User's
▶▶▶▶▶ Manual

24-Port 10/100 Layer 2 Managed Switch (*Intelligent*) + 2-Port Gigabit Module Slot

HGMS224

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FCC Warning

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into a different outlet from the one that the receiver is connected to.
- Consult your local distributors or an experienced radio/TV technician for help.
- Shielded interface cables must be used in order to comply with emission limits.

Changes or modifications to the equipment, which are not approved by the party responsible for compliance, could affect the user's authority to operate the equipment.

CE Mark Warning

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class A for ITE, the essential protection requirement of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

LIMITED WARRANTY

Hawking Technology guarantees that every HGMS224 24-Port 10/100M Layer 2 Managed Switch (Intelligent) + 2-Port Gigabit Module Slot is free from physical defects in material and workmanship under normal use for two (2) years from the date of purchase. If the product proves defective during this two-year warranty period, call Hawking Customer Service in order to obtain a Return Authorization number. The warranty is for repair or replacement only. Hawking Technology does not issue any refunds. BE SURE TO HAVE YOUR PROOF OF PURCHASE. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. When returning a product, mark the Return Authorization number clearly on the outside of the package and include your original proof of purchase.

IN NO EVENT SHALL HAWKING TECHNOLOGY'S LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE OR ITS DOCUMENTATION. Hawking Technology makes

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Hawking Technologies' HGMS224 24-Port 10/100 Layer 2 Managed Switch (*Intelligent*) + 2-Port Gigabit Module Slot is a high performance, web-managed SNMP (simple network management protocol) Layer 2 switch that provides users with (24) 10/100Mbps Ethernet ports and (2) 1000Mbps gigabit ports. The switch features SNMP management and remote control capabilities such as "Web Cluster". The gigabit module (available in copper media or fiber media by special order) supports the 1000BASE-SX, 1000BASE-LX or 1000BASE-T standards, thus allowing you to increase your network response times to gigabit speeds, as well as improve flexibility. In addition, an RS-232 serial port provides an easy medium for installation and initial set-up.

All ports are capable of non-blocking and maximum wire speed performance. The HGMS224 supports auto-negotiation and auto-MDIX technology on all 24 switched RJ-45 ports and both gigabit copper ports in both half and full duplex modes. The auto-MDIX function enables the use of either standard or crossover cables for connection with other devices.

The switch provides a convenient way to control Layer 2 management via a web browser. The user-friendly drop-down menu allows you to easily learn, control and monitor the switch. It supports not only traditional SNMP function, but also RMON (remote monitoring) 1,2,3,9 groups for advanced network analysis. A new tool called "Web Cluster" can also be used to manage the switch easily and efficiently. Using this tool, all switches can be managed via a single master switch.

The HGMS224 also supports both port-based and tag-based VLANs. To increase bandwidth, the switch supports 7 groups with up to 4-port trunking capabilities. These trunk ports utilize the fair-over function to provide back up when one or more ports malfunction.

Complete front access design and a full LED status display simplify your installation, inspection, and maintenance efforts within rack mount environments. Two extra LEDs display fan status for quick diagnosis of over-heating issues.

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Package Contents

HGMS224 24-Port 10/100 + 2-Port Gigabit Module Managed Switch

The complete HGMS224 package consists of:

- One HGMS224 24-Port 10/100 Layer 2 Managed Switch (*Intelligent*) + 2-Port Gigabit Module Slot
- Rack mount kit: 2 mounting brackets and screws
- Four rubber feet with adhesive backing
- One AC power cord
- One RS-232 cable
- One user's manual
- One CD

Check to make sure that the unit was not damaged during shipping and that no items are missing. If you encounter a problem, please contact your dealer.

Please read this user's manual thoroughly, and follow the installation and operation procedures in the following pages.

Please follow the guidelines below when choosing a location to install the switch:

- The surface must support at least 3 kg. Do not place heavy objects on the switch.
- Visually inspect the power cord and AC power connector.
- Make sure that there is proper heat dissipation from and adequate ventilation around the switch.

Desktop or Shelf Installation:

When installing the switch on a desktop or shelf, it is recommended that you secure to the unit the four rubber feet that are included with the package. Attach these cushioning feet to each of the four corners at the bottom of the device. Allow adequate space for ventilation between the device and the objects around it.

Rack Installation:

The switch can be mounted on a standard-sized, 19-inch rack that can be placed in a wiring closet with other equipment. To install, attach the mounting brackets to the side panels of the switch and secure them with the screws provided. Then, use the screws provided with the *equipment rack* to mount the switch on the rack.

Power on:

The switch features a built-in AC power supply and operates within the following range: 90-260V AC, 50-60Hz. The AC power connector is located at the rear of the unit. The switch's power supply will adjust to the local power source automatically and may be turned on without having any or all LAN segment cables connected.

After the power switch is turned on, the LED indicators should respond as follows:

- All LED indicators will blink for a few moments. The blinking LEDs indicate a reset of the system.
- The "Power" LED indicator will blink while the switch loads its onboard software and performs a self-test. After approximately 20 seconds, the LED will light up again to indicate that the switch is ready for use.
- The "100M" and "Link/Activity" LED indicators will remain lit or unlit depending on the status of connection and activity of each port.

- If the fans are working properly, the "Fan" LEDs will remain unlit. If either or both of the fans stop or fail, the corresponding "Fan" LED(s) will be lit red.

LED Indicators

LED		Color	Status	
			Solid	**Blinking**
Power		Green	The device is powered on	N/A
Diagnostic		Green	Self diagnostic successful	Performing self diagnostic (after power on)
Cooling Fans	FAN1	Red	Left cooling fan failed	N/A
	FAN2	Red	Right cooling fan failed	N/A
100M (Port 1-24)		Green	100Mbps Fast Ethernet connection speed	N/A
		Off	10Mbps connection speed	N/A
10/100/1000Mbps Copper Gigabit Port (Optional Module)				
Top LED		Orange	100Mbps Fast Ethernet connection speed (with Middle LED off)	N/A
Middle LED		Green	10Mbps Ethernet connection. (with Top LED off)	N/A
Bottom LED		Green	N/A	TX/RX activity or collision
Top + Middle LEDs		Orange+ Green	1000Mbps Gigabit connection speed	N/A

There are two ways to perform the initial setup for the Switch:

- a. "Out-of-Band Configuration" - connect your PC's serial port to the switch's console port with the included RS-232 serial cable and run the terminal communication program
- b. "In-Band Configuration"- network a PC to the switch and run a web browser or telnet.

The sections below show the instructions on how to perform both operations.

4.1 Out-of-band Terminal-mode Configuration

If you are using Microsoft Windows: boot up the computer, go to "Start", "Programs", "Accessories", "Communications", and open the "HyperTerminal". After that follow the instructions below to set up a new terminal connection for the switch. If you are using other communication software, please select the correct COM port and set up the connection properties according to step #3 below.

1. Type in a name for the connection (e.g. SNMP Switch), select an icon for the connection, and click "OK".
2. Select the COM port that you are using for this connection and click "OK".
3. Set up the COM port properties by using the information below and click "OK".
   Bits Rate per Second = 9600
   Data Bits = 8
   Parity = None
   Stop Bit = 1
   Flow Control = None

4. Connect the included serial cable from the computer's COM port to the switch's console port.
5. Power on the switch and you will see messages displayed on the "HyperTerminal". The switch's Power On Self Diagnostic (POSD) takes about 90 seconds. After that, you will see the login screen. If the switch is already powered on and has finished its self-diagnostic, run the terminal communication program and then hit "Enter" to get to the login screen.
6. In the **User name** field, type in "admin" and hit **Enter**.
7. In the **Password** field, type in "123" and hit **Enter**. You are now logged in to the switch's configuration program.
8. In the lower portion of the screen, you will see descriptions of the navigation keys (e.g., **Tab**, **Spacebar**, and **Enter**). Use these keys to navigate through the configuration program.

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```
                    User Interface

          Intelligent 24 + 2 Switch




            username:

            password:
```

4.2 In-band Configuration through Ethernet

In addition to terminal mode configuration, the switch also supports in-band configuration via a web browser. Web browser configuration is easier than terminal mode configuration because the user can simply connect the network-ready PC to the switch, open the web browser, go to the switch's configuration page (by typing the switch's IP address), and configure the switch by clicking on the subject on the menu.

Before you can access the switch via in-band tools, you must make sure the computer that is connected to the switch has a web browser and the TCP/IP protocol (with valid IP address) is bound to the network adapter. After that, you can either change your computer's IP address to the same class as the switch's IP address, or you can log into the Switch with the "out-of-band" method described in the previous section and configure the Switch's IP address to the same class as your computer's IP address.

Below, is the Switch's *default* IP information:

IP Address: 192.168.223.100
Subnet Mask: 255.255.248.0
Gateway: 192.168.223.254

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Modify the Switch's IP Address via the Out-of-Band Method

1. Log into the console (default username: admin, default password: 123).
2. Use the **Tab** key to select (highlight) "Switch Static Configuration" and hit **Enter**.
3. Use the **Tab** key to select "Administration Configuration" and hit **Enter**.
4. Use the **Tab** key to select "IP Configuration" and hit **Enter**.
5. Use the **Tab** key to select "Edit" and hit **Enter**.
6. Use the **Tab** key to highlight "IP Address", enter the desired IP address (e.g., 192.168.1.100), and hit **Enter**.
7. The "Subnet Mask" is now highlighted. Enter the correct subnet mask, and hit **Enter**.
8. Input the gateway address and hit **Enter**.
9. Press and hold the **Ctrl** key and then hit "A" to go to the "Action Menu".
10. Use the **Tab** key to select "Save" and hit **Enter**.
11. The screen will prompt you to "Restart the system…" Turn off the switch, wait for 10 seconds, and then turn the switch's power back on.

After the switch finishes the self-diagnostic, open your computer's web browser and enter the switch's IP address (e.g. http://192.168.1.100**)** in the "Address" field. Then hit **Enter** or click on **Go**, and the switch's configuration page will prompt you to enter a "User Name" and Password" to login.
(Note that the default user name is "admin" and the default password is "123".)

Modify the Network Adapter's IP Address

You can change the network adapter's IP address in the "Properties" section for this device. We suggest that you change the network adapter's IP settings to the following:

IP Address: 192.168.223.101
Subnet Mask: 255.255.248.0

(Note: You do not need to enter the "Gateway" address at this time.)

If necessary, reboot the computer. After the computer finishes rebooting, open the web browser and in the "Address" field, enter http://192.168.223.100. Then hit **Enter** or click on **Go**, and the switch's configuration page will prompt you to enter a "User Name" and Password" to log in.
(Note that the default user name is "admin", and the default password is "123".)

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4.3 Telnet Management

In addition to local terminal mode operation, the switch supports remote management through Telnet over the network or even over the Internet for browser-less environments. In this mode, before executing the Telnet program, you will again be asked to modify the IP Configuration settings as required for management via a web browser. Again, after changing the settings, save them and connect your Ethernet cable from your PC to any port on the switch. Then, to access the switch, simply follow the prompts in the command lines:

Telnet: IP Address for the Switch

The following dialogue below appears. Input the user name and password to proceed. Please refer to chapter 3 of this manual to for instructions on operation in this mode.

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```
Telnet - 192.168.1.237                                          _ □ ×
連線(C)  編輯(E)  終端機(T)  說明(H)



                    User Interface

                 Intelligent 24 + 2 Switch




                    username:

                    password:



```
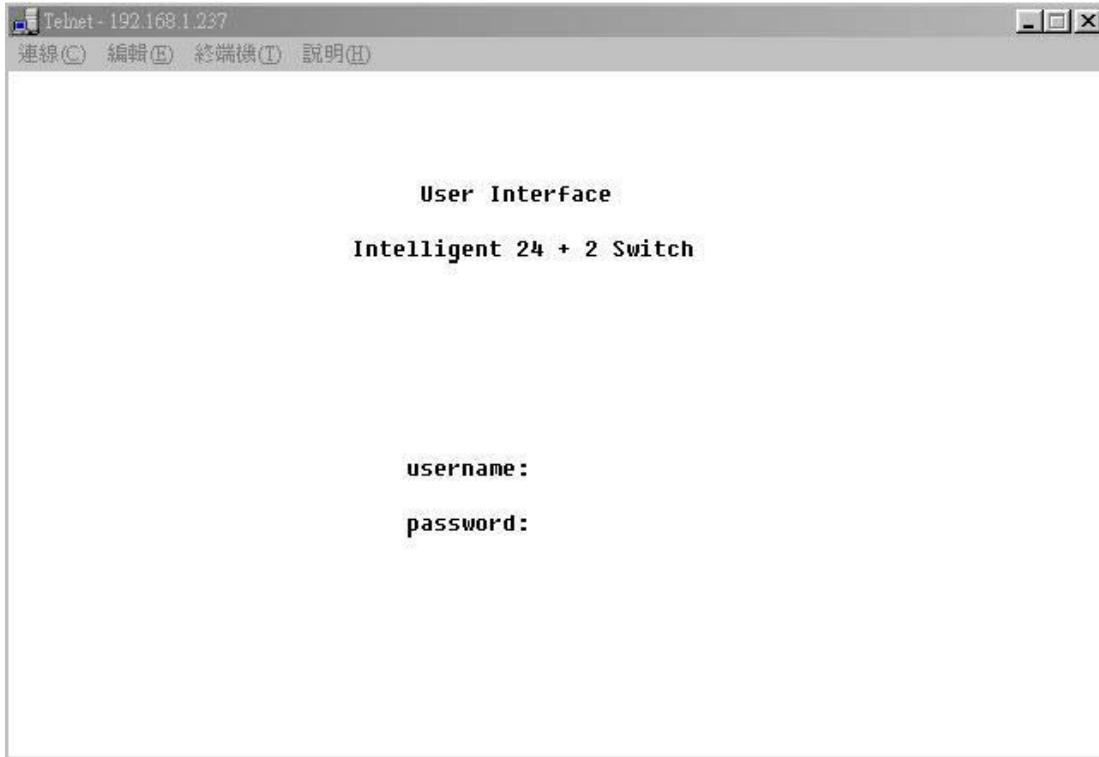
5.1 Web Management Home Page Overview

Connection Icon

From this page, you can view the link status of every port on the switch. If a given port is linked, it will be represented by a **connection icon** (see figure above) within the switch diagram/diagnostic at the top of the page. In the column on the left side of the page, you can click on the function names to monitor and manage the switch. The functions are listed below and their corresponding overviews are provided in the sections immediately following the list:

1. **Port status**
2. **Port Statistics**
3. **Administrator**
4. **TFTP Update Firmware**
5. **Configuration Backup**
6. **Reset System**
7. **Reboot**

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5.2 Port Status

This page provides a display of the current status of every port on the switch. The status depends on the user settings and the negotiation results.

Port Status

The following information provides a view of the current status of the unit.

Port	State		Link	Negotiation		Speed		Duplex		Flow Control			Rate Control(100K)		Priority	Security
	Config	Atual		Config	Atual	Config	Atual	Config	Atual	Config		Atual	Atual			
										Full	Half		Ingr	Egr		
PORT1	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT2	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT3	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT4	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT5	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT6	On	On	Up	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT7	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT8	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT9	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT10	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT11	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT12	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT13	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT14	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT15	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT16	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT17	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT18	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT19	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT20	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off

1. **State:** Displays port status: either **disabled or enabled**. "Unlink" will be treated as "off ".
2. **Link Status: "**Down" indicates that the port is not linked, "Up" indicates that the port is linked.   (In the figure above, refer to the "Link" column for "PORT6".)
3. **[Auto]-Negotiation:** Displays the auto-negotiation mode: auto/force/n-way force.
4. **Speed [Status]:** Displays "1000", "100", or "10" as corresponding to the speed. Ports 1- 24 are 10/100Mbps; ports 25-26 are 10/100/1000Mbps.
5. **Duplex [Status]:** Displays full-duplex or half-duplex mode.
6. **Flow Control: "**Full": Displays whether flow control is enabled in full-duplex mode.
    "Half": Displays whether back pressure is enabled in half-duplex mode.

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7. **Rate Control (100K):** Displays the rate control setting.
    "Ingr": Displays the port's effective ingress rate.
    "Egr": Display the port's effective egress rate.
8. **Port Security:** Display the port security is enabled or disabled.
9. **Config (located beneath the "Flow Control" category) :** Displays the state of the user settings.
10. **Actual:** Displays the negotiation results.

Single Port Counter and Status as Flows

You can also click on any port directly using the diagnostic of the unit's front panel, located at the top of the page. By doing this, you can view the status of each port individually (see figure below).

Port 6 Status - Network Ports Information - ...	
Port	6
State	On
Link	Up
Trunking	None
VLAN	DEFAULT
TxGoodPkt	1429
TxBadPkt	0
RxGoodPkt	1701
RxBadPkt	0
TxAbort	0
Collision	0
DropPkt	475

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Web Management

HGMS224 24-Port 10/100 + 2-Port Gigabit Module Managed Switch

5.3 Port Statistics

This page provides a display of the current status of the entire unit. Press the **Reset** button to clear all counters on this page.

Port Statistics

The following information provides a view of the current status of the unit.

Port	State	Link	TxGoodPkt	TxBadPkt	RxGoodPkt	RxBadPkt	TxAbort	Collision	DropPkt
PORT1	On	Down	0	0	0	0	0	0	0
PORT2	On	Down	0	0	0	0	0	0	0
PORT3	On	Down	0	0	0	0	0	0	0
PORT4	On	Down	0	0	0	0	0	0	0
PORT5	On	Down	0	0	0	0	0	0	0
PORT6	On	Up	11639	0	13896	0	0	0	4078
PORT7	On	Down	0	0	0	0	0	0	0
PORT8	On	Down	0	0	0	0	0	0	0
PORT9	On	Down	0	0	0	0	0	0	0
PORT10	On	Down	0	0	0	0	0	0	0
PORT11	On	Down	0	0	0	0	0	0	0
PORT12	On	Down	0	0	0	0	0	0	0
PORT13	On	Down	0	0	0	0	0	0	0
PORT14	On	Down	8481	0	18243	0	0	0	8488

Reset

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HGMS224 24-Port 10/100 + 2-Port Gigabit Module Managed Switch

5.4 Administrator

Many of the management functions can be set or performed by clicking on **Administrator** in the left column of the page. Once you have clicked on **Administrator**, you will see a menu that includes the following categories:

◆ IP Address
◆ Switch Settings
◆ Console Port Info
◆ Port Controls
◆ Trunking
◆ Filter Database
◆ VLAN Configuration
◆ Spanning Tree
◆ Port Sniffer
◆ SNMP
◆ Security Manager
◆ 802.1x Configuration

5.4.1 IP Address/Subnet Mask/Gateway

You can modify the IP settings by filling in a new value, and then clicking **Apply** to confirm (save) the new settings. You must reboot the switch in order for the new IP settings to be activated. **(Please note that if any of the value are changed in this field, you must reboot the switch.)**

Set IP Addresses

DHCP: Disable

IP Address	192.168.223.100
Subnet_Mask	255.255.255.0
Gateway	192.168.223.254

Apply Help

5.4.2 Switch Settings

5.4.2.1 Basic

All information in the **Basic** section is read-only. Therefore, you will not be able to modify its contents.

Description: Displays what type of device you are using.
MAC Address: The unique hardware address assigned by the manufacturer (default).
Firmware Version: Displays the firmware version of the switch.
Hardware Version: Displays the hardware version of the switch.
Default Configuration Value Version: Displays the default EEPROM (Electrically Erasable Programmable Read-Only Memory) value version.

Switch Settings

| Basic | Module Info | Advanced |

Description	Intelligent 24+2 Switch
MAC Address	004063809988
Firmware version	v2.3
ASIC version	A07.00
PCBA version	v01.00
Serial number	

5.4.2.2 Module Info

All information in the **Module Info** section is read only. Therefore, you will not be able to modify its contents. Its purpose is to display the module card information.

Switch Settings

Basic	Module Info	Advanced

	TYPE	DESCRIPTION
Module1	100TX	100TX-approve
Module2	100TX	N/A

5.4.2.3 Advanced

◆ **Miscellaneous Settings:**

MAC Table Address Entry: Age-out Time: Type in the number of seconds that an inactive MAC address remains in the switch's address table. The valid range is 300-765 seconds. The default is 300 seconds.

Max bridge transit delay bound control: You can limit the queuing time of the packets in the switch. If enabled, and the packets queued exceed the time value that has been set, they will be dropped. The valid values are 1sec, 2 sec, 4 sec and "Off". The default value is 1 second.

NOTE: Make sure that **Max bridge transit delay bound control** is enabled before enabling **Low Queue Delay Bound** because this function is only operable when **Max bridge transit delay bound control** is enabled.

Broadcast Storm Filter Mode: To configure broadcast storm control, enable it and set the upper threshold for individual ports. The threshold is the percentage of the port's total bandwidth used by broadcast traffic. When broadcast traffic for a port rises above the threshold you set, broadcast storm control becomes active. The valid threshold value are 5%, 10%, 15%, 20%, 25% and "Off".

◆ **Priority Queue Service Settings:**

First Come First Serve: The sequence of packets sent depends on the order in which they are received.

All High before Low: The high priority packets are sent before low priority packets.

WRR: (Weighted Round Robin). Select the preference given to packets in the switch's high-priority queue. These options represent the number of high-priority packets sent before one low-priority packet is sent. For example, 5 High/2 Low means that the switch sends 5 high priority packets before sending 2 low-priority packets.

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Enable Delay Bound: Limit the queuing time of low priority packets in the switch. The default "Max Delay Time" is 255ms. If the low priority packet stays in the switch longer than the "Max Delay Time", it will be sent. The valid range is 1-255ms.

QoS Policy: High Priority Levels – Priority levels from 0-7 can be mapped to high or low queues.

Collisions Retry Forever:

Disable – In half-duplex, the collision-retry maximum is 48 times, after which the packet will be dropped if collisions continue.

Enable – In half-duplex, collisions will retry forever.

802.1x Protocol: You can enable or disable the 802.1x protocol.

Priority Queue Service:

802.1p Priority

◉ Fisrt Come First Service

○ All High before Low

○ WRR ----- High weight: 2   Low weight: 1

Qos Policy: High Priority Levels

☐ Level0   ☐ Level1   ☐ Level2   ☐ Level3   ☑ Level4   ☑ Level5   ☑ Level6   ☑ Level7

Collisions Retry Forever : Disable ▼

802.1x Protocol : Disable ▼

[Apply]   [Default]   [Help]

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5.4.3 Console Port Information

The Console has a standard UART interface to communicate with the serial port.

You can use the Windows HyperTerminal program to establish a link to the switch.
Connect To -> Configure:

Bits per seconds: 9600
Data bits: 8
Parity: none
Stop Bits: 1
Flow control: none

Console Information

Baurate(bits/sec)	9600
Data Bits	8
Parity Check	none
Stop Bits	1
Flow Control	none

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5.4.4 Port Controls

User may modify or change mode operation in this page.

1. **State:** You can enable or disable the port control for each port.

Port Controls

Port	State	Negotiation	Speed	Duplex	Flow Control		Rate Control (100K)		Priority	Security
					Full	Half	Ingress	Egress		
PORT3 ▲ PORT4 PORT5 PORT6 ▼	Enable ▼	Auto ▼	100 ▼	Full ▼	Enable ▼	Enable ▼	0	0	Disable ▼	☐

Apply

Port	State		Link	Negotiation		Speed		Duplex		Flow Control			Rate Control(100K)		Priority	Security
	Config	Atual		Config	Atual	Config	Atual	Config	Atual	Config		Atual	Atual			
										Full	Half		Ingr	Egr		
PORT6	On	On	Up	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off

2. **Auto Negotiation:** You can set the auto negotiation mode to Auto, N-way (specify the speed/duplex on a specific port and enable auto-negotiation), or Force for each port.
3. **Speed:** You can set the speed at 100Mbps or 10Mbps for Ports 1-24. You can set the speed at 1000Mbps, 100Mbps or 10Mbps for Ports 25& 26 (depending on the module card mode).
4. **Duplex:** You can set each port to either full-duplex or half-duplex mode.
5. **Flow control:**
   Full: You can enable or disable the flow control function in full-duplex mode.
   Half: You can enable or disable the backpressure function in half-duplex mode.

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6. **Rate Control:** Ports 1-24 support ingress and egress rate control for each port. For example, assume that Port 1 is set at 10Mbps. You can set its effective egress rate at 1Mbps and ingress rate at 500Kbps. The device will perform flow control or backpressure to confine the ingress rate to the specified rate.

    Ingress: Type the effective ingress rate for a specific port. The valid range is 0 - 1000. The units are 100K.

    i.   0: disables rate control.
    ii. 1 - 1000: valid rate value

    Egress: Type the effective egress rate for a specific port. The valid range is 0 - 1000. The units are 100K.

    iii. 0: disable rate control.
    iv.   1 - 1000: valid rate value.

7. **Port Priority:** This field is set at "Disable", by default. You can set the priority of a specific port to either "High" or "Low".
8. **Port Security:** A port in security mode will be "locked" without permission of the address learning. Only the incoming packets with SMAC already existing in the address table can be forwarded normally. You can disable the port from learning any new MAC addresses, then use the static MAC addresses screen to define a list of MAC addresses that can use the secure port. Enter the settings, and then click the **Apply** button.

5.4.5 Trunking

The Link Aggregation Control Protocol (LACP) provides a standardized means for:

a. exchanging information between partner systems on a link, to allow their Link Aggregation Control instances to reach agreement on the identity of the Link Aggregation Group to which the link belongs,
b. moving the link to that Link Aggregation Group, and
c. enabling its transmission and reception functions in an orderly manner.

Link aggregation allows you to group up to eight consecutive ports into a single dedicated connection. This feature can expand bandwidth for other devices on the network. **LACP operation requires full-duplex mode.** Please refer to the **IEEE 802.3ad** specifications for more details.

5.4.5.1 Aggregator Setting

1. **System Priority:** A value used to identify the active LACP. The switch with the *lowest* value has the *highest* priority and is selected as the active LACP.

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2. **Group ID:** You can configure up to seven trunk groups. Choose the "Group ID" and click "Get".
3. **LACP:** If enabled, the group is an LACP static trunking group. If disabled, the group is a local static trunking group. All ports support LACP dynamic trunking groups. If connecting to a device that also supports LACP, the LACP dynamic trunking group will be created automatically.
4. **Work ports:** Allows a maximum of four ports to be aggregated into each group. If the group is LACP static trunking, the excess ports are standby and able to aggregate if work ports fail. If the group is local static trunking, the number of ports must be the same as the group member ports.
5. Select the desired ports for the trunking group. (Again, the maximum number of ports per group is four.)
6. If LACP is enabled, you can configure LACP Active/Passive status for each port. This can be done in the "State Activity" section.
7. Click Apply.

5.4.5.2 Aggregator Information

When you are configuring LACP aggregator, you can view the vital, corresponding information in this section.

1. The page shown below is displayed when there are no active groups.

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2. The page shown below displays the static trunking groups.

3. The page shown below displays "Actor" and "Partner" trunking.

5.4.5.3 State Activity

Active (select)**:** The port automatically sends LACP protocol packets.

N/A (not selected)**:** The port does not automatically sends LACP protocol packets, and responds only if it receives LACP protocol packets from the opposite device.

1. A link that either has two active LACP ports, or one active port can perform dynamic LACP trunking. A link that has two "N/A" LACP ports will not perform dynamic LACP trunking because both ports are waiting for an LACP protocol packet from the opposite device.

2. If the port is an active LACP actor, the active status will be created automatically when you select port trunking.

Port	LACP State Activity	Port	LACP State Activity
1	☑ Active	2	☑ Active
3	☑ Active	4	☑ Active
5	N/A	6	N/A
7	N/A	8	N/A
9	☑ Active	10	☑ Active
11	☑ Active	12	☑ Active
13	N/A	14	N/A
15	N/A	16	N/A
17	N/A	18	N/A
19	N/A	20	N/A
21	N/A	22	N/A
23	N/A	24	N/A
25	N/A	26	N/A

Apply Help

5.4.6 Filter Database

5.4.6.1 IGMP Snooping

The switch supports IP multicasting. You can enable the IGMP protocol in the "IGMP Snooping" section. IGMP snooping information is displayed on this page. You can view different multicast groups, VIDs and member ports in this section. IP multicast addresses range from 224.0.0.0 to 239.255.255.255.

Forwarding and Filtering

IGMP Snooping	Static MAC Addresses	MAC Filtering

Multicast Group

Ip_Address _____ VID_____ MemberPort

224.001.001.002	0	*******8*****************
224.001.001.003	0	*******8*****************
224.001.001.004	0	*******8*****************
224.001.001.005	0	*******8*****************
224.001.001.006	0	*******8*****************
224.001.001.007	0	*******8*****************
224.001.001.008	0	*******8*****************
224.001.001.009	0	*******8*****************
224.001.001.010	0	*******8*****************
224.001.001.011	0	*******8*****************

IGMP Protocol: Enable   Apply

The Internet Group Management Protocol (IGMP) is an internal protocol within the Internet Protocol (IP) suite. The IP suite manages multicast traffic by using switches, routers, and hosts that support IGMP. Enabling IGMP allows the ports to detect IGMP queries and report packets, and manage IP multicast traffic through the switch. IGMP has three fundamental types of messages, shown below:

Message	Description
Query	A message sent from the queries (IGMP router or switch) asking for a response from each host belonging to the multicast group.
Report	A message sent by a host to the queries to indicate that the host wants to be or already is a member of a given group cited in the report message.
Leave Group	A message sent by a host to the queries to indicate that the host is no longer a member of a specific multicast group.

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5.4.6.2 Static MAC Address

When you add a static MAC address, it remains in the switch's address table, regardless of whether or not the device is physically connected to the switch. This saves the switch from having to re-learn a device's MAC address when the disconnected or powered-off device is active on the network again.

1. Click on the "Static MAC Addresses" tab.
2. In the MAC address box, enter the MAC address to and from which the port should permanently forward traffic, regardless of the device's network activity.
3. In the "Port num" box, enter a port number.

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4. If tag-based (IEEE 802.1Q) VLANs are set up on the switch, static addresses are associated with individual VLANs. Type in the VID (tag-based VLAN ID) to associate with the MAC address.
5. Click the **Add** button.

5.4.6.3 MAC Filtering

MAC address filtering allows the switch to drop unwanted traffic. Traffic is filtered based on the destination addresses.

1. In the MAC Address box, enter the MAC address that you want to filter.
2. If a tag-based (802.1Q) VLAN is set up on the switch, type the VID in the VLAN ID box to associate with the MAC address.
3. Click the **Add** button.
4. Choose any MAC addresses that you want to delete and then click the **Delete** button.

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5.4.7 VLAN Configuration

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

The switch supports port-based, 802.1Q (tag-based) and protocol-based VLAN through web management. In the default configuration, VLAN support is disabled.

VLAN Operation Mode: No VLAN

☐ Enable GVRP Protocol

VLAN NOT ENABLE

◆ **Port-based VLAN**

Packets can only be broadcast among members of the same VLAN group. Note that all unselected ports are treated as belonging to another single VLAN. If the port-based VLAN is enabled, the VLAN-tagging is ignored.

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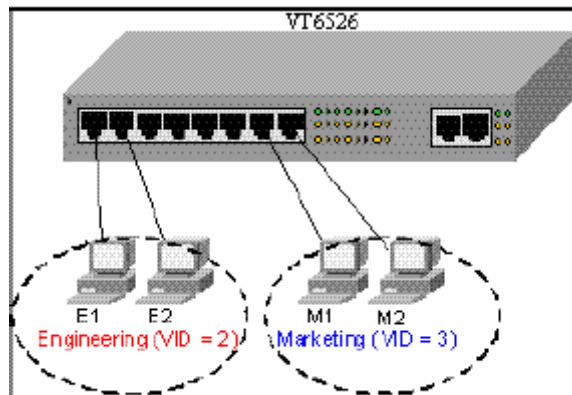
◆ **Tag-based VLAN (IEEE 802.1Q VLAN)**

Tag-based VLAN is an IEEE 802.1Q specification standard. Therefore, it is possible to create a VLAN across devices from different switch vendors. IEEE 802.1Q VLAN uses a technique to insert a "tag" into the Ethernet frames. Tags contain a VLAN Identifier (VID) that indicates the VLAN numbers.

◆ **Protocol-based VLAN**

In order for an end station to send packets to different VLANs, it must either itself be capable of tagging packets it sends with VLAN tags or be attached to a VLAN-aware bridge that is capable of classifying and tagging the packet with different VLAN IDs based not only on default PVID but also on other information about the packet, such as the protocol. The switch will support protocol-based VLAN classification by means of both, built-in knowledge of Layer 2 packet formats used by selected popular protocols, such as Novell IPX and AppleTalk's EtherTalk, and some degree of programmable protocol matching capability.

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5.4.7.1 Port-Based VLAN

1. Click **Add** to create a new VLAN group.
2. Enter the VLAN name and group ID, and select the members for the new VLAN.
3. Click **Apply**.
4. If there are more groups than the viewable box can display, you can click **Next Page** to view other VLAN groups.

NOTE:

If the trunk groups already exist, you can view them (ex: TRK1, TRK2…) in the menu of ports (see the section titled, "Basic" in the pages that follow), and you can configure them as the members of a VLAN.

5.4.7.2 Tag-based (IEEE 802.1Q) VLAN

This page, user can create Tag-based VLAN, and enable or disable GVRP protocol.
There are 256 VLAN groups to provide configure. Enable 802.1Q VLAN, the all ports on the switch belong to default VLAN, VID is 1. The default VLAN can't be delete.

GVRP (GARP [Generic Attribute Registration Protocol] VLAN Registration Protocol)

GVRP allows automatic VLAN configuration between the switch and corresponding nodes. If the switch is connected to a device with GVRP enabled, you can send a GVRP request using the VID of a VLAN defined on the switch. The switch will automatically add the device to the existing VLAN.

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◆ *Basic*

Create a VLAN and add tagged member ports to it.

1. Click on the "Basic" tab, and then click **Add** to reach the page shown below.

2. Type a name for the new VLAN.
3. Type a VID (between 2-4094). The default is 1.
4. Choose the protocol type.
5. From the column box on the left that displays the available ports, select the ports you would like to add click **Add >>**. If the trunk groups already exist, you can view them here (ex: TRK1, TRK2…) and configure them as the members of a VLAN.

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6. Click **Next**. Then you can view the page as follows:

VLAN Name:	v1		
VLAN ID:	2		
Tag Member			
PORT1	Tag	PORT2	Tag
PORT3	Tag	PORT4	Untag
PORT5	Untag		
Apply			

7. Use this page to set the outgoing frames as VLAN-tagged frames, if necessary. Then click **Apply**.

   Tag: outgoing frames that are VLAN-tagged.
   Untag: outgoing frames that are not VLAN-tagged.

◆ *Port VID*

Configure Port VID Settings

From the main tag-based (IEEE 802.1Q) VLAN page, click the "Port VID" tab.

Basic		Port VID	
Assign a Port VLAN ID (1~255) for untagged traffic on each port, then click Submit to apply the changes on this page.			

Ingress Filtering Rule 1
(Forward only packets with VID matching this port's configured VID)
Ingress Filtering Rule 2
(Drop Untagged Frame)

NO	PVID	Ingress Filtering 1	Ingress Filtering 2
PORT1 / PORT2 / PORT3 / PORT4	1	Enable	Disable
PORT1	1	ENABLE	DISABLE
PORT2	1	ENABLE	DISABLE
PORT3	1	ENABLE	DISABLE
PORT4	1	ENABLE	DISABLE

Apply   Default   Help

Port VID (PVID)

Set the port VLAN ID that will be assigned to untagged traffic on a given port. This feature is useful for accommodating devices that you want to participate in the VLAN but that don't support tagging. Each port allows you to set one PVID; the range is 1-255 and the default PVID is 1. The PVID must be the same as the VLAN ID of the port that belongs to the VLAN group, or the untagged traffic will be dropped.

Ingress Filtering

Ingress filtering allows frames that belong to a specific VLAN to be forwarded if the port belongs to that VLAN. The switch has two ingress filtering rules. They are as follows:

Ingress Filtering Rule 1: Only forward packets with VIDs matching this port's configured VID.
Ingress Filtering Rule 2: Drop untagged frames.

5.4.8 Spanning Tree

The spanning-tree protocol (STP) is a standardized method (IEEE 802.1D) for avoiding loops in switched networks. Enabling STP will ensure that only one path at a time is active between any two nodes on the network. You can enable the spanning-tree protocol on the "Switch Settings" page in the "Advanced" section. Select "Enable Spanning-Tree protocol". We recommend that you enable STP on all switches to ensure a single active path on the network.

1. You can view spanning tree information about the Root Bridge. A sample is shown below.

Root Bridge Information	
Priority	32768
Mac Address	004063809988
Root_Path_Cost	0
Root Port	0
Max Age	20
Hello Time	2
Forward Delay	15

2. You can also view the spanning tree status of the switch. A sample is shown below.

STP Port Status			
PortNum	**PathCost**	**Priority**	**PortState**
PORT1	10	128	FORWARDING
PORT2	10	128	FORWARDING
PORT3	10	128	FORWARDING
PORT4	10	128	FORWARDING
PORT5	10	128	FORWARDING
PORT6	10	128	FORWARDING
PORT7	10	128	FORWARDING
PORT8	10	128	FORWARDING
PORT9	10	128	FORWARDING
PORT10	10	128	FORWARDING
PORT11	10	128	FORWARDING
PORT12	10	128	FORWARDING
PORT13	10	128	FORWARDING
PORT14	10	128	FORWARDING
PORT15	10	128	FORWARDING

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3. You can change the settings for the STP parameters. Then click **Apply**.

Parameter	Description
Priority	You can change the priority value, which is a value used to identify the root bridge. The bridge with the lowest value has the highest priority and is selected as the root. Enter a number between 1 and 65535.
Max Age	You can change the max age value, which is the number of second bridge waits without receiving spanning-tree protocol configuration messages before attempting a reconfiguration. Enter a number between 6 and 40.
Hello Time	You can change the Hello Time value, which is the number of seconds between the transmissions of spanning-tree protocol configuration messages. Enter a number between 1 and 10.
Forward Delay Time	You can change the forward delay time, which is the number of seconds a port waits before changing from its spanning-tree protocol learning and listening states to the forwarding state. Enter a number between 4 and 30.

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4. The following parameters can be configured on each port. Click Apply after you have made the appropriate changes.

Configure Spanning Tree Port Parameters

Port Number	Path Cost (1 - 65535; Default 10)	Priority (0 - 255; Default 128)
PORT1 ▲ PORT2 PORT3 PORT4 PORT5 ▼	10	128

Apply   Help

Parameter	Description
Port Priority	You can increase the priority level for a port to become the root port. The range is 0-255, and the default setting is 128. The *lowest* number has the *highest* priority.
Path Cost	This parameter specifies the path costs of the ports that the switch uses to determine which ports are the forwarding ports. The ports with the *lowest* numbers are the forwarding ports. The range is 1-65535, and the default value is bases on the IEEE 802.1D specifications: 10Mb/s = 50-600, 100Mb/s = 10-60, 1000Mb/s = 3-10

5.4.9 Port Sniffer

The port sniffer is a tool for monitoring traffic in switched networks. Traffic through ports can be monitored via one designated port. Traffic going in or out of monitored ports will be duplicated into a sniffer port.

1. **Sniffer Mode:** Press **Spacebar** to set the sniffer mode to: Disable \Rx \Tx \Both.
2. **Monitoring Port:** The sniffer port can be used to monitor port traffic. You can connect the sniffer port to a LAN analyzer or NetXRay.

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3. **Monitored Port:** The ports you want to monitor. All monitor port traffic will be copied to sniffer port. You can select max 25 monitor ports in the switch. User can choose which port that they want to monitor in only one sniffer mode.

If you want to disable the function, you must select "None" in the "Analysis Port" category.

Port Sniffer

Roving Analysis State:	DISABLE ▼		
Analysis Port:	None	DISABLE	
		RX	
Port	**Monitor**	TX	**Monitor**
PORT1	☐	BOTH　　2	☐
PORT3	☐	PORT4	☐
PORT5	☐	PORT6	☐
PORT7	☐	PORT8	☐
PORT9	☐	PORT10	☐
PORT11	☐	PORT12	☐
PORT13	☐	PORT14	☐
PORT15	☐	PORT16	☐
PORT17	☐	PORT18	☐
PORT19	☐	PORT20	☐
PORT21	☐	PORT22	☐
PORT23	☐	PORT24	☐

Apply　Default　Help

5.4.10 SNMP/Trap Manager

Any network management platform that is running the Simple Network Management Protocol (SNMP) can manage the switch, provided the Management Information Base (MIB) is installed correctly on the management station. SNMP is a protocol that governs the transfer of information between management station and agent.

1. System Options: You can define a name, location, and contact person for the switch. Fill in the system options data, and then click **Apply** to update the changes on this page.

    Name: Enter a name to be used for the switch.
    Location: Enter the location of the switch.
    Contact: Enter the name of a person or organization.

2. Community sSrings: serve as passwords and can be entered as one of the following:

    RO: Read-only - enables requests accompanied by this string to display MIB-object information.
    RW: Read-write - enables requests accompanied by this string to display MIB-object information and to set MIB objects.

3. Trap Managers: A trap manager is a management station that receives traps, which are the system alerts generated by the switch. If no trap manager is defined, no traps are issued. Create a trap manager by entering the IP address of the station and a community string.

Trap Managers

Current Managers :   (none)

New Manager :

<< Add <<   IP Address :

Remove   Community :

5.4.11 Security Manager

On this page, you can change the user name and password as follows:

1. User name: Type the new user name.
2. Password: Type the new password.
3. Reconfirm password: Retype the new password.

4. Click **Apply**.

Security Manager

User Name: admin

Assign/Change password: ***

Reconfirm pssword: ***

Apply

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5.4.12 802.1x Configuration

System Configuration

802.1x makes use of the physical access characteristics of IEEE 802 LAN infrastructures in order to provide a means of authenticating and authorizing devices attached to a LAN port that has point-to-point connection characteristics, and of preventing access to that port in cases in which the authentication and authorization process fails.

To enable 802.1x, go to **Administrator > Switch Settings > Advanced**. You can enable 802.1x at the bottom of the page. After enabling 802.1x, proceed to the "802.1x Configuration" section to fill in the authentication server information.

Radius Server IP Address: The IP address of the authentication server.
Server Port: The UDP port number used by the authentication server to authenticate.
Accounting Port: The UDP port number used by the authentication server to retrieve accounting information.
Shared Key: A key shared between this switch and the authentication server.
NAS, Identifier: A string used to identify this switch.

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Per Port Configuration

In this page, you can select a specific port and configure the authorization state.
You can select from a list of four authorization states for each port:

Fu: Forces a specific port to be unauthorized.
Fa: Forces a specific port to be authorized.
Au: The state of a specific port is determined by the outcome of the authentication.
No: The selected port is not 802.1x enabled.

Misc Configuration

In this page, you can change the default configuration for the 802.1x standard:

Quiet Period: Used to define periods of time during which it will not attempt to acquire a supplicant (default time is 60 seconds).

Tx Period: Used to determine when an EAPOL PDU is to be transmitted (default value is 30 seconds).

Supplicant Timeout: Used to determine timeout conditions in the exchanges between the supplicant and authentication server (default value is 30 seconds).

Server Timeout: Used to determine timeout conditions in the exchanges between the authenticator and authentication server (default value is 30 seconds).

Re-Auth Max: Used to determine the number of re-authentication attempts that are permitted before a specific port becomes unauthorized (default value is 2 times).

Re-Auth Period: Used to determine a non-zero number of seconds between periodic re-authentication of the supplications (default value is 3600 seconds).

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5.4.13 Web Cluster

This switch provides a new management tool for you to manage a group of LAN switches through a master switch. It is called the "Web Cluster" function. This function allows the manager switch (also called "master switch") to fetch the web pages from the managed switches to the user 's browser. The MIS can store information about up to 16 sets of other switches in one master switch, and easily switch to the web page of the desired Ethernet switch without remembering the IP of the host. Moreover, the switch has no exclusiveness, meaning that the MIS can group switches of any brand and the web cluster switch will not reject any other switch from any other brand.

Web Cluster Menu

A pop-up menu will be displayed after clicking the "Web Cluster" item in the main menu.

There are 16+1 rows in the web cluster menu. The top row, with the deep blue background, indicates the master switch IP and cannot be modified. The other 16 rows, in a lighter blue background, can be added with managed switches by clicking **Add/Del Switches**.

In the row, there is specific information about the managed switch: host names and their IPs. If the host is a Web Cluster-supported switch, an asterisk (*) will appear before the host name. The current managed switch will be highlighted in red on the menu. You can switch to another host by clicking on it and the browser window will jump to its homepage.

Web Cluster setting

In this page, you can add or delete web cluster group members. There is a list in the "Web Cluster Status" section, indicating the current group setting. Hosts in blue font are Web Cluster-supported.

Add: Enter the IP and name of the switch to be added. If the switch is Web Cluster-supported, click the checkbox "Web Cluster Support". The default setting is "Off". After clicking **Add**, the input host will be added to the "Web Cluster Status" list.
Delete: In the "Web Cluster Status" list, click the **Del** checkbox for items to be removed. After that, click **Delete** to refresh the list.
Apply: When the list is confirmed, click **Apply** to submit. The web cluster menu list will be updated. The group information will be stored in the master switch.

Note:

"Web Cluster-supported" indicates that, if the managed host is also a Web Cluster switch, the master switch will bypass the password authentication and suppress the "Web Cluster" item in the managed host's main menu.

5.5 TFTP Firmware Update

The following menu options provide some system control functions to allow you to update the firmware and remote boot switch system:

- Install the TFTP program (such as Turbo98, or Cisco TFTP) and then execute.
- Copy updated firmware **image. bin** into the TFTP server's directory.
- Using the web management tool, select "TFTP Update Firmware".
- Download the new **image.bin** file by clicking **Apply**.
- After the update is completed, click **Reboot** to restart the switch.

5.6 Configuration Backup

5.6.1 TFTP Restore Configuration

Use this page to set the FTP server address. You can restore the EEPROM value from here, but you must put the image back in the FTP server; the switch will download back the flash image.

5.6.2 TFTP Backup Configuration

Use this page to set the TFTP server IP address. You can save the current EEPROM value from here, and then go to the "TFTP Restore Configuration" page to restore the EEPROM value.

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5.7 Reset System

In this page, you can reset the switch to its default configuration. The default value is shown below.
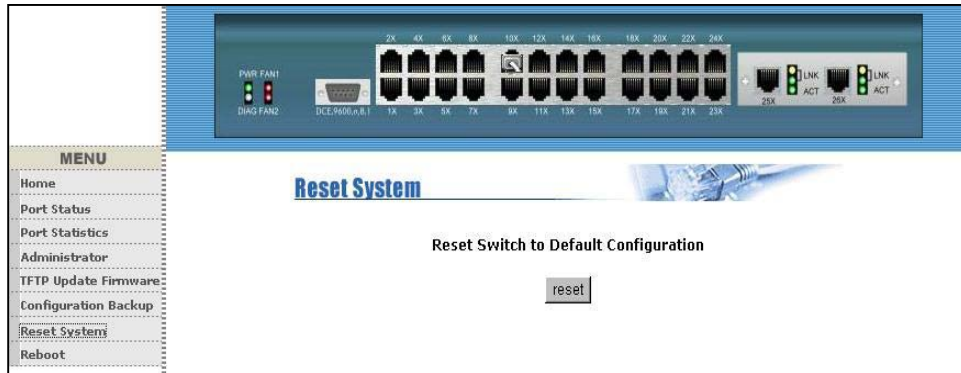
5.8 Reboot

In this page, you can reboot the switch in software reset.

Console - Firmware Update
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Console - 1K Xmodem Firmware Update

We provide a 1k Xmodem to update the firmware via the console. The X modem only works in 57600bps mode. So you must change the baud rate to 57600bps to download the firmware.
There are two situations in which to use the 1K X modem to update the firmware:

1. You can enter "1K X modem receiver mode" by pressing any key within 5 seconds of the system power being turned on.
2. The system automatically enters "1K X modem receiver mode" if it detects the firmware checksum failed while booting.

1. Press the "Disconnect" button when you start 1K X modem modes.

    Go to **File -> Properties**, change the baud rate to 57600bps, and then click **OK**.
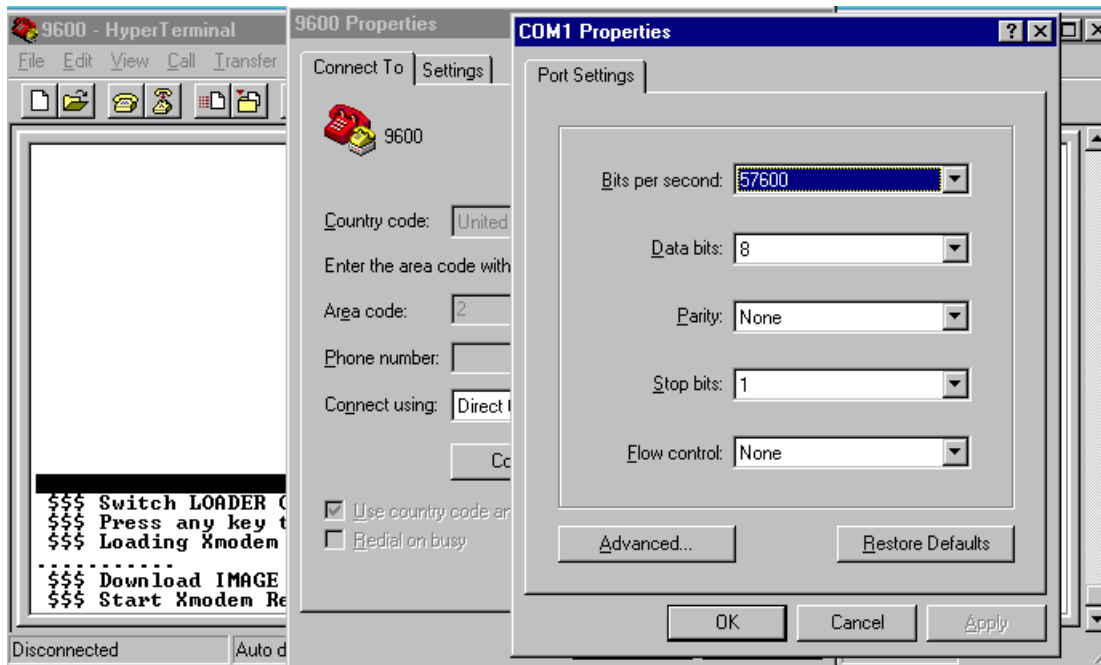
2. Press the "Connect" button and you will see "CCCC…"displayed on the console.
    Then go to **Transfer** > **Send File**.

```
9600 - HyperTerminal
File  Edit  View  Call  Transfer  Help
                    Send File...
                    Receive File...
                    Capture Text...
                    Send Text File...      n Static Configuration
                    Capture to Printer     ol Related Configuration
                              Status and Counters
                              Reboot Switch
                              TFTP Update Firmware
                              Logout

                         Restart the system.
$$$ Switch LOADER Checksum O.K !!!ous Item      Enter=Select Item
$$$ Press any key to  start Xmodem receiver:
$$$ Loading Xmodem Driver.................................................
..........
$$$ Download IMAGE through console(1K Xmodem;baudrate=57600bps)
$$$ Start Xmodem Receiver:  CCCCCCCCCCCCCC_
```

3. Select *1K Xmodem* under the **Protocol** item, and list the directory for the image file folder.
    Then click **Send**.

```
Send File                                    ? X
Folder: C:\WINDOWS\Desktop
Filename:
d:\6526v25.bin                      Browse...
Protocol:
1K Xmodem                                 ▼
              Send      Close      Cancel
```

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Console - Firmware Update

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4. Start downloading the image file.

1K Xmodem file send for 9600

Sending:	d:\6526V25.BIN
Packet:	138	Error checking:	CRC
Retries:	0	Total retries:	0
Last error:	

File:	▮▮▮▮▮▮▮▮▮▮▮	136k of 512K
Elapsed:	00:00:31	Remaining:	00:01:25	Throughput:	4492 cps

Cancel   cps/bps

5. Finish downloading the file and the switch system will update the firmware automatically. If the message "Update firmware…ok…" appears, the switch will reboot. Please change the baud rate to 9600bps.

9600 - HyperTerminal
File Edit View Call Transfer Help

```
                        Logout


                        Restart the system.
$$$ Switch LOADER Checksum O.K !!!ous Item      Enter=Select Item
$$$ Press any key to  start Xmodem receiver:
$$$ Loading Xmodem Driver.....................................................
............
$$$ Download IMAGE through console(1K Xmodem;baudrate=57600bps)
$$$ Start Xmodem Receiver:  CCCCCCCCCCCCCCCCCCCCCCCCCCCCC
$$$ Download IMAGE ....O.K !!!
$$$ Update firmware .......................................................
......................
.....................................................................
.....................................................................
.....................................................................
............
$$$ Update firmware ....O.K !!!
$$$ Note: console baudrate of new image is 9600bps..ααααααααααααααααααααααααααααα
ααααααααααααααααα_
```
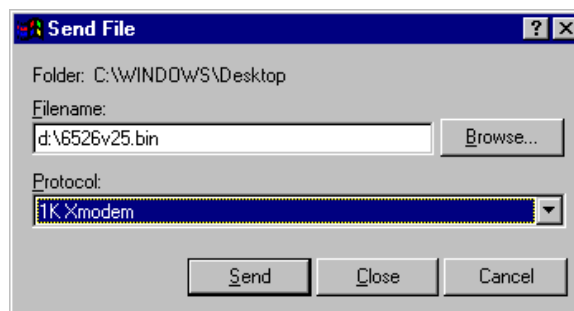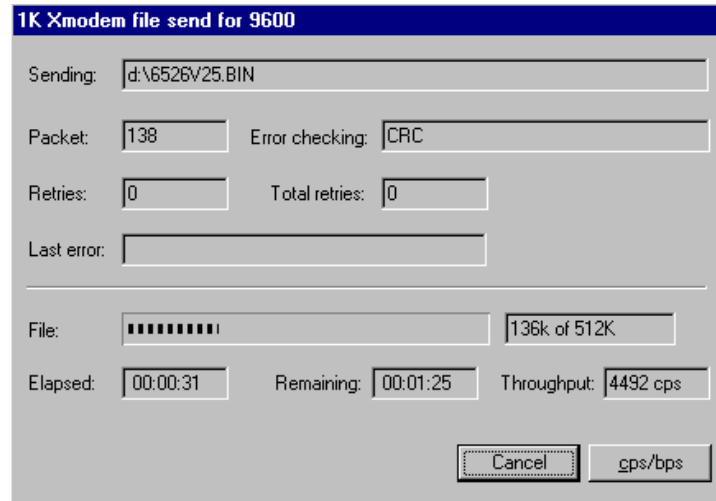
Connected 0:03:51   Auto detect   57600 8-N-1   SCROLL   CAPS   NUM   Capture   Print echo

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Out-of-band Terminal Mode Management

1. The switch also provides a serial interface to manage and monitor the switch. You can follow the steps outlined in the "Console Port Info" section of the web interface for using the Windows HyperTerminal program to link the switch.

2. You can type a user name and password to login. The default user name is "admin" and the default password is "123 ".

```
                    User Interface

            Intelligent 24 + 2 Switch




                username:

                password:
```

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7.1 Main Menu

There are six selectable items, as shown below:

```
                    Main Menu
                    =========



              Switch Static Configuration

              Protocol Related Configuration

              Status and Counters

              Reboot Switch

              TFTP Update Firmware

              Logout




                Configure the switch.
 Tab=Next Item      BackSpace=Previous Item      Enter=Select Item
```

Switch Static Configuration: Allows you to configure the switch.
Protocol Related Configuration: Allows you to configure the protocol function.
Status and Counters: Displays the status of the switch.
Reboot Switch: Allows you to restart the system or reset switch to its default configuration.
TFTP Update Firmware: Uses TFTP to download the updated firmware.
Logout: Exits the menu line program.

The **control key** can be used as follows for this mode of operation:
Tab: Moves to the next item.
Backspace: Moves to the previous item.
Enter: Selects the item.
Spacebar: Toggles between the selectable items.

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7.2 Switch Static Configuration

```
              Intelligent Switch : Switch Configuration
              ===================

                    Port Configuration

                    Trunk Configuration

                    VLAN Configuration

                    Misc Configuration

                    Administration Configuration

                    Port Mirroring Configuration

                    Priority Configuration

                    MAC Address Configuration

                    Main Menu

              Display or change port configuration.
 Tab=Next Item      BackSpace=Previous Item      Enter=Select Item
```

You can press the **Tab** or **Backspace** keys to choose an item, and then press **Enter** to select the item. The action menu, shown below, applies for configuration in this section.

<Quit>: Allows you to exit the current page and return to previous menu.
<Edit>: Configures all of the items. Once you have completed making the appropriate changes,
  press **Ctrl + A** to return to the action menu line.
<Save>: Saves all of the configured values.
<Previous Page>: Allows you to return to the previous page.
<Next page>: Allows you to proceed to the next page.

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7.2.1 Port Configuration

From this page, you can manipulate the status of every port.

Press **Spacebar** to toggle between items.

```
                Intelligent Switch : Port Configuration
                ==================

               InRate    OutRate                              FlowControl
      Port      Type     (100K)    (100K)   Enable   Auto    Spd/Dpx    Full   Half
      ----------------------------------------------------------------------
      PORT1   100Tx      0         0        Yes      AUTO    100 Full    On     On
      PORT2   100Tx      0         0        Yes      AUTO    100 Full    On     On
      PORT3   100Tx      0         0        Yes      AUTO    100 Full    On     On
      PORT4   100Tx      0         0        Yes      AUTO    100 Full    On     On
      PORT5   100Tx      0         0        Yes      AUTO    100 Full    On     On
      PORT6   100Tx      0         0        Yes      AUTO    100 Full    On     On
      PORT7   100Tx      0         0        Yes      AUTO    100 Full    On     On
      PORT8   100Tx      0         0        Yes      AUTO    100 Full    On     On




      actions->    <Quit>       <Edit>    <Save>   <Previous Page>   <Next Page>
                             Select the Action menu.
      Tab=Next Item   BackSpace=Previous Item   Quit=Previous menu Enter=Select Item
```

1. InRate (100K/unit):
   You can adjust the input rate (100K per unit). The valid range is 0-1000.
   0: disables rate control.
   1-1000: valid range of rate values.

2. OutRate (100K/unit):
   You can adjust the input rate (100K per unit). The valid range is 0-1000.
   0: disables rate control.
   1-1000: valid range of rate values.

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3. Enabled:
   You can enable or disable the ports.
   "Yes" indicates that the port is enables.
   "No" indicates that the port is disabled.

4. Auto:
   You can set the auto-negotiation mode to either "Auto", "N-way Force" or "Force" for each port.

5. Spd/Dpx:
   You can set the speed of ports 1-24 to either 100Mbps or 10Mbps. You can set the speed of ports 25 & 26 at either 1000Mbps, 100Mbps or 10Mbps (depending on the module card mode). You can set all of the ports at either full-duplex or half-duplex mode.

6. Flow Control:
   Full: You can enable the flow control (pause) function for full-duplex mode.
   Half: You can enable the flow control (backpressure) function for half-duplex mode.

NOTE:

Pressing <**Save**> only can save one page configuration. If the static trunk groups exist, you can see them listed (ex: TRK1, TRK2…) after port 26, and you can configure all of the items as above.

7.2.2 Trunk Configuration

This page will allow you to create a maximum of seven trunk groups. You can arbitrarily select up to four ports from ports 1-26 to build a trunk group.

```
                   Intelligent Switch : Trunk Configuration
                   ==================
 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 M1 M2
1 v  v  v  v  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
2 -  -  -  -  v  v  v  v  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
3 -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
4 -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
5 -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
6 -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
7 -  -  -  -  -  -  -  -  -  -  -  -  -  v  -  v  -  -  -  -  -  -  -  -  -  -


TRK1    Static
TRK2    LACP
TRK3    Disable
TRK4    Disable
TRK5    Disable
TRK6    Disable
TRK7    Static



 actions->          <Edit>              <Save>              <Quit>
                         Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

1. Select **<Edit>** on the "actions" menu
2. Press the **spacebar** to configure the member ports of a trunk group. You will also have to set the corresponding trunk groups between TRK1 and TRK7 to "Static" or "LACP".
     "Static" – the standard/normal method of trunking.
     "LACP" – this method of trunking utilized the link aggregation control protocol (LACP).
3. Press **Ctrl + A** to go back to the action menu line.
4. Select **<Save>** to save all configured values.
5. If the items of TRK1-TRK7 are set to "Disable", then the corresponding the trunk group will be deleted.

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6. All ports in the same static trunk group will be treated as a single port. So when you set the VLAN members and port configuration, they will be toggled on or off simultaneously.

NOTE:

If VLAN groups exist, all of the members of a static trunk group **must** be in the same VLAN group.

7.2.3 VLAN Configuration


```
               Intelligent Switch : VLAN Configuration
               ==================



                         VLAN Configure

                         Create a VLAN Group

                         Edit/Delete a VLAN Group

                         Group Sorted Mode

                         Previous Menu




                Configure the VLAN pvid and ingress,egress Rule.
    Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

The page below allows you to set the VLAN mode to port-based VLAN, 802.1Q VLAN, or "Disable".


```
               Intelligent Switch : VLAN Support Configuraton
               ==================
           VLAN Mode  :PortBased












    actions->    <Quit>      <Edit>     <Save>     <Previous Page>    <Next Page>
                              Select the Action menu.
     Tab=Next Item  BackSpace=Previous Item  Space=Toggle  Ctrl+A=Action menu
```

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NOTE: Whenever you change the VLAN settings, you will need to restart the switch.

If the VLAN mode is set to 802.1Q VLAN, you can set PVIDs, as well as ingress filtering 1 and ingress filtering 2 in this section.

```
              Intelligent Switch : VLAN Support Configuraton
              ==================

      VLAN Mode :802.1Q


                           IngressFilter1      IngressFilter2
      Port       PVID      NonMember Pkt       Untagged Pkt
      -------------------------------------------------------
      PORT1      1         Forward             Drop
      PORT2      3         Forward             Forward
      PORT3      1         Drop                Forward
      PORT4      1         Drop                Forward
      PORT5      1         Drop                Forward
      PORT6      1         Drop                Forward
      PORT7      1         Drop                Forward
      PORT8      1         Drop                Forward



   actions->    <Quit>     <Edit>    <Save>    <Previous Page>    <Next Page>
                          Select the Action menu.
 Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

1. **PVID (Port VID: 1-255):** Type in the PVID.
2. **Non-Member Drop:**
    Same as Ingress Filtering Rule #1 on the web interface.
    Only forwards packets with a VID that matches a corresponding port's configured VID.
    Press **Spacebar** to choose to "forward" or "drop" a frame whose VID does not match the port's configured VID.
3. **Untagged Drop:**
    Same as Ingress Filtering Rule #2 on the web interface.
    Drops untagged frames.
    Press **Spacebar** to choose to "forward" or "drop" the untagged frame.

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7.2.3.1 Create a VLAN Group

◆ Create a Port-Based VLAN

Create a port-based VLAN and add member/nonmember ports to it.

1. Select **<Edit>**.
2. **VLAN Name:** Type in a name for the new VLAN.
3. **Grp ID:** Type in the VLAN group ID. The group ID range is 1-4094.
4. **Member:** Press **Spacebar** to choose the VLAN members. There are two options:
    i.   Member: the port is a member port.
    ii. No: the port is NOT a member port.
5. Press **Ctrl + A** go back to the action menu.
6. Select **<Save>** to save all configured values.

```
                        Add an VLAN Group
                        ------------------------

           VLAN Name: [vlan2          ]  Grp ID: [2    ](1~4094)



           Port            Member
           -----------------------
           PORT1           Member
           PORT2           Member
           PORT3           No
           PORT4           Member
           PORT5           No
           PORT6           No
           PORT7           No
           PORT8           No


 actions->    <Quit>      <Edit>     <Save>      <Previous Page>    <Next Page>
                        Select the Action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

 NOTE:

If the trunk groups already exist, you can view them (ex: TRK1, TRK2…) after port 26 in the menu of ports and configure them as the members of a VLAN.

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◆ Create an 802.1Q VLAN

Create an 802.1Q VLAN and add tagged /untagged member ports to it.

1. Select **<Edit>**.
2. **VLAN Name:** Type in a name for the new VLAN.
3. **VLAN ID:** Type in a VID between 1-4094. The default is 1. You can configure up to 256 VLAN groups.
4. **Protocol VLAN:** Press **Spacebar** to choose protocol types.
5. **Member:** Press **Spacebar** to choose VLAN members. There are three options:
    a. UnTagged: the port is a member of this VLAN group and outgoing frames are NOT VLAN-tagged frames.
    b. Tagged: the port is a member of this VLAN group and outgoing frames are VLAN-tagged frames.
    c. NO: The port is NOT a member of this VLAN group.
6. Press **Ctrl + A** to go back to the action menu.
7. Select **<Save>** to save all configured values.

```
                          Add an VLAN Group
                          -------------------------

          VLAN Name: [vlan2          ] VLAN ID: [2    ](1~4094)

          Protocol VLAN :  None

          Port          Member
          ------------------------
          PORT1         UnTagged
          PORT2         Tagged
          PORT3         UnTagged
          PORT4         No
          PORT5         No
          PORT6         No
          PORT7         No
          PORT8         No


 actions->    <Quit>      <Edit>     <Save>     <Previous Page>    <Next Page>
                          Select the Action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

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NOTE:

If the trunk groups already exist, you can view them (ex: TRK1, TRK2…) after port 26 in the menu of ports and configure them as the members of a VLAN.

7.2.3.2 Edit/Delete a VLAN Group

In this page, you can edit or delete a VLAN group.

1. Press **<Edit>** or **<Delete>**.
2. Choose the VLAN group that you want to edit or delete and then press **Enter**.
3. You can modify the VLAN items - the member ports are tagged or un-tagged - and remove member ports from the VLAN group.
4. After editing the VLAN, press **<Save>** to save all configured values.

```
        NAME:               VID:        NAME:               VID:
        ----------------------          ----------------------
        DEFAULT             1
        vlan2               2




 actions->  <Quit>    <Edit>    <Delete>    <Previous Page>   <Next Page>
                        Edit/Delete a VLAN Group.
Tab=Next Item  BackSpace=Previous Item  CTRL+A=Action menu  Enter=Select Item
```

```
                         Edit an VLAN Group
                         ------------------------

         VLAN Name: [vlan2          ] VLAN ID: [2    ](1~4094)

         Protocol VLAN :  AppleTalk/NetBIOS

         Port           Member
         -----------------------
         PORT1          UnTagged
         PORT2          Tagged
         PORT3          UnTagged
         PORT4          No
         PORT5          No
         PORT6          No
         PORT7          No
         PORT8          No


 actions->    <Quit>      <Edit>    <Save>    <Previous Page>    <Next Page>
                         Select the Action menu.
 Tab=Next Item   BackSpace=Previous Item   Quit=Previous menu Enter=Select Item
```

NOTE:

1. Pressing **<Enter>** once will complete deletion when in delete mode.
2. The VLAN Name and VLAN ID cannot be modified.
3. The default VLAN cannot be deleted.

7.2.3.3 Groups Sorted Mode

In this page, you can sort the VLAN groups by:
1. Name
2. VID

The *Edit/Delete a VLAN group* page will display the result.

```
                Intelligent Switch : Group Sorted Selection
                ===================



                Group Sorted :Sorted_By_Name








actions->          <Edit>              <Save>          <Quit>
                          Select the action menu.
Tab=Next Item   BackSpace=Previous Item   Quit=Previous menu Enter=Select Item
```

Shown below is the page if sorted by name.

```
          NAME:              VID:         NAME:             VID:
          --------------------           ------------------------
          DEFAULT            1
          A1                 56
          B1                 33
          vlan2              2









actions->   <Quit>    <Edit>    <Delete>    <Previous Page>    <Next Page>
                          Edit/Delete a VLAN Group.
Tab=Next Item   BackSpace=Previous Item   Quit=Previous menu Enter=Select Item
```

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Shown below is the page if sorted by VID.

```
          NAME:              VID:         NAME:              VID:
          ----------------------         ----------------------
          DEFAULT            1
          vlan2              2
          B1                 33
          A1                 56




 actions->  <Quit>    <Edit>    <Delete>    <Previous Page>    <Next Page>
                         Edit/Delete a VLAN Group.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.2.4 Miscellaneous Configuration

```
               Intelligent Switch : Misc Configuration
               ==================



                    MAC Age Interval

                    Broadcast Storm Filtering

                    Max bridge transmit delay bound

                    Port Security

                    Previous Menu




                     Configure the MAC aging time.
     Tab=Next Item     BackSpace=Previous Item     Enter=Select Item
```

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7.2.4.1 MAC Age Interval

Type the number of seconds that an inactive MAC address remains in the switch's address table. The valid range is 300-765 seconds. The default value is 300 seconds.

```
                Intelligent Switch : MAC Aging Time
                ===================




        MAC Age Interval (sec) [600] :    600
        (disable:0,valid value:300~765)




 actions->          <Edit>            <Save>            <Quit>
                        Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.2.4.2 Broadcast Storm Filtering

This page will allow you to configure broadcast storm control.
1. Press **<Edit>** to configure the broadcast storm filter mode.
2. Press **Spacebar** to choose the threshold value.
The valid threshold values are 5%, 10%, 15%, 20%, 25% and NO. The default value is 5%.

```
             Intelligent Switch : Broadcast Storm Filter Mode
             ==================



             Broadcast Storm Filter Mode :5









 actions->           <Edit>              <Save>              <Quit>
                          Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.2.4.3 Max Bridge Transmit Delay Bound

1. **Max bridge transmit delay bound:** Limits the queuing time of the packets in the switch. If enabled, the queued packets that exceed the limit will be dropped. Press **Spacebar** to set the time. The valid values are 1sec, 2sec, 4sec and "Off". The default setting is "Off".
2. **Low Queue Delay Bound:** Limits the queuing time of the low priority packets in the switch. If enabled, the low priority packets that exceed the "Low Queue Max Delay Time" will be sent. Press **Spacebar** to enable or disable this function. The default setting is "Disabled".
3. **Low Queue Max Delay Time:** Allows you to set the time that low priority packets can queue in the switch. The valid range is 1-255ms. The default "Max Delay Time" is 255ms.

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```
                    Intelligent Switch : Max Bridge Transmit Delay Bound
                    ==================




                         Max bridge transmit delay bound :OFF

                         Low Queue Delay Bound :Disabled

                         Low Queue Max Delay Time :255






   actions->          <Edit>              <Save>              <Quit>
                           Select the action menu.
 Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

NOTE: Make sure "Max bridge transit delay bound control" is enabled before enabling "Low Queue Delay Bound" because "Low Queue Delay Bound" can only work when "Max bridge transit delay bound control" is enabled.

7.2.4.4 Port Security

A port in security mode will be "locked" without permission of the address learning. Normally only the incoming packets with SMAC already existing in the address table can be forwarded. You can disable the port from learning any new MAC addresses, then use the static MAC addresses screen to define a list of MAC addresses that can use the secure port.

```
              Intelligent Switch : Port Security
              ===================



     Port              Enable Security
                 (disable for MAC Learning)
     ------------------------------------
     PORT1             enabled
     PORT2             enabled
     PORT3             enabled
     PORT4             Disabled
     PORT5             Disabled
     PORT6             Disabled
     PORT7             Disabled
     PORT8             Disabled




  actions->    <Quit>      <Edit>    <Save>    <Previous Page>    <Next Page>
                          Select the Action menu.
  Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

1. Select **<Edit>**.
2. Press **Spacebar** to choose whether to enable or disable the item.
3. Press **Ctrl + A** to go back to the action menu.
4. Select **<Save>** to save all configured values.
5. You can press **<Next Page>** to configure the remaining ports; you can press **<Previous Page>** to return to the last page.

7.2.4.5 Collision s Retry Forever

Collisions Retry Forever: Disable – In half-duplex, if collisions occur, the system will retry 48 times before dropping the frame.
Enable – In half-duplex, if collisions occur, the system will retry forever (default).

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```
         Intelligent Switch : Collisions Retry Forever
         ==================



                Collisions Retry Forever : Enable







 actions->         <Edit>           <Save>           <Quit>
                      Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.2.5 Administration Configuration

```
            Intelligent Switch : Device Configuration
            ==================


                        Change Username

                        Change Password

                        Device Information

                        IP Configuration

                        Previous Menu




                     Configure the username.
   Tab=Next Item    BackSpace=Previous Item    Enter=Select Item
```

7.2.5.1 Change Username

From this page, you can change the web management username. Type in the new username, and then press **<Save>**.

```
            Intelligent Switch : UserName Configuration
            ==================




                 UserName : admin












 actions->        <Edit>           <Save>          <Quit>
                      Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.2.5.2 Change Password

Use this page; user can change web management login password.

```
            Intelligent Switch : Password Configuration
            ==================



                  Old Password:***

                  new password:***

                  enter again :***









                    Entering new password.
     Esc=Previous menu
```

7.2.5.3 Device Information

From this page, you can configure the device information.

```
              Intelligent Switch : Device Information
              ==================



Name        : Intelligent 24+2 Switch

Description : Intelligent 24+2 Switch

Location    : LAB

Content     : 24 + 2 PORTS




 actions->          <Edit>          <Save>          <Quit>
                         Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.2.5.4 IP Configuration

From this page, you can configure the IP settings.

```
              Intelligent Switch : IP Configuration
              ==================
              DHCP         : Disabled

              IP Address   : 192.168.223.38

              Subnet Mask : 255.255.248.0

              Gateway      : 192.168.223.254




 actions->         <Edit>           <Save>          <Quit>
                        Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.2.6 Port Mirroring Configuration

Port mirroring is a method of monitoring traffic in switched networks. Traffic through ports can be monitored via one designated port. Traffic through ports can be monitored by one specific port. That is, traffic going in or out of monitored ports will be duplicated into the monitoring port.

Press **Spacebar** to change the configuration of each item.
1. Select **<Edit>**.
2. **Sniffer Mode:** Press **Spacebar** to set the Sniffer mode to: Disable \Rx \Tx \Both.
3. **Monitoring Port:** This means that the sniffer port can be used to see traffic of all monitored ports. Press **Spacebar** to select it.
4. **Monitored Ports:** The ports you want to monitor. All monitored port traffic will be copied to the sniffer port. You can select up to 25 ports to monitor on the switch. You can choose which port to monitor in only one sniffer mode. Press **Spacebar** to choose a member port, "V" – is the member, "—" – not the member.
5. Press **Ctrl + A** go back to the action menu.
6. Select **<Save>** to save all configured values.
7. On the action menu line you can press **<Next Page>** to configure ports 9-26, and **<Previous Page>** to return to the last page.

```
                Intelligent Switch : Port Sniffer
                ==================


        Sniffer Mode:  Rx
        Monitoring Port : PORT1
        Monitored Port :

        Port          member
        --------------------
        PORT1          –
        PORT2          v
        PORT3          –
        PORT4          v
        PORT5          –
        PORT6          –
        PORT7          v
        PORT8          –



    actions->    <Quit>      <Edit>     <Save>     <Previous Page>    <Next Page>
                            Select the Action menu.
    Tab=Next Item   BackSpace=Previous Item   Quit=Previous menu Enter=Select Item
```

NOTE: You can only operate in one sniffer mode at any given time.

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7.2.7 Priority Configuration

```
           Intelligent Switch : The Priority configuration
           ===================



                     Port Static Priority

                     802.1p priority

                     Previous Menu






                        Configure port static priority.
      Tab=Next Item      BackSpace=Previous Item      Enter=Select Item
```

7.2.7.1 Port Static Priority

The static priority is based on the port: if you set the port priority to high, incoming frames from this port will always be high priority frames.

```
           Intelligent Switch : Port Priority
           ==================



        Port              Priority
        --------------------------
        PORT1                Low
        PORT2                High
        PORT3                Low
        PORT4                High
        PORT5                High
        PORT6                Low
        PORT7                High
        PORT8                Low



   actions->    <Quit>     <Edit>     <Save>     <Previous Page>     <Next Page>
                        Select the Action menu.
   Tab=Next Item   BackSpace=Previous Item   Quit=Previous menu Enter=Select Item
```

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7.2.7.2 802.1p Priority Configuration

Queues are assigned high/low priority levels from 0-7.

1. Select **<Edit>**.
2. Press **Spacebar** to select the priority level mapping to high or low queue.
3. **High/Low Queue Service Ratio H/L:** You can select the ratio of high priority packets and low priority packets.
4. Press **Ctrl + A** to go back to the action menu.
5. Select **<Save>** to save all configured values.

```
            Intelligent Switch : 802.1p Priority Configuration
            ==================
               Will be overwritten by port-priority!!

            Priority 0   : Low
            Priority 1   : Low
            Priority 2   : Low
            Priority 3   : Low
            Priority 4   : High
            Priority 5   : High
            Priority 6   : High
            Priority 7   : High

            QosMode : High/Low Queue Service Ratio
                    =>  H:[2] L:[1]




  actions->        <Edit>          <Save>          <Quit>
                        Select the action menu.
 Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.2.8 MAC Address Configuration

```
              Intelligent Switch : MAC Address Configuration
              ==================



                   Static MAC Address

                   Filtering MAC Address

                   Previous Menu







                    Configurate the MAC address.
        Tab=Next Item    BackSpace=Previous Item    Enter=Select Item
```

7.2.8.1 Static MAC Address

When you add a static MAC address, it remains in the switch's address table, regardless of whether the device is physically connected to the switch. This saves the switch from having to re-learn a device's MAC address when the disconnected or powered-off device is active on the network again. In this page, you can add/modify/delete a static MAC address.

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```
               Intelligent Switch : Static MAC Address Configuration
                          ===================

    Mac Address  Port num  Vlan ID        Mac Address   Port num  Vlan ID
    -----------------------------------   -----------------------------------




    actions->  <Quit>  <Add>  <Edit>  <Delete>  <Previous Page>   <Next Page>
                               Add/Edit/Delete a Mac.
    Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

Add static MAC address

1. Press the **<Add>, <Edit>** keys to add static MAC addresses.
2. **MAC Address:** Enter the MAC address to and from which the port should permanently forward traffic, regardless of the device's network activity.
3. **Port num:** Press **Spacebar** to select the port number.
4. **VLAN ID:** If tag-based (802.1Q) VLANs are set up on the switch, static addresses are associated with individual VLANs. Type the VID to associate with the MAC address.
5. Press **Ctrl + A** to go back to the action menu.
6. Then press **<Save>** to save all configured values.

```
               Intelligent Switch : Add Static MAC Address
                          ===================


              Mac Address :0090CC26BBAA

              Port num    :PORT3

              Vlan ID     :2






    actions->        <Edit>          <Save>          <Quit>
                           select the action menu.
    Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

Edit Static MAC Addresses

1. Press the **<Edit>** key.
2. Choose the MAC address that you want to modify and then press enter.

```
                  Intelligent Switch : Filter MAC Address Configuration
                  ==================

Mac Address    Vlan ID                      Mac Address    Vlan ID
-----------------------------               ------------------------------
000000000001   1
000000000002   2
000000000003   3









actions->  <Quit>  <Add>  <Edit>  <Delete>  <Previous Page>   <Next Page>
                         Add/Edit/Delete a Mac.
 Tab=Next Item  BackSpace=Previous Item  Space=Toggle  Ctrl+A=Action menu
```

3. Press the **<Edit>** key to modify all the items.
4. Press **Ctrl + A** to go back to the action menu, and then select **<Save>** to save all configured values.

```
                  Intelligent Switch : Edit Filter MAC Address
                  ==================



                      Mac Address :000000000001

                      Vlan ID     :1









actions->         <Edit>          <Save>          <Quit>
                     Can not modify for Read Only item.
 Tab=Next Item  BackSpace=Previous Item  Space=Toggle  Ctrl+A=Action menu
```

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Delete Static MAC Address

1. Press **<Delete>** key to delete a filter MAC address.
2. Choose the MAC address that you want to delete and then press enter.
3. When pressing **<Enter>** once will complete deletion on delete mode.

```
                 Intelligent Switch : Filter MAC Address Configuration
                 ==================

 Mac Address    Vlan ID                    Mac Address    Vlan ID
 -----------------------------             -----------------------------
 000000000001   1
 000000000002   2
 000000000003   3




 

 


 actions->  <Quit>  <Add>  <Edit>  <Delete>  <Previous Page>   <Next Page>
                          Add/Edit/Delete a Mac.
 Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.2.8.2 Filtering MAC Address

MAC address filtering allows the switch to drop unwanted traffic. Traffic is filtered based on the destination addresses. In this page, you can add /modify /delete filter MAC addresses.

```
            Intelligent Switch : Filter MAC Address Configuration
            ==================

 Mac Address    Vlan ID                    Mac Address    Vlan ID
 ----------------------------               ----------------------------









    actions->   <Quit>   <Add>   <Edit>   <Delete>   <Previous Page>   <Next Page>
                             Add/Edit/Delete a Mac.
 Tab=Next Item   BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

Add filter MAC address

1. Press **<Add>, <Edit>** to add a filter MAC address.
2. **MAC Address:** Type the MAC address to filter.
3. **VLAN ID:** If tag-based (802.1Q) VLANs are set up on the switch, type the VID to associate with the MAC address.
4. Press **Ctrl + A** to go back to the action menu, and then select **<Save>** to save all configured values.

```
              Intelligent Switch : Add Filter MAC Address
              ==================


                  Mac Address :000000001A01

                  Vlan ID     :2






 actions->          <Edit>              <Save>              <Quit>
                 Save successfully!press any key to return!
 Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

Edit filter MAC address

1.   Press the **<Edit>** key.
2.   Choose the MAC address that you want to modify and then press enter.

```
               Intelligent Switch : Filter MAC Address Configuration
               ==================

Mac Address    Vlan ID                    Mac Address    Vlan ID
------------------------------             -----------------------------
000000000001   1
000000000002   2
000000000003   3









actions->  <Quit>  <Add>  <Edit>  <Delete>  <Previous Page>   <Next Page>
                       Add/Edit/Delete a Mac.
 Tab=Next Item  BackSpace=Previous Item  Space=Toggle  Ctrl+A=Action menu
```

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3. Press **<Edit>** to modify all the items.
4. Press **Ctrl + A** to go back to the action menu, and then select **<Save>** to save all configured values.

```
            Intelligent Switch : Edit Filter MAC Address
            ==================




            Mac Address :000000000001

            Vlan ID     :1




actions->       <Edit>          <Save>          <Quit>
            Can not modify for Read Only item.
 Tab=Next Item  BackSpace=Previous Item  Space=Toggle  Ctrl+A=Action menu
```

Delete filter MAC address

1. Press **<Delete>** to delete a filter MAC address.
2. Choose the MAC address that you want to delete and then press enter.
3. Pressing **<Enter>** once will complete the deletion.

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```
          Intelligent Switch : Filter MAC Address Configuration
                    ==================

Mac Address    Vlan ID                     Mac Address    Vlan ID
------------------------------             -----------------------------
000000000001   1
000000000002   2
000000000003   3








 actions->  <Quit>  <Add>  <Edit>  <Delete>  <Previous Page>   <Next Page>
                        Add/Edit/Delete a Mac.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.3 Protocol Related Configuration

```
           Intelligent Switch : The Protocol Related configuration
           ===================


                          STP

                          SNMP

                          GVRP

                          IGMP

                          DHCP

                          LACP

                          802.1X

                          Previous Menu

                 Configure the Spanning Tree Protocol.
    Tab=Next Item      BackSpace=Previous Item     Enter=Select Item
```

7.3.1 Spanning-Tree Protocol

The Spanning-Tree Protocol (STP) is a standardized method (IEEE 802.1D) for avoiding loops in switched networks. When STP is enabled, it ensures that only one path at a time is active between any two nodes on the network.

```
            Intelligent Switch : Spanning Tree Protocol
            ===================


                       STP Enable

                       System Configuration

                       Perport Configuration

                       Previous Menu




                Enabled or disabled the Spanning Tree Protocol.
    Tab=Next Item      BackSpace=Previous Item     Enter=Select Item
```

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7.3.1.1 Enabling STP

This page allows you to enable or disable the Spanning Tree function. Press **Spacebar** to select "Enabled" or "Disabled".

```
              Intelligent Switch : STP Enabled/Disabled Configuration
              ==================



              STP :Enabled










 actions->          <Edit>          <Save>          <Quit>
                    Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.3.1.2 STP System Configuration

```
                    Intelligent Switch : STP System Configuration
                    ==================


    Root Bridge Information          Configure Spanning Tree Parameters
    -----------------------          ----------------------------------
    Priority      : 32768            Priority (0-65535)   :32768
    Mac Address   : 000A17000001
    Root_Path_Cost: 0                Max Age (6-40)       :20
    Root Port     : Root
    Max Age       : 20               Hello Time (1-10)    :2
    Hello Time    : 2
    Forward Delay : 15               Forward_Delay_Time(4-30)  :15




    actions->          <Edit>          <Save>          <Quit>
                      Select the action menu.        ----------------
 Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

1. You can view the spanning tree information about the Root Bridge on the left.
2. On the right, you can set new values for the STP parameters.

NOTE: For parameter descriptions, please see *Section 2-4-8*.

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7.3.1.3 Per Port Configuration

```
          Intelligent Switch : STP Port Configuration
                ==================


Port           PortState          PathCost          Priority
------------------------------------------------------------
PORT1          Forwarding         10                128
PORT2          Forwarding         10                128
PORT3          Forwarding         10                128
PORT4          Forwarding         10                128
PORT5          Forwarding         10                128
PORT6          Forwarding         10                128
PORT7          Forwarding         10                128
PORT8          Forwarding         10                128




 actions->     <Quit>     <Edit>    <Save>    <Previous Page>    <Next Page>
                            Select the Action menu.
Tab=Next Item  BackSpace=Previous Item  CTRL+A=Action menu Enter=Select Item
```

1. **PortState:** Displays the spanning tree status for each port – whether the port is forwarding or blocking.
2. Select **<Edit>**.
3. **PathCost:** Specifies the path cost of the port that the switch uses to determine which ports are the forwarding ports.
4. **Priority:** This specifies the priority of port; you can make it more or less likely to become the root port.
5. Press **Ctrl +A** to go back to the action menu.
6. Select **<Save>** to save all configured values.
7. On the action menu line you can press **<Next Page>** to configure ports 9-26; press **<Previous Page>** to return to the last page.

NOTE: For parameter descriptions, please see *Section 2-4-8*.

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7.3.2 SNMP

Any network management running the Simple Network Management Protocol (SNMP) can be used to manage the switch. Use this page to define management stations as trap managers and to enter SNMP community strings. You can also define a name, location, and contact person for the switch.

```
              Intelligent Switch : SNMP Configuration
              ==================


                         System Options

                         Community Strings

                         Trap Managers

                         Previous Menu




                   Configurate the system information.
   Tab=Next Item      BackSpace=Previous Item     Enter=Select Item
```

7.3.2.1 System Options

```
                  Intelligent Switch : System Options Configuration
                  ==================



System Name :
  Intelligent 24+2 Switch

System Contact :
  Root

System Location :
  Local






 actions->          <Edit>            <Save>            <Quit>
                          Select the action menu.
Tab=Next Item  BackSpace=Previous Item  CTRL+A=Action menu Enter=Select Item
```

1. Press **<Edit>**.
2. **System Name:** Type a name to be used for the switch.
3. **System Contact:** Type the name of contact person or organization.
4. **System Location:** Type the location of the switch.
5. Press **Ctrl + A** to go back to the action menu.
6. Press **<Save>** to save the configured values.

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7.3.2.2 Community Strings

Use this page to Add/ Edit/ Delete SNMP community strings.
1. **Community Name:** The name of current strings.
2. **Write Access:** Indicates if the rights are read-only or read-write.
    Restricted: Read-only - enables requests accompanied by this string to display MIB-object information.
    Unrestricted: Read-write - enables requests accompanied by this string to display MIB-object information and to set MIB objects.

```
              Intelligent Switch : SNMP Community Configuration
              ==================

Community Name           Write Access
----------------------------------------
public                   Restricted
private                  Unrestricted




 actions->      <Add>          <Edit>         <Delete>       <Quit>
              Add/Edit/Delete community strings.
Tab=Next Item  BackSpace=Previous Item  CTRL+A=Action menu Enter=Select Item
```

Add Community Name
1.   Press **<Add> --> <Edit>** key.
2.   **Community Name:** Type the community name.
3.   **Write Access:** Press **Space** key to select the right is restricted or unrestricted.

```
                   Intelligent Switch : Add SNMP Community
                   ==================




                     Community Name :Command1

                     Write Access    :Restricted




  actions->           <Edit>             <Save>            <Quit>
                           Select the action menu.
   Tab=Next Item  BackSpace=Previous Item  Space=Toggle  Ctrl+A=Action menu
```

Edit Community Name
1.   Press **<Edit>**, choose the item that you want to modify, and then press **Enter.**
2.   **Community Name:** Type the new name.
3.   **Write Access:** Press **Spacebar** to set the rights to "Restricted" or "Unrestricted".

```
                   Intelligent Switch : Edit SNMP Community
                   ==================




                     Community Name :public

                     Write Access    :Restricted




  actions->           <Edit>             <Save>            <Quit>
                           Select the action menu.
 Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

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Delete Community Name
1. Press **<Delete>** key.
2. Choose the community name that you want to delete and then press enter.
3. When pressing **<Enter>** once will complete deletion in delete mode.

```
             Intelligent Switch : SNMP Community Configuration
             ==================

Community Name           Write Access
---------------------------------------
public                   Restricted
private                  Unrestricted
Command1                 Restricted








 actions->      <Add>            <Edit>           <Delete>         <Quit>
                      Delete SNMP community strings.
Tab=Next Item  BackSpace=Previous Item  CTRL+A=Action menu Enter=Select Item
```

7.3.2.3 Trap Managers

A trap manager is a management station that receives traps, the system alerts generated by the switch. If no trap manager is defined, no traps are issued. Create a trap manager by entering the IP address of the station and a community string.

```
            Intelligent Switch : Trap Managers Configuration
            ==================

 IP                          Community Name
  ---------------------------------------












 actions->        <Add>           <Edit>          <Delete>        <Quit>
                        Add/Edit/Delete trap managers.
 Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

Add SNMP trap manager
1. Press **<Add>**, **<Edit>** to add the trap manager.
2. **IP:** Type the IP address.
3. **Community Name:** Type the community name.
4. Press **Ctrl +A** to go to the actions menu. Press **<Save>** key to save all configured values.

```
              Intelligent Switch : Add SNMP Trap Manager
              ==================




              IP :192.168.1.234

              Community Name :public




actions->          <Edit>          <Save>          <Quit>
                       Select the action menu.
Tab=Next Item  BackSpace=Previous Item  CTRL+A=Action menu Enter=Select Item
```

Edit trap managers
1. Press **<Edit>** key, and then choose the item that you want to modify.
2. **IP:** Type the new IP address
3. **Community Name:** Type the community name.
4. Press **Ctrl +A** go to actions line, press **<Save>** key to save all configure.

```
              Intelligent Switch : Edit Trap Managers
              ==================




              IP :192.168.1.234

              Community Name :public




actions->          <Edit>          <Save>          <Quit>
                       Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

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Delete trap manager
1. Press the **<Delete>** key.
2. Choose the trap manager that you want to delete and then press **Enter**.
3. Pressing **<Enter>** once will complete deletion in delete mode.

```
                Intelligent Switch : Trap Managers Configuration
                ==================

 IP                      Community Name
 ----------------------------------------
 192.168.1.234           public




 actions->      <Add>          <Edit>         <Delete>       <Quit>
                        Delete  SNMP trap managers.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

7.3.3 GVRP

GVRP (GARP [Generic Attribute Registration Protocol] VLAN Registration Protocol)

GVRP allows automatic VLAN configuration between the switch and corresponding nodes. For example, if the switch is connected to a device with GVRP enabled, you can activate this setting to allow dynamic VLAN configuration information to be processed by the switch. If a device sends a GVRP request using the VID of a VLAN defined on the switch, the switch will automatically add that device to the existing VLAN.

From this page, you can enable/disable the GVRP (GARP VLAN Registration Protocol) support.

```
              Intelligent Switch : GVRP Configuration
              ==================




                  GVRP : Enabled













 actions->          <Edit>            <Save>            <Quit>
                       Select the action menu.
  Tab=Next Item  BackSpace=Previous Item  Space=Toggle  Ctrl+A=Action menu
```

1. Select **<Edit>**.
2. Press **Spacebar** to choose enable/disable.
3. Press **Ctrl + A** to go back to the action menu.
4. Select **<Save>** to save configured values.

Note: GVRP must also be enabled on participating network nodes.

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7.3.4 IGMP

The Internet Group Management Protocol (IGMP) is an internal protocol of the Internet Protocol (IP) suite.

This page you can enable / disable the IGMP support.

```
              Intelligent Switch : IGMP Configuration
              ==================




                    IGMP :  Enabled




    actions->         <Edit>           <Save>           <Quit>
                        Select the action menu.
     Tab=Next Item  BackSpace=Previous Item  Space=Toggle   Ctrl+A=Action menu
```

1. Select **<Edit>**.
2. Press **Spacebar** to choose enabled / disabled.
3. Press **Ctrl + A** to go back to the action menu.
4. Select **<Save>** to save configured values.

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7.3.4.1 LACP (Link Aggregation Control Protocol)

This page can configure and view the LACP status.

```
            Intelligent Switch : LACP Configuration
            ===================


                    Working Ports Setting

                    State Activity

                    LACP Status

                    Previous Menu




                            LACP setting.
    Tab=Next Item      BackSpace=Previous Item      Enter=Select Item
```

Note: All ports support LACP dynamic trunking groups. If connecting to a device that also supports LACP, the LACP dynamic trunking group will be created automatically.

7.3.4.2 Working Port Setting

This page can set the actual work ports within the trunk group.

```
    Intelligent Switch : LACP Group Configuration
    ===================


        Group       LACP Work Port Num
        ------------------------------
        TRK2                4




        <Edit>          <Save>          <Quit>
                    Select the action menu.
    m  BackSpace=Previous Item  Space=Toggle  Ctrl+A=Action menu
```

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1. Select **<Edit>**.
2. **Group:** Displays the trunk group ID.
3. **LACP:** Displays the trunk group's LACP status.
4. **LACP Work Port Num:** The maximum number of ports that can be aggregated at the same time. If the group is LACP static trunking, the excess ports are standby and able to aggregate if work ports fail. If the group is local static trunking, the number of ports must be the same as the group member ports.

NOTE: Before setting this page, you first have to set trunk groups on the *Trunk Configuration* page.

7.3.4.3 State Activity

```
          Intelligent Switch : LACP Port State Active Configuration
          ==================

  Port          State Activity              Port          State Activity
  ----------------------------              ----------------------------
  5             Active
  6             Active
  7             Passive
  8             Passive




tions->        <Edit>            <Save>              <Quit>
          Save successfully!press any key to return!
=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

1. Select **<Edit>**.
2. Press **Space** key to choose the item.
   Active: The port automatically sends LACP protocol packets.
   Passive: The port does not automatically send LACP protocol packets, and responds only if it receives LACP protocol packets from the opposite device.
3. Press **Ctrl + A** go back action menu line.
4. Select **<Save>** to save configure value.

NOTE: If you set a trunk group to LACP mode, all of the member ports of this trunk group will automatically be set to "Active".

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7.3.4.4 LACP Status

When you're setting trunking group, you can see the relational information here.

Static trunk group

```
        Intelligent Switch : LACP Group Status
        ==================

                    Static Trunking Group


     Group Key : 1

     Port_No    : 1 2 3 4








     <Quit>       <Previous Page>      <Next Page>
                  Select the action menu.
  BackSpace=Previous Item   Quit=Previous menu Enter=Select Item_
```

LACP trunk group

```
            Intelligent Switch : LACP Group Status
            ==================

                            Group
            [Actor]                     [Partner]

   Priority:     1                      1

   MAC      :    004063809988           004063808899

   Port_No    Key     Priority    Active      Port_No    Key     Priority
   5          514     1           selected    5          514     1
   6          514     1           selected    6          514     1
   7          514     1           selected    7          514     1
   8          514     1           selected    8          514     1



 ctions->      <Quit>      <Previous Page>      <Next Page>
                          Select the action menu.
 b=Next Item   BackSpace=Previous Item   Quit=Previous menu Enter=Select Item
```

<Quit>: Exit this page and return to previous menu.
<Previous Page>: Return to previous page to view.
<Next page>: Go to next page to view.

7.3.5 802.1x Protocol

From this page, you can configure and view the 802.1x status.

```
              Intelligent Switch : 802.1x protocol
              ===================



                      802.1x Enable

                      System Configuration

                      Misc Configuration

                      Previous Menu




              Enabled or disabled the 802.1x Protocol.
Tab=Next Item     BackSpace=Previous Item     Enter=Select Item
```

7.3.5.1 Enable 802.1x

```
                    Intelligent Switch : 802.1x Enabled/Disabled Configuration
                    ==================


                    802.1x : Enabled











    actions->           <Edit>              <Save>              <Quit>
                              Select the action menu.
    Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

1. Select **<Edit>**.
2. Press **Spacebar** to choose enabled/disabled.
3. Press **Ctrl + A** go back to the action menu.
4. Select **<Save>** to save configure value.

7.3.5.2 802.1x System Configuration

```
                    Intelligent Switch : 802.1x System Configuration
                    ==================



                    Radius Server IP : 192.168.221.72

                    Shared Key : 12345678

                    NAS,Identifier: NAS_L2_SWITCH

                    Server Port: 1812

                    Accounting Port: 1813

    (Force Unauth=Fu, Force Auth=Fa, Auto=Au, None=No):
    01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 M1 M2
    No No Au Au Au No No No No No No No No No No No No No No No No No No No No No

    actions->           <Edit>              <Save>              <Quit>
                              Select the action menu.
    Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

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1. Press **<Edit>**.
2. **Radius Server IP Address:** the IP address of the authentication server.
3. **Shared Key:** A key shared between this switch and the authentication server.
4. **NAS, Identifier:** A string used to identify this switch.
5. **Server Port:** The UDP port number used by the authentication server to authenticate.
6. **Accounting Port:** The UDP port number used by the authentication server to retrieve accounting information.
7. Press **Ctrl + A** to go back to the action menu.
8. Press **<Save>** to save configured values.

Note:

Fu: Forces a specific port to be unauthorized.
Fa: Forces a specific port to be authorized.
Au: The state of the specific port is determined by the outcome of the authentication.
No: The specific port doesn't support the 802.1x function.

7.3.5.3 802.1x Misc Configuration

```
             Intelligent Switch : 802.1x Misc Configuration
             ==================


             Quiet-period <0..65535,default=60>      : 60

             Tx-period <0..65535,default=30>         : 30

             Supplicant-timeout <1..300,default=30> : 30

             Server-timeout <1..300,default=30>      : 30

             ReAuthMax <1..10,default=2>          :   2

             Reauth-period <1..9999999,default=3600> :3600



 actions->          <Edit>          <Save>          <Quit>
                        Select the action menu.
 Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

1. Press **<Edit>**.
2. **Quiet Period**: Used to define periods of time during which it will not attempt to acquire a supplicant (default time is 60 seconds).

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3. **Tx Period**: Used to determine when an EAPOL PDU is to be transmitted (default value is 30 seconds).
4. **Supplicant Timeout**: Used to determine timeout conditions in the exchanges between the supplicant and authentication server (default value is 30 seconds).
5. **Server Timeout**: Used to determine timeout conditions in the exchanges between the authenticator and authentication server (default value is 30 seconds).
6. **Re-AuthMax**: Used to determine the number of re-authentication attempts that are permitted before a specific port becomes unauthorized (default value is 2 times).
7. **Re-Auth Period**: Used to determine a non-zero number of seconds between periodic re-authentication of the supplications (default value is 3600 seconds).
8. Press **Ctrl + A** to go back to the action menu.
9. Press **<Save>** to save configured values.

7.4 Status and Counters

```
        Intelligent Switch : Status and Counters
        ===================



                    Port Status

                    Port Counters

                    System Information

                    Main Menu






          Display current status of all the switch ports.
Tab=Next Item     BackSpace=Previous Item     Enter=Select Item
```

You can press the **Tab** or **Backspace** key to choose an item, and then press **Enter** to select the item.

7.4.1 Port Status

This page displays the status of every port.

```
            Intelligent Switch : Port Status
            ==================


        Link     InRate   OutRate                                  Flow
  Port  Status   (100K)   (100K)    Enable    Auto      Spd/Dpx    Control
  -------------------------------------------------------------------------
  PORT1  Down     0        0         Yes       AUTO      10 Half    Off
  PORT2  Down     0        0         Yes       AUTO      10 Half    Off
  PORT3  Down     0        0         Yes       AUTO      10 Half    Off
  PORT4  Down     0        0         Yes       AUTO      10 Half    Off
  PORT5  Down     0        0         Yes       AUTO      10 Half    Off
  PORT6  Down     0        0         Yes       AUTO      10 Half    Off
  PORT7  Down     0        0         Yes       AUTO      10 Half    Off
  PORT8  Down     0        0         Yes       AUTO      10 Half    Off




  actions->       <Quit>       <Previous Page>      <Next Page>
                        Select the action menu.
  Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

Link Status: Indicates whether the port is linked or not linked.
InRate: Displays the input rate control (100K/unit) setting value.
OutRate: Displays the output rate control (100K/unit) setting value.
Enabled: Indicates whether the port is enabled or disabled. This depends on the user setting. "Enabled" will be displayed as "Yes", "disabled" will be displayed as "No". If the port is unlinked, it will be listed as "No".
Auto: Indicates the port's setting in N-way mode: Auto , Nway_Force , Force.
Spd/Dpx: Displays the port speed and duplex.
FlowCtrl: Displays whether the flow control status is enabled or disabled (in auto/N-way force mode) after negotiation. In force mode, the flow control status is displayed (enabled or disabled), depending on the user setting.

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<Quit>: Exit the "Port Status" page, and then return to the previous menu.
<Previous Page>: Displays the previous page.
<Next page>: Displays the next page.

7.4.2 Port Counters

The following information provides a view of the current status of the unit.

```
                    Intelligent Switch : Port Counters
                    ===================



Port    TxGoodPkt  TxBadPkt  RxGoodPkt  RxBadPkt  TxAbort  Collision  DropPkt
-----------------------------------------------------------------------------
PORT1   0          0          0          0         0        0          0
PORT2   0          0          0          0         0        0          0
PORT3   0          0          0          0         0        0          0
PORT4   0          0          0          0         0        0          0
PORT5   0          0          0          0         0        0          0
PORT6   0          0          0          0         0        0          0
PORT7   0          0          0          0         0        0          0
PORT8   0          0          0          0         0        0          0




   actions->        <Quit>       <Reset All>     <Previous Page>     <Next Page>
                           Configure the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

<Quit>: Exit the "Port Status" page and return to the previous menu.
<Reset All>: Set all counters to 0.
<Previous Page>: Displays the previous page.
<Next page>: Displays the next page.

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7.4.3 System Information

MAC Address: The unique hardware address assigned by the manufacturer.
Firmware Version: Displays the switch's firmware version.
ASIC Version: Displays the switch's hardware version.
PCBA version: Displays the board number.
Serial number: Displays the serial number assigned by the manufacturer.
Module 1 Type: Displays the module 1 type: 1000Tx or 100Fx ext. Depends on module card mode.
Module 1 information: Displays the information saved in EEPROM of module 1.
Module 2 Type: Displays the module 2 type: 1000Tx or 100Fx ext. Depends on module card mode.
Module 2 information: Displays the information saved in EEPROM of module 2.

```
             Intelligent Switch : System Information
                   ==================


MAC Address                    : 004063809988

Firmware version               : 2.5

ASIC version                   : A7.0

PCBA version                   : 1.0

Serial number                  :

Module 1 Type                  : 1000Tx
Module 1 information           : N/A
Module 2 Type                  : 1000Tx
Module 2 information           : N/A


                    Display the switch system.
   Esc=Previous menu_
```

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7.5 Reboot Switch

```
                Intelligent Switch : Restart Configuration
                ==================


                        Default

                        Restart

                        Previous Menu




                         Recovering to default.
        Tab=Next Item       BackSpace=Previous Item      Enter=Select Item
```

7.5.1 Default

Resets the switch to its default configuration. For default settings, please see *Section 2-4-14*.

```
        Resetting to the default will restart the system automatically!

        Do you want to continue? (y/n)
```

7.5.2 Restart

Reboot the switch in software reset.

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7.6 TFTP Firmware Update

This page provides you with the option to update the firmware, restore the EEPROM values, or upload current EEPROM values.

```
            Intelligent Switch : TFTP Update firmware Configuration
            ===================



                 TFTP Update Firmware

                 TFTP Restore configuration

                 TFTP Backup configuration

                 Previous Menu




                      Use TFTP to update firmware.
      Tab=Next Item      BackSpace=Previous Item      Enter=Select Item
```

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7.6.1 TFTP Firmware Update

This page allows you to use TFTP to update the firmware.

```
                 Intelligent Switch : TFTP Update Firmware
                 ===================



                    TFTP Server        : 192.168.223.99

                    Remote File Name   : image.bin











      actions->        <Edit>          <Save>           <Quit>
                           Select the action menu.
      Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

1. Start the TFTP server, and copy the firmware update version image file to the TFTP server.
2. Press **<Edit>** on this page.
3. **TFTP Server:** Type the IP of the TFTP server.
4. **Remote File Name:** Type the image file name.
5. Press **Ctrl + A** to go to the action menu.
6. Press **<Save>**, and the image file will begin to download.
7. When saved successfully, the image file will have finished downloading as well.
8. Restart the switch.

7.6.2 Restore Configure File

From this page, you can restore the EEPROM values, save the image file from before, and form the TFTP server.

```
            Intelligent Switch : Restore Configuration File
            ===================



                    TFTP Server        : 192.168.223.99

                    Remote File Name   : data.dat









  actions->           <Edit>            <Save>           <Quit>
                        Select the action menu.
 Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

1. Start the TFTP server.
2. Press **<Edit>** on this page.
3. **TFTP Server:** Type the IP of TFTP server.
4. **Remote File Name:** Type the image file name.
5. Press **Ctrl + A** go to action line.
6. Press **<Save>**, and the image file will begin to download.
7. When saved successfully, the image file will have finished downloading as well.
8. Restart the switch.

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7.6.3 Backup Configure File

In this page, you can save the current EEPROM value to the image file. Then go to the update configure page to restore the EEPROM value.

```
Intelligent Switch : Backup Configuration File
==================


            TFTP Server        : 192.168.223.99

            Remote File Name   : data.dat












  actions->           <Edit>            <Save>            <Quit>
                         Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu Enter=Select Item
```

1. Start the TFTP server.
2. Press **<Edit>** on this page.
3. **TFTP Server:** Type the IP of the TFTP server.
4. **Remote File Name:** Type the image file name.
5. Press **Ctrl + A** to go back to the action menu line.
6. Press **<Save>**, and the image file will begin to download.
7. When saved successfully, the image file will have finished downloading as well.
8. Restart the switch.

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## 5.1 VLAN Application Used with Switch

VLANs provide a simple solution for protecting your network against broadcast storming by creating segments based on Layer 2 Ethernet information and avoiding the complexity and heavy processing requirements of Layer 3 IP based routers.

As a result, each group of stations connected to separate segmented ports forms a different isolated broadcast domain. The broadcast sharing ports should be used to connect servers and other common services, such as Internet access, that are used by all the stations connected to the different segmented ports.

A Virtual LAN, or VLAN, is generally defined as a broadcast domain. It can be viewed as a group of end nodes, possibly on different physical network segments, which can communicate with each other.


125
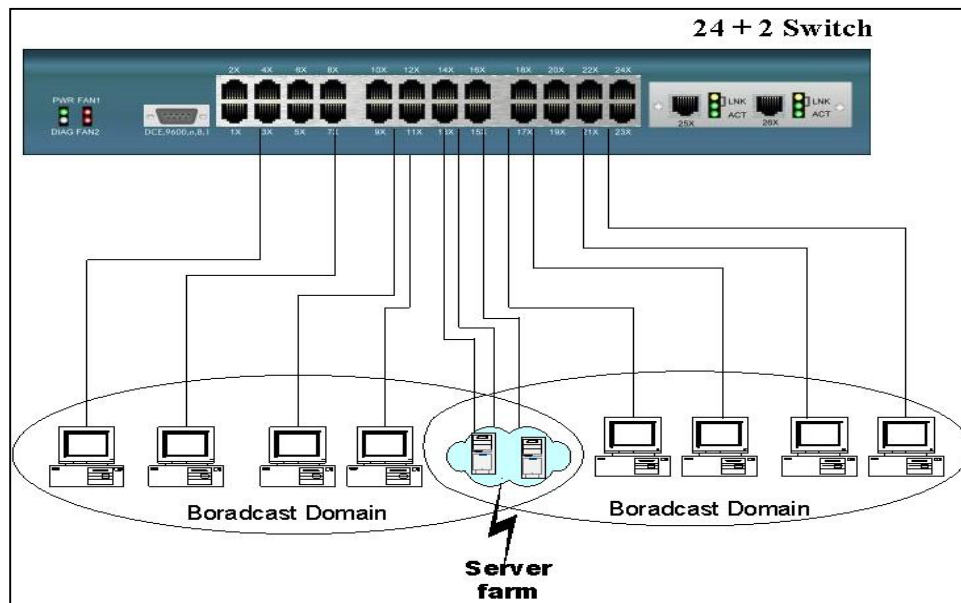
Benefits of VLANs:

- Grouping users into logical networks for performance enhancement.
- Provide effective broadcast containment between segmented ports, which prevents flooding of a network.
- Offers security by completely isolating from each other the different broadcast domains connected on separate segmented ports.
- Preserving current investment in equipment and cabling.
- Providing an easy, flexible, and economic way to modify logical groups when needed.
- Network administrators can easily "fine tune" the network.
- Keeping network structure from the physical topology of the cabling.
- Making large networks more manageable.

You can group users according to some shared characteristic, such as a common business function or a common protocol. A single switch may have several independent VLANs within it. On the following page is an example in which an R&D, Manufacturing and Administration group can be partitioned into two different VLAN groups.   Even members in different groups cannot talk directly, but they still share the same server, such as an MRP server, printer server in the Administration group, etc.

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24 + 2 Switch

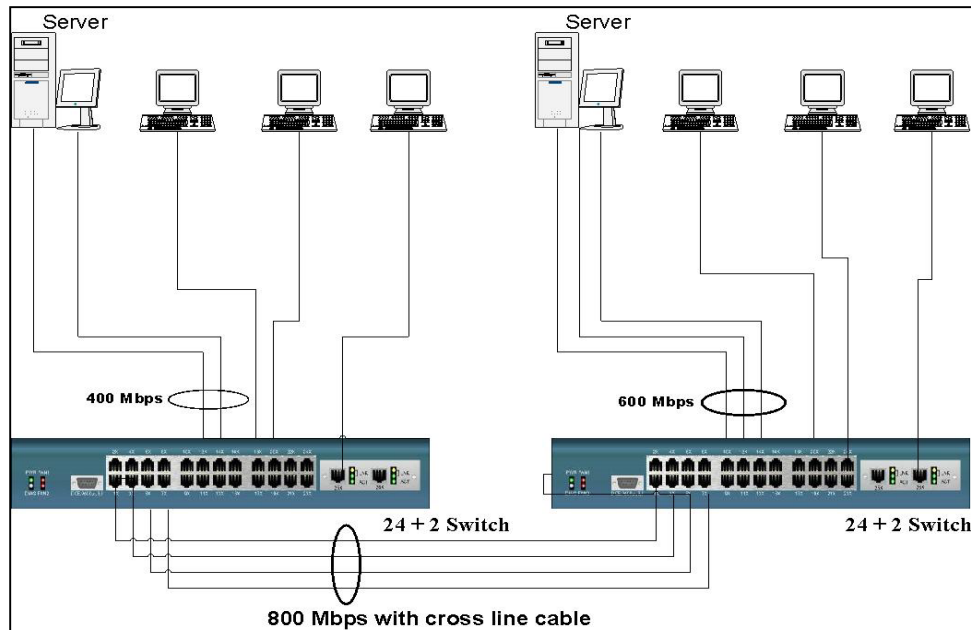R/ D Group

MRP Server   Print Server

Admin Group

MFG Group
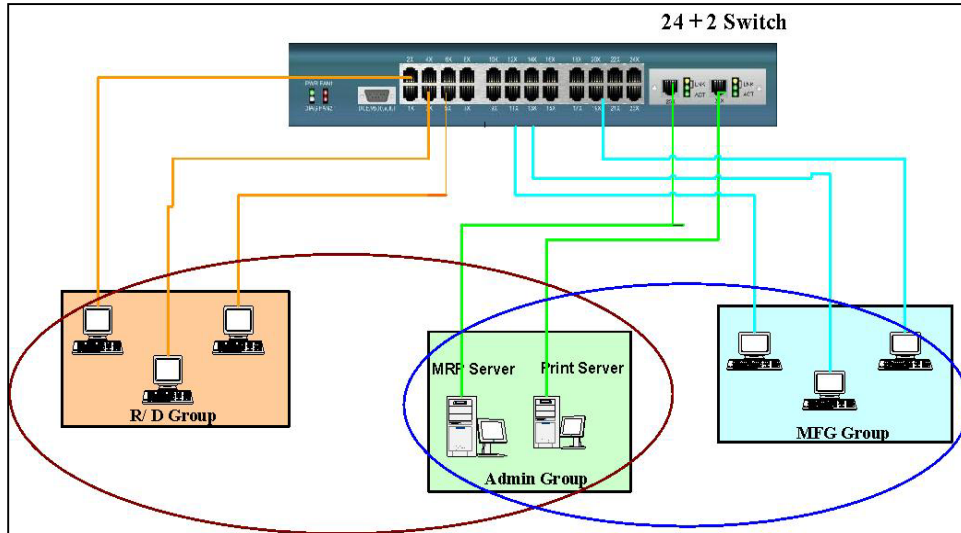
5.2 Trunking Application Used with Switch

Trunking allows you to increase the available bandwidth between switches by grouping ports into a trunk. Trunking can also be used to connect a server to switches if higher bandwidth service is required. You can use trunking to improve the throughput between segments. Moreover, this switch provides trunking with a fail-over function. When one of the links of a trunk fails or breaks, the traffic originally moving through that link will automatically be re-directed to other links of the trunk. This gives the trunk redundancy and greatly increases the value of trunking.

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