. The default gateway is 192.168.2.254

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



## Administrator: 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.

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

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System Status

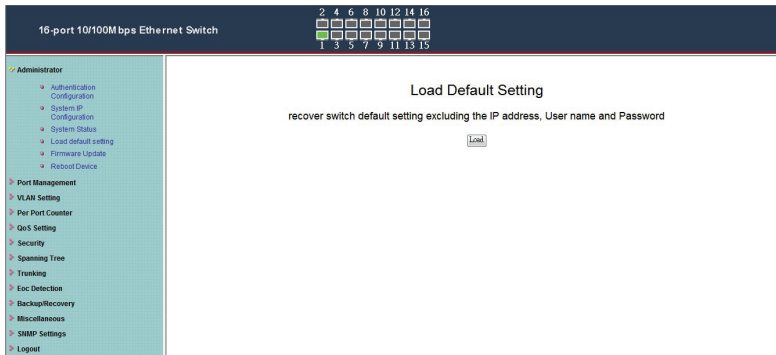
MAC Address	1040c13d01827
Number of Ports	16
Comment	<input type="text" value="svch"/>
System Version	V110317
Idle Time Security	<div>Idle Time: 0 (1~30 Minutes)</div> <div><input type="checkbox"/> Idle Time Security</div> <div><input type="radio"/> Auto Logout(Default).</div> <div><input type="radio"/> Back to the last display.</div> <div>Update</div>

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

- **MAC Address:** Displays the unique hardware address assigned by manufacturer (default).
- **Number of Ports:** Displays number of ports in the switch.
- **Comment:** Users can fill in up to 15 characters in this field.
- **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.

## Administrator: Load Default Setting to EEPROM

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



**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.

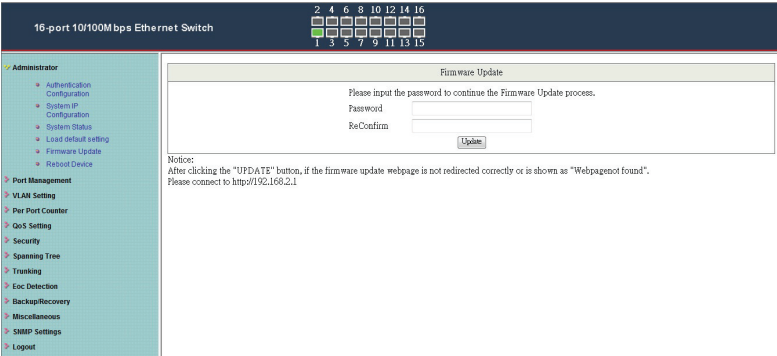
More detail information about Load Default Setting - Hardware Base is described as following.

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.

# Administrator: 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.



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.

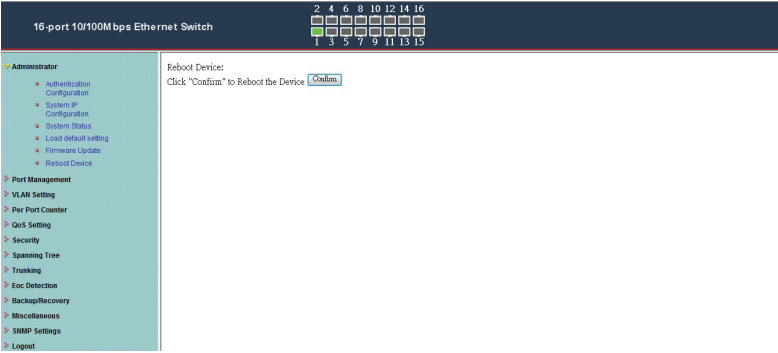
Firmware Update by Web	
Select the image file:	<input type="button" value="Browse"/> <input type="button" value="UPDATE"/>
If the update process somehow goes wrong(Ex: power failure), please connect to <a href="http://192.168.2.1">http://192.168.2.1</a> to restart.(if possible, reset device first.)	

Firmware Update by TFTP
(TFTP client)Use MS Windows' Command Prompt window to run tftp client program. Syntax: c:\tftp -i 192.168.2.1 put FILE_DIRECTORY\FILENAME.bin

# Administrator: Reboot Device

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



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

## Port Management: Port Configuration

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

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

Administrator

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- Port Mirroring
- Bandwidth Control
- Broadcast Storm Control

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Port Configuration

Function	Auto	Speed	Duplex	Pause	Backpressure	Tx/Rx Capability	Addr. Learning
Select Port No.	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16						
<div>Update</div>							

Port	Current Status				Setting Status						
	Link	Speed	Duplex	FlowCtrl	Auto-Nego	Speed	Duplex	Pause	Backpressure	Tx/Rx Cap.	Addr. Learning
1		100M	Full	ON	Auto	100M	full	on	on	on	on
2	---	---	---	---	Auto	100M	full	on	on	on	on
3	---	---	---	---	Auto	100M	full	on	on	on	on
4	---	---	---	---	Auto	100M	full	on	on	on	on
5	---	---	---	---	Auto	100M	full	on	on	on	on
6	---	---	---	---	Auto	100M	full	on	on	on	on

- **TX/RX Capability:** When the Auto-Negotiation column is set as Disable, users have to set this column as Enable or Disable.
- **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.
- **Addr. Learning:** When the Auto-Negotiation column is set as Disable, users have to set this column as

- Select Port No.: Enable or Disable. 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.

## Port Management: 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.

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

☒ 1 3 5 7 9 11 13 15

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Port Mirroring

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

- 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.

# Port Management: 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.

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

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Bandwidth Control

Port No	Tx Rate	Rx Rate
01 ▾	<input type="text" value="0-255 (0 full speed)"/>	<input type="text" value="0-255 (0 full speed)"/>
Speed Base	<div>Low ▾ Low:32Kbps High:512Kbps (1) When link speed is 10M. The Rate value is 1~19. (2) When link speed is 100M. The Rate value is 1~195. all ports use the same speed base</div>	
<div>Update LoadDefault</div>		

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(Kbps)	Rx Rate(Kbps)	Link Speed	Port No	Tx Rate(Kbps)	Rx Rate(Kbps)	Link Speed
1	Full Speed	Full Speed	100M	9	Full Speed	Full Speed	---
2	Full Speed	Full Speed	---	10	Full Speed	Full Speed	---
3	Full Speed	Full Speed	---	11	Full Speed	Full Speed	---



# Port Management: 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.

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

1 3 5 7 9 11 13 15

☒ ☐ ☐ ☐ ☐ ☐ ☐ ☐

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Broadcast Storm Control

Threshold

63  
1-63

	1	2	3	4	5	6	7	8
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"/>
	9	10	11	12	13	14	15	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"/>

Update

This value indicates the number of broadcast packet which is allowed to enter each port in one time unit. One time unit is 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.

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.

## VLAN Setting: VLAN Mode

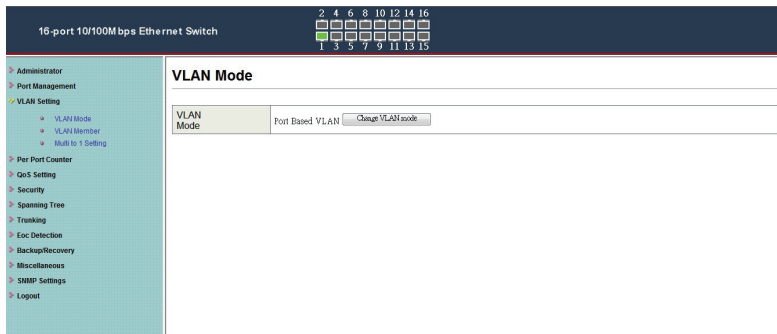
You may select the VLAN Mode of the switch.

### Port-Based Mode

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.

### Tag Based Mode

For the handover to other switches use Tag Based VLAN. In VLAN Mode you can switch from Port Based VLAN. Port Based VLAN is the default mode.



## VLAN Setting: VLAN Member in Port Based Mode

In Port Based Mode you see a matrix of your 16 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.

16 port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

> Administrator

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> VLAN Setting

> VLAN Mode

> VLAN Member

> Multi-VLAN Setting

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> Logout

VLAN Member Setting (Port Based)

Port

01

02

03

04

05

06

07

08

Dest PORT

select

Dest PORT

09

10

11

12

13

14

15

16

select

Update

Load/Default

VLAN MEMBER

Port

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

1

v

v

v

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## VLAN Setting: VLAN Member in Tag Based Mode

**Add a VLAN:** Enter a VID, select the VLAN member and click the VID source port and then enter a group name. Finally press “add” button to send this command. The VLAN will be added to the list.

**Delete a VLAN:** Select a VID and press “Delete” to remove a VLAN.

**Modify a VLAN:** Select a VID which you want to modify. After the web page shows up, select the VLAN member and VID source port and then press “update”.

## Add a VLAN Group

## Step 1: Select / De-Select the VLAN ID

Step 2: Select / De-Select VID source corresponding to this VID

### Step 3: Press “ Update ”

[illegible]

# VLAN Setting: Multi to 1 Setting

Multi to I 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.

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

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- VLAN Member
- Multi to 1 Setting

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IGMP Settings

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Multi to 1 Setting

Port : 01

Destination PortNo	Port:-															
Current Setting	Port:-															
Disable Port	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	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"/>

Update

1.A example for Multi-to-1 structure

Ports

VLAN Groups

01

1

02

2

:

:

:

:

M

M

Destination Port/Current Setting

N

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.

## Per Port Counter: Counter Category

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.

16 port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16  
1 3 5 7 9 11 13 15

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  - Port Counter
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- Logout

### Counter Category

Counter Mode Selection: Receive Packet & Transmit Packet  
Note: The counter will be cleared mode.  
Receive Packet & Transmit Packet  
Transmit Packet & Collision Count  
Receive Packet & Drop packet  
Receive Packet & CRC error packet  
Transmit Packet

Port			
01	3056		1994
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

- **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.

Per Port Counter function to EoC setting is disable

**Note :** Before the Port Counter is setting, please set EoC Detection function as “disable” mode.

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

Administrator

Port Management

VLAN Setting

Per Port Counter

Port Counter

QoS Setting

Security

Spanning Tree

Trunking

EoC Detection

EoC Detection Settings

Backup/Recovery

Miscellaneous

SNMP Settings

Logout

EoC Detection Settings

EoC Detection Function

Disable

Default

Port No.	Status
1	--
2	--
3	--
4	--
5	--
6	--
7	--
8	--
9	--
10	--
11	--
12	--

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

Administrator

Port Management

VLAN Setting

Per Port Counter

Port Counter

QoS Setting

Security

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Trunking

EoC Detection

EoC Detection Settings

Backup/Recovery

Miscellaneous

SNMP Settings

Logout

Counter Category

Counter Mode Selection: Receive Packet & Drop packet mode,  
Note:The counter will be cleared.  
Receive Packet & Transmit Packet  
Transmit Packet & Collision Count  
Receive Packet & Drop packet  
Receive Packet & CRC error packet  
Transmit Packet

Port			
01	5622	3567	
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	

## QoS Setting: 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.

The screenshot shows the configuration interface for a 16-port 10/100Mbps Ethernet Switch. The top header displays the switch name and a 4x4 grid of port status indicators (ports 1-16). The left sidebar contains a navigation menu with the following items: Administrator, Port Management, VLAN Setting, Per Port Counter, QoS Setting (selected), Security, Spanning Tree, Trunking, Eoc Detection, Backup/Recovery, Miscellaneous, SNMP Settings, and Logout. The QoS Setting menu is expanded, showing 'Priority Mode' and 'Class of Service'. The main content area is titled 'Priority Mode' and contains the following settings:

- Mode:** ☒ First-In-First-Out, ☐ All-High-before-Low(Strict Priority): All packets will be assigned to either Q2(high) priority queue or Q1(low) priority queue.
- Queue Configuration:** 4 Queue WRR => Q1: 8, Q2: 8, Q3: 8, Q4: 8. An 'Update' button is located to the right of the configuration.

- **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.



# QoS Setting: Class of Service

16-port 10/100Mbps Ethernet Switch

24810121416

13579111315

Administrator

Port Management

VLAN Setting

Per Port Counter

QoS Setting

Priority Mode

Class of Service

Security

Spanning Tree

Trunking

Eoc Detection

Backup/Recovery

Miscellaneous

SNMP Settings

Logout

Class of Service

The switch treats TCP/UDP, IP TOS/DS, 802.1p and physical port CoS scheme in the following priority.  
TCP/UDP > IP TOS/DS > 802.1p > Physical port.  
This means TCP/UDP CoS will override all other settings.

(1) TCP/UDP port

Protocol	Note: (1) Q1 ~ Q4 options are effective for the selected physical port only. (2) "Drop" option is the global setting for all physical ports.
FTP	Q1 ▾
SSH	Q1 ▾
TELNET	Q1 ▾
SMTP	Q1 ▾
DNS	Q1 ▾
TFTP	Q1 ▾
HTTP	Q1 ▾
POP3	Q1 ▾
NEWS	Q1 ▾
SNTP	Q1 ▾
NetBIOS	Q1 ▾
IMAP	Q1 ▾

There are 4 types of CoS for this setting; ie, TCP/UDP port, TOS/DS, 802.1p and physical port. The user can select more than one item for each port.

Please note that if more than one type of CoS is selected, the switch will arrange the packet to the assigned queue according the following priority: TCP/UDP port the first, ToS/DS the second, 802.1p the third and physical port the last.

For 802.1p priority, the following table is used to map the 802.1p field to the priory queue.

Priory Field	Priority Queue
6, 7	Q4
4,5	Q3
0,3	Q2
1,2	Q1

For TOS/DS priority, there are 7 kinds of TOS field can be assigned to 4 different queues. i.e; 6'b001010, 6'b010010, 6'b01110, 6'b100010, 6'b101110, 6'b110000 and 6'b111000.

## TCP/UDP port based COS

The user can select the protocol that will be forwarded as the specified mode. There are 3 user-defined UDP/TCP port groups and many well-known TCP/UDP ports. The user-defined port number may be a range or a specific number, depending on the mask.

The operating theory for all 4 CoS types can be illustrated by the following figure and table.

TCP/UDP CoS is a global setting for all ports and has no connection with the physical port. Other CoS types have a connection with the physical port.

- (a) **Priority Mode:** WRR. Q1=4; Q2=2; Q3=8; Q4=1
- (b) **TCP/UDP CoS:** P2 FTP =>Q3; P5 SMTP => Q2; other protocols=Q1
- (c) **TOS/DS setting:** P5 TOS 6'b010010=Q1; P2 TOS 6'b100010=Q3; other TOS=Q4
- (d) **802.1p:** P5 802.1p = 6; P2 802.1p = 1
- (e) **Physical port:** P2=Q4; P2=Q3

According to the rule described above, the CoS will be executed in the following sequence.

TCP/UDP > TOS/DS > 802.1p > Physical port.

The actual CoS will behave like this table.

<b>Switch Behavior Observed on P 3</b>	<b>Comment</b>
8 packets coming from P2; 2 packets coming from P5; 8 packets coming from P2;	If TCP/UDP CoS is enabled, the other CoS setting will be ignored.
8 packets coming from P2; 4 packets coming from P5; 8 packets coming from P2;	If TCP/UDP CoS is disabled, the switch will check TOS/DS CoS.
1 packet coming from P2; 4 packets coming from P5; 1 packets coming from P2;	If TOS/DS CoS is disabled, the switch will check the 802.1p field.
1 packet coming from P2; 8 packets coming from P5; 1 packet coming from P2;	If only physical port CoS is enabled, the switch only check the physical port CoS.

# Security: MAC Address Binding

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

➤ Administrator

➤ Port Management

➤ VLAN Setting

➤ Per Port Counter

➤ QoS Setting

➤ Security

➤ MAC Address Binding

➤ TCP/UDP Filter

➤ Web Security

➤ Spanning Tree

➤ Trunking

➤ Eoc Detection

➤ Backup/Recovery

➤ Miscellaneous

➤ SNMP Settings

➤ Logout

MAC Address Binding

Port No.	MAC Address
1	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>Read</div>

| Select Port: 01 Binding Disable Update | |

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.

Port No.	Filter Status	Port No.	Filter Status
1	Disable	9	Disable
2	Disable	10	Disable
3	Disable	11	Disable
4	Disable	12	Disable

- 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.

# Security: TCP/UDP Filter Configuration

16-port 10/100Mbps Ethernet Switch

246810121416

13579111315

Administrator

Port Management

VLAN Setting

Per Port Counter

QoS Setting

Security

- MAC Address Binding
- TCP/UDP Filter
- Web Security

Spanning Tree

Trunking

Eec Detection

Backup/Recovery

Miscellaneous

SNMP Settings

Logout

TCP\_UDP Filter Configuration

Function Enable

Disable

Deny

"Deny" means the outgoing packets to the selected port with selected protocol will be dropped and other protocols will be forwarded.

"Allow" means the selected protocol will be forwarded and other protocol will be dropped.

Note:  
1. The secure WAN port should be set at the physical port which is connected to the server.  
2. Once this function is enabled, the switch will check the destination TCP/UDP port number at the outgoing direction of the secure WAN port.  
If the condition matches, this packet will be dropped or forwarded.

Port Filtering Rule

Secure Port

Port01

Port02

Port03

Port04

Port05

Port06

Port07

Port08

Port09

Port10

Port11

Port12

Port13

Port14

Port15

Port16

FTP

SSH

TELNET

SMTP

DNS

TFTP

HTTP

POP3

By selecting the TCP/UDP port, the network administrator can optionally block some specific applications. There are two kinds of protocol filter functions.

## Allow Mode

The "forward" function makes the switch forward the selected protocol and drop other protocols.

## Deny Mode

The "deny" function makes the switch drop the selected protocol and forward other protocols. The protocol is checked at the selected secure WAN port. And it should be set at the server side.

The figure shown above illustrates how this function is applied to the real environment.

**Note:** The TCP/UDP Filter's user-defined Port-Range is in QoS Setting's Class of Service

# Security: Web Management Filter

16-port 10/100Mbps Ethernet Switch

246810121416

13579111315

Administrator

Port Management

VLAN Setting

Per Port Counter

QoS Setting

Security

- MAC Address Binding
- TCP/UDP Filter
- Web Security

Spanning Tree

Trunking

EoC Detection

Backup/Recovery

Miscellaneous

SNMP Settings

Logout

Web Management Filter

State:	Disable							
Access Port:	01	02	03	04	05	06	07	08
	<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"/>
	09	10	11	12	13	14	15	16
	<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"/>

Update

User select port which enable to access web management, unselect port can not access web management

User can select ports which enable to access the switch web management, the unselected ports can not be access it.

Please note that the default setting is each port can access the switch web management.

## Spanning Tree: STP Bridge Settings

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

- Administrator
- Port Management
- VLAN Setting
- Port Port Counter
- QoS Setting
- Security
- Spanning Tree
  - STP Bridge Settings
  - STP Port Settings
  - Loopback Detection
- Trunking
- Eoc Detection
- Backup/Recovery
- Miscellaneous
- SNMP Settings
- Logout

### STP Bridge Settings

**Spanning Tree Settings**

STP Mode	Bridge Priority	Hello Time	Max Age	Forward Delay
	(0~61440)	(1~10 Sec)	(6~40 Sec)	(4~30 Sec)
▼				

*Note: 2\*(forward Delay-1) >= Max Age.*

*Max Age >= 2\*(Hello Time+1)*

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	32768:10 F0 13 F0 18 27	2	20	15

- **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)

# Spanning Tree: STP Port Settings

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16  
1 3 5 7 9 11 13 15

Administrator
Port Management
VLAN Setting
Per Port Counter
QoS Setting
Security
Spanning Tree
STP Bridge Settings
STP Port Settings
Loopback Detection
Trunking
Eec Detection
Backup/Recovery
Miscellaneous
SNMP Settings
Logout

## STP Port Settings

STP Port Settings		
Port No.	Priority (0-240)	RPC (1-200000000) 0=Auto
1		
2		
3		
4		

Submit

## STP Port Status

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

- **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



# Spanning Tree: Loopback Detection Settings

16-port 10/100Mbps Ethernet Switch

246810121416

13579111315

Administrator

Port Management

VLAN Setting

Per Port Counter

QoS Setting

Security

Spanning Tree

- STP Bridge Settings
- STP Port Settings
- Loopback Detection

Trunking

Err. Detection

Backup/Recovery

Miscellaneous

SNMP Settings

Logout

Loopback Detection Settings

Loopback Detect Function	Disable ▾
Auto Wake Up	Disable ▾
Wake-Up Time Interval	10 sec. ▾

Submit

Reset All Ports

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

This feature is to detect each port, to see any cable loop occurred on a single port. When Transmit a data packet from one port and also Receive same data packet from the same port, it is caused by the cable which connect to the port has a loop (i.e. TX lines tie together with RX lines), This switch will disable the port.

# Trunking

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

Administrator
Port Management
VLAN Setting
Per Port Counter
QoS Setting
Security
Spanning Tree
Trunking
Link Aggregation Settings
Eoc Detection
Backup/Recovery
Miscellaneous
SNMP Settings
Logout

## Trunking

System Priority	1 (1~65535)
Link Aggregation Algorithm	MAC Address

Submit

Refresh

	Link Group 1				Link Group 2			
Member	P1	P2	P3	P4	P5	P6	P7	P8
	on	on	on	on	on	on	on	on
	on	on	on	on	on	on	on	on
State	Disable				Disable			
Type	LACP				LACP			
Operation Key	1 (1~65535)				2 (1~65535)			
Time Out	Short Time Out				Short Time Out			
Activity	Passive				Passive			

Submit

This page is used to set trunk group for load balance and auto-backup.

The smart switch supports two trunk group, each trunk consists of 2~4 ports. Trunk hash algorithm can be selected according to 4 different methods.

- Port ID:** Among the trunk member ports, the packet will be distributed based on the port ID.
- SA:** Among the trunk member ports, the packet will be distributed based on the source MAC address.
- DA:** Among the trunk member ports, the packet will be distributed based on the destination MAC address.
- DA&SA:** Among the trunk member ports, the packet will be distributed based on the XOR calculation result of the source MAC address and the destination MAC address.

# Eoc Detection

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16

1 3 5 7 9 11 13 15

Administrator

Port Management

VLAN Setting

Per Port Counter

QoS Setting

Security

Spanning Tree

Trunking

Eoc Detection

Eoc Detection Settings

Backup/Recovery

Miscellaneous

SNMP Settings

Logout

Eoc Detection Settings

Eoc Detection Function

Disable

Default

Port No.	Status
1	--
2	--
3	--
4	--
5	--
6	--
7	--
8	--
9	--
10	--
11	--
12	--

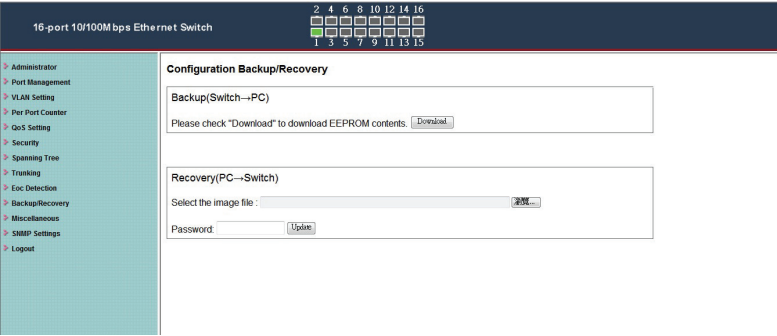
When this switch connects to the Ether Over Coax device, it will automatically be detected.

When the EoC device is under block conditions, the status will show “s Discard.”

When the EoC device is under normal conditions, the status will show “ - - “.

# 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.



## Miscellaneous

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

16-port 10/100Mbps Ethernet Switch		2 4 6 8 10 12 14 16 1 3 5 7 9 11 13 15																															
<div>Administrator</div> <div>Port Management</div> <div>VLAN Setting</div> <div>Per Port Counter</div> <div>QoS Setting</div> <div>Security</div> <div>Spanning Tree</div> <div>Trunking</div> <div>Eec Detection</div> <div>Backup/Recovery</div> <div>Miscellaneous</div> <div>SNMP Settings</div> <div>Logout</div>		<b>Miscellaneous Setting</b> <table><thead><tr><th colspan="2">Output Queue Aging Time</th></tr></thead><tbody><tr><td>Aging time Disable ▾ ms</td><td>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.</td></tr><tr><th colspan="2">VLAN Striding</th></tr><tr><td>VLAN Striding Disable ▾</td><td>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.</td></tr><tr><th colspan="2">IGMP Snooping V1 &amp; V2</th></tr><tr><td>IGMP Snooping Disable ▾</td><td>IGMP Snooping V1 &amp; V2 function enable</td></tr><tr><th colspan="2">VLAN Uplink Setting</th></tr><tr><td>Port 01 Uplink1 Uplink2</td><td>Port 02 Uplink1 Uplink2</td><td>Port 03 Uplink1 Uplink2</td><td>Port 04 Uplink1 Uplink2</td><td>Port 05 Uplink1 Uplink2</td><td>Port 06 Uplink1 Uplink2</td><td>Port 07 Uplink1 Uplink2</td><td>Port 08 Uplink1 Uplink2</td></tr><tr><td>Port 09 Uplink1 Uplink2</td><td>Port 10 Uplink1 Uplink2</td><td>Port 11 Uplink1 Uplink2</td><td>Port 12 Uplink1 Uplink2</td><td>Port 13 Uplink1 Uplink2</td><td>Port 14 Uplink1 Uplink2</td><td>Port 15 Uplink1 Uplink2</td><td>Port 16 Uplink1 Uplink2</td></tr></tbody></table>		Output Queue Aging Time		Aging time Disable ▾ 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 Disable ▾	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 Disable ▾	IGMP Snooping V1 & V2 function enable	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
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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																										

- 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.

## SNMP Settings

16-port 10/100Mbps Ethernet Switch

2 4 6 8 10 12 14 16  
1 3 5 7 9 11 13 15

Administrator  
Port Management  
VLAN Setting  
Per Port Counter  
QoS Setting  
Security  
Spanning Tree  
Trunking  
Eoc Detection  
Backup/Recovery  
Miscellaneous  
SNMP Settings  
Logout

### SNMP Settings

Community Settings

Community Name	Access Right
public	Read/Write
	Read Only

Update

SNMP Settings

System Description	
System Contact	
System Location	

Update

The SNMP Setting allows you to quick enable/ disable the SNMP function and configure the SNMP Community name.

The default SNMP setting is disabled. Click Enabled, enter community names to configure community Settings.

### Community Settings

**Community Name:** A community name that acts like a password and permints access to the SNMP protocol.

**Public:** Read-Only privilege allows authorized management stations to retrieve MIB objects.

**Private:** Read /write privilege allows authorized management stations to retrieve and modify MIB OBJECTS.

**SNMP Setting:** In support of SNMP version 1, the Web-Smart Switch accomplishes user authentication by using Community Settings that function as passwords. The remote user

SNMP application and the Switch SNMP must use the same community string. SNMP packets from a station that are not authenticated are ignored.

**System Description:** A description assigned to the switch system

**System Contact:** Specifies the system Contact.

**System Location:** Specifies the system location.

## 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:**

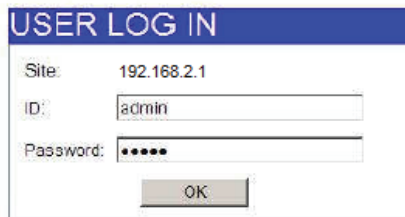
Turn on the Web Smart Switch

### **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.



A screenshot of a web-based user login interface. The title bar at the top is blue with the text "USER LOG IN" in white. Below the title bar, there are three input fields: "Site:" with the value "192.168.2.1", "ID:" with the value "admin", and "Password:" with five dots. 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