USER MANUAL

FSW3226

24 + 2G Single IP SNMP Management Switch

CTC Union Technologies Co., Ltd.

Version 1.01
2006/01

24 + 2G Single IP Management Switch User Menu

1. Introduction

24+2G switch is a high performance web-managed SNMP Layer 2 switch that provides users with 24 10/100Mbps Ethernet and 2 1000Mbps Gigabit ports. This Switch has SNMP management and remote control capabilities such as "Web Cluster". The Gigabit module, which can be copper or fiber media, supports 1000BASE-SX, 1000BASE-LX or 1000BASE-T, allowing users to increase their network response time at gigabit speeds and with great flexibility. A RS-232 serial port provides an easy way for installation and initial set-up.

Non-blocking and maximum wire speed performances are designed on all ports. The Switch not only supports Auto-Negotiation, but also Auto-MDIX function on all switched 24 10/100M RJ-45 ports and two Gigabit Copper ports in both half or full duplex mode. The Auto-MDIX function makes it convenient for the user, because it eliminates cabling on straight-line or cross-line issues.

24+2G switch provides a convenient way to operate layer 2 management through the browser. The User-friendly drop-down menu allows the user to easily learn, control and monitor. It supports not only traditional SNMP function, but also RMON 1,2,3,9 groups for advanced network analysis. A new management tool called "Single IP" is implemented here to provide the administrator an access right to enter private IP domain through a single real IP. By this management tool, network manager can remotely control his far-side servers in private IP domain without being there.

The Switch also supports both port-based VLAN and Tag-based. To increase bandwidth application, it supports 7 groups with up to 4 ports Trunk, and moreover, these trunk ports provide fair-over function to provide back up when one or more ports malfunction.

Totally front access design and full LED status display ease user's installation and inspection and maintenance efforts at rack mount environments. The extra LED display reflecting the fan status allows for quick diagnosis of over-heat issues.

1.1 Unpacking

Open the shipping carton of the Switch and carefully unpack its contents, the carton should contain the following items:

- One 24+2G, 24 port Fast Ethernet Layer 2 Switch.
- Mounting Kit: 2 mounting brackets and screws
- Four rubber feet with adhesive backing.
- One AC power cord.
- One RS-232 cable
- This User’s Guide (Disk or CD).

1.2 Installation

You can use the following guidelines when choosing a place to install the Switch.

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

Desktop or Shelf Installation:

When installing the Switch on the desktop of shelf, the rubber feet included with the device should first be attached. Attach these cushioning feet on the bottom at each corner of the device. Allow adequate space for ventilation between the device and the objects around it.

Rack Installation:

The 24+2G switch can be mounted in an ELA standard-sized, 19-inch rack, which can be placed in a wiring closet with other equipment. To install, attach the mounting brackets on the switch side panels (one on each side) 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 24+2G switch can be used with an AC power supply 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 fallows:

- All LED indicators will momentarily blink. This blinking of the LED indicators represents a reset of the system.

- The power LED indicator will blink while the Switch loads onboard software and performs a self-test. After approximately 20 seconds, the LED will light again to indicate the switch is in a ready state.

- The Speed, Link/Activity LED indicator may remain ON or OFF depending on every port's situation.

- The fan LED will be vanished if fan works normally, or LED goes RED if fan stop or failed.

1.3 Initial set up for management

There are two management ways can be chosen, one is out-of-band management, you work this way with a PC and connect your PC and switch through RS232 cable. The other way is in-band-management, you also work with a PC but connect your PC and switch through Ethernet network no matter local or remotely, or simply directly connect your PC and switch through an Ethernet cable. Before you activate the management function with the Switch, you have to read the instructions below carefully and do some proper setting to insure you can access the switch through your PC, then the switch devices will be replied or responded correctly as you wish.

1.3.1 out-of-band Terminal-mode Management

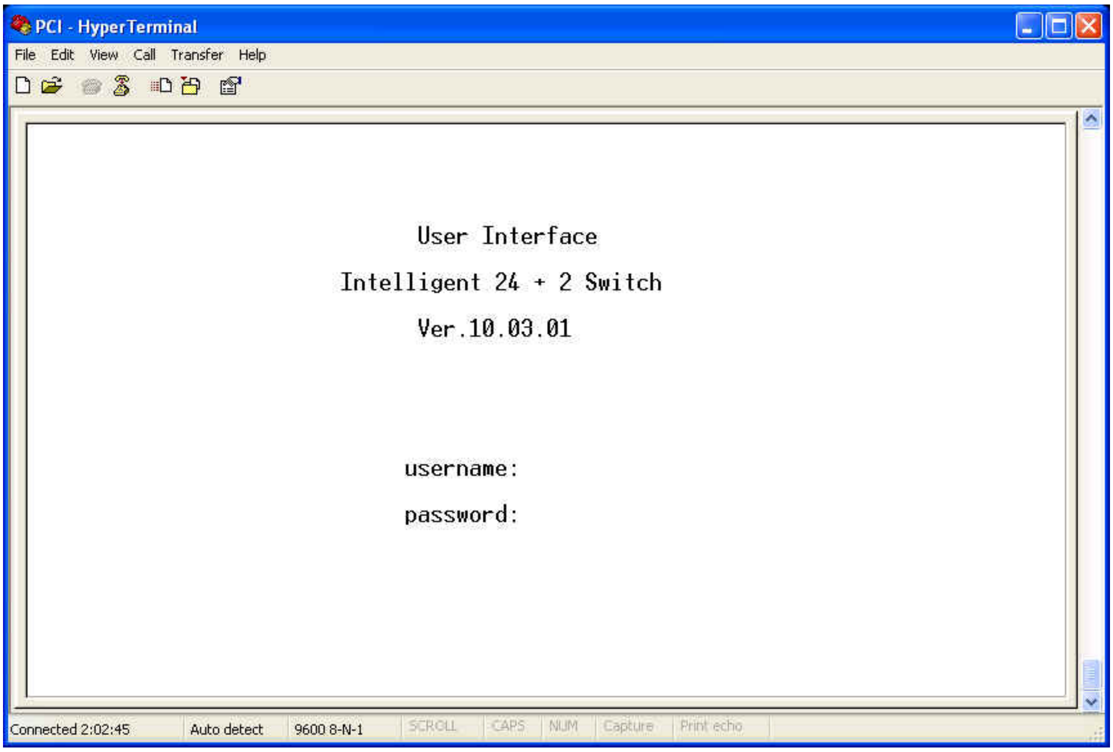
First, turn on your PC and execute with terminal mode program, such as, if you are in Microsoft Window environment, you may choose “super terminal “from programs that are listed for communication. Then follow the steps below:

Step 1: **Set Hyper Terminal parameters on your PC**

Bits Rate per second = 9600
Parity = None
Data Bits = 8
Stop Bit = 1
Flow Control = None

Step 2:

After setting the above on the PC, then connect your switch device with RS 232 cable, then type the “enter” key, then, the device will response the Main Menu to you and ask you to input the username and password. The default username is” **admin**” and the password is “**123**” for default. To know more about operation in this mode, please refer the instructions in chapter 4 of this manual to perform all function you want.



```
User Interface
Intelligent 24 + 2 Switch
Ver.10.03.01


username:
password:
```

1.3.2 In-band management through Ethernet

In addition to terminal mode operation, 24+2G switch also supports in-band management through browser, this function is much more user-friendly than terminal mode, because it can be operated through mouse on the PC screen and moreover it can be performed either locally or remotely through Ethernet.

Before you can access the switch, you have to know following things.

First you have to know the **IP Address and Subnet Mask** of both your switch and your PC. The default value of the **IP Address and Subnet Mask** within the switch can be got through terminal mode operation described in chapter 4, while the **IP Address and Subnet Mask** of PC can be found in your PC system.

Second, in general, within a network, the members in the same network domain must have the same Subnet IP unless there are routers between them, or, members in the same network domain can't talk to each others, so make sure **the communication members in the same domain must have different IP Addresses and same Subnet Mask.**

Third, If there is a DHCP server in the network domain, be sure to **enable** the DHCP function both on your PC and the switch, then save the setting and reboot the switch again (power-off-and–on once), DHCP server and its protocol will automatically assign IP address and related IP Subnet Mask and Default gateway, under this condition, you can execute your browser program in your PC and simply type **http:// IP-Address-of-switch** to access the switch through Ethernet or over internet. But if there is no DHCP in the network, then you must follow the steps instructed below:

When there is no DHCP server in your network domain, according to the concept described above, you must modify either the PC side or switch side to match the rule "the **communication members in the same domain must have different IP Addresses and same Subnet Mask. ",** below, we try to state the steps if we modify the content of IP configuration within the switch to match the domain requirement of the PC:

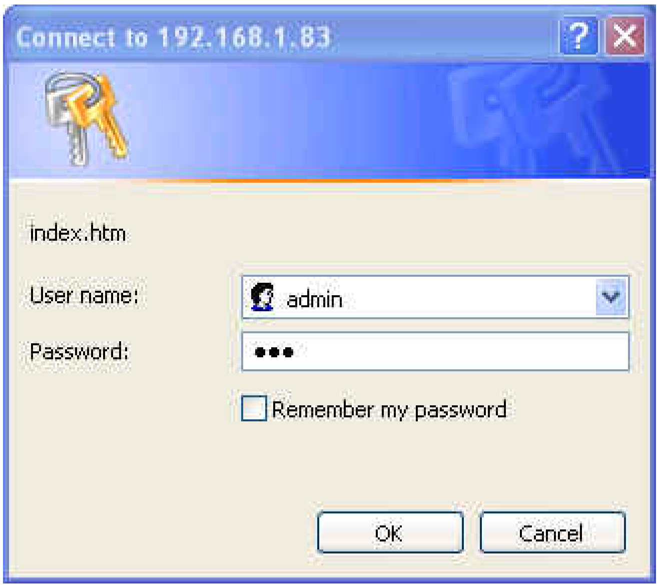
Step 1: Get the IP configuration information in your PC

Step 2: Get IP configuration value used for switch from your network manager.

Get an IP Address for your switch, get IP Subnet Mask, and get default gateway IP address (if needed) from your network manager.

Step 3: Modify the IP configuration value within the switch to match the rule

In the step 3, you must use the data that get from step 2 to modify the default value within the switch, to achieve this, use terminal mode operation mentioned in 1.3.1. After modifying the IP address, Subnet Mask, Default Gateway in the switch, then save the setting and execute the browser program with http:// IP_Address_ of_ switch, then you may access the switch with following dialogue below. Then type user name and password to get further service. To find out more operation in this mode, please refer the instructions in chapter 3 of this manual to perform all function you want.



Connect to 192.168.1.83

index.htm

User name: admin

Password: •••

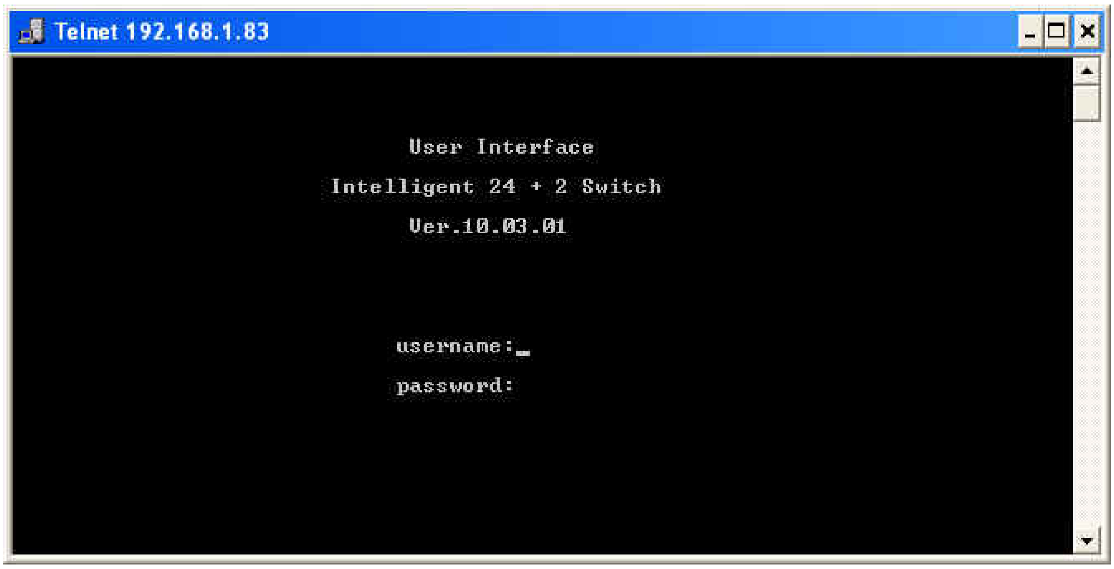
□ Remember my password

1.3.3 Telnet management

In addition to local terminal mode operation, 24+2G switch supports remote management through Telnet over network or even over internet for that environment without browser. In this mode, user also has to do the same setting as required in in-band management to the IP Configuration before executing the Telnet program. Again, after proper setting to the switch, save the setting and connect your Ethernet cable from your PC to any port of the Ethernet Switch, then you can simply typing as following at the command line to access the switch:

Telnet IP_Address_of_Switch

The following dialogue below appears. Type user name and password to get further service. To find out more operation in this mode, please refer the instructions in chapter 3 of this manual to perform all function you want.



```
                User Interface
          Intelligent 24 + 2 Switch
                Ver.10.03.01


               username:_
               password:
```

1.4 LED indicators information

There are many LEDs on the front panel of switch, after the power on, these LEDs will reflect the current status truly within the switch, we explain below:

There is one power LED on the left side of front panel, whenever power is applied, it lights with green, below it, there is Diagnostic LED, it will go blinking during the power-on diagnostics. There are two more FAN status LEDs aside the power LEDs, the upper one indicate the left fan status inside the switch, it vanishes when fan works normally, and will goes RED while fan is stop or with malfunction, the lower one indicates the same for the fan at right side within the switch.

Each RJ-45 of 10/100M is with two LEDs built-in on its upper corner, left one indicates link status and activity, while the right one indicates the speed information.

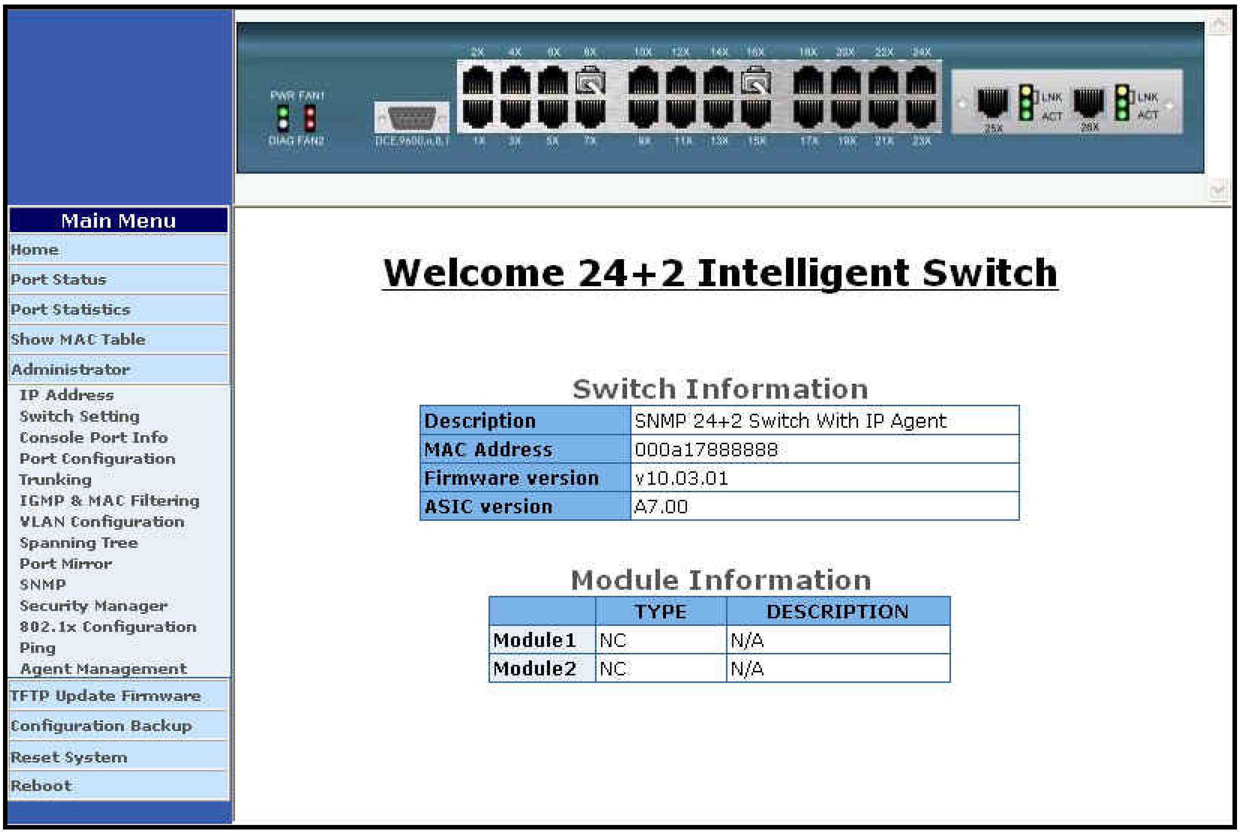
Each RJ-45 of 10/100/1000M for gigabit module (optional) is somewhat different. Upper yellow LED indicates for 10M LINK, middle green LED indicates for 100M LINK, but for 1000M, or Gigabit, both upper and middle LEDs are lit when gigabit port is link with other Gigabit port.

LED	**Color**	**Status**	
		Solid	Blinking
Power	Green	Turn solid green when power is applied to this device.	N/A
DIAG	Green	Successful diagnostic.	during power on diagnostics
FAN	Red	Left side fan fail.	N/A
LINK/ACT	Green	Successful connection with Fast Ethernet.	Sending , Receiving or collision packets
10/100M	Green	Successful connection with 100Mbps Fast Ethernet.	N/A
	Vanish	Successful connection with 10Mbps Fast Ethernet.	N/A

2. Web Management Function

2.1. Web Management Home Overview

This is a Home Page.



Welcome 24+2 Intelligent Switch

Switch Information

Description	SNMP 24+2 Switch With IP Agent
MAC Address	000a17888888
Firmware version	v10.03.01
ASIC version	A7.00

Module Information

	TYPE	DESCRIPTION
Module1	NC	N/A
Module2	NC	N/A

At this page, you may see the basic switch information and module information. All information in these fields is read-only. That is, user can’t modify its contents.

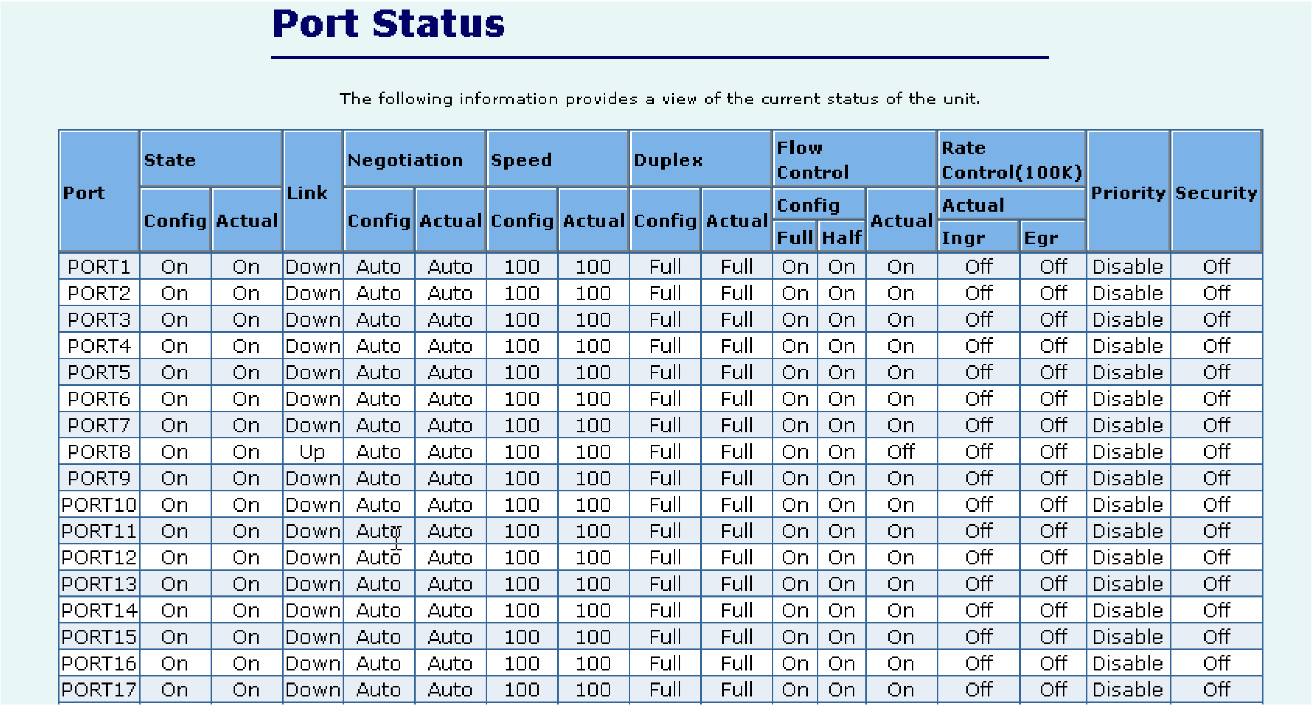
Description: Display the name of device type.
MAC Address: The unique hardware address assigned by manufacturer (default)
Firmware Version: Display the switch’s firmware version.
ASIC Version: Display the switch’s ASIC version.

On the top of web page, there is a link status from image of front panel; every port will be with a **connector icon** if this port is really linked with others, you also may click the function that listed at left. Below is the explanation of each function:

2-2. Port status
2-3. Port Statistics
2-4. Show MAC Table
2-5. Administrator
2-6. TFTP Update Firmware
2-7. Configuration Backup
2-8. Reset System
2-9. Reboot

2.2. Port status

This page provides current status of every port that depends on user’s setting and the negotiation result.



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	Actual		Config	Actual	Config	Actual	Config	Actual	Config		Actual	Actual			
										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	Down	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	Up	Auto	Auto	100	100	Full	Full	On	On	Off	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

1. **State:** Display port statuses: **disable or enable**. “Unlink” will be treated as “off”.
2. **Link Status:** Down means “No Link”, UP means “Link”.
3. **Auto Negotiation:** Display the auto negotiation mode: auto/force/Nway-force.
4. **Speed status:** Display 1000Mbps or 100Mbps or 10Mbps speed, port 1- 24 are 10/100Mbps, Port 25-26 are 10/100/1000Mbps.
5. **Duplex status:** Display full-duplex or half-duplex mode.
6. **Flow Control:** Full: Display the flow control is enabled or disabled in full mode.
   Half: Display the backpressure is enabled or disabled in half mode.
7. **Rate Control:** Display the rate control setting.

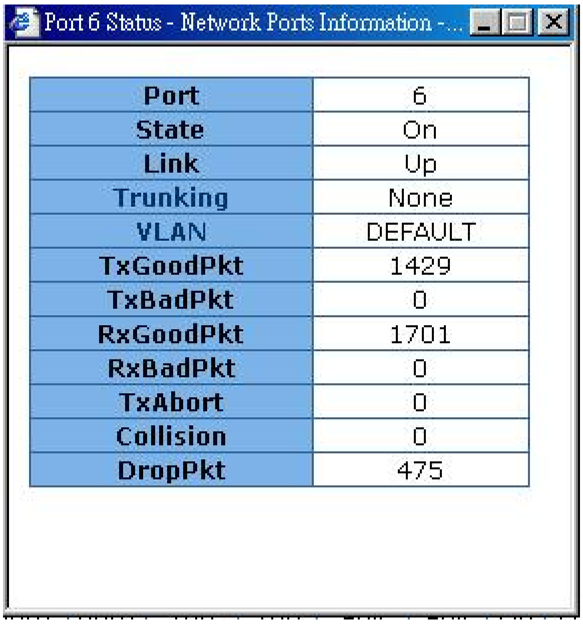
Ingr: Display the port effective ingress rate of user setting.

Egr: Display the port effective egress rate of user setting.

8. **Port Security:** Display the port security is enabled or disabled.
9. **Config:** Display the state of user setting.
10. **Actual:** Display the negotiation result.

2.2.1 Single port counter and status

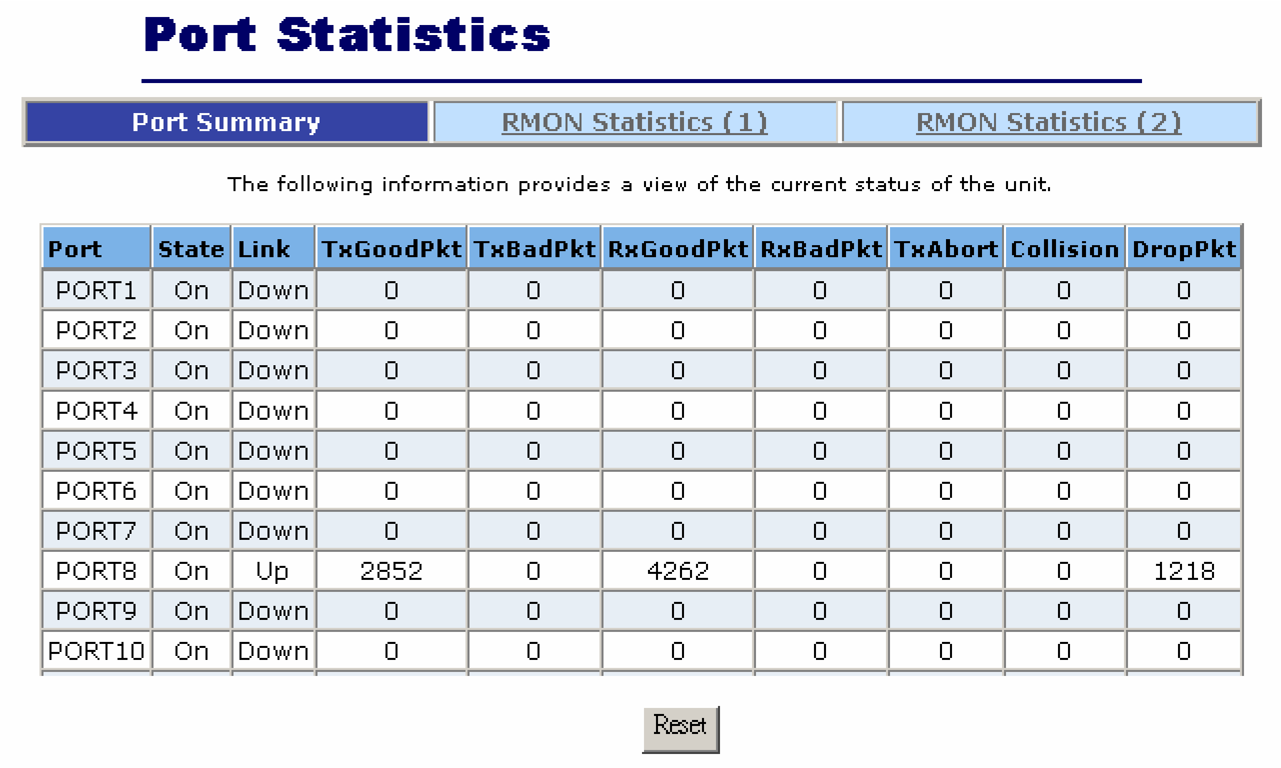
User can also click the any port directly on the front panel of Home Page to get single port Status which is shown below.



Port	6
State	On
Link	Up
Trunking	None
VLAN	DEFAULT
TxGoodPkt	1429
TxBadPkt	0
RxGoodPkt	1701
RxBadPkt	0
TxAbort	0
Collision	0
DropPkt	475

2.3. Port Statistics

There are three pages the switch provides for user to monitor the statistics of network traffic: **Port Summary**, **RMON Statistics (1)**, **RMON Statistics (2)**.



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

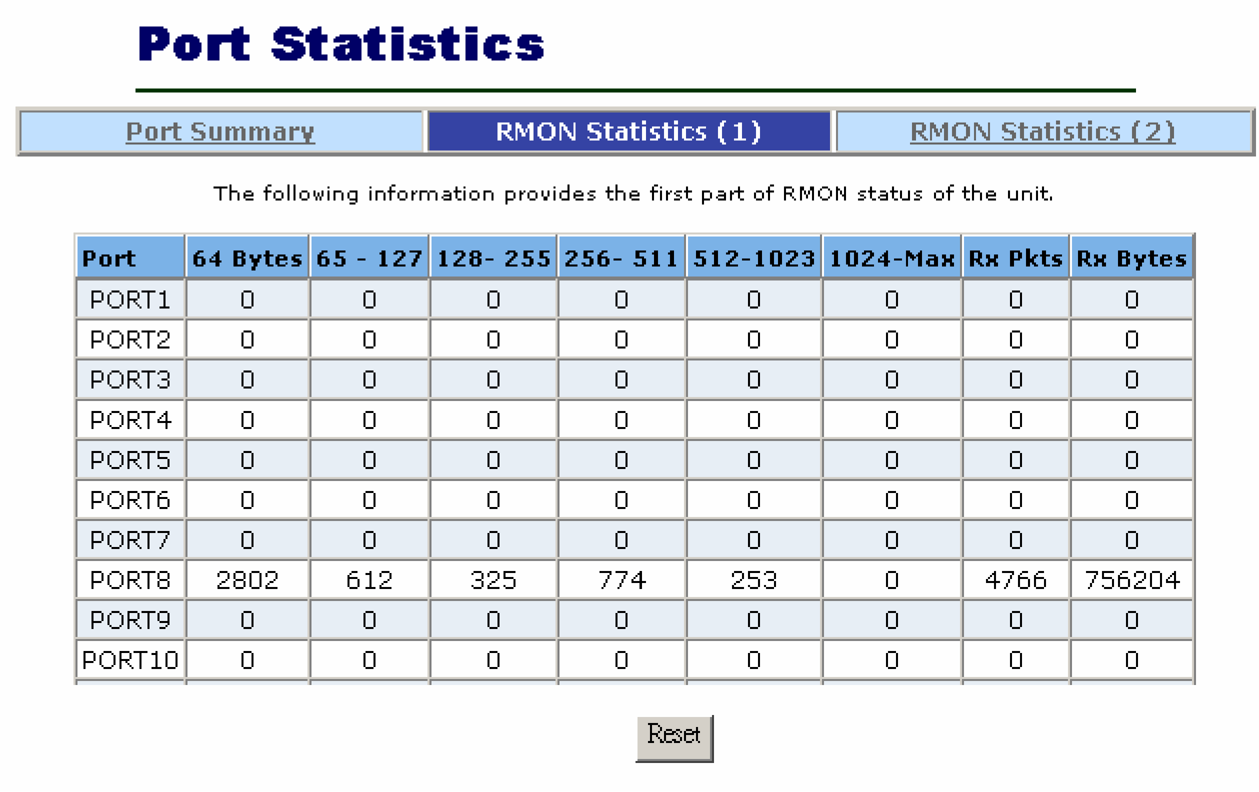
Port	State	Link	TxGoodPkt	TxBadPkt	RxGoodPkt	RxBadPkt	TxAbort	Collision	DropPkt
PORT1	On	Down	0	0	0	0	0	0	0
PORT2	On	Down	0	0	0	0	0	0	0
PORT3	On	Down	0	0	0	0	0	0	0
PORT4	On	Down	0	0	0	0	0	0	0
PORT5	On	Down	0	0	0	0	0	0	0
PORT6	On	Down	0	0	0	0	0	0	0
PORT7	On	Down	0	0	0	0	0	0	0
PORT8	On	Up	2852	0	4262	0	0	0	1218
PORT9	On	Down	0	0	0	0	0	0	0
PORT10	On	Down	0	0	0	0	0	0	0

The Above information provides a summary of the current switch's status, including on/off state, link status, good or bad packets of transmitting and receiving, packets of transmitting abort, packets of collision and drop packets.

The following two pages provide the statistics of RMON 1,2,3,9 groups. The first part collects the information about packets of frame size within ranges of 64, 65-127, 128-255, 256-511, 512-1023, and 1024-1518 bytes, the total received packets and the total receives bytes.

The second part collects the information about drop events, broadcast packets, multicast packets, alignment errors, undersize packets, oversize packets, fragments, jabbers and collisions.

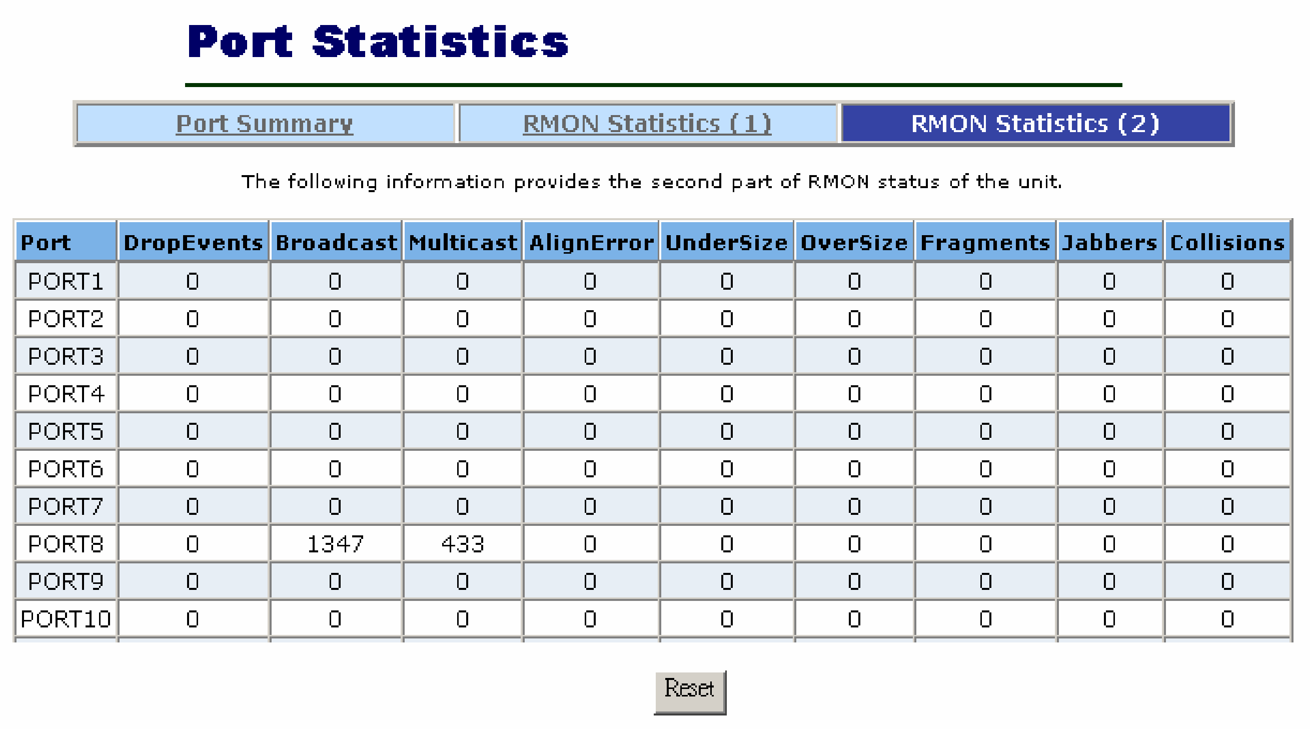
Press "**Reset**" button to clear all the counter.



Port Statistics

The following information provides the first part of RMON status of the unit.

Port	64 Bytes	65 - 127	128- 255	256- 511	512-1023	1024-Max	Rx Pkts	Rx Bytes
PORT1	0	0	0	0	0	0	0	0
PORT2	0	0	0	0	0	0	0	0
PORT3	0	0	0	0	0	0	0	0
PORT4	0	0	0	0	0	0	0	0
PORT5	0	0	0	0	0	0	0	0
PORT6	0	0	0	0	0	0	0	0
PORT7	0	0	0	0	0	0	0	0
PORT8	2802	612	325	774	253	0	4766	756204
PORT9	0	0	0	0	0	0	0	0
PORT10	0	0	0	0	0	0	0	0



Port Statistics

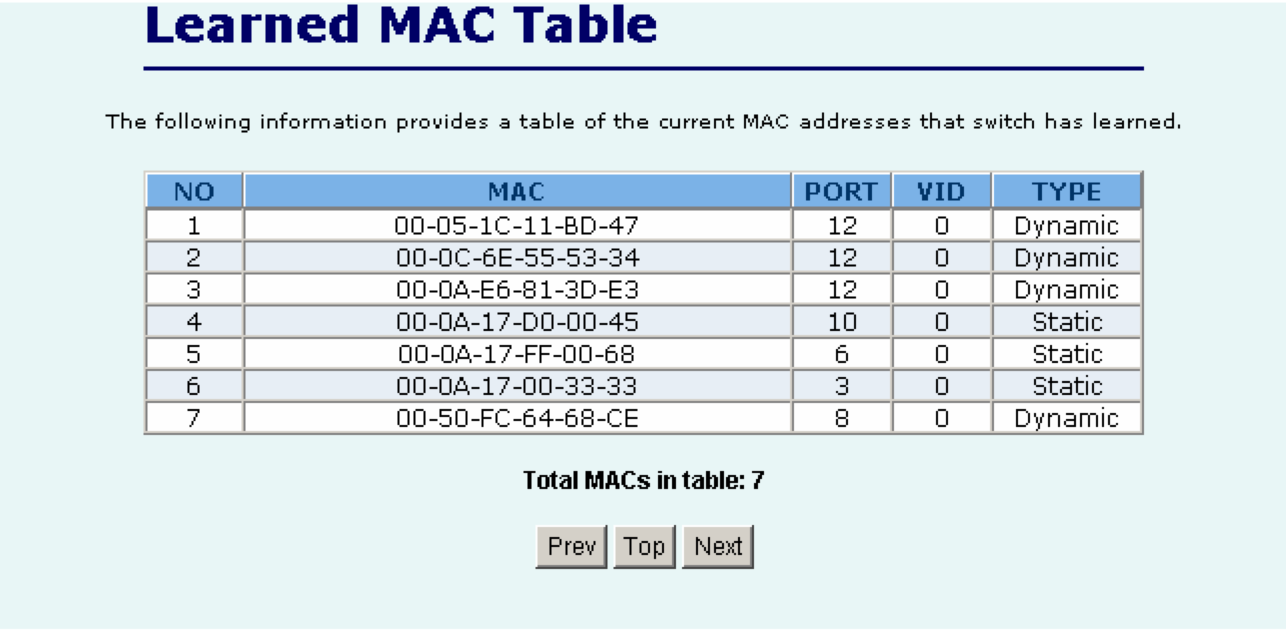
The following information provides the second part of RMON status of the unit.

Port	DropEvents	Broadcast	Multicast	AlignError	UnderSize	OverSize	Fragments	Jabbers	Collisions
PORT1	0	0	0	0	0	0	0	0	0
PORT2	0	0	0	0	0	0	0	0	0
PORT3	0	0	0	0	0	0	0	0	0
PORT4	0	0	0	0	0	0	0	0	0
PORT5	0	0	0	0	0	0	0	0	0
PORT6	0	0	0	0	0	0	0	0	0
PORT7	0	0	0	0	0	0	0	0	0
PORT8	0	1347	433	0	0	0	0	0	0
PORT9	0	0	0	0	0	0	0	0	0
PORT10	0	0	0	0	0	0	0	0	0

2.4. Show MAC Table

The following information provides a table of the current MAC address that the switch has learned. Press “Prev” or “Next” button will browse previous 50 or next 50 items. The “Top” button will re-list the table from the first MAC.

A sorting function is implemented here. Clicking header on the top of table will bring a new sorted list of current content in the order of its title. For instance, clicking the “MAC” on the top of table will refresh the table by the index of “MAC”.



Learned MAC Table

The following information provides a table of the current MAC addresses that switch has learned.

NO	MAC	PORT	VID	TYPE
1	00-05-1C-11-BD-47	12	0	Dynamic
2	00-0C-6E-55-53-34	12	0	Dynamic
3	00-0A-E6-81-3D-E3	12	0	Dynamic
4	00-0A-17-D0-00-45	10	0	Static
5	00-0A-17-FF-00-68	6	0	Static
6	00-0A-17-00-33-33	3	0	Static
7	00-50-FC-64-68-CE	8	0	Dynamic

Total MACs in table: 7

2.5. Administrator

There are many management functions can be set or performed if you click the **Administrator** on Home Page, including:

- IP address/Subnet Mask/Gateway
- Switch settings
- Console port information
- Port Configuration
- Trunking
- IGMP and MAC Filter
- VLAN Configuration
- Spanning Tree
- Port Mirror
- SNMP/Trap Manager
- Security Manager
- 802.1x Configuration
- Ping
- Agent Management

2.5.1. IP Address/Subnet Mask/Gateway

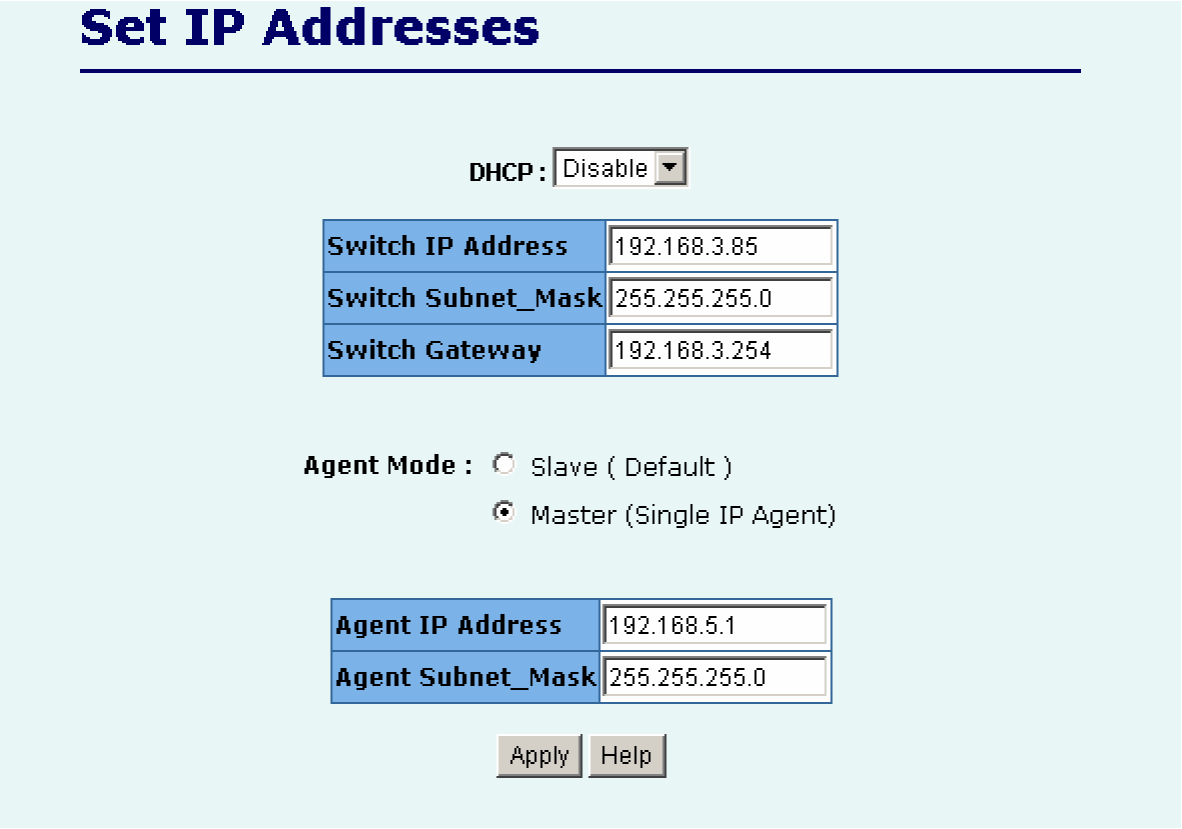
User can modify the switch IP Settings by filling with the new value, then clicks “apply” button to confirm (save) his setting, then he must **reboot** switch, then new IP configuration value will be activated.

The **Agent mode** indicates which role this switch is currently playing. Slave means it is treated as a normal switch. Master means the "Single IP" is activated and the switch is treated as agent manager. The default is "Slave".

The extra “Agent IP” setting is necessary for the “Single IP” management. It defines the IP and the subnet mask the master switch will be assigned, which are in the same IP domain as the managed hosts’ one.

User can confine the “Single IP” function to local management by assigning the agent IP to the same one as switch IP. Different from original IP forwarding method, it uses a method like webpage link and won’t increase the loading of switch.

”Agent IP “setting and “Agent management” in the main menu will not show up if the agent mode is set as “Slave”. **[Note] If any of the value is changed in this field, reboot is necessary.**



Set IP Addresses

DHCP : Disable

Switch IP Address	192.168.3.85
Switch Subnet_Mask	255.255.255.0
Switch Gateway	192.168.3.254

Agent Mode : ○ Slave (Default)
● Master (Single IP Agent)

Agent IP Address	192.168.5.1
Agent Subnet_Mask	255.255.255.0

2.5.2 Switch Setting

2.5.2.1 Advanced

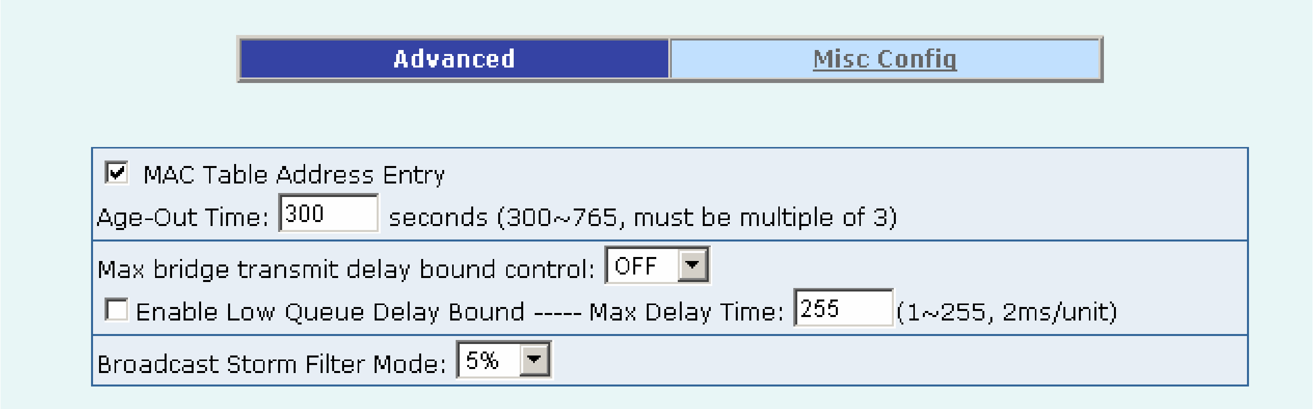
◆ **Miscellaneous Setting:**

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

Max bridge transit delay bound control: Limit the packets queuing time in switch. If enable, the packets queued exceed will be drop. These valid values are 1sec, 2 sec, and 4 sec and off. Default is 1 seconds.

NOTE: Make sure of "Max bridge transit delay bound control" is enabled before enable Delay Bound, because Enable Delay Bound must be work under "Max bridge transit delay bound control is enabled" situation.

Broadcast Storm Filter: 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 is 5%, 10%, 15%, 20%, 25% and off.



☑ MAC Table Address Entry

Age-Out Time: 300 seconds (300~765, must be multiple of 3)

Max bridge transmit delay bound control: OFF

☐ Enable Low Queue Delay Bound ----- Max Delay Time: 255 (1~255, 2ms/unit)

Broadcast Storm Filter Mode: 5%

◆ **Priority Queue Service settings:**

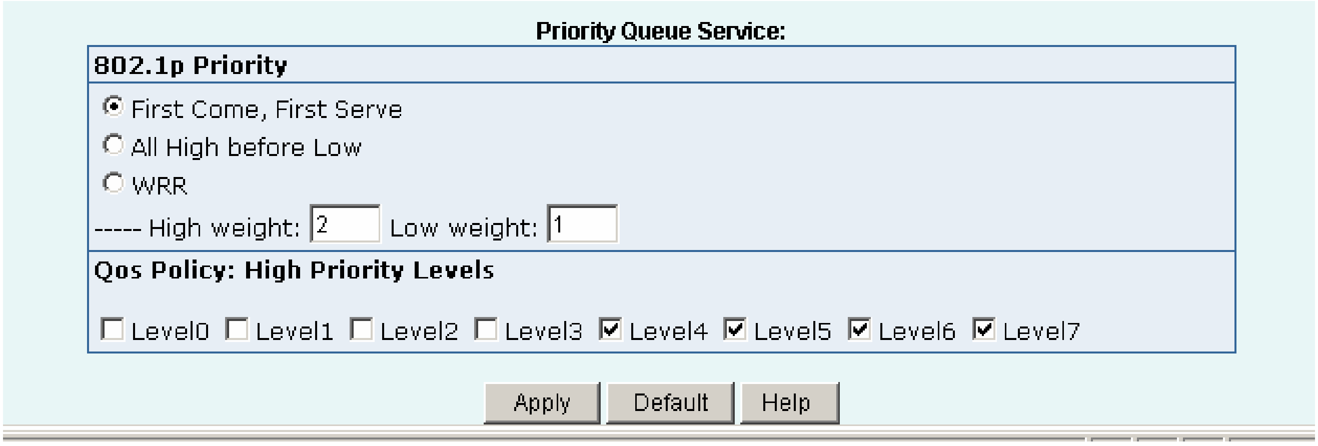
First Come, First Serve: The sequence of packets sent is depending on arrive orders.

All High before Low: The high priority packets 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.

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

Qos Policy: High Priority Levels: 0~7 priority level can map to high or low queue.



Priority Queue Service:

802.1p Priority

● First Come, First Serve

○ All High before Low

○ WRR

----- High weight: 2 Low weight: 1

Qos Policy: High Priority Levels

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

2.5.2.2 Misc Config

Collisions Retry Forever:

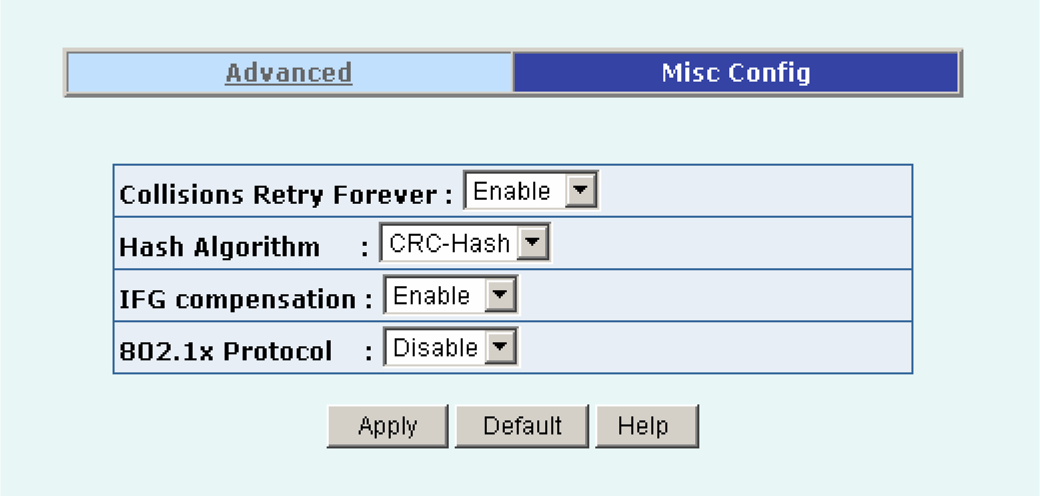
Disable – In half duplex, collision-retry maximum is 48 times and packet will be dropped if collision still happen.

Enable – In half duplex, if happen collision will retry forever.

Hash Algorithm: Choose algorithms, CRC-Hash or DirectMap, to maintain MAC address table.

IFG Compensation: Enable or disable inter-frame gap (IFG) compensation.

802.1x Protocol: Enable or disable 802.1x protocol.



Collisions Retry Forever : Enable

Hash Algorithm : CRC-Hash

IFG compensation : Enable

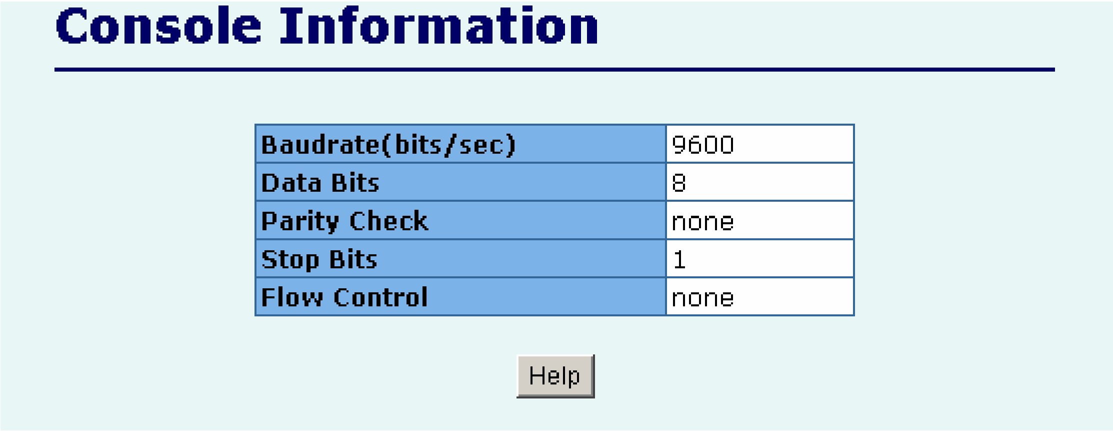
802.1x Protocol : Disable

2.5.3 Console Port Information

Console is a standard UART interface to communicate with Serial Port.

User can use windows HyperTerminal program to link the switch. Connect To -> Configure:

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

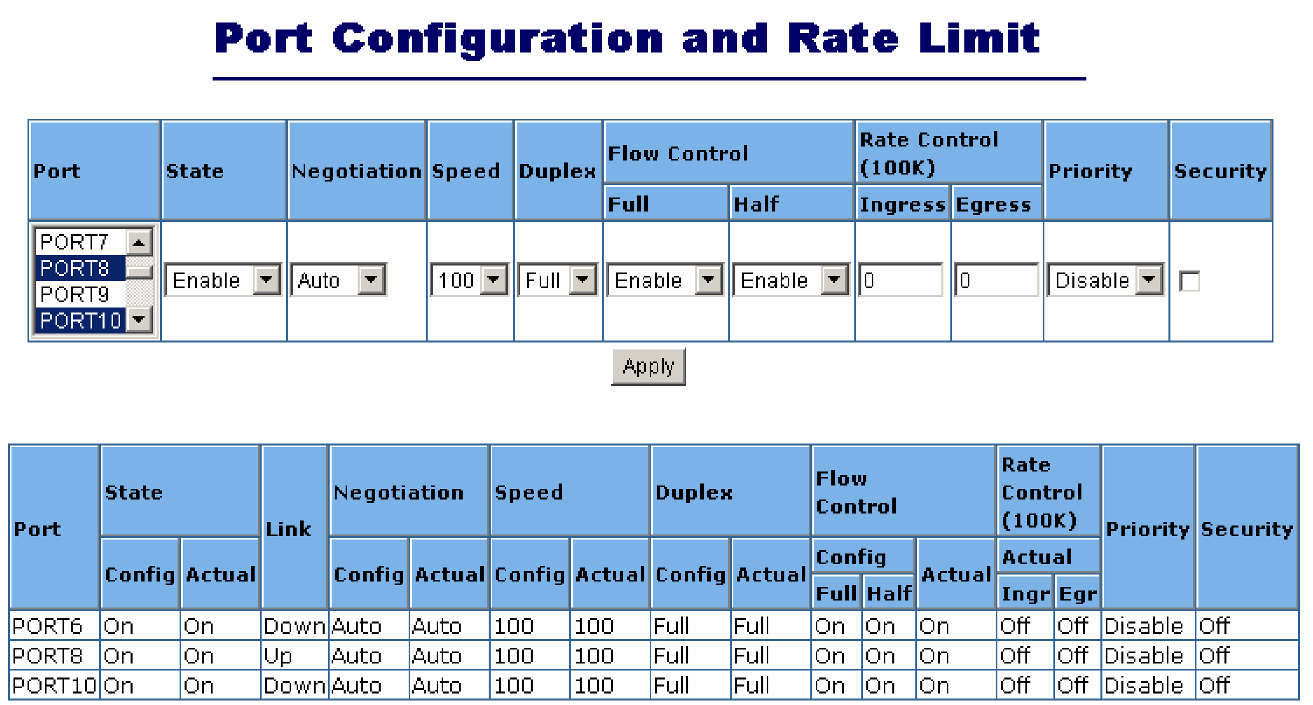


Console Information

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

2.5.4 Port Controls

User may modify or change mode operation in this page.



Port Configuration and Rate Limit

Port	State	Negotiation	Speed	Duplex	Flow Control		Rate Control (100K)		Priority	Security
					Full	Half	Ingress	Egress		
PORT7 PORT8 PORT9 PORT10	Enable	Auto	100	Full	Enable	Enable	0	0	Disable	□

Apply

Port	State		Link	Negotiation		Speed		Duplex		Flow Control			Rate Control (100K)		Priority	Security
	Config	Actual		Config	Actual	Config	Actual	Config	Actual	Config		Actual	Actual			
										Full	Half		Ingr	Egr		
PORT6	On	On	Down	Auto	Auto	100	100	Full	Full	On	On	On	Off	Off	Disable	Off
PORT8	On	On	Up	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

1. **State:** User can disable or enable this port control.
2. **Auto Negotiation:** User can set auto negotiation mode is Auto, Nway (specify the speed/duplex on this port and enable auto-negotiation), Force of per port.
3. **Speed:**

   User can set 100Mbps or 10Mbps speed on Port1~Port24.

   User can set 1000Mbps, 100Mbps or 10Mbps speed on Port25~Port26 (depend on module card mode).
4. **Duplex:** User can set full-duplex or half-duplex mode of per port.
5. **Flows control:**

   Full: User can set flow control function is enable or disable in full mode.

   Half: User can set backpressure is enable or disable in half mode.
6. **Rate Control:** port1 ~ port 24, supports by-port ingress and egress rate control. For example, assume port 1 is 10Mbps, users can set its effective egress rate at 1Mbps and ingress rate at 500Kbps. Device will perform flow control or backpressure to confine the ingress rate to meet the specified rate.

   Ingress: Type the port effective ingress rate. The valid range is 0 ~ 1000. The unit is 100K.

   0: disable rate control.

   1 ~ 1000: valid rate value

   Egress: Type the port effective egress rate. The valid range is 0~1000. The unit is 100K.

   0: disable rate control.

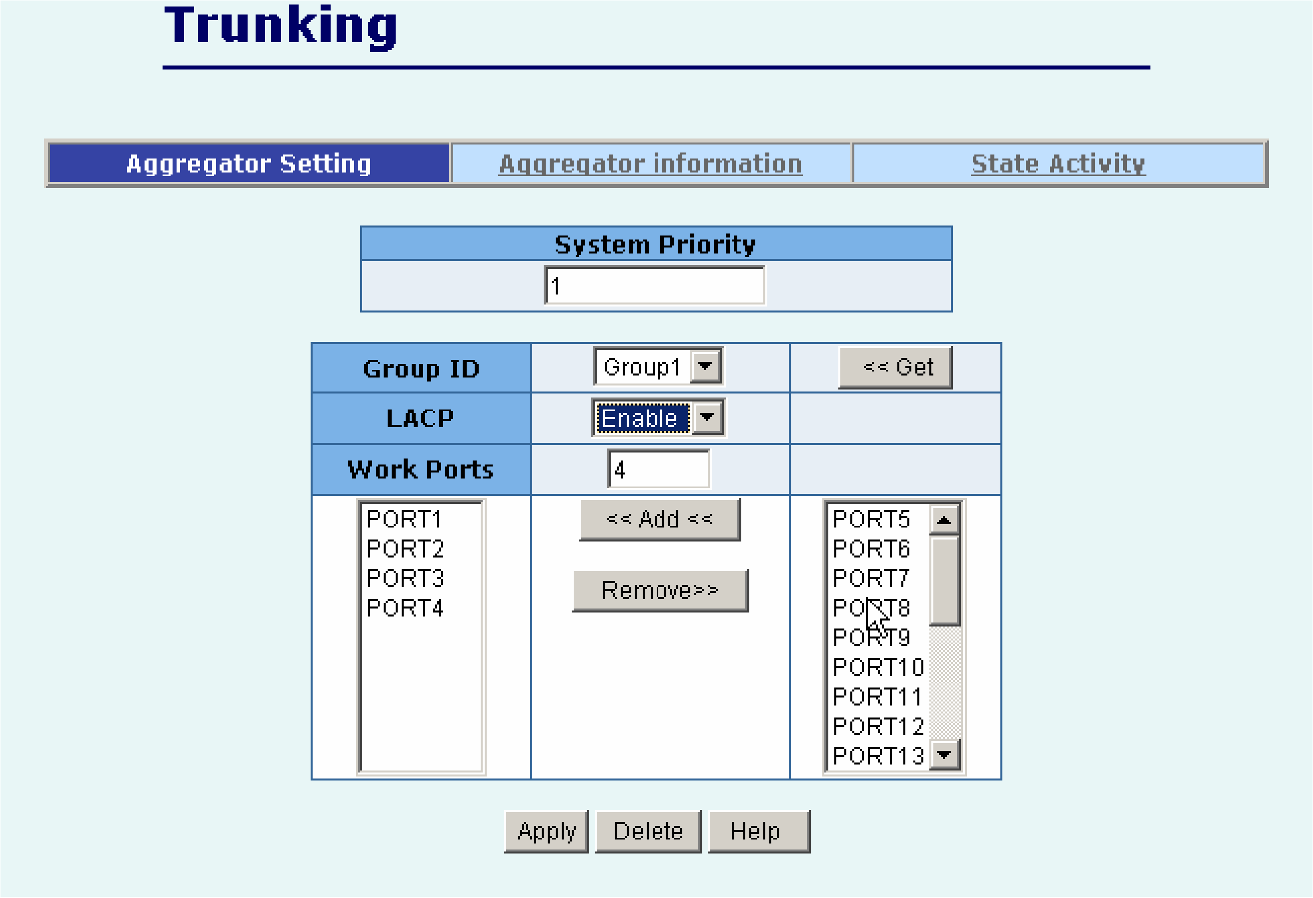
   1 ~ 1000: valid rate value.
7. **Port Priority:** Enable or disable the port priority function. There are two priorities (high or low) provided if port priority is enabled.

8. **Port Security:** A port in security mode will be “locked” without permission of address learning. Only the incoming packets with SMAC already existing in the address table can be forwarded normally. User 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, then click Apply button to change on this page.

2.5.5 Trunking

The Link Aggregation Control Protocol (LACP) provides a standardized means for 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, move the link to that Link Aggregation Group, and enable its transmission and reception functions in an orderly manner. In conclusion, Link aggregation lets you group up to eight consecutive ports into a single dedicated connection. This feature can expand bandwidth to a device on the network. **LACP operation requires full-duplex mode,** more detail information refers to IEEE 802.3ad

2.5.5.1 Aggregator setting



Trunking

System Priority: 1

Group ID: Group1

LACP: Enable

Work Ports: 4

PORT1
PORT2
PORT3
PORT4

PORT5
PORT6
PORT7
PORT8
PORT9
PORT10
PORT11
PORT12
PORT13

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. Valid value is 1~65535.
2. **Group ID:** There are seven trunk groups to provide configure. Choose the "group id" and click "Get".
3. **LACP:** If enable, the group is LACP static trunking group. If disable, the group is local static trunking group. All ports support LACP dynamic trunking group. If connecting to the device that also

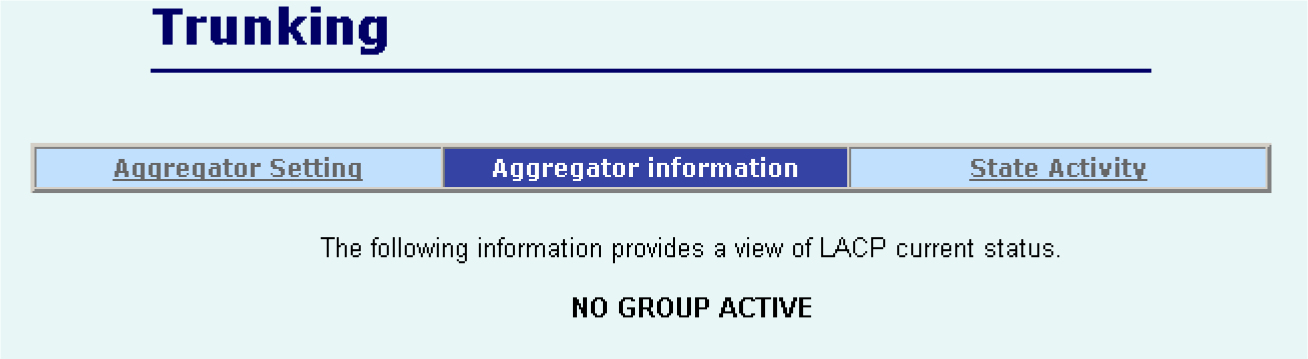
supports LACP, the LACP dynamic trunking group will be created automatically.

4. **Work ports:** Allow max four ports can be aggregated at the same time. If LACP static trunking group, the exceed ports is standby and able to aggregate if work ports fail. If local static trunking group, the number must be as same as the group member ports.
5. Select the ports to join the trunking group. Allow max four ports can be aggregated at the same time.
6. If LACP enable, you can configure LACP Active/Passive status in each port on State Activity page.
7. Click Apply.

2.5.5.2 Aggregator Information

When you are setting LACP aggregator, you can see relation information in here.

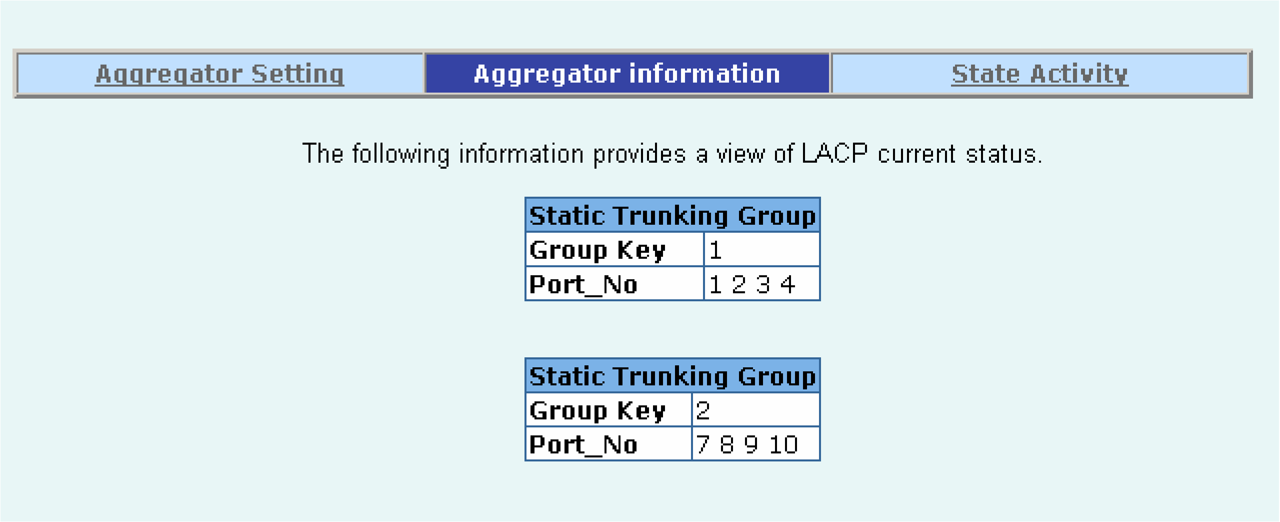
1. This page is no group active. LACP don't working.



The following information provides a view of LACP current status.

NO GROUP ACTIVE

2. This page is Static Trunking groups.

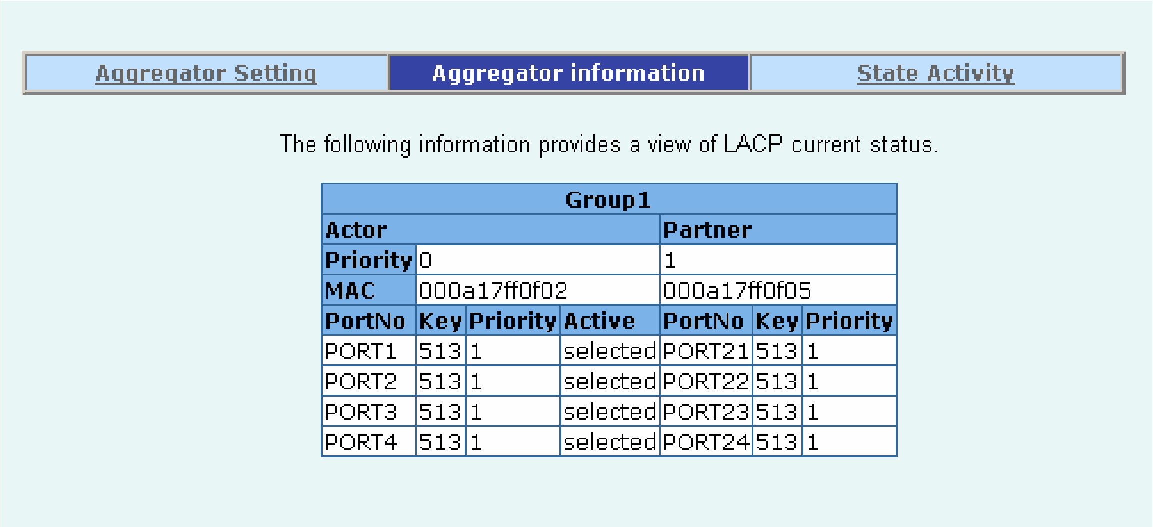


The following information provides a view of LACP current status.

Static Trunking Group	
Group Key	1
Port_No	1 2 3 4

Static Trunking Group	
Group Key	2
Port_No	7 8 9 10

3. This page is Actor and Partner trunking one group.



The following information provides a view of LACP current status.

Group1						
Actor				Partner		
Priority	0			1		
MAC	000a17ff0f02			000a17ff0f05		
PortNo	Key	Priority	Active	PortNo	Key	Priority
PORT1	513	1	selected	PORT21	513	1
PORT2	513	1	selected	PORT22	513	1
PORT3	513	1	selected	PORT23	513	1
PORT4	513	1	selected	PORT24	513	1

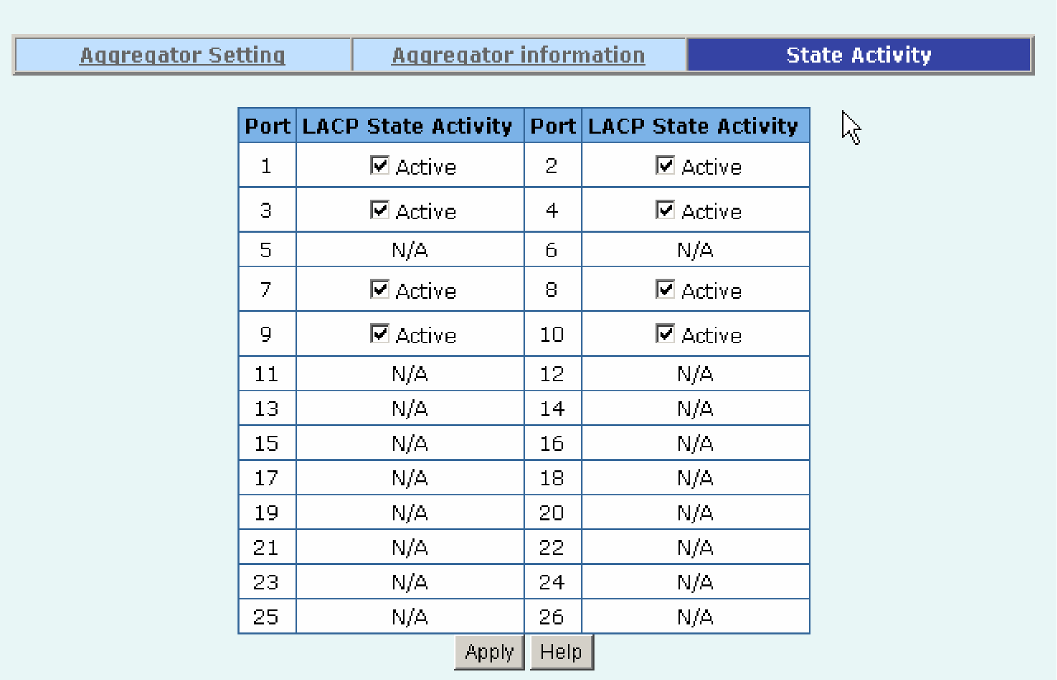
2.5.5.3 State Activity

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

N/A (no select)**:** 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 has either two active LACP ports or one active port can perform dynamic LACP trunking. A link has two N/A LACP ports will not perform dynamic LACP trunking because both ports are waiting for and LACP protocol packet from the opposite device.

2. If you are active LACP's actor, when you are select trunking port, the active status will be created automatically.

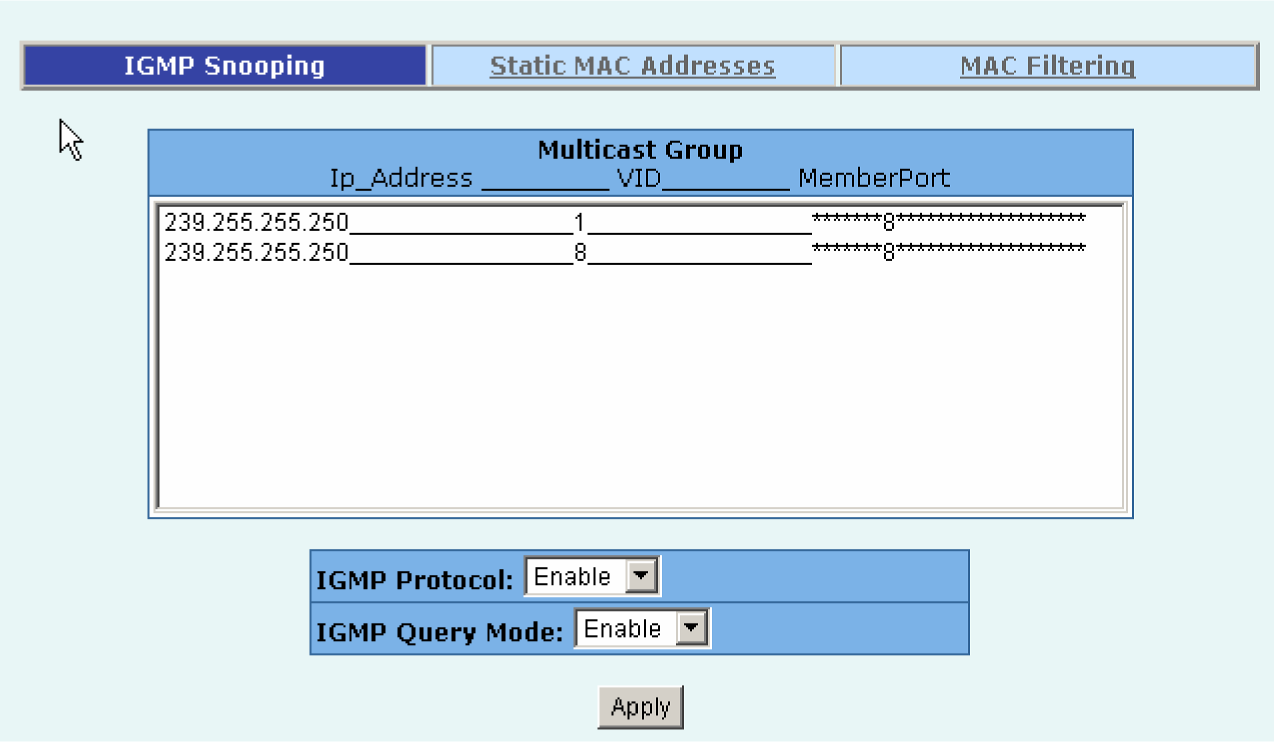


Port	LACP State Activity	Port	LACP State Activity
1	☑ Active	2	☑ Active
3	☑ Active	4	☑ Active
5	N/A	6	N/A
7	☑ Active	8	☑ Active
9	☑ Active	10	☑ Active
11	N/A	12	N/A
13	N/A	14	N/A
15	N/A	16	N/A
17	N/A	18	N/A
19	N/A	20	N/A
21	N/A	22	N/A
23	N/A	24	N/A
25	N/A	26	N/A

2.5.6 IGMP and MAC Filter

2.5.6.1. IGMP Snooping

The 24+2G switch supports multicast IP. One can enable IGMP protocol on this web page, and then display the IGMP snooping information on this page. There are all multicast groups, VIDs and member ports in the list. IP multicast addresses range from 224.0.0.0 through 239.255.255.255.



Multicast Group

```
Ip_Address __________ VID__________ MemberPort
239.255.255.250________________1________________*******8******************
239.255.255.250________________8________________*******8******************
```

IGMP Protocol: Enable

IGMP Query Mode: Enable

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

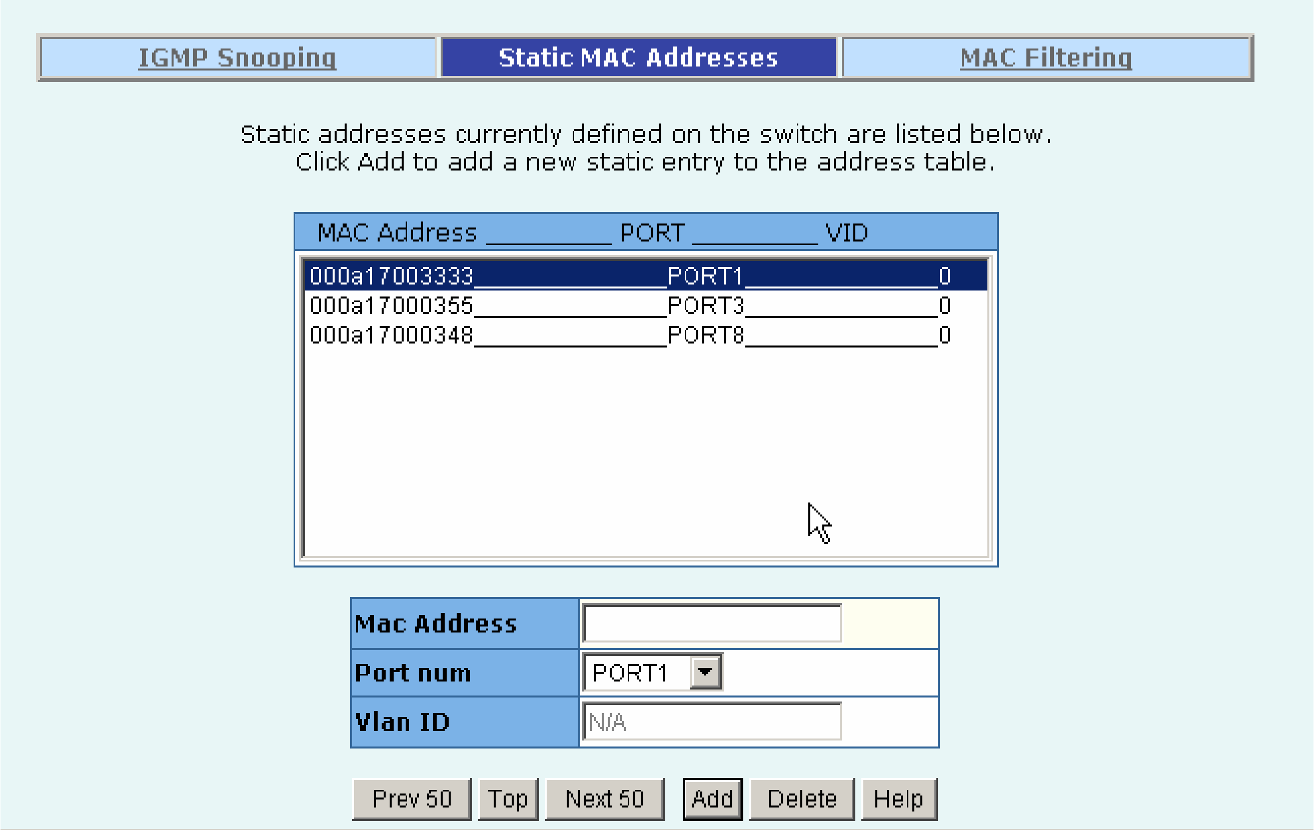
IGMP can manage the multicast traffic if the members (switches, router or other network devices) of group support IGMP. With IGMP enable, the member ports will detect IGMP queries, report packets and manage the IP multicast traffic through the switch.

IGMP have three fundamental types of message as follows:

Message	Description
Query	A message sent from the queries (IGMP router or switch) asking for a response from each host belonging multicast group.
Report	A message sent by a host to the queries to indicate that the host wants to be or is a member of a given group indicated in the report message.
Leave Group	A message sent by a host to the queries to indicate that the host has quit being a member of a specific multicast group.

2.5.6.2. 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.



Static addresses currently defined on the switch are listed below.
Click Add to add a new static entry to the address table.

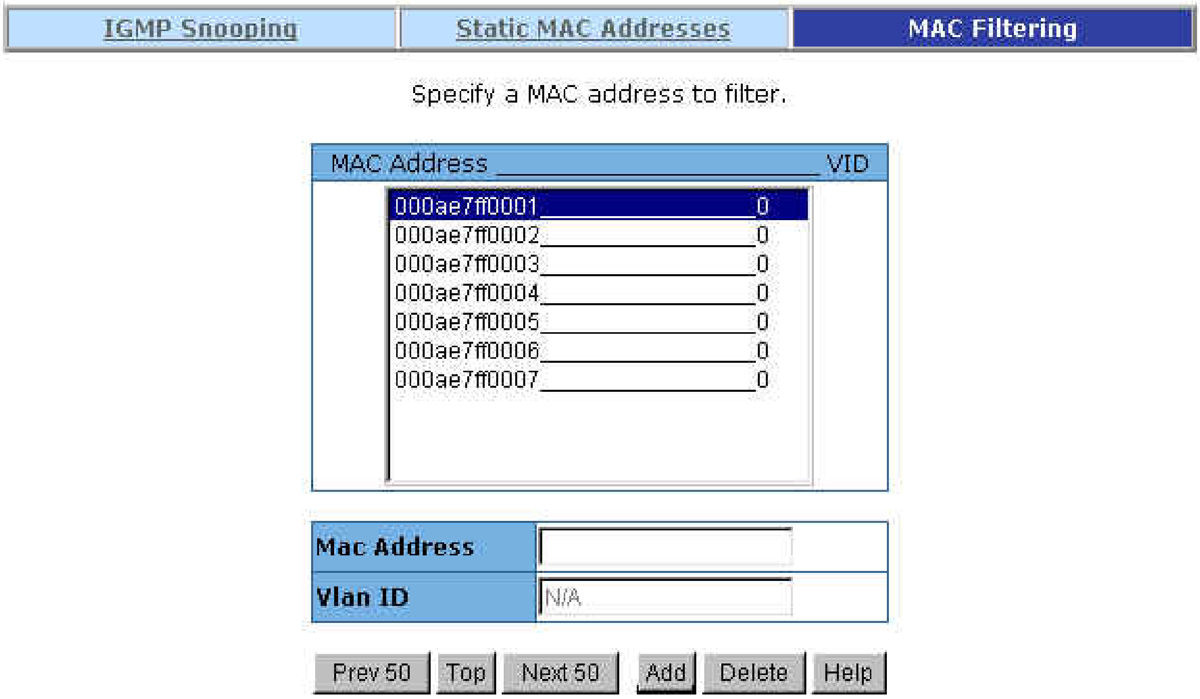
MAC Address	PORT	VID
000a17003333	PORT1	0
000a17000355	PORT3	0
000a17000348	PORT8	0

Mac Address	
Port num	PORT1
Vlan ID	N/A

1. At the main menu, click administrator →Filter Database →Static MAC Address.
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 Number box, enter a port number.
4. If tag-based (IEEE 802.1Q) VLANs are set up on the switch, static addresses are associated with individual VLANs. Type the VID (tag-based VLANs) to associate with the MAC address.
5. Click the Add.
6. Click the “Prev 50” will list the previous 50 MAC addresses.
7. Click the “Top” will refresh the list from the first entry.
8. Click the “Next 50” will list the next 50 MAC addresses.

2.5.6.3 MAC filtering

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



Specify a MAC address to filter.

MAC Address	VID
000ae7ff0001	0
000ae7ff0002	0
000ae7ff0003	0
000ae7ff0004	0
000ae7ff0005	0
000ae7ff0006	0
000ae7ff0007	0

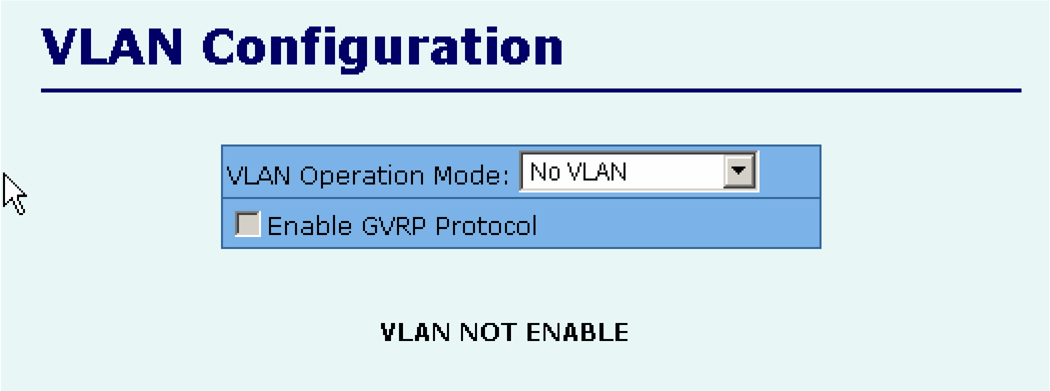
Mac Address	
Vlan ID	N/A

1. In the MAC Address box, enter the MAC address that wants to filter.
2. If tag-based (802.1Q) VLAN are set up on the switch, in the VLAN ID box, type the VID to associate with the MAC address.
3. Click the Add.
4. Choose the MAC address that you want to delete and then click the Delete.
5. Click the “Prev 50” will list the previous 50 MAC addresses.
6. Click the “Top” will refresh the list from the first entry.
7. Click the “Next 50” will list the next 50 MAC addresses.

2.5.7. 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 of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plug into the same switch physically.

The 24+2G switch supports port-based, 802.1Q (tagged-based) and protocol-base VLAN in web management page. In the default configuration, VLAN support is disabling.



VLAN Configuration

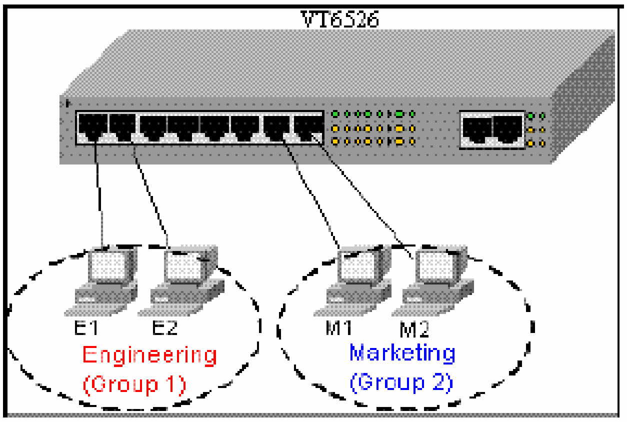
VLAN Operation Mode: No VLAN

□ Enable GVRP Protocol

VLAN NOT ENABLE

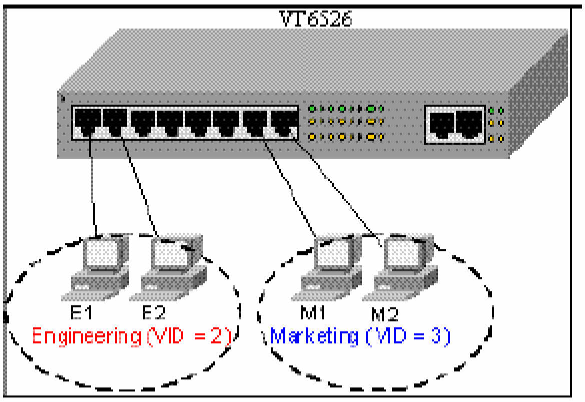
◆ Support Port-based VLAN

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



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

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

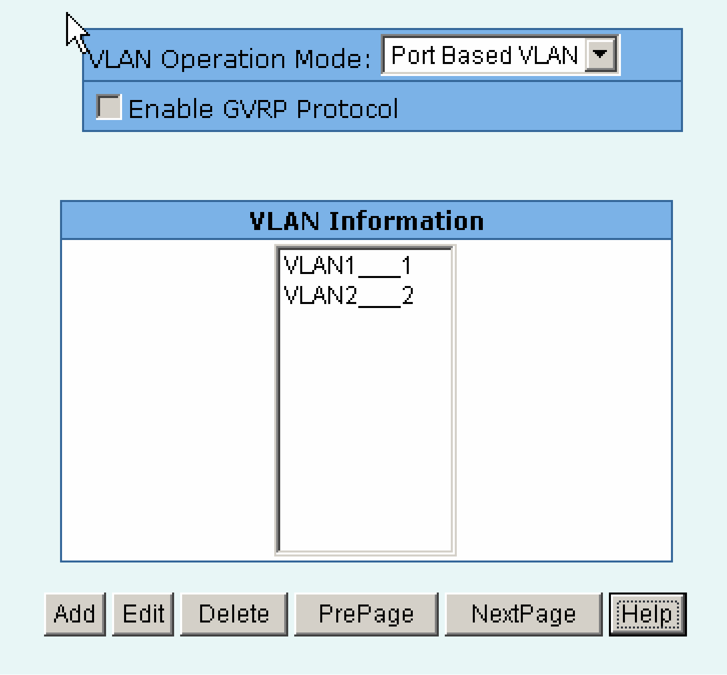


◆ Support Protocol-based VLAN

In order for an end station to send packets to different VLANs, it itself has to be either capable of tagging packets it sends with VLAN tags or attached to a VLAN-aware bridge that is capable of classifying and tagging the packet with different VLAN ID based on not only default PVID but also other information about the packet, such as the protocol.

24+2G 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 Ether Talk, and some degree of programmable protocol matching capability.

2.5.7.1. Port Based VLAN



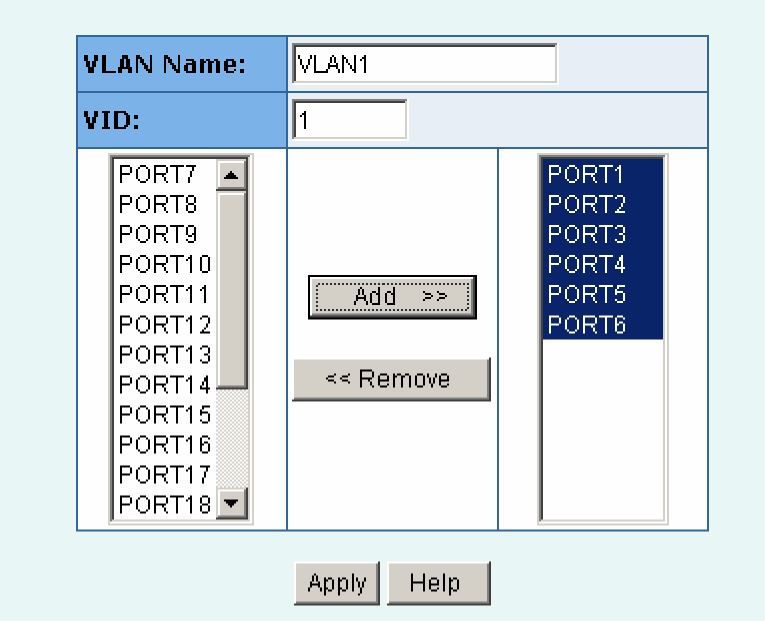
VLAN Operation Mode: Port Based VLAN

☐ Enable GVRP Protocol

VLAN Information

VLAN1___1
VLAN2___2

1. Click Add to create a new VLAN group.
2. Enter the VLAN name, group ID and select the members for the new VLAN.
3. Click Apply.
4. If there are many groups that over the limit of one page, you can click the "Next Page" to view other VLAN groups.



VLAN Name:	VLAN1
VID:	1

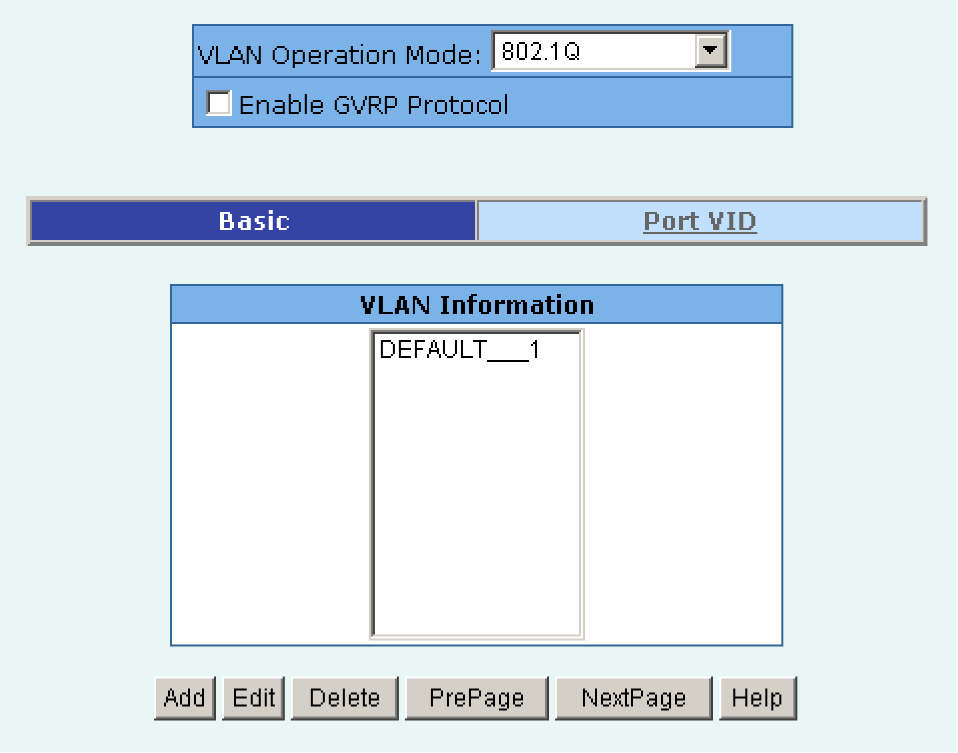
PORT7
PORT8
PORT9
PORT10
PORT11
PORT12
PORT13
PORT14
PORT15
PORT16
PORT17
PORT18

PORT1
PORT2
PORT3
PORT4
PORT5
PORT6

NOTE: If the trunk groups exist, you can see it (ex: TRK1, TRK2…) in select menu of ports, and you can configure it is the member of the VLAN or not.

2.5.7.2. 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 deleted.



VLAN Operation Mode: 802.1Q

□ Enable GVRP Protocol

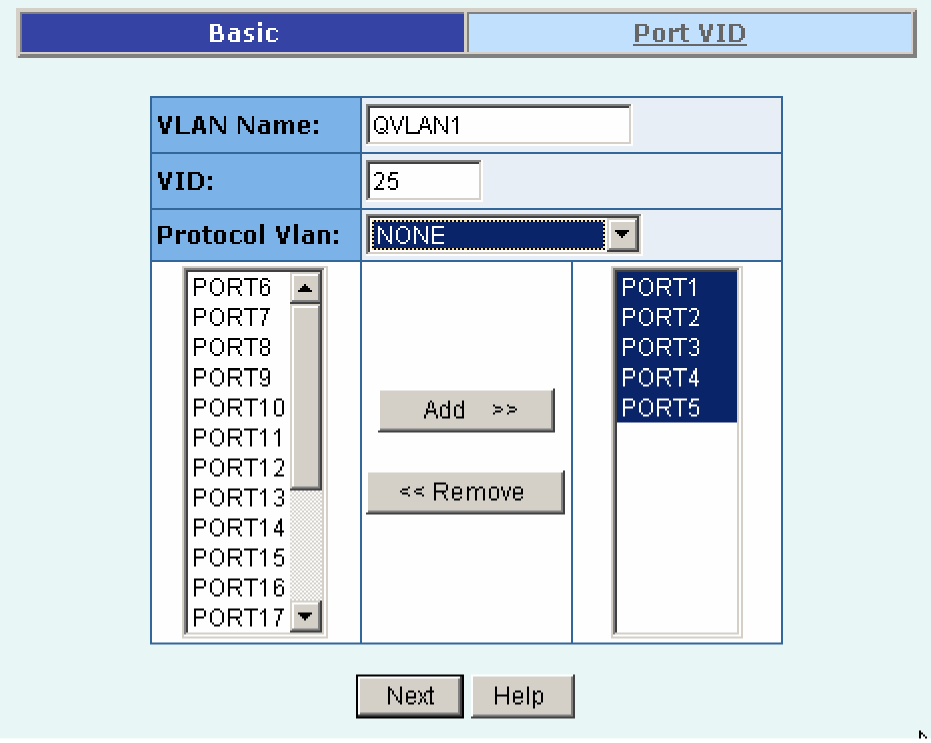
DEFAULT___1

GVRP (GARP [Generic Attribute Registration Protocol] VLAN Registration Protocol)
GVRP allows automatic VLAN configuration between the switch and 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 that device to the existing VLAN.

◆*Basic*

Create a VLAN and add tagged member ports to it.

1. From the main menu, click Administrator →VLAN configuration, click Add then you will see the page as follow.



VLAN Name:	QVLAN1
VID:	25
Protocol Vlan:	NONE

PORT6
PORT7
PORT8
PORT9
PORT10
PORT11
PORT12
PORT13
PORT14
PORT15
PORT16
PORT17

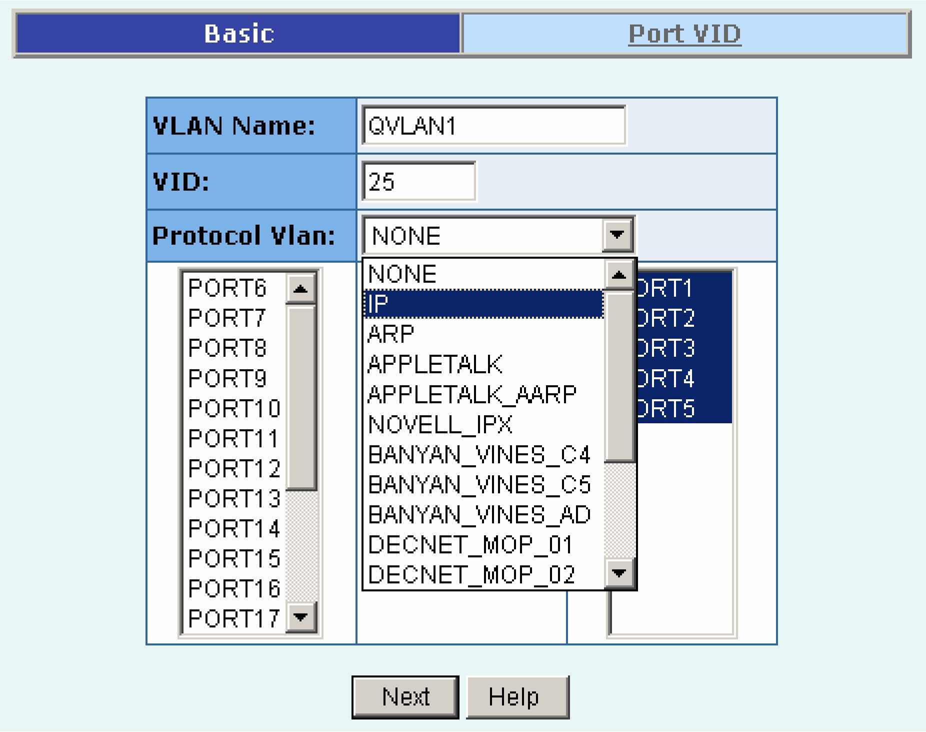
PORT1
PORT2
PORT3
PORT4
PORT5

2. Type a name for the new VLAN.
3. Type a VID (between 2-4094). The default is 1.
4. Choose the protocol type.

   We support **802.1v** with the implementation of Port-and-Protocol-based VLAN classification. User can combine the field "**Protocol Vlan**" and the field of the **port number** to form a new VLAN group.

   NOTE:

   IEEE 802.1v provides user to classify the packet through untagged port. There are two possible strategies of the 802.1v supporting: Port-based VLAN and Port-and-Protocol-based VLAN. We can support both Port-based VLAN and Port-and-Protocol-based VLAN with our product. User set the VID to mark the packet from untagged port. Then, the packet can be scheduled by the way of the IEEE 802.1q.

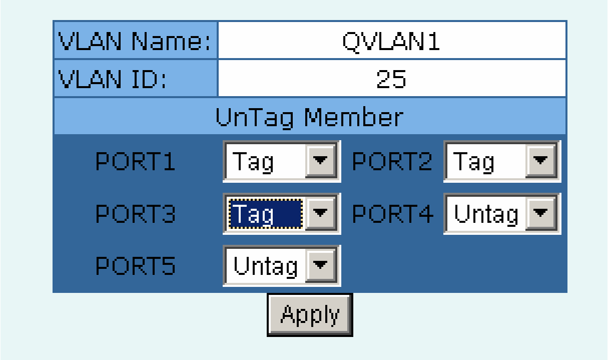


VLAN Name: QVLAN1

VID: 25

Protocol Vlan: NONE

5. From the Available ports box, select ports to add to the switch and click “Add >>”. If the trunk groups exist, you can see it in here (ex: TRK1, TRK2…), and you can configure it is the member of the VLAN or not.
6. Click Next. Then you can view the page as follow：



VLAN Name:	QVLAN1		
VLAN ID:	25		
UnTag Member			
PORT1	Tag	PORT2	Tag
PORT3	Tag	PORT4	Untag
PORT5	Untag		

7. Uses this page to set the outgoing frames are VLAN-Tagged frames or no. Then click Apply.

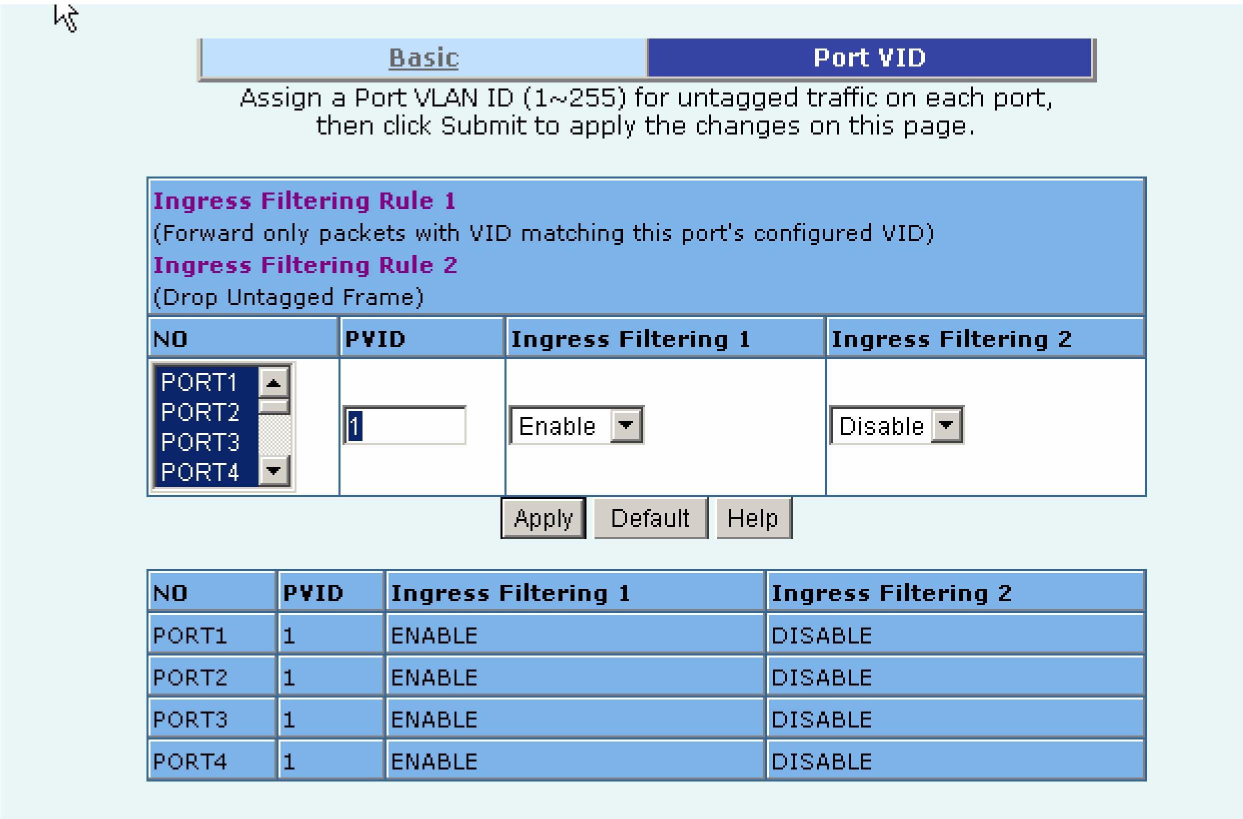
   Tag: outgoing frames with VLAN-Tagged.

   Untag: outgoing frames without VLAN-Tagged.

◆*Port VID*

Configure port VID settings

From the main Tag-based (IEEE 802.1Q) VLAN page, click Port VID Settings.



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

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

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. 24+2G switch each port allows user to set one PVID, the range is 1~255, default PVID is 1. The PVID must as same as the VLAN ID that the port belong to VLAN group, or the untagged traffic will be dropped.

Ingress Filtering

Ingress filtering lets frames belonging to a specific VLAN to be forwarded if the port belongs to that VLAN. 24+2G switch has two ingress filtering rule as follows:

Ingress Filtering Rule 1: A forward only packet with VID matching this port’s configured VID.

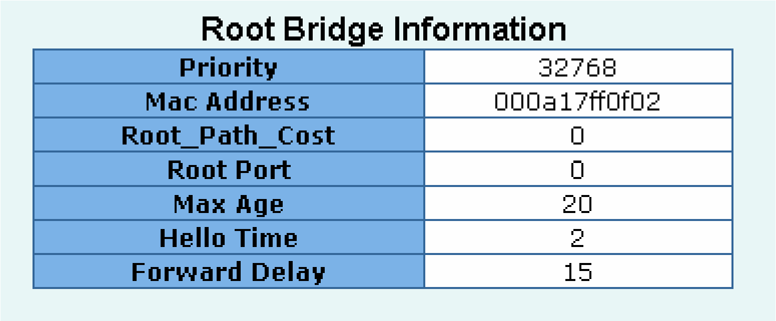
Ingress Filtering Rule 2: Drop Untagged Frame.

2.5.8. Spanning Tree

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

You can enable Spanning-Tree Protocol on web management's switch setting advanced item, select enable Spanning-Tree protocol. We are recommended that you enable STP on all switches ensures a single active path on the network.

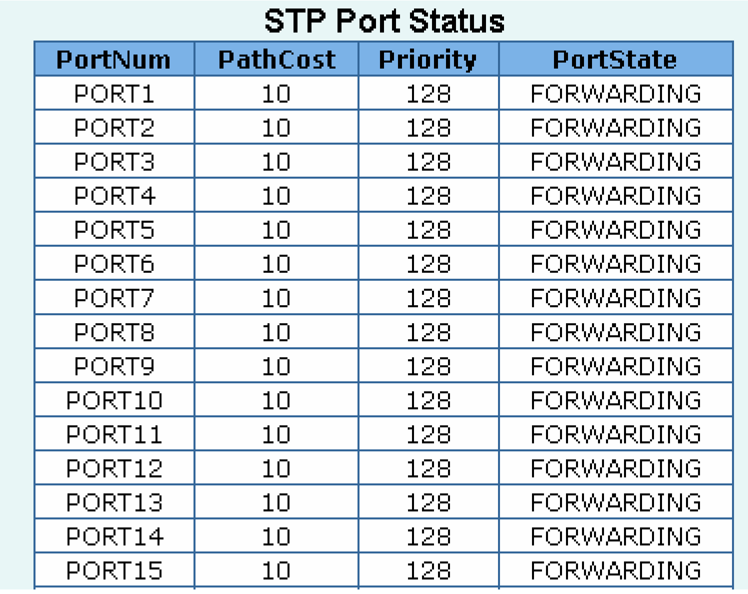
1. **You can view spanning tree information about the Root Bridge. Such as follow screen.**



Root Bridge Information

Priority	32768
Mac Address	000a17ff0f02
Root_Path_Cost	0
Root Port	0
Max Age	20
Hello Time	2
Forward Delay	15

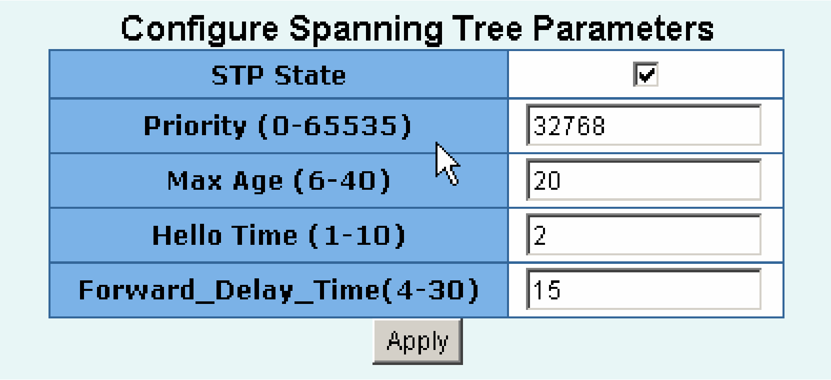
2. **You can view spanning tree status about the switch. Such as follow screen.**



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

3. **You can setting new value for STP parameter, then click set Apply button to modify**

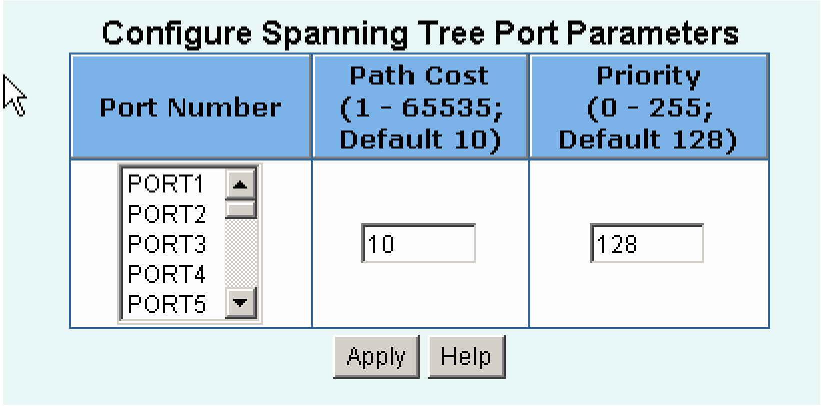


Configure Spanning Tree Parameters

STP State	☑
Priority (0-65535)	32768
Max Age (6-40)	20
Hello Time (1-10)	2
Forward_Delay_Time(4-30)	15

Parameter	Description
Priority	You can change priority value, A value used to identify the root bridge. The bridge with lowest value has the highest priority and is selected as the root. Enter a number 1 through 65535.
Max Age	You can change Max Age value, The number of second bridge waits without receiving Spanning-Tree Protocol configuration messages before attempting a reconfiguration. Enter a number 6 through 40.
Hello Time	You can change Hello time value, the number of seconds among the transmission of Spanning-Tree Protocol configuration messages. Enter a number 1 through 10.
Forward Delay time	You can change forward delay time, 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 4 through 30.

4. **The following parameter can be configured on each port , click set Apply button to modify**



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

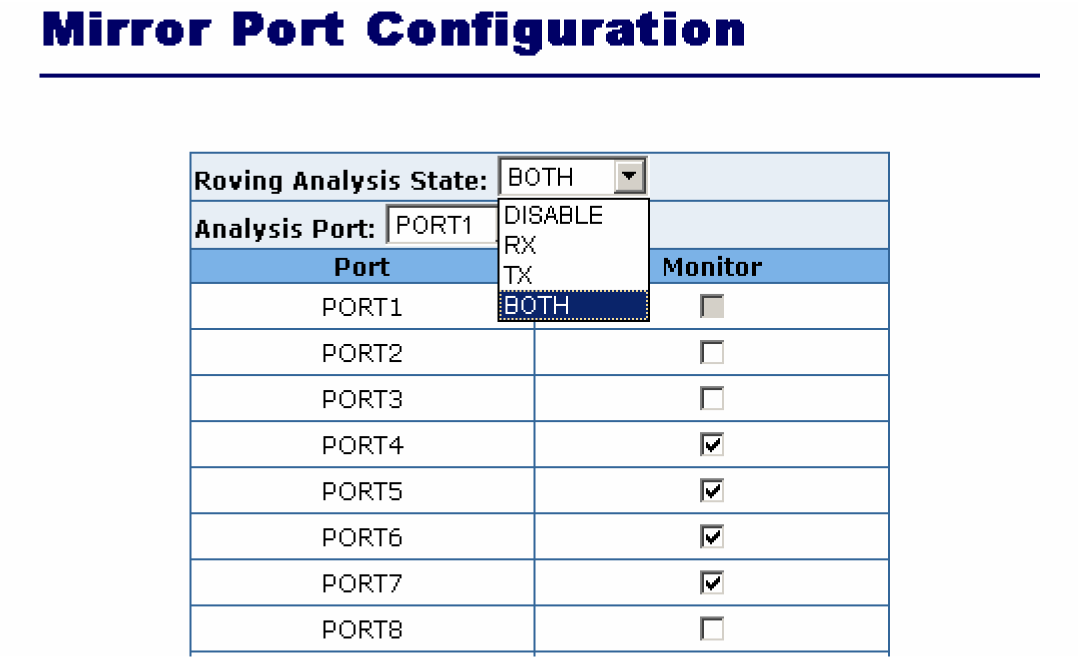
Parameter	Description
Port Priority	You can make it more or less likely to become the root port, the rage is 0-255,default setting is 128 The lowest number has the highest priority.
Path Cost	Specifies the path cost of the port that switch uses to determine which port are the forwarding ports the lowest number is forwarding ports, the rage is 1-65535 and default value base on IEEE802.1D 10Mb/s = 50-600 100Mb/s = 10-60 1000Mb/s = 3-10

2.5.9. Port Mirror

The Port Mirror is a method for monitor traffic in switched networks. Traffic through ports can be monitored by one specific port. That is, traffic goes in or out monitored ports will be duplicated into mirror port.

1. **Mirror Mode:** Press **Space** key to set mirror mode: Disable \Rx \Tx \Both.
2. **Monitoring Port:** It' means mirror port can be used to see all monitors port traffic. You can connect mirror port to LAN analyzer or netxray.
3. **Monitored Port:** The ports you want to monitor. All monitor port traffic will be copied to mirror port. You can select max 25 monitor ports in the switch. User can choose which port that they want to monitor in only one mirror mode.

If you want to disable the function, you must select monitor port to none.



Mirror Port Configuration

Roving Analysis State: BOTH

Analysis Port: PORT1

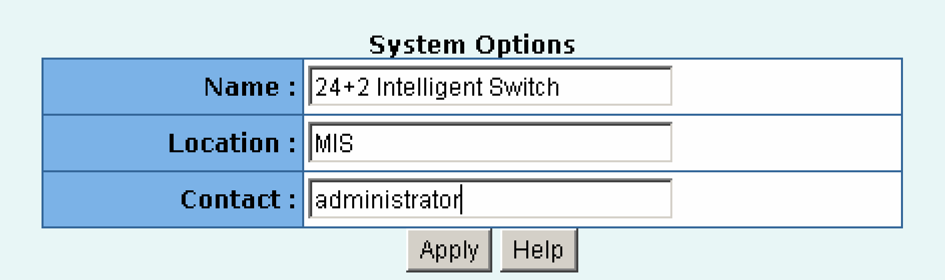
Port	Monitor
PORT1	□
PORT2	□
PORT3	□
PORT4	☑
PORT5	☑
PORT6	☑
PORT7	☑
PORT8	□

2.5.10. SNMP/Trap Manager

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

1. **System Options**： Use this page to define management stations as trap managers and to enter SNMP community strings. User can also 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.

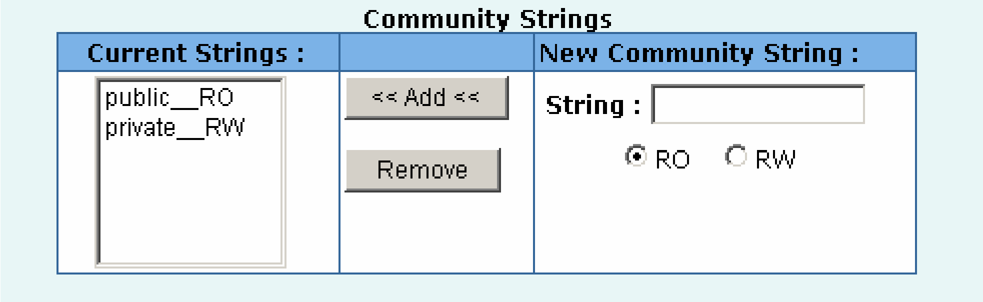
   Name: Enter a name to be used for the switch.
   Location: Enter the location of the switch.
   Contact: Enter the name of a person or organization.



System Options

Name :	24+2 Intelligent Switch
Location :	MIS
Contact :	administrator

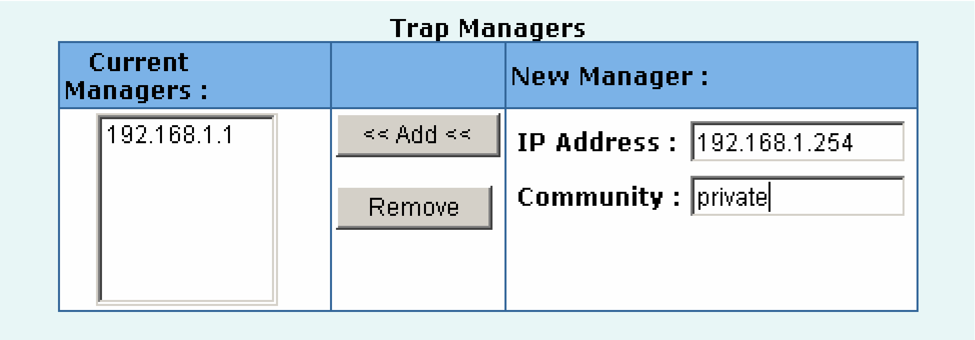
2. **Community strings** serve as passwords and can be entered as one of the following:
   RO: Read only. Enables requests accompanied by this string to display MIB-object information.
   RW: **Read write**. Enables requests accompanied by this string to display MIB-object information and to set MIB objects.



Community Strings

Current Strings :		New Community String :
public__RO private__RW	<< Add << Remove	String : ● RO ○ RW

3. **Trap Manager** ：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.



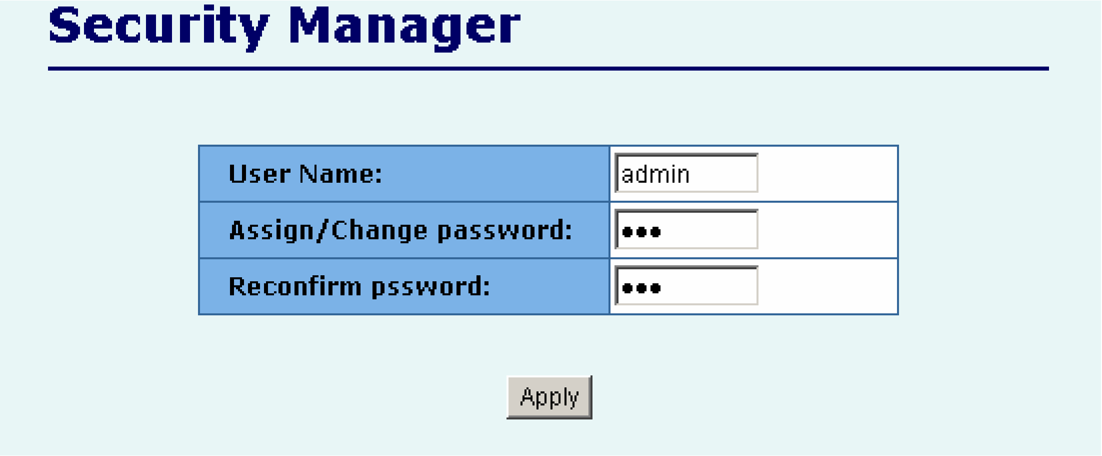
Trap Managers

Current Managers :		New Manager :
192.168.1.1		IP Address : 192.168.1.254 Community : private

2.5.11 Security Manager

On this page, user can change user name and password with following steps.

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

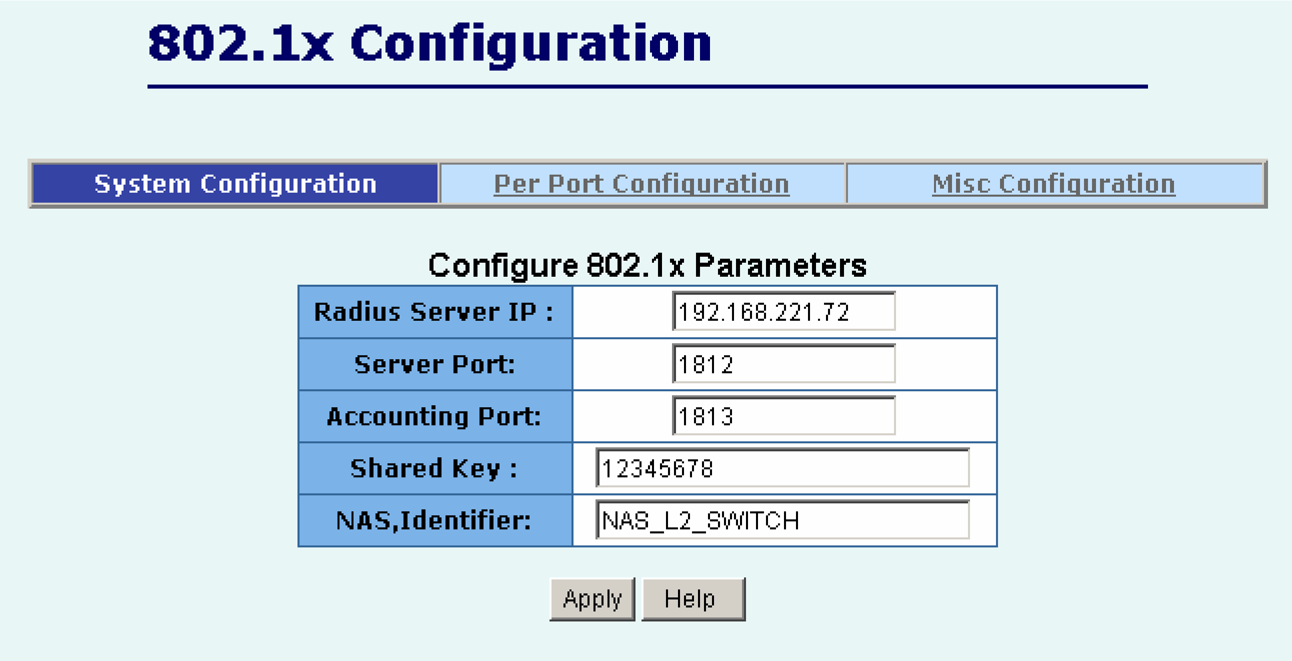
User Name:	admin
Assign/Change password:	●●●
Reconfirm pssword:	●●●

2.5.12 802.1x Configuration

System Configuration

802.1x makes use of the physical access characteristics of IEEE802 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, from **Administrator \Switch setting \Advanced** then you still to fill in the authentication server information：



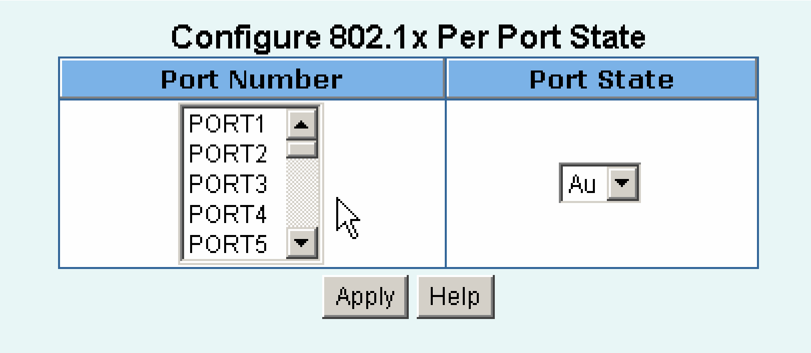
Configure 802.1x Parameters

Radius Server IP :	192.168.221.72
Server Port:	1812
Accounting Port:	1813
Shared Key :	12345678
NAS,Identifier:	NAS_L2_SWITCH

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 authentication server.
NAS, Identifier: A string used to identify this switch.

Perport Configuration

In this page, you can select the specific port and configure the Authorization State.
Each port can select four kinds of Authorization State:



Configure 802.1x Per Port State

Port Number	Port State
PORT1 PORT2 PORT3 PORT4 PORT5	Au

Fu：Force the specific port to be unauthorized.

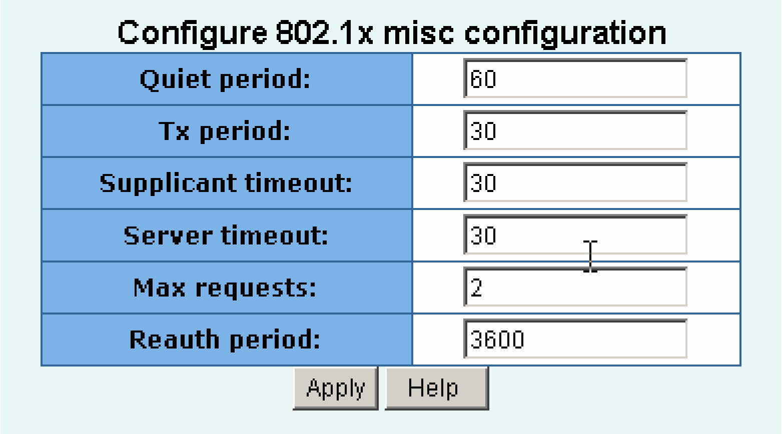
Fa：Force the specific port to be authorized.

Au：The state of the specific port was determined by the outcome of the authentication.

No：The specific port didn't support 802.1x function.

Misc Configuration

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



Configure 802.1x misc configuration

Quiet period:	60
Tx period:	30
Supplicant timeout:	30
Server timeout:	30
Max requests:	2
Reauth period:	3600

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).

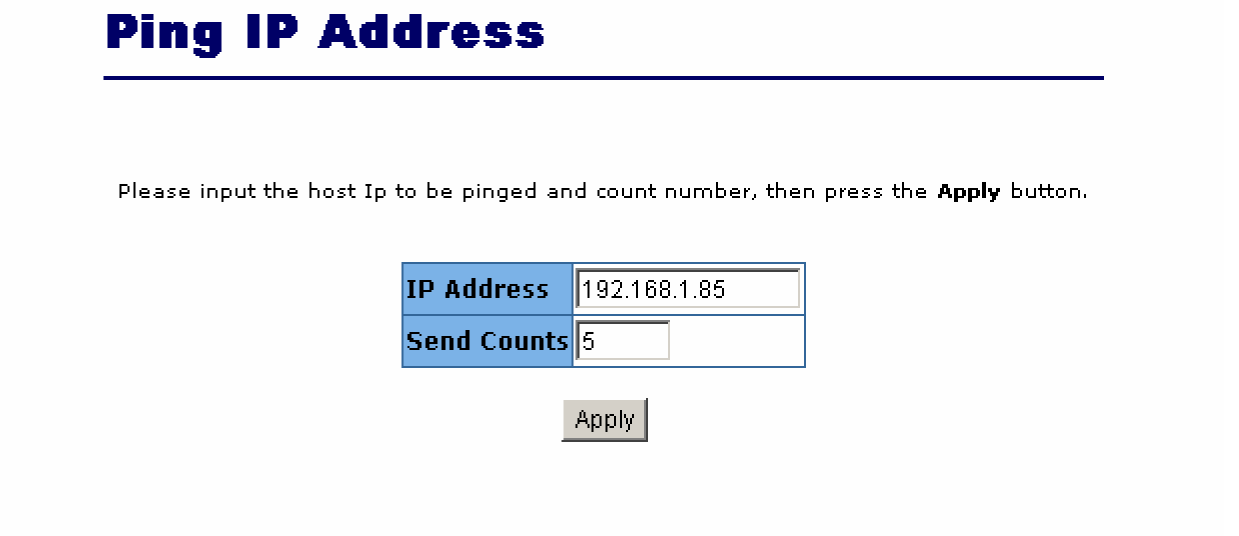
Server Timeout： Used to determine timeout conditions in the exchanges between the authenticator and authentication server (Default value is 30 seconds).

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

Reauth Period： Used to determine a nonzero number of seconds between periodic re-authentication off the supplications (Default value is 3600 seconds).

2.5.13 Ping

This switch provides a simple ping function for user to check the access of specific host.

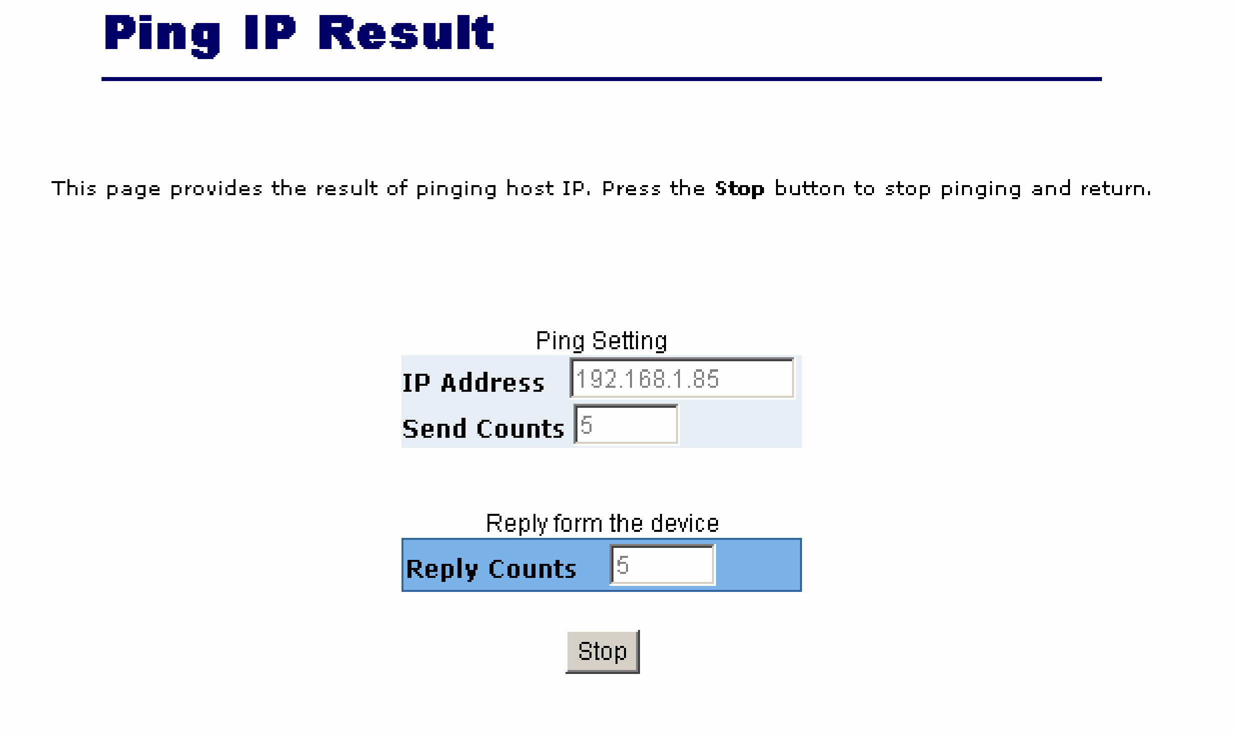


Ping IP Address

Please input the host Ip to be pinged and count number, then press the **Apply** button.

IP Address	192.168.1.85
Send Counts	5

Input the host IP and the counts of ping, then press “Apply” and the result comes as following:



Ping IP Result

This page provides the result of pinging host IP. Press the **Stop** button to stop pinging and return.

Ping Setting

IP Address	192.168.1.85
Send Counts	5

Reply form the device

Reply Counts	5

User can stop pinging anytime by just press “Stop” button, and it will return to Ping IP Address page.

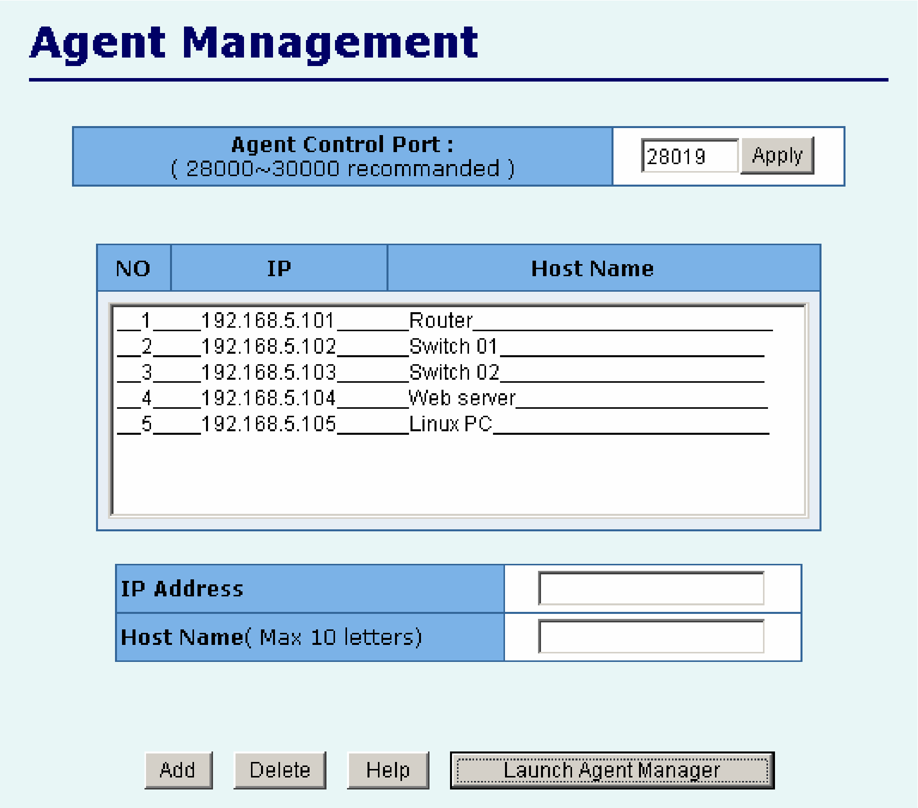
2.5.14 Agent Management

This switch provides a new management tool for user to manage a group of LAN switches by an IP agent method. “Single IP” is the name, meaning that the administrator can access other network devices through one single IP device.

Different from the method of router's NAT (from virtual IP domain to real IP domain), single IP provides a reverse access (from real IP domain to virtual IP domain) by an IP-forwarding technology. With this IP-agent method, network administrator can remotely control his far-side hosts without being there, for he can access the private domain hosts through the agency of one real IP switch with “Single IP”.

There are maximum 32 sets of information of network devices stored in the single IP switch. Basically these network devices should provide http or telnet service for the single IP switch to forward those protocol packets; meanwhile SNMP protocol can be also passed through if they support SNMP service.

More over, this single IP switch has no exclusiveness, meaning that administrator can group up network devices of any type (router, switch, gateway...) or brand without worrying their incompatibility.



Agent Management

Agent Control Port : (28000~30000 recommanded)	28019 Apply

NO	IP	Host Name
1	192.168.5.101	Router
2	192.168.5.102	Switch 01
3	192.168.5.103	Switch 02
4	192.168.5.104	Web server
5	192.168.5.105	Linux PC

IP Address	
Host Name(Max 10 letters)	

Agent Management

In this page, user can add or delete managed network devices here. If user disables the IP agent function, that is, he sets the agent mode to “slave” in the IP setting section; this item will not show up in the main menu.

There is a list here to display the information of managed hosts, including the IPs and the host names. There are up to 32 sets of network devices to be clients of the IP agent switch.

Agent Control Port: The control port defines the specific TCP/UDP port the single IP switch is listening, which the agent manager sends its command to. Agent manager use this specific port to tell single IP switch to change the current forwarding target host. The range of available port number is 28000 ~ 30000. The default port number is 28019.

Add: Input the host IP in the "IP Address" field, and, the host name you like to call it (maximum 10 letters) in the "Host Name" field. Then press the “Add” button, the host information will be submitted and display in the Hosts List. Please do not input the "Switch IP" or "Agent IP" in the host list. It does not work!

Delete: To remove hosts, select the hosts to be deleted from the list and press **delete** to remove them.

Launch Agent Manager: This button launches the agent manager.

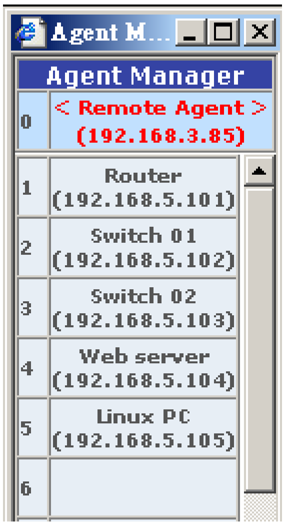
Note:

For the cause of http authentication mechanism, it happens that web browser keeps asking administrator to input login name and password when agent manager changes a new host. Typically web browser will keep the authentication key of the successful login host and passes it to next other WebPages. Since single IP switch remains its URL of the master switch IP no matter what the agent manager has change the forwarding host, new host will still receive the same authentication key as the master switch when it requests the login authentication. If the new host has the different username and password from the master switch, authentication failure and reentry thus happens.

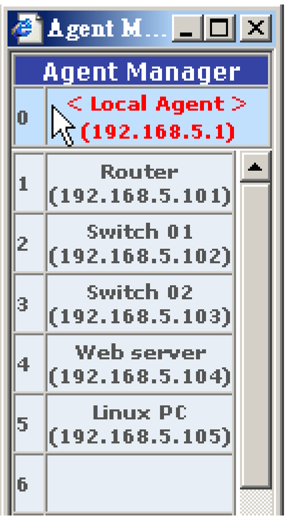
It is strongly recommended that the administrator change the usernames and passwords of the managed hosts to **the same ones as master switch.**

Agent Manager

A floating menu will show up after clicking “Launch Agent Manager” in the agent management.



Agent Manager	
0	< Remote Agent > (192.168.3.85)
1	Router (192.168.5.101)
2	Switch 01 (192.168.5.102)
3	Switch 02 (192.168.5.103)
4	Web server (192.168.5.104)
5	Linux PC (192.168.5.105)
6	



Agent Manager	
0	< Local Agent > (192.168.5.1)
1	Router (192.168.5.101)
2	Switch 01 (192.168.5.102)
3	Switch 02 (192.168.5.103)
4	Web server (192.168.5.104)
5	Linux PC (192.168.5.105)
6	

The agent manager holds 32+1 slots in the floating menu. The most top slot (zero slot) displays the master switch IP and its relative location. “Remote Agent” means that the user comes from the other IP domain than the managed ones, while “Local Agent”, that user comes form the same IP domain as the managed ones.

There are differences between “Remote Agent” and “Local Agent”. The “Local Agent”, we refer to it as “Local Single IP”, uses a method like URL link and the main browser window will directly jump to the target host. Since the URL of web browser has change, authentication will request once again when new host is selected.

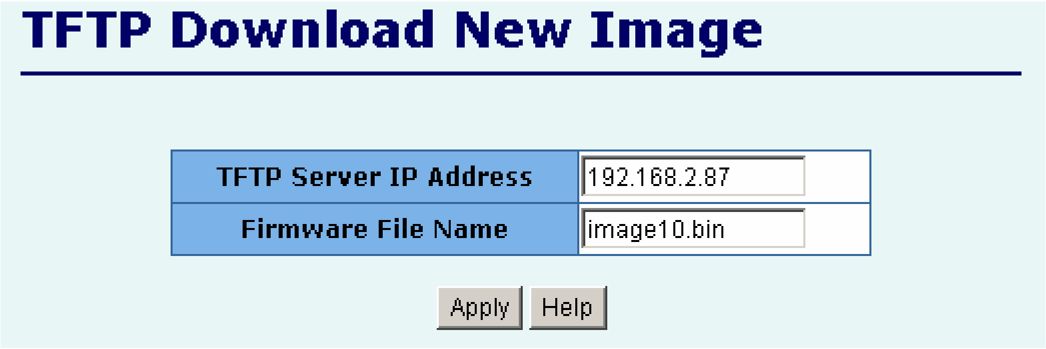
Due to consideration of switch loading, a restriction confines here that only one remote user can access the agent manager in the same time. Other user will be rejected if someone has launched the agent manger first. **The switch will release the control of single IP access in 25 seconds after the previous user closes his agent manager.** For “Local Single IP”, there is no restriction, but if a remote user has launched the agent manager in the same time, the local user is also denied.

Note: Commands from agent manager can not pass over current management level, meaning that, in case that a slave host is a single IP switch with its agent function enable, user launch the slave host’s agent manager and he will find the agent manager is replaced by the slave’s one. More badly, commands to pick the slave hosts will case unexpected forwarding error here.
We strongly recommend that a single IP switch should not activate the IP agent manager when it is a slave host of active master switch.

2.6. TFTP Update Firmware

1. **The following menu options provide some system control functions to allow a user to update firmware and remote boot switch system:**

   * Install TFTP program (such as Turbo98, or Cisco TFTP) and then execute.
   * Copy updated firmware **image.bin** into TFTP server's directory.
   * In web management select administrator—TFTP update firmware.
   * Download new **image.bin** file by pressing <update firmware>.
   * After update finished, press <reboot> to restart switch.



TFTP Download New Image

TFTP Server IP Address	192.168.2.87
Firmware File Name	image10.bin

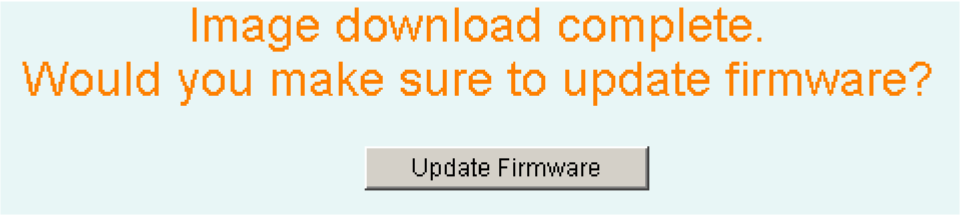
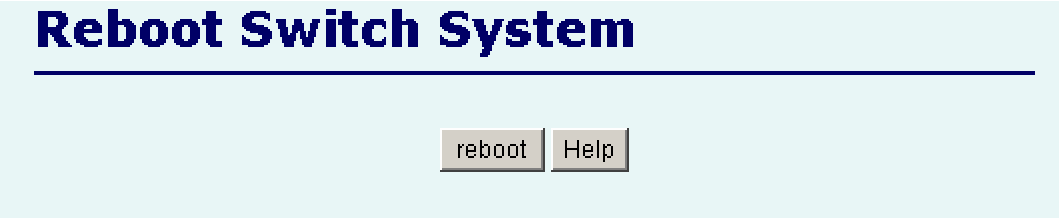


Image download complete.
Would you make sure to update firmware?

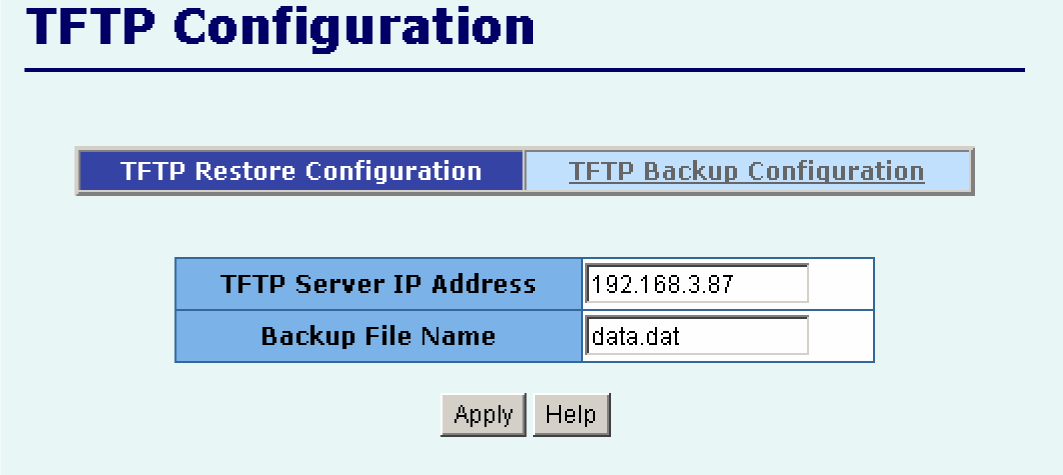


Reboot Switch System

2.7. Configuration Backup

2.7.1. TFTP Restore Configuration

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

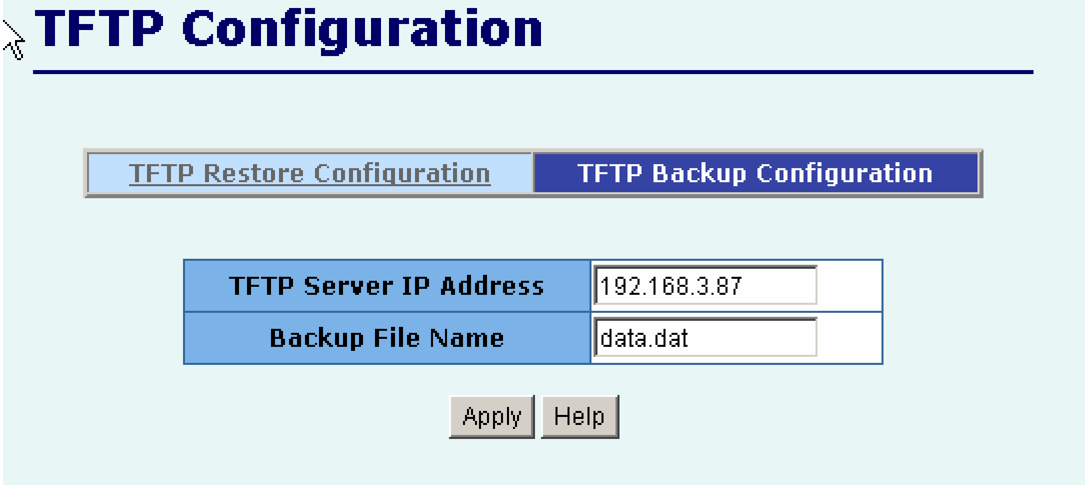


TFTP Configuration

TFTP Server IP Address	192.168.3.87
Backup File Name	data.dat

2.7.2. TFTP Backup Configuration

Use this page to set tftp server ip address. You can save current EEPROM value from here, then go to the TFTP restore configuration page to restore the EEPROM value.

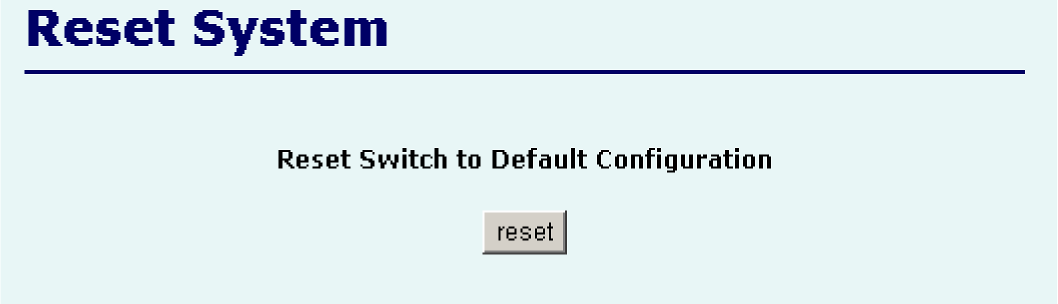


TFTP Configuration

TFTP Server IP Address	192.168.3.87
Backup File Name	data.dat

2.8. Reset System

Reset Switch to default configuration, default value as below

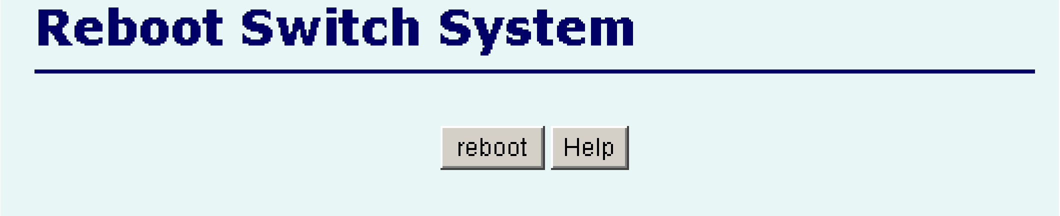


Reset System

Reset Switch to Default Configuration

2.9. Reboot

Reboot the Switch in software reset.



Reboot Switch System

3. Console -- 1K Xmodem update firmware

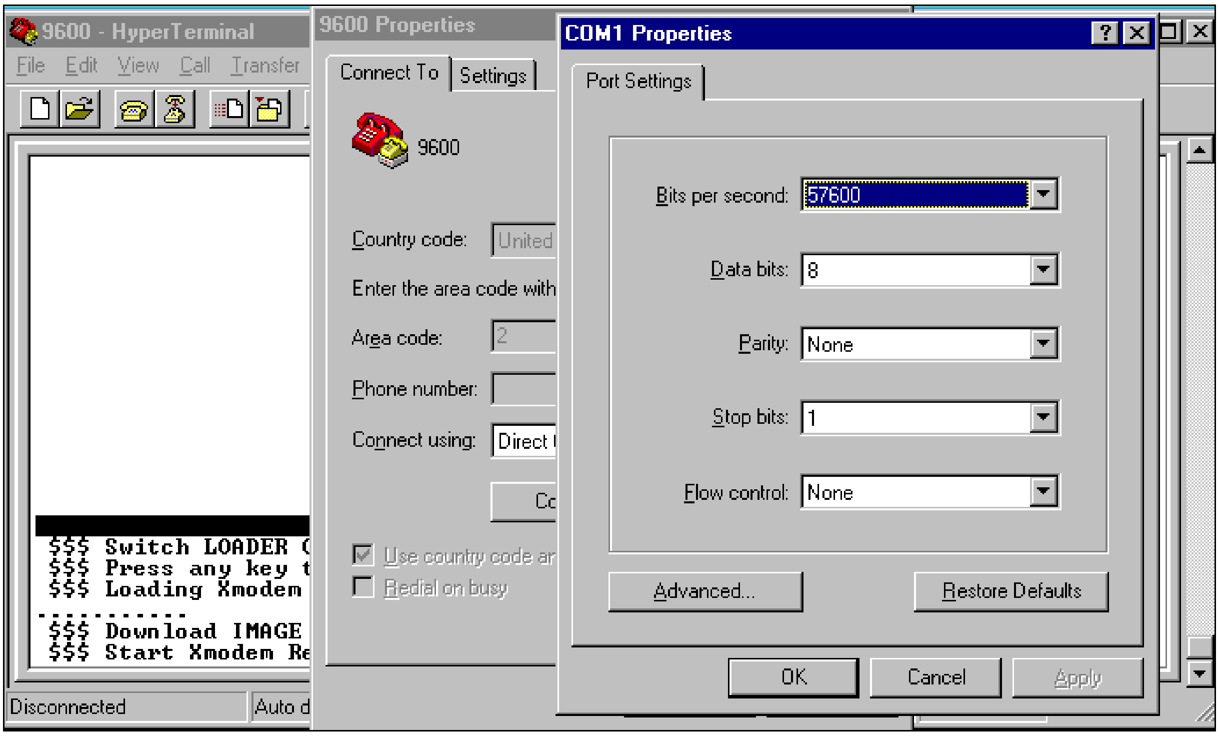
We provide the 1k X modem to update firmware on console. 1K X modem only works in 57600bps mode. So you must change Baudrate to 57600bps to download firmware.

There are 2 cases to use 1k X modem to update firmware:

a. User enters "1K X modem receiver mode" through pressing any key within 5 seconds after system power on.

b. System automatically enters "1K X modem receiver mode" if it detects the firmware checksum fail while booting.

1. Press disconnect button when you start 1K X modem modes.
   Press ***File* -> *Properties,*** change Baudrate to 57600bps, then press ***OK***.



```
$$$ Switch LOADER (
$$$ Press any key t
$$$ Loading Xmodem
..........
$$$ Download IMAGE
$$$ Start Xmodem Re
```

Country code: United

Enter the area code with

Area code: 2

Phone number:

Connect using: Direct

☑ Use country code ar

□ Redial on busy

Bits per second: 57600

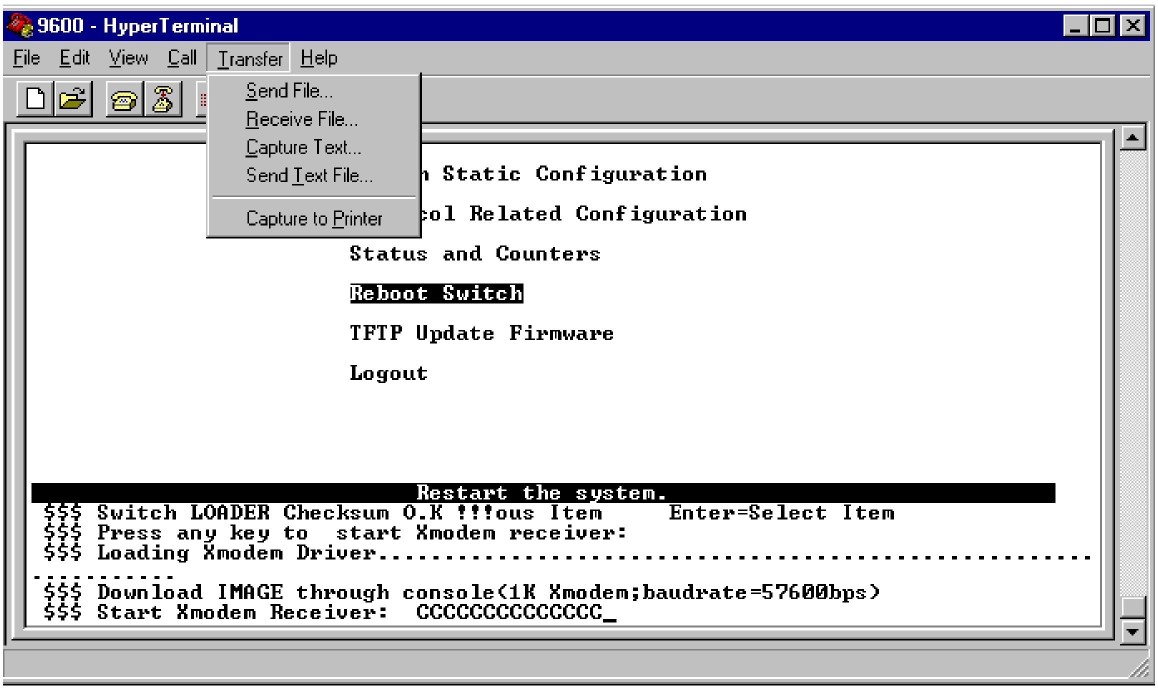
Data bits: 8

Parity: None

Stop bits: 1

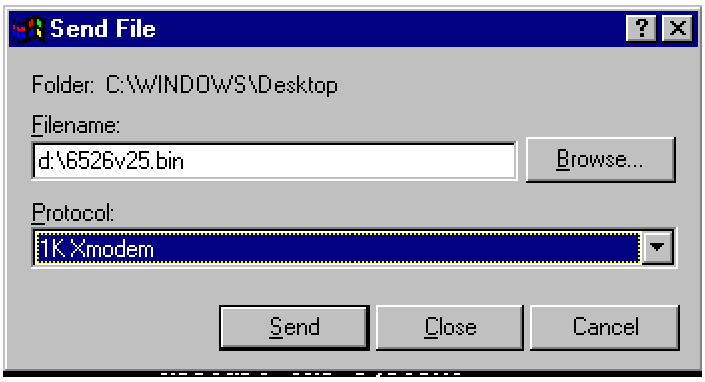
Flow control: None

2. Press connected, you will see “CCCC…”displayed on console.
   Then select ***Transfer*** Send ***File.***



```
                                    h Static Configuration
                                    col 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*** in the ***Protocol*** item, and give the place that image file folder. Press ***Send*** button.

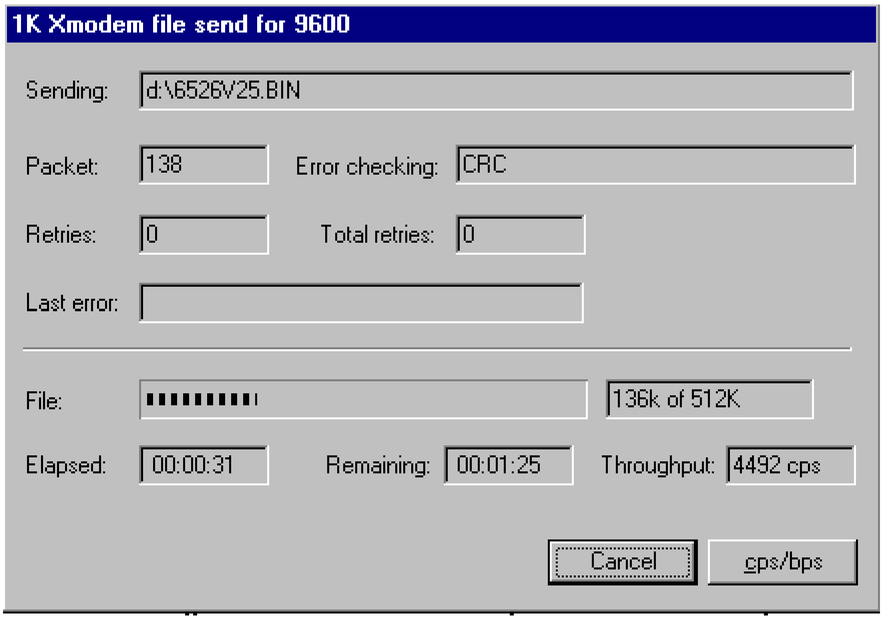


Folder: C:\WINDOWS\Desktop

Filename: d:\6526v25.bin

Protocol: 1K Xmodem

4. Start download image file.



1K Xmodem file send for 9600

Sending: d:\6526V25.BIN

Packet: 138 Error checking: CRC

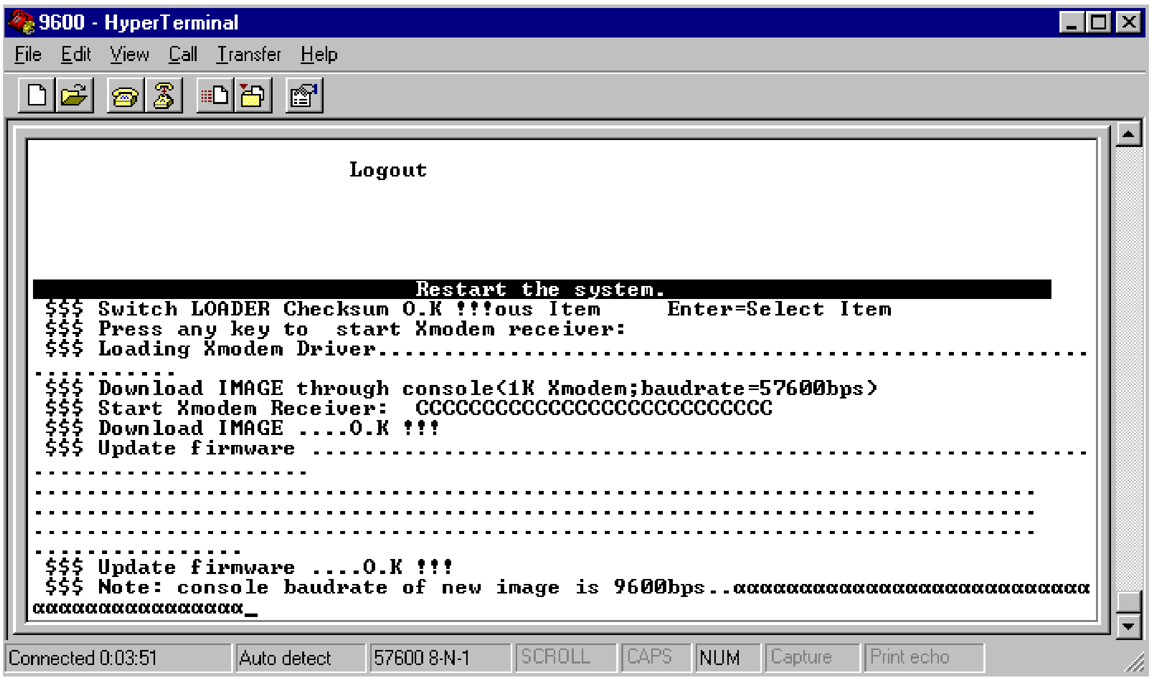
Retries: 0 Total retries: 0

Last error:

File: 136k of 512K

Elapsed: 00:00:31 Remaining: 00:01:25 Throughput: 4492 cps

5. Finish download image, the switch system will update firmware automatic. Update firmware ok, the switch will reboot. Please change the Baudrate to 9600bps.



9600 - HyperTerminal

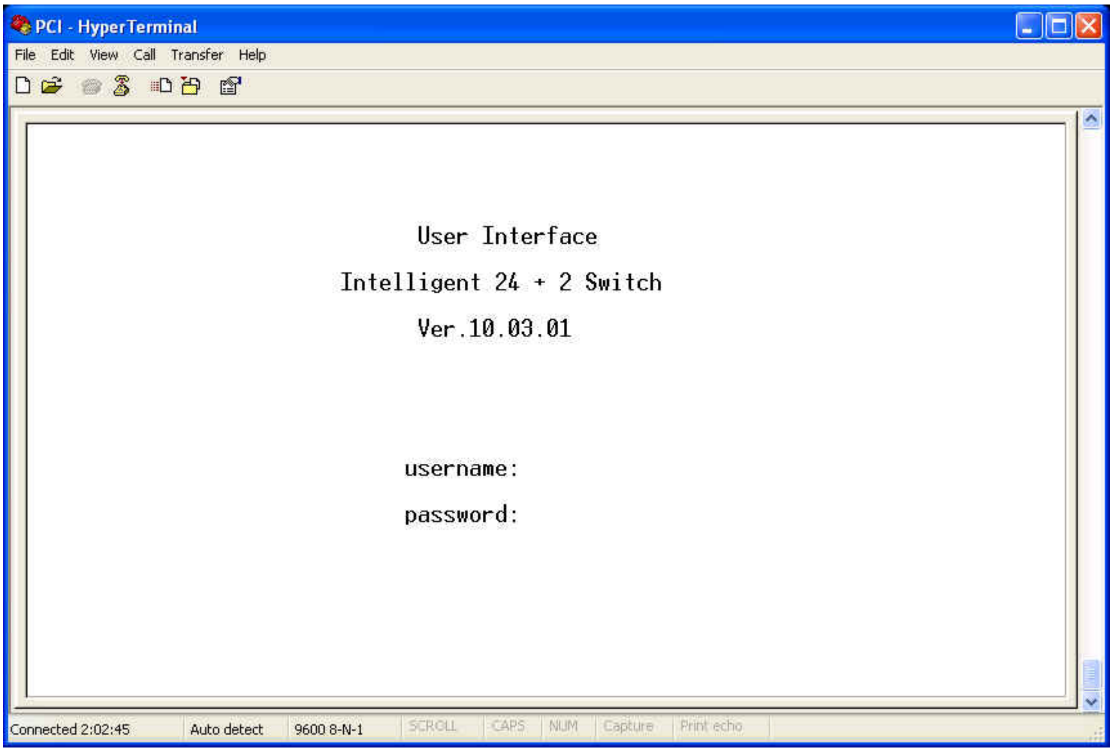
```
                          Logout




                             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)
 $$$ Start Xmodem Receiver:  CCCCCCCCCCCCCCCCCCCCCCCCCCC
 $$$ Download IMAGE ....O.K !!!
 $$$ Update firmware ........................................................
.....................
..............................................................................
..............................................................................
..............................................................................
...............
 $$$ Update firmware ....O.K !!!
 $$$ Note: console baudrate of new image is 9600bps..αααααααααααααααααααααααααααα
αααααααααααααααα_
```

Connected 0:03:51 Auto detect 57600 8-N-1 SCROLL CAPS NUM Capture Print echo

4. Out-of-band Terminal mode management

1. **24+2G switch also provide a serial interface to manage and monitor the switch, user can follow the Console Port Information provide by web to use windows HyperTerminal program to link the switch.**

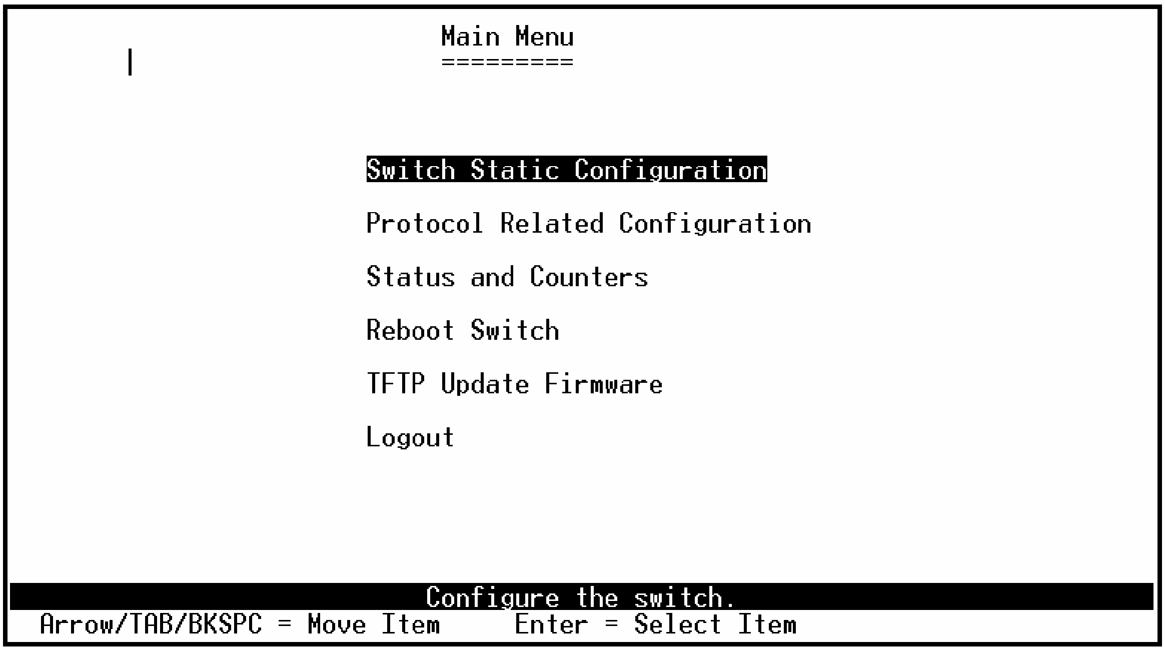
2. **You can type user name and password to login. The default user name is "admin"; the default password is "123 ".**



```
User Interface
Intelligent 24 + 2 Switch
Ver.10.03.01


username:
password:
```

4.1 Main Menu

There are six items for selected as follows:



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


                         Switch Static Configuration

                         Protocol Related Configuration

                         Status and Counters

                         Reboot Switch

                         TFTP Update Firmware

                         Logout



                              Configure the switch.
  Arrow/TAB/BKSPC = Move Item      Enter = Select Item
```

Switch Static Configuration: Configure the switch.

Protocol Related Configuration: Configure the protocol function.

Status and Counters: Show the status of the switch.

Reboot Switch: Restart the system or reset switch to default configuration.

TFTP Update Firmware: Use TFTP to download image.

Logout: Exit the menu line program.

<Control Key>

The control key as follow is provided for this mode operation:

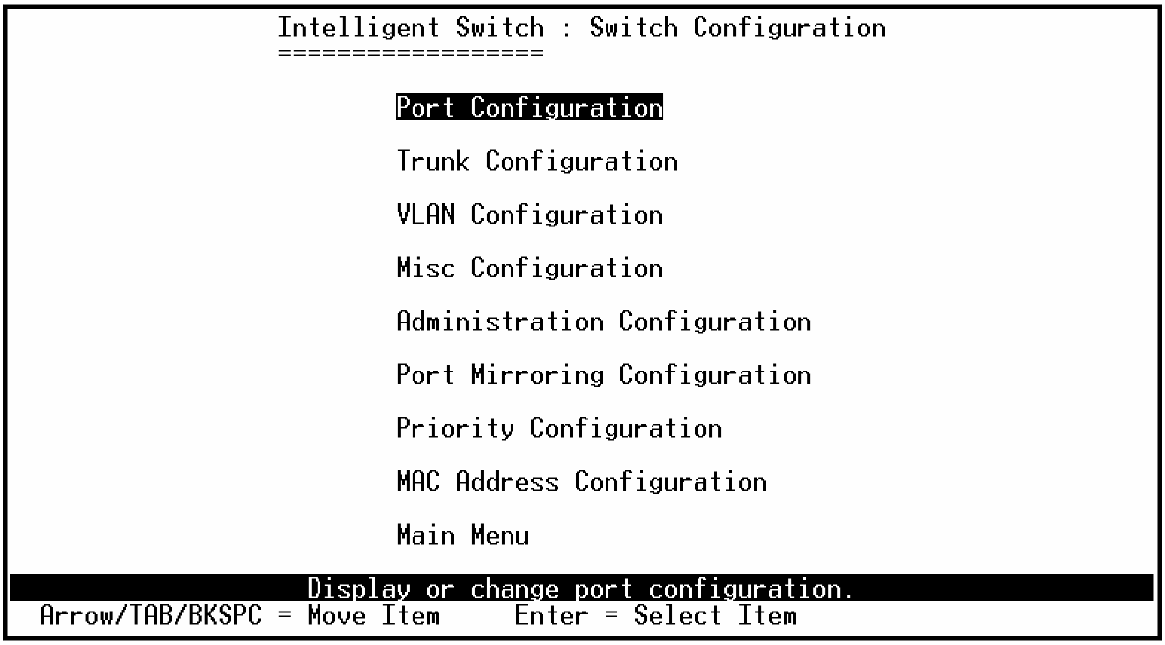
Tab: Move the vernier to next item.

Backspace: Move the vernier to previous item.

Enter: Select item.

Space: Toggle selected item to next configure.

4.2 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.
  Arrow/TAB/BKSPC = Move Item     Enter = Select Item
```

<Control Key>

You can press the key of **Tab** or **Backspace** to choose item, and press **Enter** key to select item The action menu line as follow provided in later configure page.

Actions->

<Quit>: Exit the page of port configuration and return to previous menu.

<Edit>: Configure all items. Finished configure press

Ctrl+A: Back to action menu line.

<Save>: Save all configure value.

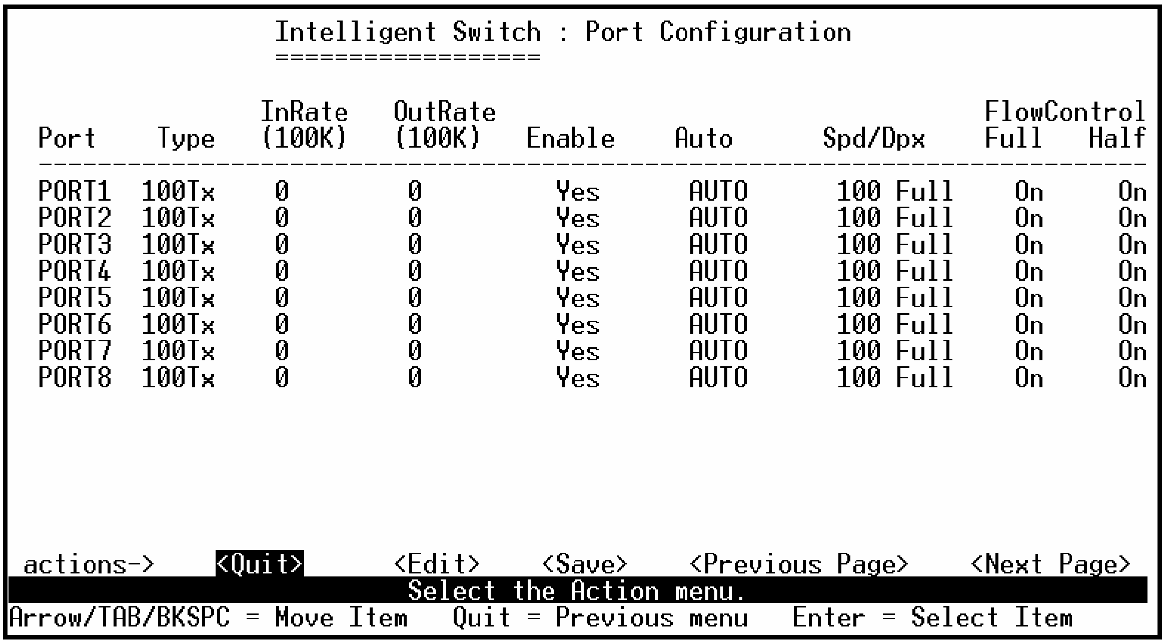
<Previous Page>: Return to previous page to configure.

<Next page>: Go to the next page to configure it.

4.2.1. Port Configuration

This page can change every port status.

Press **Space** key to change configures of per item.



```
                  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.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

1. **InRate (100K/unit):**

   User can set input rate control, per unit is 100K. The valid range is 0~1000.

   0: disable rate control.

   1~1000: valid rate value.

2. **OutRate (100K/unit):**

   User can set output rate control, per unit is 100K. The valid range is 0~1000.

   0: disable rate control.

   1~1000: valid rate value.

3. **Enabled:**

   User can disable or enable this port control.

   "**Yes**" that mean the port is enable.

   "**No**" that mean the port is disable.

4. **Auto:**

   User can set auto negotiation mode is "**Auto**", "**Nway_Force**", "**Force**" of per port.

5. **Spd/Dpx:**

   User can set "**100M**bps" or "**10M**bps" speed on port 1~port 24,

   Set "**1000M**bps", "**100M**bps" or "**10M**bps" speed on port25~port26 (depend on module card mode), and set "**full-duplex**" or "**half-duplex**" mode.

6. **Flow Control:**

   Full: User can set full flow control function (pause) as enable or disable.

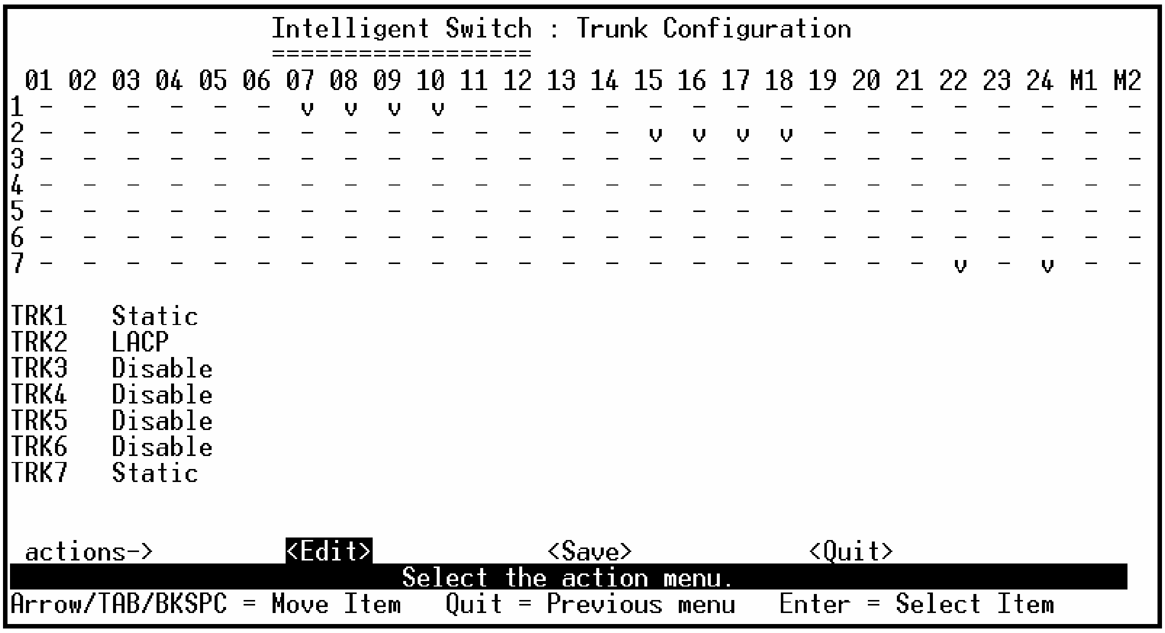
   Half: User can set half flow control function (backpressure) as enable or disable.

NOTE:

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

4.2.2. Trunk Configuration

This page can create max seven trunk groups. User can arbitrarily select up to four ports from port 1~port 26 to build a trunk group.



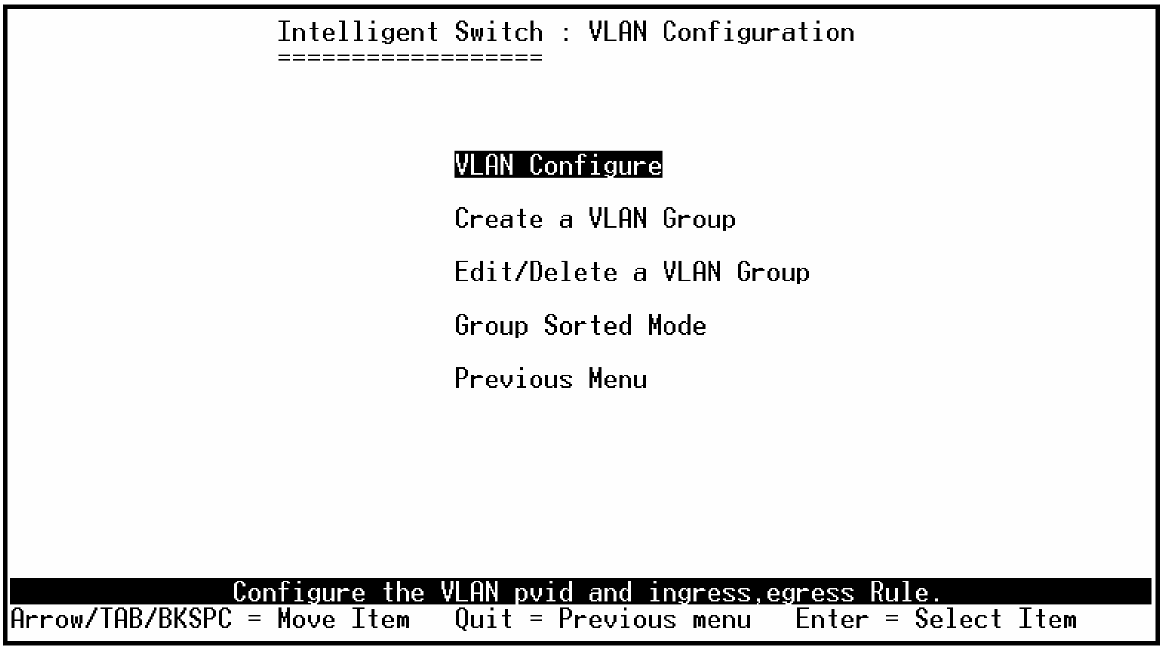
```
                    Intelligent Switch : Trunk Configuration
                    ==================
 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 M1 M2
1 -  -  -  -  -  -  v  v  v  v  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
2 -  -  -  -  -  -  -  -  -  -  -  -  -  -  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.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

Actions->

1. Select **<Edit>** on actions menu
2. Press **space** key to configure the member port of trunk group. Besides, you have to set “Static” or “LACP” for the corresponding trunk group of TRK1~TRK7 item.
   “Static” – the normal trunk.
   “LACP” – this trunk group have link aggregation control protocol.
3. Press **Ctrl+A** to go back action menu line
4. Select **<Save>** to save all configure value.
5. If the item of TRK1~TRK7 is set “Disable”, it’s mean the trunk group is deleted.
6. All ports in the same static trunk group will be treated as single port. So when you setting VLAN members and Port configuration they will be toggled on or off simultaneously.

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

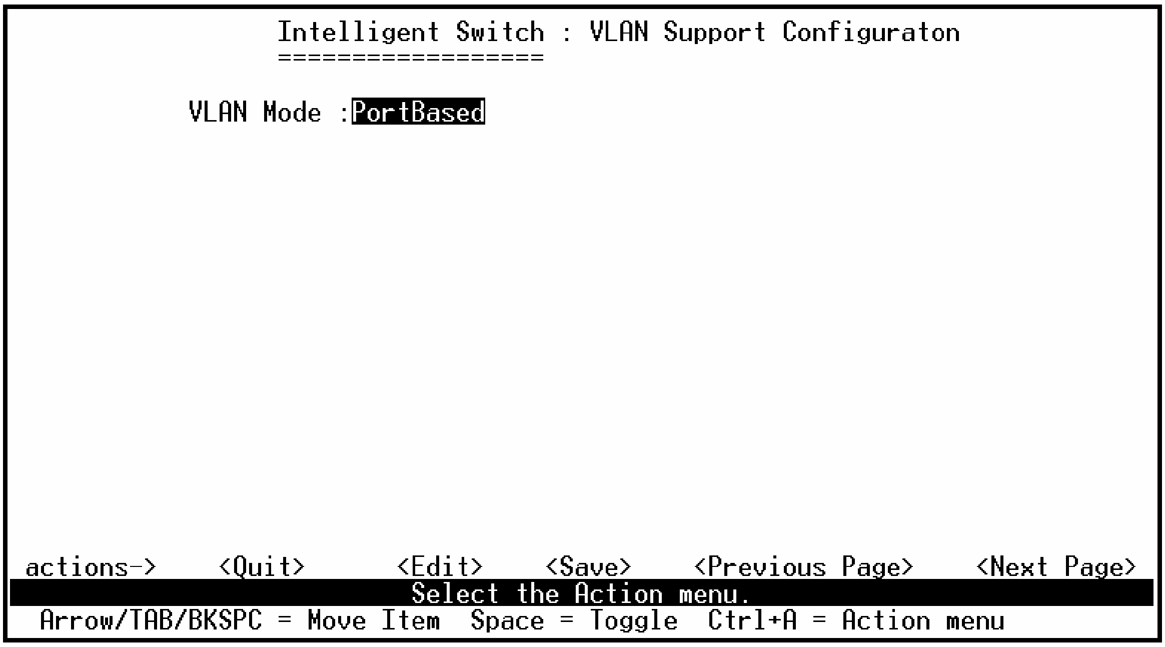
4.2.3. VLAN Configuration



```
                  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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.2.3.1. VLAN Configure

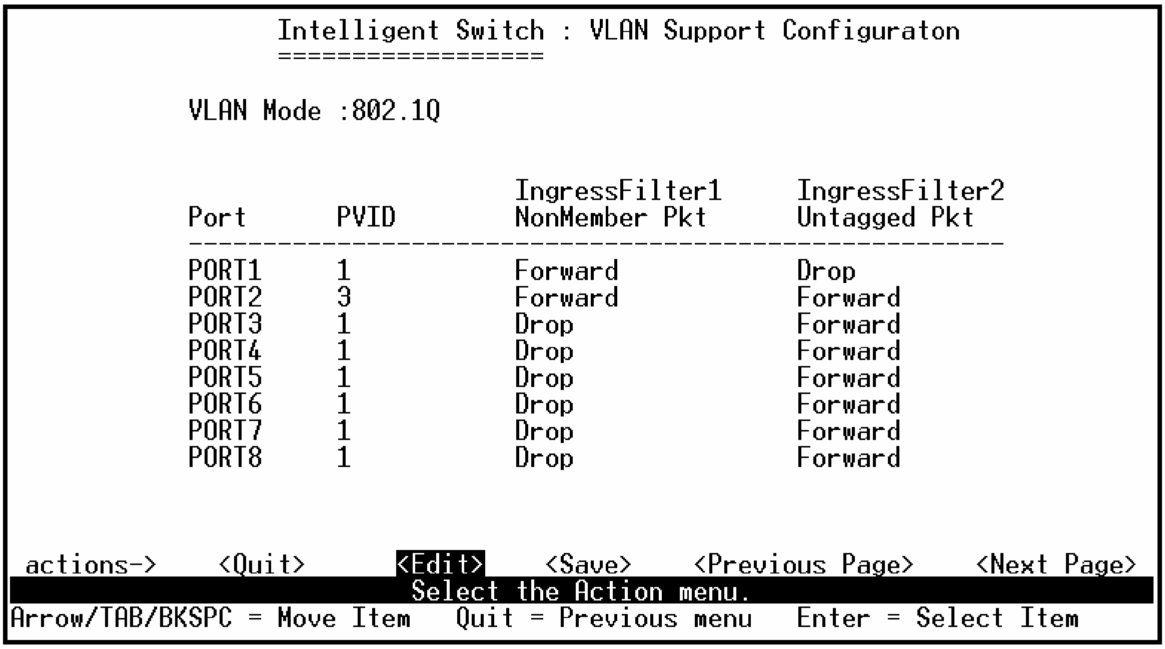
This page can set VLAN mode to port-based VLAN or 802.1Q VLAN or disable VLAN function.



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

            VLAN Mode :PortBased










 actions->    <Quit>     <Edit>    <Save>    <Previous Page>    <Next Page>
                           Select the Action menu.
  Arrow/TAB/BKSPC = Move Item  Space = Toggle  Ctrl+A = Action menu
```

NOTE: Change the VLAN mode for every time, user have to restart the switch for valid value.

If set 802.1Q VLAN, you can set PVID, ingress filtering 1 and ingress filtering 2 in this page too.



```
                  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.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

Actions->

1. **PVID (Port VID: 1~255):** Type the PVID.
2. **NonMember Drop:**

   It matches that Ingress Filtering Rule 1 on web.

   Forwarding only packets with VID matching this port's configured VID.

   Press **Space** key to choose "forward" or "drop" the frame that VID not matching this port's configured VID.
3. **UnTagged Drop:**

   It matches that Ingress Filtering Rule 2 on web.

   Drop untagged frame.

   Press **Space** key to choose "drop" or "forward" the untagged frame.

4.2.3.2. Create a VLAN Group

◆ *Create Port-Based VLAN*

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

1. Select <**Edit**>.

2. **VLAN Name:** Type a name for the new VLAN.

3. **Grp ID:** Type the VLAN group ID. The group ID rang is 1~4094.

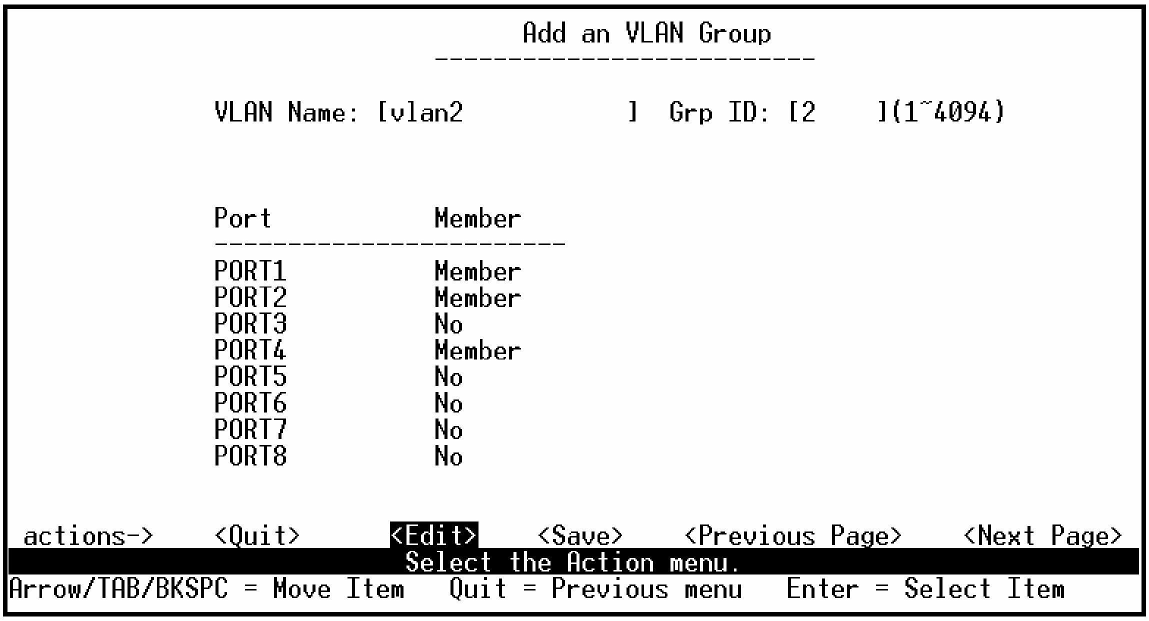
4. **Member:** Press <**Space**> key to choose VLAN member. There are two types to selected:

a. Member: the port is member port.

b. No: the port is NOT member port.

5. Press **Ctrl+A** go back action menu line.

6. Select <**Save**> to save all configure value.



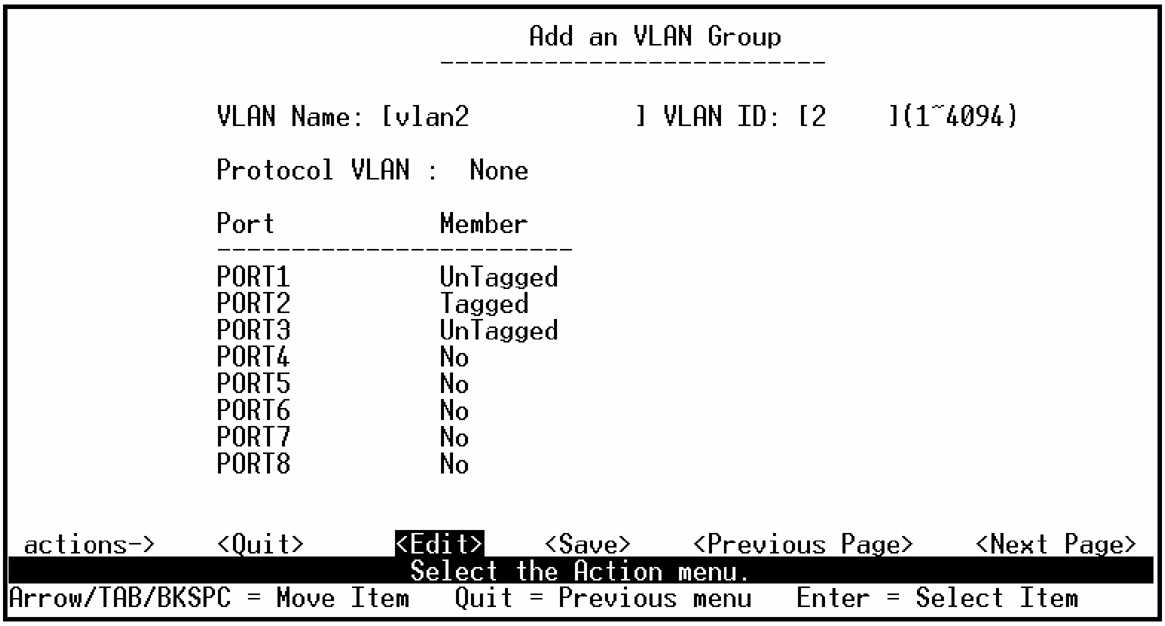
```
                             Add an VLAN Group
                        --------------------------

            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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

NOTE: If the trunk groups exist, you can see it (ex: TRK1, TRK2…) after port26, and you can configure it is the member of the VLAN or not.

◆ *Create 802.1Q VLAN*

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

1. Select <**Edit**>.
2. **VLAN Name:** Type a name for the new VLAN.
3. **VLAN ID:** Type a VID (between 1~4094). The default is 1. There are 256 VLAN groups to provided configure.
4. **Protocol VLAN:** Press **Space** key to choose protocols type.
5. **Member:** Press **Space** key to choose VLAN member. There are three types to selected:
   a. UnTagged：This port is the member port of this VLAN group and outgoing frames are NO VLAN-Tagged frames.
   b. Tagged：This port is the member port of this VLAN group and outgoing frames are VLAN-Tagged frames.
   c. NO：The port is NOT member of this VLAN group.
6. Press **Ctrl+A** go back action menu line.
7. Select <**Save**> to save all configure value.



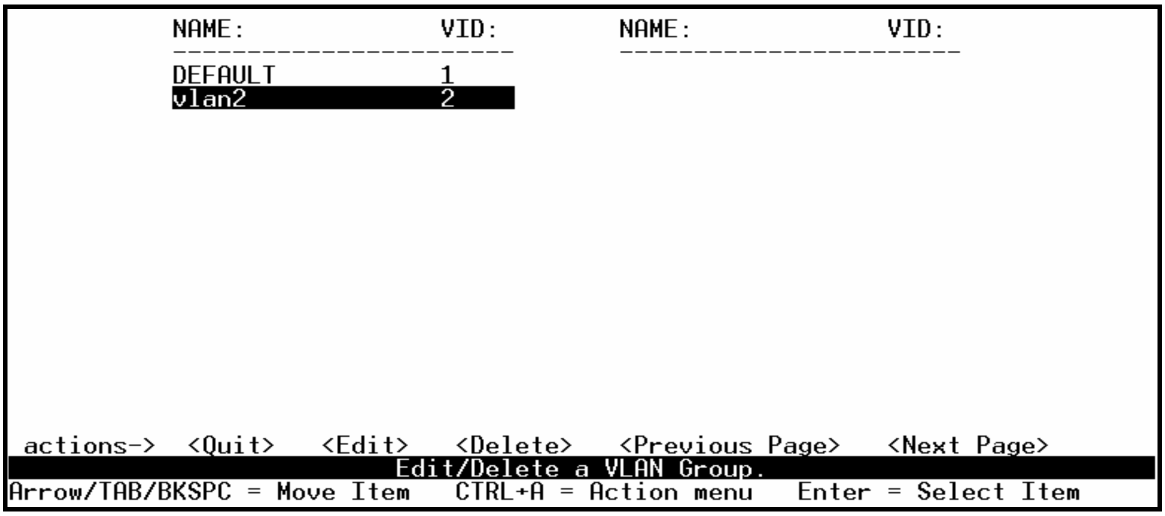
```
                              Add an VLAN Group
                         --------------------------

          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.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

NOTE: If the trunk groups exist, you can see it (ex: TRK1, TRK2…) after port 26, and you can configure it is the member of the VLAN or not.

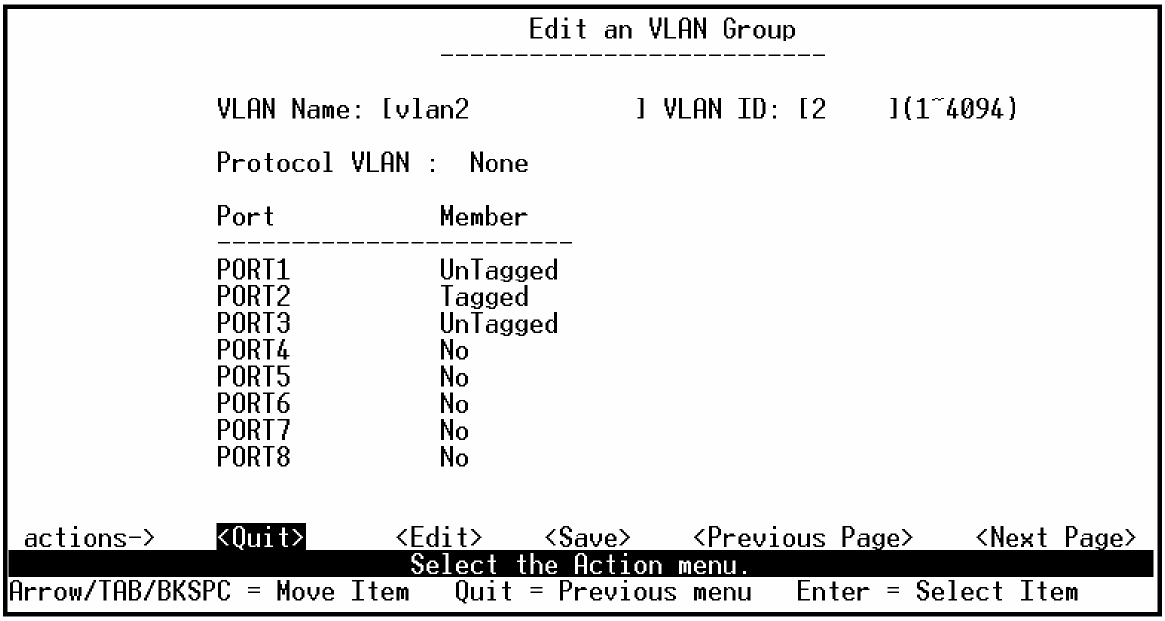
4.2.3.3. Edit / Delete a VLAN Group

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

1. Press **<Edit> or <Delete>** item.
2. Choose the VLAN group that you want to edit or delete and then press enter.
3. User can modify the protocol VLAN item and the member ports are tagged or un-tagged and remove some member ports from this VLAN group.
4. After edit VLAN, press <**Save**> key to save all configures value.



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










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



```
                                  Edit 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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

NOTE：

1. When pressing **<Enter>** once will complete deletion on delete mode.
2. The VLAN Name and VLAN ID cannot modify.
3. The default VLAN can’t be deleting.

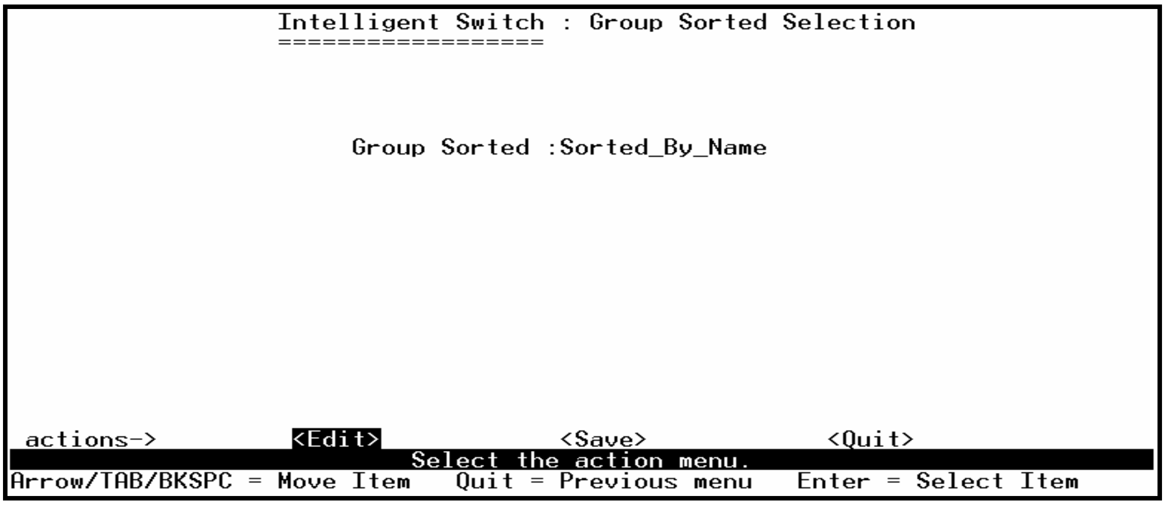
4.2.3.4. Groups Sorted Mode

In this page, user can select VLAN groups sorted mode:

(1) sorted by name

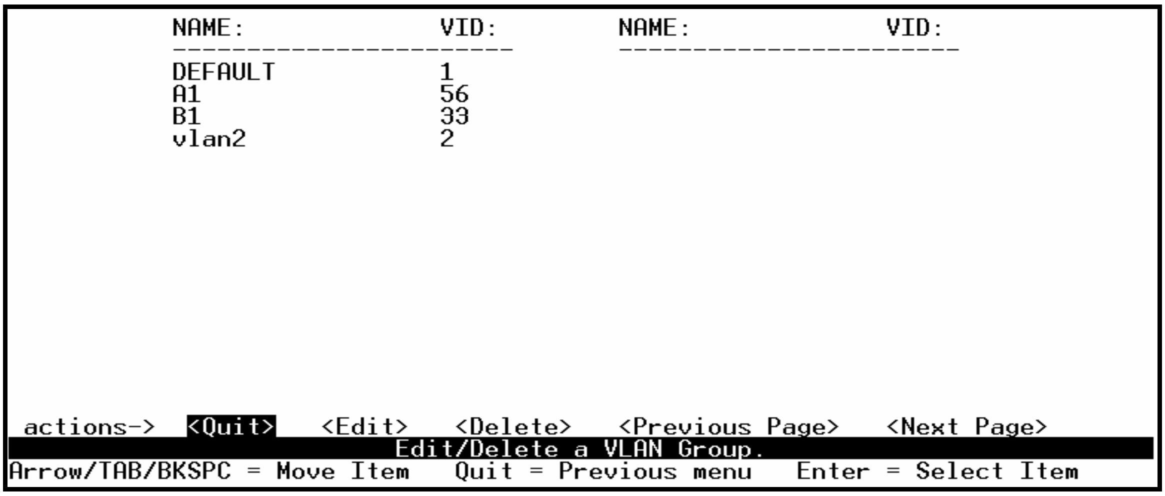
(2) Sorted by VID.

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



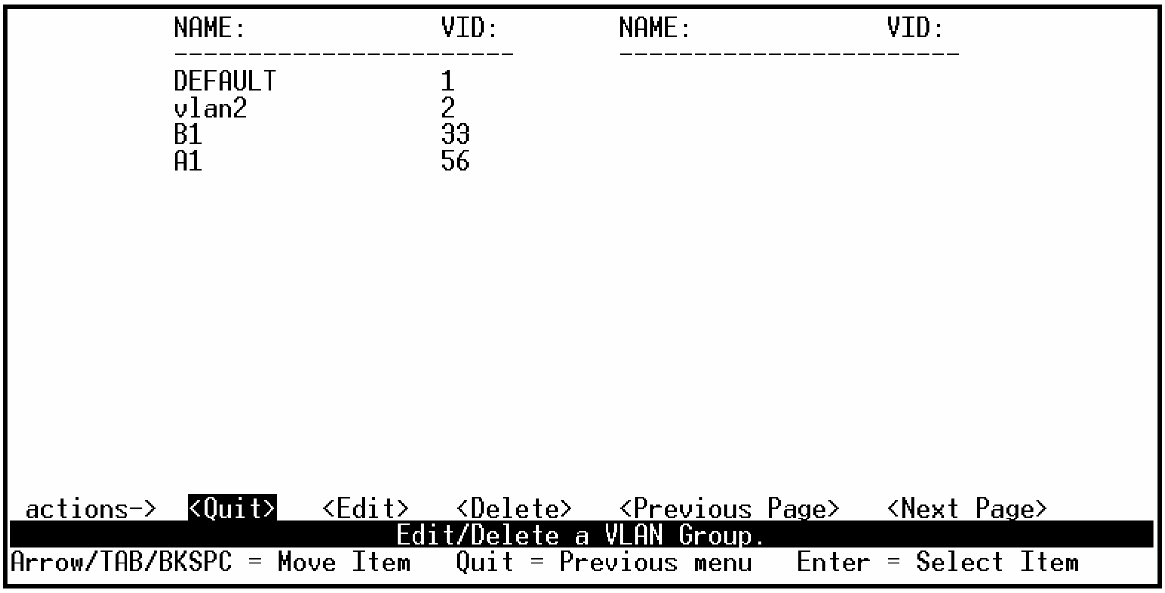
```
                    Intelligent Switch : Group Sorted Selection
                    ==================



                         Group Sorted :Sorted_By_Name










 actions->             <Edit>            <Save>             <Quit>
                              Select the action menu.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

In the *Edit/Delete a VLAN Group* page, the result of **sorted by name**.



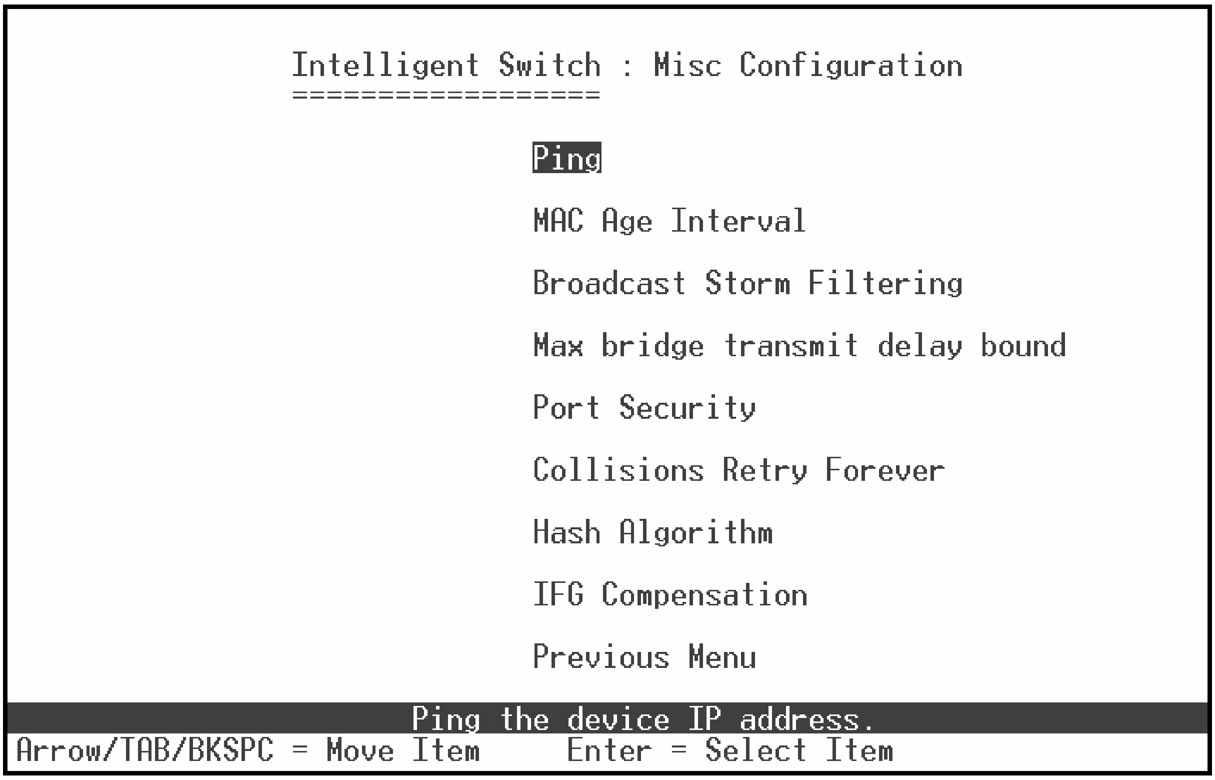
```
           NAME:                 VID:          NAME:                 VID:
           -----------------------------       -----------------------------
           DEFAULT               1
           A1                    56
           B1                    33
           vlan2                 2











 actions->  <Quit>    <Edit>    <Delete>    <Previous Page>    <Next Page>
                            Edit/Delete a VLAN Group.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

In the *Edit/Delete a VLAN Group* page, the result of **sorted by VID**.



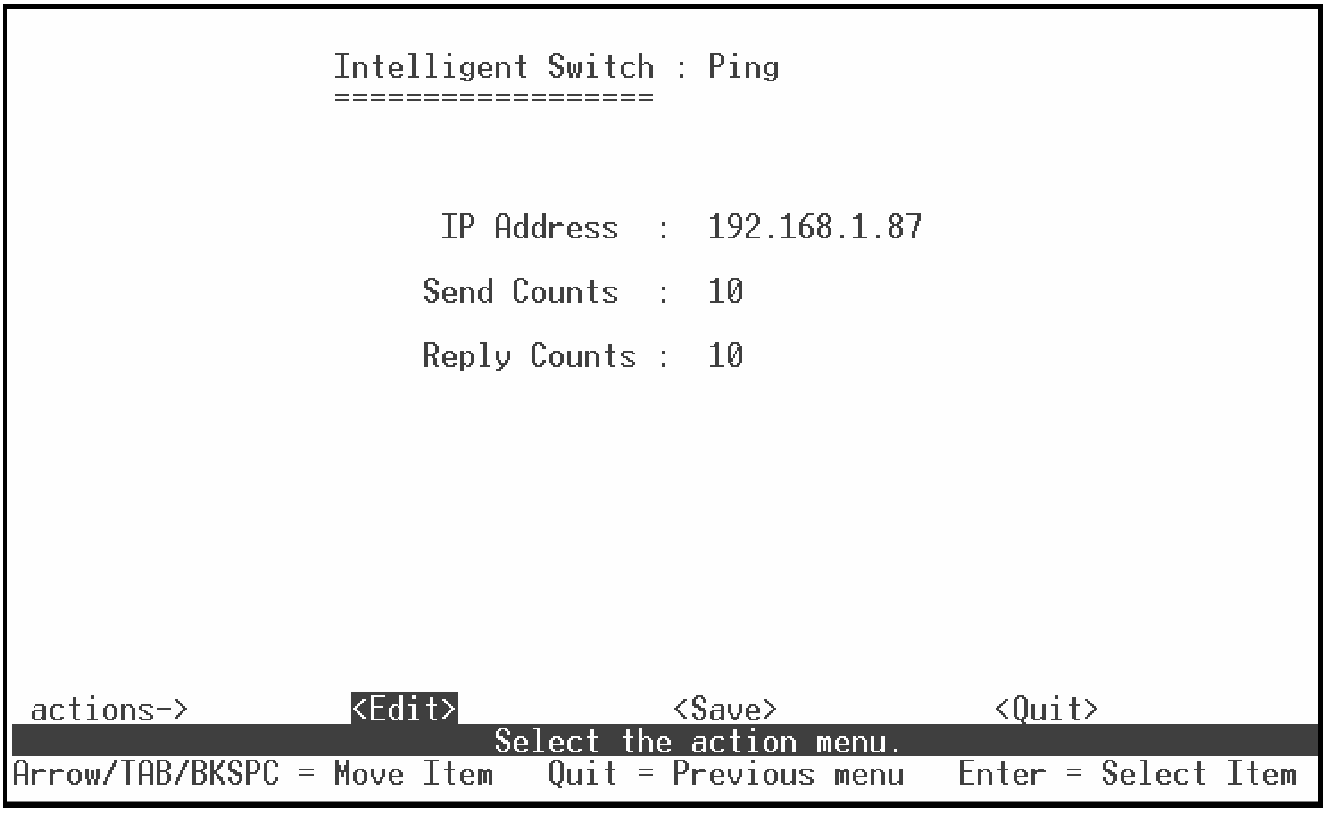
```
          NAME:              VID:         NAME:              VID:
          ----------------------         ----------------------
          DEFAULT            1
          vlan2              2
          B1                 33
          A1                 56










 actions->  <Quit>   <Edit>   <Delete>   <Previous Page>   <Next Page>
                        Edit/Delete a VLAN Group.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.2.4. Misc Configuration



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

                              Ping

                              MAC Age Interval

                              Broadcast Storm Filtering

                              Max bridge transmit delay bound

                              Port Security

                              Collisions Retry Forever

                              Hash Algorithm

                              IFG Compensation

                              Previous Menu

                       Ping the device IP address.
Arrow/TAB/BKSPC = Move Item     Enter = Select Item
```

4.2.4.1. Ping

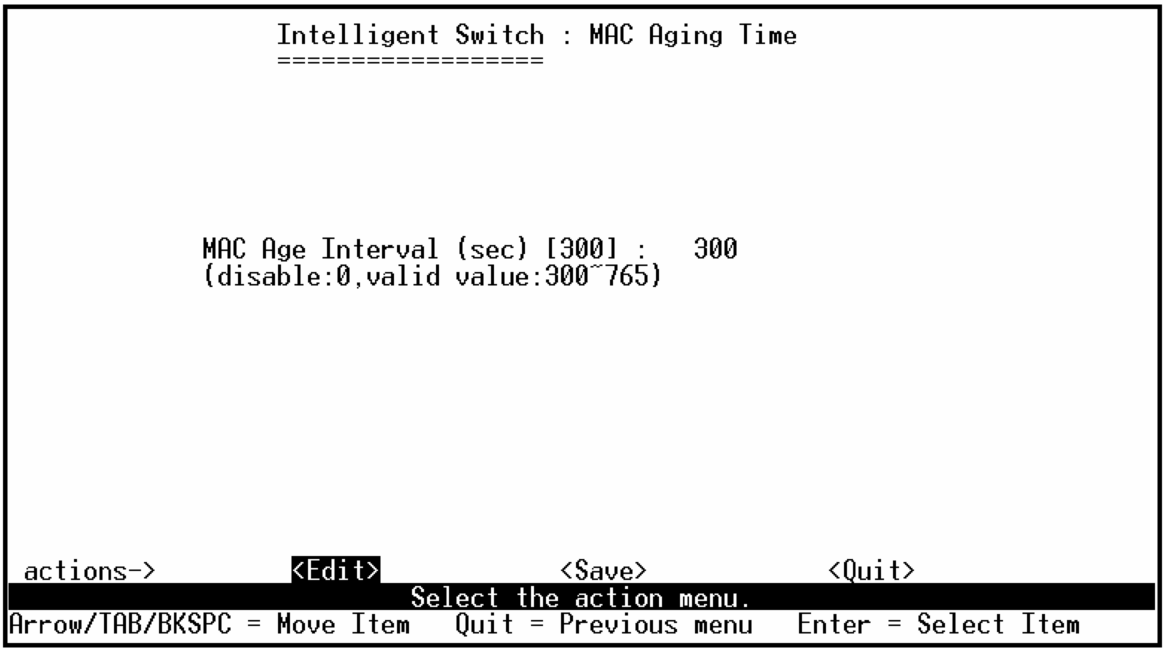


```
                  Intelligent Switch : Ping
                  ==================


                        IP Address  :  192.168.1.87

                       Send Counts  :  10

                       Reply Counts :  10








 actions->          <Edit>            <Save>            <Quit>
                           Select  the action menu.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

Type the Host IP and the counts for pinging, then back to action menu and press “Save”. “Reply Counts” will display the result of pinging.

4.2.4.2. 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. Default is **300** seconds.



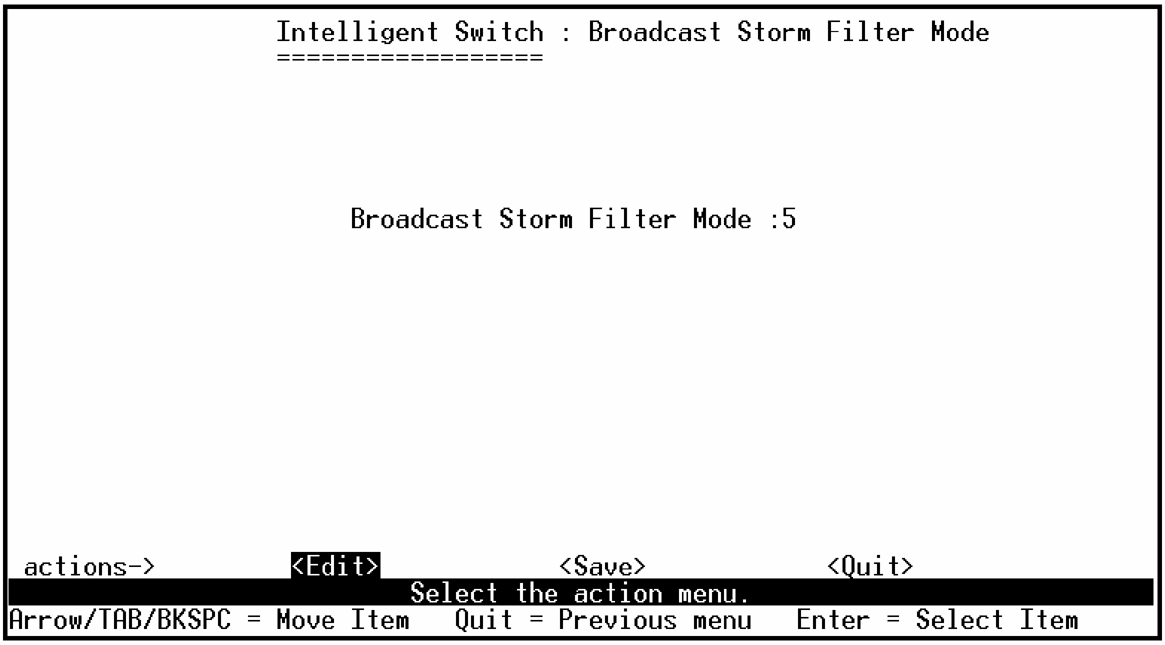
```
                  Intelligent Switch : MAC Aging Time
                  ==================



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



 actions->          <Edit>            <Save>            <Quit>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.2.4.3. Broadcast Storm Filtering

This page is configuring broadcast storm control.

1. Press **<Edit>** to configure the broadcast storm filter mode.
2. Press **Space** key to choose the threshold value.

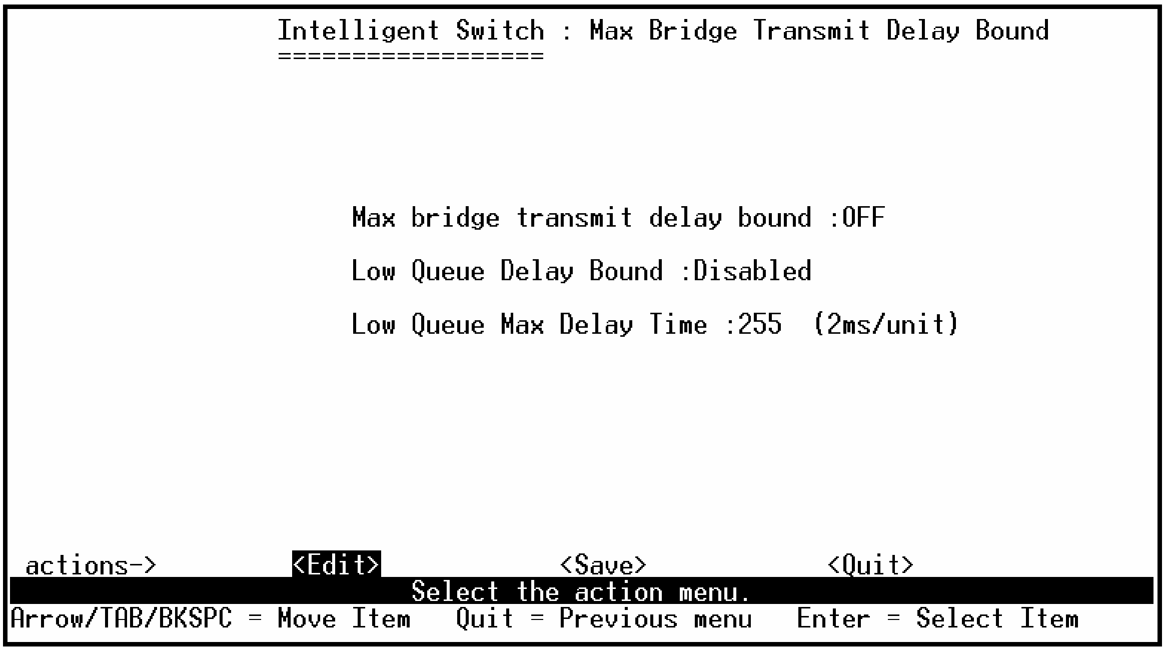
The valid threshold value is 5%, 10%, 15%, 20%, 25% and NO. Default is **5%**.



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



                       Broadcast Storm Filter Mode :5



 actions->          <Edit>            <Save>            <Quit>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.2.4.4. Max bridge transmit delay bound

1. **Max bridge transmit delay bound:** Limit the packets queuing time in switch. If enabled, the packets queued exceed will be drop. Press **Space** key to set the time. Those valid values are 1sec, 2sec, and 4sec and off. Default is **off**.
2. **Low Queue Delay Bound:** Limit the low priority packets queuing time in switch. If enabled, the low priority packet stays in switch exceed Low Queue Max Delay Time, it will be sent. Press **Space** key to enable or disable this function. Default is **disable**.
3. **Low Queue Max Delay Time:** To set the time that low priority packets queuing in switch. The valid range is 1~255ms. Default Max Delay Time is **255**ms.

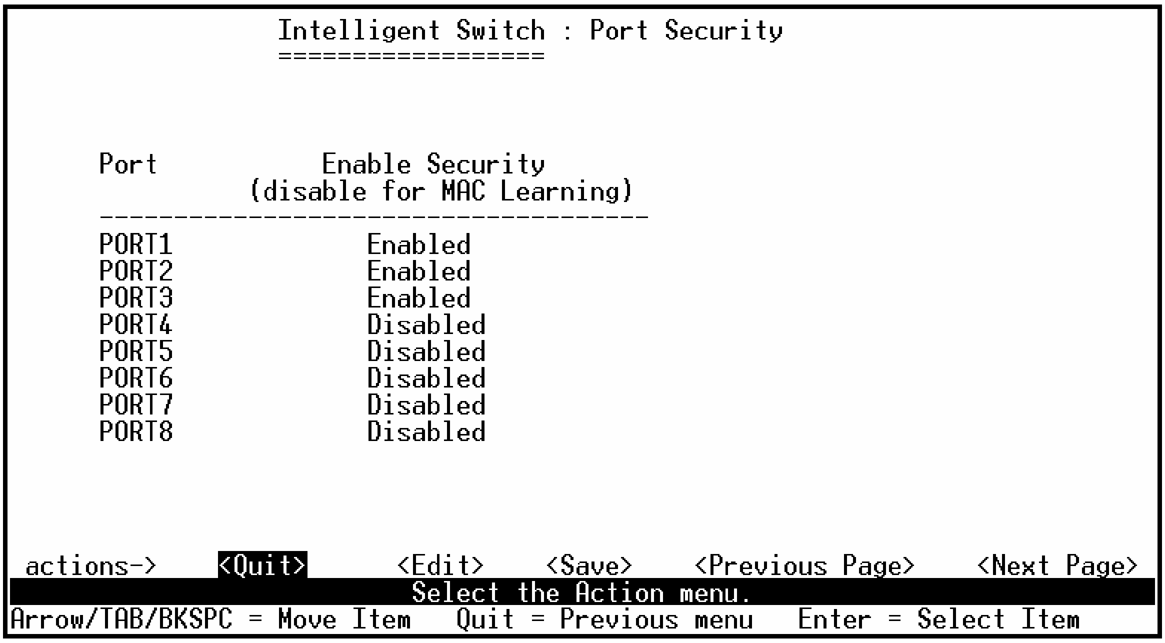


```
                    Intelligent Switch : Max Bridge Transmit Delay Bound
                    ==================




                         Max bridge transmit delay bound :OFF

                         Low Queue Delay Bound :Disabled

                         Low Queue Max Delay Time :255  (2ms/unit)





 actions->           <Edit>            <Save>            <Quit>
                                  Select the action menu.
Arrow/TAB/BKSPC = Move 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 must be work under "Max bridge transit delay bound control" is enabled situation.

4.2.4.5. Port Security

A port in security mode will be "locked" without permission of address learning. Only the incoming packets with SMAC already existing in the address table can be forwarded normally. User 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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

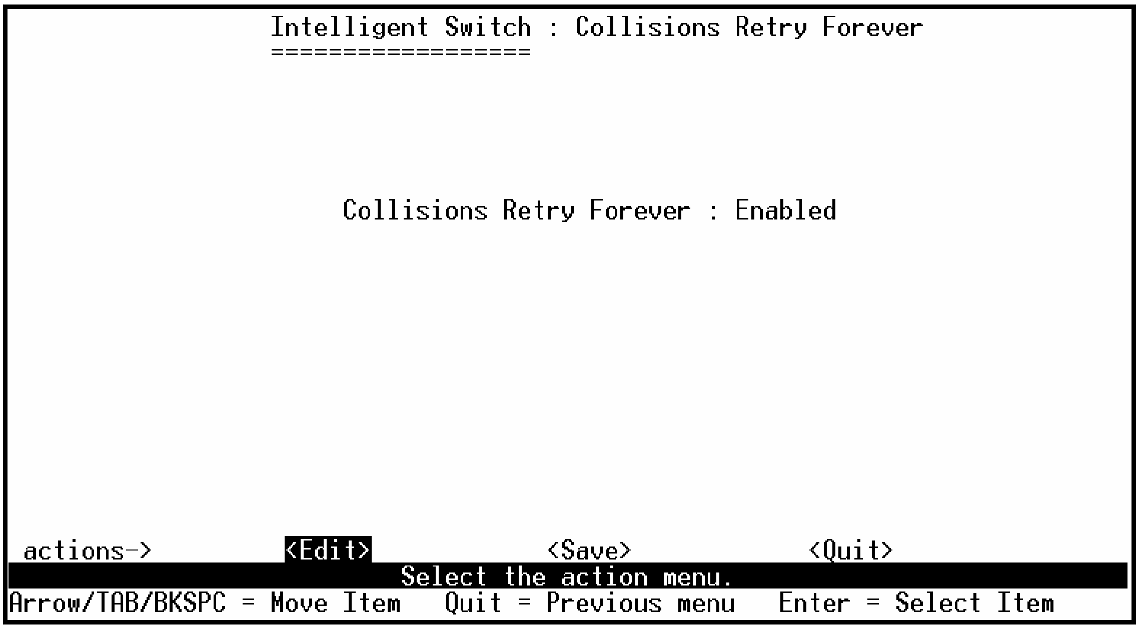
Actions->

1. Select **<Edit>**.
2. Press **Space** key to choose enable / disable item.
3. Press **Ctrl+A** to go back action menu line.
4. Select **<Save>** to save all configure value.
5. You can press **<Next Page>** to configure port9 ~ port26, press **<Previous Page>** return to last page.

4.2.4.5. Collisions Retry Forever

Collisions Retry Forever: Disable – In half duplex, if happen collision will retry 48 times and then drop frame.

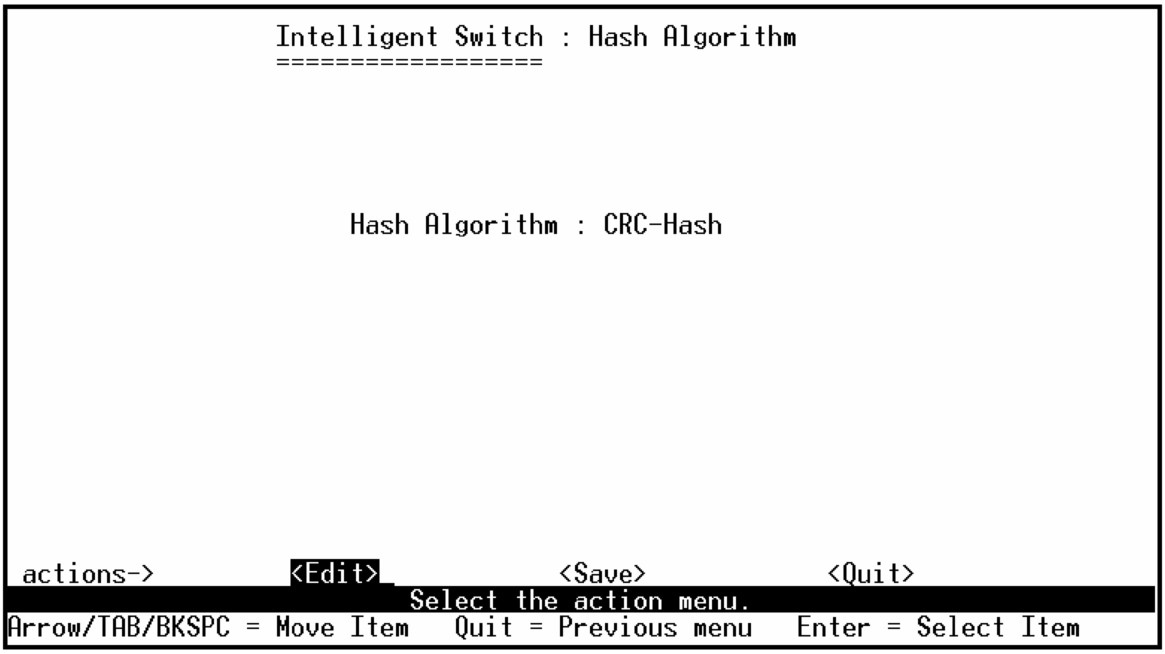
Enable – In half duplex, if happen collision will retry forever (Default).



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


                         Collisions Retry Forever : Enabled








 actions->         <Edit>            <Save>            <Quit>
                              Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.2.4.6. Hash Algorithm

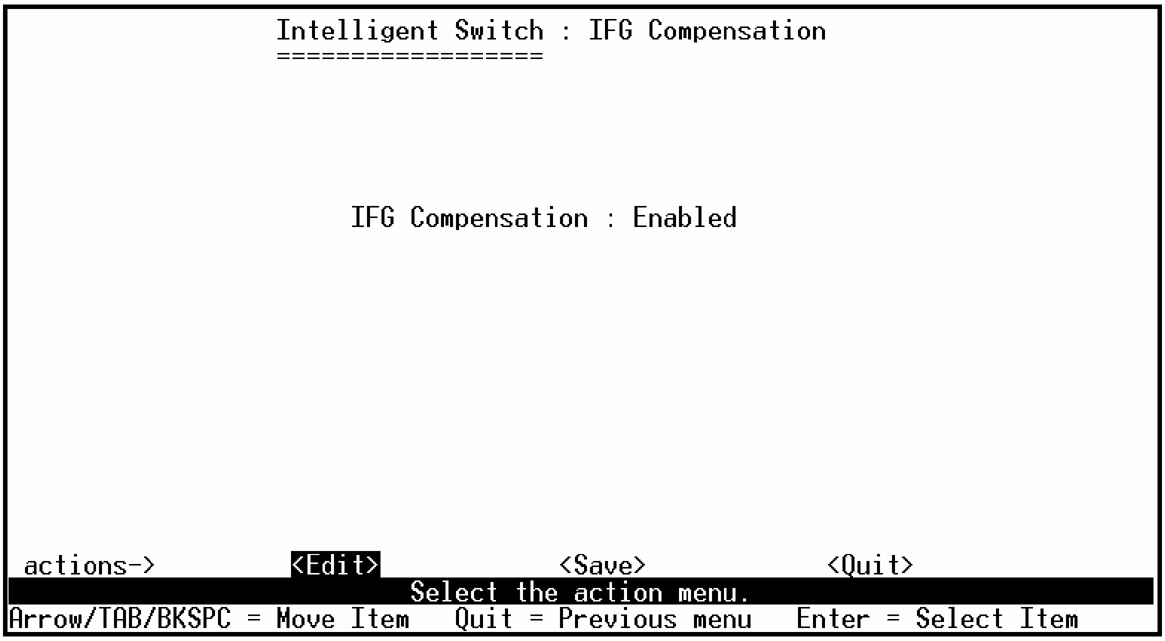
Select CRC-Hash (default) or DirectMap for Hash algorithm.



```
                    Intelligent Switch : Hash Algorithm
                    =================


                         Hash Algorithm : CRC-Hash








 actions->         <Edit>_           <Save>            <Quit>
                              Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

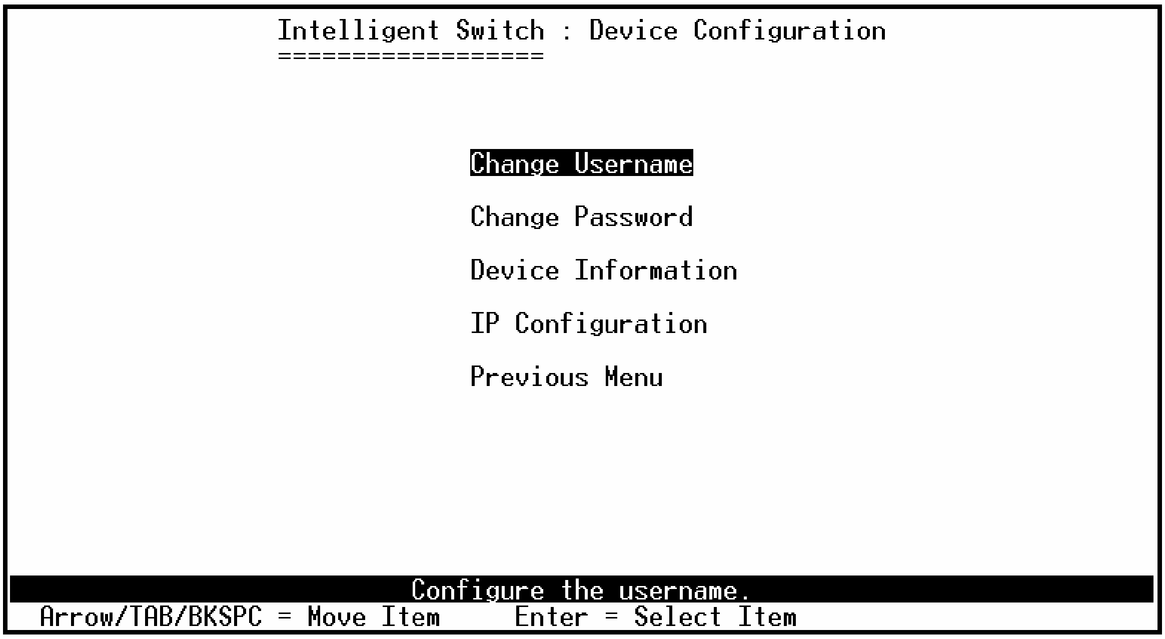
4.2.4.7. IFG Compensation

Enable or disable the inter-frame gap (IFG) compensation function.



```
                  Intelligent Switch : IFG Compensation
                  ==================



                       IFG Compensation : Enabled








 actions->          <Edit>            <Save>            <Quit>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

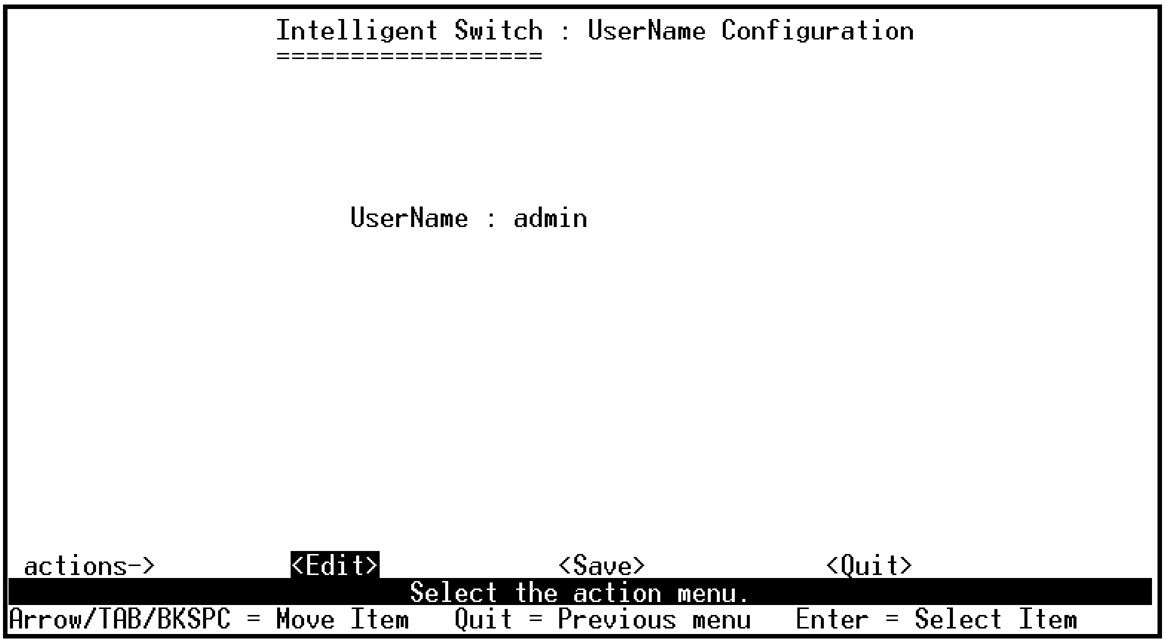
4.2.5. Administration Configuration



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

                               Change Username

                               Change Password

                               Device Information

                               IP Configuration

                               Previous Menu




                           Configure the username.
  Arrow/TAB/BKSPC = Move Item     Enter = Select Item
```

4.2.5.1. Change Username

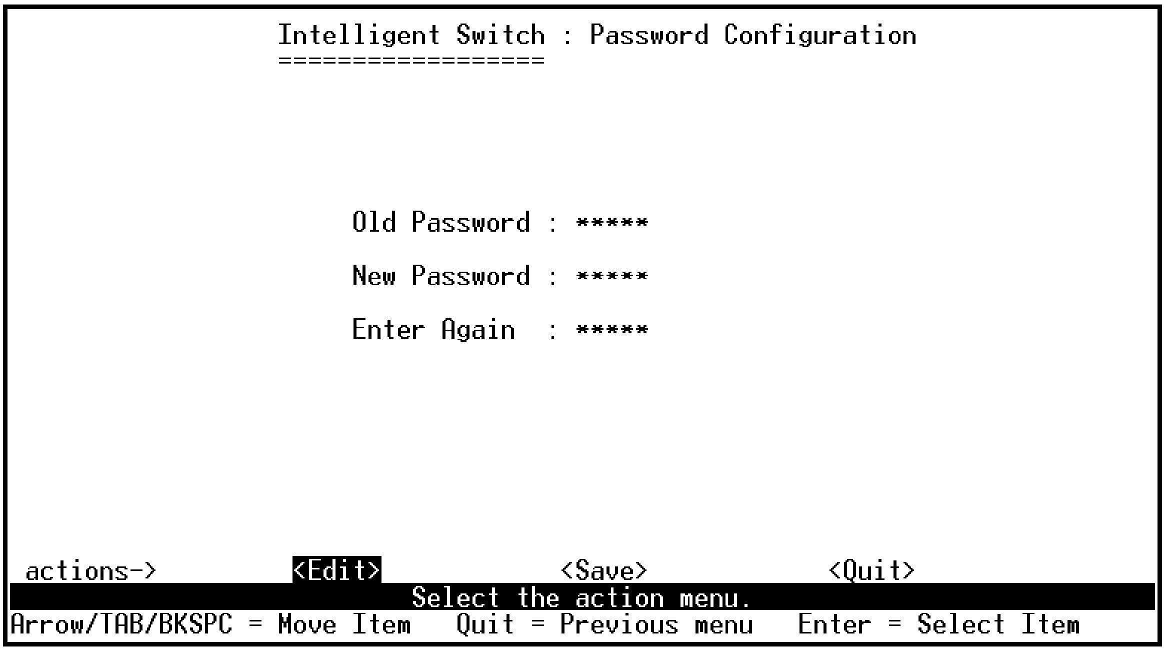
Use this page; user can change web management user name.
Type the new user name, and then press **<Save>** item.



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



                       UserName : admin










 actions->          <Edit>            <Save>            <Quit>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.2.5.2. Change Password

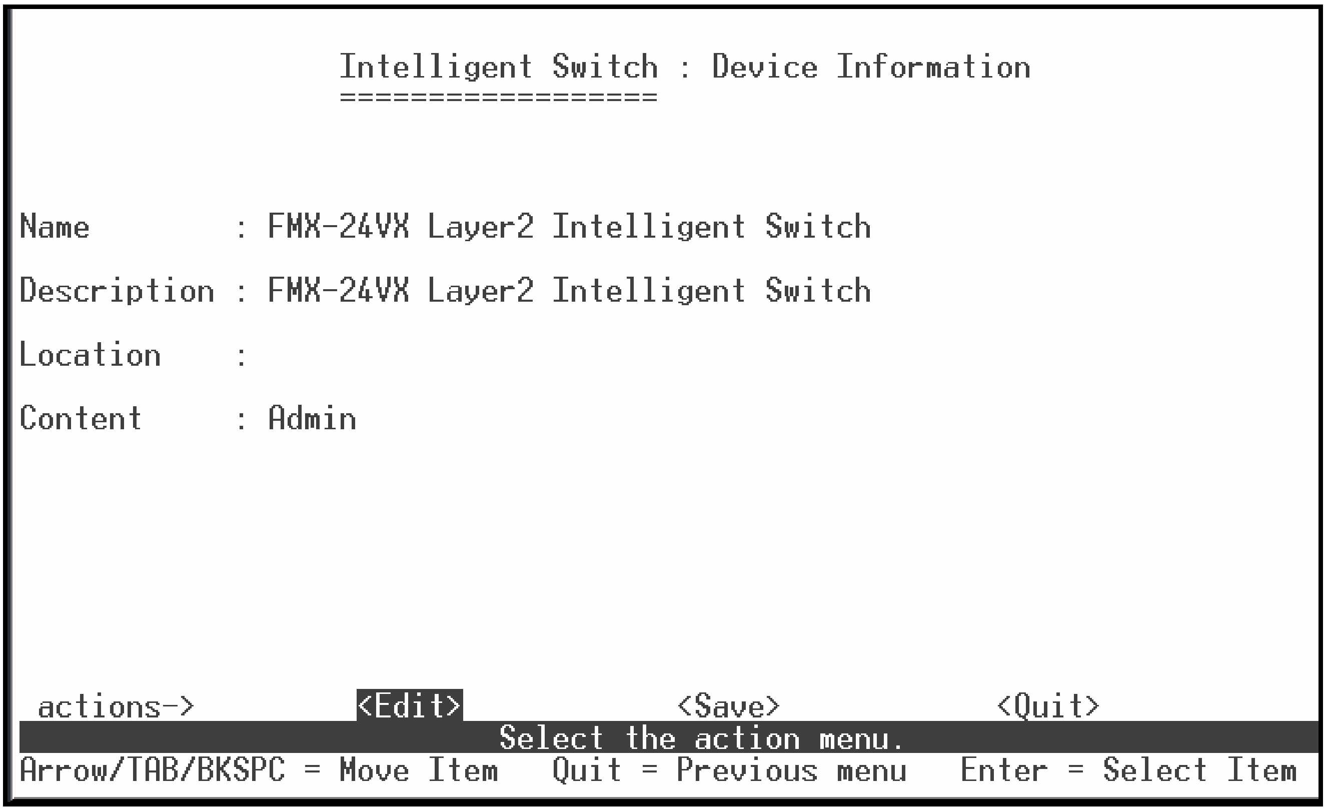
Use this page; user can change web management login password.



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



                       Old Password : *****

                       New Password : *****

                       Enter Again  : *****






 actions->          <Edit>            <Save>            <Quit>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.2.5.3. Device Information

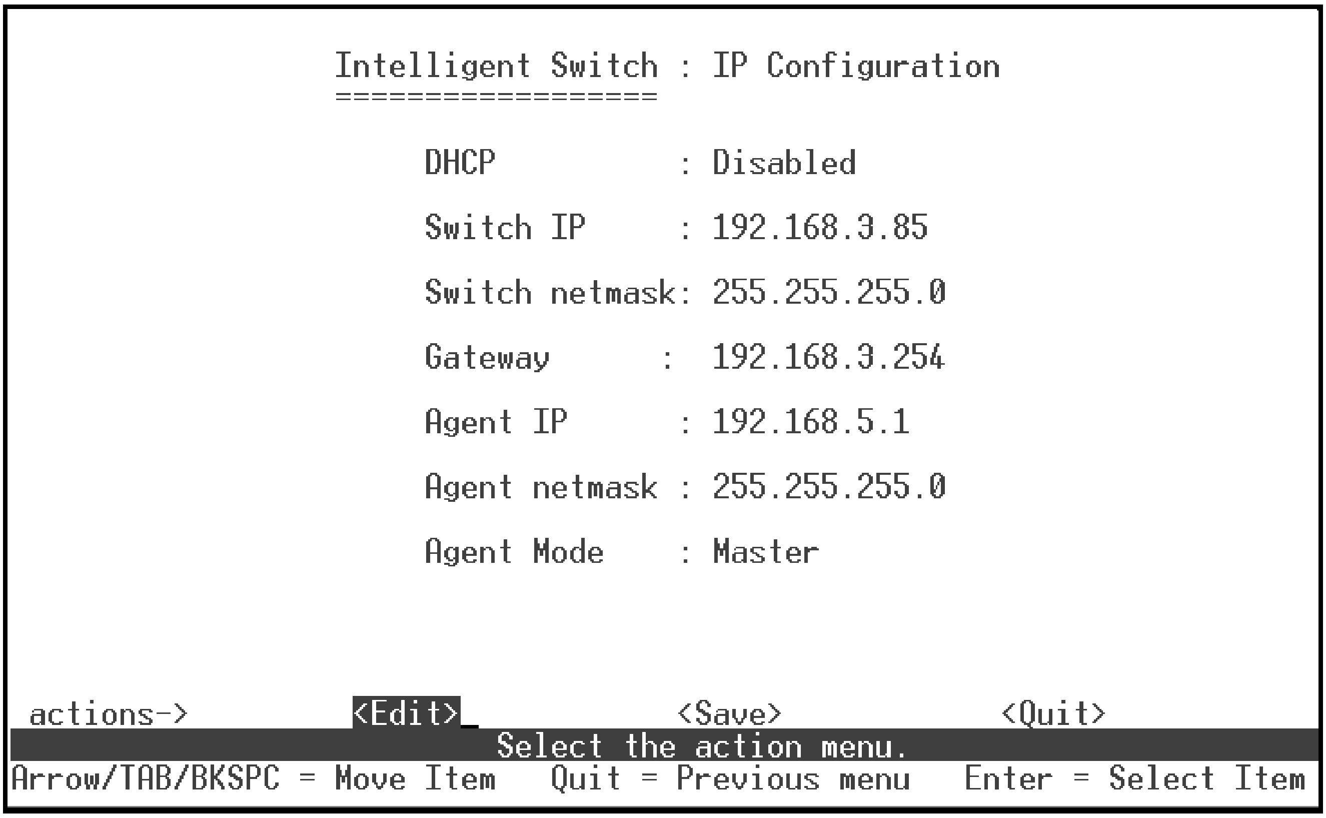
This page is provided to the user to configure the device information.



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


Name        : FMX-24VX Layer2 Intelligent Switch

Description : FMX-24VX Layer2 Intelligent Switch

Location    :

Content     : Admin







 actions->           <Edit>             <Save>             <Quit>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.2.5.4. IP Configuration

User can configure the IP setting and fill in the new value.



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

                         DHCP          : Disabled

                         Switch IP     : 192.168.3.85

                         Switch netmask: 255.255.255.0

                         Gateway      :  192.168.3.254

                         Agent IP      : 192.168.5.1

                         Agent netmask : 255.255.255.0

                         Agent Mode    : Master



 actions->           <Edit>_            <Save>             <Quit>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

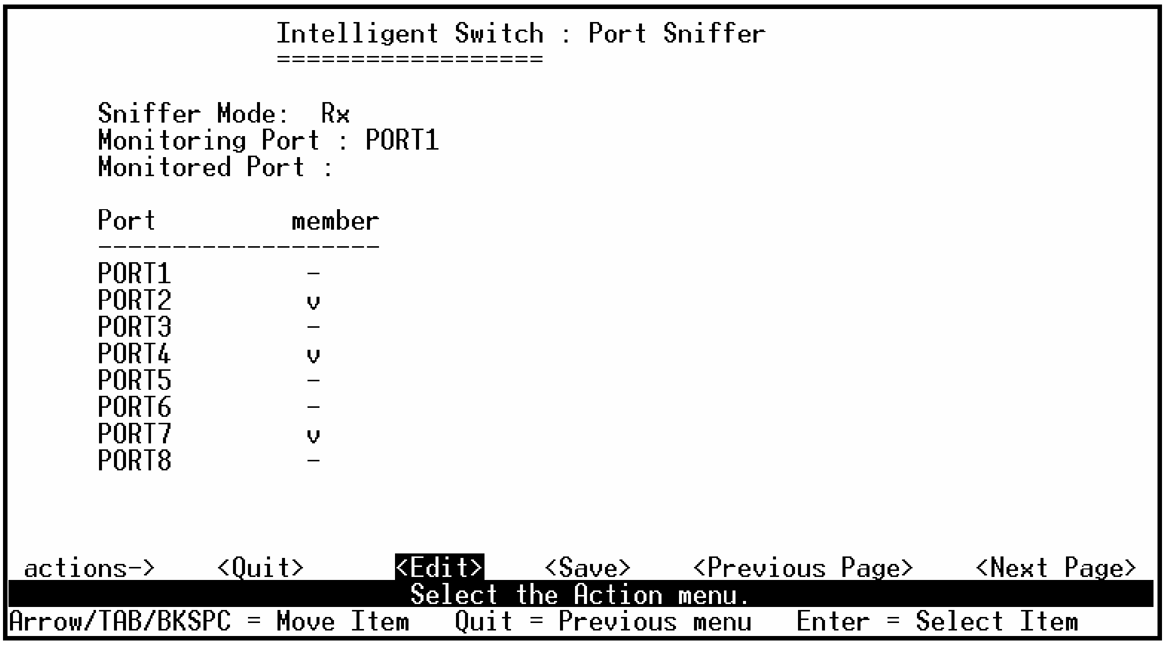
4.2.6. Port Mirror Configuration

The port mirroring is a method for monitor traffic in switched networks. Traffic through ports can be monitored by one specific port. That is traffic goes in or out monitored ports will be duplicated into monitoring port.

Actions->

Press **Space** key to change configure of per item.

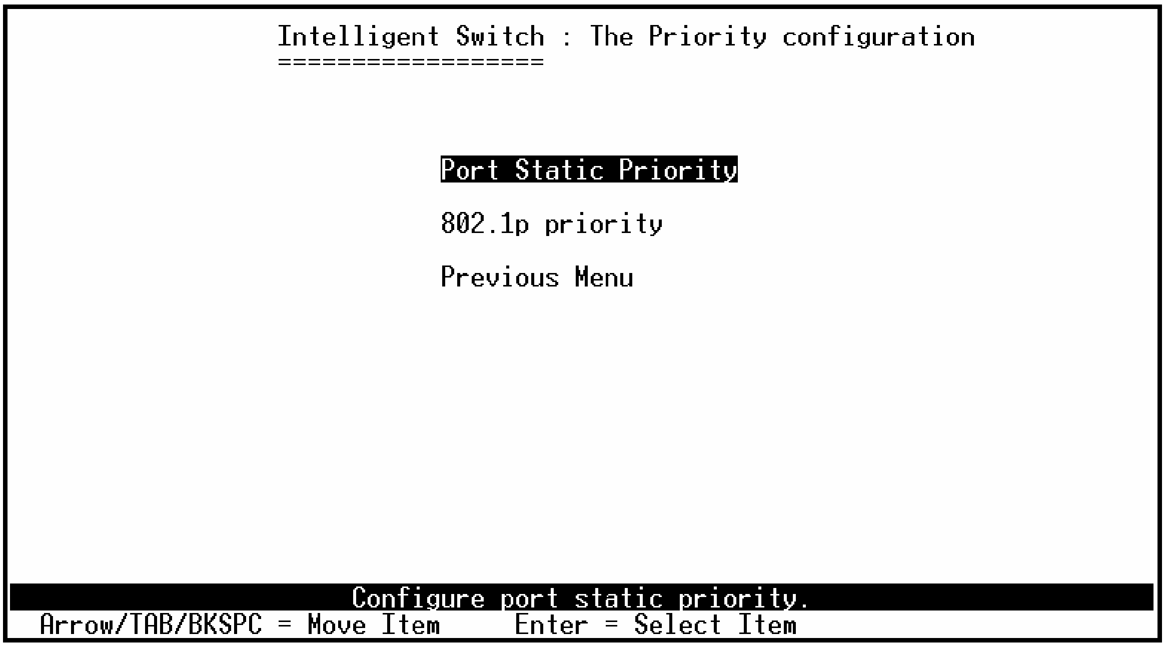
1. Select <**Edit**>.
2. **Sniffer Mode:** Press **Space** key to set sniffer mode Disable、Rx、Tx or Both.
3. **Monitoring Port:** It means sniffer port can be used to see all monitors port traffic. Press **Space** key to choose it.
4. **Monitored Port:** The ports you want to monitor. All monitor port traffic will be copied to sniffer port. You can select max 25 monitor ports in the switch. User can choose which port to monitor in only one sniffer mode. Press **Space** key to choose member port, "V" – is the member, "—" – not the member.
5. Press **Ctrl+A** go back action menu line
6. Select <**Save**> to save all configure value.
7. On the action menu line you can press <**Next Page**> to configure port9 ~ port26, press <**Previous Page**> return to 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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

NOTE: Only has one sniffer mode in switch at the same time.

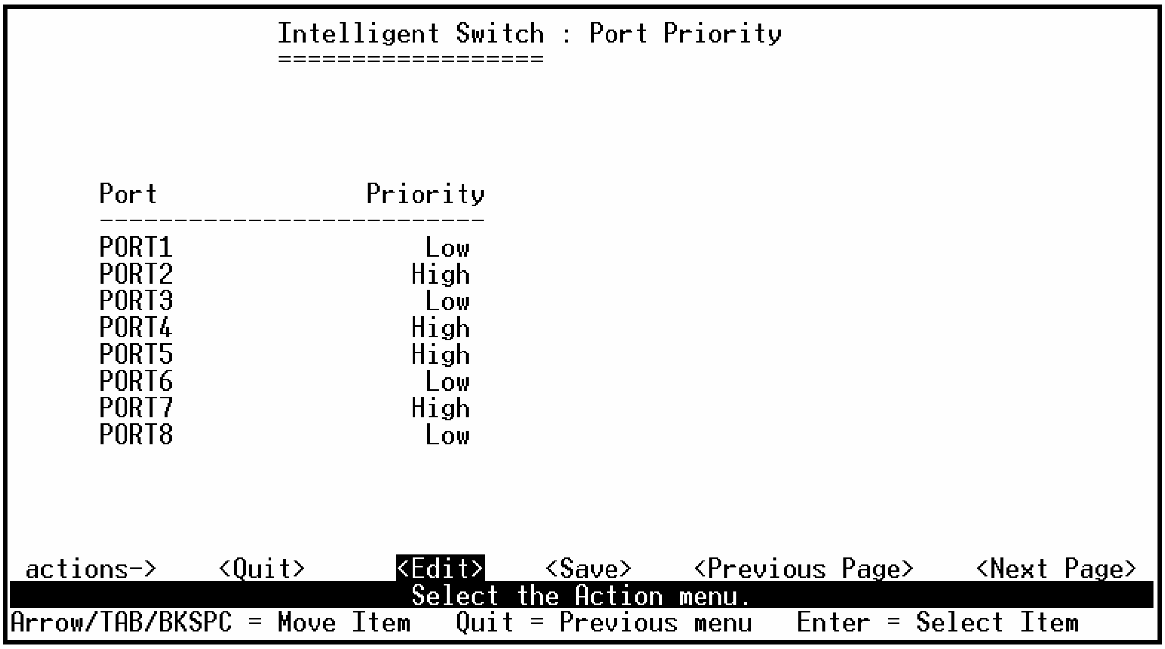
4.2.7. Priority Configuration



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


                             Port Static Priority

                             802.1p priority

                             Previous Menu










                        Configure port static priority.
  Arrow/TAB/BKSPC = Move Item     Enter = Select Item
```

4.2.7.1. Port Static Priority

This static priority based on port, if you set the port is high priority, income frame from this port always high priority frame.



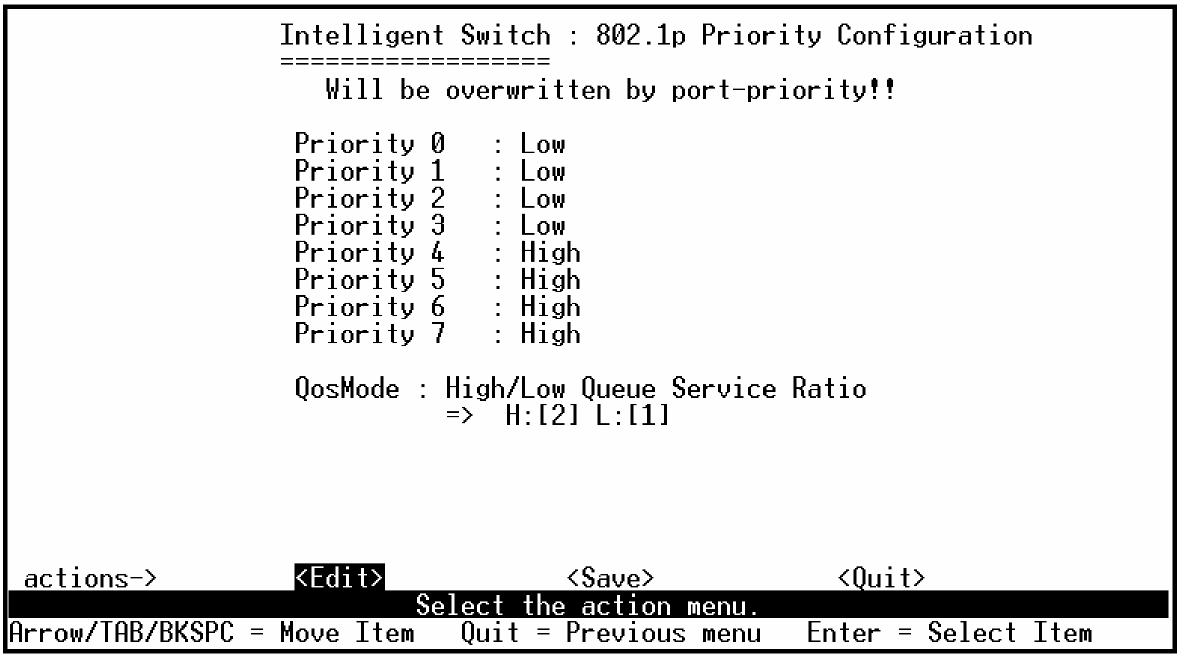
```
                  Intelligent Switch : Port Priority
                  ==================



      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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.2.7.2. 802.1p Priority Configuration

There are 0~7-priority level can map to high or low queue.

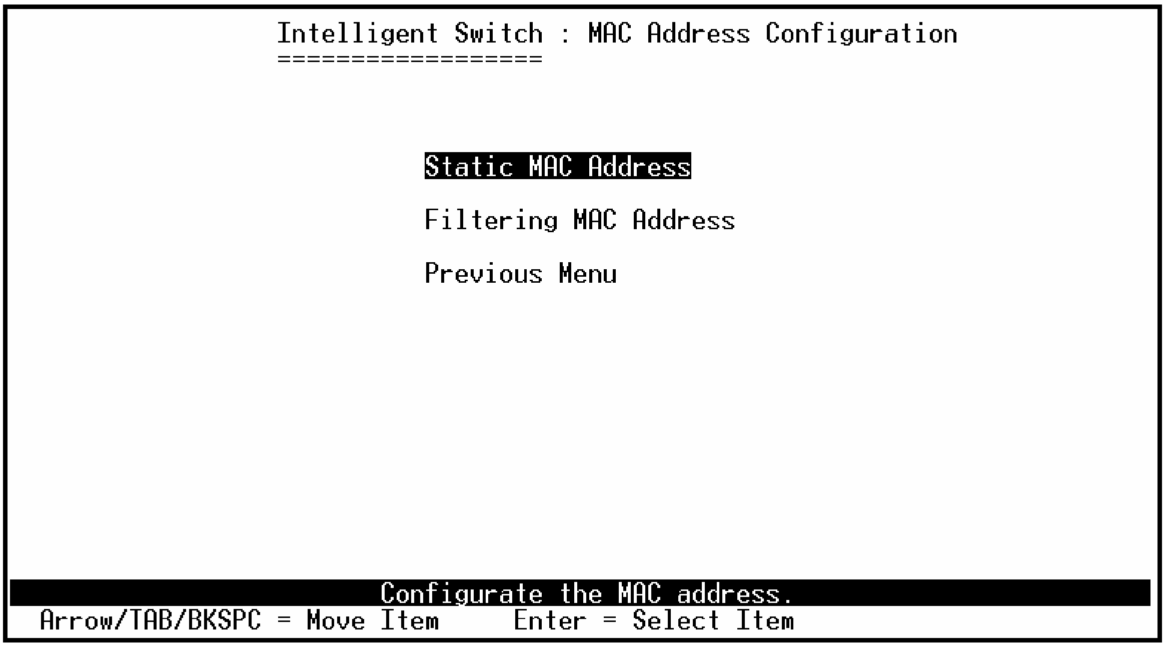
Actions->

1. Select <**Edit**>.
2. Press **Space** key to select the priority level mapping to high or low queue.
3. **High/Low Queue Service Ration H：L:** User can select the ratio of high priority packets and low priority packets.
4. Press **Ctrl+A** go back action menu line.
5. Select <**Save**> to save all configure value.



```
                  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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

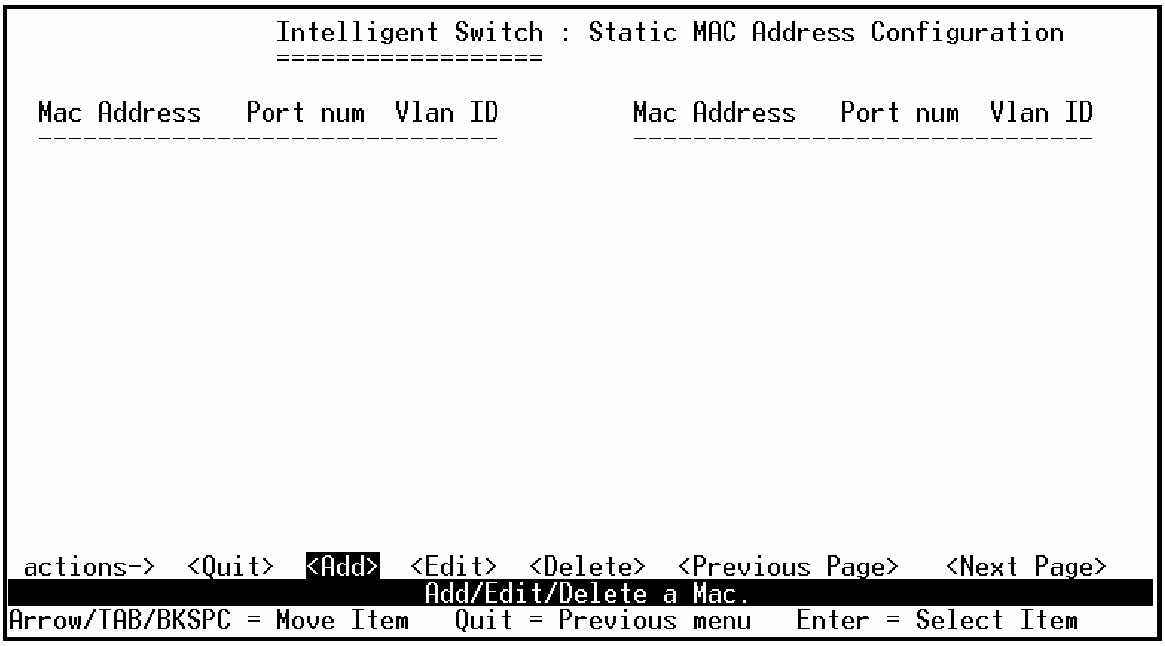
4.2.8. MAC Address Configuration



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


                            Static MAC Address

                            Filtering MAC Address

                            Previous Menu










                         Configurate the MAC address.
  Arrow/TAB/BKSPC = Move Item     Enter = Select Item
```

4.2.8.1. 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 user can add / modify / delete a static MAC address.

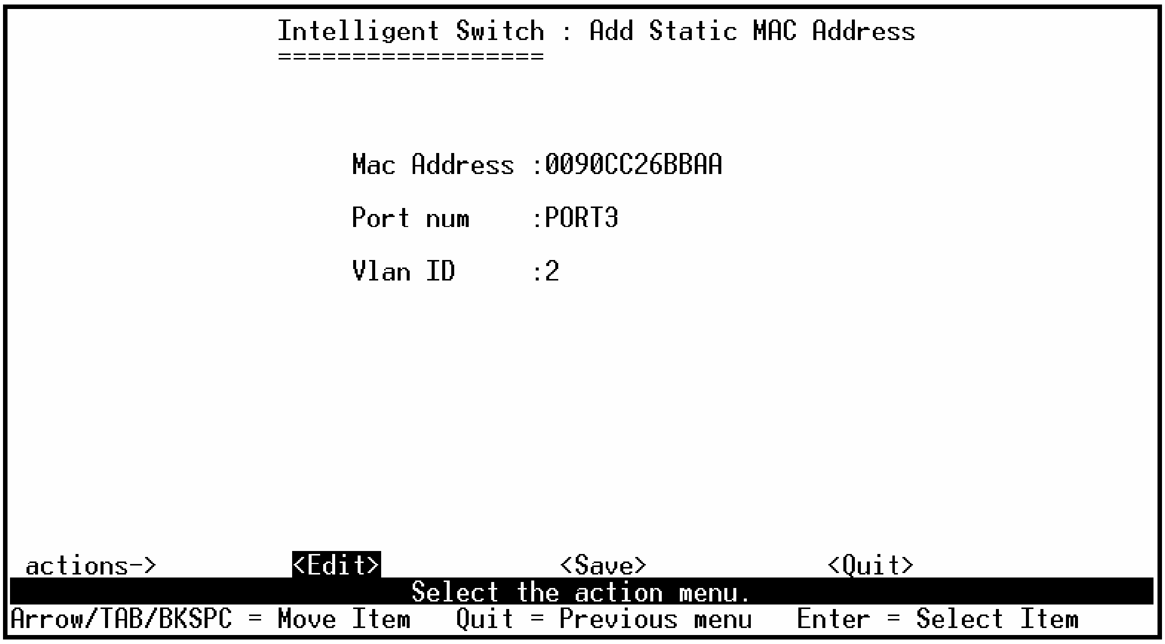


```
                  Intelligent Switch : Static MAC Address Configuration
                  ==================

  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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

●**Add static MAC address**

Actions->

1. Press **<Add> --> <Edit>** key to add static MAC address.
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 **<Space>** key to select the port number.
4. **Vlan ID:** If tag-based (802.1Q) VLAN 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 action menu line.
6. Then select **<Save>** to save all configure value.

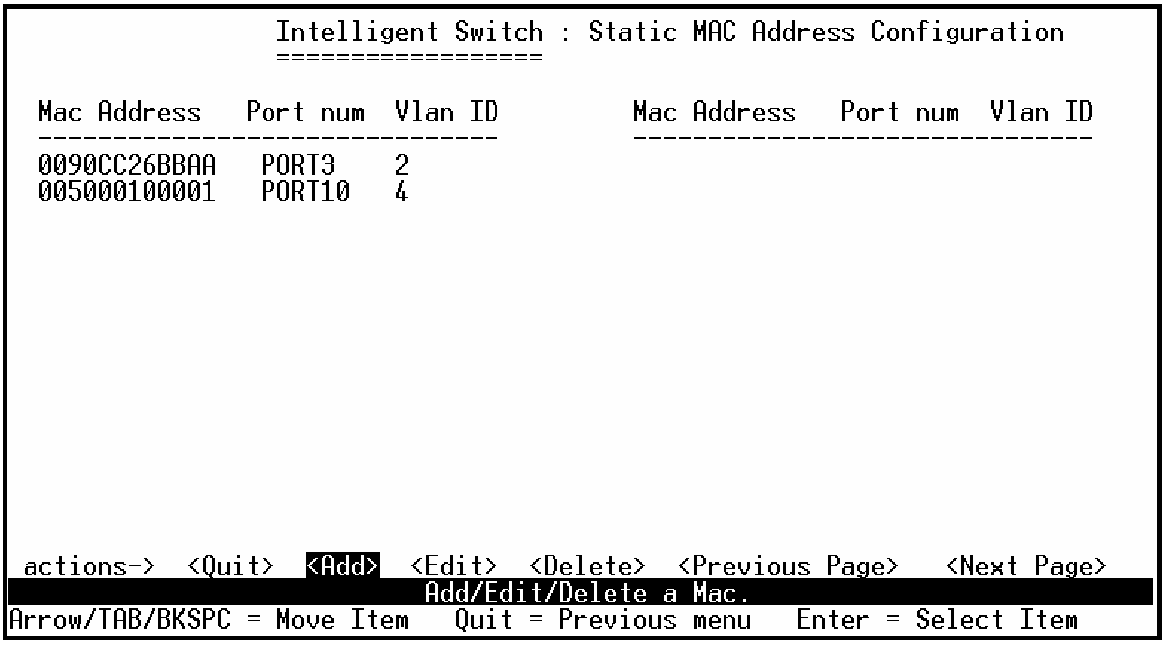


```
                  Intelligent Switch : Add Static MAC Address
                  ==================


                       Mac Address :0090CC26BBAA

                       Port num    :PORT3

                       Vlan ID     :2









 actions->          <Edit>            <Save>            <Quit>
                                     Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

●**Edit static MAC address**

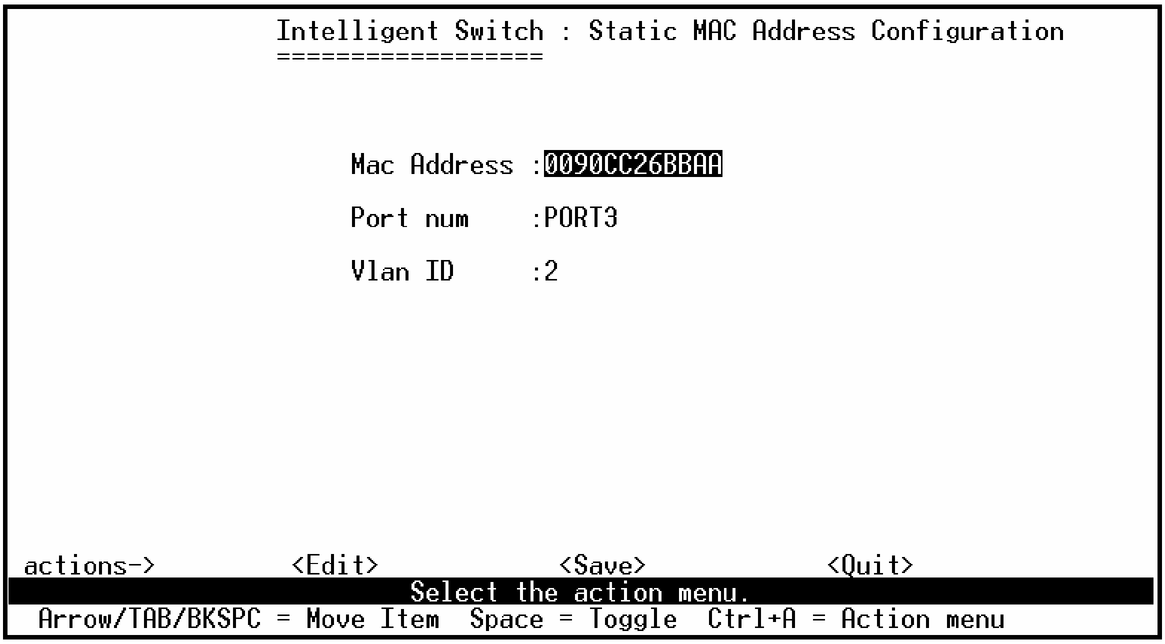
Actions->

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



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

  Mac Address    Port num   Vlan ID          Mac Address    Port num   Vlan ID
  -------------------------------          -------------------------------
  0090CC26BBAA    PORT3     2
  005000100001    PORT10    4










 actions->   <Quit>  <Add>  <Edit>  <Delete>  <Previous Page>   <Next Page>
                             Add/Edit/Delete a Mac.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

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

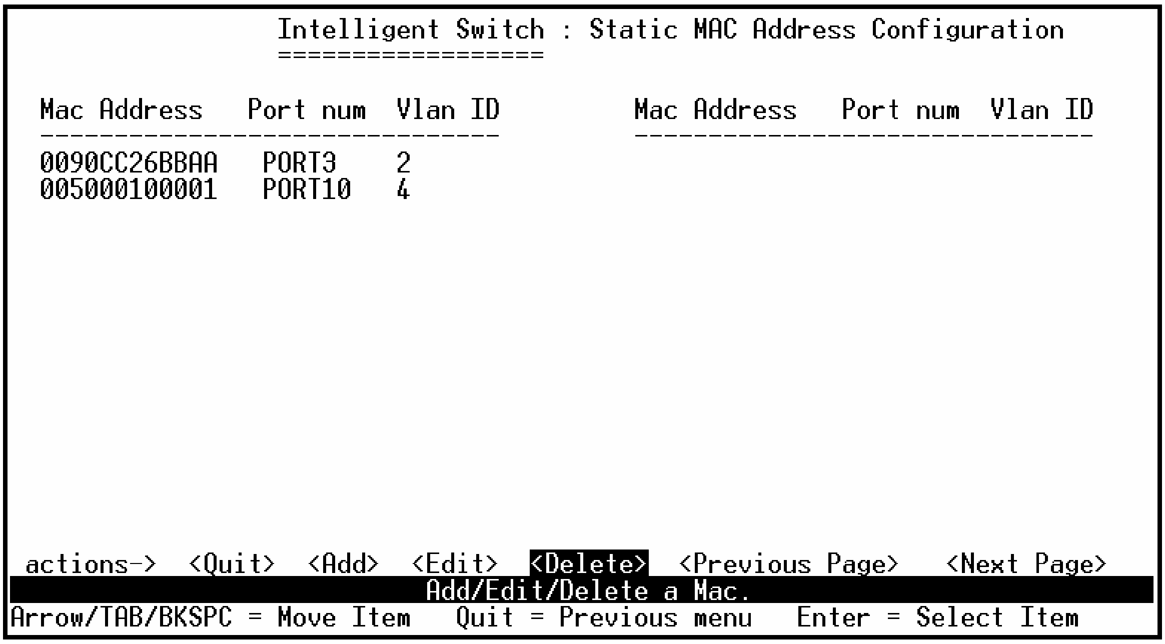


```
                  Intelligent Switch : Static MAC Address Configuration
                  ==================


                       Mac Address :0090CC26BBAA

                       Port num    :PORT3

                       Vlan ID     :2







 actions->          <Edit>             <Save>             <Quit>
                            Select the action menu.
  Arrow/TAB/BKSPC = Move Item  Space = Toggle  Ctrl+A = Action menu
```

●Delete static MAC address

Actions->

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

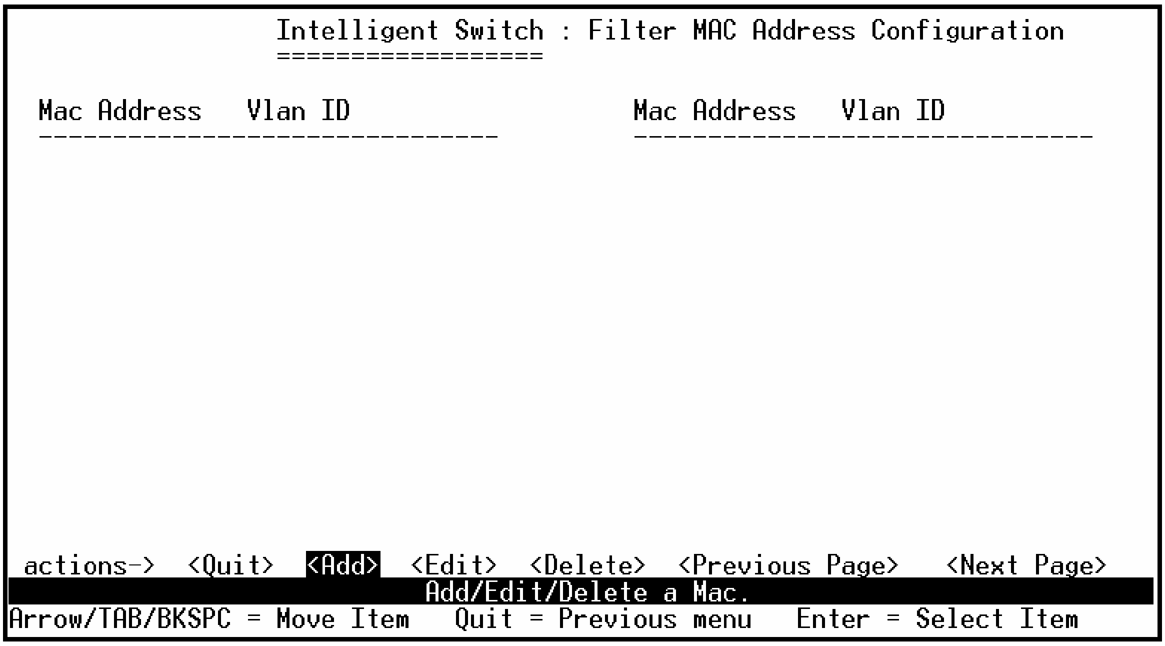


```
                  Intelligent Switch : Static MAC Address Configuration
                  ==================

  Mac Address    Port num  Vlan ID          Mac Address    Port num  Vlan ID
  -------------------------------          -------------------------------
  0090CC26BBAA    PORT3     2
  005000100001    PORT10    4











 actions->  <Quit>  <Add>  <Edit>  <Delete>  <Previous Page>   <Next Page>
                            Add/Edit/Delete a Mac.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.2.8.2. Filtering MAC Address

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

In this page user can add /modify /delete filter MAC address.

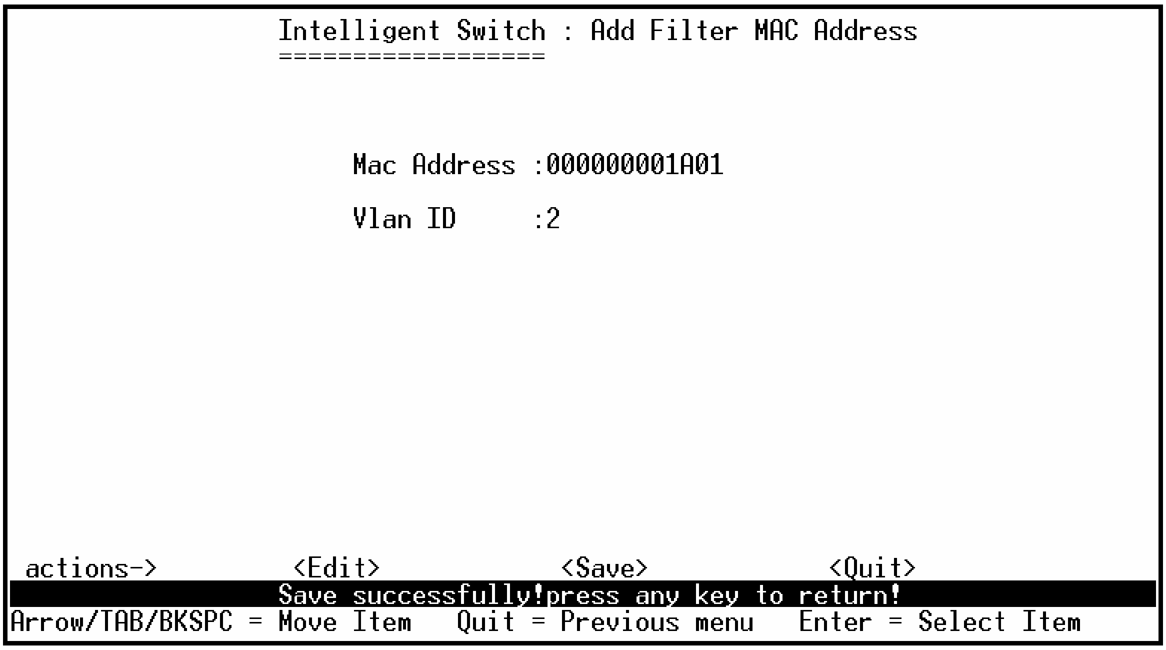


```
                  Intelligent Switch : Filter MAC Address Configuration
                  ==================

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











 actions->  <Quit>  <Add>  <Edit>  <Delete>  <Previous Page>   <Next Page>
                            Add/Edit/Delete a Mac.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

● **Add filter MAC address**

Actions->

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

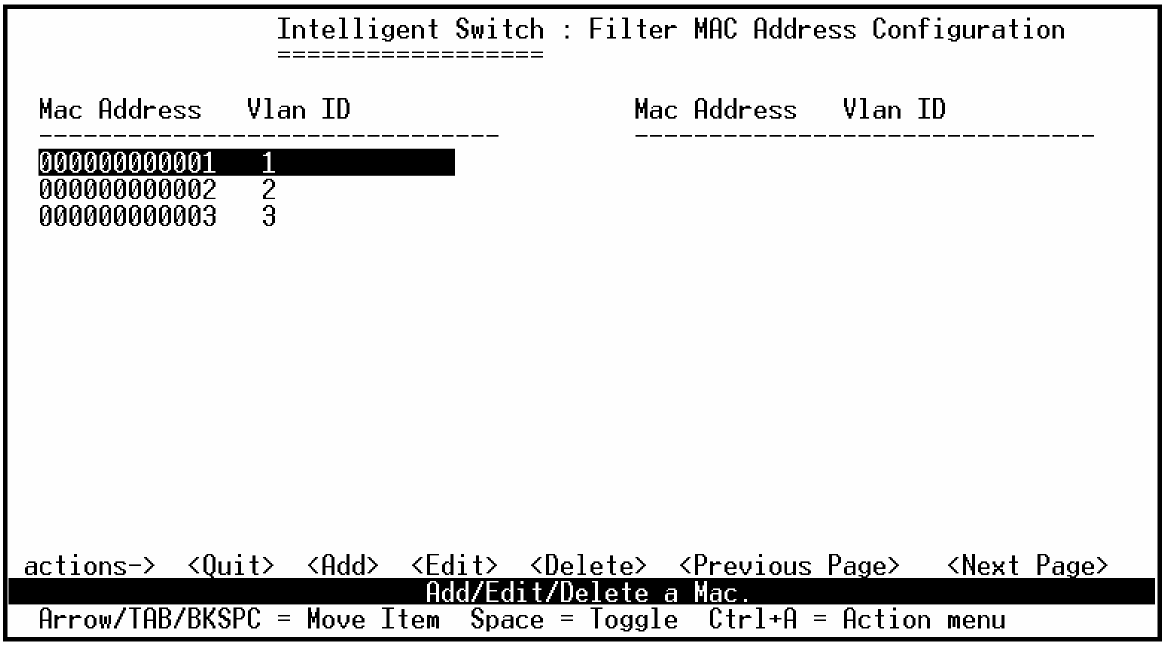


```
                  Intelligent Switch : Add Filter MAC Address
                  ==================


                       Mac Address :000000001A01

                       Vlan ID     :2










 actions->          <Edit>             <Save>             <Quit>
                  Save successfully!press any key to return!
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

●**Edit filter MAC address**

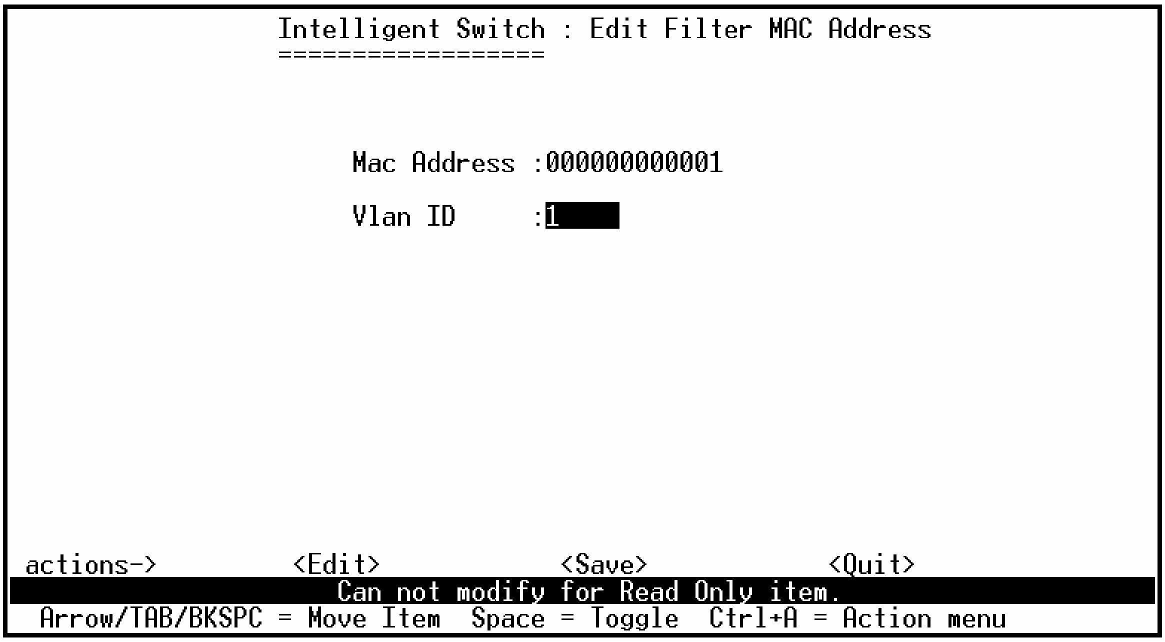
Actions->

1. Press **<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.
  Arrow/TAB/BKSPC = Move Item  Space = Toggle  Ctrl+A = Action menu
```

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

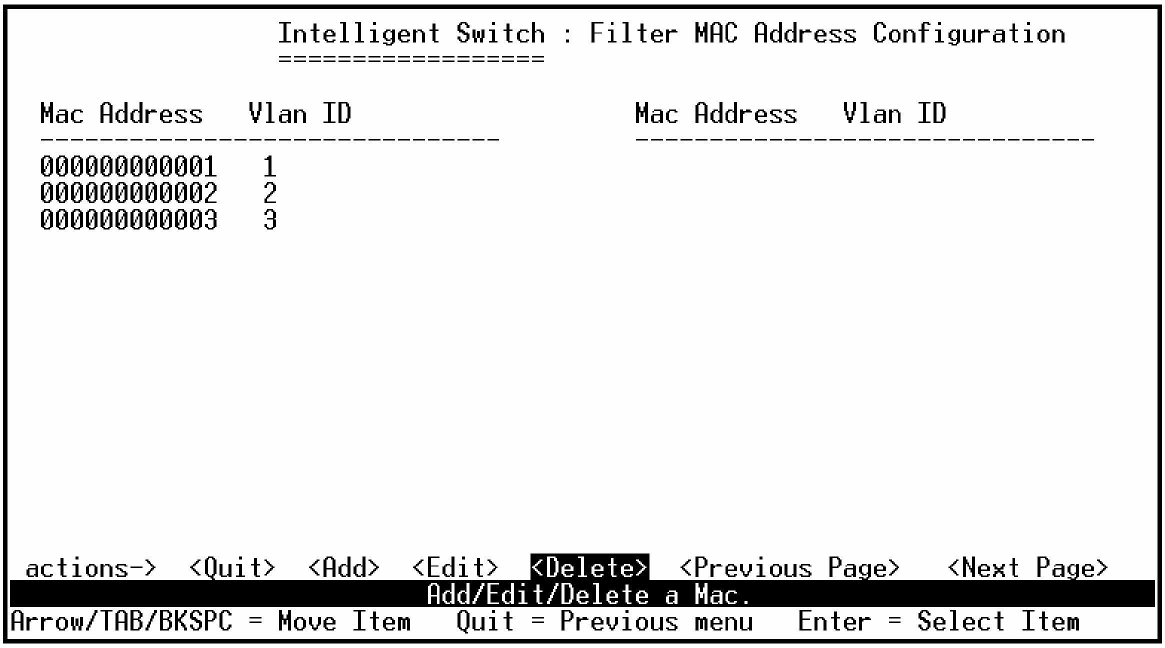


```
                  Intelligent Switch : Edit Filter MAC Address
                  ==================

                       Mac Address :000000000001

                       Vlan ID     :1

actions->         <Edit>            <Save>            <Quit>
                              Can not modify for Read Only item.
 Arrow/TAB/BKSPC = Move Item  Space = Toggle  Ctrl+A = Action menu
```

●**Delete filter MAC address**

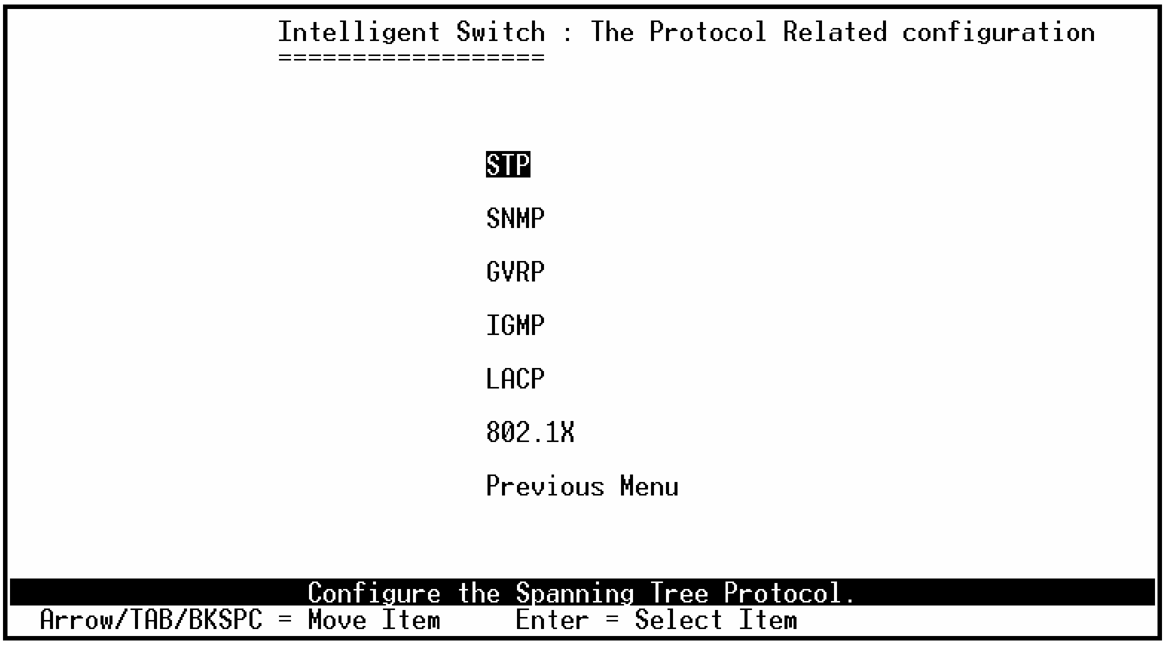
Actions->

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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

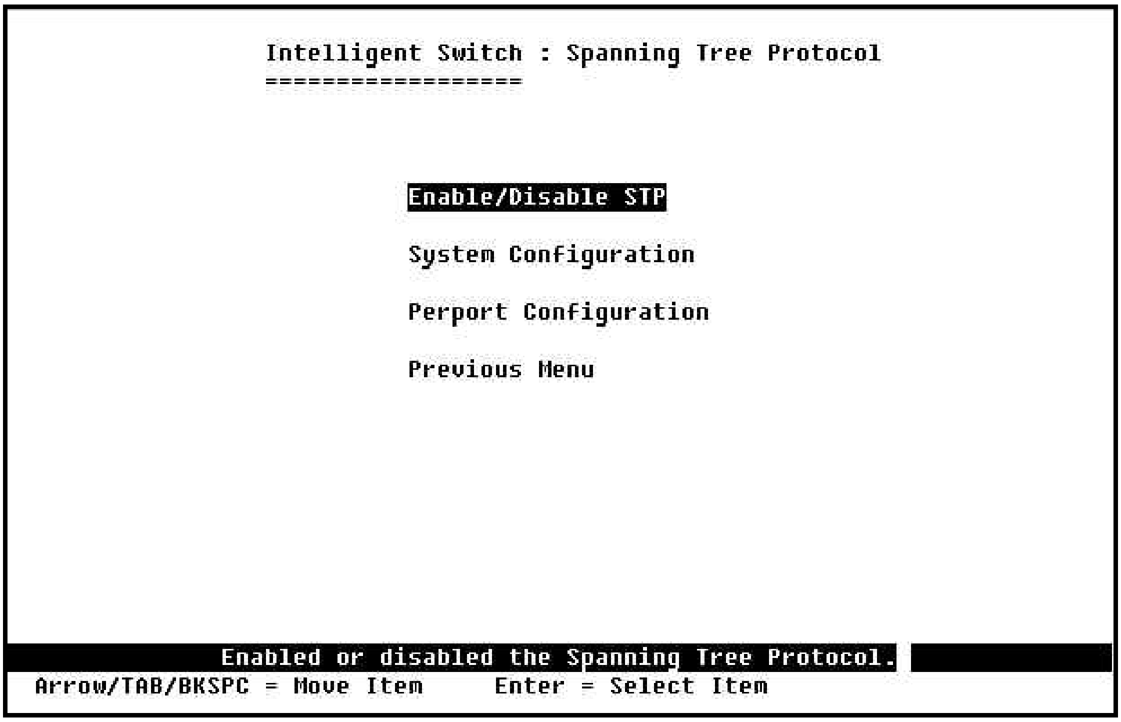
4.3. Protocol Related Configuration



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

                              STP

                              SNMP

                              GVRP

                              IGMP

                              LACP

                              802.1X

                              Previous Menu

                    Configure the Spanning Tree Protocol.
  Arrow/TAB/BKSPC = Move Item     Enter = Select Item
```

4.3.1. STP

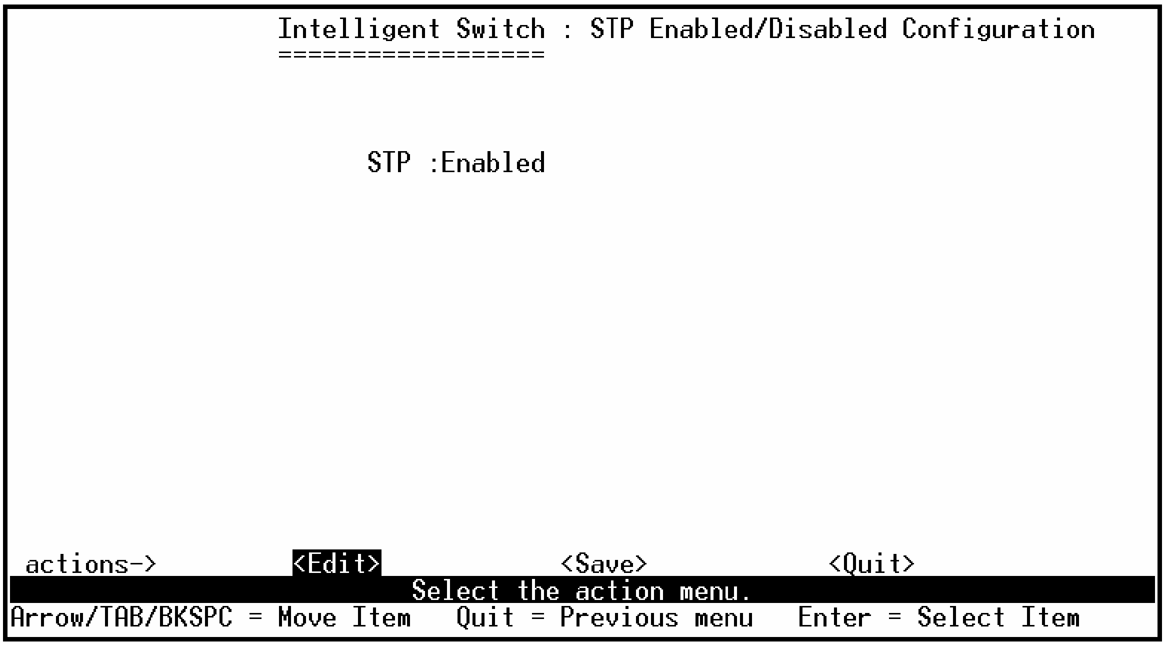
The Spanning-Tree Protocol (STP) is a standardized method (IEEE 802.1D) for avoiding loops in switched networks. When STP enabled, to ensure that only one path at a time is active between any two nodes on the network.



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

                         Enable/Disable STP

                         System Configuration

                         Perport Configuration

                         Previous Menu

               Enabled or disabled the Spanning Tree Protocol.
  Arrow/TAB/BKSPC = Move Item     Enter = Select Item
```

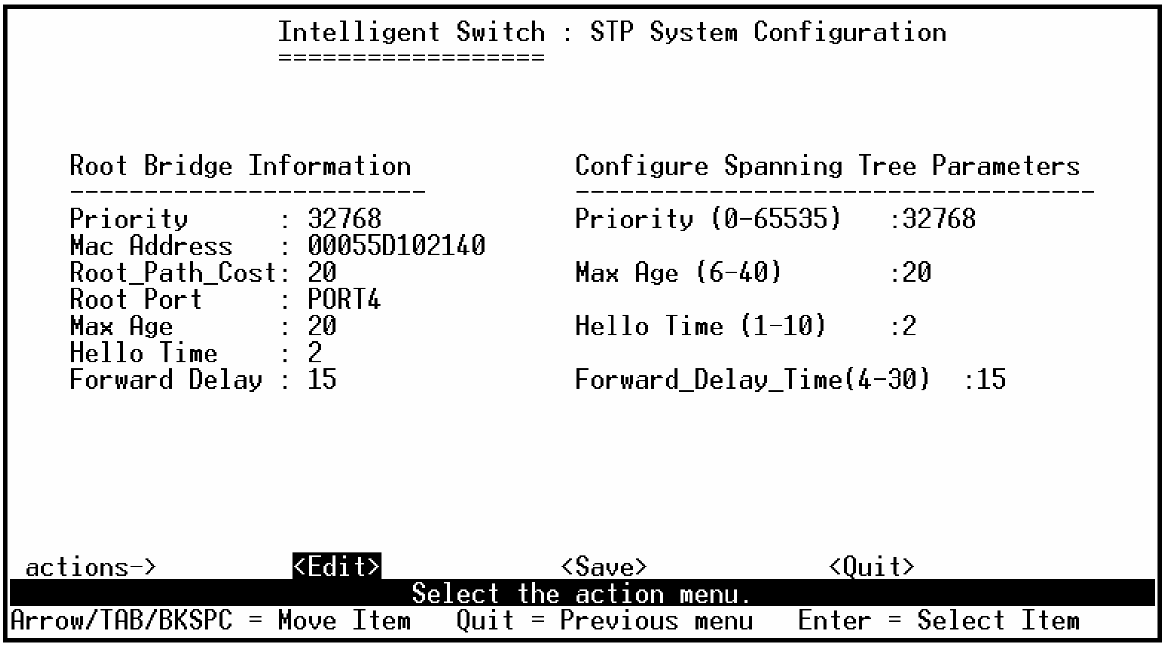
4.3.1.1. Enable/Disable STP

This page is showing the users how to enable or disable Spanning Tree function. Press **Space** key to select enable or disable.



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


                        STP :Enabled











 actions->          <Edit>            <Save>            <Quit>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.3.1.2. STP System Configuration



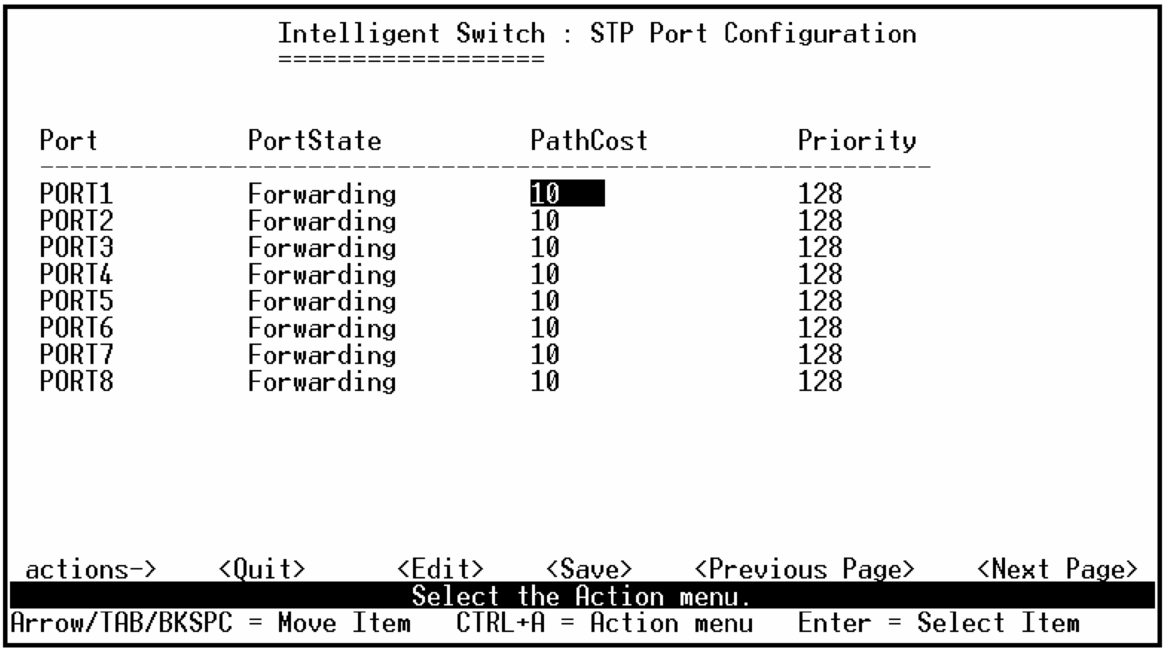
```
                  Intelligent Switch : STP System Configuration
                  ==================


    Root Bridge Information          Configure Spanning Tree Parameters
    ------------------------         -----------------------------------
    Priority      : 32768            Priority (0-65535)   :32768
    Mac Address   : 00055D102140
    Root_Path_Cost: 20               Max Age (6-40)       :20
    Root Port     : PORT4
    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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

Actions->

1. You can view spanning tree information about the Root Bridge on the left.
2. On the right, user can set new value for STP parameter.

NOTE: All about the parameter description please see the *sections 2-4-8.*

4.3.1.3. Perport 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.
Arrow/TAB/BKSPC = Move Item    CTRL+A = Action menu    Enter = Select Item
```

Actions->

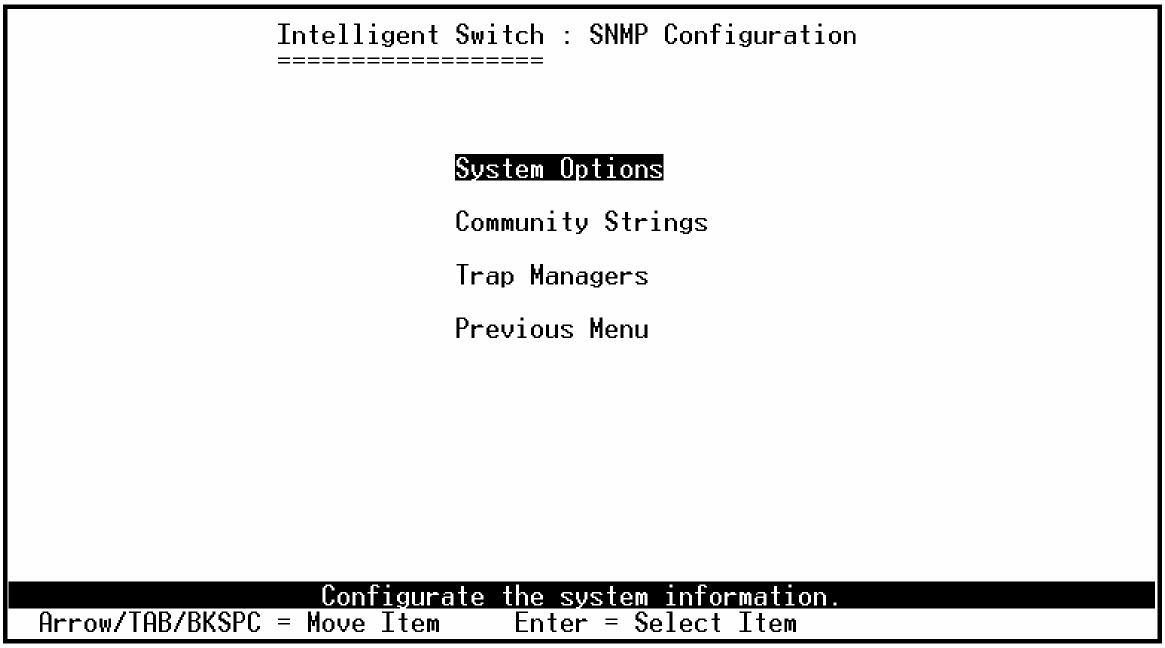
1. **PortState:** Display spanning tree status about the switch for per port is forwarding or blocking.
2. Select <**Edit**>.
3. **PathCost:** Specifies the path cost of the port that switch uses to determine which port are the forwarding ports.
4. **Priority:** This means priority port, you can make it more or less likely to become the root port.
5. Press **Ctrl +A** back to action menu line.
6. Select <**Save**> to save all configure value.
7. On the action menu line you can press <**Next Page**> to configure port9 ~ port26, press <**Previous Page**> return to last page.

NOTE: All about the parameter description please see the *sections 2-4-8.*

4.3.2. SNMP

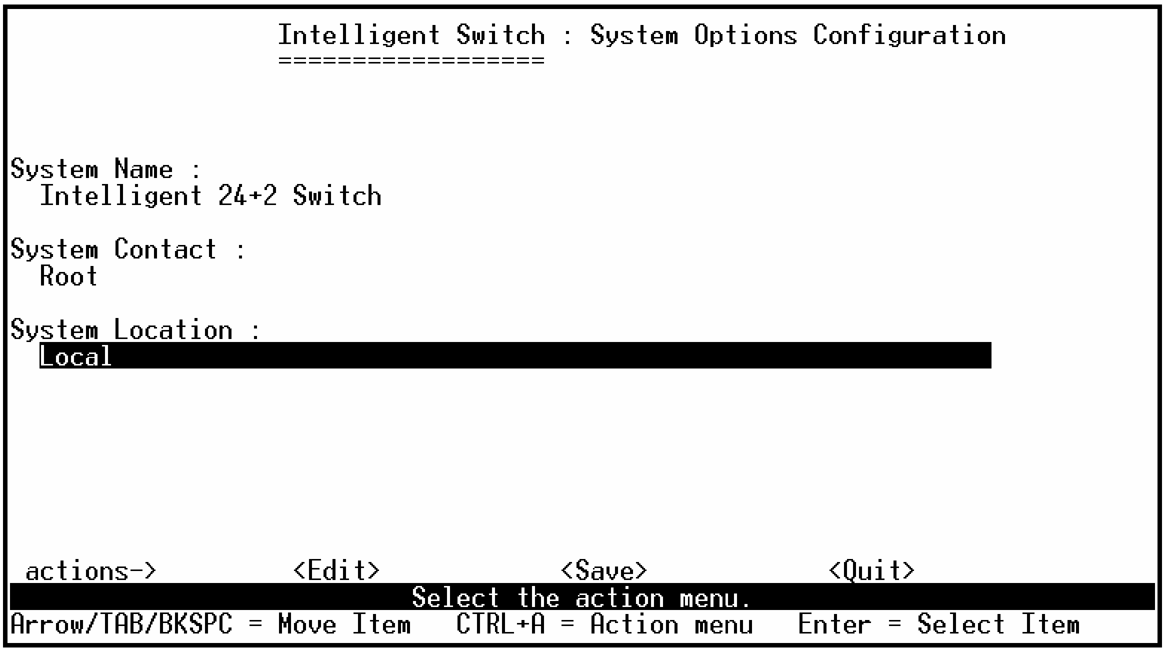
Any Network Management running the simple Network Management Protocol (SNMP) can be management the switch.

Use this page to define management stations as trap managers and to enter SNMP community strings. User 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.
  Arrow/TAB/BKSPC = Move Item     Enter = Select Item
```

4.3.2.1. 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.
Arrow/TAB/BKSPC = Move Item   CTRL+A = Action menu   Enter = Select Item
```

Actions->

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** go back action menu line.
6. Press **<Save>** to save the configure value.

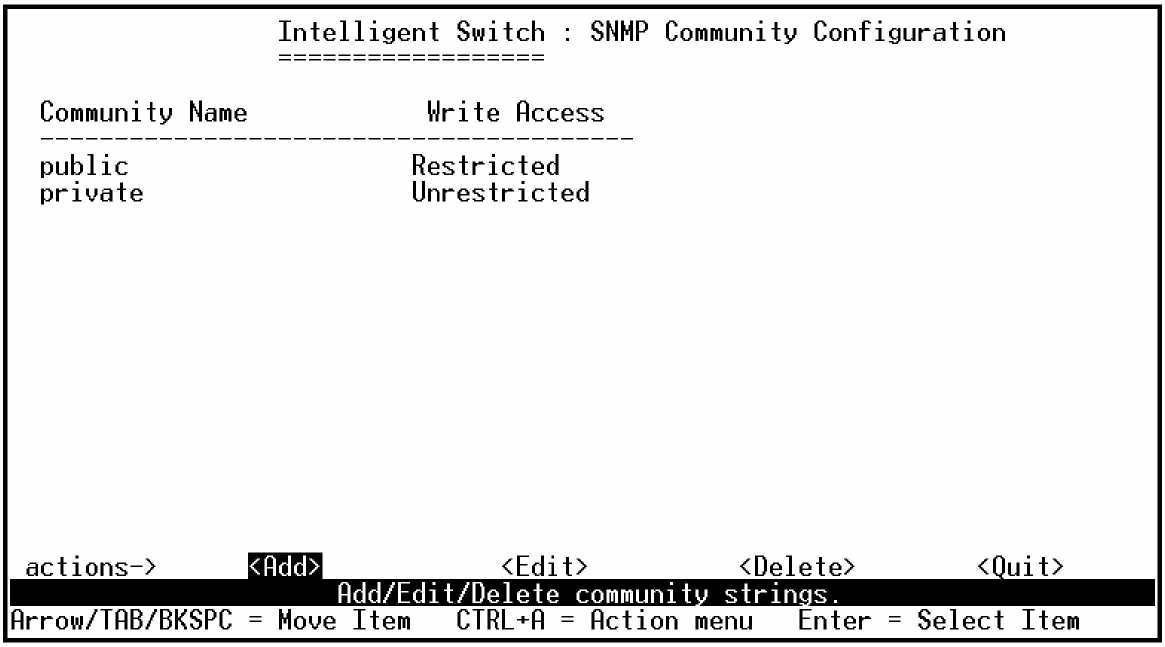
4.3.2.2. Community Strings

Use this page to Add/ Edit/ Delete SNMP community strings.

1. **Community Name:** The name of current strings.
2. **Write Access:** Enable the rights is read only or read-write.

   Restricted: Read only, enables requests accompanied by this string to display MIB-object information.

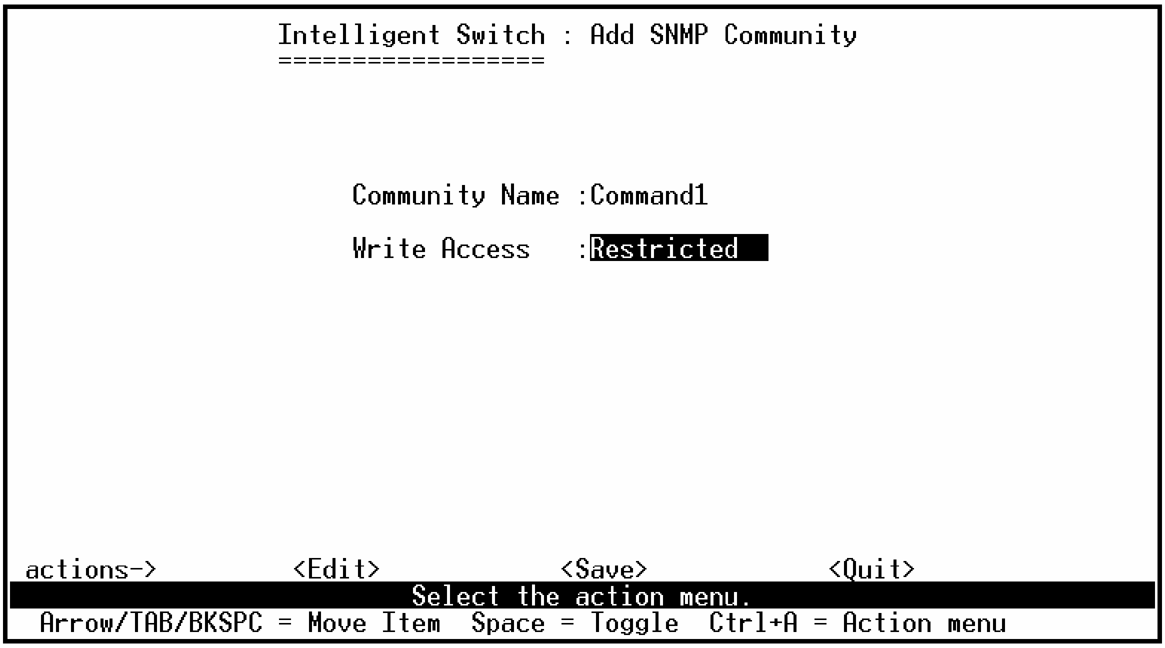
   Unrestricted: Read write, enables requests accompanied by this string to display MIB-object information and to set MIB objects.



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

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














 actions->      <Add>            <Edit>          <Delete>        <Quit>
                      Add/Edit/Delete community strings.
Arrow/TAB/BKSPC = Move Item   CTRL+A = Action menu   Enter = Select Item
```

- **Add Community Name**

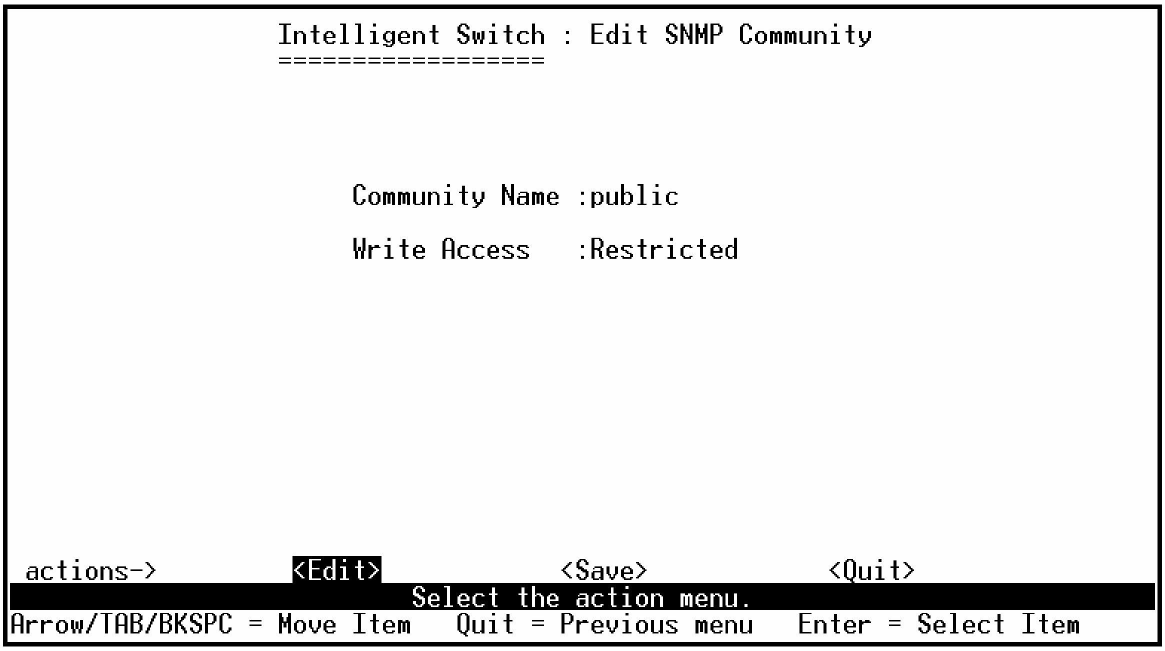
1. Press **<Add> --> <Edit>** key.
2. **Community Name:** Type the community name.
3. **Write Access:** Press **Space** key to select the right is restricted or unrestricted.



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


                       Community Name :Command1

                       Write Access   :Restricted








 actions->          <Edit>            <Save>            <Quit>
                            Select the action menu.
  Arrow/TAB/BKSPC = Move Item  Space = Toggle  Ctrl+A = Action menu
```

- Edit Community Name

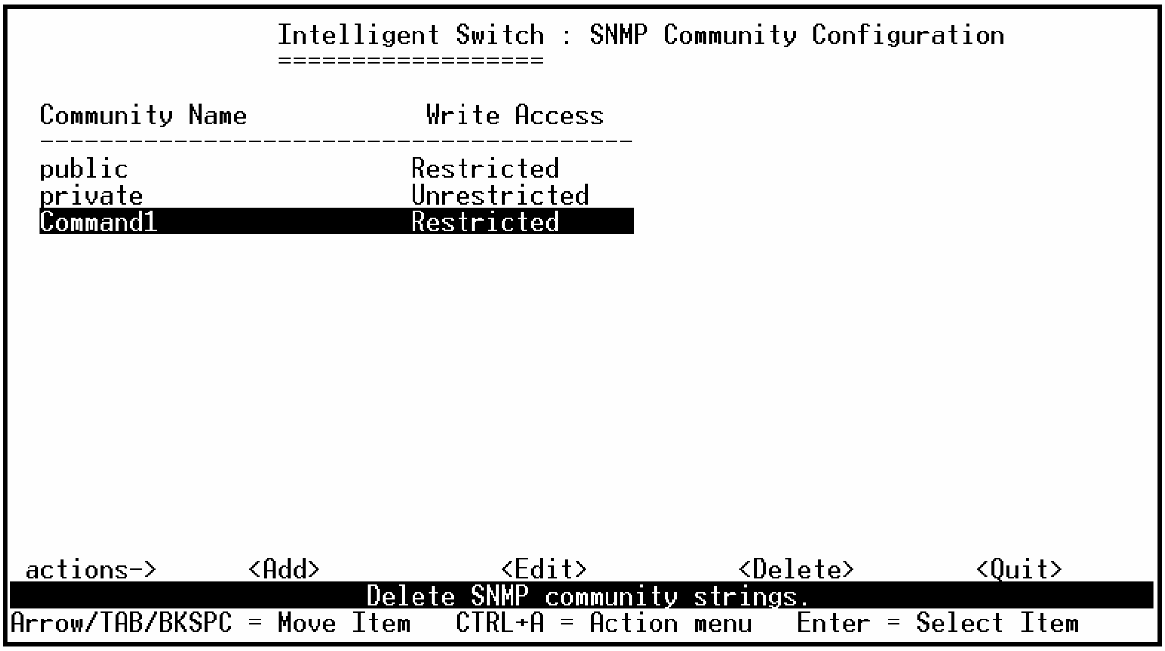
1. Press **<Edit>** key, choose the item that you want to modify and then press **Enter.**
2. **Community Name:** Type the new name.
3. **Write Access:** Press **<Space>** key to change the right is restricted or unrestricted.



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


                       Community Name :public

                       Write Access   :Restricted








 actions->          <Edit>            <Save>            <Quit>
                            Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

- **Delete Community Name**

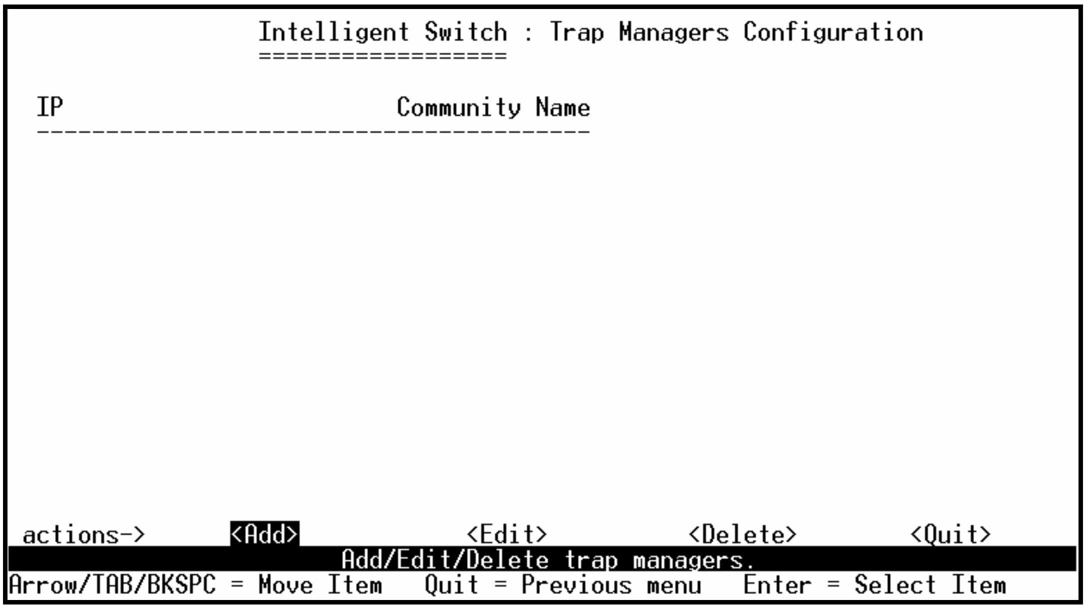
1. Press **<Delete>** key.
2. Choose the community name that you want to delete and then press enter.
3. When pressing **<Enter>** once will complete deletion on delete mode.



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

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










 actions->      <Add>            <Edit>          <Delete>        <Quit>
                        Delete SNMP community strings.
Arrow/TAB/BKSPC = Move Item   CTRL+A = Action menu   Enter = Select Item
```

4.3.2.3. Trap Managers

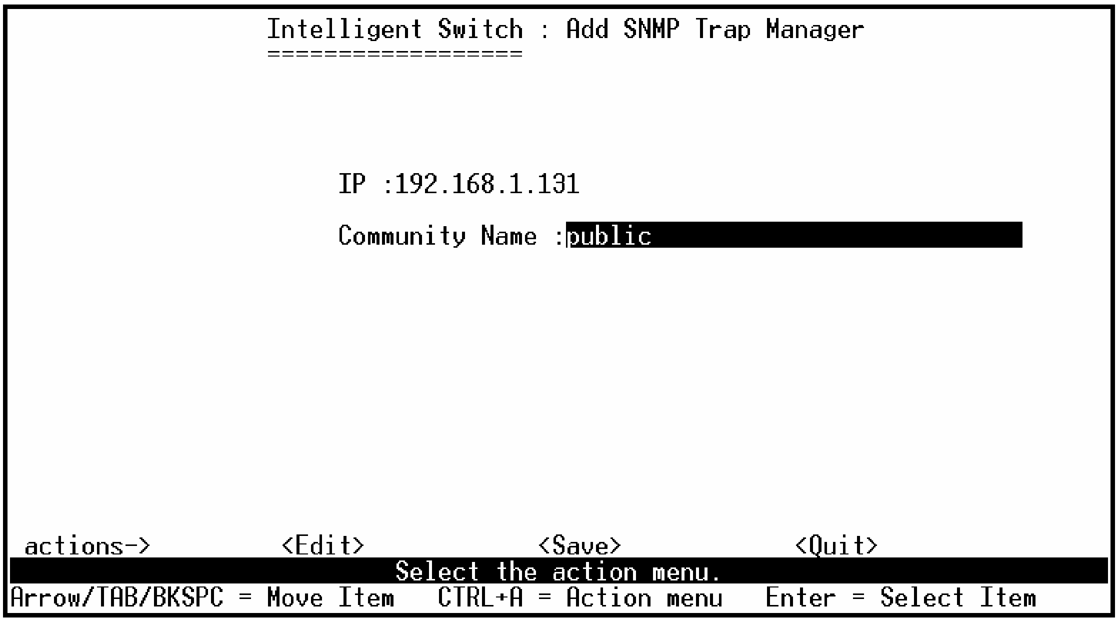
A trap manager is a management station that receives traps, the system alerts generated by the switch. If no trap manager is defined, no traps are issued. Create a trap manager by entering the IP address of the station and a community string.



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

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

 actions->       <Add>           <Edit>          <Delete>        <Quit>
                          Add/Edit/Delete trap managers.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

- **Add SNMP trap manager**

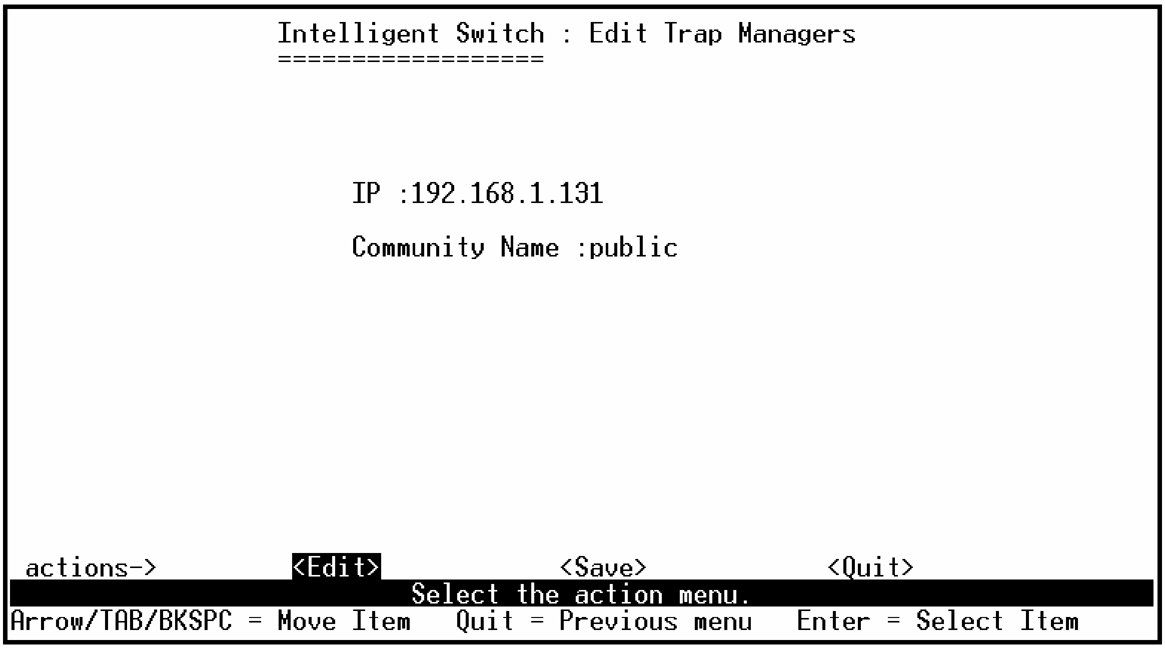
1. Press **<Add> --> <Edit>** to add the trap manager.
2. **IP:** Type the IP address.
3. **Community Name:** Type the community name.
4. Press **Ctrl +A** go to actions line, press <**Save**> key to save all configure.



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


                      IP :192.168.1.131

                      Community Name :public

 actions->          <Edit>             <Save>             <Quit>
                          Select the action menu.
Arrow/TAB/BKSPC = Move Item    CTRL+A = Action menu    Enter = Select Item
```

- **Edit trap managers**

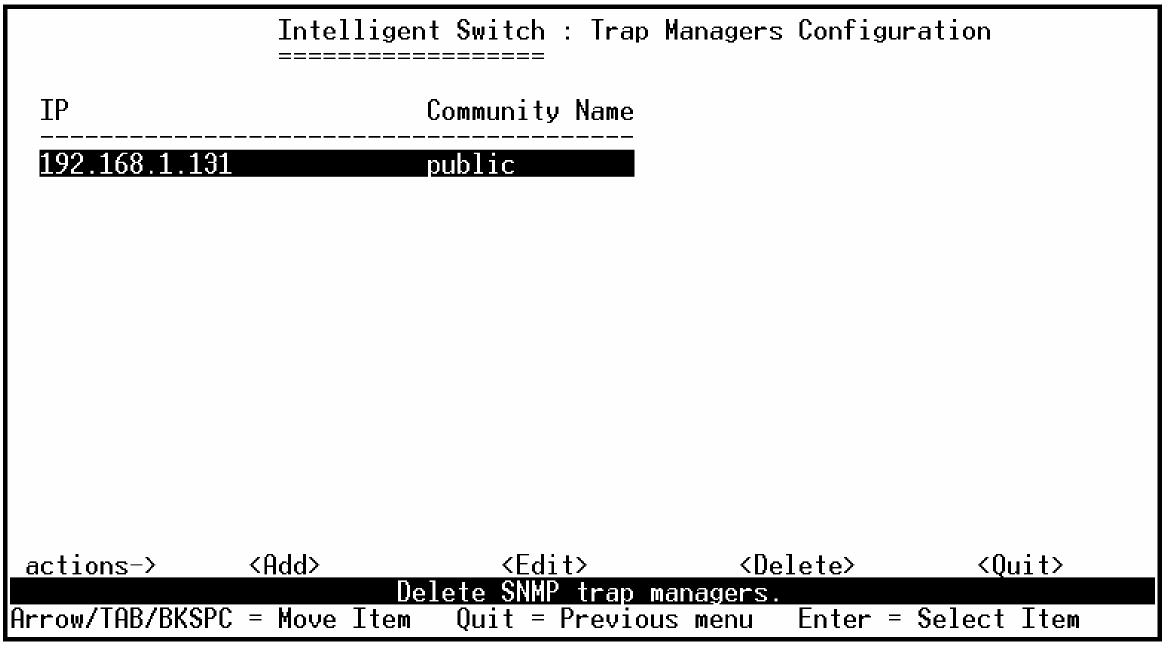
1. Press **<Edit>** key, and then choose the item that you want to modify.
2. **IP:** Type the new IP address
3. **Community Name:** Type the community name.
4. Press **Ctrl +A** go to actions line, press **<Save>** key to save all configure.



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



                         IP :192.168.1.131

                         Community Name :public











 actions->          <Edit>             <Save>             <Quit>
                              Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

- **Delete trap manager**

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

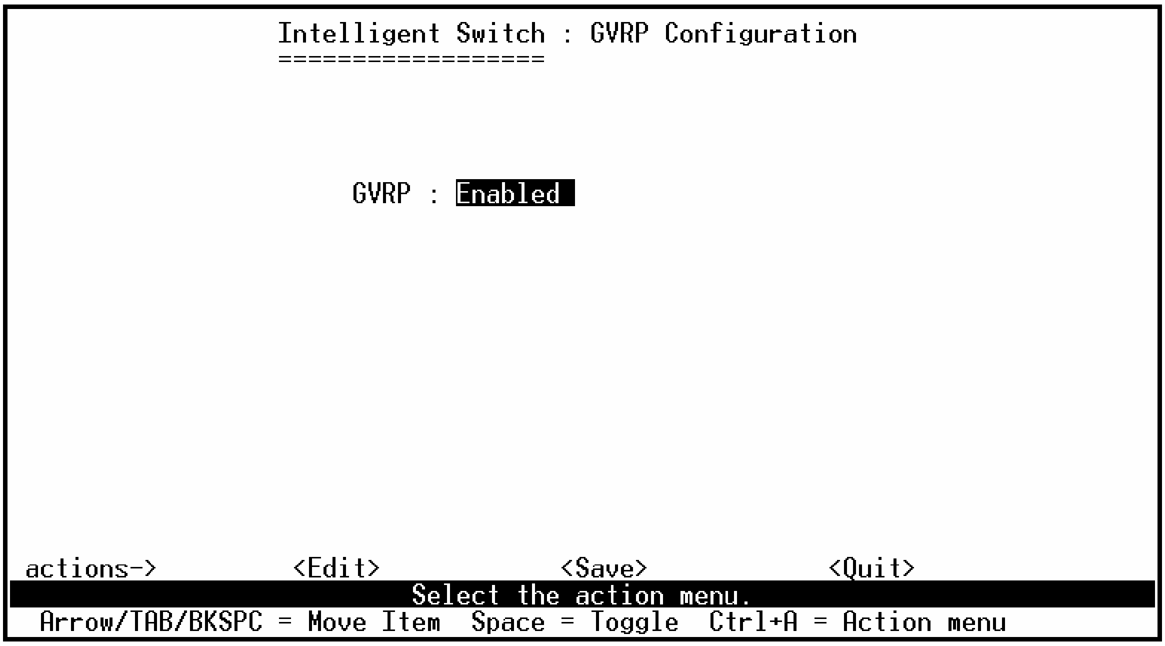


```
                    Intelligent Switch : Trap Managers Configuration
                    ==================

  IP                         Community Name
  ----------------------------------------
  192.168.1.131              public















 actions->      <Add>            <Edit>           <Delete>         <Quit>
                             Delete SNMP trap managers.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

4.3.3. GVRP

GVRP (GARP [Generic Attribute Registration Protocol] VLAN Registration Protocol)
GVRP allows automatic VLAN configuration between the switch and nodes.
For example, if the switch is connected to a device with GVRP enabled, you can enable 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.

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.
Arrow/TAB/BKSPC = Move Item   Space = Toggle   Ctrl+A = Action menu

Actions->

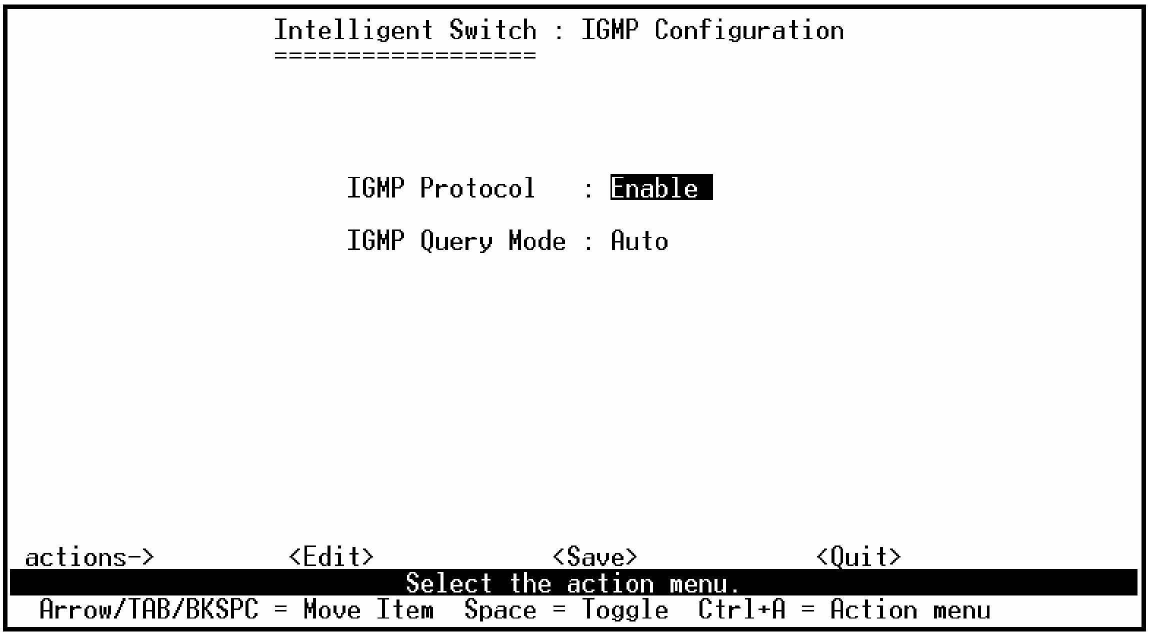
1. Select **<Edit>**.
2. Press **Space** key to choose Enabled / Disabled.
3. Press **Ctrl+A** back to action menu line.
4. Select **<Save>** to save configure value.

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

4.3.4. 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.



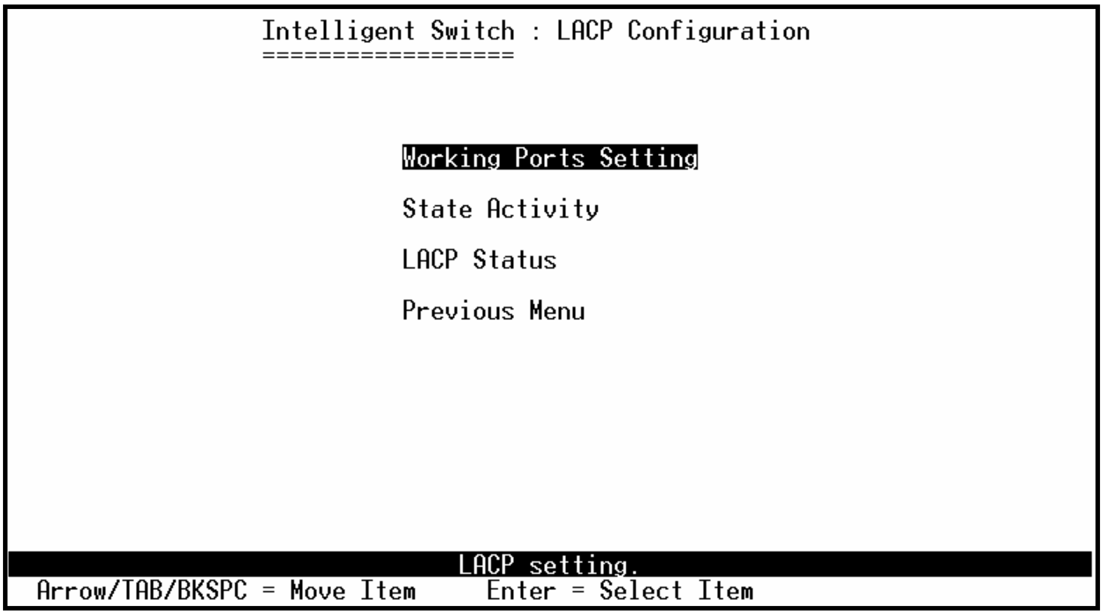
```
                    Intelligent Switch : IGMP Configuration
                    ==================



                         IGMP Protocol    : Enable

                         IGMP Query Mode : Auto










 actions->          <Edit>            <Save>           <Quit>
                              Select the action menu.
  Arrow/TAB/BKSPC = Move Item  Space = Toggle  Ctrl+A = Action menu
```

Actions->

1. Select **<Edit>**.
2. **IGMP Protocol:** Press **Space** key to choose Enable / Disable.
3. **IGMP Query Mode:** Press **Space** key to choose Auto / Enable /Disable.
4. Press **Ctrl+A** go back action menu line.
5. Select **<Save>** to save configure value.

4.3.5. LACP (Link Aggregation Control Protocol)

This page can configure and view all the LACP status.

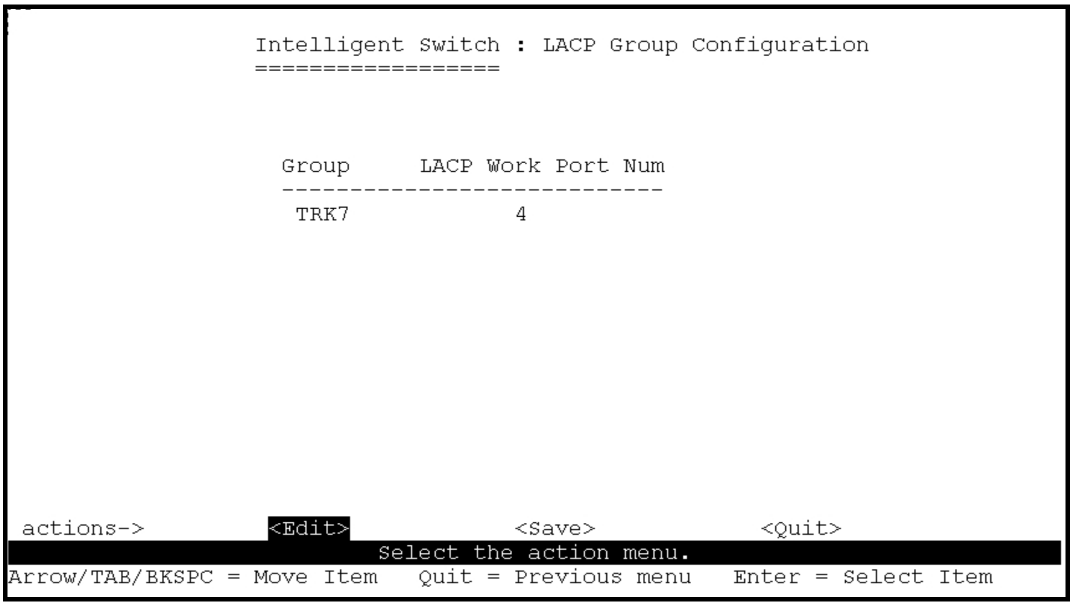


```
                  Intelligent Switch : LACP Configuration
                  ==================


                            Working Ports Setting

                            State Activity

                            LACP Status

                            Previous Menu







                                LACP setting.
  Arrow/TAB/BKSPC = Move Item      Enter = Select Item
```

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

4.3.5.1. Working Port Setting

This page can set the actually work ports in trunk group.



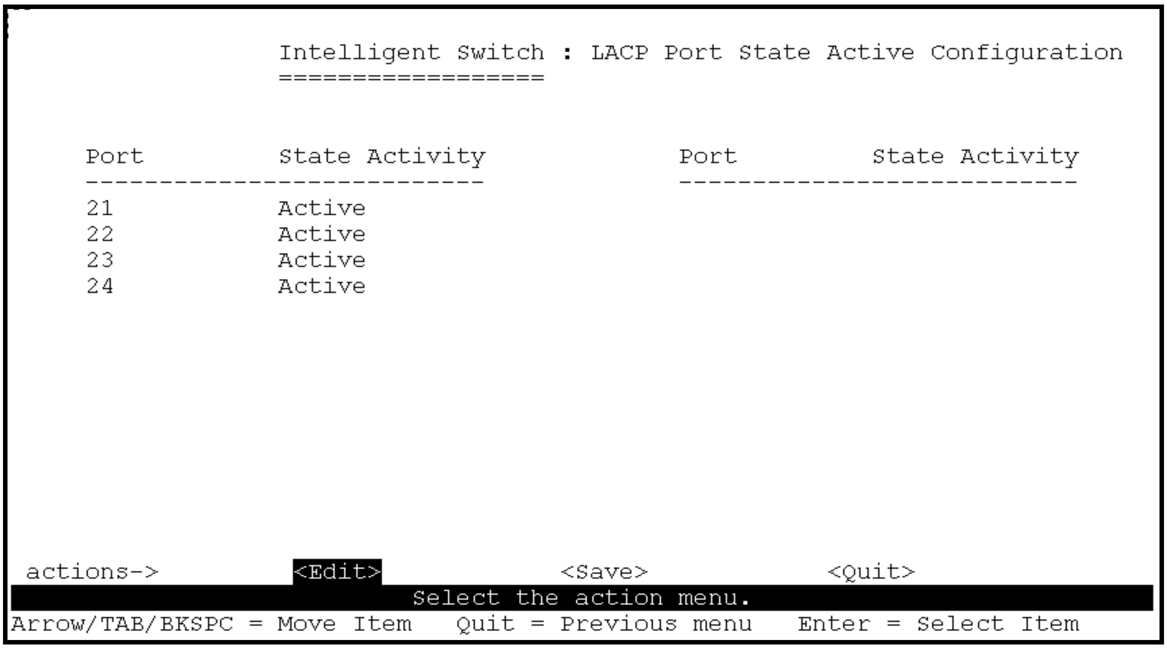
```
                  Intelligent Switch : LACP Group Configuration
                  ==================


                    Group     LACP Work Port Num
                    ----------------------------
                     TRK7           4









 actions->           <Edit>            <Save>            <Quit>
                          Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

Actions->

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

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

4.3.5.2. State Activity



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


     Port          State Activity               Port          State Activity
     ----------------------------               ----------------------------
     21            Active
     22            Active
     23            Active
     24            Active









 actions->              <Edit>            <Save>            <Quit>
                         Select the action menu.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

Actions->

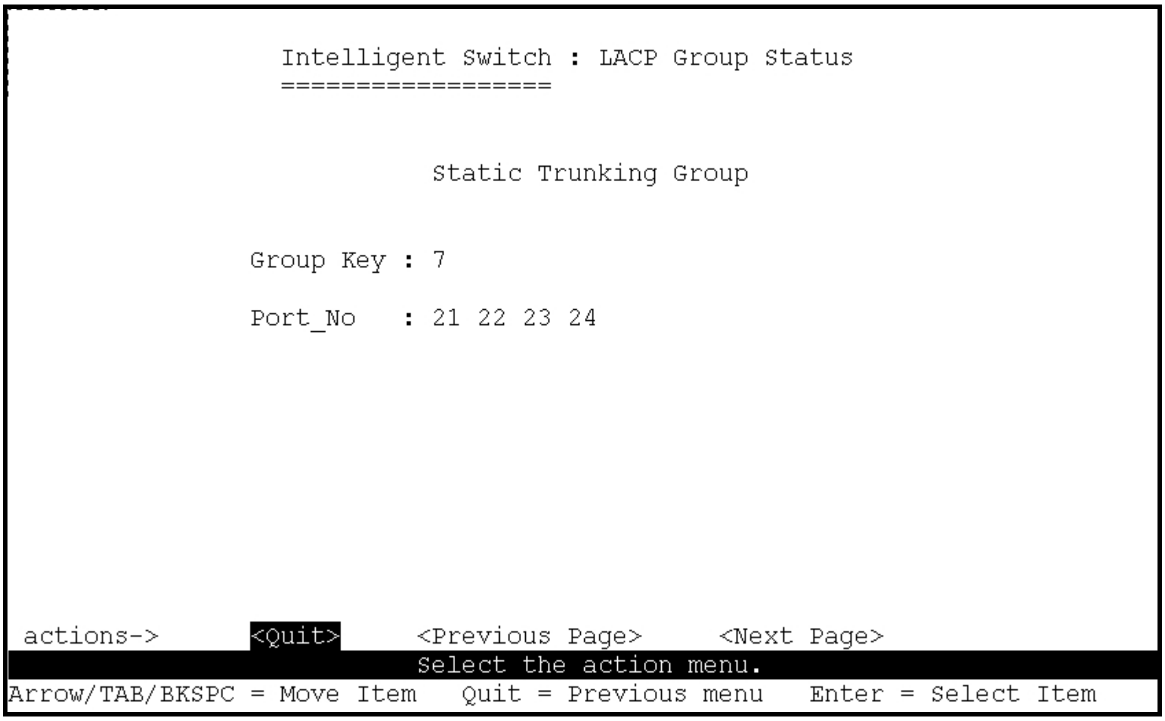
1. Select **<Edit>**.
2. Press **Space** key to choose the item.
   Active: The port automatically sends LACP protocol packets.
   Passive: The port does not automatically send LACP protocol packets, and responds only if it receives LACP protocol packets from the opposite device.
3. Press **Ctrl+A**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

NOTE: If user set LACP mode in the trunk group, all of the member ports of this trunk group will set "Active" automatic.

4.3.5.3. LACP Status

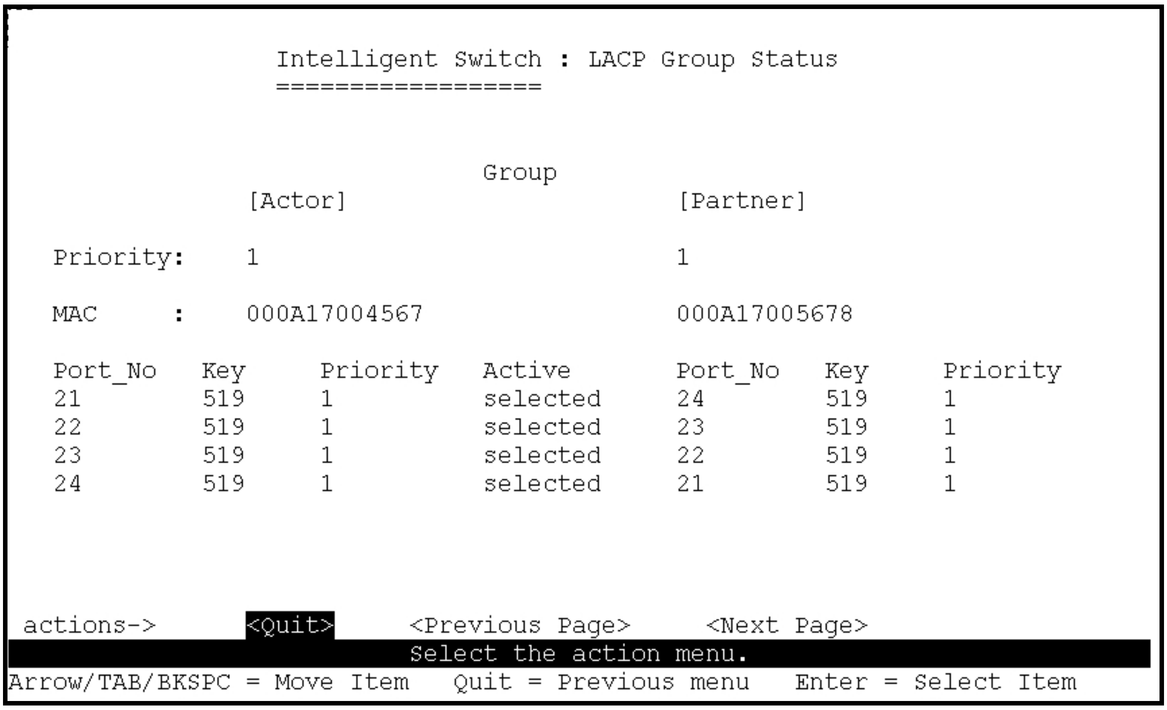
When you’re setting trunk group, you can see the relational information here.

Static trunk group



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

                            Static Trunking Group


                Group Key : 7

                Port_No   : 21 22 23 24









 actions->       <Quit>     <Previous Page>     <Next Page>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

LACP trunk group



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


                               Group
               [Actor]                        [Partner]

   Priority:    1                             1

   MAC     :    000A17004567                  000A17005678

   Port_No   Key     Priority   Active        Port_No   Key     Priority
   21        519     1          selected      24        519     1
   22        519     1          selected      23        519     1
   23        519     1          selected      22        519     1
   24        519     1          selected      21        519     1



 actions->       <Quit>     <Previous Page>     <Next Page>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

Actions->

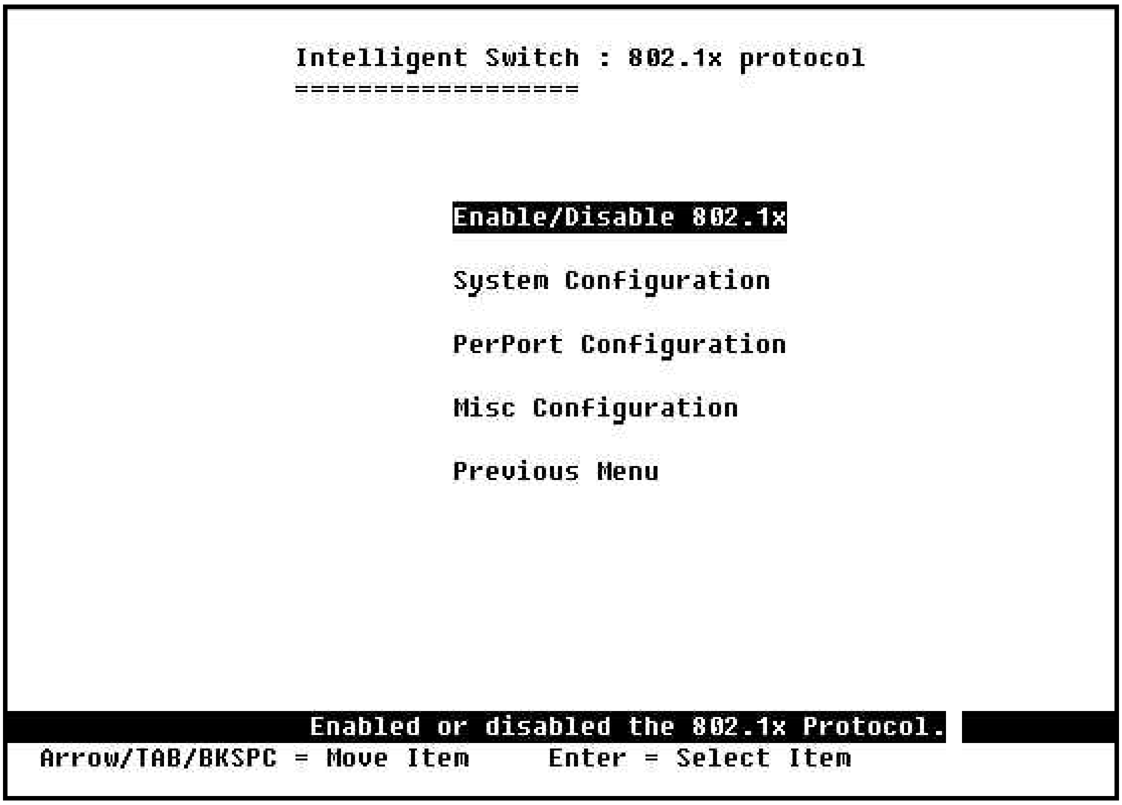
<Quit>: Exit this page and return to previous menu.

<Previous Page>: Return to previous page to view.

<Next page>: Go to the next page to view.

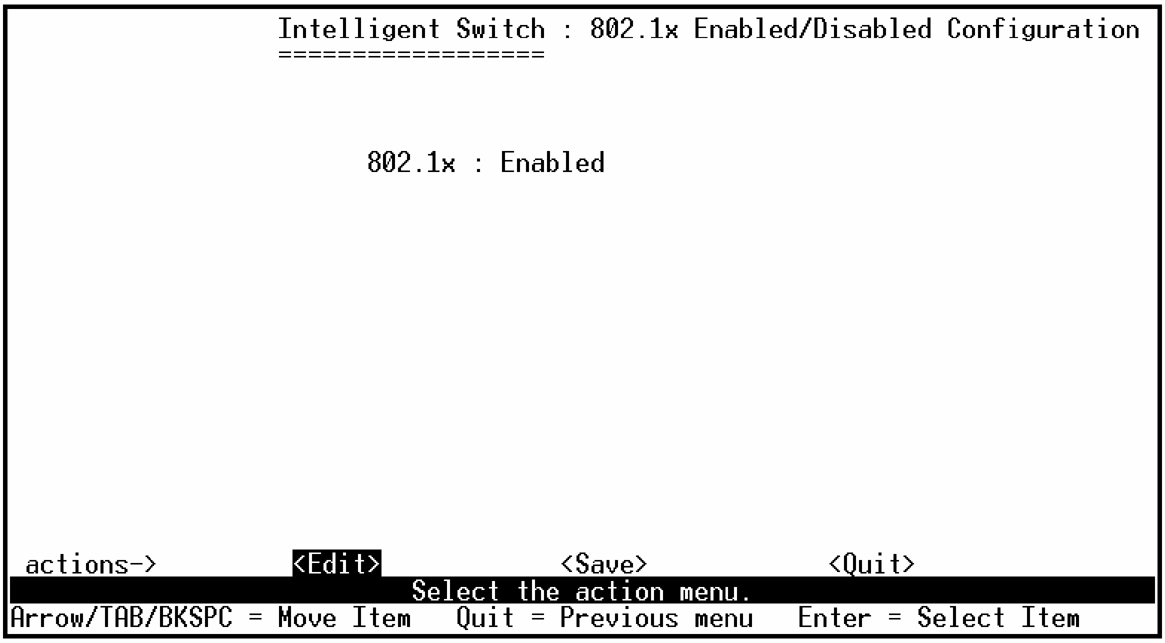
4.3.6. 802.1x Protocol

This page can configure and view all the 802.1x status.



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

                              Enable/Disable 802.1x

                              System Configuration

                              PerPort Configuration

                              Misc Configuration

                              Previous Menu

                     Enabled or disabled the 802.1x Protocol.
  Arrow/TAB/BKSPC = Move Item     Enter = Select Item
```

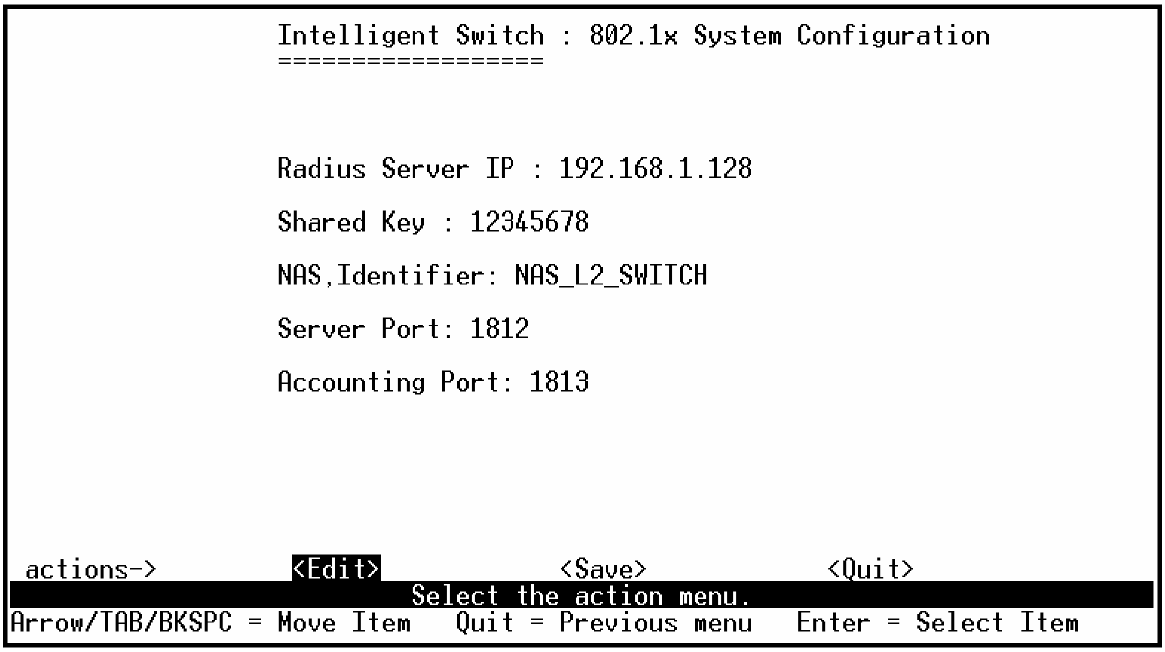
4.3.6.1. Enable/Disable 802.1x



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

                       802.1x : Enabled

 actions->           <Edit>             <Save>            <Quit>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

1.Select **<Edit>**.
2.Press **Space** key to choose Enabled / Disabled.
3.Press **Ctrl+A** go back action menu line.
4.Select **<Save>** to save configure value.

4.3.6.2. 802.1x System Configuration



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


                  Radius Server IP : 192.168.1.128

                  Shared Key : 12345678

                  NAS,Identifier: NAS_L2_SWITCH

                  Server Port: 1812

                  Accounting Port: 1813




 actions->          <Edit>             <Save>             <Quit>
                            Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

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 authentication server.

4.**NAS, Identifier:** A string used to identify this switch.

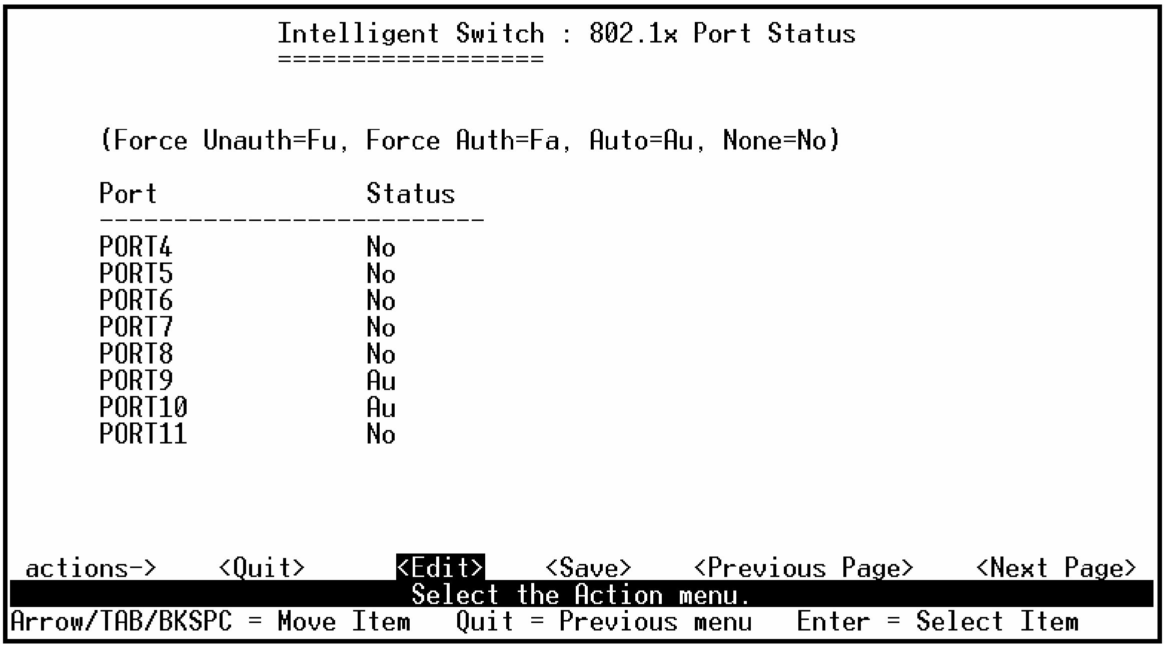
5.**Server Port:** The UDP port number used by the authentication server to authenticate.

6.**Accounting Port:** The UDP port number used by the authentication server to retrieve accounting information.

7.Press **Ctrl+A** go back action menu line.

8.Press <**Save**> to save configure value.

4.3.6.3. 802.1x PerPort Configuration



```
                  Intelligent Switch : 802.1x Port Status
                  ==================


      (Force Unauth=Fu, Force Auth=Fa, Auto=Au, None=No)

      Port              Status
      --------------------------
      PORT4             No
      PORT5             No
      PORT6             No
      PORT7             No
      PORT8             No
      PORT9             Au
      PORT10            Au
      PORT11            No



 actions->    <Quit>       <Edit>     <Save>    <Previous Page>    <Next Page>
                           Select the Action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

In this page, set the authorization status to activate 802.1x function by port

1. Select <**Edit**>.
2. **Status:** Press <**Space**> key to choose Fu / Fa / Au / No authorization status.
3. Press **Ctrl+A** go back action menu line.
4. Select <**Save**> to save all configure value.

Note:

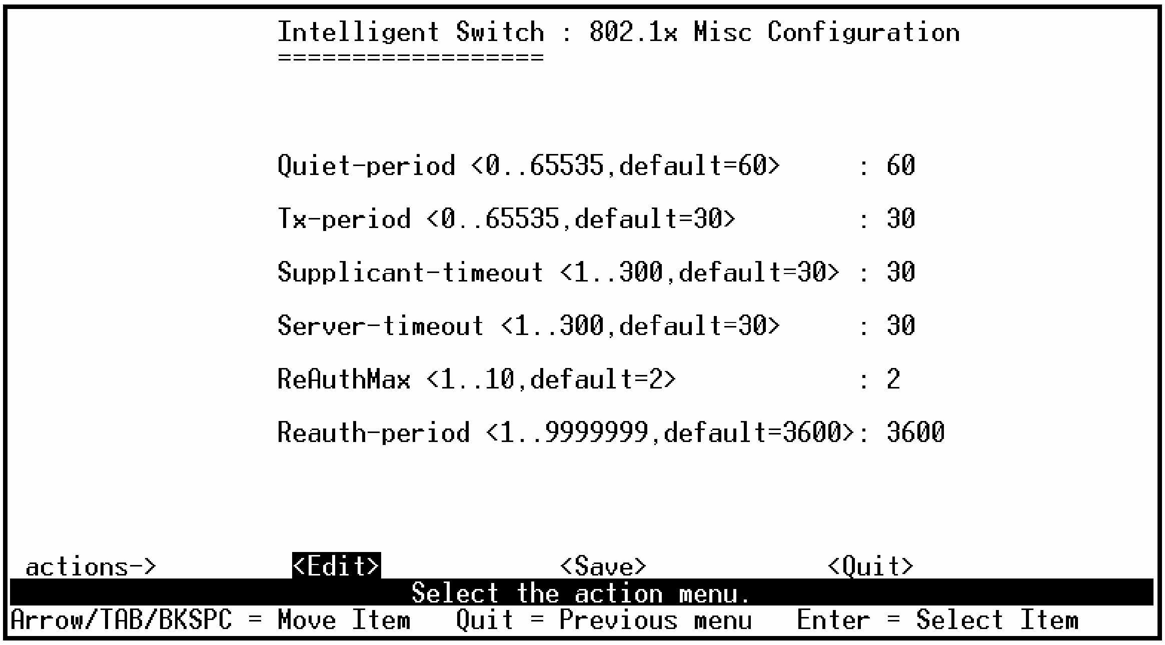
Fu：Force the specific port to be unauthorized.

Fa：Force the specific port to be authorized.

Au：The state of the specific port was determined by the outcome of the authentication.

No：The specific port didn't support 802.1x function.

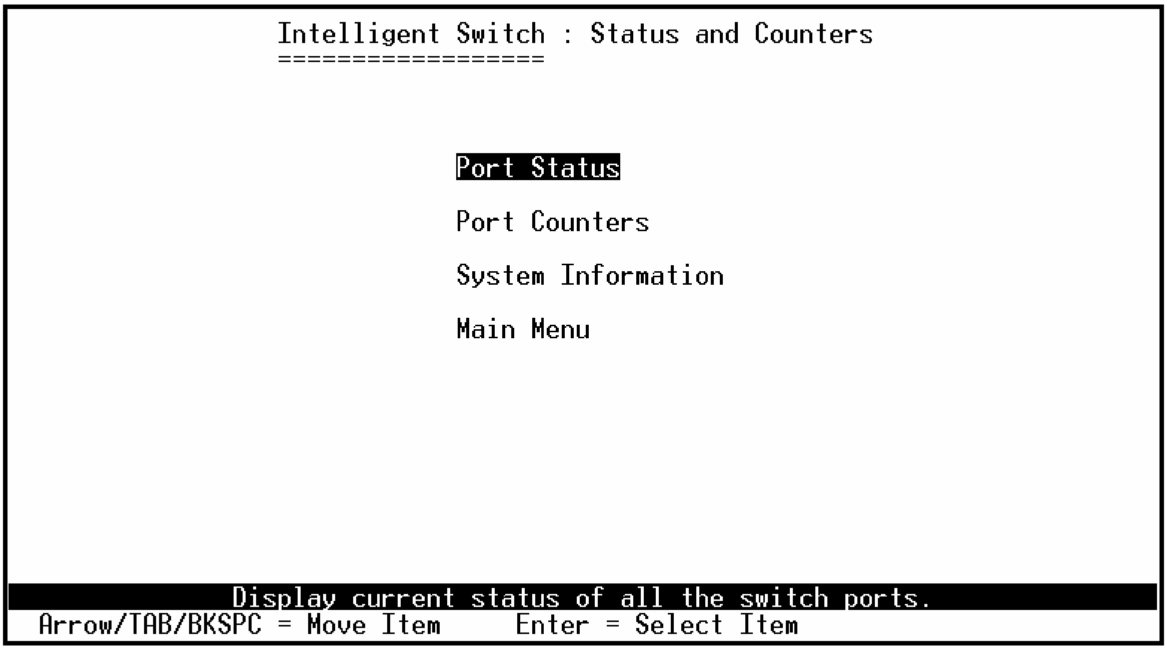
4.3.6.4. 802.1x Misc Configuration



```
                  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.
Arrow/TAB/BKSPC = Move 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).
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. **ReAuthMax**：Used to determine the number of re-authentication attempts that are permitted before the specific port becomes unauthorized (Default value is 2 times).
7. **Reauth Period**： Used to determine a nonzero number of seconds between periodic re-authentication of the supplications (Default value is 3600 seconds).
8. Press **Ctrl+A** go back action menu line.
9. Press **<Save>** to save configures value.

4.4. Status and Counters

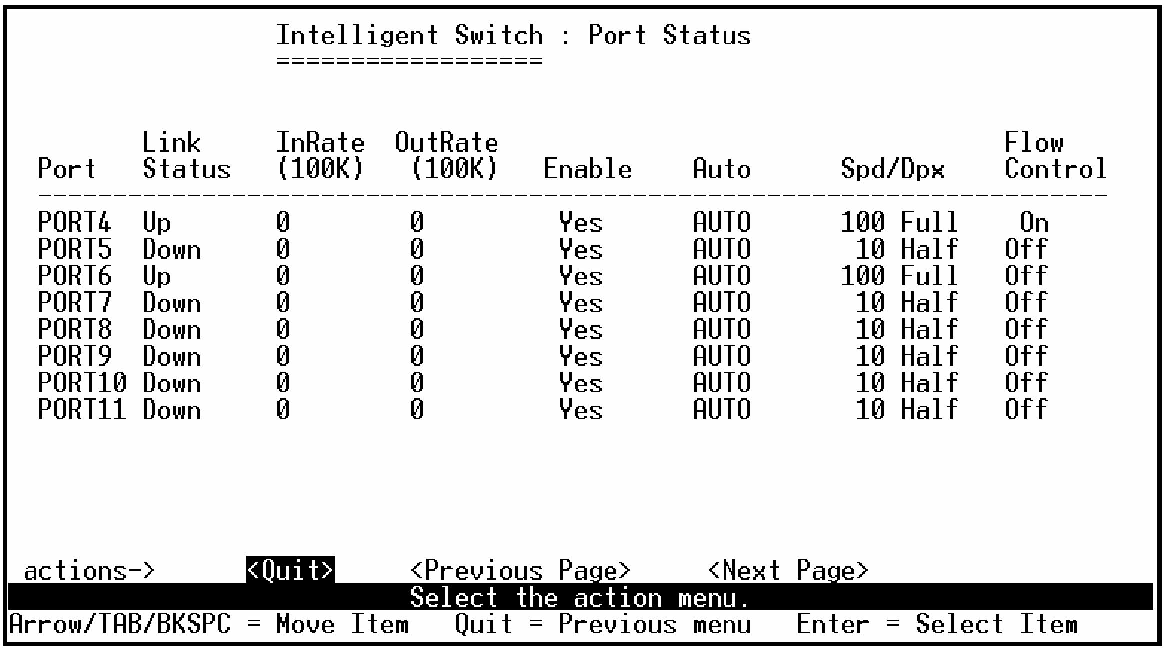


```
                  Intelligent Switch : Status and Counters
                  ==================


                              Port Status

                              Port Counters

                              System Information

                              Main Menu









                Display current status of all the switch ports.
  Arrow/TAB/BKSPC = Move Item      Enter = Select Item
```

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

4.4.1. Port Status

This page display every port status



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


        Link    InRate  OutRate                                Flow
  Port  Status  (100K)  (100K)   Enable   Auto     Spd/Dpx   Control
  ------------------------------------------------------------------
  PORT4  Up      0       0        Yes      AUTO     100 Full   On
  PORT5  Down    0       0        Yes      AUTO      10 Half  Off
  PORT6  Up      0       0        Yes      AUTO     100 Full  Off
  PORT7  Down    0       0        Yes      AUTO      10 Half  Off
  PORT8  Down    0       0        Yes      AUTO      10 Half  Off
  PORT9  Down    0       0        Yes      AUTO      10 Half  Off
  PORT10 Down    0       0        Yes      AUTO      10 Half  Off
  PORT11 Down    0       0        Yes      AUTO      10 Half  Off







 actions->      <Quit>     <Previous Page>     <Next Page>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

Link Status: Display the port is link or no link.

InRate: Display the input rate control (100K/unit) setting value.

OutRate: Display the output rate control (100K/unit) setting value.

Enabled: Display the port is enabled or disable depended on user setting. Enable will be display "Yes", disable will be display "No". If the port is unlink will be treated as "No".

Auto: Display the port is link on which Nway mode: Auto, Nway_Force, and Force.

Spd/Dpx: Display the port speed and duplex.

FlowCtrl: In auto / Nway force mode, display the flow control status is enable or not after negotiation.

In force mode, display the flow control status is enabling or disable depending on user setting.

Actions->

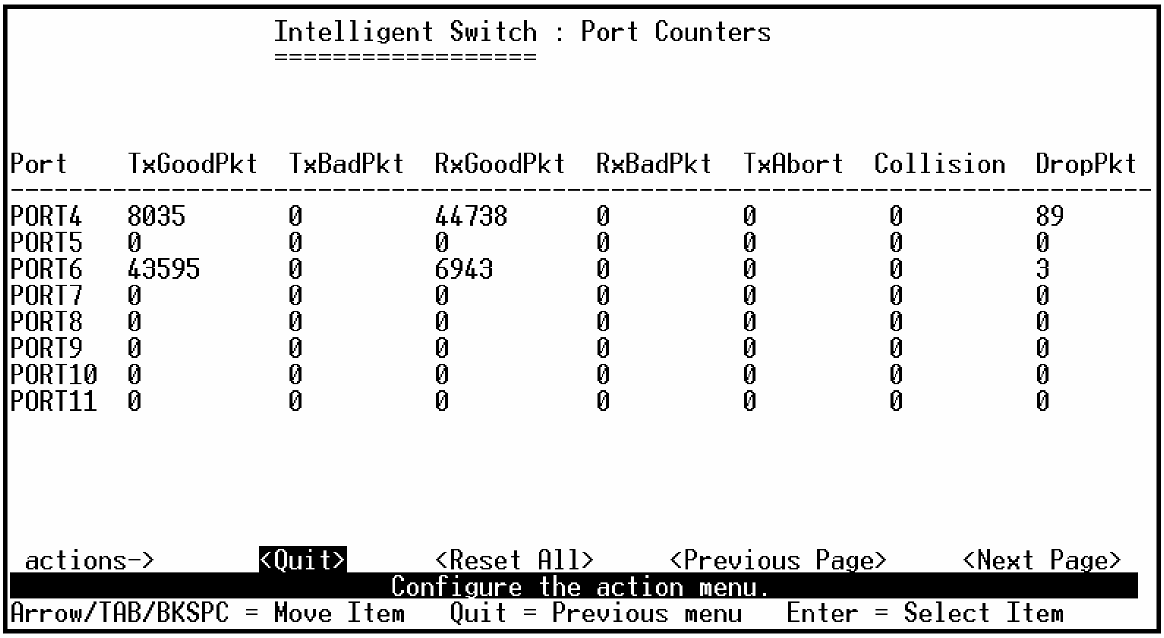
<Quit>: Exit the page of port status, and return to previous menu.

<Previous Page>: Display previous page.

<Next page>: Display next page.

4.4.2. 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
------------------------------------------------------------------------------
PORT4    8035       0         44738      0         0        0          89
PORT5    0          0         0          0         0        0          0
PORT6    43595      0         6943       0         0        0          3
PORT7    0          0         0          0         0        0          0
PORT8    0          0         0          0         0        0          0
PORT9    0          0         0          0         0        0          0
PORT10   0          0         0          0         0        0          0
PORT11   0          0         0          0         0        0          0




 actions->       <Quit>      <Reset All>     <Previous Page>     <Next Page>
                          Configure the action menu.
Arrow/TAB/BKSPC = Move Item    Quit = Previous menu    Enter = Select Item
```

Actions->

<Quit>: Exit the page of port status, and return to previous menu.

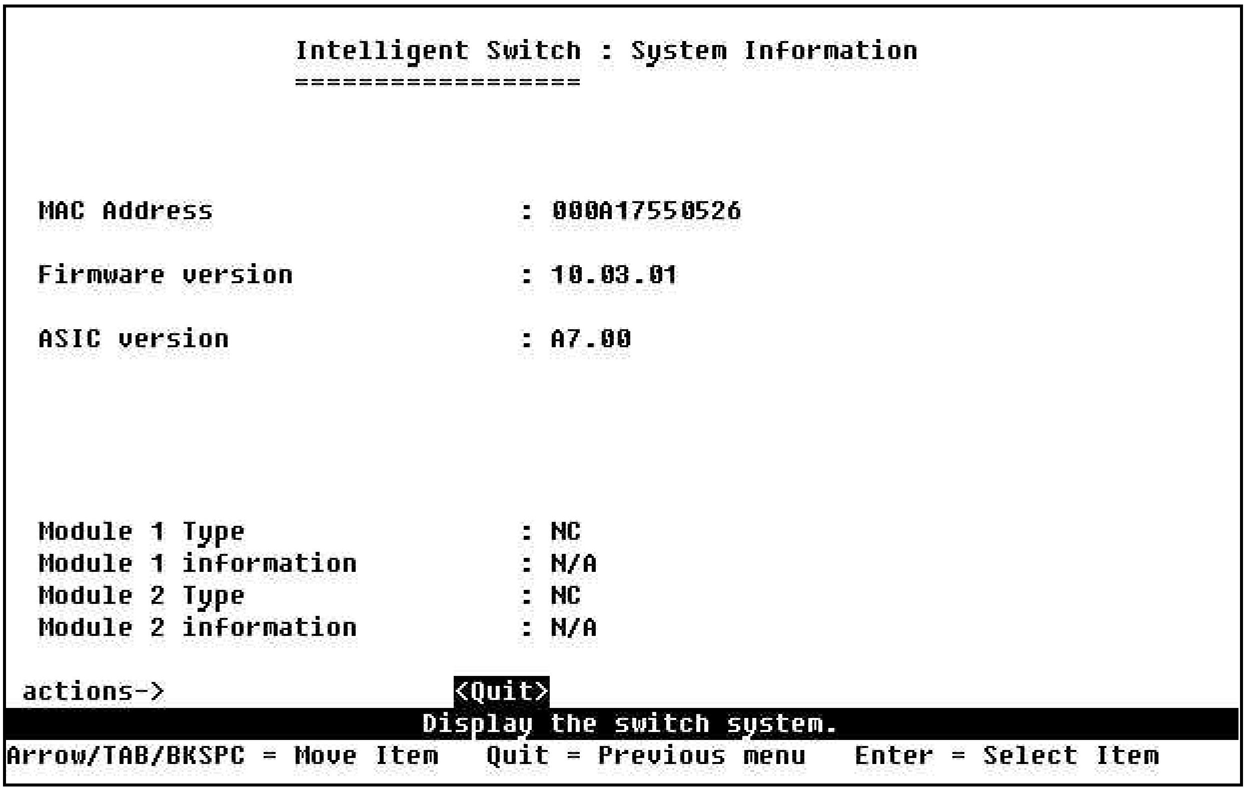
<Reset All>: Set all count to 0.

<Previous Page>: Display previous page.

<Next page>: Display next page.

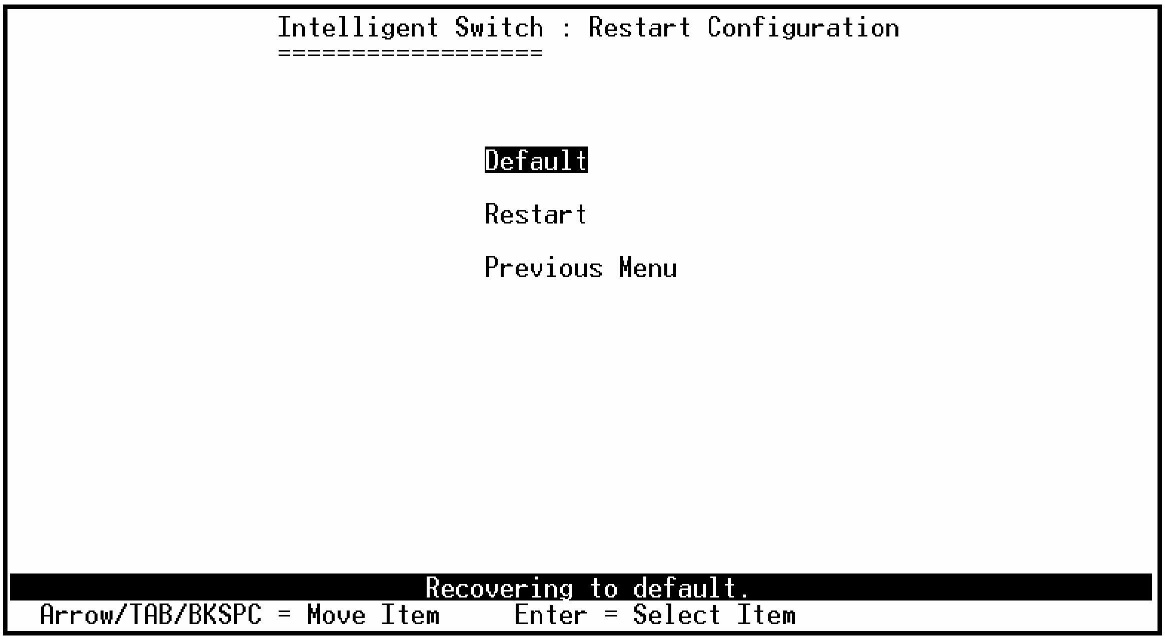
4.4.3. System Information

MAC Address: The unique hardware address assigned by manufacturer.
Firmware Version: Display the switch's firmware version.
ASIC Version: Display the switch's Hardware version.
Module 1 Type: Display the module 1 Type: 1000Tx or 100Fx ext. Depend on module card mode.
Module 1 information: Display the information saved in EEPROM of module1.
Module 2 Type: Display the module 2 Type: 1000Tx or 100Fx ext. Depend on module card mode.
Module 2 information: Display the information saved in EEPROM of module2.



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



  MAC Address                    : 000A17550526

  Firmware version               : 10.03.01

  ASIC version                   : A7.00





  Module 1 Type                  : NC
  Module 1 information           : N/A
  Module 2 Type                  : NC
  Module 2 information           : N/A

 actions->                   <Quit>
                           Display the switch system.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

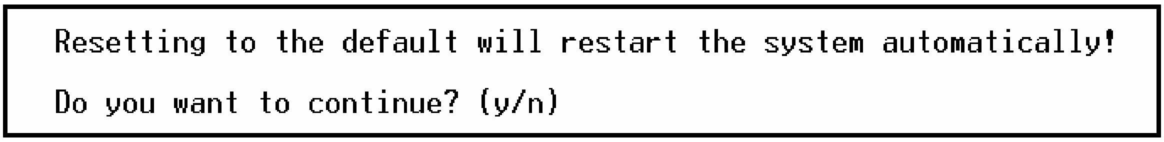
4.5. Reboot Switch



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

                              Default

                              Restart

                              Previous Menu




                            Recovering to default.
  Arrow/TAB/BKSPC = Move Item      Enter = Select Item
```

4.5.1. Default

Reset switch to default configuration, default value please *section 2-4-14.*



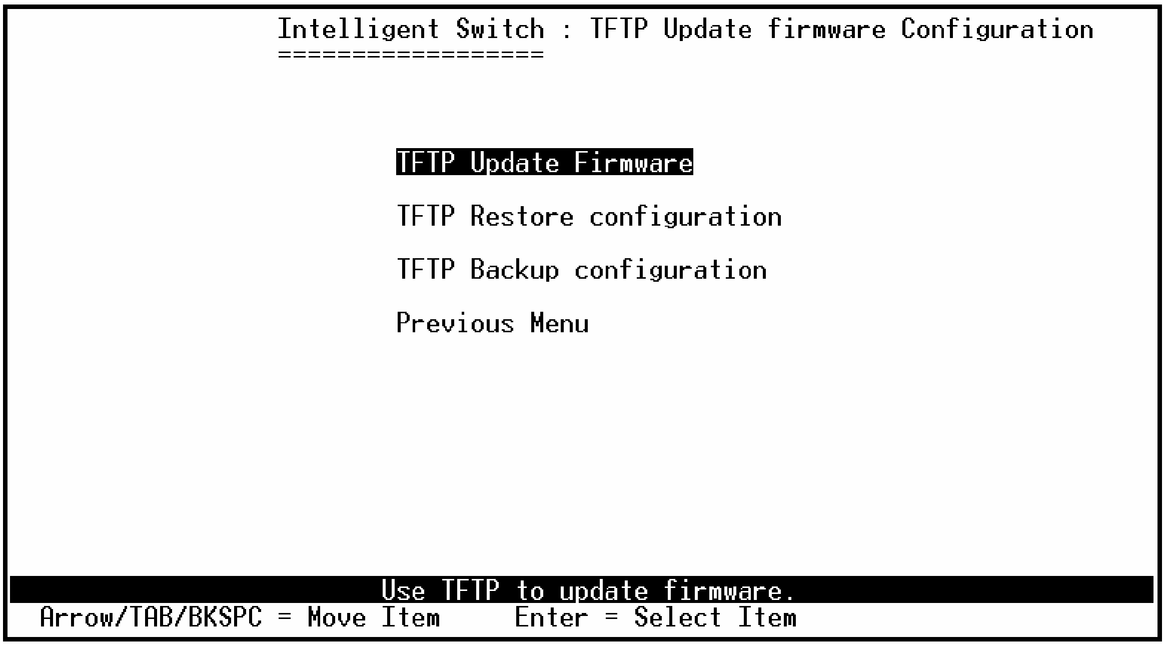
```
  Resetting to the default will restart the system automatically!

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

4.5.2. Restart

Reboot the switch in software reset.

4.6. TFTP Update Firmware

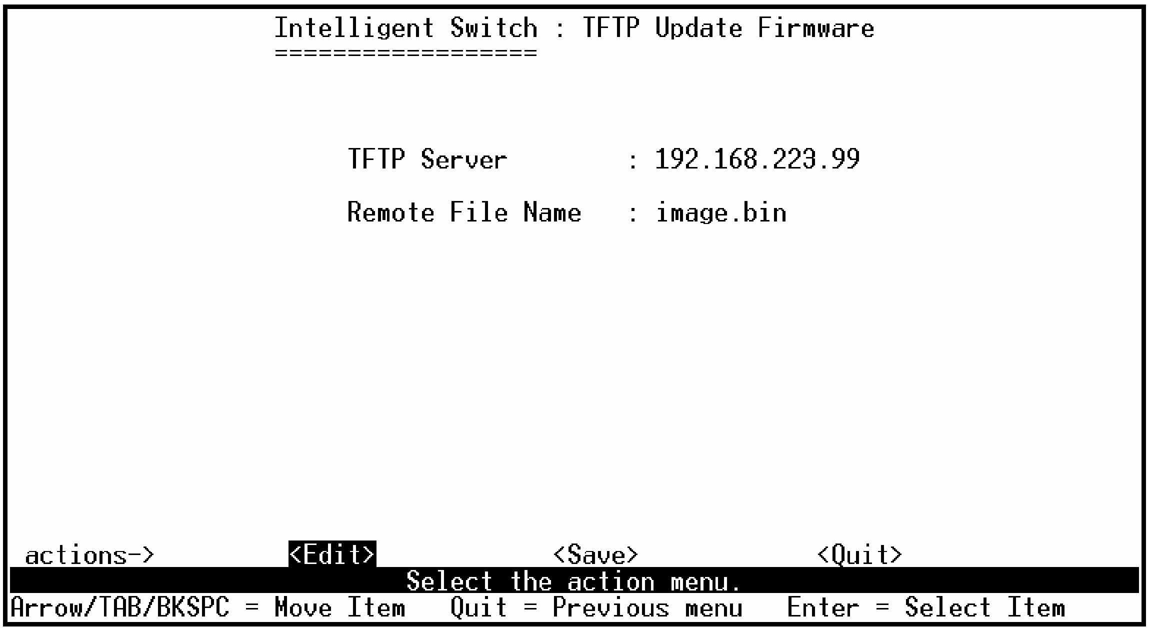
This page provide user to update firmware or restore EEPROM value or upload current EEPROM value.



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


                          TFTP Update Firmware

                          TFTP Restore configuration

                          TFTP Backup configuration

                          Previous Menu








                          Use TFTP to update firmware.
  Arrow/TAB/BKSPC = Move Item     Enter = Select Item
```

4.6.1. TFTP Update Firmware

This page provides user use TFTP to update firmware.



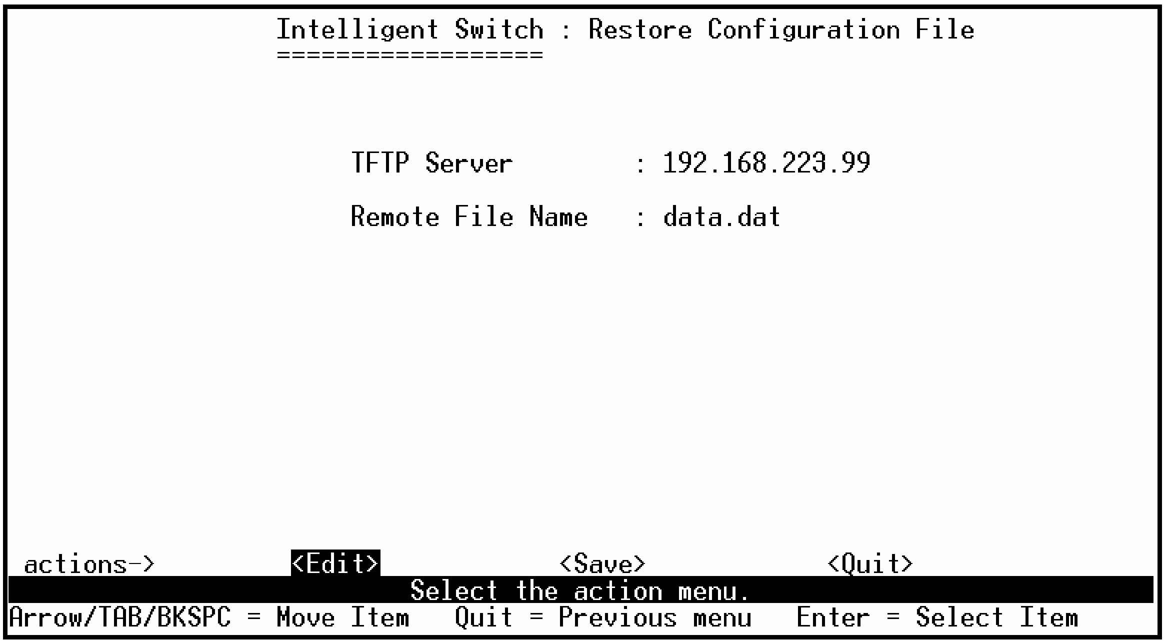
```
                  Intelligent Switch : TFTP Update Firmware
                  ==================


                       TFTP Server        : 192.168.223.99

                       Remote File Name   : image.bin











 actions->           <Edit>           <Save>           <Quit>
                          Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

Actions->

1. Start the TFTP server, and copy firmware update version image file to 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>** key, it will start to download the image file.
7. When save successfully, the image file download finished too.
8. Restart switch.

4.6.2. Restore Configure File

This page user can restore EEPROM value, save image file before, form TFTP server.



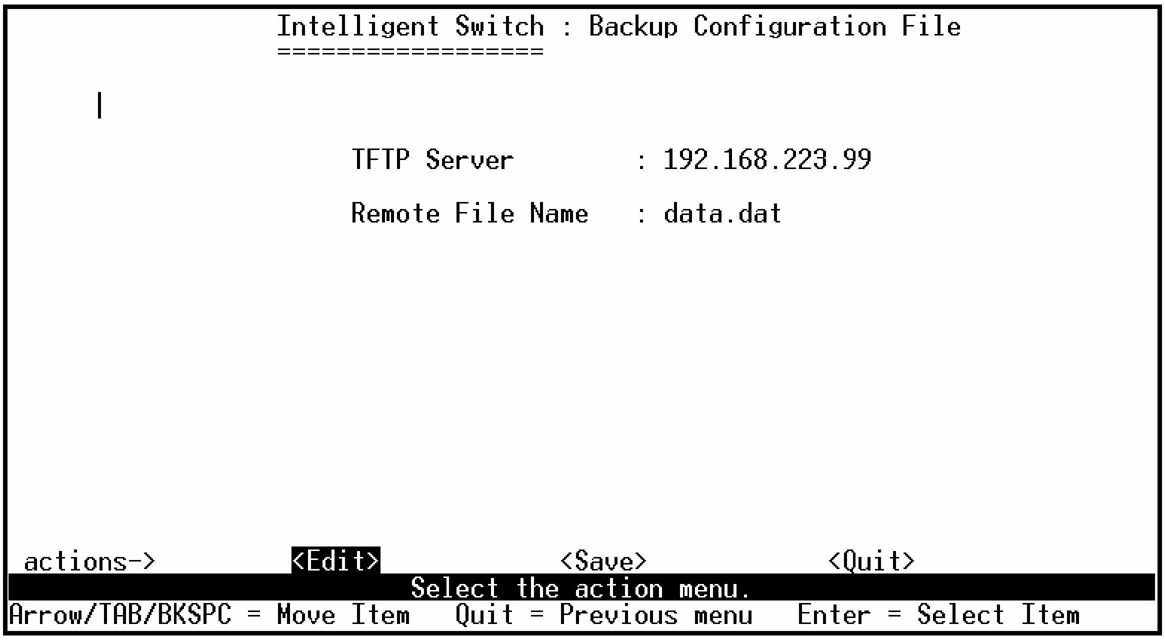
```
                    Intelligent Switch : Restore Configuration File
                    ==================


                         TFTP Server          : 192.168.223.99

                         Remote File Name     : data.dat









 actions->          <Edit>            <Save>            <Quit>
                           Select the action menu.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

Actions->

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>** key, it will start to download the image file.
7. When save successfully, the image file download finished too.
8. Restart switch.

4.6.3. Backup Configure File

This page user can save current EEPROM value to 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.
Arrow/TAB/BKSPC = Move Item   Quit = Previous menu   Enter = Select Item
```

Actions->

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**> key, it will start to upload the image file.
7. When save successfully, the image file upload finished too.
8. Restart switch.

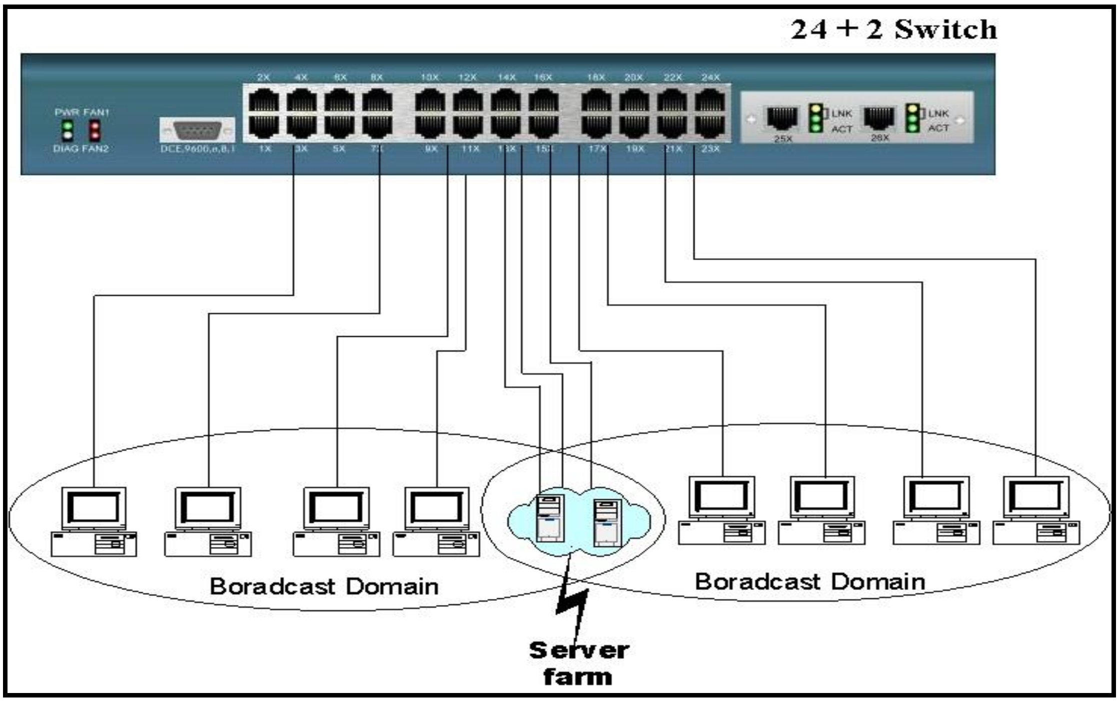
5. Application Examples

5.1. LAN application used with switch

VLAN is a simple solution to protect your network against broadcast storming by creating segments based on Layer2 Ethernet information and avoiding the complexity and the heavy processing requirements of Layer3 IP based routers.

As a result, each group of stations connected to separate Segmented Ports forms 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.

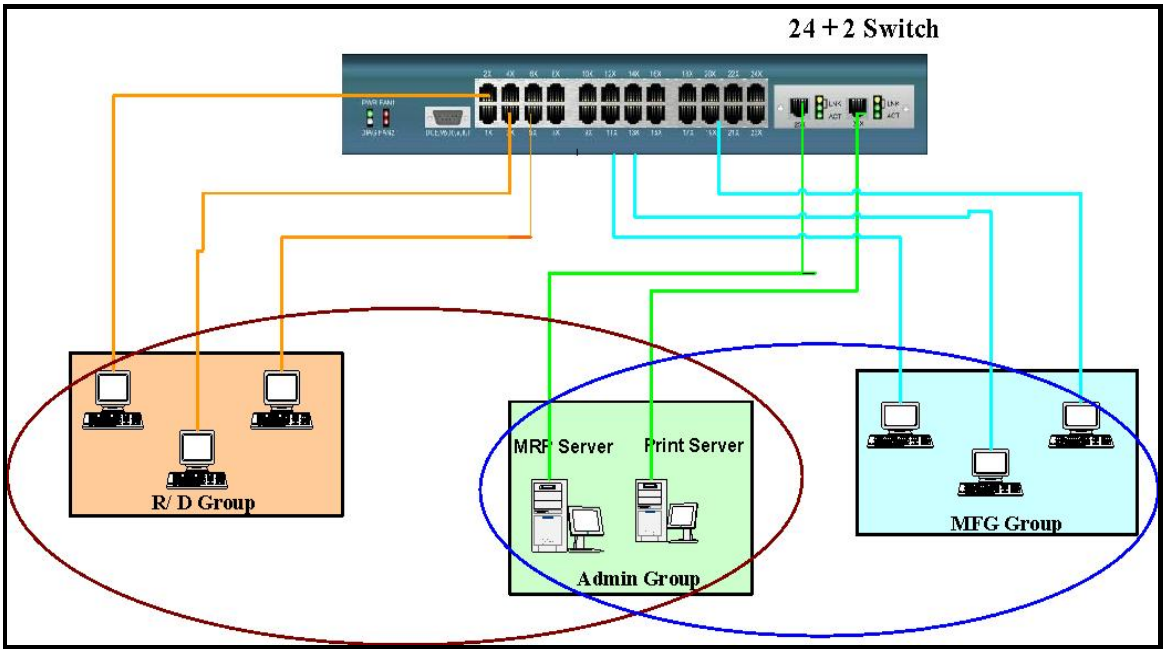
Virtual LAN, or VLAN, is generally defined as broadcast domain. It can be viewed as a group of end nodes, possibly on different physical network segments, which can communicate with each other.



Benefits of VLANs

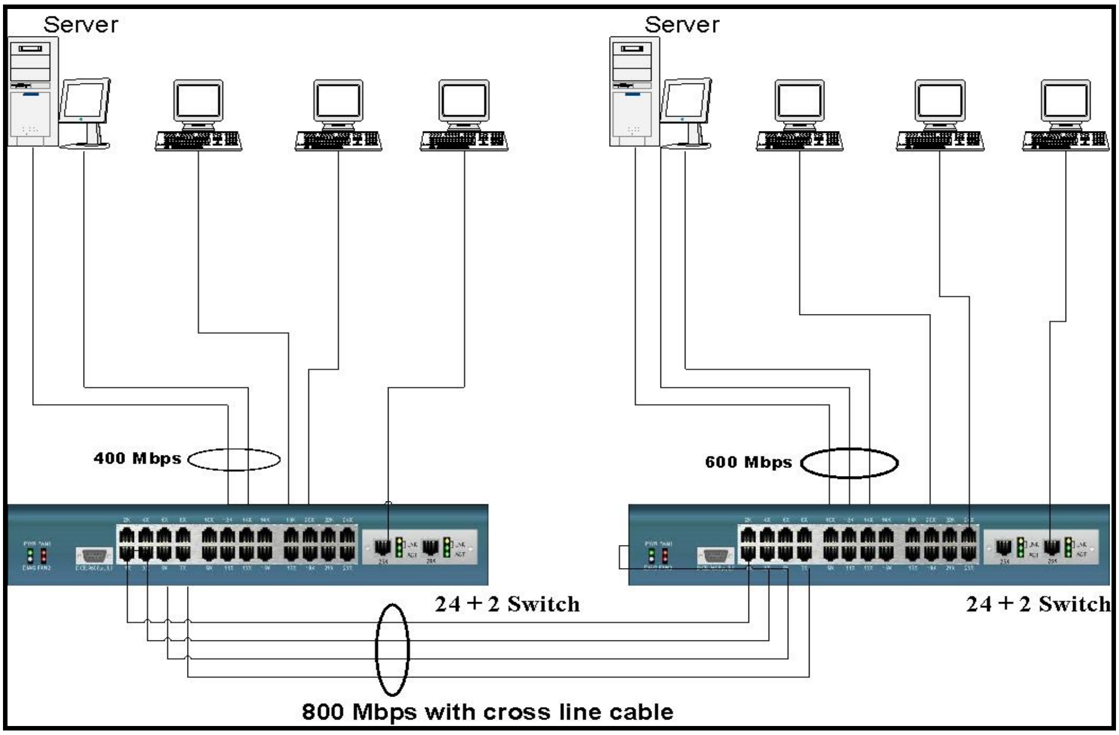
- Grouping users into logical networks for performance enhancement.
- Provides effective broadcasts containment between Segmented Ports, which prevents flooding of a network.
- Offers security by completely isolating from each other the different Broadcast Domains connected on separate Segmented Ports.
- Preserving current investment in equipment and cabling.
- Providing an easy, flexible, 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. Below is a example that R&D, Manufacturing and Administration group can be partitioned into two different VLAN group, even members in different group can’t talk directly, but they still share the same server, such as MRP server, printer server in Adminstration group…etc.



5.2. Trunking Application used with switch

Trunking allows you to increase the available bandwidth between switches by grouping ports into a trunk. Trunk can also be used to connect server to switches for higher bandwidth service required. You can use trunking to improve the throughput between segments. Moreover, this switch furtherly provides trunk with fail-over function, that is, when one of the links of trunk is fail or broken, the traffic originally go through that link will be automatically re-direct to other links of trunk, this give the trunk with redundancy and greatly increase the value of trunking.



5.3. Single IP application

Single IP is a management utility of network devices for administrator to access private IP devices through a single IP (real IP or private IP). By this utility, administrator can manage much more network devices than ever and reduce the demand of real IPs, because every real IP switch can be an agent host for any network devices in their private IP domain.

There are some defects in the former solutions of network management. For example, switches with “stack” capability have to stack together due to their special limited-length cables, and have the limitation of stacking quantities and brand compatibility due to hardware specification. Moreover, administrator always has troubles in finding out the target window among those multi-display interfaces. Though there are expert network management utilities available in the current market, like HP's OpenView, expensive cost and difficult task of implementation into embedded system are main drawbacks for their practical application.

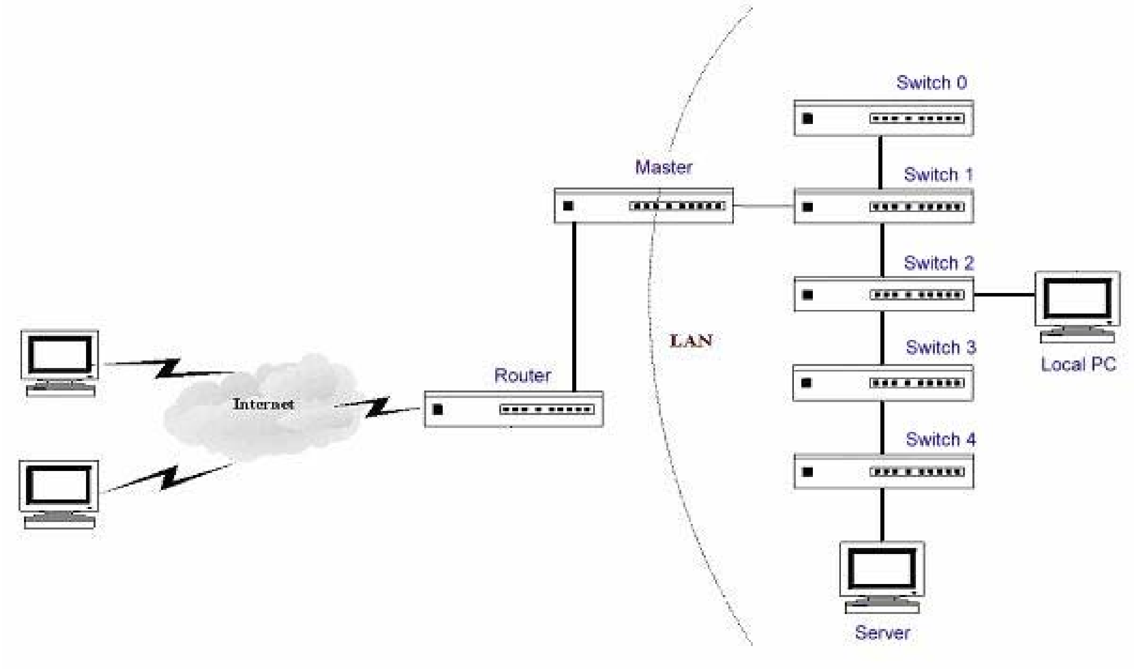
Because of the rapid development of Ethernet, the scare of real IP shortage becomes a serious issue when an enterprise continues its IA growth. It is a resource waste and cost a large expense that every individual host has its own real IP inside the enterprise's network. Privates IPs and NAT function (provided by router, gateway or IP sharing) provide a solution to the shortage of real IP, but new issue gives rise to that remote user from internet has no access permission into the private IP domain, thus an administrator has no choose but accesses the private IP devices from the very location of the local area network to trouble shoot any problems that network clients report.

"Single IP" provides a new solution to all issues above. There are benefits of Single IP:

1. **Reduce the demand of real IPs .**
   Since there are up to 32 devices which have a IP agent as "Single IP" switch, meaning that the switch becomes a network agent and handles all functions of these devices , MIS can reduce the number of hosts that are directly connected to internet, and make use the saved real IPs more efficiency.
2. **Integrate network devices without modifying hardware or software.**
   "Single IP" is a technique mainly based on application layer in OSI standard. The connection between master and slave hosts is linked by Ethernet protocol. It is little concern of hardware and packet transmits. Modifications of hardware or software of the slave hosts are not necessary. Thanks to the characteristics, single IP switch gives the best compatibility with other network devices, router, gateway, web server and even another brand switch.
3. **Handy User interface without learning complex setting or changing user's habit of operation.**
   A floating menu gives a comprehensive user interface for administrator to pick the managed devices. It provides host IP and host name in the same time, saving the trouble that the administrator tries to remember which IPs those slave hosts are assigned to. Since there is only one browse windows displaying on the screen in the same time, agent manager play a role like as TV channel controller. Administrator can easily switch to the device he wants and enter the setting webpage as he did before.

4. **Totally remote control of network devices in private IP domain.**
   It is not necessary for MIS to put all devices together in one place. Single IP function will operate normally no matter how far the distance is between the master and the slave hosts if their packets can reach each other in local area network. Moreover, a remote administrator can access the far-side servers in the private domain through the intermediary of single IP switch which is directly connected to internet.

Typical setup of Single IP network:



There is a typical LAN topology shown above. Any devices in the LAN should keep their gateway to router IP if they wish to go out of the local IP domain. A single IP switch is added here for its agent function. Then its switch IP and gateway should be set to a real one that ISP provides while its agent IP is set to a private IP in the LAN.

For example, ISP provides two real IPs for this network, 61.222.223.100 and 61.222.223.101. Administrator assigns the router as LAN gateway and set 61.222.223.100 as its WAN IP and 192.168.1.254 as LAN IP. According this setting, the switches and web server should set their gate to 192.168.1.254 and their IP in 192.168.1.xxx (xxx: 1~253).

For Master switch, its switch IP is set to 61.222.223.101, and gateway, 61.222.223.100. Its agent IP is set to 192.168.1.100 as administrator’s favor. Thus administrator can add all local hosts into his agent list, and remotely manage these devices from Internet.