MILAN BY
TRANSITION
NETWORKS ®

8 Port 100BASE-FX
Plus One SFP
Intelligent Fiber Switch

MIL-SM808GPxx

USER GUIDE

Regulatory Approval

- FCC Class A

- UL 1950

- CSA C22.2 No. 950

- EN60950

- CE

- EN55022 Class A

- EN55024

Canadian EMI Notice

This Class A digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe A respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

European Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC)

issued by the Commission of the European Community Compliance with these directives imply conformity to the following

European Norms:

- EN55022 (CISPR 22) - Radio Frequency Interference

- EN61000-X - Electromagnetic Immunity

- EN60950 (IEC950) - Product Safety

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To Contact MiLAN Technology

For prompt response when calling for service information, have the following information ready:

- Product serial number and revision

- Date of purchase

- Vendor or place of purchase

You can reach MiLAN Technology technical support at:

E-mail: support@milan.com

Telephone: +1.408.744.2751

Fax: +1.408.744.2771

MiLAN Technology

1329 Moffett Park Drive

Sunnyvale, CA 94089

United States of America

Telephone: +1.408.744.2775

Fax: +1.408.744.2793

http://www.milan.com

info@milan.com

Table of Contents

1. Introduction

The MIL-SM808G managed compact desktop switch is an ideal solution for a Fiber network infrastructure. It provides wire-speed, Fast Ethernet switching providing high-performance data transfer. The switch features a store-and-forward architecture with auto-learning of source addresses with an 8K-entry MAC address table.

Figure 1-1. The MIL-SM808G switch

The switch provides eight switched 100Mbps Fast Ethernet Fiber ports and one SFP slot for a SFP transceiver. The fiber port connectors are available in either SC (single mode or multi-mode) or ST (multi-mode).

With built-in Web-based Management, managing and configuring the switch is simplified. The Web Browser may be used to configure and manage the network, from cabinet level management to port level control and monitoring. Use of a mouse replaces typing of command strings. The switch can also be managed via Telnet, Console, or SNMP Management.

Features

- Conforms to IEEE802.3u, IEEE802.3z and IEEE802.3x Ethernet Standards
- Eight 100Mbps Fast Ethernet Fiber ports and one SFP port
- One Console port on the front for switch software configuration
- Half-duplex mode for back pressure and flow control for full-duplex
- Store-and-forward switching architecture
- Automatic address learning, address migration
- 8K-entry MAC address table
- 2Mbit memory buffer sharing
- Non-blocking full wire speed performance
- LED-indicators for Power, LNK/ACT, FDX/COL, LNK/ACT(SFP)
- 19-inch design for desktop or rackmount

Intelligent Management Features

- Web-based management
- SNMP network management
- Console and Telnet management
- Port Based VLAN and IEEE 802.1q Tag VLAN, and VLAN group up to 256 , VLAN ID up to 4K
- IEEE 802.3ad Port Trunk with LACP(Link Aggregation Control protocol) supported
- IEEE 802.1d Spanning Tree
- MIB II (RFC1213) supported
- IGMP Query, IGMP Snooping, up to 256 IGMP groups
- Quality of Service (system provides 8 levels) and Class of service (per port Hi/Low Queue)
- Port Mirroring
- Broadcast Filtering
- Static MAC Address filtering
- Port Security
- GVRP

Package Contents

Unpack the contents of the package and verify them against the checklist below.

- MIL-SM808G Switch
- Power Cord
- Four Rubber Feet
- RS-232 cable
- User Guide (CD Manual)
- Warranty Card

If any item is missing or damaged, please contact your local dealer for service.

Management Methods

The MIL-SM808G switch series support the following management methods:

- Console and Telnet Management
- Web-based Management
- SNMP Network Management

Console and Telnet Management

Console Management is done through the RS-232 Console Port. Managing the switch in this method requires a direct connection between a PC and the switch. Telnet management requires a network connection. The default IP address is 192.168.1.77 with a subnet mask of 255.255.255.0. This default address can be used to login and change the configuration using Telnet.

Web-based Management

The switch provides an embedded HTML web server residing in flash memory. It offers advanced management features and allows users to manage the switch from anywhere on the network through a standard browser such as Microsoft Internet Explorer or Netscape.

SNMP Network Management

SNMP (Simple Network Management Protocol) provides a means to monitor and control network devices, and to manage configurations, statistic collection, performance, and security.

2.
Hardware Description

Front Panel

The Front Panel of the MIL-SM808G switch series consists of eight 100Mbps Fast Ethernet Fiber ports, one SFP port, one console port, one LED-Indicator for Power, one LED-Indicator (LNK/ACT) for the SFP port and two LED-Indicators (LNK/ACT, FDX/COL) for each Fiber port.
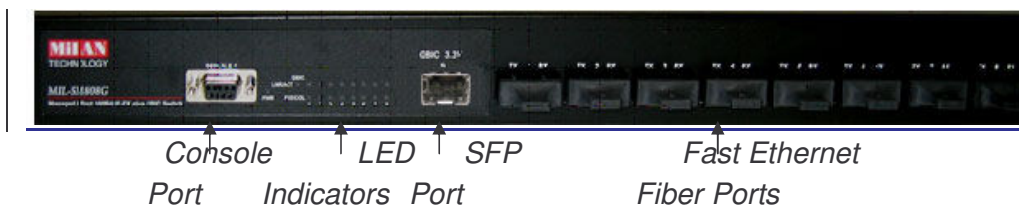
Figure 2-1. Front Panel for MIL-SM808G

- **100BASE-FX Fiber Ports:** The MIL-SM808G comes with eight SC connectors (multi-mode or single mode) or eight ST connectors (multi-mode).
- **SFP Port:** The MIL-SM808G supports the 3.3V model Gigabit Transceiver for Gigabit SX or LX connector.
- **Console Port:** Console management can be done through the Console Port. It requires a direct connection between the switch and an end station (PC) via a RS-232 cable.

LED Indicators

Figure 2-2. LED Indicators

There are two LED-Indicators (LNK/ACT, FDX/COL) for each Fiber port, one LED-Indicator (LNK/ACT) for the SFP port and one LED-Indicator for power. The following table provides descriptions of the LED statuses and meaning. They provide a real-time indication of systematic operation status.

LED	Status	Color	Description
Power	On	Green	Power On
LNK / ACT	On	Green	The port is successfully connecting with a device.
	Blinks	Green	The port is receiving or transmitting data.
	Off		No device attached.
FDX / COL	On	Orange	The port is operating in full-duplex mode and device is attached.
	Blinks	Orange	Collision of Packets is occurring on the port.
	Off		Half-duplex mode or no device attached.

Table 2-1. The description of LED Indicators

Rear Panel

The 3-pronged power plug and the power on/off switch are located at the Rear Panel of the MIL-SM808G switch, as shown in Figure 2-3. The switches will work with AC in the range 100-240V AC, 50-60Hz.

Power Plug

Power On/Off Switch
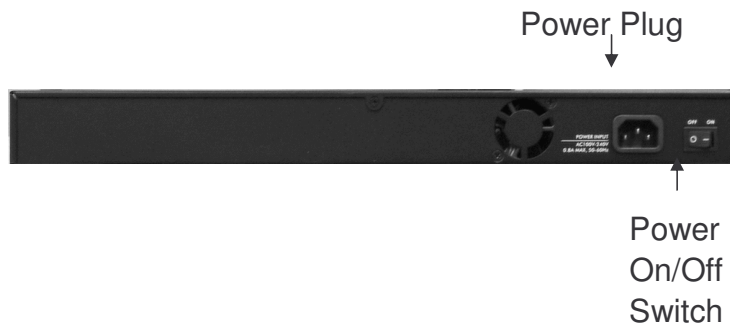
Figure 2-3. The Rear Panel of the MIL-SM808G Switch

Desktop Installation

Set the switch on a sufficiently large flat space with a power outlet nearby. The surface where you put your switch should be clean, smooth, level, and sturdy. Provide enough clearance around the switch to allow attachment of cables, power cord and air circulation.

Attaching Rubber Feet

A. Make sure the mounting surface on the bottom of the Switch is grease and dust free.
B. Remove adhesive backing from the rubber feet.
C. Apply the rubber feet to each corner on the bottom of the switch. These footpads can prevent the Switch from shock/vibration.

Figure 2-4. Attaching Rubber Feet to each corner on the bottom of the Switch

Power On

Connect the power cord to the power socket on the rear panel of the Switch. Connect the other end of the cord to an appropriate power outlet. The internal power supply in the switch works with AC in the voltage range 100-240VAC, frequency 50~60Hz.

Press the power On/Off switch to the On position and check the power indicator on the front panel to see if power is properly supplied.

3.
Network Application

Segment Application

For enterprise networks where large data broadcasts are constantly processed, this switch is suitable for department users to connect to the corporate backbone.

You can use the MIL-SM808G switch to connect PCs, workstations, and servers to each other by connecting these devices directly to the switch.

You can also use any of the Fiber ports of MIL-SM808G to connect with another Switch or Hub to interconnect each of your small switched workgroups to form a larger and long distance switched network.
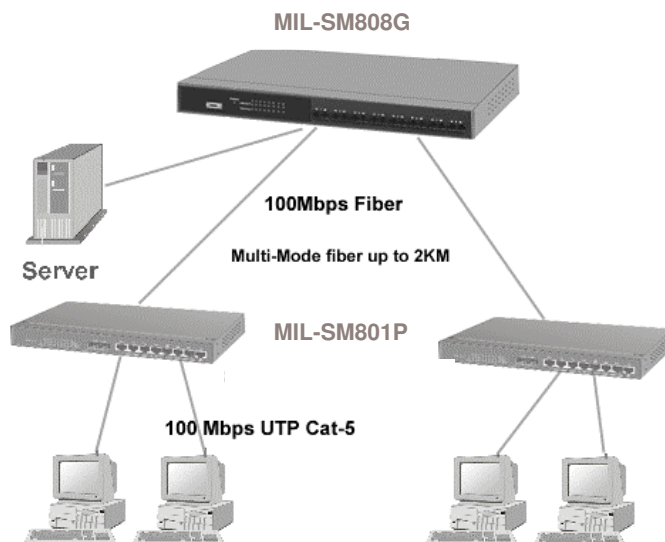
Figure 3-1. Use the MIL-SM808G switch fiber ports to extend the distance between workgroups

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4.

Network Configuration

Connecting a Terminal or PC to the Console Port

Console management involves the administration of the switch via a direct connection to the RS-232 console port. This port is a female DB-9 connector. From the main menu of the console program, the user has access to manage the functions of the switch.
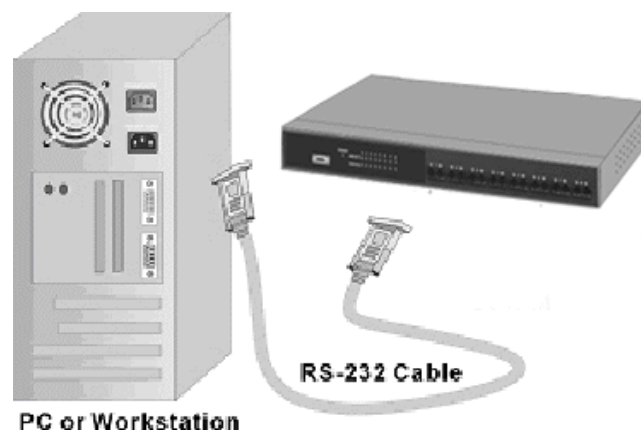
Figure 4-1. Connecting the switch to a terminal via RS-232 cable

Use the supplied RS-232 cable to connect a terminal or PC to the console port. The terminal or PC to be connected must support the terminal emulation program.

After the connection between Switch and PC is finished, turn on the PC and run a **terminal emulation program** or **Hyper Terminal** to match the following default characteristics of the console port:

Baud Rate: 9600 bps
Data Bits: 8
Parity: none
Stop Bits: 1
Flow Control: None
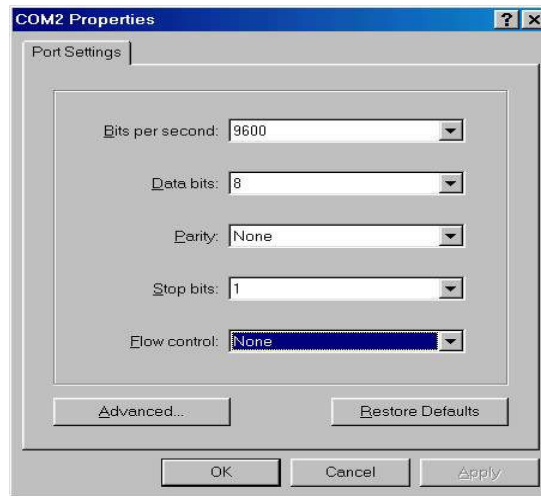
Figure 4-2. The settings of communication parameters

After you have entered the parameter settings, press the "**Enter** "Key and the Main Menu of console management appears.

Deleted: " Key

Console – Menu

1. The switch also provides a serial interface to manage and monitor the switch. The user can follow the Console Port Information provided by the web to use the Windows HyperTerminal program to link the switch.

2. Type the user name and password to login. The default user name is "root"; the default password is "root".

3. The timeout on the console port is 60 seconds. If no action is taken on the console screen for one minute, the program reverts back to the

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logon screen and a new login is necessary in order to continue.

4. The switch is shipped with a default IP address of 192.168.1.77. The default subnet mask is 255.255.255.0.

4-1 Main Menu

There are five items for selection as follows:

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



              Status and Counters

              Switch Static Configuration

              Protocol Related Configuration

              Reboot Switch

              Logout




                Show the status of the switch.
 Tab=Next Item      BackSpace=Previous Item      Enter=Select Item
```

Status and Counters: Shows the status of the switch.
Switch Static Configuration: Menus to configure the switch.
Protocol Related Configuration: Configures protocol features.
Reboot Switch: Restarts the system or resets the switch to the default configuration.
Logout: Exits the menu line program.

<Control Key>
The control keys listed below are provided in all menus:
Tab: Moves the cursor to next item.
Backspace: Moves the cursor to previous item.
Enter: Selects item.
Space: Toggles selected item to next configuration.

4-2. Status and Counters

```
        SM808G Managed Switch : Status and Counters
        =====================


                    Port Status

                    Port Counters

                    System Information

                    Main Menu






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

Press the **Tab** or **Backspace** key to choose action menu, and then press the **Enter** key to select the item.

4-2-1. Port Status

Type: Displays the port type of either 100Mbps or 1000Mbps.
Enabled: A port that is enabled will be displayed as "Yes". A port that is disabled will be displayed as "No".
Status: Displays the port's link. "Down" the port has no link, and "Up" the port has a link with the remote device.
Mode: Displays the port speed and duplex mode.
FlowCtrl: Displays the flow control for the port as being either on or off.

```
             SM808G Managed Switch : Port Status
             =====================


Port        Type          Enabled       Status        Mode        FlowCtrl
----        --------      -------       ------       ---------     --------
1.          100FX           No            Down        100 Full        On
2.          100FX           Yes           Up          100 Full        On
3.          100FX           No            Down        100 Full        On
4.          100FX           No            Down        100 Full        On
5.          100FX           No            Down        100 Full        On
6.          100FX           No            Down        100 Full        On
7.          100FX           No            Down        100 Full        On
8.          100FX           No            Down        100 Full        On
9.          1000FX          No            Down        1000 Full       On
```

Actions->

Press the **Tab** or **Backspace** key to choose action menu, and then press the **Enter** key to select item.
<Quit>: Exits the port status page and returns to previous menu.

4-2-2. Port Counters

The following information provides a view of the current data packet information of the unit. The screen is <u>not</u> automatically updated. To see updated statistics, exit the menu and re-enter.

```
              SM808G Managed Switch : Port Counters
              =====================

Port  TxGoodPkt  TxBadPkt  RxGoodPkt  RxBadPkt  TxAbort  Collision
-----------------------------------------------------------------
1.    0          0         0          0         0        0
2.    0          0         5410       0         0        0
3.    1464       0         2289       0         0        0
4.    0          0         0          0         0        0
5.    0          0         0          0         0        0
6.    192        0         272        0         0        0
7.    0          0         0          0         0        0
8.    0          0         0          0         0        0
9.    0          0         0          0         0        0
```

Actions->
Press the **Tab** or **Backspace** key to choose action menu, and then press **Enter** key to select item
<Quit>: Exits the port status page and returns to previous menu.
<Reset All>: Sets all counters to 0.

4-2-3. System Information

System Description: Displays the name of the device.
MAC Address: The unique hardware address assigned by manufacturer.
Firmware Version: Displays the switch's firmware version.
Hardware Version: Displays the switch's Hardware version.
Kernel version: Displays Boot PROM version.

```
              SM808G Managed Switch : Management Address Information
              =====================


System Description : MiLAN SM808G Intelligent Switch

MAC Address        : 004063800030

Firmware version   : v01.11

Hardware version   : A03.00

Kernel version     : v01.06
```

4-3. Switch Static Configuration

```
SM-808G Managed Switch : Switch Configuration
====================

       Administration Configuration

       Port/Trunk Configuration

       Port Mirroring Configuration

       VLAN Configuration

       Priority Configuration

       MAC Address Configuration

       Misc Configuration

       Main Menu

  Configure the system,IP,and password.
BackSpace=Previous Item     Enter=Select Item
```

Press the T**ab** or **Backspace** key to choose action menu, and then press the **Enter** key to select item.

4-3-1. Administration Configuration

```
SM808GManaged Switch : Device Configuration
====================

                Device Information

                IP Configuration

                Change Username

                Change Password

                Previous Menu
```

4-3-1-1. Device Information

```
      SM808G Managed Switch : Device Information
      =====================


Device Name :

Device Content :

Device Location :

Device Description : MiLAN SM808G Intelligent Switch
```

Device Name: 10 characters can be used to give the switch a unique name in order to distinguish it on the network. After configuration this name will show at the top of each menu screen.
Device Content: 32 characters can be used to describe devices attached.
Device Location: 32 characters can be used to give a location of the switch.
Device Description: 32 characters can be used to describe the switch.

Actions->
<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.
<Save>: Saves all configured values.
<Quit>: Exits the device information page and returns to previous menu.

4-3-1-2. IP Configuration

This menu enables the user to change the default settings of the IP address, subnet mask and gateway. Rebooting the switch is necessary to have the configuration change take affect.

```
SM808G Managed Switch : IP Configuration
=====================


      IP Address  : 192.168.1.77

      Subnet Mask : 255.255.255.0

      Gateway     : 192.168.1.6
```

Actions->
<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.
<Save>: Saves all configured values.
<Quit>: Exits the IP configuration page and returns to previous menu.

Note: Always restart the computer after finishing the setup.

4-3-1-3. Change Username

Use this screen to change the User Name. The default user name is root.

```
SM808G Managed Switch : UserName Configuration.
====================



      UserName : root








 <Edit>              <Save>              <Quit>
           Select the action menu.
ackSpace=Previous Item  Quit=Previous menu  Enter=Sele
```

4-3-1-4. Change Password

Use this screen to change the Password. The default password is root.

```
SM808G Managed Switch : Password Configuration
======================


    old Password:****

    new password:****







                    entering new password
```

4-3-2. Port / Trunk Configuration

This page can change every port status and configure trunk groups.
Press **TAB** key to change the configuration of each item.

1. **Enabled:** User can disable or enable the port. Port 9 is always enabled.
2. **Auto Negotiate:** Ports 1 to 8 (100Mbps Fiber) are disabled, Port 9 (SFP port) is enabled.
3. **Speed/Duplex Config:** Ports 1 to 8 (100 Mbps Fiber port) can be set for full-duplex or half-duplex mode. Port 9 (SFP port) is fixed at 1000Mbps full-duplex mode.
4. **Flow Control:** User can set flow control function to be on or off for ports 1 to 8. Flow control for Port 9 (SFP port) is fixed at enabled (on).
5. **Group:** User can set trunk groups for ports 1 to 8. There are four possible trunk groups. Port 9 is not available for trunk groups.

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```
            SM808G Managed Switch : Port Configuration
            =====================

Port    Type     Enabled     Auto         Speed/Duplex   Flow        Group
                             Negotiate     Config         Control
-----------------------------------------------------------------------
1.      100FX      Yes       Disabled      100 Full        On
2.      100FX      Yes       Disabled      100 Full        On
3.      100FX      Yes       Disabled      100 Full        On
4.      100FX      Yes       Disabled      100 Full        On
5.      100FX      Yes       Disabled      100 Full        On
6.      100FX      Yes       Disabled      100 Full        On
7.      100FX      Yes       Disabled      100 Full        On
8.      100FX      Yes       Disabled      100 Full        On
9.      1000FX     Yes        Enabled     1000 Full        On
```

Actions->

<Quit>: Exits the port configuration page and returns to previous menu.

<Edit>: Configures all items. When finished, pressing ESC returns to the action menu line.

<Save>: Saves all configured values.

4-3-3. Port Mirroring Configuration

Port mirroring is a method for monitoring traffic in switched networks. Traffic through ports can be monitored by one specific port. The traffic being received or transmitted by the monitored ports will be duplicated into the monitoring port.

Press the **Space** key to change the configuration of an item.

1. **Port Mirroring State:** Select enable or disable.
2. **Analysis Port:** The port to which all traffic to be mirrored will be sent.
3. **Port:** The port(s) you want to monitor. All monitored port traffic will be copied to the monitoring port. You can select a maximum of 8 ports to monitor in the switch. User can choose to monitor RX frames only or TX frames only or both RX and TX frames at the **Action** command line.

```
            SM808G Managed Switch : Port Mirroring Configuration
            =====================

       Port Mirroring State: Enable

         Analysis Port: 1


       Port           Type            Action
     ----------------------------------------
        1.            100FX
        2.            100FX           RX
        3.            100FX           Both
        4.            100FX           TX
        5.            100FX
        6.            100FX
        7.            100FX
        8.            100FX
        9.            1000FX

   actions->     <Quit>       <Edit>      <Save>
                     Edit the mirroring configuration.
     Tab=Next Item  BackSpace=Previous Item  Space=Toggle   Esc=Action menu
```

Actions->
<Quit>: Exits the port monitoring configuration page and returns to previous menu.
<Edit>: Configures all items. When finished, pressing **ESC** returns to the

action menu line.

<Save>: Saves all configured values.

4-3-4. VLAN Configuration

```
SM808G Managed Switch: VLAN Configuration
====================


        VLAN Configure

        Create a VLAN Group

        Edit/Delete a VLAN Group

        Previous Menu
```

All ports are automatically placed in VLAN 1, the default VLAN. To create new VLANs, use the Create a VLAN Group menu and add a VLAN. Make sure when you enter a VLAN name you do not leave spaces. For example VLAN2 is correct; VLAN 2 will give an error. The VLAN name can be any 15 alphanumeric characters. Special characters are not allowed.

4-3-4-1. VLAN Configure

Choose a VLAN

In the VLAN Configure menu select the type of VLAN you want to configure: No VLAN (default), Port Based, 802.1Q, or 802.1Q with GVRP. Save the configuration. There are 4 different options for VLANs to choose from using the space bar: Disabled, Port Based, 802.1Q and 802.1Q with GVRP.

To configure a new VLAN, select **Edit** and then use the tab key to select items you want to configure. The space bar allows you to select the different options.

After adding a VLAN group, the configuration option **Edit a VLAN Group** will allow you to change the membership by adding or deleting ports.

Port Based VLANs

These VLANs only apply to this switch. The VLANs can be overlapping, meaning that any port can belong to more than one VLAN. One configuration that is common for port based VLANs is to have all the ports on the switch on separate VLANs except for the port that has the server connected. The port connected to the server belongs to all the VLANs. This enables security between ports but allows all ports access to the server. Up to 256 different port based VLANs may be configured.

IEEE802.1Q VLANs

If IEEE802.1Q VLANs is selected, all the ports will belong to the default VLAN 1.

If more than one VLAN is necessary, the additional VLANs may be created.

PVID (Port VID): 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 don't support tagging. Only one untagged VLAN is allowed per port. Other VLANs need to be tagged.

Ingress Filter 1: If this is set, the port will only forward packets with VID (VLAN ID) matching this port's configured VID. Press the **Space** key to choose forward or drop the frame with the VID not matching this port's configured VID.

Ingress Filter 2: Drop untagged frame. Press the **Space** key to choose drop or forward the untagged frame.

```
            SM808G Managed Switch : VLAN Support Configuraton
            =====================

         VLAN Mode :802.1Q           |


                                IngressFilter1      IngressFilter2
          Port       PVID         NonMember Pkt       Untagged Pkt
          -------------------------------------------------------
          1.         1            Enable              Disable
          2.         1            Enable              Disable
          3.         1            Enable              Disable
          4.         1            Enable              Disable
          5.         1            Enable              Disable
          6.         1            Enable              Disable
          7.         1            Enable              Disable
          8.         1            Enable              Disable
          9.         1            Enable              Disable


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

4-3-4-2. Create a VLAN Group

To create a VLAN and add tagged /untagged member ports to it:

1. **VLAN Name:** Type a name for the new VLAN using 15 alphanumeric characters and no spaces.
2. **VLAN ID:** Type a VID (between 2~4094). The default is 1.
3. **Protocol VLAN:** Press the **Space** key to choose protocol type. When set, this acts as a packet filter on the port by restricting packets on the port of only the selected protocol type.
4. **Member:** Press the **Space** key to choose VLAN membership. There are three selections:
    UnTagged: the member port is an untagged port.
    Tagged: the member port is a tagged port.
    No: The port is not a member of this VLAN group.
5. Save the configuration.

```
                            Add a VLAN Group
                      -------------------------
          VLAN Name: [                   ] VLAN ID: [     ](1~4094)

          Protocol VLAN :   None

          Port            Member
          -----------------------
          1.              No
          2.              No
          3.              No
          4.              No
          5.              No
          6.              No
          7.              No
          8.              No
          9.              No

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

Actions->
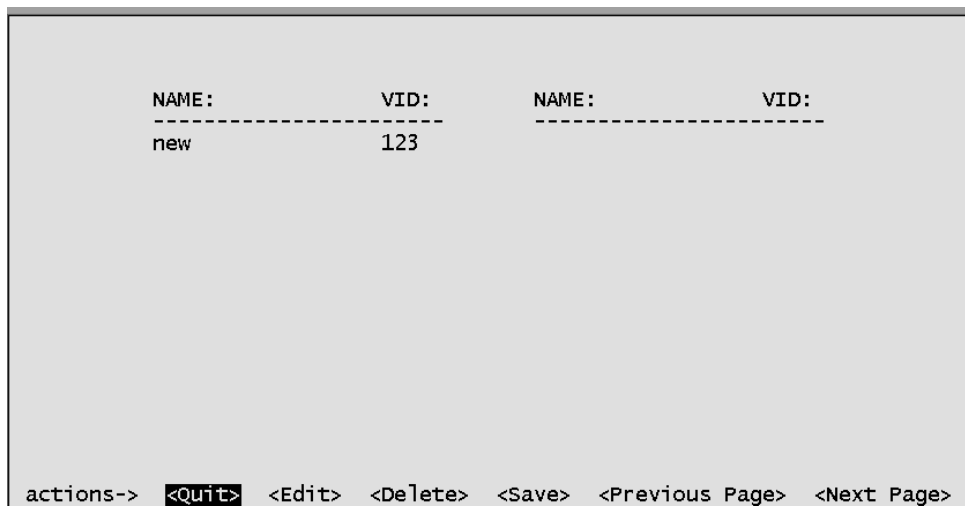**<Quit>:** Exits this page and returns to previous menu.
<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.
<Save>: Saves all configured values.

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4-3-4-3. Edit / Delete a VLAN Group

Use this menu to edit or delete a VLAN group.

When editing the chosen VLAN, the user can change the protocol VLAN or a member port. A new protocol can be configured and the ports can be changed to tagged or untagged or deleted as member ports from this VLAN. In edit mode the VLAN Name and VLAN ID are read-only and cannot be modified. VLAN1, the default VLAN, can never be deleted.

```
NAME:              VID:         NAME:              VID:
----------------------          -----------------------
new                123
```

```
actions->  <Quit>  <Edit>  <Delete>  <Save>  <Previous Page>  <Next Page>
```

1. Choose **<Edit>** or **<Delete>** item.
2. Choose the VLAN group to edit or delete by using the **TAB** key and then press enter.
3. User can change the protocol VLAN or a member port.
4. After editing or deleting a VLAN, press the **<Save>** key to save all configured values.

4-3-5. Priority Configuration

1. There are eight (0 to 7) priority levels that can be mapped as high or low priority queues.
2. **High/Low Queue Service Ration (High:Low):** User can select the ratio of high priority packets and low priority packets.

```
SM808G Managed Switch : Priority Configuration
====================


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

  High/Low Queue Service Ratio H:L :[2:1 ]
```

Actions->
<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.
<Save>: Saves all configured values.
<Quit>: Exits this page and returns to previous menu.

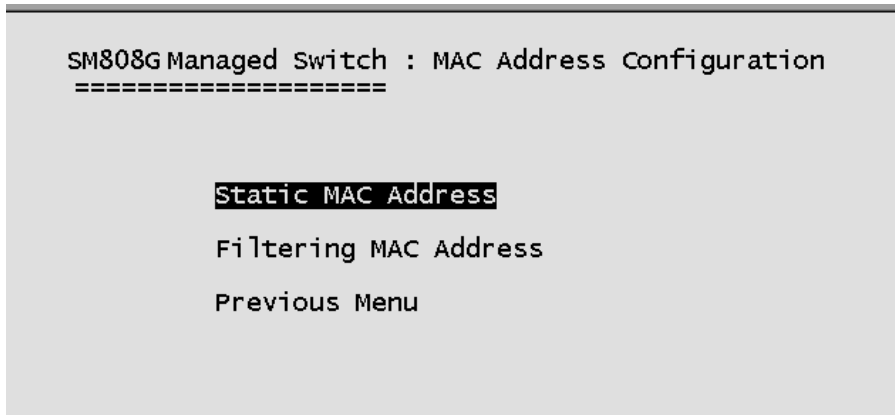**High Low Queue service ratio:** 1:1, 2:1, 3:1, 4:1, 5:1, 6:1, 7:1, FIFO, H➜L
First In First Out (FIFO): The sequence of packets sent depends on arrival order.
High to Low (H➜L): The high priority packets are sent before the low priority packets.

Ratio (1:1, 2:1, 3:1, 4:1, 5:1, 6:1, 7:1)**:** 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, 2

High : 1 Low means that the switch sends 2 high priority packets before sending 1 low priority packet.

4-3-6.MAC Address Configuration

```
SM808G Managed Switch : MAC Address Configuration
 ====================

        Static MAC Address

        Filtering MAC Address

        Previous Menu
```

4-3-6-1.Static MAC Address

When a static MAC address is added, 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 device is disconnected or powered-off and then becomes active again.

The menu shows the current configured static MAC addresses. The user can add, modify or delete a static MAC address. Once added, the MAC address will be listed on this page.

```
            SM808G Managed Switch : Static MAC Address Configuration
                  ==================
Mac Address    Port num                   Mac Address    Port num
-------------------------------           -------------------------------
142412412424    8




actions->         <Add>         <Edit>         <Delete>         <Save>         <Quit>
```

```
            SM808G Managed Switch : Add Static MAC Address
                  =====================


            Mac Address :080000000023

            Port num     :2

            Vlan ID      :1



actions->         <Edit>              <Save>              <Quit>
```

Add static MAC address

1. Press the **<Add>** key. Then press the **<Edit>** key on this menu to add a static MAC address.
2. Enter the MAC address to and from which the port should permanently forward traffic, regardless of the device's network activity.
3. In the Port num field, enter the port number for the device.
4. If tag-based (802.1Q) VLANs are configured, the static addresses are associated with individual VLANs. Enter the VID to associate with the MAC address.
5. Press **ESC** to go back action menu line, and then select **<Save>** to save all configured values.

Edit static MAC address

1. Press **<Edit>** key to modify a static MAC address.
2. Choose the MAC address that you want to modify and then press enter.
3. Press the **<Edit>** key to modify all the items.
4. Press **ESC** to go back action menu line, and then select **<Save>** to save all configured values.

Delete static MAC address

1. Press the **<Delete>** key to delete a static MAC address.
2. Choose the MAC address that you want to delete and then press enter.
3. After delete static MAC address, you must press **<Save>** to complete the deletion.

4-3-6-2.Filtering MAC Address

```
                    SM808G Managed Switch : Filter MAC Address Configuration
                          ==================

      Mac Address                              Mac Address
      -----------------------------            -----------------------------








         actions->        <Add>        <Edit>       <Delete>       <Save>        <Quit>
                          Add/Edit/Delete filter MAC addresses.
      Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu  Enter=Select It
```

Edit Filtering MAC address
1. Press the **<Edit>** key to modify a static Filtering address.
2. Choose the MAC address that you want to modify and then press enter.
3. Press the **<Edit>** key to modify all the items.
4. Press **ESC** to go back action menu line, and then select **<Save>** to save all configured values.

Delete Filtering MAC address
1. Press the **<Delete>** key to delete a Filtering MAC address.
2. Choose the MAC address that you want to delete and then press enter.
3. After delete Filtering MAC address, you must press **<Save>** to complete the deletion.

4-3-7.Misc Configuration

```
SM808G Managed Switch: Misc Configuration
====================

              Port Security

              MAC Age Interval

              Broadcast Storm Filtering

              Bridge Transmit Delay Bound

              Previous Menu
```

4-3-7-1.Port Security

A port set in security mode will be "locked" and be without address learning. Only the incoming packets with the source MAC address already existing in the address table can be forwarded. With port security, users can disable a port from learning new MAC addresses. The user may then return to the static MAC addresses menu to define a list of MAC addresses that can access the secured port.

```
           SM808G Managed Switch : The Configuration of Port Security
           =====================


   Port            Enable Security
                (disable for MAC Learning)
   -----------------------------
   1.              Disable
   2.              Disable
   3.              Disable
   4.              Disable
   5.              Disable
   6.              Disable
   7.              Disable
   8.              Disable
   9.              Disable



actions->    <Quit>      <Edit>     <Save>
```

1. Press **<Edit>** to enable or disable the port security.
2. Press the **Space** key to choose enable or disable.
3. Press **ESC** to return to the action menu line, and then select **<Save>** to save all configured values.

4-3-7-2.MAC Age Interval

To configure a different MAC Age Interval, type the number of seconds that an inactive MAC address remains in the switch's address table before it is deleted. Once the address is removed from the table, a device will have to send out broadcast packets to be relearned by the switch and have its address put in the table. The valid range is 300 to765 seconds. Default is 300 seconds.

```
              SM808G Managed Switch : The Configuration of Aging Time
              =====================



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







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

Actions->
<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.
<Save>: Saves all configured values.
<Quit>: Exits this page and returns to previous menu.

4-3-7-3.Broadcast Storm Filtering

Broadcast storm filtering is used to limit the amount of broadcast traffic on the network. An excessive amount of broadcast traffic can inhibit data packets from timely delivery.

The valid threshold values are 5%, 10%, 15%, 20%, 25% and NO. If the broadcast traffic is greater than the configured value, broadcast packets will be dropped. The default is NO. The default is set so that no broadcast packets are ever dropped no matter how many broadcast packets there are on the network.

```
         SM808G Managed Switch : Broadcast Storm Filter Mode
         =====================


                     Broadcast Storm Filter Mode :5




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

Actions->
<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.
<Save>: Saves all configured values.
<Quit>: Exits this page and returns to previous menu.

4-3-7-4.Max Bridge Transmit Delay Bound

Max bridge transmit delay bound (0,1-4 sec): Limits the packets queuing time in the switch. If enabled, the packets exceeding the queuing time will be dropped. Press the **Space** key to set the time. Valid values are 1sec, 2sec, 4sec and Off. The default is 1 second when this feature is enabled. This setting does not depend on what values are set in the "Priority Configuration" menu.

Enable Delay Bound: If this parameter is enabled, the "Max bridge transmit delay bound" must also be configured. This item allows you to limit queuing time of the low priority packets in the switch. When the low priority packets exceed the "Max Delay Time" they will be transmitted. Press the **Space** key to enable or disable this function. By default the Enable Delay Bound is set to OFF.

Max Delay Time: Set the time that low priority packets are queued in the switch. The valid range is 0 to 255 ms. Since the default is OFF, the Max Delay Time is 0. This item must be set if "Enable Delay Bound" is configured.

NOTE: "Max bridge transmit delay bound control" must be enabled before Max Delay Bound is enabled.

```
        SM808G Managed Switch : Configure Bridge Transmit Delay Bound
        =====================



        Bridge Transmit Delay Bound :OFF

        Enable Delay Bound :Disable

        Max Delay Time :0




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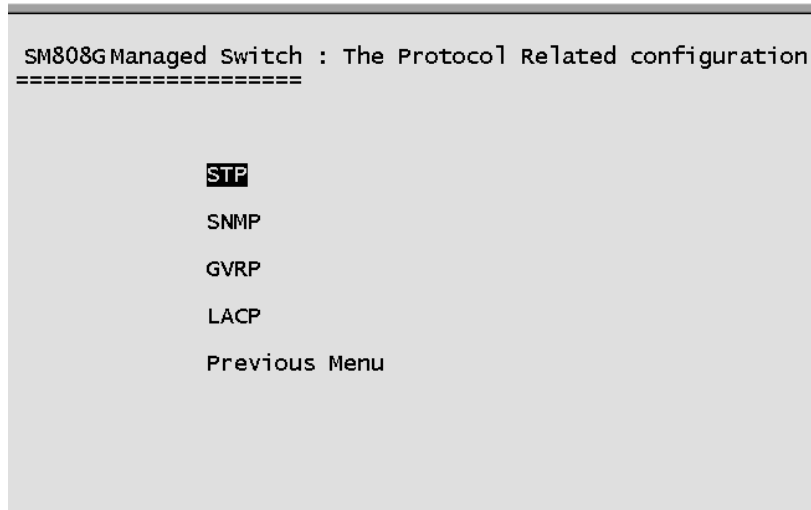
Actions->

<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.

<Save>: Saves all configured values.

<Quit>: Exits this page and returns to previous menu.

4-4.Protocol Related Configuration

4-4-1.STP

```
 SM808G Managed Switch : The Protocol Related configuration
 ====================

              STP

              SNMP

              GVRP

              LACP

              Previous Menu
```

4-4-1-1.STP Enable

This page enables or disables the Spanning Tree function. Press the **Space** key to select Enabled or Disabled.

```
SM808G Managed Switch : STP Enabled/Disabled Configuration
=====================


       STP :Disabled








<Edit>               <Save>               <Quit>
```

4-4-1-2.System Configuration

```
            SM808G Managed Switch : STP System Configuration
                   ====================


      Root Bridge Information          Configure Spanning Tree Parameters
      -----------------------          ----------------------------------
      Priority     : 32768             Priority (1-65535)    :32768
      Mac Address  : 004063800030
      Root_Path_Cost: 0                Max Age (6-40)        :20
      Root Port    : Root
      Max Age      : 20                Hello Time (1-10)     :2
      Hello Time   : 2
      Forward Delay : 15               Forward_Delay_Time(4-30)  :15




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

Spanning tree information for the Root Bridge on the left is for display only. Configure new values for the STP parameter on the right.

You must enable STP function before selecting the configuration menu.

Priority: The value used to identify the root bridge. The bridge with the lowest value has the highest priority and is selected as the root. Enter a number 1 through 65535.

Max Age: The number of seconds a bridge waits without receiving Spanning-Tree Protocol configuration messages before attempting a reconfiguration. Enter a number 6 through 40.

Hello Time: The number of seconds between the transmission of Spanning-Tree Protocol configuration messages. Enter a number 1 through 10.

Forward Delay Time: The number of seconds a port waits before changing

49

from its Spanning-Tree Protocol learning and listening states to the forwarding state. Enter a number 4 through 30.

4-4-1-3.STP Port Configuration

```
           SM808G Managed Switch : STP Port Configuration
           =====================

Port            PortState           PathCost            Priority
-------------------------------------------------------------
1.              Forwarding          10                  128
2.              Forwarding          10                  128
3.              Forwarding          10                  128
4.              Forwarding          10                  128
5.              Forwarding          10                  128
6.              Forwarding          10                  128
7.              Forwarding          10                  128
8.              Forwarding          10                  128




actions->      <Quit>       <Edit>      <Save>
```

1. **PortState:** Spanning tree status for each port.
2. **PathCost:** Specifies the path cost of the port that the switch uses to determine which ports are the forwarding ports. If you change the value, you need to restart the switch for valid value change to take effect.
3. **Priority:** Specifies the path cost of the port that the switch uses to determine which ports are the forwarding ports. The lowest number is picked as the forwarding port.   The range is 1-65535 and the default value is based on IEEE802.1D standard. The values should be in the range: 10Mb/s = 50-600   100Mb/s = 10-60.

   If you change the value, you must reboot the switch to save the value change.

4-4-2.SNMP

Any Network Management station running the Simple Network Management Protocol (SNMP) can manage the switch provided that the Management Information Base (MIB) is installed. SNMP is a protocol that governs the transfer of information between management and agent. The switch supports SNMP V1.

Use this menu to define management stations as trap managers and to enter SNMP community strings. Users can also define a name, location, and contact person for the switch.

```
SM808G Managed Switch : SNMP Configuration
 ====================


          System Options

          Community Strings

          Trap Managers

          Previous Menu
```

4-4-2-1.System Options

```
        SM808G Managed Switch : System Options Configuration
        =====================


System Name :

System Contact :

System Location :
```

Press **<Edit>** to enter all items, and then press **<Save>** to save the configured
values.

1. **System Name:** Enter a name to identify the switch.
2. **System Contact:** Enter the name of the contact person or organization.
3. **System Location:** Enter the location of the switch.

4-4-2-2.Community Strings

Community strings serve as passwords and can be entered as one of the following**:**

Read only: Enables requests accompanied by this string to display MIB-object information.
Read Write: Enables requests accompanied by this string to display MIB-object information and to set MIB objects.

To enter SNMP Community Strings:
1. **Community Name:** Enter the name of current community strings. The default is "public".
2. **Write Access:** Enables the permissions for Read Only or Read/Write.

```
            SM808G Managed Switch : SNMP Community Configuration
            =====================

Community Name                        Write Access
----------------------------------------------------
public                                Read Only











actions->        <Add>      <Edit>      <Delete>      <Save>      <Quit>
                 Add/Edit/Delete community strings.
```

Actions->
<Add>: Creates community strings.
<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.
<Delete>: Deletes a community string. After deleting, press **<Save>** to complete the deletion.

<Save>: Saves all configured values.
<Quit>: Exits this page and returns to previous menu.

4-4-2-3.Trap Managers

A trap manager is a management station that receives traps. The switch generates system alerts. 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.

```
                 SM808G Managed Switch : Trap Managers Configuration
                 =====================
  IP              Community Name
  ---------------------------------------------------







  actions->      <Add>      <Edit>       <Delete>      <Save>       <Quit>
                      Add/Edit/Delete trap managers.
```

Actions->
<Add>: Creates a trap manager.
<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.
<Delete>: Deletes a trap manager. After deleting the trap, press **<Save>** to complete the deletion.
<Save>: Saves all configured values.
<Quit>: Exits this page and returns to previous menu.

4-4-3.GVRP

Use the GVRP Configuration screen to enable or disable GVRP (GARP VLAN Registration Protocol) support.

Press the **Space** key to choose Enabled or Disabled.

```
              SM808G Managed Switch : GVRP Configuration
              =====================



                   GVRP :  Enabled












actions->           <Edit>            <Save>            <Quit>
```
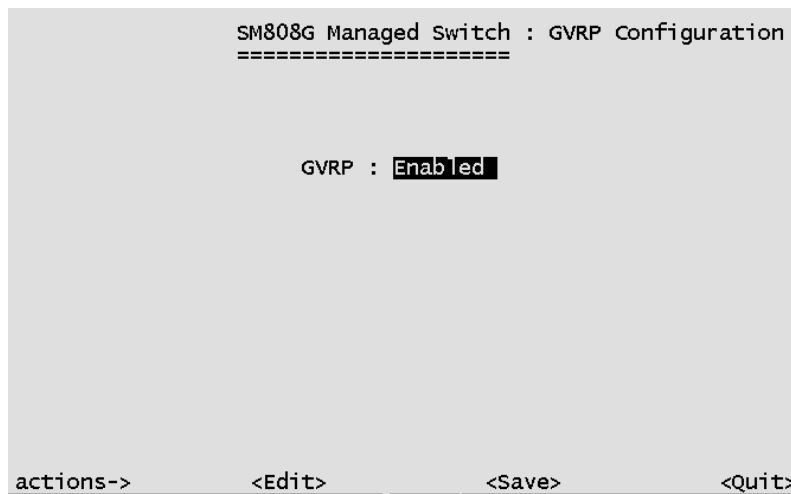
Actions->
<Edit>: Configures all items. Press the **Space** key to choose Enabled or Disabled mode. When finished, pressing **ESC** returns to the action menu line.
<Save>: Saves all configured values.
<Quit>: Exits this page and returns to previous menu.

4-4-4.LACP

```
SM808GManaged Switch: LACP Configuration
=====================

              Aggregator Setting

              State Activity

              LACP Status

              Previous Menu
```

4-4-4-1.Aggregator Setting

1. **Group:** Displays the trunk group ID.
   NOTE: Before setting LACP support, you must first set the trunk group using the *Port / Trunk Configuration* screen.
2. **LACP:** Press the **Space** key to enable or disable LACP (Link Aggregation Control Protocol) support. If enabled, the group is an LACP static trunking group. If disabled, the group is a local static trunking group.
3. **LACP Work Port Num:** The maximum number of ports that can be aggregated at the same time. If the group is an LACP static trunking group, the exceed ports is standby and able to aggregate if the work ports fail. If the group is a local static trunking group, the number must be the same as group ports.

```
           SM808G Managed Switch : LACP Group Configuration
           =====================


                Group       LACP       LACP Work Port Num
                ------------------------------------------













  actions->          <Edit>          <Save>          <Quit>
```
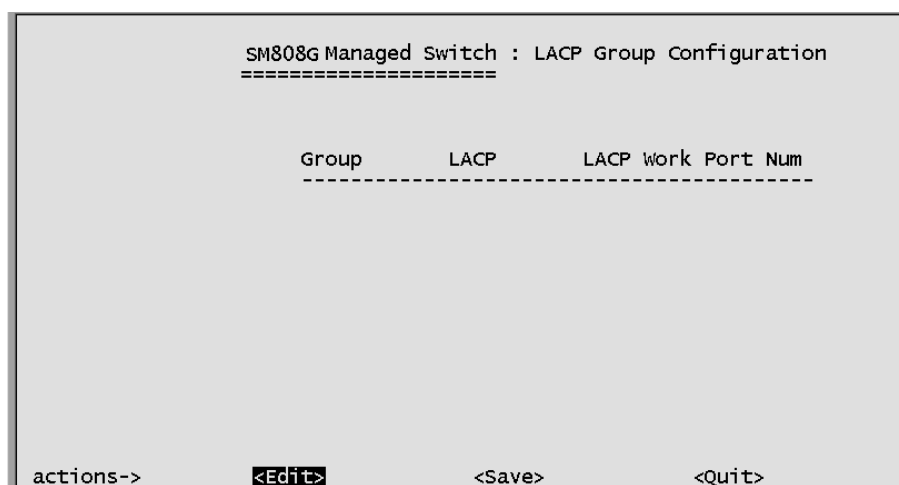
Actions->
<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.
<Save>: Saves all configured values.
<Quit>: Exits this page and returns to previous menu.

4-4-4-2.State Activity

Active: The port automatically sends LACP protocol packets.
Passive: The port does not automatically sends LACP protocol packets, and responds only if it receives LACP protocol packets from the opposite device.

```
SM808G Managed Switch : LACP Port State Active Configuration
=====================


        Port          State Activity
        -------------------------
        1             Passive
        2             Passive
        3             Passive
        4             Passive
        5             Passive
        6             Passive
        7             Passive
        8             Passive




   <Edit>             <Save>            <Quit>
```

Actions->
<Edit>: Configures all items. When finished, pressing **ESC** returns to the action menu line.
<Save>: Saves all configured values.
<Quit>: Exits this page and returns to previous menu.

4-4-4-3.LACP Status

When setting a trunking group, the relationship status information may be
seen on the LACP Group Status screen.

```
              SM808G Managed Switch : LACP Group Status
              =====================



                          NO GROUP ACTIVE










actions->        <Quit>
                          Select the action menu
```
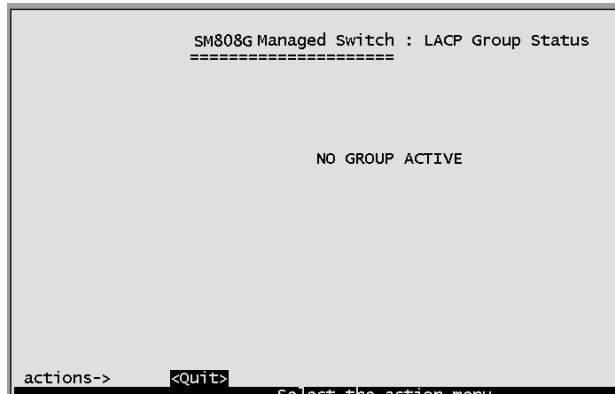
Actions->
<Quit>: Exits this page and returns to previous menu.

4-5.Reboot Switch

Default: Resets the switch to the factory default configuration. The software version that the switch will be reset to can be found on the "System Information" menu under the main menu "Status and Counters".

Restart: Reboots the switch to enable items that have been configured.

```
 SM808G Managed Switch : Restart Configuration
 =====================


                Default

                Restart

                Previous Menu




              Recovering to default
```

Warning: The unit must be allowed to complete restart process to restore the defaults without an interruption. Manually powering off the system before the process has been completed may result in corrupted memory and may cause the unit to not start or come up in an unknown state.

4-6.Updating Firmware using the Console Port

1. While booting the switch, press the **X** key to start the Xmodem routine on the device.
2. Pressing X will cause the switch Xmodem application to begin and cause the baud rate to change to 57600 bps. You will need to disconnect the cable connected to the serial port, and change the baud rate of your hyper-terminal application on your laptop to 57600 bps, then connect the cable and reconnect to the switch.

```
$$$ Switch LOADER Checksum O.K !!!
$$$ Press X key to  start Xmodem receiver:
$$$ Download IMAGE through console(1K Xmodem;baudrate=57600bps)
$$$ Start Xmodem Receiver:
```
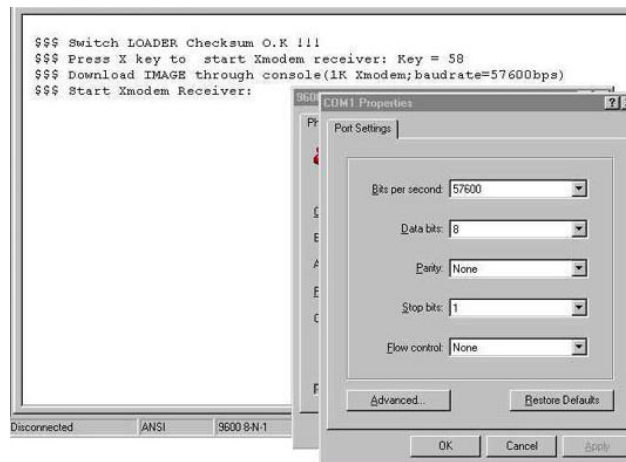

3. Select "send file" under the "transfer" menu from menu bar.
4. Press the "browse" button to select the path.
5. Select "1K Xmodem" of protocol and press the "Send" button.

```
$$$ Switch LOADER Checksum O.K !!!
$$$ Press X key to  start Xmodem receiver: Key = 58
$$$ Download IMAGE through console(1K Xmodem;baudrate=57600bps)
$$$ Start Xmodem Receiver:
```

Send File

Folder: D:\

Filename:
D:\Image.bin   Browse...

Protocol:
1K Xmodem

Send   Close   Cancel
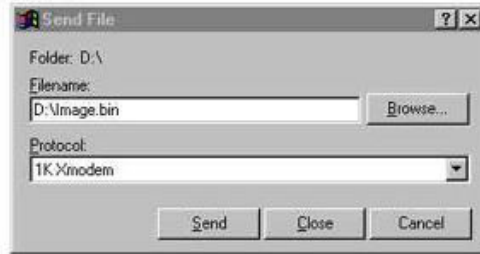
6. After successfully upgrading to the new firmware, change the baud rate back to the default 9600bps.

```
$$$ Switch LOADER Checksum O.K !!!
$$$ Press X key to  start Xmodem receiver: Key = 78
$$$ Download IMAGE through console(1K Xmodem;baudrate=57600bps)
$$$ Start Xmodem Receiver: CCCCC
$$$ Download IMAGE ....O.K !!!
$$$ Update firmware .......................................
.........................................................
.........................................................
.........................................................
.........................
$$$ Update firmware ....O.K !!!
$$$ Note: console baudrate of new image is 9600bps..
$$$ Reboot .....
```

5.
Web-Based Management

This section introduces the configuration and functions of the web-based management of MIL-SM808G switch series. The managed switch series provides an embedded HTML website residing in flash memory. This feature allows users to manage the switch from anywhere on the network through a standard web browser.

NOTE: The web management function will have unexpected displays using Win2000 with Service Pack2 when the IE version is below version 5.5.

Web Management Function

Web Management enables a web browser to manage and monitor the switch. The default TCP/IP values are listed below. Use the console port if you need to change the IP address in order to use the web browser.

IP Address: 192.168.1.77
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.6
User Name: **root**
Password: **root**

Enter the TCP address in the web browser - http://192.168.1.77 and type the user name and password as shown above.

5-1. Web Management Home Overview

1. Home Page.
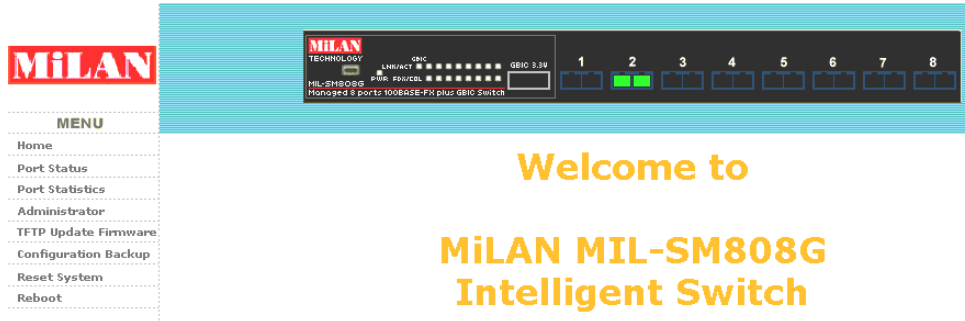
5-2. Port status

State: Displays port status off or on depending on user setting. "Unlink" means the port is offline or "off ".
Link Status: Down is "No Link", Up is "Link"
Auto Negotiation: Indicates if the port is in auto negotiation mode.
Speed status: Displays link speed. Ports 1-8 are 100Mbps. Port 9 is 1000Mbps.
Duplex status: Displays full-duplex or half-duplex mode.
Flow control: Displays flow control status as enabled or disabled.
Config: Displays the state of user settings.
Actual: Displays the negotiation result.

Port Status

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

Port Num	State		Link Status	Auto Negotiation		Speed Status		Duplex Status		Flow Control	
	Config	Actual		Config	Actual	Config	Actual	Config	Actual	Config	Actual
1	On	Off	Down	Off	Off	100	100	Full	Full	On	On
2	On	On	Up	Off	Off	100	100	Full	Full	On	On
3	On	Off	Down	Off	Off	100	100	Full	Full	On	On
4	On	Off	Down	Off	Off	100	100	Full	Full	On	On
5	On	Off	Down	Off	Off	100	100	Full	Full	On	On
6	On	Off	Down	Off	Off	100	100	Full	Full	On	On
7	On	Off	Down	Off	Off	100	100	Full	Full	On	On
8	On	Off	Down	Off	Off	100	100	Full	Full	On	On
9	On	Off	Down	Auto	Auto	1000	1000	Full	Full	On	On

5-3. Port Statistics
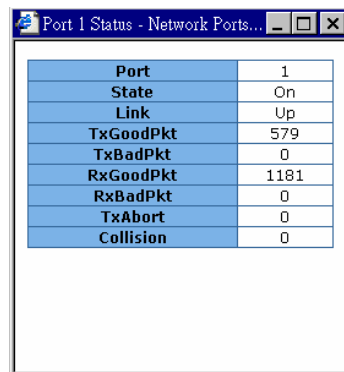
1. The following information provides a view of the current status of the unit.

Port Statistics

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

Port	State	Link	TxGoodPkt	TxBadPkt	RxGoodPkt	RxBadPkt	TxAbort	Collision
1	Off	Down	1	0	7	0	0	0
2	On	Up	1451	0	3508	0	0	0
3	Off	Down	0	0	10	0	0	0
4	Off	Down	0	0	0	0	0	0
5	Off	Down	0	0	0	0	0	0
6	Off	Down	0	0	0	0	0	0
7	Off	Down	0	0	0	0	0	0
8	Off	Down	0	0	0	0	0	0
9	Off	Down	0	0	0	0	0	0

A single port counter screen:

Port 1 Status - Network Ports...

Port	1
State	On
Link	Up
TxGoodPkt	579
TxBadPkt	0
RxGoodPkt	1181
RxBadPkt	0
TxAbort	0
Collision	0

5-4. Administrator

The management functions include IP address, switch settings, console port information, port controls, link aggregation, filter database, VLAN configuration, spanning tree, port mirroring, SNMP, security manager, TFTP update firmware, configuration backup, system reset, and reboot.

5-4-1. IP Address

The IP Settings can be changed by entering new values and clicking the apply button. The switch must be reset for the new IP address to take effect.

    Default IP:192.168.1.77
    Subnetmask:255.255.255.0
    Gateway:192.168.1.6

Set IP Addresses

IP Address	192.168.1.77
Subnet_Mask	255.255.255.0
Gateway	192.168.1.6

Apply | Help

5-4-2. Switch Settings

5-4-2-1.Basic

Description: Displays the name of device type.
MAC Address: Displays unique hardware address assigned by manufacturer.
Firmware Version: Displays the switch's downloaded firmware version.
Hardware Version: Displays the switch's hardware version.
Kernel version: Displays write to default EEPROM value version.

Switch Settings

	Basic		Advanced	

Description	MiLAN SM808G Intelligent Switch
MAC Address	004063800030
Firmware version	v01.11
Hardware version	A03.00
Kernel version	v01.06

5-4-2-2.Advanced

1. Miscellaneous Settings:

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 to 765 seconds. Default is 300 seconds.

Max bridge transit delay bound control: Limits the packets queuing time in the switch. If enabled, the packets that exceed the time limit in the queue will be dropped. This valid values are 1sec, 2 sec, 4 sec and off. Default is 1 second.

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

2. Priority Queue Service settings*:*

First Come First Service: The sequence of packets sent is dependent on the order of arrival. The first packets in the queue are transmitted before any other packets.

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

Weighted Round Robin: This option enables the user to choose a ratio of the number of high priority packets sent before one low priority packet is sent. For example, 2:1 (2 High : 1 Low) will have the switch send 2 high priority packets before sending 1 low priority packet.

Enable Delay Bound: Limits the low priority packets queuing time in the switch. Default Max Delay Time is 255ms. If the low priority exceeds the Max Delay Time, it will be sent. The valid range is 1 to 255 ms.

NOTE: Make sure the "Max bridge transit delay bound control" is enabled before enabling Delay Bound. The Enable Delay Bound only works under "Max bridge transit delay bound control is enabled" situation.

Qos Policy: High Priority Levels: 0 to 7 priority level can map to a high or low queue. When the VLAN Tag number of a frame is mapping as a high priority level, this frame always has high priority. In this example, the QoS policy applies to the switch, not for a single port.

○ All High before Low

◉ WRR   High weight: 2   Low weight: 1

☐ Enable Delay Bound   Max Delay Time: 0 ms

QoS Policy: High Priority Levels

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

Protocol Enable Setting:

☐ Enable STP Protocol

☐ Enable IGMP Protocol

IGMP Query Mode: Auto ▼

VLAN Operation Mode: No VLAN ▼

[Apply] [Default] [Help]

3. Protocol Enable Setting:

Enable Spanning Tree Protocol: Enables STP. The recommended default is to disable STP.
Enable Internet Group Multicast Protocol: Enables IGMP protocol.
IGMP Query Mode: Recognizes different queries from clients or servers to decide which Query will be the first priority. The four modes are:

Protocol Enable Setting:

☐ Enable STP Protocol

☐ Enable IGMP Protocol

IGMP Query Mode: Auto
Auto
VLAN Operation Mo Enable
Disable

Apply   Default   Help
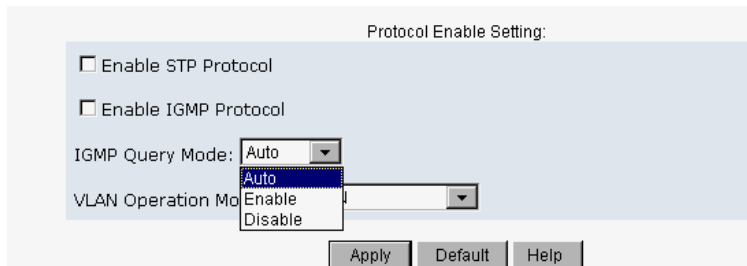
Auto Mode: Chooses the switch that has the smallest IP address to be set for the IGMP Query mode.
Enable Mode: Enables the switch to be the IGMP Querier.
Disable Mode: Disables all other switches from being the IGMP Querier.
VLAN Operation Mode:
    No VLAN (Default)
    802.1Q(Tag VLAN) without GVRP VLAN mode
    802.1Q(Tag VLAN) with GVRP VLAN mode
    Port Based

Protocol Enable Setting:

☐ Enable STP Protocol

☐ Enable IGMP Protocol

IGMP Query Mode: Auto

VLAN Operation Mode: No VLAN
No VLAN
802.1Q without GVRP
802.1Q with GVRP   lt   Help
Port_Based
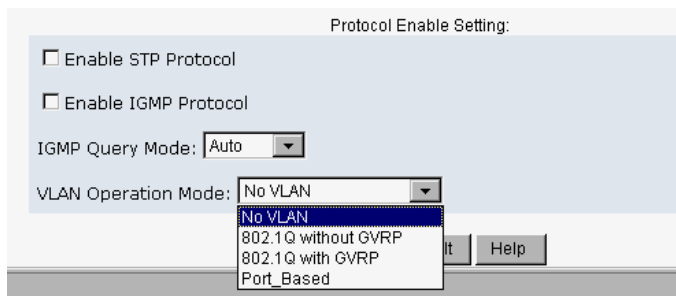
4. IGMP Theory of Operation

The following three topologies detail how IGMP Query works and to be configured within a network:

1. Auto mode needs to be enabled when the router's IP address is smaller than other switches in the subnet.
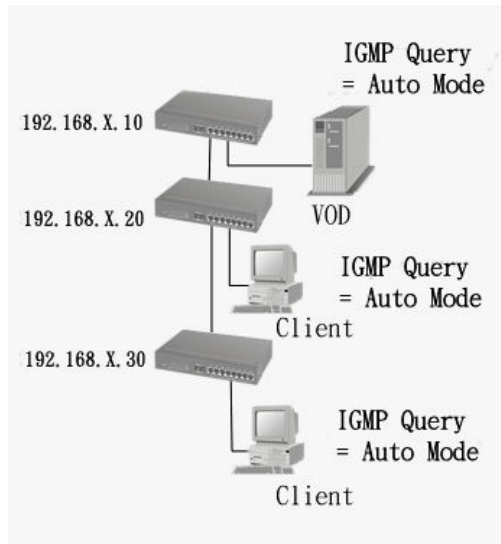
2. IGMP needs to be enabled when the router's IP address is not smaller than other switches in the subnet. This Router supports IGMP protocol, but IGMP has to be enabled, and the Router has to be the Querier.
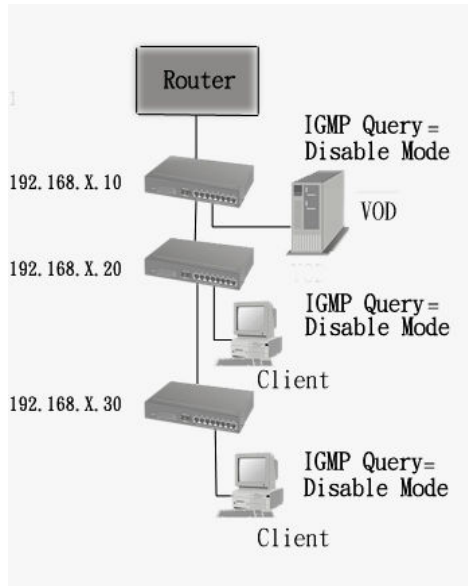
3. The following topology must be set when the IP address of the switch is not the smallest in the subnet. The network will cause a multi-cast storm from the IGMP client report if it is in Auto mode. All switches must be in disable mode when the VOD server is configured for IGMP Querier.
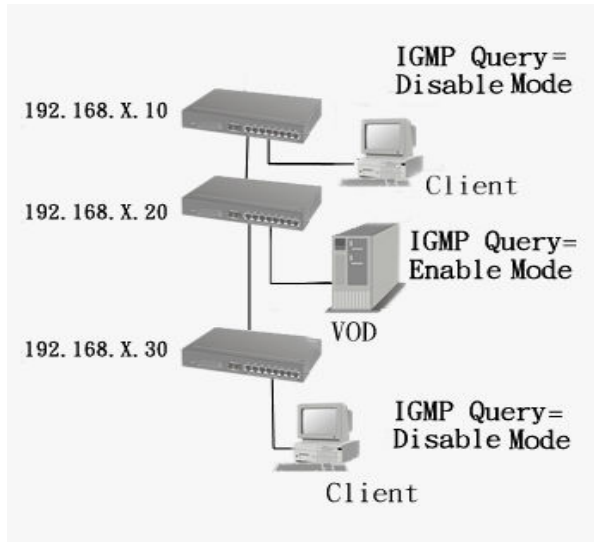
Note: It is suggested that the VOD server switch have the smallest IP address.

GVRP (GARP VLAN Registration Protocol)
GVRP allows automatic VLAN configuration between the switch and nodes. A GVRP request can be sent using the VID of a VLAN defined on the switch when the switch is connected to a device with GVRP enabled. The switch will automatically add that device to the existing VLAN.

5-4-3. Console Port Information

Console is a standard UART interface to communicate with a serial port.

The Windows HyperTerminal program can be used to link the switch with the console port. In order to change any of these parameters, you must be connected to the console port.

Baud rate (bits/sec): 9600
Data Bits: 8
Parity Check: 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

Help
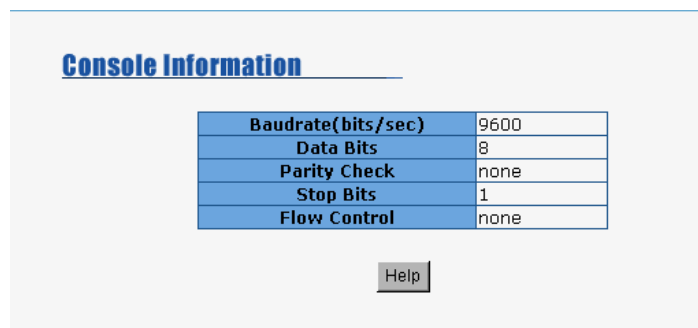
5-4-4. Port Controls

The menu allows changing of port configurations.

State: User can disable or enable ports 1-8, port 9 is always enabled.
Auto Negotiation: Ports 1-8 are fixed to disabled mode, and port 9 is enabled.
Speed setting: Ports 1-8 are set at a fixed speed of 100Mbps. Port 9 is fixed at 1000Mbps (SFP port).
Duplex setting: User can set ports 1-8 to Full Duplex or Half Duplex. Port 9 is fixed at Full Duplex.
Flows control setting: User can set flow control function to be enabled or disabled for ports 1-8. Port 9 is fixed at enabled.

Port Controls

Port	State	Auto Negotiation	Speed	Duplex	Flow Control
1 2 3 4	Enable	Disable	100	Full	Enable

Apply

Port Status

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

Port Num	State		Link Status	Auto Negotiation		Speed Status		Duplex Status		Flow Control	
	Config	Actual		Config	Actual	Config	Actual	Config	Actual	Config	Actual
1	On	On	Up	Off	Off	100	100	Full	Full	On	On
2	On	Off	Down	Off	Off	100	100	Full	Full	On	On

5-4-5. Trunking

Trunking 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. Link aggregation allows grouping of 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. For more detailed information refer to IEEE 802.3ad.

If there are two trunk groups A and B, and B group is enabled LACP, then it will act as a redundant link (Backup group for Trunk group A). If trunk group A fails, Group B will be it's backup.

5-4-5-1. Aggregator Setting

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.

To create a trunk across two or more ports:
1. **Group ID:** Choose the "Group ID" and click "Get".
2. **LACP:** If enabled, the group supports LACP. If disabled, the group is a local static trunking group between two switches. All ports support LACP dynamic trunking group. If connecting to another device that also supports LACP, the LACP dynamic trunking group will be created automatically.
3. **Work ports:** Enter the maximum number of ports that can be aggregated at the same time. If the group is an LACP static trunking group, the exceed ports is standby and able to aggregate if work ports fail. If the group is a local static trunking group, the number must be the same as group ports.
4. Select the ports to join the trunking group. If LACP is enabled, you can configure LACP Active/Passive status for each port.
5. Click Apply to save the new configuration.

5-4-5-2. Aggregator Information

The LACP Aggregator relation information is displayed as shown.

5-4-5-3. State Activity

Active (select)**:** The active port automatically sends LACP protocol packets.
Passive (not selected)**:** The passive port does not automatically send LACP protocol packets, but responds only if it receives LACP protocol packets from the other device.

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

If the port has active LACP's, and you select the trunking port, the active status will be created automatically.

Trunking

| Aggregator Setting | Aggregator information | State Activity |

Port	LACP State Activity	Port	LACP State Activity
1	N/A	5	☐ Active
2	N/A	6	☐ Active
3	☐ Active	7	☐ Active
4	☐ Active	8	☐ Active

Apply Default Help

5-4-6. Filter Database

5-4-6-1. IGMP Snooping
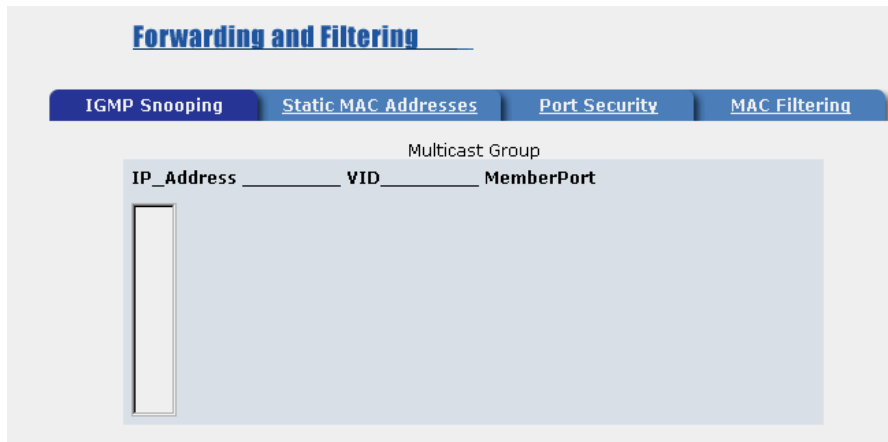
The switch supports IP multicasting. You can enable IGMP via the web management's configuration screen. In addition, you can view different multicast groups, VIDs and member ports, and IP multicast addresses that range from 224.0.0.0 through 239.255.255.255.

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

Message	Description
Query	A message sent from the querier (IGMP router or switch) asking for a response from each host belonging to the multicast group.
Report	A message sent by a host to the querier 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 querier to indicate that the host has quit to be a member of a specific multicast group.

5-4-6-2. Static MAC Address

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

MAC Address

Port Num

Vlan ID N/A

[Add] [Delete] [Help]

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

To add a static MAC address:
1. Click on **Administrator** on the main menu.
2. Click on **Filter Database**.
3. Click **Static MAC Addresses**. 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.
4. In the **Port Number** box, select a port number.
5. 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.
6. Click **Add.**

5-4-6-3. Port Security

A port in security mode will be "locked" with address learning blocked. Only the incoming packets with SMAC already existing in the address table can be forwarded normally. The 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, and then click **Apply** to submit the changes on this page.

Forwarding and Filtering

| IGMP Snooping | Static MAC Addresses | Port Security | MAC Filtering |

Port	Enable Security (disable for MAC Learning)	Port	Enable Security (disable for MAC Learning)
1	☐	6	☐
2	☐	7	☐
3	☐	8	☐
4	☐	9	☐
5	☐		

Apply | Default | Help

5-4-6-4. MAC Filtering

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

Steps to specify a MAC address to filter:
1. In the MAC Address box, enter the MAC address 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 button.
4. To delete a MAC address, highlight the selection in the table you want to delete and then click the Delete button.

NOTE: Changing the VLAN type in the Advanced Switch Setting menu will cause the contents of this table to clear.

5-4-7. VLAN Configuration

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

The MIL-SM808G switch supports port-based and protocol-based VLANs. In the default configuration, VLAN support is enabled and all ports on the switch belong to the default VLAN. VID is 1.

NOTE: The default VLAN can't be deleted.

Support Port-based VLANs (IEEE 802.1Q VLAN)
The IEEE 802.1Q specification is the standard for Port-based Tagging. Therefore, it is possible to create a VLAN across devices from different switch suppliers. IEEE 802.1Q VLAN uses a technique to insert a "tag" into the Ethernet frames. The 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 has to be either capable of tagging the packets it sends with VLAN tags OR be attached to a VLAN-aware bridge. The VLAN-aware bridge must be capable of classifying and tagging the packet with different VLAN ID. The classification and tagging of the packets is based on default PVID and other information about the packet, such as the protocol.

5-4-7-1. Basic

VLAN Configuration

By default, there are no VLANs set for the switch. In order to configure any of the different types of VLANs, VLANs need to be enabled in the switch using Settings/Advanced/Protocol Enable Settings/VLAN Operational Mode. The following are the choices offered:

No VLAN
802.1Q without GVRP
802.1Q with GVRP
Port_Based

Port Based VLANs

This screen shows the current Port Based VLANs configured. To configure new VLANs click the **Add** button. You can also delete configured VLANs using this screen. To edit a VLAN (change the ports) highlight the VLAN name and then click **Edit**. There can be up to 256 different port based VLANs configured.

VLAN

Port_based VLAN Information
vlan 4___4
vlan 33___33
building 24___24

Add | Edit | Delete | PrePage | NextPage | Help
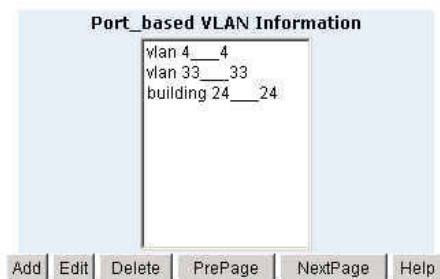
When adding a VLAN this screen allows the configuration of the VLAN. The configuration includes the number of ports, the text name and the Group ID that will belong to the specific VLAN. These VLANs only apply to this switch. The VLANs can be overlapping, meaning that any port can belong to more than one VLAN. One configuration that is common for port based VLANs is to have all the ports on the

switch on separate VLANs except for the port that has the server connected to it. This port is then shared by all the VLANs. This enables security between ports, but allows all ports access to the server.
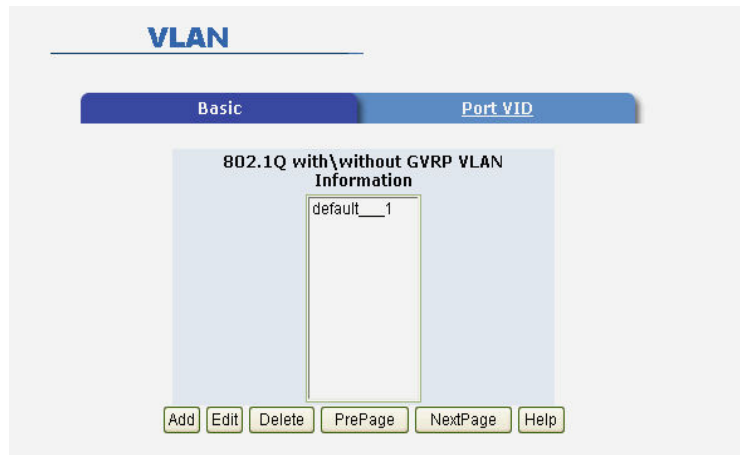
Create a VLAN and add tagged member ports to it.
1. From the main menu, click **Administrator -- VLAN Configuration**.
2. Click Add.
3. Type a name for the new VLAN.
4. Type a VID (between 2 to 4094). The default is 1.
5. From the Available ports box, select ports to add to the switch and click Add.
6. Click Apply

5-4-7-2. Port VID

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

Port VID (PVID)
Used for setting the Port VLAN ID that will be assigned to untagged traffic on a given port. For example, if port 9's Default PVID is 100, all untagged packets on port 9 will belong to VLAN100. The default setting for all ports is VID1. This feature is useful for accommodating devices that you want to participate in the VLAN but that don't support tagging. Only one untagged VLAN is allowed per port.

Ingress Filtering
Ingress filtering lets frames belonging to a specific VLAN be forwarded if the port belongs to that VLAN. The frames are dropped if not. The switch's two ingress filtering rules are:
Ingress Filtering Rule 1: Forwards only packets with VID matching this port's configured VID. By default, only packets with this VID are forwarded.

Ingress Filtering Rule 2: Drop Untagged Frame. By default all untagged frames are forwarded.

5-4-8. Spanning Tree

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

Spanning-Tree Protocol can be enabled using web management's switch setting advanced item, and selecting enable Spanning-Tree protocol. By default, spanning tree is disabled on the switch.

It is recommended that STP be enabled on all switches to ensure a single active path on the network.

Information about the current spanning tree status is displayed in this table.

STP Port Status

PortNum	PathCost	Priority	PortState
1	10	128	DISABLED
2	10	128	DISABLED
3	10	128	DISABLED
4	10	128	FORWARDING
5	10	128	DISABLED
6	10	128	DISABLED
7	10	128	DISABLED
8	10	128	DISABLED
9	10	128	DISABLED

Configure Spanning Tree Parameters

Priority (1-65535)	32768
Max Age (6-40)	15
Hello Time (1-10)	3
Forward_Delay_Time (4-30)	5

Apply

Parameter	Description
Priority	The priority value used to identify the root bridge can be changed. The bridge with the lowest value has the highest priority and is selected as the root. Enter a number 1 through 65535.
Max Age	Max Age value is the number of seconds a bridge waits without receiving Spanning-Tree Protocol configuration messages before attempting a reconfiguration. It can be changed to a value from 6 seconds through 40 seconds.
Hello Time	The Hello Time value is the number of seconds between the transmission of Spanning-Tree Protocol configuration messages. It can be changed to a value from 1 second to 10 seconds.
Forward Delay time	Forward Delay Time is the number of seconds a port waits before changing from its Spanning-Tree Protocol learning and listening states to the forwarding state. It can be changed to a value from 4 seconds to 30 seconds.

The priority and path cost can be configured for each port. Click the **Apply** button to modify the configuration.

Configure Spanning Tree Port Parameters

Port Number	Path Cost (1 - 65535; Default 10)	Priority (0 - 255; Default 128)
1 2 3 4 5	10	128

Apply   Help

Parameter	Description
Port Priority	A change to the Port Priority affects which port will be the root port. The lowest number has the highest priority. The range is 0-255 and the default setting for all ports is 128.
Path Cost	Path Cost specifies the path cost of the port that the switch uses to determine which ports are the forwarding ports. The lowest number becomes the forwarding port. The range is 1-65535 and the default value is based on IEEE802.1D

5-4-9. Port Mirroring

The Port Mirroring feature is disabled by default. Selecting enable from the pull down menu will cause the selected traffic from the selected monitor ports to be mirrored to the selected analysis port. Press the **Apply** button to submit the changes.

Port Mirroring State: Enables or disables the port mirroring function.
Analysis Port: The ports you want to mirror. All source port traffic will be copied to a mirror port. You can select a maximum of 9 source ports in the switch. If you want to disable the function, you must select monitor port to none.
Monitor Rx: Monitors received frames from the port.
Monitor Tx: Monitors transmitted frames from the port.

5-4-10. SNMP

SNMP is a protocol that governs the transfer of information between management and agent. The switch supports SNMP V1. Any Network Management station running the Simple Network Management Protocol (SNMP) can manage the switch provided that the Management Information Base (MIB) is installed.

Use this menu to define management stations as trap managers and to enter SNMP community strings. Users can also define community strings for a name, location, and contact person for the switch.

1. **System Options –** The length of each can be 26 characters.
Name: Enter a name to be used for the switch.
Location: Enter the location of the switch.
Contact: Enter the name of a person or organization.

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

Read only: Enables requests accompanied by this string to display MIB-object information.

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

3. Trap Manager

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

5-4-11.Security Manager

The user can change the user name and password to keep the switch secure.
The default user name and password are below.
User Name: **root**
Password: **root**

5-4-12. TFTP Update Firmware

The following menu options provide some system control functions to allow a user to update firmware and remotely boot the switch system:

- Executing TFTP software
- Copy firmware update version image.bin to TFTP software directory.
- In web management select **Administrator—TFTP update firmware.**
- Download new image.bin file. In web management, press **<update firmware>**.

TFTP Download New Image

TFTP Server IP Address	192.168.1.78
Firmware File Name	image.bin

Apply Help

5-4-13. Configuration Backup

5-4-13-1. TFTP Restore Configuration

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

5-4-13-2. TFTP Backup Configuration

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

5-4-14. Reset System

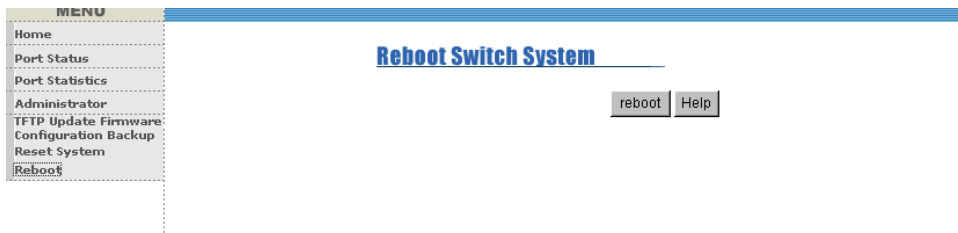Reset Switch to default configuration.
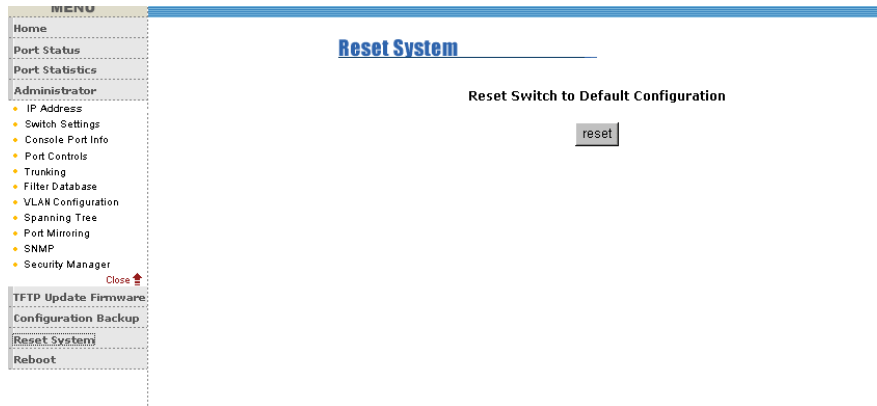
5-4-15. Reboot

Select Reboot to restart the system with the current saved configuration.

6.
Technical Specifications

This section provides the specifications of MIL-SM808G switch product.

Standards Compliance	IEEE 802.3u 100BASE- FX Fast Ethernet IEEE 802.3z Gigabit Fiber
Protocol	CSMA/CD
Max Forwarding and Max Filtering Rate	14,8800 pps per Fast Ethernet port, 148,8000 pps per Gigabit Ethernet port (SFP)
LED Indicators	Fiber Port : LINK/ACTIVE, Full Duplex/Collision (100Mbps Fiber port), Link/Active(SFP port) Per Unit: Power
Fiber Link Max. Distance	SC Multi-mode: Half-duplex: 412m, Full-duplex: 2Km SC / ST Single-mode: Half-duplex: 412m, Full-duplex: 15 or 60Km
Dimensions	440mmx 160mmx 44mm (L x W x H)
Weight	2200g ±40 g
Storage Temp.	-40ºC to 70ºC (-40ºF to 158ºF)
Operational Temp.	0ºC to 45ºC (32ºF to 113ºF)
Operational Humidity	10% to 90% (Non-condensing)
External Power	100-240V AC, 50-60Hz
Power Consumption	17 Watts (Max)
EMI	FCC Class A, CE Mark

Safety	UL, cUL

7.
Troubleshooting

This section is intended to help you solve some common problems encountered while using the MIL-SM808G switch series.

Incorrect connections

- **Faulty or loose cables**
  Look for loose or obviously faulty connections. If they appear to be OK, make sure the connections are snug. If that does not correct the problem, try different cables.

- **Non-standard cables**
  Non-standard and miswired cables may cause numerous network collisions and other network problems. This can seriously impair network performance. A category 5 cable tester is a recommended tool for every network installation.

- **Improper Network Topologies**
  It is important to make sure that you have a valid network topology. Common topology faults include excessive cable length and too many repeaters or hubs between end nodes. In addition, you should make sure that your network topology contains no data path loops. Between any two ends nodes, there should be only one active cabling path at any time. Data path loops will cause broadcast storms that will severely impact your network performance.

Diagnostic LED Indicators

The switch can be easily monitored through panel indicators to assist in identifying problems.

If the power indicator does turn on when the power cord is plugged in, you may have a problem with power outlet or power cord. However, if the switch powers off after running for awhile, check for loose power connections, power losses or surges at power outlet. If you still cannot resolve the problem, contact your local dealer for assistance.

■ **Cabling**

100BASE-FX fiber port: Multi-mode fiber connector types must use 50/125 or 62.5/125 µm multi-mode fiber cable. Two devices may be connected over a 2 kilometer distance. Single-mode fiber connector types must use 9/125 µm single-mode fiber cable. Two devices may be connected over a 15 or 60 kilometer distance in full duplex operation in single-mode. Follow the cabling instructions sent with your SFP module when selecting appropriate cables.

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