

8 Gigabit Web Smart Switch User's Manual

Release 1.0

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Revision History

Release	Date	Revision
1.0	08/08/2006	A1
1.1	08/28/2006	A1

Caution

Circuit devices are sensitive to static electricity, which can damage their delicate electronics. Dry weather conditions or walking across a carpeted floor may cause you to acquire a static electrical charge.

To protect your device, always:

- Touch the metal chassis of your computer to ground the static electrical charge before you pick up the circuit device.
- Pick up the device by holding it on the left and right edges only.

Electronic Emission Notices

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a class A computing device pursuant to Subpart J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

European Community (CE) Electromagnetic Compatibility Directive

This equipment has been tested and found to comply with the protection requirements of European Emission Standard EN55022/EN60555-2 and the Generic European Immunity Standard EN50082-1.

EMC:	EN55022(1988)/CISPR-22(1985)	class A
	EN60555-2(1995)	class A
	EN60555-3	
	IEC1000-4-2(1995)	4K V CD, 8KV, AD
	IEC1000-4-3(1995)	3V/m
	IEC1000-4-4(1995)	1KV – (power line), 0.5KV – (signal line)

1. Introduction

1-1. Overview of 8 Gigabit Web Smart Switch

8-port Gigabit Web Smart Switch is a standard switch that meets all IEEE 802.3/u/x/z Gigabit, Fast Ethernet specifications. The switch included 8-Port 10/100/1000Mbps TP Web Smart management Ethernet Switch. The switch can be managed through Ethernet port using Web-based management unit, associated with web-based management, the network administrator can login the switch to monitor, configure and control each port's activity. In addition, the switch implements the QoS (Quality of Service), VLAN, Trunking function and supports jumbo frame up to 9728 bytes. Jumbo packets can only be received or forwarded to 1000BASE-T linked ports that are jumbo-frame enabled. It is suitable for office application.

10/100/1000Mbps TP is a standard Ethernet port that meets all IEEE 802.3/u/x/z Gigabit, Fast Ethernet specifications.

Key Features in the Device

Port:

Port speed and Flow Control could be changed.

Max Packet Length:

The switch supports 9k of Jumbo Frame.

Port Counter:

It will record the numbers of different packets as simple statistics or detailed statistics.

VLAN:

The switch supports Port-based VLAN and IEEE802.1Q Tag VLAN. For users, maximum 30 sets of 802.1Q VLAN groups could be created. VLAN ID could be assigned as 1~4094.

Port Trunking:

Allows one or more links to be aggregated together to form a Link Aggregation Group by the static setting.

Mirror:

One port that has already been designated as Monitoring Port could monitor other ports that have been assigned as Monitored Ports.

QoS:

The QoS of the switch supports 802.1p (VLAN tag) and port priority.

Rate Limit and Strom Control:

Support the bandwidth control ingress and egress per port. The switch also

offer the Storm Control capability to decrease some broadcast, multicast, and unknown unicast frame from lowering the performance of the switch.

1-2. Checklist

Before you start installing the switch, verify that the package contains the following:

- A set of 8 Gigabit Web Smart Switch
- This User's Manual
- AC-DC Power Adapter

Please notify your sales representative immediately if any of the aforementioned items are missing or damaged.

1-3. User Interfaces on the Front Panel (Button, LEDs and Plugs)

There are 8 TP Gigabit Ethernet ports. LED display area, locating on the rear side of the panel, contains a Power LED, which indicates the power status and CPU working status of the switch.

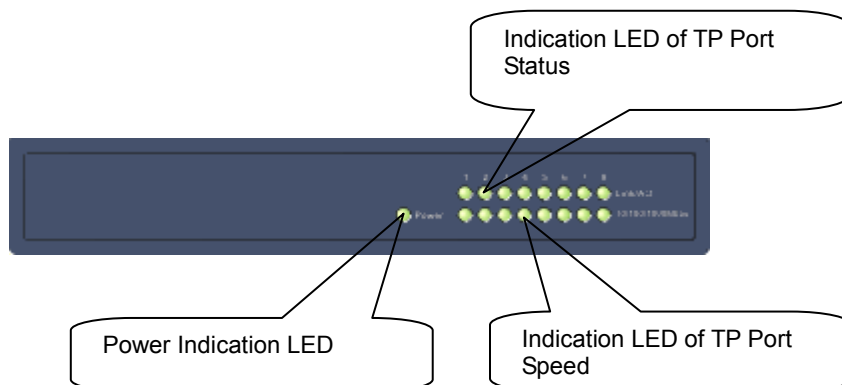


Fig. 1-1 Front View of 8 Gigabit Web Smart Switch

LED Indicators

LED	Color	Function
System LED		
POWER	Green	Light when +5V DC power is on.
10/100/1000Ethernet TP Port 1 to 8 LED		
LINK/ACT	Green	Light when connection with remote device. Blinks when any traffic is present. Off when cable connection is disconnected.
10/100/1000Mbps	Green/ Orange	Light green when 1000Mbps speed is active. Light Orange when 100Mbps speed is active. Off when 10Mbps speed is active.

Table1-1

1-4. User Interfaces on the Rear Panel

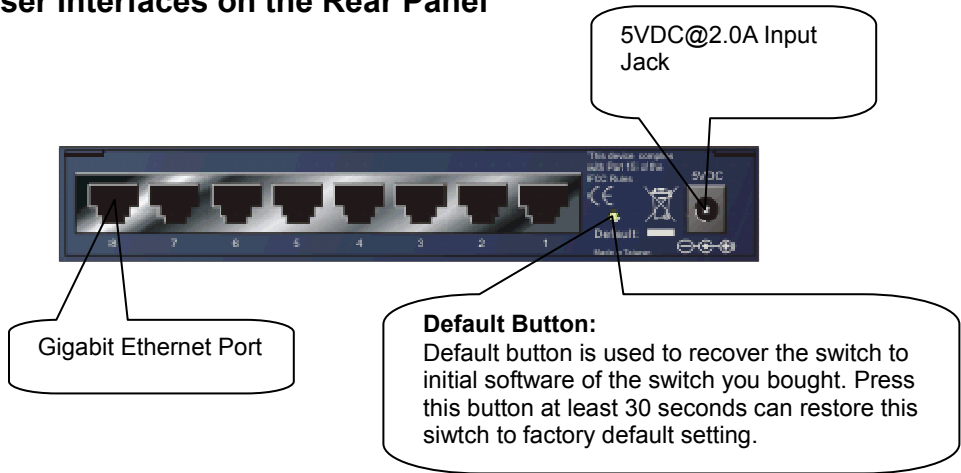


Fig. 1-2 Rear View of 8 Gigabit Web Smart Switch

2. Installation

2-1. Starting Up 8 Gigabit Web Smart Switch

This section will give users a quick start for:

- Hardware and Cable Installation
- Management Station Installation
- Software booting and configuration

2-1-1. Hardware and Cable Installation

At the beginning, please do first:

⇒ Wear a grounding device to avoid the damage from electrostatic discharge

TP Port and Cable Installation

- ⇒ In the switch, TP port supports MDI/MDI-X auto-crossover, so both types of cable, straight-through and crossed-over can be used. It means you do not have to tell from them, just plug it.
- ⇒ Use RJ-45 TP cable of grade Cat. 5 to connect to a TP port of the switch and the other end is connected to a network-aware device.
- ⇒ Repeat the above steps, as needed, for each RJ-45 port to be connected to a Gigabit 10/100/1000 TP device.

Now, you can start having the switch in operation.

2-1-2. Cabling Requirements

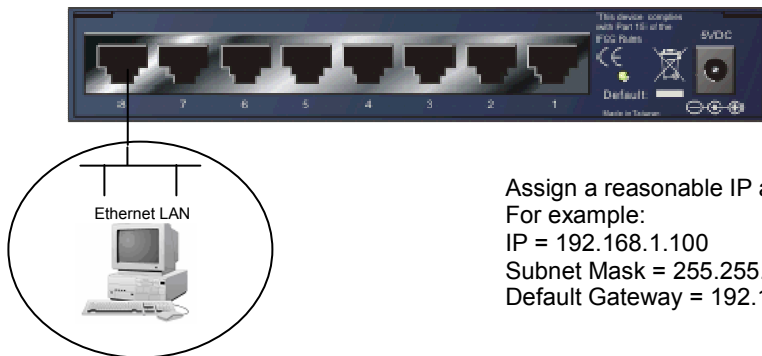
To help ensure a successful installation and keep the network performance good, please take a care on the cabling requirement. Cables with worse specification will render the LAN to work poorly.

- ⇒ For Fast Ethernet TP network connection
 - The grade of the cable must be at least Cat. 5 with a maximum length of 100 meters.
- ⇒ Gigabit Ethernet TP network connection
 - The grade of the cable must be at least Cat. 5 with a maximum length of 100 meters. Cat. 5e is recommended.

2-1-3. Configuring the Management Agent of 8 Gigabit Web Smart Switch

Web-based UI for the switch is an interface in a highly friendly way. You can configure and monitor the switch through the switch's Ethernet port.

8 Gigabit Web Smart Switch
Default IP Setting:
IP = 192.168.1.1
Subnet Mask = 255.255.255.0
Default Gateway = 192.168.1.254



Assign a reasonable IP address,
For example:
IP = 192.168.1.100
Subnet Mask = 255.255.255.0
Default Gateway = 192.168.1.254

Fig. 2-1 Manage the switch

Managing 8 Gigabit Web Smart Switch through Ethernet Port

Before you communicate with the switch, you have to finish first the configuration of the IP address or to know the IP address of the switch. Then, follow the procedures listed below.

1. Set up a physical path between the configured the switch and a PC by a qualified cable with RJ-45 connector.

Note: If PC directly connects to the switch, you have to setup the same subnet mask between them. But, subnet mask may be different for the PC in the remote site. Please refer to Fig. 2-1 about the Gigabit Web Smart Switch default IP address information.

2. Run web browser and follow the menu. Please refer to Chapter 3.

3. Operation of Web-based Management

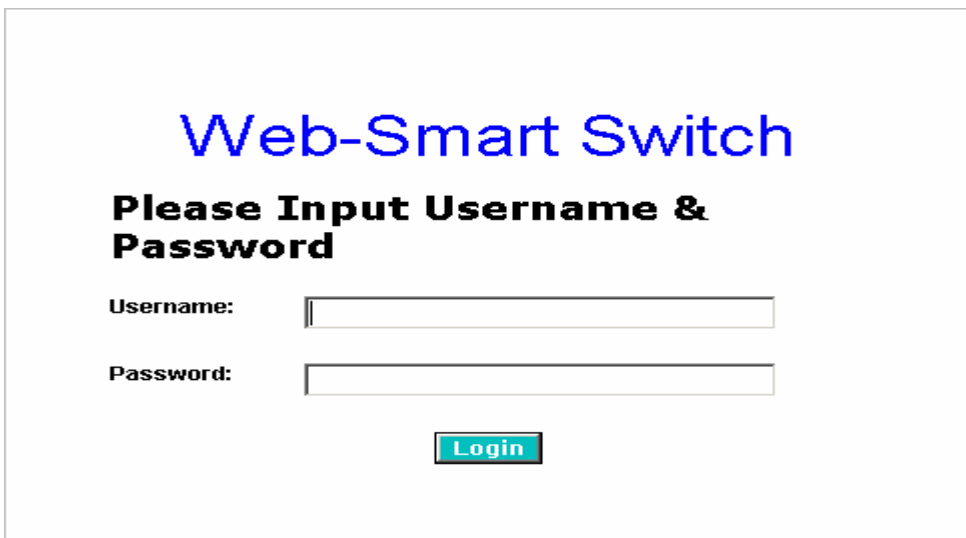
This chapter instructs you how to configure and manage the switch through the web user interface it supports, to access and manage 8 10/100/1000Mbps TP Port. With this facility, you can easily access and monitor through any one port of the switch all the status of the switch, including port status, each port activity, multicast traffic, and so on.

The default values of Web-Smart Switch are listed in the table below:

IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.254
Username	admin
Password	admin

Table 3-1

After the switch has been finished configuration, you can browse it by using the IP address you set up. For instance, type <http://192.168.1.1> in the address row in a browser, it will show the following screen (see Fig.3-1) and ask you inputting password in order to login and access authentication. The default password is “admin”. For the first time to use, please enter the default password: “admin”, then click the <Login> button. The login process now is completed.



Web-Smart Switch

Please Input Username & Password

Username:

Password:

Login

Fig. 3-1

In the switch, it supports a simple user management function allowing only

one administrator to configure the system at the same time.

To optimize the display effect, we recommend you use Microsoft IE 6.0 above, Netscape V7.1 above or FireFox V1.00 above and have the resolution 1024x768. The switch supported neutral web browser interface.

3-1. Web Management Home Overview

In Fig. 3-2, for example, left section is the whole function tree with web user interface and we will travel it through this chapter.

After you login, Web-Smart Switch shows you the system information as Fig. 3-2. This page is default and tells you the basic information of the system, including "System Description", "Firmware Version", "Hardware Version", "MAC Address", "Serial Number", "Product ID", "IP Address", "Subnet Mask", "Gateway", "Mac Address", "ARL Aging" and "Loop Detection". With this information, you will know the software version used, MAC address, etc., this is helpful while configuring.

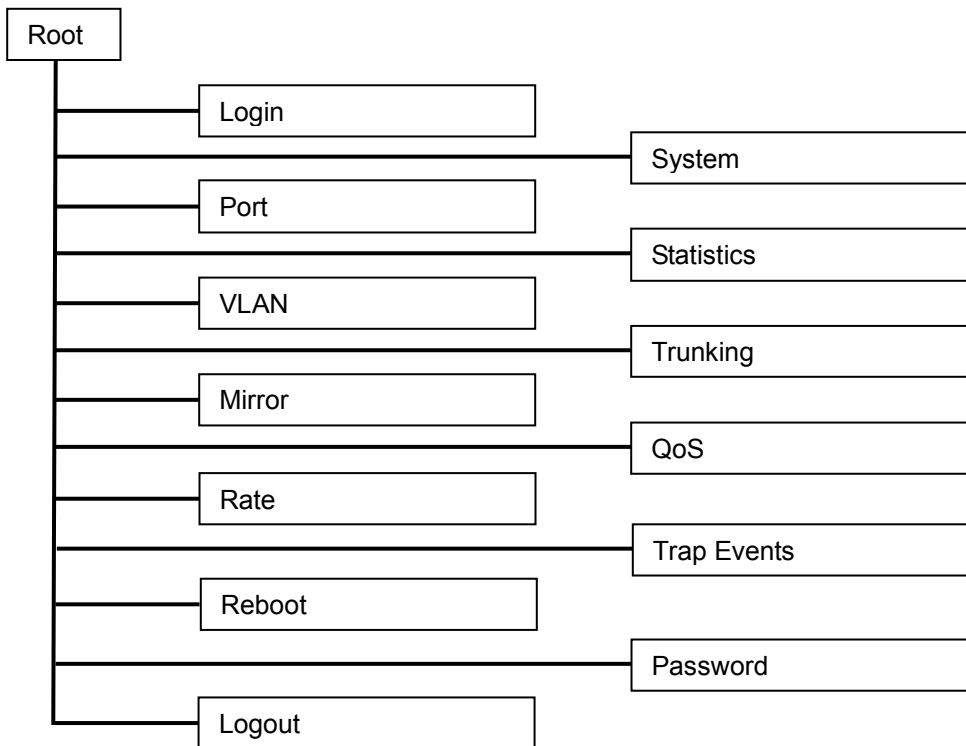
System	
System Description	8 Gigabit Web Smart Switch
Firmware Version	0.92 Backup Upgrade
Hardware Version	V1.02
MAC address	00-10-18-16-82-69
Serial Number	12233445566
Product ID	1030
IP Address	192.168.1.1
Subnet mask	255.255.255.0
Gateway	192.168.1.254
ARL Aging	300 seconds
Loop Detection	Enabled

[Backup settings](#) [Restore settings](#) [Restore defaults](#)

Fig. 3-2

The Information of Page Layout

- On the top side, it shows both the front panel of Web-Smart Switch. In the front panel, the linked ports will display green; as to the ports, which are link off, they will be dark.
- On the left side, the main menu tree for web is listed in the page. All functions can be divided into thirteen parts, including “System”, “Port”, “Statistics”, “VLAN”, “Trunking”, “Mirror”, “QoS”, “Rate”, “Trap Events”, “Reboot”, “Password”, and “Logout”. The functions of each folder are described in its corresponded section respectively. The following list is the main function tree for web user interface.



3-2. System

System function is used to display the current settings of the switch. In addition, the user also can do upgrade and set up ARL Aging time respectively.

System

System Description	8 Gigabit Web Smart Switch
Firmware Version	0.92 Backup Upgrade
Hardware Version	V1.02
MAC address	00-10-18-16-82-69
Serial Number	12233445566
Product ID	1030
IP Address	192.168.1.1
Subnet mask	255.255.255.0
Gateway	192.168.1.254
ARL Aging	300 seconds
Loop Detection	Enabled

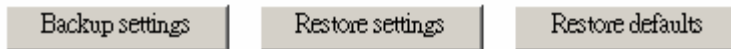


Fig. 3-3

Function name:

System

Function Description:

Display the basic information of this switch.

Parameter Description:

Firmware Version:

Show the firmware version of this switch. For upgrading, please click the **"Upgrade"** in hyperlink and then choose "~.bin" firmware to upgrade the switch. The switch offers you store the backup firmware for next restore. Click the Hyperlink of **"Backup"** and you will get the current using firmware.

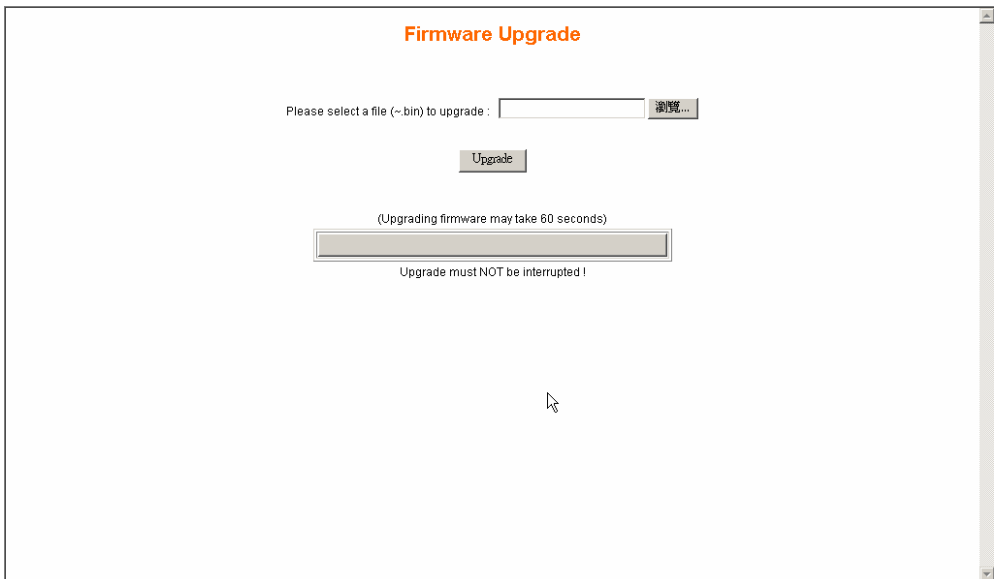


Fig. 3-4

Hardware Version:

Show the hardware version of this switch.

IP Address:

Show the IP address of this switch. Click Hyperlink and you can change the IP Address.

Configure IP Address

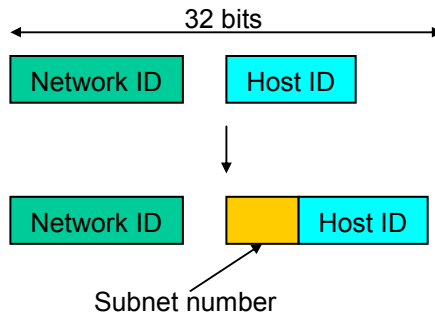
IP Address :	<input type="text" value="192.168.2.2"/>
Network Submask :	<input type="text" value="255.255.255.0"/>
Gateway :	<input type="text" value="192.168.2.254"/>

Fig. 3-5

Subnet Mask:

Show the subnet mask of this switch. Subnet mask is made for the purpose to get more network address because any IP device in a network must own its IP address, composed of Network address and Host address, otherwise can't communicate with other devices each other. But unfortunately, the network classes A, B, and C are all too large to fit for almost all networks, hence, subnet mask is introduced to solve

this problem. Subnet mask uses some bits from host address and makes an IP address looked Network address, Subnet mask number and host address. It is shown in the following figure. This reduces the total IP number of a network able to support, by the amount of 2 power of the bit number of subnet number ($2^{(\text{bit number of subnet number})}$).



Subnet mask is used to set the subnet mask value, which should be the same value as that of the other devices resided in the same network it attaches.

For more information, please also see the Section 2-1-5 "IP Address Assignment" in this manual.

Default: 255.255.255.0

Gateway:

Show the default gateway of this switch. Set an IP address for a gateway to handle those packets that do not meet the routing rules predefined in the device. If a packet does not meet the criteria for other pre-defined path, it must be forwarded to a default router on a default path. This means any packet with undefined IP address in the routing table will be sent to this device unconditionally.

Default: 192.168.1.254

MAC Address:

Show the Ethernet MAC address of this switch.

Serial Number:

Show the serial number that is assigned by the manufacturer.

ARL Aging:

Enable or disable the MAC Aging function and change MAC Table Aging time after clicking the hyperlink.

Default: 300 seconds.



Fig. 3-6

Backup settings:

Click "Backup settings" and you can get the configuration file (~.wss) of your current setting on all functions. This file could be used for restoring your setting on all functions by click "Restore settings" next time.

Restore settings:

When you get the backup file (~.wss) of the configuration of your setting from "Backup settings" button, you can click "Restore settings" button and choose the backup file (~.wss) of the configuration for restoring the configuration of your setting.

Restore defaults:

Click "Restore" default" and all the functions' setting will be recovered to initial state that you buy the switch.

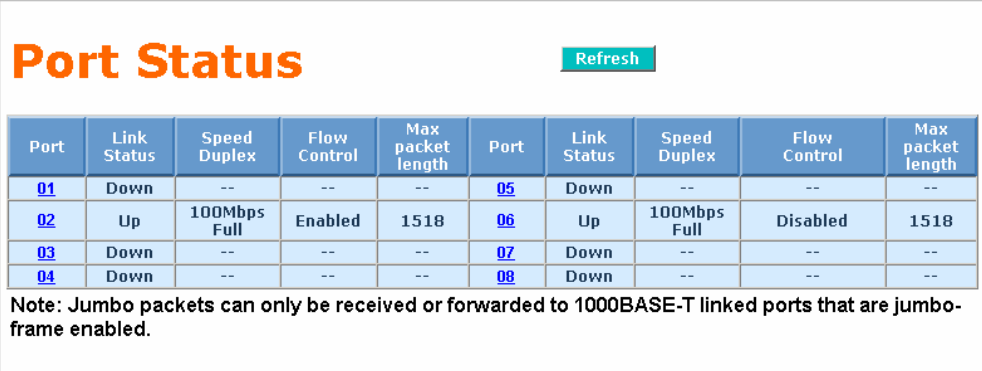
3-3. Port

Function name:

Port Status

Function description:

Ports Status function is applied to display the latest updated status of all ports in this switch. Or click the Port ID (01~08) directly to configure each port's setting (See Fig.3-7). In this function, you can view the following setting including link status, speed duplex and flow control and Max packet length. All of them are described in detail below. Please notice the Note: Jumbo packets can only be received or forwarded to 1000BASE-T linked ports that are jumbo frame enabled. So the switch only receives and transmits the jumbo frames on ports linked at gigabit speed.



Port	Link Status	Speed Duplex	Flow Control	Max packet length	Port	Link Status	Speed Duplex	Flow Control	Max packet length
01	Down	--	--	--	05	Down	--	--	--
02	Up	100Mbps Full	Enabled	1518	06	Up	100Mbps Full	Disabled	1518
03	Down	--	--	--	07	Down	--	--	--
04	Down	--	--	--	08	Down	--	--	--

Note: Jumbo packets can only be received or forwarded to 1000BASE-T linked ports that are jumbo-frame enabled.

Fig. 3-7

Parameter description:

Port:

Display the Port ID. The number is 01 – 08. Click this hyperlink and you will see Fig. 3-8.

Link Status:

Show that if the link on the port is active or not. If the link is connected to a working-well device, the Link Status will show “Up”. If the connection is broken, it will show “Down”. This is determined by the hardware connection.

Speed Duplex:

Display the speed and duplex of all port. There are three speeds 10Mbps, 100Mbps and 1000Mbps supported for TP media, and the duplex supported is half duplex and full duplex. The status of speed/duplex mode is determined by 1) the negotiation of both local port and linked partner on “Enable” mode of Auto-Negotiate or 2) the users’ define, like 1Gbps Full, 100Mbps Full, 100Mbps Half, 10Mbps Full, or 10Mbps Half, on “Disable” mode of Auto-Negotiate.

Flow Control:

Show each port’s flow control status. Flow control is defined in

IEEE802.3x specification. When the rate of receiving packets is over the port's speed, the pause frame will be sent out lest the packets will be lost.

PORT Configuration

Port	Admin	Auto Negotiate	Speed Duplex	Flow Control	Default Priority	Max Packet Length
01	Enable	Enable	1Gbps Full	Enable	0	1536

Note: Jumbo packets can only be received or forwarded to 1000BASE-T linked ports that are jumbo-frame enabled.

Fig. 3-8

Parameter description for Port Configuration:

Admin:

“Admin” could decide if those could manage the switch through this port. For example, when the port 2 is arranged for “Disable”, anyone couldn't manage the switch through the port 2.

Default is Enable.

Auto Negotiate:

Only “Enable” and “Disable” two states can be chosen. “Enable” means the port adopted the auto-negotiation algorithm to exchange the capability with the linked partner and adjusted its speed, duplex and flow control. When enabled, the speed, duplex mode and flow control mode may be changed due to speed and duplex state of linked partner negotiating. “Disable” means the forced mode is adopted. When disabled, you must have both port configuration of local port and linked partner be the same if you want to set up a connection successfully. If their configuration is different, those could not be linked up successfully.

Default: Auto Negotiation is enabled.

Notice: When you are in Disable mode, you must handle it carefully because this may cause the connection failed.

Speed Duplex:

Set the speed and duplex of the port. There are three speeds 10Mbps, 100Mbps and 1000Mbps supported for TP media, and the duplex supported is half duplex and full duplex.

Flow Control:

There are two modes for choosing in flow control. They are Enable and

Disable, respectively. If flow control is set Enable, the pause frame will be sent out lest the packets will be lost when the rate of receiving packets is over the port's speed. When it is set Disable, there will be no flow control in the port. It drops the packets if the packets are too much to handle.

Default: Enable

Default Priority:

Default Priority is used for untagged packets hold QoS priority. It provide 8 priorities (0~7) in each port. When untagged packets enter one port of the switch, they will have the precedence you set default priority in that port. For instance, as you choose port 2 with default priority 2 and the untagged frames are injected into the port 2 of the switch, they will possess priority 2 QoS precedence. Then priority 2 packets must check the setting of QoS function. In default, the priority 2 is in Queue 1. Finally, the packets will obey the Scheduling Method, Weighted Round Robin, to reach QoS strategy.

Max Packet Length:

Set up the maximum length of the packet that each port of the switch can accept. Maximum length can be up to 1518 bytes or 9728 bytes. The default is 1518 bytes. The switch is capable of dealing with 9k Jumbo Frames, which suits the transmission for a large amount of data in the network environment.

3-4. Statistics

The function shows that the statistics of simple counter and detailed counter providing the amount of the traffic of the port no matter the packet is good or bad.

In the Fig. 3-9, the window can show only one port simple counter information every port. If you want to see the detailed counter each port, you can click the hyperlink of port id. Fig. 3-10 is the detailed counter of some port.

Function name:

Statistics

Function description:

Show the simple counter every port.

Parameter description:

Port:

Port ID. There are 01~08.

Tx:

The amount of packets is transmitted on each port.

Rx:

The amount of packets is received on each port.

Clear Counters:

Clear the statistics of counters on each port in simple counter.

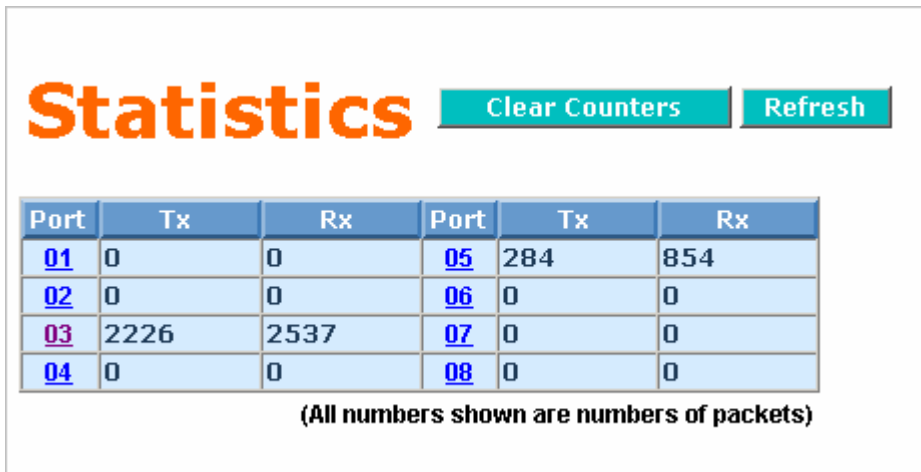


Fig. 3-9

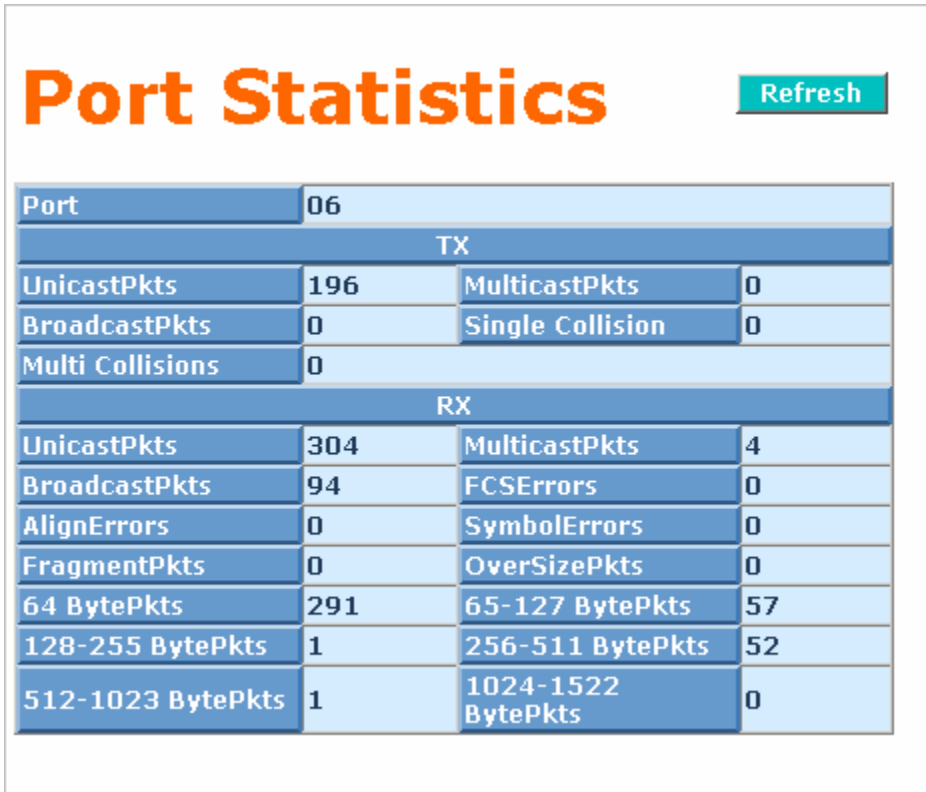


Fig. 3-10

Function name:

Port Statistics

Function description:

Show the detailed counter each port. After clicking the hyperlink of port id in simple counter, you will see Fig. 3-10 being the detailed counter of some port.

Parameter description:

Port:

Port ID. The example of Fig. 3-10 is the detailed counter information of port 3.

Tx:

UnicastPkts: The number of good packets transmitted by a port that are directed to a unicast addresses.

MulticastPkts: The number of good packets transmitted by a port that are directed to a multicast addresses. This counter does not include errored multicast packets or valid broadcast packets.

BroadcastPkts: The number of good packets transmitted by a port that are directed to a broadcast address. This counter does not include errored broadcast packets or valid multicast packets.

Single Collision: The number of packets successfully transmitted by a port that have experienced exactly one collision.

Multi Collisions: The number of collisions experienced by a port during packet transmissions.

Rx:

UnicastPkts: The number of good packets received by a port that are directed to a unicast addresses.

MulticastPkts: The number of good packets received by a port that are directed to a multicast addresses. This counter does not include errored multicast packets or valid broadcast packets.

BroadcastPkts: The number of good packets received by a port that are directed to a broadcast address. This counter does not include errored broadcast packets or valid multicast packets.

FCSErrors: The number of packets received by a port that have a length (excluding framing bits, but including FCS) between 64 and 1522 bytes inclusive, and have a bad FCS with an integral number of bytes.

AlignErrors: The number of packets received by a port that have a length (excluding framing bits, but including FCS) between 64 and 1522 bytes, inclusive, and a bad FCS with a nonintegral number of bytes.

SymbolErrors: The total number of times a valid-length packet was received at a port and at least one invalid data symbol was detected. The counter only increments once per carrier event and does not increment on detection of a collision during the carrier event.

FragmentPkts: The number of packets received by a port that less than 64 bytes (excluding framing bits) and have either an FCS error or an alignment error.

OverSizePkts 64 BytePkts: The number of packets (including error packets) that are 64 bytes long.

65-127 BytePkts: The number of packets (including error packets) that are between 65 and 127 bytes long.

128-255 BytePkts: The number of packets (including error packets) that are between 128 and 255 bytes long.

256-511 BytePkts: The number of packets (including error packets) that are between 256 and 511 bytes long.

512-1023 BytePkts: The number of packets (including error packets) that are between 512 and 1023 bytes long.

1024-1522 BytePkts: The number of packets (including error packets) that are between 1024 and 1522 bytes long.

3-5. VLAN

The switch supports Port-based VLAN and Tag-based VLAN (802.1Q). You can create maximum 20 sets of 802.1Q VLAN groups. The VLAN ID range is 1~4094. VLAN configuration is used to partition your LAN into different groups for your demand. Properly configuring VLAN, you can not only improve security but also increase networking performance.

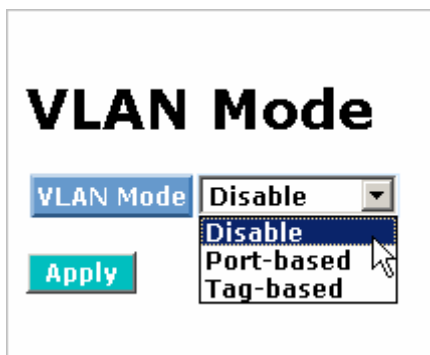


Fig. 3-11

Function name:

Port-based VLAN

Function description:

Port-based VLAN defines the VLAN groups by port. The packets only transmit in the same port-based VLAN group. Port-based VLAN configured screen shows as Fig. 3-12. You can create maximum 5 sets of Port-based VLAN groups. In default configuration, all ports are in Port-based VLAN 1. That Checkbox of some ports is "U" represents these ports are the member ports of VLAN 1. If you would like remove port 1 from VLAN 1, just click Checkbox of port 1 as blank, which means "not member". How to create another port-based VLAN group is that pull the List Items and choose any of 2~5 Port-based VLAN VID. For example, you choose VLAN ID 2. Clicking Checkbox of some ports as "U" will let these ports add to Port-based VLAN VID=2. "All" Checkbox will let you check all ports together rapidly. After setting the VLAN configuration, press **<Apply>** button to have the setting take effect In port-based VLAN, it will just show the ID and Member of the existed port-based VLAN group. You can easily change the configuration of Port-based VLAN Groups List and maintains them

Parameter description:

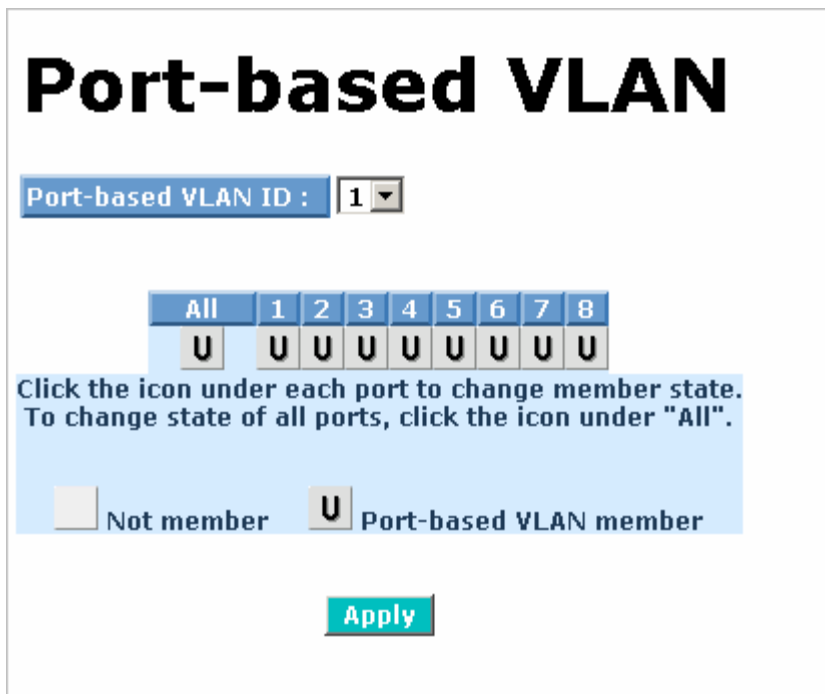


Fig. 3-12

Port-based VLAN ID:

Show current operating Port-based VLAN ID. Default is VLAN 1. Pull the list items, you can move to another Port-based VLAN ID. Another VLAN ID are 2~5 for your selecting.

Function name:

Tag-based VLAN

Function description:

This function let you create tag-based VLAN or delete the existed tag-based VLAN. Tag-based VLAN identifies its member by VID. This is quite different from port-based VLAN. Fig. 3-13 shows one default VLAN. Its VLAN ID is 1. Users could not remove default VLAN. Checkbox in each port, port 1~ port8, is used for determining VLAN member port. When Checkbox of one port is "T", which means Tag egress packets, the packets transmitting out from this port will add VLAN tag. However, When Checkbox of one port is U, which means "Untag egress packets", the packets transmitting out from this port will have no VLAN tag. Please one-click Checkbox, it will become "T". And then one-clicking Checkbox again, Checkbox will become blank, which means "Not member". The blank Checkbox can decide which ports will not the member of some VLAN. Finally, you click Checkbox once. Checkbox will recover to "U". "All" Checkbox will let you check all ports together rapidly. After setting the VLAN configuration, press **<Apply>** button to have the setting take effect

Parameter description:

VLAN ID:

Show current operating VLAN ID. Pull the list items, you will see that you have created VLAN. Moreover, choose “Create New VLAN”, you will see next page of creating VLAN, which shows as Fig. 3-12. In addition, choose one VLAN ID and click “Remove This VLAN” button. This VLAN will be deleted.

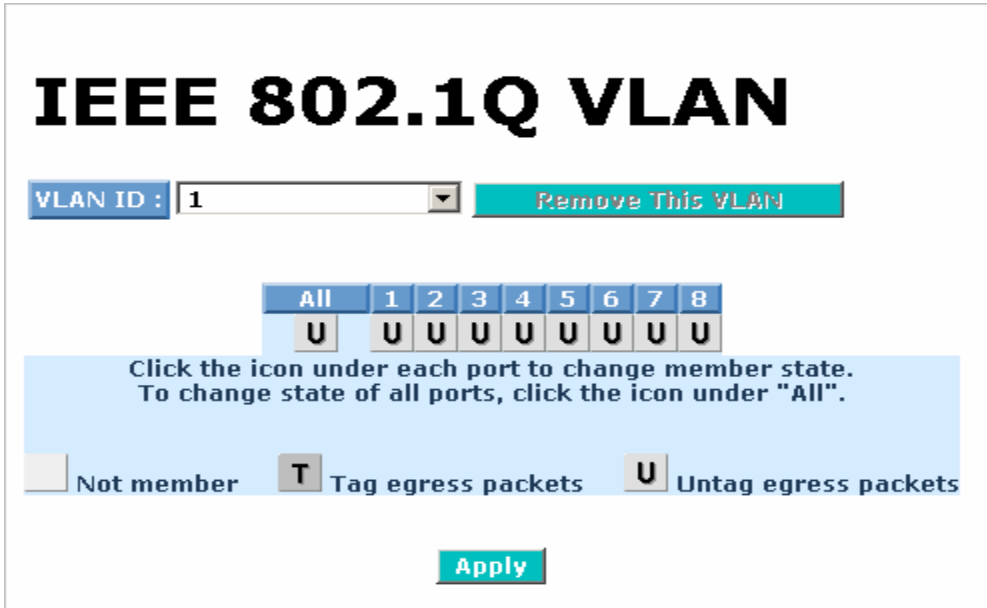


Fig. 3-13

New VLAN ID:

Fill the one VLAN ID you would like. The setting range is 1~4094.

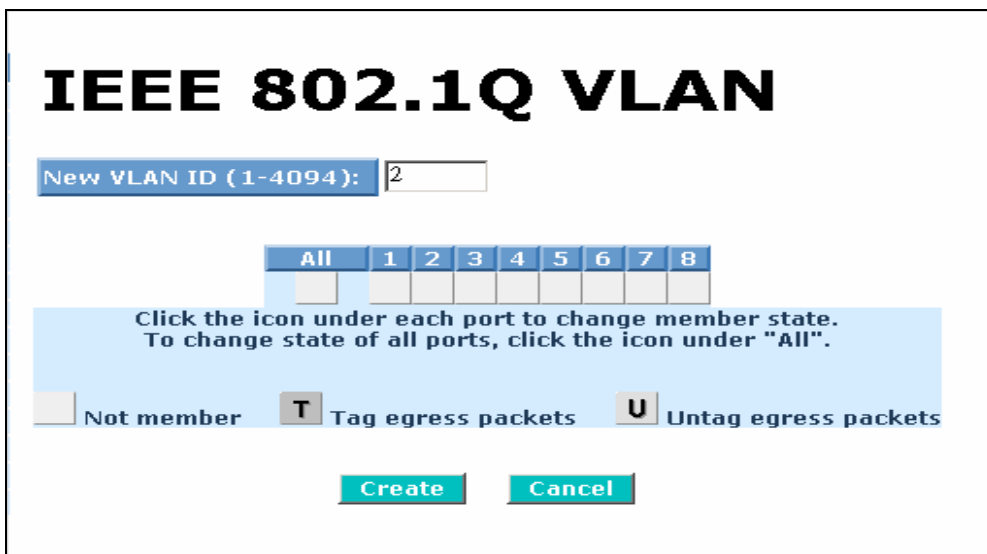


Fig. 3-14

Function name:

PVID

Function description:

In PVID Setting, you can assign Port Permanent VLAN ID to each port for untagged packets that enter the switch and operate in designated VLAN group after adding the VLAN tag according to PVID. The range of PVID number is the same as VID from 1 to 4094. You also can control ingress filtering rule to each port by “Symmetric/Asymmetric” and “Drop untag frame” function.

Port	PVID	Drop untag frame	Port	PVID	Drop untag frame
01	1	Enabled	05	1	Disabled
02	1	Disabled	06	1	Disabled
03	1	Disabled	07	1	Disabled
04	1	Disabled	08	1	Disabled

Symmetric/Asymmetric Asymmetric

Apply

Fig. 3-15

Parameter description:

Port 01-08:

Port numbers.

PVID:

This PVID range could be 1-4094. Usually, before you set a number x as PVID, you would create a Tag-based VLAN with VID x. Because if port 1 receives an untagged packet, the switch will add PVID (assume VID 2) to this packet and make it have tag, the packet will be forward to VLAN group of VID 2 you have created in advance in the switch.

Symmetric/Asymmetric:

This function will let the switch only forward packets with VID that is the same as this port's configured VID in existed VLAN group when you use “Symmetric” mode. But “Asymmetric” mode has no this effect and let the packets having different VID enter the switch regardless of VLAN ID. For example, if port 1 receives a tagged packet with VID=100 and if “Symmetric/Asymmetric” is Symmetric, the switch will check if port 1 is the member of VLAN100. If matching, the received packet will be forwarded through the switch in the specified VLAN group; otherwise, the received packet will be dropped. The feature is “Asymmetric” by default.

Drop Untag Frame:

You can configure a given port to accept all frames or just receive tagged frame by enabling this feature. If you enable "Drop Untag Frame" with some port, only the packets that carry VLAN tag will enter this port. Untagged packets will be discarded. The feature is "Disable" by default.

3-6. Trunking

The switch supports MAC-based trunking. Trunking configuration is used to configure the settings of Link Aggregation. You can bundle more than one port with the same speed, full duplex and the same MAC to be a single logical port, thus the logical port aggregates the bandwidth of these ports. This means you can apply your current Ethernet equipments to build the bandwidth aggregation. For example, if there are three Fast Ethernet ports aggregated in a logical port, then this logical port has bandwidth three times as high as a single Fast Ethernet port has. The trunking feature allows up to four ports to be grouped together as a single-link connection between two switch devices. This increases the effective bandwidth through a link and provides redundancy. The switch allows up to four trunk groups. The switch performs a dynamic hashing algorithm on the MAC address so each packet destined for the trunk is forwarded to one of the valid ports within the trunk group. This method has several key advantages. By dynamically performing this function, the traffic patterns can be more balanced across the ports within a trunk. In addition, the MAC-based algorithm provides dynamic failover. If a port within a trunking group fails, the other port within the trunk automatically assumes all traffic designated for the trunk. It allows for a seamless, automatic redundancy scheme. This hashing function can be performed on either the DA, SA, or DA/SA.

Function name:

Trunking Setting

Function description:

Display the current setup of Aggregation Trunking. With this function, user is allowed to add a new trunking group or modify the members of an existed trunking group.

Note:

Check the following to avoid errors in configuration:

When configuring the link aggregation function, you should check that whether the aggregated ports are in full-duplex mode as well as their speed is the same or not. The aggregated ports are in the same VLAN group.

Trunk Setting

Distribution Criterion: SA + DA

	01	02	03	04	05	06	07	08
Trunk Group 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trunk Group 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trunk Group 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trunk Group 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not trunking	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Maximal number of ports per trunk: 4

Apply

Fig. 3-16

Parameter description:

Distribution Criterion:

The switch performs a dynamic hashing algorithm on the MAC address so each packet destined for the trunk is forwarded to one of the valid ports within the trunk group. This hashing function can be performed on either the DA, SA, or DA/SA. Default is DA/SA.

Trunk Group 1~4:

Port 01~08 could add to any of Trunk group 1~4. But one port should be located in only one group. The maximal number of ports of per trunk group is 4.

Not trunking:

Set up the ports that do not join any aggregation trunking group.

3-7. Mirror

Function name:

Mirror

Function description:

Mirror is to monitor the traffic of the network. For example, we assume that Port A and Port B are “Monitoring Port” and “Monitored Port” respectively, thus, the packets of the traffic passing by Port B will be copied to Port A for monitoring.

Note:

When configuring the mirror function, you should avoid setting a port to be a sniffer port and aggregated port at the same time. It will cause something wrong.

Parameter description:

Enable Mirror:

Used for the activation or de-activation of Port Mirror function. Default is Disable.

Monitored Port:

Set up the ports for being monitored. Valid port is Port 01~08 and more than one port is allowed to be chosen at one time.

Monitoring Port:

Set up the port for monitoring. Valid port is Port 01~08.

Port Mirror Status

Enable Mirror

	01	02	03	04	05	06	07	08
Monitored Port	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring Port	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not Mirrored	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Apply

Fig. 3-17

3-8. QoS

Function name:

QoS Setting

Function description:

The switch offers powerful QoS function. This function supports 802.1p (Influence the packets with tag or not and when the packets have no tag, the packets will be added tag according to your Default Priority of Port Configuration for tagged priority field), VLAN-tagged priority, can make precedence of 8 priorities and Port-based (Default Priority) QoS service. In VLAN-tagged mode, there are 3 bits belonging to this priority in the vlan tagged field. According to these 3 bits, we could arrange 8 traffic priority (0~7) and randomly place them into one of 4 Queues that the switch offers. However, These 4 Queues have different QoS order according to your setting of QoS Scheduling Method. At present, the switch supports one QoS Scheduling Method which called "Weighted Round Robin". In "Weighted Round Robin" Scheduling Method, each Queue will achieve QoS effect based on its different ratio of bandwidth in Weight. About Default Priority, it also has 8 traffic priority (0~7) for user choosing. The priority will arrange different ratio in each queue in the same way. Then "Weighted Round Robin" will arrange suitable bandwidth for each queue according to ratio setting of queues.

Parameter description:

Scheduling Method:

The switch offered powerful one QoS scheduling called "Weighted Round Robin", It will decide the bandwidth that each Queue will occupy based on the ratio of Weight.

Priority:

8 kinds of priorities, including 0, 1, 2, 3, 4, 5, 6 and 7.

Queue 0 (Low):

Any priority can be placed into Queue 0. Default priorities are 0 and 1. Press **<Apply>** button to have the setting take effect after completing the setting.

Queue 1:

Any priority can be placed into Queue 1. Default priorities are 2 and 3. Press **<Apply>** button to have the setting take effect after completing the setting.

Queue 2:

Any priority can be placed into Queue 2. Default priorities are 4 and 5. Press **<Apply>** button to have the setting take effect after completing the setting.

Queue 3 (High):

Any priority can be placed into Queue 3. Default priorities are 6 and 7. Press **<Apply>** button to have the setting take effect after completing the setting.

Weight:

Distribute the ratio of bandwidth for each Queue occupying. Valid range is 1~31. Default values of Weight for Queue 0, 1, 2, 3 are 1, 2, 4, 8, respectively. The Weight of higher Queue doesn't grant to be set greater than lower Queue. **<Apply>** button to have the setting take effect after completing the setting.

QoS Setting

Scheduling Method: Weighted Round Robin

Priority	(Low) 0	1	2	3	4	5	6	(High) 7	Weight
Queue 0 (Low)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text" value="1"/>
Queue 1	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text" value="2"/>
Queue 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text" value="4"/>
Queue 3 (High)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="text" value="8"/>

Weights: 1-31

Apply

Fig. 3-18

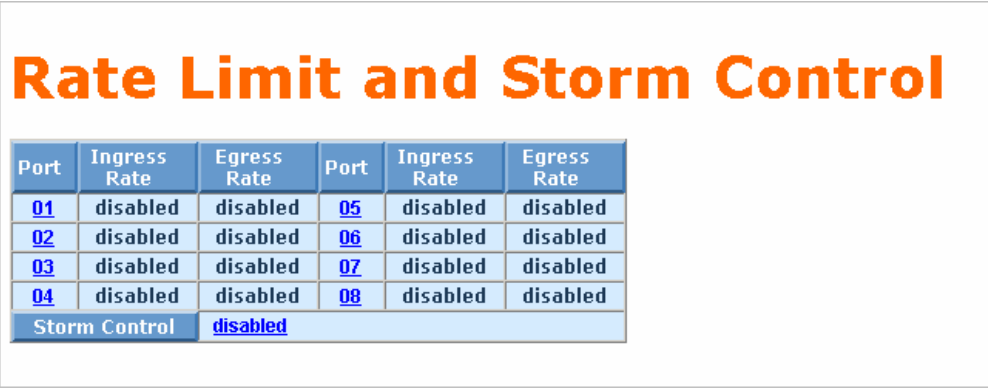
3-9. Rate

Function name:

Rate Limit and Storm Control

Function description:

Rate limit function is used to set up the limit of Ingress and Egress bandwidth for each port. Storm control function will prevent the unknown unicast, multicast, or broadcast packets from decreasing the switch's performance. That click the hyperlink of Port ID (01~08) in Fig. 3-17 could see the Fig. 3-19 to change the Ingress Rate or Egress Rate. After clicking the hyperlink of Storm Control, you can open the Storm Control function and decide you would like filter the traffic.



Port	Ingress Rate	Egress Rate	Port	Ingress Rate	Egress Rate
01	disabled	disabled	05	disabled	disabled
02	disabled	disabled	06	disabled	disabled
03	disabled	disabled	07	disabled	disabled
04	disabled	disabled	08	disabled	disabled
Storm Control	disabled				

Fig. 3-19

Parameter description:

Ingress Rate:

Set up the limit of Ingress bandwidth for the port you choose. Incoming traffic will be discarded if the rate exceeds the value you set up in Data Rate field. Of course, the action will bring about Pause frames if flow control is enabled. The list items of Ingress Rate are Disable 64Kbps, 512Kbps, 2Mbps, 4Mbps, 8Mbps, 16Mbps, 32Mbps, 64Mbps, 80Mbps, 120Mbps, 200Mbps, 400Mbps, 640Mbps, and 800Mbps. Default is Disable.

Egress Rate:

Set up the limit of Egress bandwidth for the port you choose. Incoming traffic will be discarded if the rate exceeds the value you set up in Data Rate field. Of course, the action will bring about Pause frames if flow control is enabled. The list items of Egress Rate are Disable 64Kbps, 512Kbps, 2Mbps, 4Mbps, 8Mbps, 16Mbps, 32Mbps, 64Mbps, 80Mbps, 120Mbps, 200Mbps, 400Mbps, 640Mbps, and 800Mbps. Default is Disable.

Rate Limit For Port 01

Ingress Rate	disabled ▾
Egress Rate	disabled ▾
Apply	

Fig. 3-20

Storm Control:

Pull down the list items of the Storm Control Type to control the flow of broadcast, multicast or unknown unicast packets. Incoming traffic will be discarded if the rate exceeds the value you set up in Storm Control Rate field. The list items of Egress Rate are 4%, 8%, 16%, 24%, 48%, 64%, 80%, 96%. Default is 96%.

Storm Control

Storm Control Type	Disabled ▾
Storm Control Rate	96% ▾
Apply	

Fig. 3-21

3-10. Trap Events

Function name:

Trap Events

Function description:

The Trap Events Configuration function is used to enable the Advanced Smart Ethernet Switch to send out the trap information while pre-defined trap events occurred.

Switch management offers 5 different trap events and 2 host to users .The trap message will be sent while users tick (☑) the trap event individually on the web page shown as below. Except Warm Boot and Cold Boot, other trap events offer the “Counter” function to help the user see the times that the trap event had happened.

Parameter description:

These trap functions are as they describe. The traps the switch supports are listed below.

Boot: Warm Boot, Cold Boot

Login: Illegal Login

Link: Link Up, Link Down

Trap Events Configuration	
Host IP1	0.0.0.0
Host IP2	0.0.0.0
System Event	<input type="checkbox"/> Warm Boot
	<input type="checkbox"/> Cold Boot
	<input type="checkbox"/> Illegal Login
	Illegal Login Counter 0
TP and Fiber Port Event	<input type="checkbox"/> Link Up
	<input type="checkbox"/> Link Down
	Link Up Counter 2
	Link Down Counter 1

Apply Refresh

Fig. 3-22

3-11. Reboot

We offer you many ways to reboot the switch, including power reset (hardware reboot) and software reboot (or called warm restart). This function offers the software reboot. Some setting must take effect by rebooting the system. After upgrading software, then you must reboot to have the new configuration taken effect.

The switch hardware has DEFAULT button in the rear panel to reset the switch and to retrieve default setting. System will also reboot this time.

Function name:

Reboot

Function description:

Reboot the switch. Press **<Apply>** button to confirm warm restart, and it will take around forty-five (45) seconds to complete the system boot.

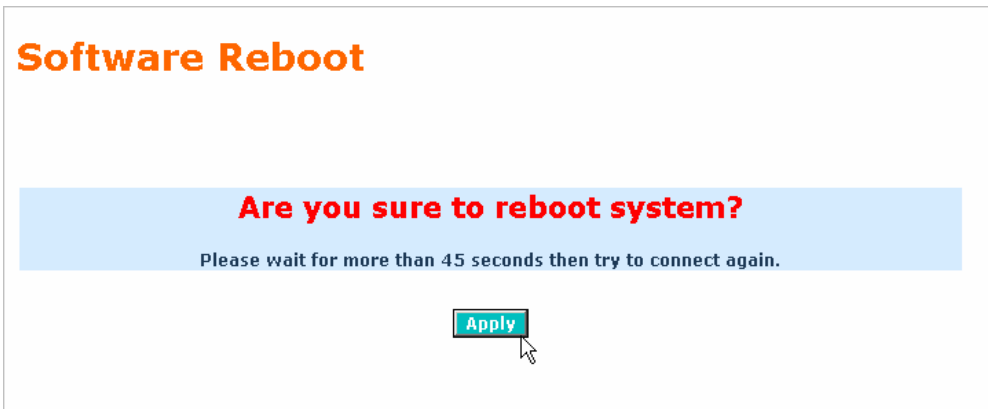


Fig. 3-23

3-12. Change Password

In this function, only administrator can modify password. The default Username and Password of the default setting for user account is:

Username: admin

Password: admin

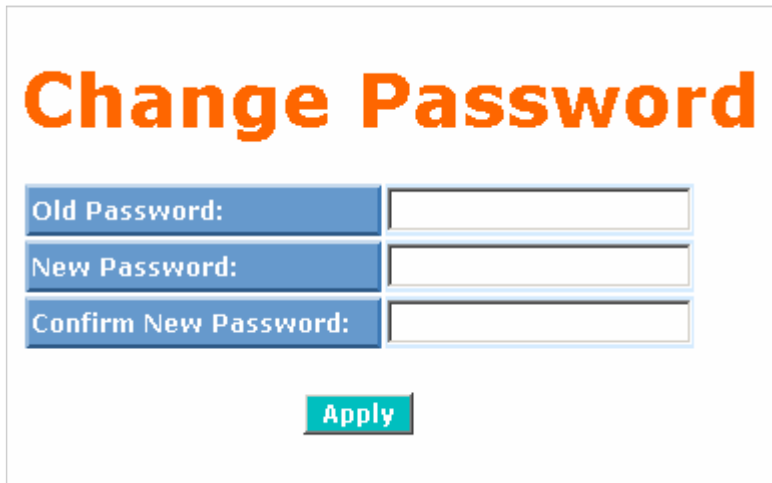
So the Username is always “admin” but you can change Password in “Change Password” function.

Function name:

Change Password

Function description:

If you change your password first, please type the “admin” in “Old Password” field. And then type new password in “New Password” field and “Confirm New Passwords” field as you designating. Press **<Apply>** button to confirm that you have changed the password for next login.



Change Password

Old Password:

New Password:

Confirm New Password:

Apply

Fig. 3-24

3-13. Logout

The switch also allows the user to logout manually by performing the Logout capability that let users need to retype the password to login the software of the switch.

Function name:

Logout

Function description:

The switch allows you to logout the system to prevent other users from the system without the permission due to login needs password. Just one-clicking “Logout” function, you’ll see the entering screen showing as Fig. 3-25 for user’s re-login.

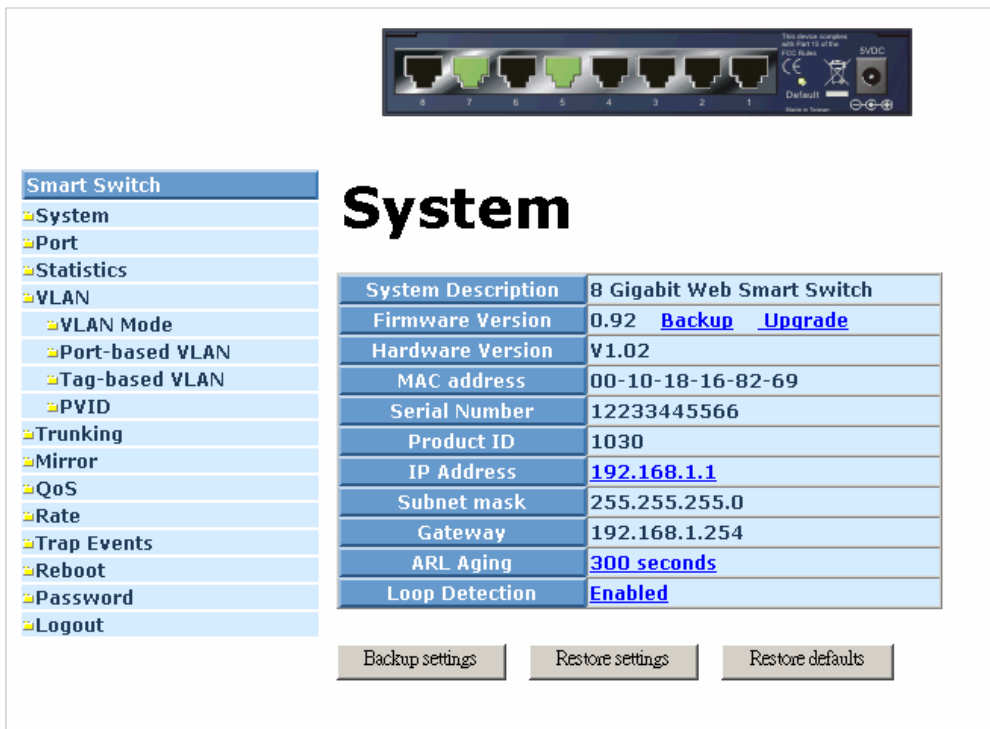


Fig. 3-25

4. FAQ

4-1. Resolving No Link Condition

The possible causes for a no link LED status are as follows:

- The attached device is not powered on
- The cable may not be the correct type or is faulty
- The installed building premise cable is faulty
- The port may be faulty

4-2. Q&A

1. Computer A can connect to Computer B, but cannot connect to Computer C through the Gigabit Web Smart Switch.
 - ✓ The network device of Computer C may fail to work. Please check the link/act status of Computer C on the LED indicator. Try another network device on this connection.
 - ✓ The network configuration of Computer C may be something wrong. Please verify the network configuration on Computer C.
2. The uplink connection function fails to work.
 - ✓ The connection ports on another must be connection ports. Please check if connection ports are used on that Gigabit Web Smart Switch.
 - ✓ Please check the uplink setup of the Gigabit Web Smart Switch to verify the uplink function is enabled.
3. The console interface cannot appear on the console port connection.
 - ✓ Gigabit Web Smart Switch has no console port, so you cannot use console interface to connect with Gigabit Web Smart Switch.
4. How to configure the Gigabit Web Smart Switch.
 - ✓ User can use Web browser program in window series of computer to control the web smart functions in Gigabit Web Smart Switch. First, choose any port in Gigabit Web Smart Switch. Then, use browser and type default IP address, 192.168.1.1, to connect to Gigabit with RJ45 network line. Finally, the login screen will appear at once.

Appendix A

Technical Specifications

Features

- 8 (10/100/1000Mbps) Gigabit Ethernet (TP) switching ports are compliant with IEEE802.3, 802.3u, 802.3z and 802.3ab.
- Non-blocking store-and-forward shared-memory Web-Smart switched.
- Supports auto-negotiation for configuring speed, duplex mode.
- Supports 802.3x flow control for full-duplex ports.
- Supports collision-based and carrier-based backpressure for half-duplex ports.
- Any ports can be in disable mode, force mode or auto-polling mode.
- Supports broadcast storm filtering.
- ▲ Web-based management provides the ability to completely manage the switch.
- Supports Port-based VLAN and Tag-based VLAN.
- Auto-aging with programmable inter-age time.
- Supports 802.1p Class of Service with 8 level priority queuing.
- Supports port trunking with flexible load distribution and failover function.
- Supports port sniffer function
- Programmable maximum Ethernet frame length of 9KB jumbo frame.
- Efficient self-learning and address recognition mechanism enables forwarding rate at wire speed.

Hardware Specifications

- **Standard Compliance:** IEEE802.3/802.3ab / 802.3z / 802.3u / 802.3x
- **Network Interface:**

Configuration	Mode	Connector	Port
10/100/1000Mbps Gigabit TP	NWay	TP (RJ-45)	1 – 8

- **Transmission Mode:** 10/100Mbps support full or half duplex
1000Mbps support full duplex only
- **Transmission Speed:** 10/100/1000Mbps for TP
- **Full Forwarding/Filtering Packet Rate:** PPS (packets per second)

Forwarding Rate	Speed
1,488,000PPS	1000Mbps
148,800PPS	100Mbps
14,880PPS	10Mbps

- **MAC Address and Self-learning:** 4K MAC address.
IEEE 802.1Q-based VLAN with 20 entries and VID could be 1~4094.
- **Flow Control:** IEEE802.3x compliant for full duplex
Backpressure flow control for half duplex
- **Cable and Maximum Length:**

TP	Cat. 5 UTP cable, up to 100m
-----------	------------------------------

- **Diagnostic LED:**

System LED : Power
Per Port LED: 10/100/1000M TP Port 1 to 8 : LINK/ACT, 10/100/1000Mbps

- **Power Requirement** : AC-DC Power Adapter (Output: 5VDC@2A)
 - Voltage : 100~240 V
 - Frequency : 50~60 Hz
 - Consumption : 10W
- **Ambient Temperature** : 0° to 50°C
- **Humidity** : 5% to 90%
- **Dimensions** : 27(H) × 159(W) × 102(D) mm
- **Comply with FCC Part 15 Class A & CE Mark Approval**