



TRENDNET®



User's Guide

TEG-S081FMI

1. Introduction

The TEG-S081FMi Switch is compact desktop size switches which are ideal solutions for Fiber network infrastructure. It provides wire-speed, Fast Ethernet switching function that allows high-performance, low-cost connection. The Switch features a store-and-forward switching and it can auto-learn and MAC address on an 8K-entry MAC address table.



Figure 1-1. The TEG-S081FMi Switch

The Switch provides 8 100Mbps Fiber ports and one GBIC slot for optional GBIC modules.

The fiber ports are 100Base-SC type multi-mode fiber ports support up to 2kms distance.

With their build-in **Web-based Management**, managing and configuring the TEG-S081FMi Switch becomes easier. From cabinet management to port-level control and monitoring, you can visually configure and manage your network via Web Browser. Just click your mouse instead of typing command strings. However, the TEG-S081FMi Switch can also be managed via Telnet, Console, or SNMP Management.

Features

- Conforms to IEEE802.3u, IEEE802.3z and IEEE802.3x Ethernet Standards
- 8x 100Base-FX SC Type Fiber ports and one GBIC slot
- One Console port on the front side for switch Configuration
- Half-duplex mode for backpressure, and Full-duplex for flow control
- Store-and-forward switching architecture
- Automatic address learning, address migration
- 8K-entry MAC address table
- 2Mbits memory buffer sharing
- Performs non-blocking full wire speed
- LED-indicators for Power, LNK/ACT, FDX/COL, LNK/ACT(GBIC)
- 19-inch Rack-Mount size design

Intelligent Management Features

- Web-based management
- SNMP network management
- Console and Telnet management
- Port Base VLAN and IEEE 802.1q Tag VLAN, and VLAN group up to 256 , VLAN ID up to 4K
- IEEE 802.3 ad port trunk with LACP (Link Aggregation Control protocol) supported
- IEEE 802.1d Spanning Tree
- MIB II (RFC 1213) supported
- IP Multi-cast, IGMP Snooping, up to 256 IGMP groups
- Support Quality of Service (system provides 8 levels) and Class of service (per port Hi/Low Queue)
- Port Mirror, Broadcast Filter, Static MAC Address filtering, Port Security and GVRP supported

Package Contents

Unpack the contents of the *TEG-S081FMi Switch* and verify them against the checklist below.

- Switch
- Power Cord
- Four Rubber Feet
- RS-232 cable
- User Guide



TEG-S081FMi Switch

Power Cord



Rubber Feet



RS-232 cable

User Guide

Figure 1-2. Package Contents

Compare the contents of your TEG-S081FMi switch package with the standard checklist above. IF any item is missing or damaged, please contact your local dealer for service.

Management Methods

The 8port Fiber Management Switch series supports 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 TEG-S081FMi Switch in this method requires a direct connection between PC and the TEG-S081FMi Switch. While Telnet management is done over the network. Once the TEG-S081FMi Switch is on the network, you can use Telnet to Log in and change the configuration.

Web-based Management

The Switch provides an embedded HTML web site residing in flash memory. It offers advanced management features and allow users to manage the TEG-S081FMi Switch from anywhere on the network through a standard browser such as Microsoft Internet Explorer.

SNMP Network Management

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

2. Hardware Description

Front Panel

The Front Panel of the Fiber Management Switch series consist of 8x 100Mbps Fast Ethernet Fiber and GBIC ports, and the LED indicators are also located on the frond panel of the switch.



Figure 2-1. The Front Panel of the Fiber Management Switch

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.



Console Port
Baud Rate: 9600,N,8,1

Figure 2-2. The Front Panel of the TEG-S081FMi Switch with SC connector

- **100Base-FX Fiber Port:** There are 2 types of fiber connectors available for the TEG-S081FMi Switch as shown above. The distance for fiber cabling can be extended up to 2 kilometers.

- **GBIC port** : It only support 3.3V model Gigabit Transceiver for Gigabit SX or LX.

LED Indicators

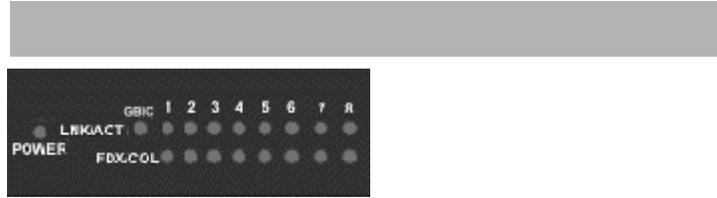


Figure 2-3. LED Indicators

There are three LED-Indicators (LNK/ACT, FDX/COL) for each Fiber port. 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 the device on 100Mbps.
	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 occurs in the port.
	Off		Half-duplex mode or no device attached.

Table 2-1. The description of LED Indicator

Rear Panel

The Console port and 3-pronged power plug are located at the Rear Panel of the TEG-S081FMi Switch as shown in Figure 2-8. The Switches will work with AC in the range 100-240V AC, 50-60Hz.



Figure 2-7 The Rear Panel of the 8 Port 100Mbps Fiber plus one GBIC Management 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.

Make sure there is enough clearance around the Switch to allow attachment of cables, power cord and air circulation.

Power On

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

Check the power indicator on the front panel to see if power is properly supplied.

3.

Network Application

This section provides you a few samples of network topology in which the Switch is used. In general, the TEG-S081FMi Switch is designed to be used as a desktop or segment switch.

Segment Application

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

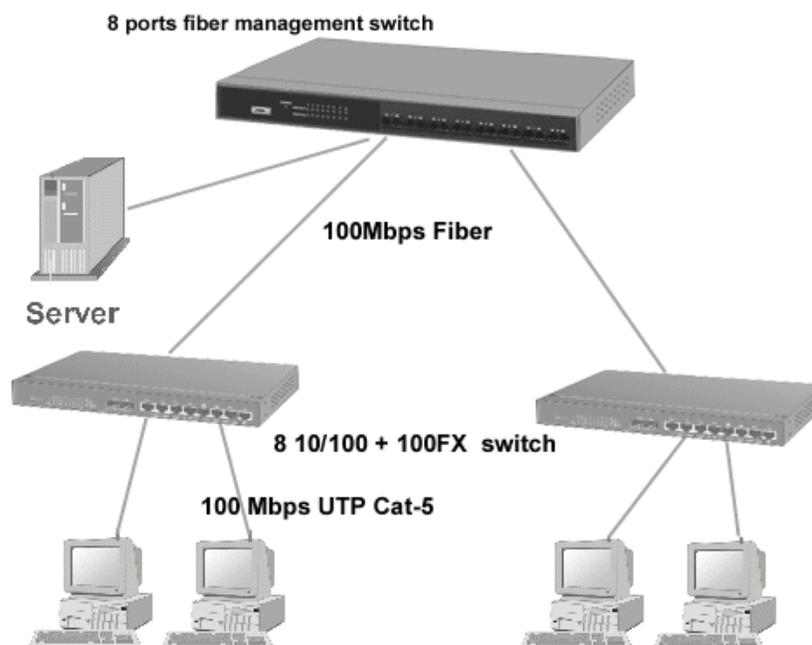


Figure 3-2 Segment Application

You can use the TEG-S081FMi Switch to connect PCs, workstations, and servers to each other by connecting these devices directly to the Switch. All the devices in this network can communicate with each other. Connecting servers to the backbone switch allow other users to access the server's data.

The Switch automatically learns node address, which are subsequently used to filter and forward all traffic based on the destination address. You can use any of the Fiber port of the Fiber Management Switch to connect with another Switch or Hub to interconnect each of your small switched workgroups to form a larger and long distance switched network.

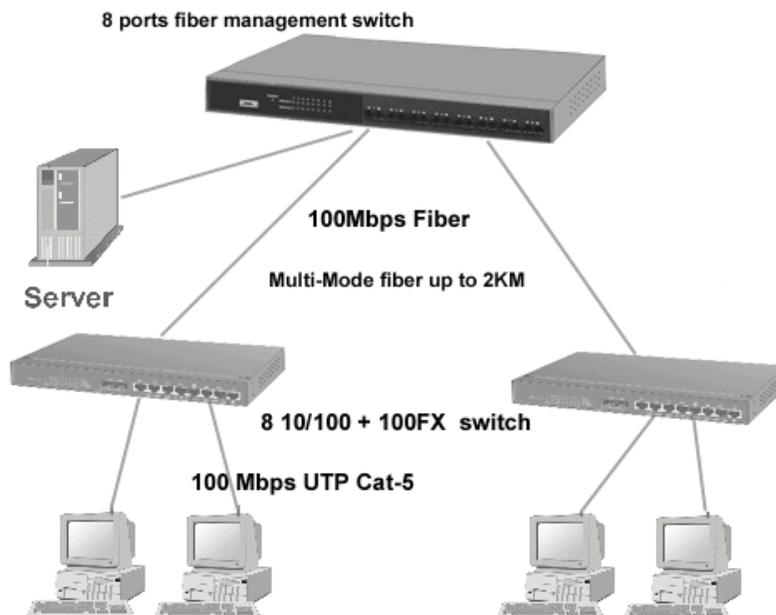


Figure 3-3 Use fiber port (TEG-S081FMi Switch) to extend the distance between workgroups

4.

Network Configuration

This Section explains how to configure console management via a direct connection to the console port of the 8 port Fast Ethernet Fiber Management Switch.

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, user has access to manage the functions of the Switch.

Connecting a Terminal or PC to the Console Port

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 Bit: 1
Control flow: None

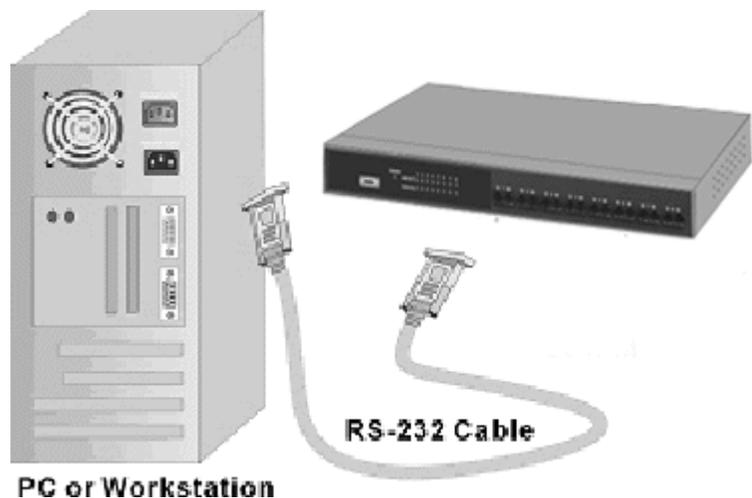


Figure 4-1. The settings of communication parameters

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

Console – Menu

1. The 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 “root”, the default password is “root ”.

4-1 Main Menu

There are five items for selected 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: Show the status of the switch.

Switch Static Configuration: Configure the switch.

Protocol Related Configuration: Configure the protocol function.

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

Logout: Exit the menu line program.

<Control Key>

The control key as follow provided in all menus:

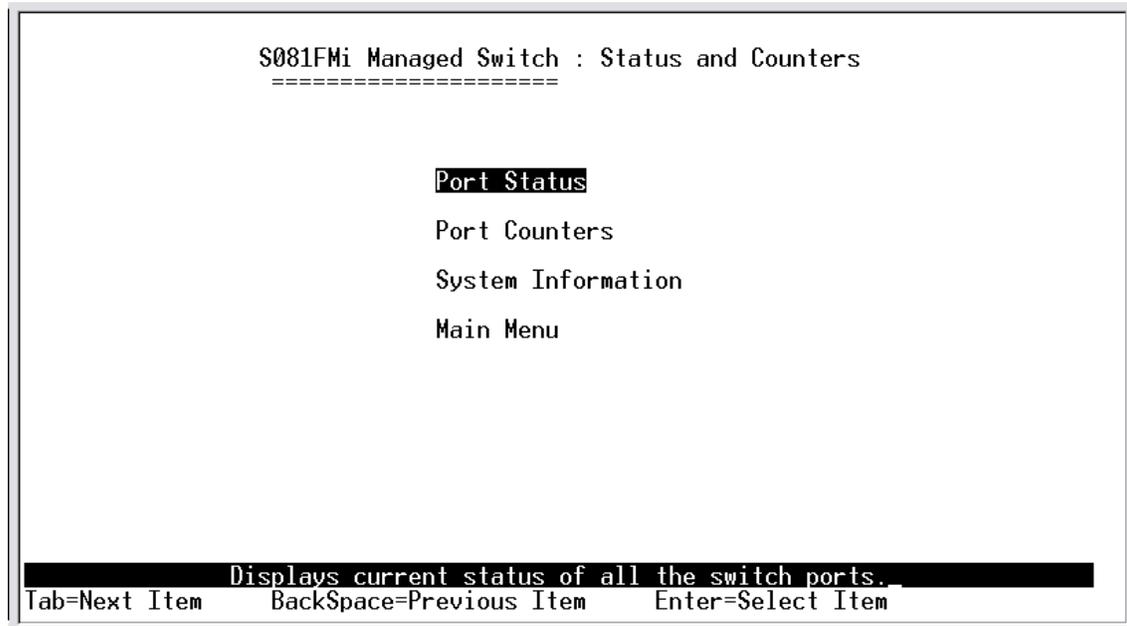
Tab: Move the vernier to next item.

Backspace: Move the vernier to previous item.

Enter: Select item.

Space: Toggle selected item to next configure.

4-2. Status and Counters



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

4-2-1. Port Status

This page display every port status

Type: Display the port type.

Enabled: Display the port is enabled or disable depended on user setting.

Enable will be display “Yes”, disable will be display “No”.

Status: Display the port is link or no link, “Down” is no link, and “Up” is link.

Mode: Display the port speed and duplex.

Flowtrl: Display the flow control status is enable or disable mode.

S081FMi Managed Switch : Port Status					
Port	Type	Enabled	Status	Mode	FlowCtrl
1.	100FX	Yes	Up	100 Full	0n
2.	100FX	No	Down	100 Full	0n
3.	100FX	No	Down	100 Full	0n
4.	100FX	No	Down	100 Full	0n
5.	100FX	No	Down	100 Full	0n
6.	100FX	No	Down	100 Full	0n
7.	100FX	No	Down	100 Full	0n
8.	100FX	No	Down	100 Full	0n
9.	100FX	Yes	Up	1000 Full	0n

actions-> **<Quit>**

Select the action menu.

Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

Actions->

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

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

4-2-2. Port Counters

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

S081FMi Managed Switch : Port Counters						
Port	TxGoodPkt	TxBadPkt	RxGoodPkt	RxBadPkt	TxAabort	Collision
1.	143	0	1393	0	0	0
2.	0	0	0	0	0	0
3.	0	0	0	0	0	0
4.	0	0	0	0	0	0
5.	0	0	0	0	0	0
6.	0	0	0	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-> **<Quit>** <Reset All>
 Configure the action menu.
 Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

Actions->

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

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

<Reset All>: Set all count to 0.

4-2-3. System Information

System Description: Display the name of device type.

MAC Address: The unique hardware address assigned by manufacturer.

Firmware Version: Display the switch's firmware version.

Hardware Version: Display the switch's Hardware version.

Kernel version: Display write to default EEPROM value version.

```
S081FMi Managed Switch : Management Address Information
=====

System Description : TEG-S081Fi Intelligent Switch
MAC Address       : 000F38FFF1B3
Firmware version  : v01.02
Hardware version  : A03.00
Kernel version    : v01.14

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

4-3. Switch Static Configuration

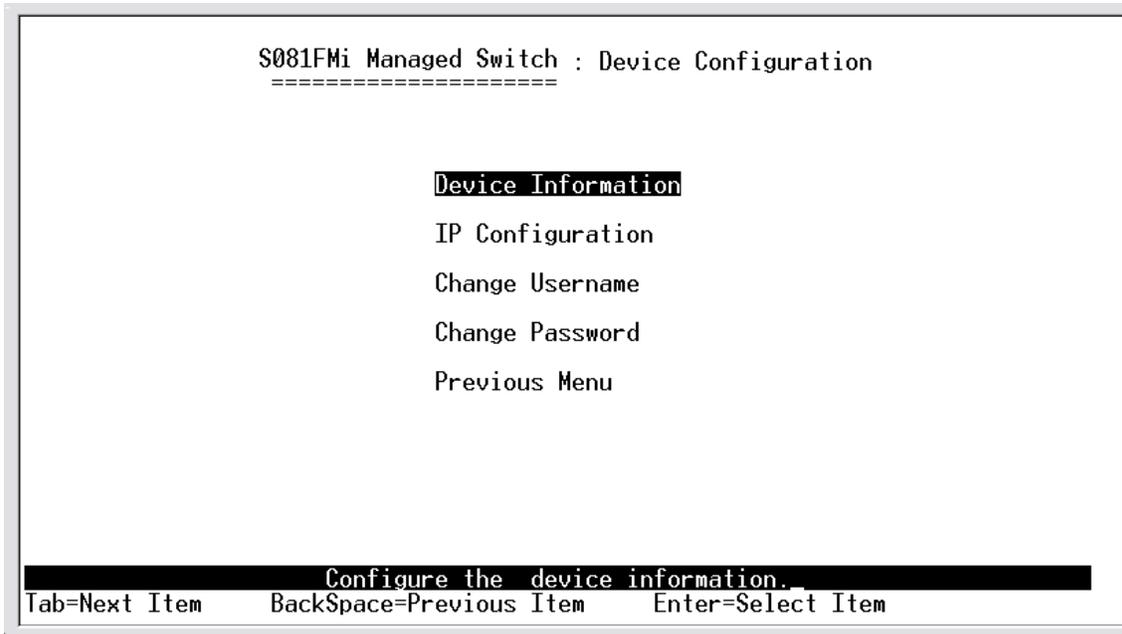
```
S081FMi Managed Switch : Switch Configuration
=====

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

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

4-3-1. Administration Configuration



4-3-1-1. Device Information

This page provide user to configure the device information.

Actions->

<Edit>: Configure all items. Finished configure press **BackSpace** to go back action menu line.

<Save>: Save all configure value.

<Quit>: Exit the page of device information and return to previous menu.

```
S081Fi Managed Switch : Device Information
=====

Device Name :
Device Content :
Device Location :
Device Description : TEG-S081Fi Intelligent Switch

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

4-3-1-2. IP Configuration

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

Actions->

<Edit>: Configure all items. Finished configure press **ESC** to go back action menu line.

<Save>: Save all configure value.

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

```
S081FMi Managed Switch : IP Configuration
=====

IP Address   : 192.168.1.182
Subnet Mask  : 255.255.255.0
Gateway      : 192.168.1.254

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

Note: Always restart the computer after finishing the setup.

4-3-1-3. Change Username

Use this page; user can change web management user name.

```
S081FMi Managed Switch : UserName Configuration.
=====

UserName : root

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

4-3-1-4. Change Password

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



S081FMi Managed Switch : Password Configuration
=====

Old Password:

Please enter your old password!

Esc=Previous menu

The default password is root

4-3-2. Port / Trunk Configuration

This page can change every port status and configure trunk group.
Press **TAB** key to change configure of per item.

- 1.Enabled:** User can disable or enable this port control, but port 9 always is enabled, can't be disable.
- 2.Auto Negotiate:** port 1 to 8 (100Mbps Fiber) is disabled, port 9 (GBIC port) is enabled.
- 3.Speed/Duplex Config:** For port 1 to 8 (100 Mbps Fiber port)only can set Full or Half duplex , Port 9 (GBIC port) support 1000Mbps Full Duplex.
- 4.Flow Control:** User can set flow control function is enable or disable(only for port 1 to 8), port 9(GBIC port) always support flow control.
- 5.Group:** User can set trunk group for port1~port8. There are four trunk groups to provided configure. Port 9 is not available for Trunk.

S081FMi Managed Switch : Port Configuration						
Port	Type	Enabled	Auto Negotiate	Speed/Duplex Config	Flow Control	Group
1.	100FX	Yes	Disabled	100 Full	0n	
2.	100FX	Yes	Disabled	100 Full	0n	Trk1
3.	100FX	Yes	Disabled	100 Full	0n	Trk1
4.	100FX	Yes	Disabled	100 Full	0n	
5.	100FX	Yes	Disabled	100 Full	0n	
6.	100FX	Yes	Disabled	100 Full	0n	
7.	100FX	Yes	Disabled	100 Full	0n	
8.	100FX	Yes	Disabled	100 Full	0n	
9.	1000FX	Yes	Enabled	1000 Full	0n	

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

Select the Action menu.

Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

Actions->

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

<Edit>: Configure all items. Finished configure press **ESC** to go back action menu line.

<Save>: Save all configure value.

4-3-3. Port Mirroring 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.

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

1. Port Mirroring State: Type “space” key for enable/disable.

2. Analysis Port: It’s mean mirror port can be used to see all monitor port traffic.

3. Port: The ports you want to monitor. All monitor port traffic will be copied to sinffer port. You can select max 9 monitor ports in the switch. User can choose want to monitored RX frames only or TX frames only or both RX and TX frame from the port at **Action** item.

```
S081FMi Managed Switch: Port Mirroring Configuration
=====

Port Mirroring State: Disable

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

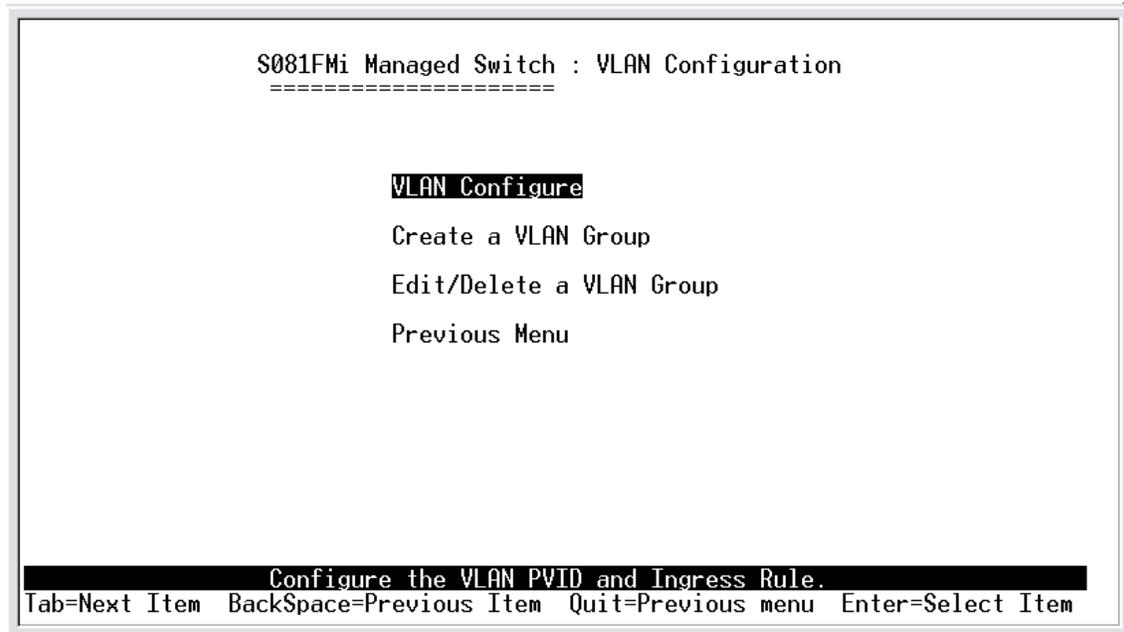
Actions->

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

<Edit>: Configure all items. Finished configure press **ESC** to go back action menu line.

<Save>: Save all configure value.

4-3-4. VLAN Configuration



4-3-4-1. VLAN Configure

1. 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 that don't support tagging. Only one untagged VLAN is allowed per port.

2. Ingress Filter 1: It matches that Ingress Filtering Rule 1 on web. Forward 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. Ingress Filter 2: It matches that Ingress Filtering Rule 2 on web. Drop untagged frame.

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

```

S081Fmi Managed Switch : VLAN Support Configuraton
=====
VLAN Mode :802.1QwithGVRP

Port          PVID          IngressFilter1
              NonMember Pkt
IngressFilter2
Untagged Pkt
-----
1.            1             Enable
4.            1             Enable
5.            1             Enable
6.            1             Enable
7.            1             Enable
8.            1             Enable
Trunk1.      1             Enable
9.            1             Enable

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

```

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

Create a VLAN and add tagged /untagged member ports to it.

1. **VLAN Name:** Type a name for the new VLAN.
2. **VLAN ID:** Type a VID (between 1~4094). The default is 1.
3. **Protocol VLAN:** Press **Space** key to choose protocols type.
4. **Mode:** Press **Space** key to choose VLAN member. There are three types to selected as 802.1Q, 802.1Q with GVRP and Port-Base

UnTagged: the member port is un-tagged port.

Tagged: the member port is tagged port.

NO: The port is not member of this VLAN group.


```

NAME:          VID:          NAME:          VID:
-----          -----
default        1

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

```

4-3-5. Priority Configuration

1. There are 0~7 priority level can map to high or low queue.
2. **High/Low Queue Service Ration:** User can select the ratio of high priority packets and low priority packets.

```

S081FMi 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>          <Save>          <Quit>
Select the action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu  Enter=Select Item

```

Actions->

<Edit>: Configure all items. Finished configure press **ESC** to go back action menu line.

<Save>: Save all configure value.

<Quit>: Exit this page and return 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

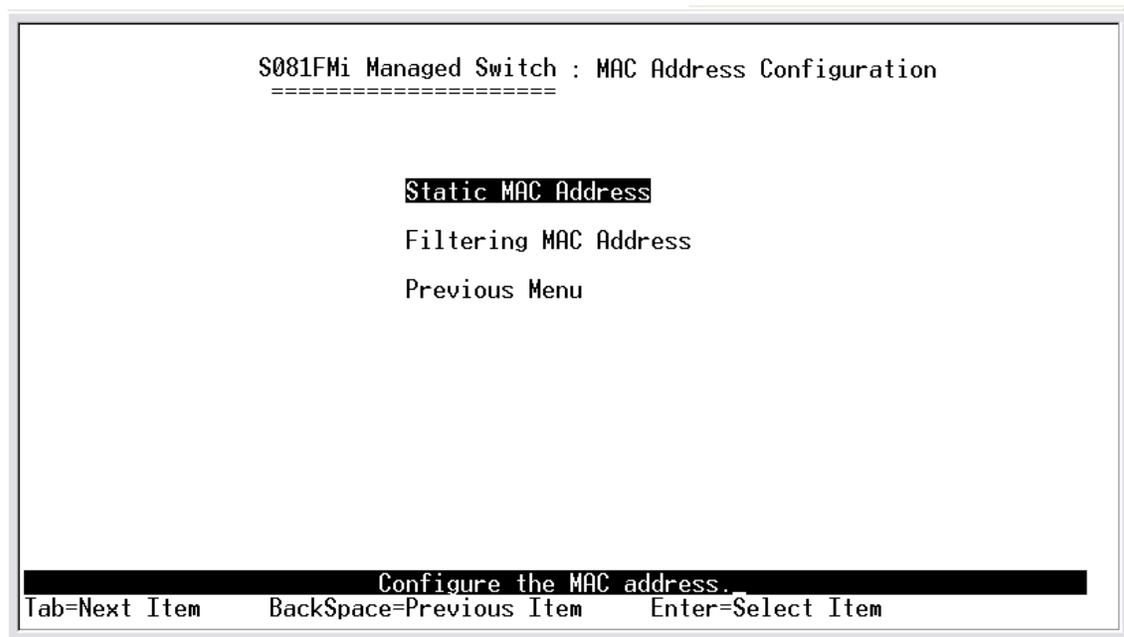
First In First Out (FIFO): The sequence of packets sent is depend on arrive order.

High to Low (H→L): The high priority packets sent before 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



4-3-6-1.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.

```
S081FMi Managed Switch : Static MAC Address Configuration
=====
Mac Address   Port num  Vlan ID           Mac Address   Port num  Vlan ID
-----

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

```
S081FMi Managed Switch : Add Static MAC Address
=====

Mac Address :
Port num    :
Vlan ID     :

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

Add static MAC address

1. Press **<Add>** --> **<Edit>** key to add a static MAC or edit 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 item, enter the port number.
4. 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 **ESC** to go back action menu line, and then select **<Save>** to save all configure value.

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

Delete static MAC address

1. Press **<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 have to press **<Save>** to complete the deleting operation.

4-3-6-2.Filtering MAC Address

```

S081FMi Managed Switch : Filter MAC Address Configuration
=====
Mac Address      Vlan ID          Mac Address      Vlan ID
-----
actions->      <Add>          <Edit>          <Delete>        <Save>          <Quit>
Add/Edit/Delete filter MAC addresses.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu  Enter=Select Item_

```

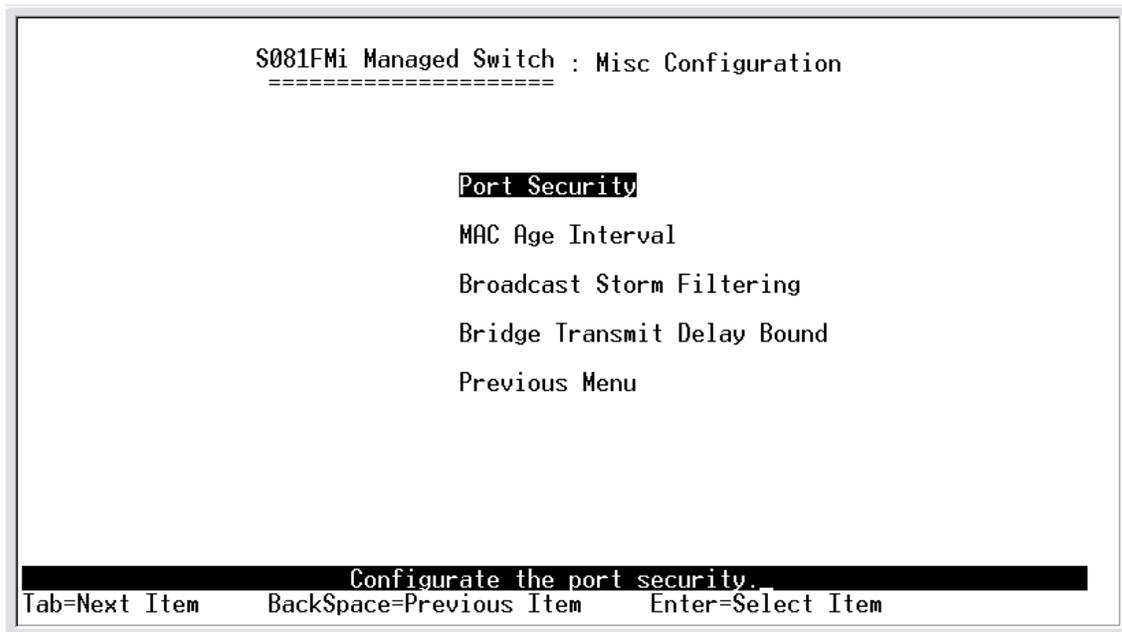
Edit Filtering MAC address

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

Delete Filtering MAC address

1. Press **<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 have to press **<Save>** to complete the deleting operation.

4-3-7.Misc Configuration



4-3-7-1.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.

```

S081FMi Managed Switch : The Configuration of Port Security
=====

Port          Enable Security
              (disable for MAC Learning)
-----
1.            Disable
4.            Disable
5.            Disable
6.            Disable
7.            Disable
8.            Disable
Trunk1.      Disable
9.            Disable

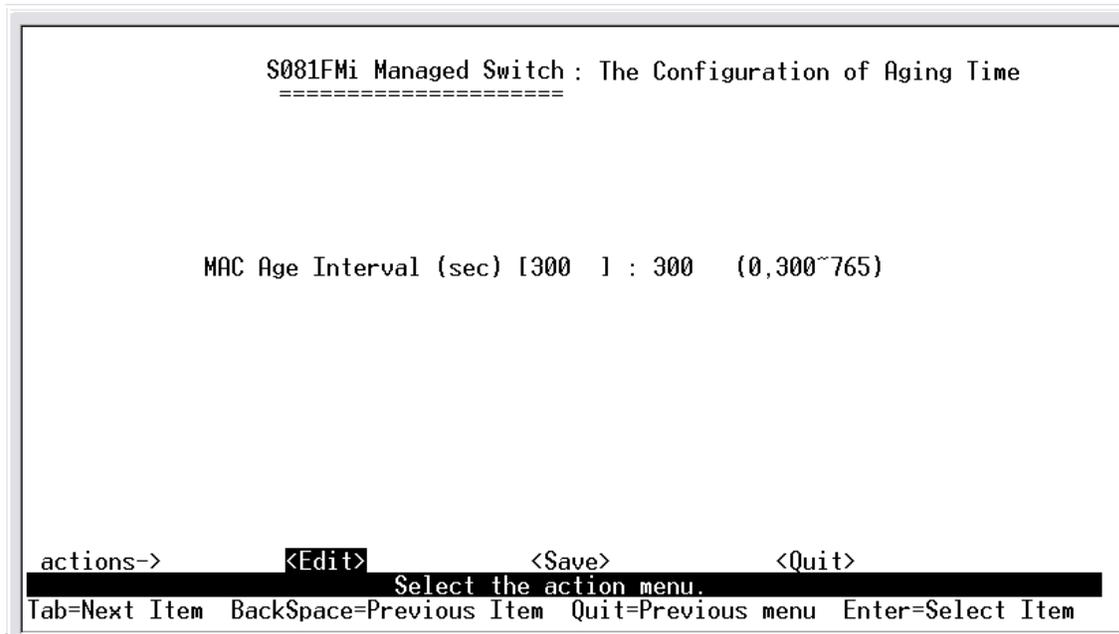
actions->    <Quit>    <Edit>    <Save>
              Select the Action menu.
Tab=Next Item  BackSpace=Previous Item  Quit=Previous menu  Enter=Select Item

```

1. Press **<Edit>** to enable or disable the port security.
2. Press **Space** key to choose enable / disable item.
3. Press **ESC** to go back action menu line, and then select **<Save>** to save all configure value.

4-3-7-2.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.



Actions->

<Edit>: Configure all items. Finished configure press **ESC** to go back action menu line.

<Save>: Save all configure value.

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

4-3-7-3.Broadcast Storm Filtering

This page is configuring broadcast storm control, press <Edit> to configure the broadcast storm filter mode.

Press **Space** key to choose the threshold value. The valid threshold value are 5%, 10%,15%,20%,25% and NO.

```
S081FMi Managed Switch : Broadcast Storm Filter Mode
=====

Broadcast Storm Filter Mode :NO

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

Actions->

<Edit>: Configure all items. Finished configure press **ESC** to go back action menu line.

<Save>: Save all configure value.

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

4-3-7-4.Max bridge transmit delay bound

Max bridge transmit delay bound (0,1-4 sec): Limit the packets queuing time in switch. If enable, the packets queued exceed will be drop. Press **Space** key to set the time. These valid values are 1sec, 2sec, 4sec and off. Default is 1 seconds.

Enable Delay Bound: Limit the low priority packets queuing time in switch. If enable, the low priority packet stays in switch exceed Max Delay Time, it will be sent. Press **Space** key to enable or disable this function.

Max Delay Time: To set the time that low priority packets queuing in switch. The valid range is 0~255 ms.

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.

```
S081FMi 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->

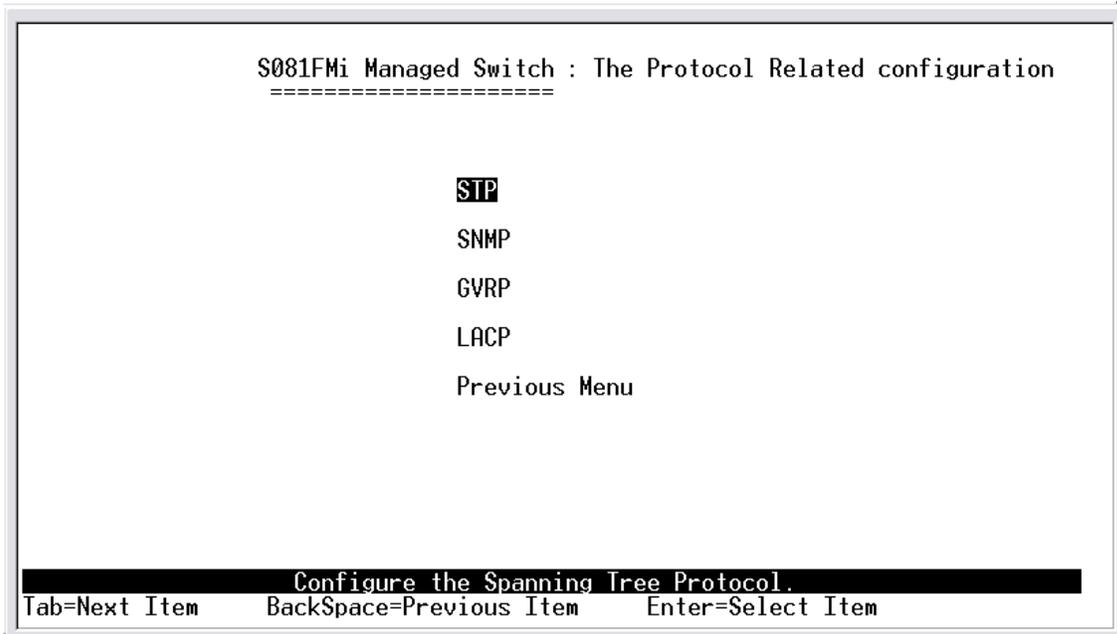
<Edit>: Configure all items. Finished configure press **ESC** to go back action menu line.

<Save>: Save all configure value.

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

4-4.Protocol Related Configuration

4-4-1.STP



4-4-1-1.STP Enable

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



4-4-1-2. System Configuration

```
S081FMi Managed Switch : STP System Configuration
=====

Root Bridge Information          Configure Spanning Tree Parameters
-----
Priority       : 32768           Priority (1-65535)  :32768
Mac Address   : 000F3869F13F    Max Age (6-40)     :20
Root_Path_Cost: 20              Hello Time (1-10)  :2
Root Port     : 1               Forward_Delay_Time(4-30) :15
Max Age       : 20
Hello Time    : 2
Forward Delay : 15

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

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

You must enable STP function, then can select configuration menu.

4-4-1-3.Perport Configuration

S081FMi Managed Switch : STP Port Configuration			
Port	PortState	PathCost	Priority
1.	Forwarding	10	128
2.	Disabled	10	128
3.	Disabled	10	128
4.	Disabled	10	128
5.	Disabled	10	128
6.	Disabled	10	128
7.	Disabled	10	128
8.	Disabled	10	128
9.	Forwarding	10	128

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

1. **PortState:** You can view spanning tree status about the switch for per port.
2. **PathCost:** Specifies the path cost of the port that switch uses to determine which port are the forwarding ports. If you change the value, you need to restart the switch for valid value.
3. **Priority:** This is mean port priority, you can make it more or less likely to become the root port. If you change the value, you need to restart the switch for valid value.

4-4-2.SNMP

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.

S081FMi Managed Switch : SNMP Configuration

=====

System Options

Community Strings

Trap Managers

Previous Menu

Configure the system information.

Tab=Next Item

BackSpace=Previous Item

Enter=Select Item

4-4-2-1. System Options

```
S081FMi Managed Switch : System Options Configuration
=====

System Name :
System Contact :
System Location :

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

Press **<Edit>** to enter all items, and then press **<Save>** to save configure value.

1. **System Name:** Type a name to be used for the switch.
2. **System Contact:** Type the name of contact person or organization.
3. **System Location:** Type the location of the switch.

4-4-2-2. Community Strings

Use this page to enter SNMP community strings.

1. **Community Name:** Type the name of current strings. Default “public”
2. **Write Access:** Enable the rights is read only or read/write.

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

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

```

S081FMi Managed Switch : SNMP Community Configuration
=====
Community Name          Write Access
-----
public                  Read Only

actions->  <Add>      <Edit>      <Delete>      <Save>      <Quit>
Add/Edit/Delete community strings.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item_

```

Actions->

<Add>: Create a community strings.

<Edit>: Modify all items. Finished configure press **ESC** to go back action menu line.

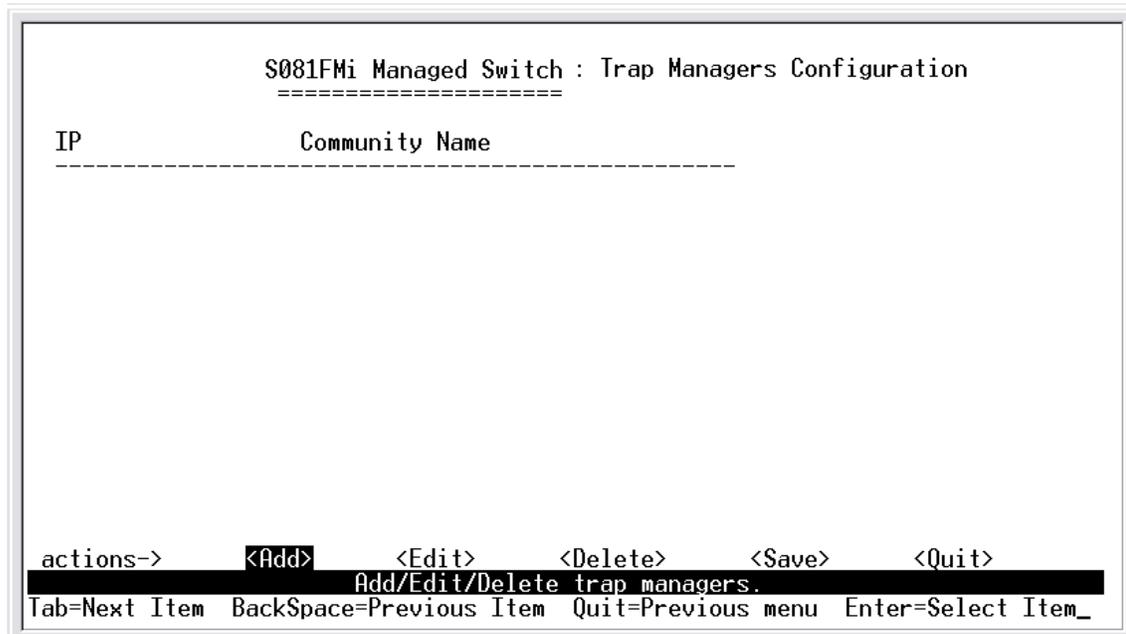
<Delete>: Delete a community strings. After delete item press **<Save>** to complete the deleting operation.

<Save>: Save all configure value.

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

4-4-2-3. 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.



Actions->

<Add>: Create a trap manager.

<Edit>: Modify all items. Finished configure press **ESC** to go back action menu line.

<Delete>: Delete a trap manager. After delete item press **<Save>** to complete the deleting operation.

<Save>: Save all configure value.

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

4-4-3.GVRP

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

Press **Space** key to choose Enabled / Disabled.

```
S081FMi Managed Switch : GVRP Configuration
=====

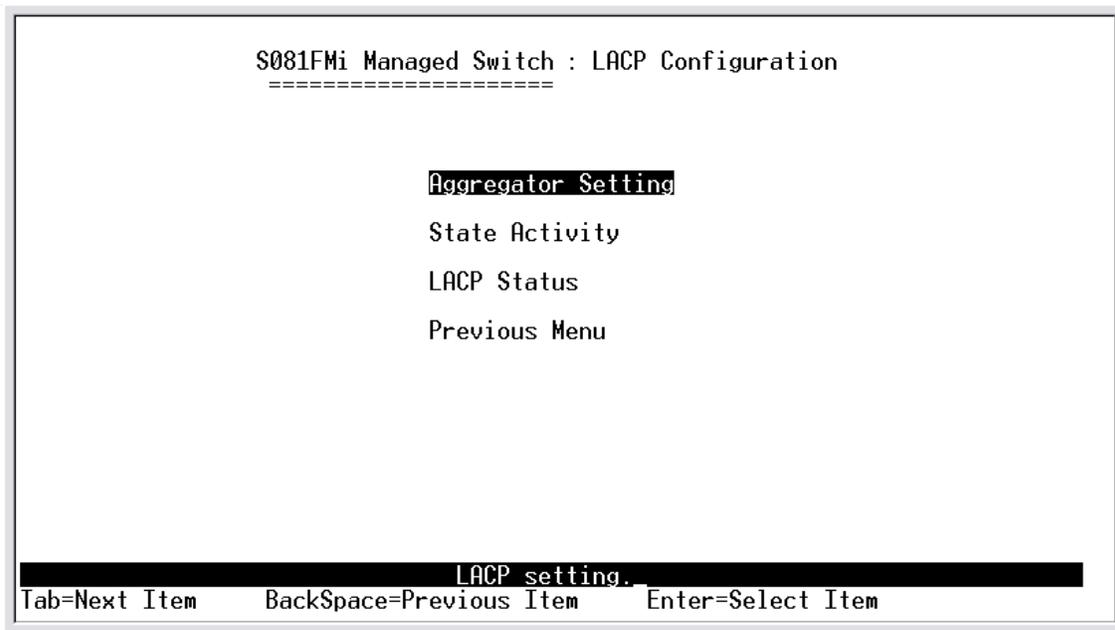
GVRP : Enabled

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

Actions->

- <Edit>**: Configure all items. Press **Space** key to choose Enable or Disabled mode. Finished configure press **ESC** to go back action menu line.
- <Save>**: Save all configure value.
- <Quit>**: Exit this page and return to previous menu.

4-4-4.LACP



4-4-4-1.Aggregator Setting

- 1. Group:** Display the trunk group ID.
- 2. LACP:** Press **Space** key to enable or disable LACP (Link Aggregation Control Protocol) support. If enable, the group is LACP static trunking group. If disable, the group is local static trunking group.
- 3. LACP Work Port Num:** The max number of 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 the same as group ports.

NOTE: *Before set LACP support, you have to set trunk group on the page of Port / Trunk Configuration first.*

```
S081FMi Managed Switch : LACP Group Configuration
=====

Group      LACP      LACP Work Port Num
-----
Trunk1.    Disabled  2

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

Actions->

<Edit>: Configure all items. Finished configure press **ESC** to go back action menu line.

<Save>: Save all configure value.

<Quit>: Exit this page and return 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.

```
S081FMi Managed Switch : LACP Port State Active Configuration
=====

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

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

Actions->

<Edit>: Configure all items. Finished configure press **ESC** to go back action menu line.

<Save>: Save all configure value.

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

4-4-4-3.LACP Status

When you setting trunking group, you can see relation information in here.

```
S081FMi Managed Switch : LACP Group Status
=====

Static Trunking Group

Group Key : 1
Port_No   : 2 3

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

Actions->

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

4-5.Reboot Switch

Default: Reset switch to default configuration.

Restart: Reboot the switch in software reset.

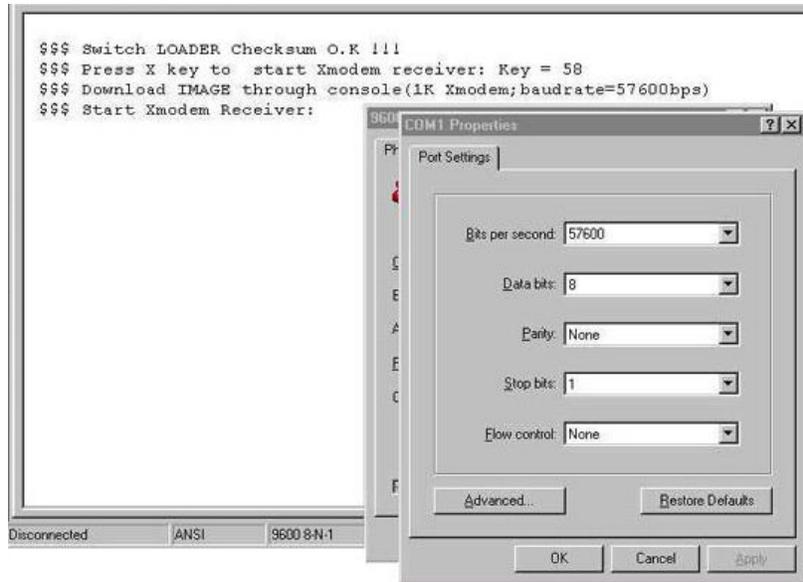


Note: It may make the system setting parameter error that execut Default command and power off without wait consol appear "\$\$\$ Press X key to start Xmodem receiver:" message if. Regarding this issue, user must wait console appear that message then can shut down power.

Note: RS-232 Local console firmware upgrade (X modem)

1. Press X key to start upgrading for Xmodem.
2. First, disconnect terminal and modify baud rate to 57600bps, then do the connection again.

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

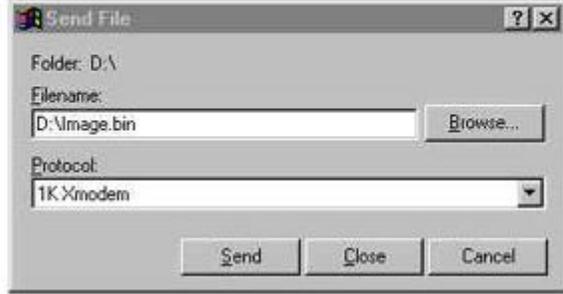


3. Select "send file" under "transfer" menu from menu bar.
4. Press "browse" button to select the path.
5. Select "1K Xmodem" of protocol and press "Send" button.

```

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

```



6. After successfully upgraded the new firmware, please modify baud rate to 9600bps.

5.

Web-Based Management

Web Management Function

1. Web Management Function provides a Web browser to manage and monitor the switch, the default values as follows:
If you need change IP address in first time, you can use console mode to modify it.

IP Address: 192.168.16.1
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.6.254
User Name: **root**
Password: **root**

2. You can browse <http://192.168.16.1>, type user name and password as above.



5-1. Web Management Home Overview

1. Home Page.



5-2. Port status

1. port status

State: Display port status off or on depended on user setting. “unlink” will be treated as “off”.

Link Status: Down is “No Link”, UP is “Link”

Auto Negotiation: auto negotiation mode

Speed status: Display link speed, Port 1- 8 is 100Mbps, Port 9 is 1000Mbps.

Duplex status: Display full-duplex or half-duplex mode.

Flow control: Display flow control status enable or disable mode

Config: Display the state of user setting.

Actual: Display the negotiation result.

User can see a single port counter as follows

Port	1
State	On
Link	Up
TxGoodPkt	4400
TxBadPkt	0
RxGoodPkt	31875
RxBadPkt	0
TxAbort	0
Collision	0



- MENU**
- Home
 - Port Status
 - Port Statistics
 - Administrator
 - TFTP Update Firmware
 - Configuration Backup
 - Reset System
 - Reboot

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
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.

The screenshot displays the TRENDnet web interface. On the left is a 'MENU' sidebar with options: Home, Port Status, Port Statistics, Administrator, TFTP Update Firmware, Configuration Backup, Reset System, and Reboot. The main content area features a 'Port Statistics' section with the following table:

Port	State	Link	TxGoodPkt	TxBadPkt	RxGoodPkt	RxBadPkt	TxAbort	Collision
1	On	Up	1154	0	1260	0	0	0
2	Off	Down	0	0	0	0	0	0
3	Off	Down	0	0	0	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

Below the table is a 'Reset' button.

5-4. Administrator

Those management functions include:

IP address, Switch settings, Console port information, Port controls Link aggregation, Filter database, VLAN configuration, Spanning Tree, Port Mirror, SNMP, Security Manager, TFTP Update Firmware Configuration Backup, Reset system and Reboot.

5-4-1. IP Address

1. User can configure the IP Settings and fill in the new value, than clicks apply button.
2. User must be reset switch and use new IP address to browser this web management.

Default IP:192.168.16.1

Subnetmask:255.255.255.0

Gateway:192.168.16.254

The screenshot displays the TRENDnet web management interface. At the top, there is a status bar with the TRENDnet logo on the left and a network status indicator on the right showing 'LINKACT', 'GBIC 3.3V', and eight port status indicators (1-8). Below the status bar is a 'MENU' sidebar on the left with options: Home, Port Status, Port Statistics, Administrator (with sub-options: IP Address, Switch Settings, Console Port Info, Port Controls, Trunking, Filter Database, VLAN Configuration, Spanning Tree, Port Mirroring, SNMP, Security Manager), TFTP Update Firmware, Configuration Backup, Reset System, and Reboot. The main content area is titled 'Set IP Addresses' and contains a table with the following configuration:

IP Address	192.168.0.200
Subnet_Mask	255.255.255.0
Gateway	192.168.0.254

Below the table are two buttons: 'Apply' and 'Help'.

5-4-2. Switch Setting

5-4-2-1. Basic

1. **Description:** Display the name of device type.
2. **MAC Address:** The unique hardware address assigned by manufacturer (default)
3. **Firmware Version:** Display the switch's firmware version.
4. **Hardware Version:** Display the switch's Hardware version.
5. **Kernel version:** Display write to default EEPROM value version.

The screenshot displays the TRENDnet web interface for a switch. At the top, there is a header with the TRENDnet logo and a status bar showing 'GBIC', 'LAN/ACT', 'GBIC 3.3V', and eight port indicators (1-8). The main content area is titled 'Switch Settings' and has two tabs: 'Basic' (selected) and 'Advanced'. Below the tabs is a table with the following data:

Description	TEG-S081Fi Intelligent Switch
MAC Address	0014d1d06a49
Firmware version	v01.02
Hardware version	A03.00
Kernel version	v01.14

On the left side, there is a 'MENU' sidebar with the following items: Home, Port Status, Port Statistics, Administrator (with sub-items: IP Address, Switch Settings, Console Port Info, Port Controls, Trunking, Filter Database, VLAN Configuration, Spanning Tree, Port Mirroring, SNMP, Security Manager), TFTP Update Firmware, Configuration Backup, Reset System, and Reboot. A 'Close' button is visible next to the Administrator menu item.

5-4-2-2.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. This valid value are 1sec, 2 sec, 4 sec and off. Default is 1 seconds.

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 are 5%, 10%, 15%, 20%, 25% and OFF.

TRENDnet

HOME

PORT STATUS

PORT STATISTICS

ADMINISTRATOR

- IP Address
- Switch Settings
- Console Port Info
- Port Controls
- Trunking
- Filter Database
- VLAN Configuration
- Spanning Tree
- Port Mirroring
- SNMP
- Security Manager

TFTP Update Firmware

Configuration Backup

Reset System

Reboot

Close

Switch Settings

Basic | **Advanced**

Enter the settings, then click Submit to apply the changes on this page.

MAC Table Address Entry Age-Out Time: 300 secs (300~765)

Bridge Transmit Delay Bound: OFF

Broadcast Storm Filter Mode: OFF

Priority Queue Service:

First Come First Served

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: Disable

VLAN Operation Mode: 802.1Q without GVRP

Apply | Default | Help

Priority Queue Service settings:

First Come First Service: The sequence of packets sent is depend on arrive order.

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

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

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 1~255 ms.

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.

Qos Policy: High Priority Levels: 0~7 priority level can map to high or low queue. When the VLAN Tag number of a frame is mapping the priority level of the port, and this frame can have high priority.(This QoS Policy is for global Switch, not for any single port)

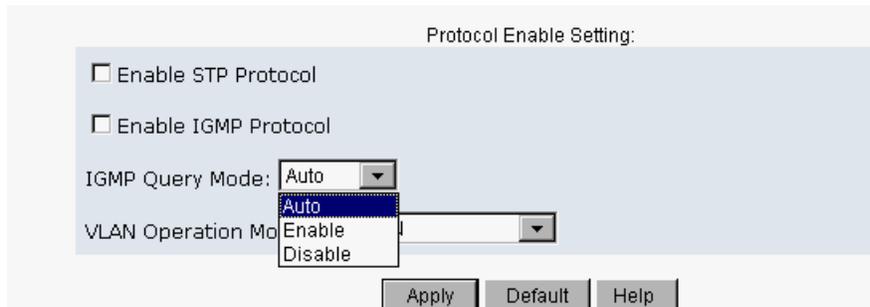
Protocol Enable Setting :

Enable Spanning Tree Protocol : Default recommend to disable STP

Enable Internet Group Multicast Protocol: enable IGMP protocol

IGMP Query Mode: Recognize different Query from client or server to decide which Queryer will be the first priority, they are three mode as follow:

1. **Auto Mode:** Choose the indicated Switch, which has the smallest IP address will be set for the IGMP Queryer.
2. **Enable Mode:** Enable one of Switch to be the IGMP Queryer.
3. **Disable Mode:** Disable the other Switches to be the IGMP Queryer.



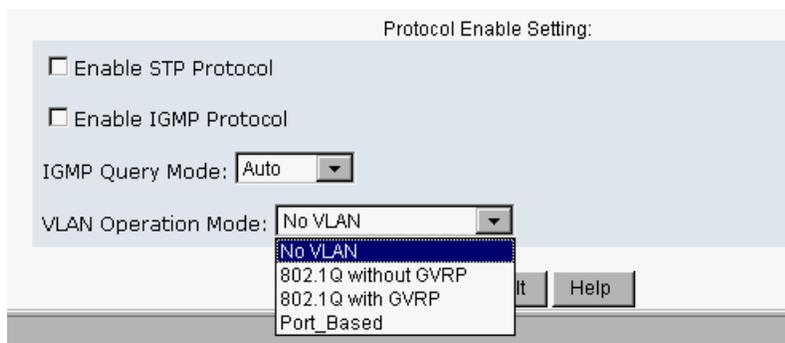
VLAN Operation Mode:

No VLAN (Default)

802.1Q(Tag VLAN) without GVRP VLAN mode

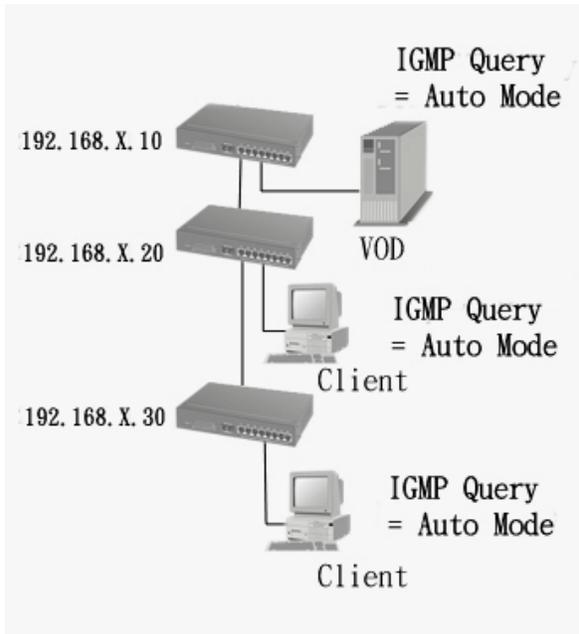
802.1Q(Tag VLAN) with GVRP VLAN mode

Port Based

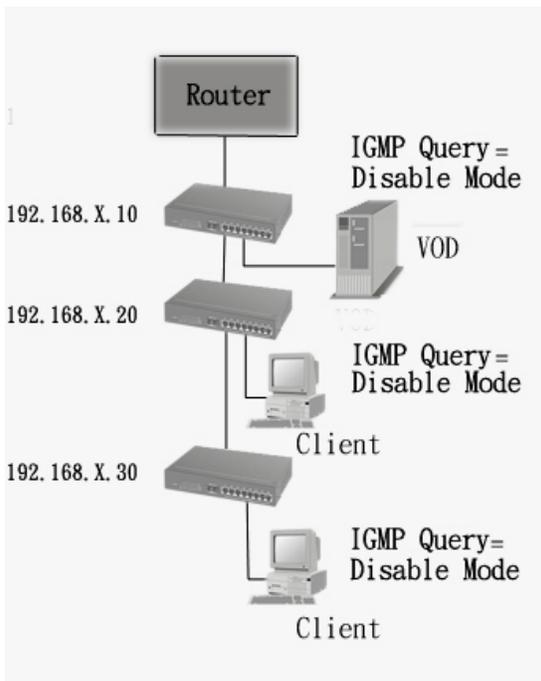


Also, three kind of typologies shown as below indicate how the IGMP Query work within a network:

1. This topology has to be set for when the router's IP address is smaller than other Switch in subnet.



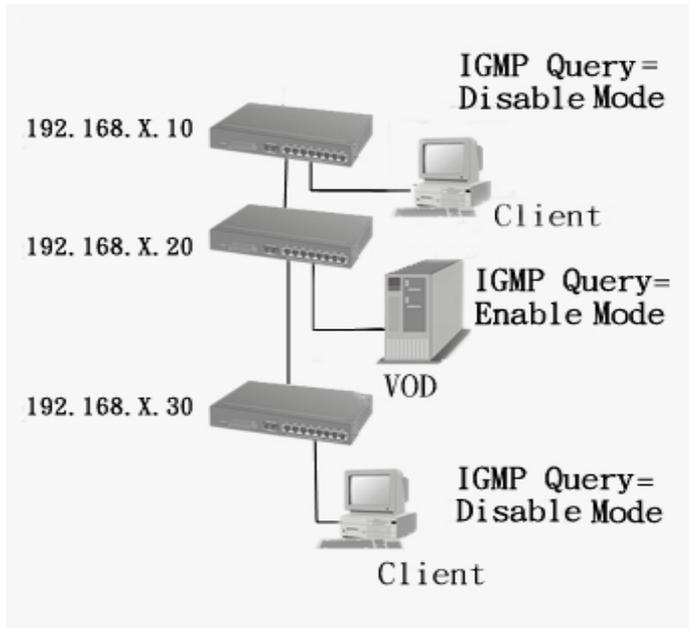
2. This topology has to be set for when the router's IP address is not smaller than other Switch in subnet.



Note: This Router supports IGMP protocol, but IGMP has to be in enable mode, and the Router has to be the Querier.

3. This topology must be set for when the Switch's IP address is not the smallest in the subnet. If in Auto mode, the network will cause multi-cast

storm from the client IGMP report, the topology shown as below is necessary to be set for.



Note: Suggest VOD server set with Switch has smallest IP address.

4. All of Switch must be in Disable mode, When VOD server is set up for IGMP Queryer.

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.

5-4-3. Console Port Information

1. Console is a standard UART interface to communicate with Serial Port.
User can use windows HyperTerminal program to link the switch. Connect To->Configure

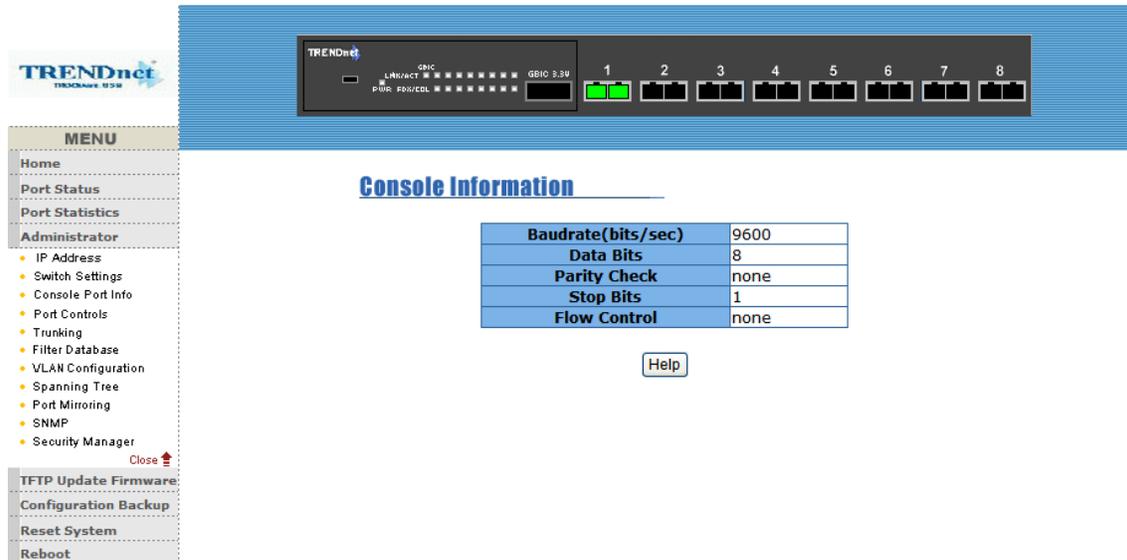
Baud rate (bits/sec): 9600

Data bits: 8

Parity check: none

Stop Bits: 1

Flow control: none



5-4-4. Port Controls

1. This page can Change every port status

State: User can disable or enable port 1-8, port 9 always enable.

Auto Negotiation: Port 1-8 is fixed to disable mode, and port 9 is enabled.

Speed setting: The speed mode is fixed. 100Mbps (1-8 port) , 1000Mbps (GBIC port)

Duplex setting: port 1-8 support Full or Half Duplex, port 9 only support Full Duplex.

Flows control setting: Port 1-8 can enable/disable, port 9 always enable.

TRENDnet SWITCH 128

HOME

Port Status

Port Statistics

Administrator

- IP Address
- Switch Settings
- Console Port Info
- Port Controls
- Trunking
- Filter Database
- VLAN Configuration
- Spanning Tree
- Port Mirroring
- SNMP
- Security Manager

Close

TFTP Update Firmware

Configuration Backup

Reset System

Reboot

Port Controls

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

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
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

5-4-5. Trunk

The Port Trunk 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 refer to IEEE 802.3ad.

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.

Aggregator Setting			Aggregator information	State Activity
System Priority				
1				
Group ID	Group1	<< Get		
LACP	Disable			
Work Ports	0			
	<< Add <<	port1 port2 port3 port4 port5 port6 port7 port8		
	Remove >>			
<input type="button" value="Apply"/> <input type="button" value="Delete"/> <input type="button" value="Help"/>				

- 1. Group ID:** you can create a link aggregation across two or more ports, choose the "group id" and click "Get".
- 2. 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.
- 3. Work ports:** The max number of 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 the same as group ports.
- 4.** Select the ports to join the trunking group
- 5.** If LACP enable, you can configure LACP Active/Passive status in each ports.
- 6.** Click Apply.

5-4-5-2. Aggregator Information

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

Trunking

Aggregator Setting

Aggregator information

State Activity

The following information provides a view of LACP current status.

Static Trunking Group	
Group Key	1
Port_No	1 2

5-4-5-3. State Activity

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

Passive (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 having either two active LACP ports or one active port can perform dynamic LACP trunking.

A link has two passive 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.

Trunking

Aggregator Setting Aggregator information State Activity

Port	LACP State Activity	Port	LACP State Activity
1	N/A	5	<input type="checkbox"/> Active
2	N/A	6	<input type="checkbox"/> Active
3	<input type="checkbox"/> Active	7	<input type="checkbox"/> Active
4	<input type="checkbox"/> Active	8	<input type="checkbox"/> Active

Apply Default Help

5-4-6. Filter Database

5-4-6-1. IGMP Snooping

Forwarding and Filtering

IGMP Snooping Static MAC Addresses Port Security MAC Filtering

Multicast Group

IP_Address VID MemberPort



The TEG-S081FMi Switch support IP multicast , you can enable IGMP protocol on web management's switch setting advanced page, then display the IGMP snooping information in this page, you can view difference multicast group ,VID and member port in here, IP multicast addresses 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 have three fundamental types of message as follows:

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

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.

1. To add a static MAC address
2. From the main menu, click administrator, then click 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” 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 Submit to apply 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	<input type="checkbox"/>	6	<input type="checkbox"/>
2	<input type="checkbox"/>	7	<input type="checkbox"/>
3	<input type="checkbox"/>	8	<input type="checkbox"/>
4	<input type="checkbox"/>	9	<input type="checkbox"/>
5	<input type="checkbox"/>		

Apply
Default
Help

5-4-6-4. MAC Filtering

Forwarding and Filtering

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

Specify a MAC address to filter.

MAC Address

Mac Address

Vlan ID

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 plug into the same switch physically.

The TEG-S081FMi Switch support port-based and protocol-base VLAN in web management page.

NOTE: The default VLAN can't be deleted.

Support Port-based VLANs (IEEE 802.1Q VLAN)

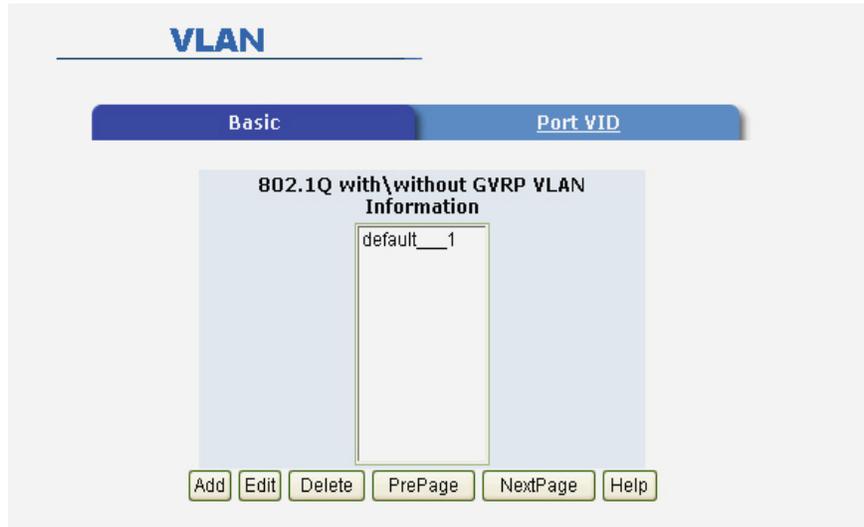
Port-based Tagging rule VLAN is an IEEE 802.1Q specification standard. Therefore, it is possible to create a VLAN across devices from different switch vendors. IEEE 802.1Q VLAN uses a technique to insert a “tag” into the Ethernet frames. Tag contains a VLAN Identifier (VID) that indicates the VLAN numbers.

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.

5-4-7-1. Basic



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 2-4094). 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)

Sets 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 VLAN 100. The default setting for all ports is VID 1.

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.

VLAN Configuration

Basic
Port VID

Assign a Port VLAN ID (1~4094) for untagged traffic on each port, then click Submit to apply the changes on this page.

No.	PVID	Ingress Filtering 1	Ingress Filtering 2	NO	PVID	Ingress Filtering 1	Ingress Filtering 2
1	<input type="text" value="1"/>	Enable ▾	Disable ▾	6	<input type="text" value="1"/>	Enable ▾	Disable ▾
2	<input type="text" value="1"/>	Enable ▾	Disable ▾	7	<input type="text" value="1"/>	Enable ▾	Disable ▾
3	<input type="text" value="1"/>	Enable ▾	Disable ▾	8	<input type="text" value="1"/>	Enable ▾	Disable ▾
4	<input type="text" value="1"/>	Enable ▾	Disable ▾	9	<input type="text" value="1"/>	Enable ▾	Disable ▾
5	<input type="text" value="1"/>	Enable ▾	Disable ▾				

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

Ingress Filtering Rule 2
(Drop Untagged Frame)

Ingress Filtering

Ingress filtering lets frames belonging to a specific VLAN to be forwarded if the port belongs to that VLAN. TEG-S081FMi Switch have two ingress filtering rule as follows:

Ingress Filtering Rule 1: Forward only packets with VID matching this port's configured VID.

Ingress Filtering Rule 2: Drop Untagged Frame.

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 enabled, 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.



Set Spanning Tree

Configure Spanning Tree Parameters

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

Root Bridge Information

Priority	32768
Mac Address	00001c0101b1
Root_Path_Cost	0
Root Port	we are root
Max Age	20
Hello Time	2
Forward Delay	15

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

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

Prameter	Description
Priority	You can change priority value, A value used to identify the root bridge. The bridge with the lowest value has the highest priority and is selected as the root. Enter a number 1 through 65535.

Max Age	You can change Max Age value, 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	You can change Hello time value, the number of seconds between 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.

3. 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)
<div style="border: 1px solid #ccc; padding: 2px;"> 1 ▲ 2 ▢ 3 ▢ 4 ▢ 5 ▼ </div>	<input style="width: 60px;" type="text" value="10"/>	<input style="width: 60px;" type="text" value="128"/>

Parameter	Description
Port Priority	You can make it more or less likely to become the root port, the range is 0-255, default setting is 128 the lowest number has the highest priority. If you change the value, you must reboot the switch.
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 range is 1-65535 and default value base on IEEE802.1D 10Mb/s = 50-600 100Mb/s = 10-60 If you change the value, you must reboot the switch.

5-4-9. 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.

Port Mirroring

Port Mirroring State:	DISABLE ▾	
Analysis Port:	None ▾	
Monitor Ports	Monitor Rx	Monitor Tx
1	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>
Apply	Default	Help

Port Mirroring State: Enable or disable the port mirror function.

Monitor Ports: The ports you want to mirror. All mirror port traffic will be copied to mirror port. You can select max 9 monitor ports in the switch. If you want to disable the function, you must select monitor port to none.

Monitor Rx: Monitored receive frames from the port.

Monitor Tx: Monitored send frames from the port.

5-4-10. SNMP

Any Network Management running the simple Network Management Protocol (SNMP) can management 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 and agent. The TEG-S081FMi

Switchsupports SNMP V1.

1. 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, 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.

The screenshot displays a web-based configuration interface for SNMP. It is divided into three main sections:

- System Options:** Contains three text input fields labeled "Name:", "Location:", and "Contact:". Below these fields are two buttons: "Apply" and "Help".
- Community Strings:** This section is split into two parts. On the left, under "Current Strings:", there is a list box containing the entry "public__RO" and a "Remove" button. On the right, under "New Community String:", there is a "String:" text input field, two radio buttons labeled "RO" (which is selected) and "RW", and a "<< Add <<" button.
- Trap Managers:** This section is also split into two parts. On the left, under "Current Managers:", there is a list box containing the entry "(none)" and a "Remove" button. On the right, under "New Manager:", there are two text input fields labeled "IP Address:" and "Community:", and a "<< Add <<" button.

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, 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.

Community Strings

Current Strings : <div style="border: 1px solid #ccc; padding: 5px; min-height: 50px;">public__RO</div>	<input type="button" value=" << Add <<"/> <input type="button" value=" Remove"/>	New Community String : String : <input style="width: 100%;" type="text"/> <input checked="" type="radio"/> RO <input type="radio"/> RW
---	---	--

Trap Managers

Current Managers : <div style="border: 1px solid #ccc; padding: 5px; min-height: 50px;">(none)</div>	<input type="button" value=" << Add <<"/> <input type="button" value=" Remove"/>	New Manager : IP Address : <input style="width: 100%;" type="text"/> Community : <input style="width: 100%;" type="text"/>
--	---	---

5-4-11.Security Manager

1. Use this page, user can change web management user name and password.

User name: root (default)

Password: root (default)

- Home
- Port Status
- Port Statistics
- Administrator
 - IP Address
 - Switch Settings
 - Console Port Info
 - Port Controls
 - Trunking
 - Filter Database
 - VLAN Configuration
 - Spanning Tree
 - Port Mirroring
 - SNMP
 - Security Manager
- Close
- TFTP Update Firmware
- Configuration Backup
- Reset System
- Reboot

Security Manager

User Name:	<input type="text" value="root"/>
Assign/Change password:	<input type="password" value="****"/>
Reconfirm password:	<input type="password" value="****"/>
<input type="button" value="Apply"/>	

5-4-12. 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:

- * 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 then in web management press <update firmware>.

TFTP Download New Image

TFTP Server IP Address	<input type="text" value="192.168.1.78"/>
Firmware File Name	<input type="text" value="image.bin"/>

5-4-13. Configuration Backup

5-4-13-1. TFTP Restore Configuration

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

TFTP Configuration

TFTP Restore Configuration

TFTP Backup Configuration

TFTP Server IP Address	<input type="text" value="192.168.1.78"/>
Restore File Name	<input type="text" value="flash.dat"/>

5-4-13-2. 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

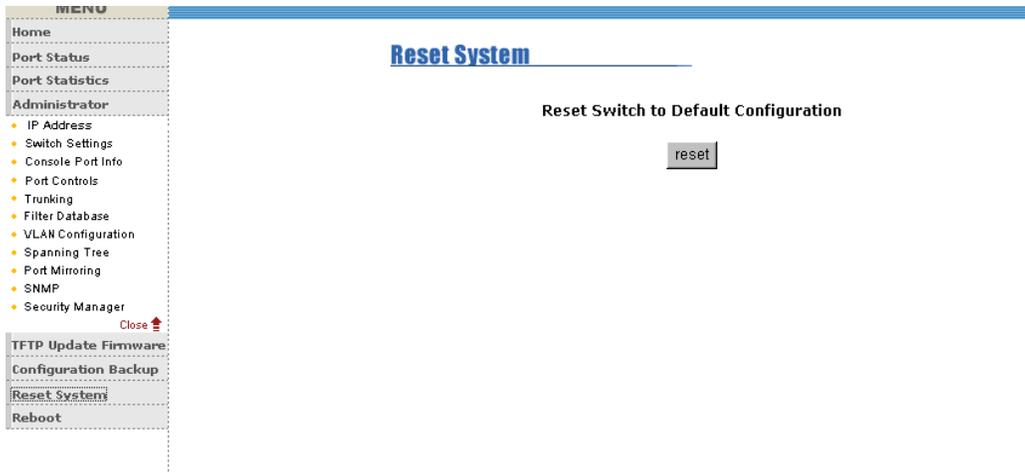
TFTP Restore Configuration

TFTP Backup Configuration

TFTP Server IP Address	<input type="text" value="192.168.1.78"/>
Backup File Name	<input type="text" value="flash.dat"/>

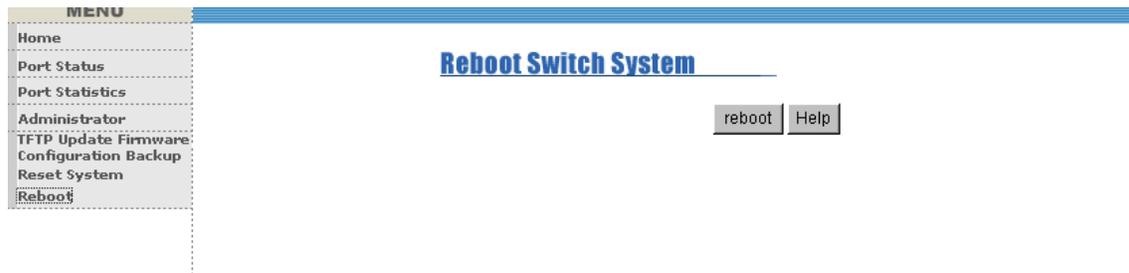
5-4-14. Reset System

Reset Switch to default configuration



5-4-15. Reboot

Reboot the Switch in software reset.



6.

Technical Specifications

This section provides the specifications of 8 port Fiber plus GBIC Management Switch series, and the following table lists these specifications.

Specifications

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 (GBIC)
LED Indicators	Fiber Port : LINK/ACTIVE, Full Duplex/Collision (100Mbps Fiber port), Link/Active(GBIC port) Per Unit: Power
Fiber Link Max. Distance	SC/ Multi-mode: Half-duplex: 412m, Full-duplex: 2Km
Storage Temp.	-40°C to 70°C (-40°F to 158°F)
Operational Temp.	0°C to 45°C (32°F to 113°F)
Humidity	10% to 90% (Non-condensing)

7.

Troubleshooting

This section is intended to help you solve the most common problems on the TEG-S081FMi Switch.

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 a different cable.

- **Non-standard cables**

Non-standard and miswired cables may cause numerous network collisions and other network problem, and can seriously impair network performance.

- **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 (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.

Diagnosing LED Indicators

The Switch can be easily monitored through panel indicators to assist in identifying problems, which describes common problems you may encounter and where you can find possible solutions.

IF the power indicator does not 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 a while, 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: For multi-mode Fiber connector type must use 50/125 or 62.5/125 um multi-mode fiber cable. You can connect two devices over a 2 kilometer distance.

Limited Warranty

TRENDware warrants its products against defects in material and workmanship, under normal use and service, for the following lengths of time from the date of purchase.

TEG-S081FMi– 5 Years Warranty

If a product does not operate as warranted above during the applicable warranty period, TRENDware shall, at its option and expense, repair the defective product or part, deliver to customer an equivalent product or part to replace the defective item, or refund to customer the purchase price paid for the defective product. All products that are replaced will become the property of TRENDware. Replacement products may be new or reconditioned.

TRENDware shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to TRENDware pursuant to any warranty.

There are no user serviceable parts inside the product. Do not remove or attempt to service the product by any unauthorized service center. This warranty is voided if (i) the product has been modified or repaired by any unauthorized service center, (ii) the product was subject to accident, abuse, or improper use (iii) the product was subject to conditions more severe than those specified in the manual.

Warranty service may be obtained by contacting TRENDware office within the applicable warranty period for a Return Material Authorization (RMA) number, accompanied by a copy of the dated proof of the purchase. Products returned to TRENDware must be pre-authorized by TRENDware with RMA number marked on the outside of the package, and sent prepaid, insured and packaged appropriately for safe shipment.

WARRANTIES EXCLUSIVE: IF THE TRENDWARE PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, THE CUSTOMER'S SOLE REMEDY SHALL BE, AT TRENDWARE'S

OPTION, REPAIR OR REPLACEMENT. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. TRENDWARE NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION MAINTENANCE OR USE OF TRENDWARE'S PRODUCTS.

TRENDWARE SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLIGENCE, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO REPAIR OR MODIFY, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING, OR OTHER HAZARD.

LIMITATION OF LIABILITY: TO THE FULL EXTENT ALLOWED BY LAW TRENDWARE ALSO EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT TRENDWARE'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

Governing Law: This Limited Warranty shall be governed by the laws of the state of California.

AC/DC Power Adapter, Cooling Fan, and Power Supply carry 1 Year Warranty





Customer Support

Visit www.trendnet.com/support

Email:

support@trendnet.com



Europe (Germany • France • Italy • Spain • Switzerland • UK)

Toll Free Telephone: +00800 60 76 76 67

English/Espanol - 24/7

Francais/Deutsch - 11am-8pm, Monday - Friday MET

Worldwide

Telephone: +(31) (0) 20 504 05 35

English/Espanol - 24/7

Francais/Deutsch - 11am-8pm, Monday - Friday MET

Product Warranty Registration

Please take a moment to register your product online.

Go to TRENDnet's website at <http://www.trendnet.com/register>

TRENDnet

20675 Manhattan Place
Torrance, CA 90501
USA