FCC Certifications

This Equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received; including interference that may cause undesired operation.

CE Mark Warning

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class A for ITE, the essential protection requirement of Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Company has an on-going policy of upgrading its products and it may be possible that information in this document is not up-to-date. Please check with your local distributors for the latest information. No part of this document can be copied or reproduced in any form without written consent from the company.

Trademarks:
All trade names and trademarks are the properties of their respective companies.

Table of Contents

Unpacking Information

Thank you for purchasing the 16/24-Port Gigabit Web Smart Switch with 4-Port mini-GBIC. Before you start, please verify that your package contains the following items:

1. One 16/24-Port Gigabit Web Smart Switch with 4-Port mini-GBIC.
2. One power cord.
3. Rack-mount brackets and screws (optional).
4. Manual CD.

Introduction

General Description

Easily boosting your networking throughput, the 16/24-Ports Gigabit Web Smart Switch provides you 16/24 10/100/1000 Mbps gigabit ports that lead you to a real gigabit connection. Users are now able to transfer high bandwidth-demanded files faster and get a real efficiency improvement with the user-friendly Web-based management interface. This product also equips 4 mini GBIC slots for your flexible fiber connection. Use of the mini-GBIC port disables the connection of its corresponding copper port automatically.

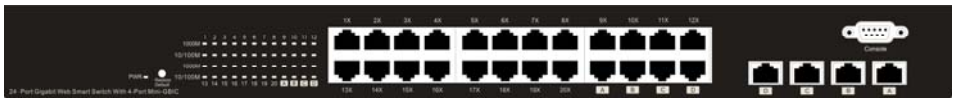
The management functionalities provide efficient network usage. VLAN reduces the collisions from widely broadcasting. Port Aggregation enlarges the bandwidth of backbone connection. QoS is supported to secure the bandwidth for some bandwidth-demanded applications including VoIP or videoconference. The 802.3x and backpressure flow control mechanisms are also supported to ensure the correctness of data transmitting.

Key Features

- 16/24 fixed 10/100/1000 Mbps Gigabit Ethernet ports for easy network connecting application.
- Equips 4 SFP ports for optional fiber connection.
- Supports auto-detection for mini-GBIC module inset.
- Supports Port Mirror.
- Supports 8 groups aggregation.
- Supports QoS function, tag base, DSCP priority.
- Supports Rate Limit (ICMP Rate, Broadcast Rate, Multicast Rate, Ingress/Egress Rate).
- Supports full duplex flow control and half duplex back pressure.
- Non-blocking wire-speed switching performance.
- Provides 8K MAC address entries and 16 groups VLAN table.
- Supports firmware upgrade, SNMP.
- Supports Jumbo frame 9600 bytes.
- Supports 500K bytes buffer Memory.
- Supports Web-based management interface.
- FCC, CE, VCCI Class A. Meet RoHS.

The Front Panel

The front panel consists of the ports and LED indicators. Please refer to the following paragraph for information.



LEDs Definition

LED for the device:

The switch provides a power LED for the device.

LED	Status	Operation
Power	Steady Green	The switch is powered on
	Off	The switch is powered off

LED for each port:

The switch provides one “1000M” LED and one “10/100M” LED for each port.

1000M LED: Shows the current transmitting/receiving speed of the port.
10/100M LED: Shows the link status and the activities on the port.

LED	Status	Operation
1000M	Green	The port is connected at 1000 Mbps.
	Blinking Green	A valid link is established, and there is data transmitting/receiving.
	Off	No valid link on this port or the port is connected at 10/100 Mbps.
10/100M	Steady Green	A valid link is established, and there is no data transmitting/receiving.
	Blinking Green	A valid link is established, and there is data transmitting/receiving.
	Off	No valid link on this port or the port is connected at 1000 Mbps.

Attention : The Mini GBIC slot shares the same LED indicator with the last 4 RJ-45 (copper) ports.

Port Operation

The auto-negotiation feature allows those ports running at one of the following operation modes:

Media	Speed	Duplex Mode
10/100/1000 Mbps(copper)	10 Mbps	Full Duplex
		Half Duplex
	100 Mbps	Full Duplex
		Half Duplex
	1000 Mbps	Full Duplex
1000 Mbps(Fiber) (mini-GBIC required)	1000 Mbps	Full Duplex

Note: For the last port, when both the fiber and cooper interfaces are connected, the system adapts the fiber interface and disables the relevant cooper port automatically.

Restore Default Button

You can use this button to reset the switch or restore factory default settings.
To reset the switch, press the button once.
To restore factory default settings, press and hold the button for three seconds.

The Rear Panel

The rear panel of the switch:

Power Receptacle

To be compatible with the electric service standards around the world, the switch is designed to afford the power supply in the range from 100 to 240 VAC, 50/60 Hz. Please make sure that your outlet standard to be within this range.
To power on the switch, please plug the female end of the power cord firmly into the receptacle of the switch and the other end into an electric service outlet. After the power cord installation, please check if the power LED is lit for a normal power status.

Installation

This switch can be placed on your desktop directly, or mounted in a rack. Please refer to the instructions for installation.

Before installing the switch, we recommend:

1. The switch is placed with appropriate ventilation environment. A minimum 25 mm space around the unit is recommended.
2. The switch and the relevant components are away from sources of electrical noise such as radios, transmitters and broadband amplifiers
3. The switch is away from environments beyond recommend moisture

Desktop Installation

1. Install the switch on a level surface that can support the weight of the unit and the relevant components.
2. Plug the switch with the female end of the provided power cord and plug the male end to the power outlet.

Rack-mount Installation

The switch may be standalone, or mounted in a rack. Rack mounting facilitate to an orderly installation when you are going to install series of networking devices.

Procedures to Rack-mount the Switch:

1. Disconnect all the cables from the switch before continuing.
2. Place the unit the right way up on a hard, flat surface with the front facing you.
3. Locate a mounting bracket over the mounting holes on one side of the unit.
4. Insert the screws and fully tighten with a suitable screwdriver.
5. Repeat the two previous steps for the other side of the unit.
6. Insert the unit into the rack and secure with suitable screws (optional).
7. Reconnect all the cables.

Installing Network Cables

1. **Crossover or straight-through cable**: All the ports on the switch support Auto-MDI/MDI-X functionality. Both straight-through or crossover cables can be used as the media to connect the switch with PCs as well as other devices like switches, hubs or router.

2. **Category 3, 4, 5 or 5e, 6 UTP/STP cable**: To make a valid connection and obtain the optimal performance. An appropriate cable that corresponds to different transmitting/receiving speed is required. To choose a suitable cable, please refer to the following table.

Media	Speed	Wiring
10/100/1000 Mbps copper	10 Mbps	Category 3,4,5 UTP/STP
	100 Mbps	Category 5 UTP/STP
	1000 Mbps	Category 5e,6 UTP/STP
1000 Mbps Fiber (mini-GBIC required)	1000 Mbps	The cable type differs from the mini-GBIC you choose. Please refer to the instruction came with your mini-GBIC.

Functional Description

Jumbo Frame

With Jumbo Frame supported, it is allowed for the switch to transport identical data in fewer frames. Hence helps to ensure fewer overheads, shorten processing time, and reduce interruptions.
Note: To enable Jumbo Frame, Flow Control should be enabled in advance.

Flow Control and Back Pressure

Flow Control and Back Pressure both contributes for lower and higher speed devices to communicate to each other hence ensures the correctness of data transmitting. The 802.3x flow control and Back Pressure mechanisms work respectively for full and half duplex modes. Flow Control can be enabled or disabled on a per-port basis.

Mirror

The Mirror function provides network administrator to monitor the traffic. By forwarding a copy of the packets that transferred by the monitored port, the sniffer port received all the packets and hence is able to monitor the traffic of the specified port.

VLAN

With VLAN supported, the network can be segmented in groups to reduce the collisions from widely broadcasting. The device supports both port-based VLAN and 802.1Q tag based VLAN. Port-based VLAN classifies incoming packets to VLANs according to their ingress port. The 802.1Q based VLAN add a tag to the header of the packet to classify their VLANs.

Trunk (Aggregation)

The Trunk functionality integrates several ports to enlarge the bandwidth that helps to boost the backbone connectivity. The switch allows the Maximum 8 groups for each group.

Quality of Service (QoS)

The QoS service classifies packets into different precedence. The packets are transmitted and received by their classified priorities. This mechanism helps high bandwidth demanded applications such as VoIP to get an unobstructed connection.

SNMP

This device is SNMP (Simple Network Management Protocol)-management supported. This allows this product to be monitored or inspected by a SNMP management station.

Management guide

Access the management interface of the Switch

This section instructs you how to enter and proceed with the advanced management capability, which can be accessed through console port or Internet Browser over the network (in-band).

Manage the device via command line interface

To start-up the command line interface, please connect a PC COM port to the RS-232 connector and activate a terminal emulation software (e.g. HyperTerminal of Windows.)

The terminal emulation software should be started as the following configuration:

1. Data rate: 115200 baud.
2. Data format: 8 data bits, 1 stop bit and no parity.
3. Flow control: none.
4. Click the property icon, select settings, make sure that:
   "The Function, arrow, and ctrl keys act as": Terminal keys.
   "Emulation": VT100.

Note: To manage via command line interface, please find the "Appendix" for more information.

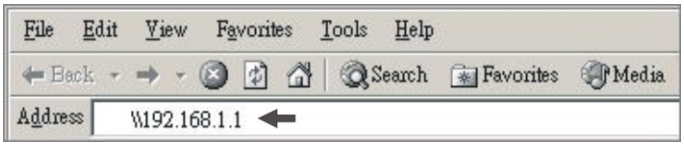
Manage the device via WEB browser

To access the Web-based management interface, you should configure the management station with an IP address and subnet mask that compatible to your switch.

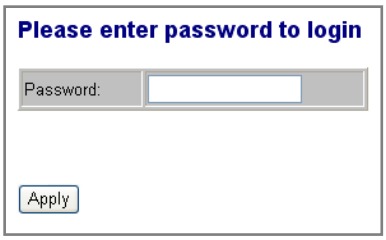
The factory default value of the switch:

IP：	**192.168.1.1**
Subnet Mask：	**255.255.255.0**
Default Gateway：	**192.168.1.254**

1. Running your Web Browser and enter the IP address “192.168.1.1” in the Address field.



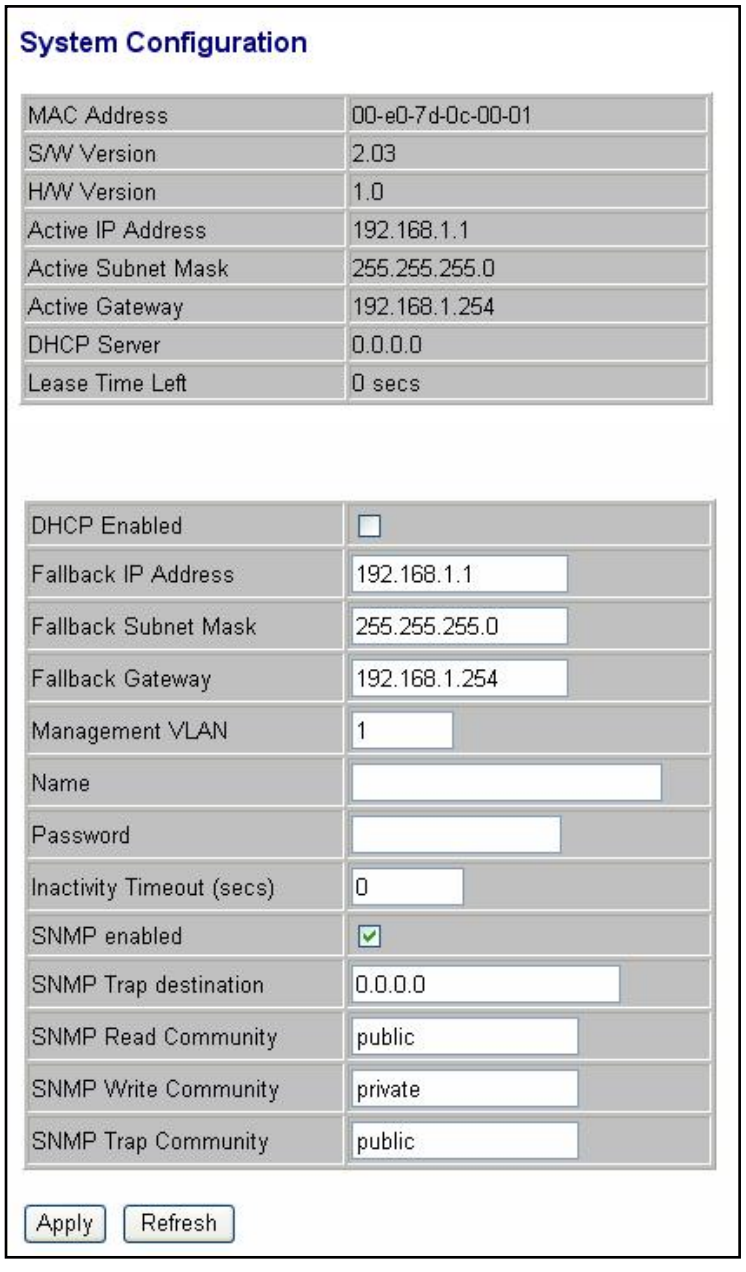
2. Key in the password to pass the authentication. The factory default value of Password is blank, or other random value. Also, you can initialize the Password in the configuration of System.



3. After authentication procedure, the following page shows up, and then you may click the hyperlinks on the left side of each page to get access to each management functions.

System

The System window provides the switch information and allows users to configure the switch properties.



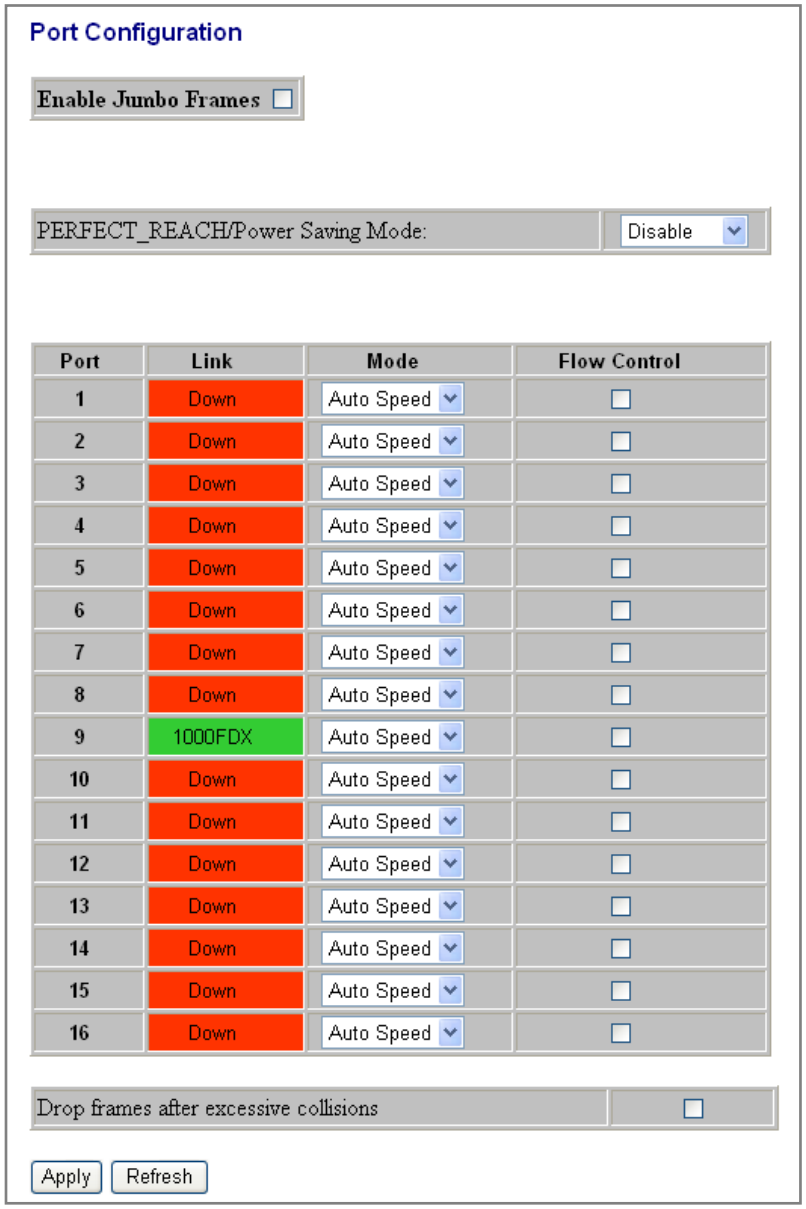
Items	Functions
MAC Address	The MAC address of this device..
S/W Version	The software version of this device.
H/W Version	The hardware version of this device.
Active IP Address	The current IP address of the switch
Active Subnet Mask	The current Subnet Mask of the switch
Active Gateway	The current Gateway of the switch
DHCP Server	The IP Address of DHCP Server assign to client for managing network automatically
Lease Time Left	The remaining lease time of IP Address that DHCP Server assign to the client
DHCP Enabled	Select it or not to obtain IP Address automatically
Fallback IP Address	Setup the IP address of the switch for fallback
Fallback Subnet Mask	Setup the Subnet Mask of the switch for fallback
Fallback Gateway	Setup the Gateway of the switch for fallback
Management VLAN	The VLAN group that is allowed to access the WEB-based management interface.
Name	Defines the user-defined device name
Password	The Login password. (the Default value is blank or random value)
Inactivity Timeout (secs)	The time of automatic broken network
SNMP enabled	Select it or no to configure SNMP Network Management, which allows network administrators to monitor and configure this device with SNMP software.
SNMP Trap destination	Specify a trap IP. A trap IP is the destination port for sending trap information, which is usually the IP address of network administrators.
SNMP Read Community	Fill in a name in the column, which is the password for accessing MIB with read-only authority.
SNMP Write Community	Fill in a name in the column, which is the password for accessing MIB with read-only authority.
SNMP Trap Community	Configure the type of SNMP Trap Community

To save the configuration of the system, click "**Apply**" to save

Note:
After applying a new IP address, a new login page will be started automatically. Please login again to proceed to other configurations.

Port

This **Port Configuration** page shows the link status of each port and allows users to configure speed, flow control for each port.



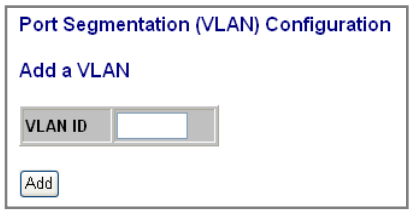
Items	Functions
Enable Jumbo Frames	Check the box to enable jumbo frames. You can enable jumbo frames to support data packets up to 9600 bytes in size.
PERFECT_REACH/Power Saving Mode	There are four options for power saving mode as the below: Full; Link Down; Link Up; Disable
Link	Shows the link status of each port. The column lights green with the link speed while there is valid connection on this port.
Mode	Select a speed for this port. **"Auto Speed"** enables auto-negotiation. **"Disable"** stop the port from functioning. You can also select **10/100 Half/Full or 1000 Full**
Flow Control	Mark the checkbox to enable the Flow control, or unmark to disable.
Drop frames after excessive collisions	Enable or disable drop of frames when excessive collisions occur in half duplex mode

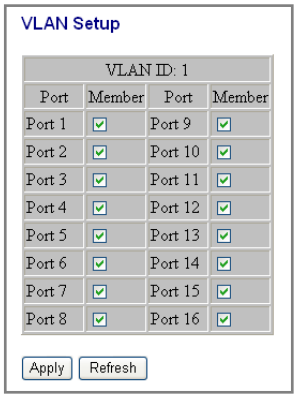
To save the configuration of the system, click "**Apply**" to save. You can also click the "**Refresh**" button to see the latest status of each port.

VLAN

VLAN divides the network members into groups to reduce packets collisions and improve the network efficiency. The switch supports 802.1Q tag-based VLAN. This page shows up VLAN Configuration List, and you can follow the instructions to configure.

- To add new VLAN groups,
  1. Fill in a VLAN id from 2 to 4094 in the **"VLAN ID"** column.
     Click "Add" to come into the page of "VLAN Setup"

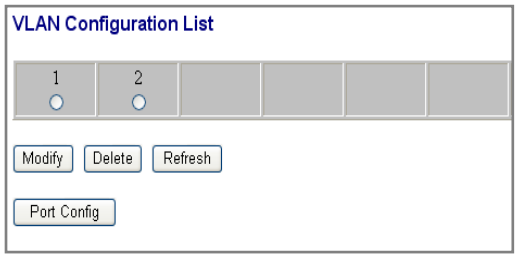


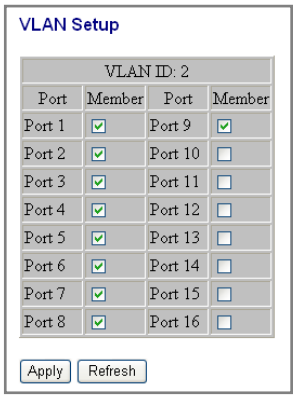


  2. Select the ports for selected VLAN group.
  3. Click the **"Apply"** button to execute.

- In the VLAN Configuration List, you can Modify / Delete / Refresh a VLAN group

1. Select the VLAN group, click “Modify”, then setup the Port as the members of this VLAN group by clicking those marked checkboxes. Finally, click the **“Apply”** button to execute.





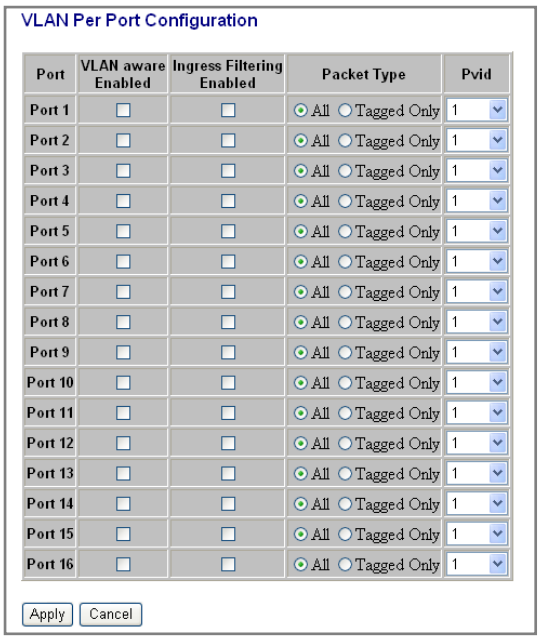
2. Select the VLAN ID of the VLAN you want in the VLAN Configuration List, then click “Delete” / “Refresh” to clear/refresh this VLAN group.

Note:

1. When a port is configured to a specific VLAN group, a PVID that corresponding to the VLAN id will be assigned automatically to this port. (Ex, when you make port 3 of a VLAN with VLAN id “2”, the PVID “ 2 ” will be assigned automatically to port 3)
2. Settings in VLAN, Port aggregation, and Mirror are correlative. Please make sure that the setting won’t influence each other.

PVID

When the VLAN-enabled switch receives a tagged packet, the packet will be sent to the port's default VLAN according to the PVID (port VLAN ID) of the receiving port. Click "**Port Config**", the page of VLAN Per Port Configuration pops up.



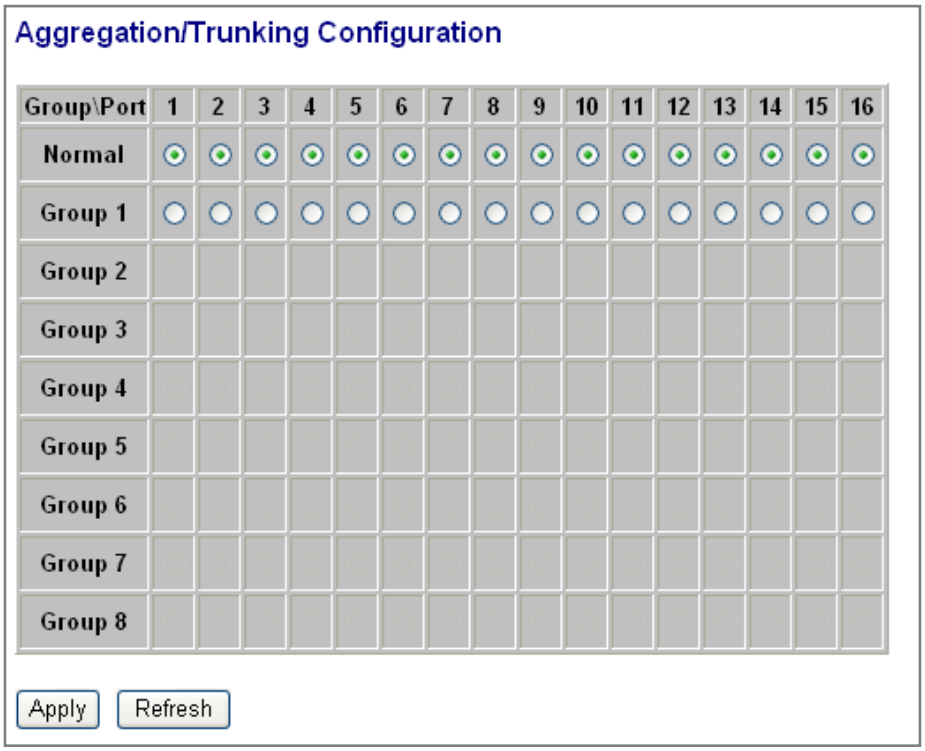
This page display when the switch is in Tag VLAN mode, the global setting of the ports will affect all Tag VLANs. It contains the following fields:

Items	Functions
Port	The switch Port Number 1~16/24
VLAN aware Enabled	Set or show the VLAN awareness mode for the port. VLAN aware ports will strip the VLAN tag from received frames and insert the tag in transmitted frames (except PVID). VLAN unaware ports will not strip the tag from received frames or insert the tag in transmitted frames.
Ingress Filtering Enabled	It determines how to process frames tagged for VLANs for which the ingress port is not a member.
Packet Type	**Tagged Only**: block all un-tagged packets from accessing this port. **All:** all packets are allowed to access this port.
PVID	while receiving an untagged frame from the port, the switch will assign a tag to the frame, using the PVID of the port as its VID. Port VLAN ID(1~4094) or None

Aggregation / Trunk Configuration

This page shows the aggregation groups and the aggregation mode.
To set up the Port trunk groups, put the ports number into the same Aggregation group. There are eight groups to choose.

Don't forget to click "**Apply**" to save the setting.

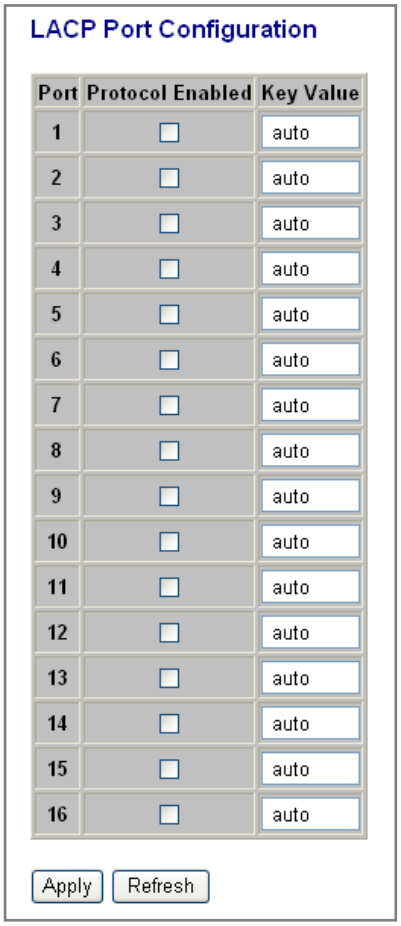


LACP

This switch supports both static trunking and dynamic Link Aggregation Control Protocol (LACP).

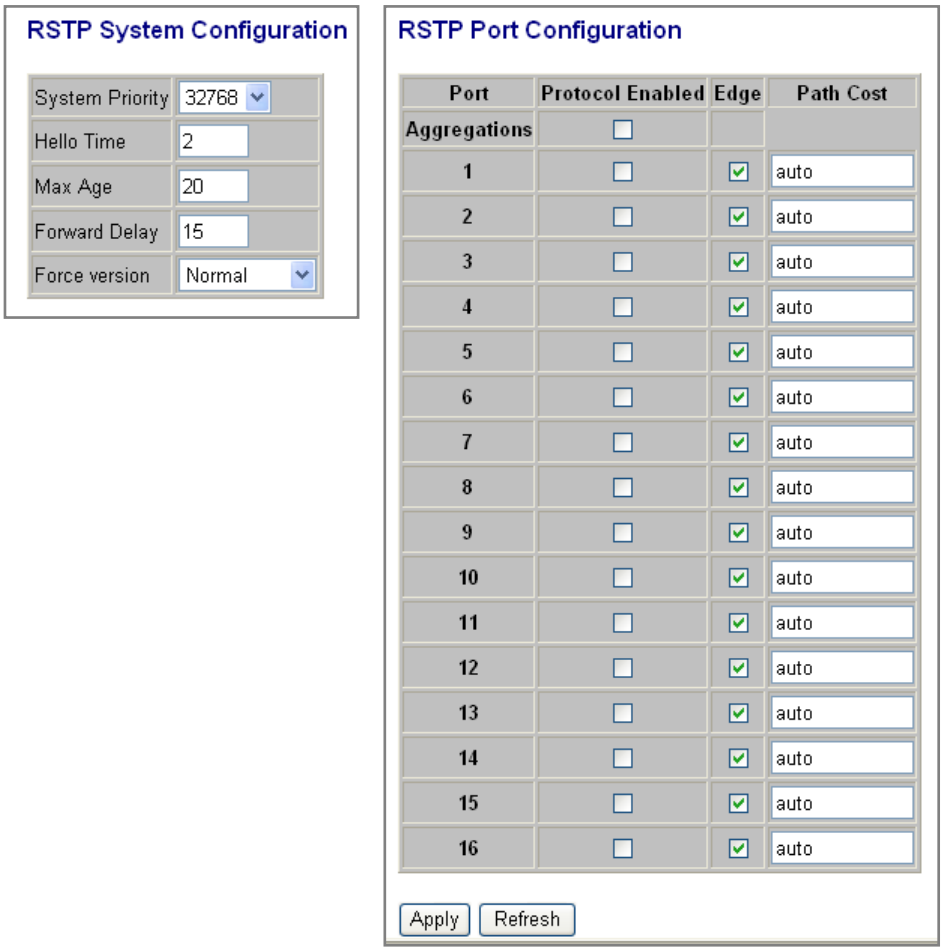
LACP configured ports can automatically negotiate a trunked link with LACP-configured ports on another device. You can configure any number of ports on the switch as LACP, as long as they are not already configured as part of a static trunk. If ports on another device are also configured as LACP, the switch and the other device will negotiate a trunk link between them.

In this page, you can make the protocol enabled or not, and configure the key value that is current administrative value of the Key for the protocol partner. The key number is between 1 - 255. Auto means auto generated key



RSTP

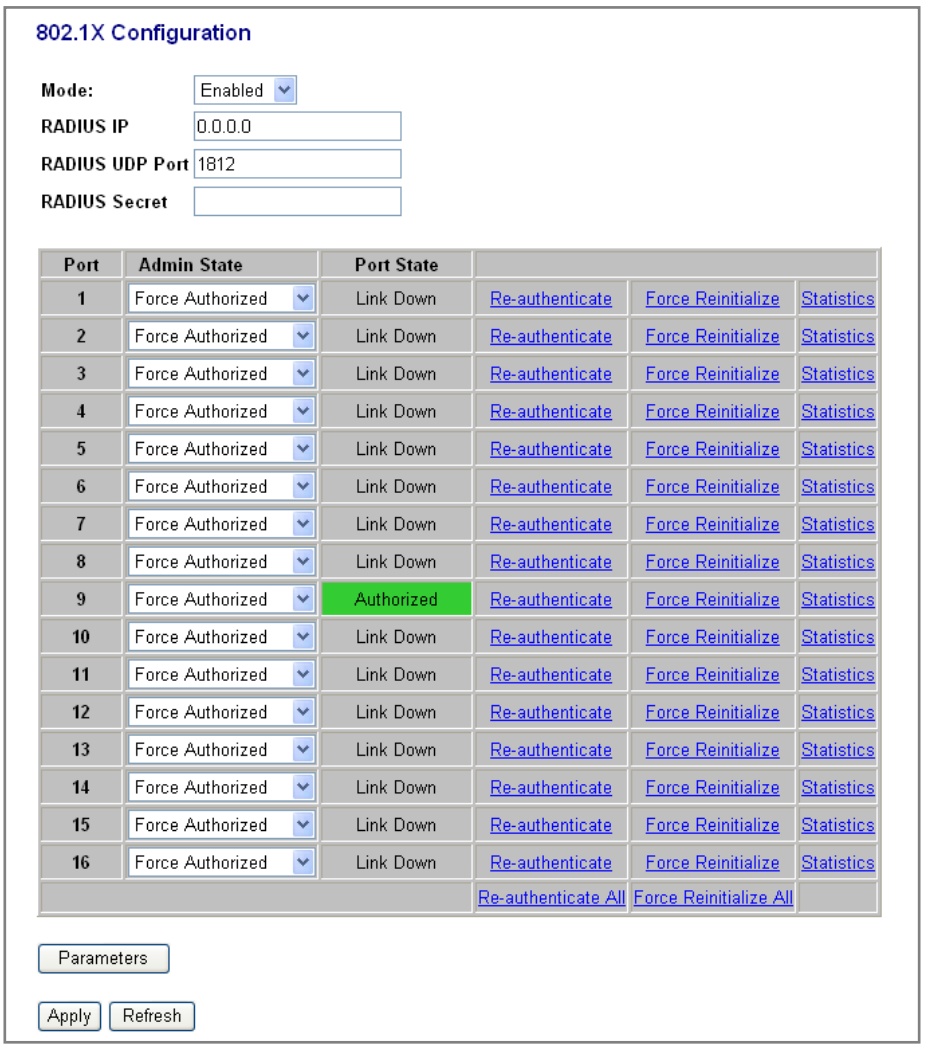
Rapid Spanning Tree Protocol (IEEE 802.1w) supports connections to RSTP nodes by monitoring the incoming protocol messages and dynamically adjusting the type of protocol messages the RSTP node transmits If RSTP is using 802.1D BPDUs on a port and receives an RSTP BPDU after the migration delay expires, RSTP restarts the migration delay timer and begins using RSTP BPDUs on that port.



Items	Functions
System Priority	Used in selecting the root device, root port, and designated port. The device with the highest priority becomes the STA root device.
Hello Time	Interval (in seconds) at which the root device transmits a configuration message
Max Age	The maximum time (in seconds) a device can wait without receiving a configuration message before attempting to reconfigure. All device ports (except for designated ports) should receive configuration messages at regular intervals.
Forward Delay	The maximum time (in seconds) the root device will wait before changing states (i.e., discarding to learning to forwarding). This delay is required because every device must receive information about topology changes before it starts to forward frames.
Force Version	There are two options as below: Normal, Compatible.
Protocol Enabled	Enable or disable the RSTP protocol on ports
Edge	Expect the port to be an edge port (an end station) or a link to another STP device.
Path Cost	Set the RSTP path cost on ports. Auto means auto generated path cost

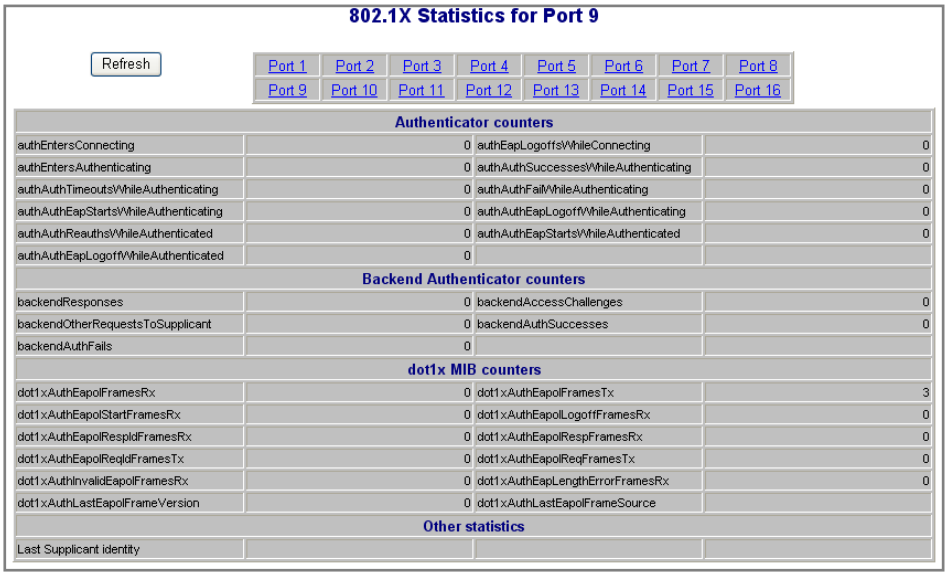
802.1x

The IEEE 802.1X standard defines a port-based access control procedure that prevents unauthorized access to a network by requiring users to first submit credentials for authentication.
When 802.1X is enabled, you need to configure the parameters for the authentication process that runs between the client and the switch (i.e., authenticator), as well as the client identity lookup process that runs between the switch and authentication server. These parameters are described in this section.



Items	Functions
Mode	Indicates if authentication is enabled or disabled on the port. (Default: Disabled)
RADIUS IP	Set the RADIUS server IP Address
RADIUS UDP Port	Set the RADIUS server network port
RADIUS Secret	Set the RADIUS encryption key
Admin State	Sets the authentication mode to one of the following options **Auto** – Requires a dot1x-aware client to be authorized by the authentication server. Clients that are not dot1x-aware will be denied access. **Force-Authorized** – Forces the port to grant access to all clients, either dot1x-aware or otherwise. (This is the default setting.) **Force-Unauthorized** – Forces the port to deny access to all clients, either dot1x-aware or otherwise.
Port State	Display the current status of authentication.
Re-authenticate	Sets the client to be re-authenticated after the interval specified by the Re-authentication Period. Re-authenticate can be used to detect if a new device is plugged into a switch port.
Force Reinitialize	Set this 802.1x configuration to initialize by compulsion.
Statistics	Display statistics for dot1x protocol exchanges for any port.

Click "**Statistics**", the following page of detailed info for each port pops up



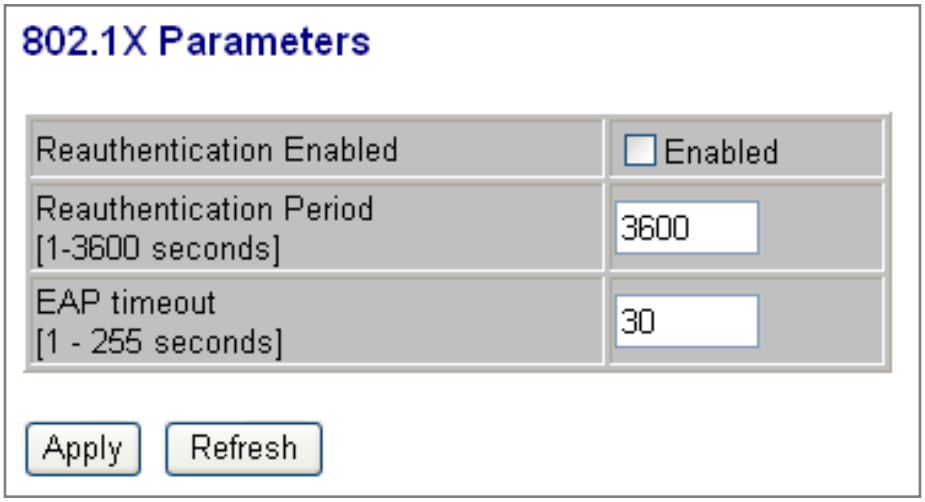
802.1X Statistics for Port 9

Refresh

Port 1 Port 2 Port 3 Port 4 Port 5 Port 6 Port 7 Port 8
Port 9 Port 10 Port 11 Port 12 Port 13 Port 14 Port 15 Port 16

Authenticator counters			
authEntersConnecting	0	authEapLogoffsWhileConnecting	0
authEntersAuthenticating	0	authAuthSuccessesWhileAuthenticating	0
authAuthTimeoutsWhileAuthenticating	0	authAuthFailWhileAuthenticating	0
authAuthEapStartsWhileAuthenticating	0	authAuthEapLogoffWhileAuthenticating	0
authAuthReauthsWhileAuthenticated	0	authAuthEapStartsWhileAuthenticated	0
authAuthEapLogoffWhileAuthenticated	0		
Backend Authenticator counters			
backendResponses	0	backendAccessChallenges	0
backendOtherRequestsToSupplicant	0	backendAuthSuccesses	0
backendAuthFails	0		
dot1x MIB counters			
dot1xAuthEapolFramesRx	0	dot1xAuthEapolFramesTx	3
dot1xAuthEapolStartFramesRx	0	dot1xAuthEapolLogoffFramesRx	0
dot1xAuthEapolRespIdFramesRx	0	dot1xAuthEapolRespFramesRx	0
dot1xAuthEapolReqIdFramesTx	0	dot1xAuthEapolReqFramesTx	0
dot1xAuthInvalidEapolFramesRx	0	dot1xAuthEapLengthErrorFramesRx	0
dot1xAuthLastEapolFrameVersion	0	dot1xAuthLastEapolFrameSource	
Other statistics			
Last Supplicant identity			

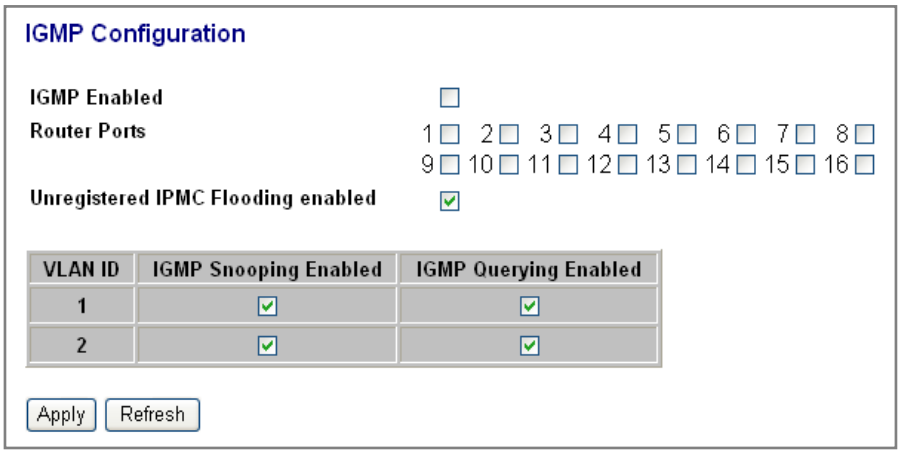
Some other parameters would be indicated after click button "**Parameters**" as the following:



Items	Functions
Reauthentication Enabled	Set Reauthentication to be enabled or disabled on the port.
Reauthentication Period	Set the time period after which a connected client must be re-authenticated.
EAP timeout	Set the time that an interface on the switch waits during an authentication session before re-transmitting an EAP packet.

IGMP Snooping

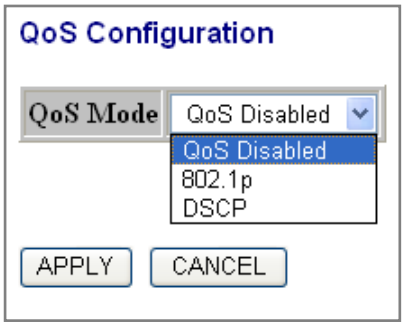
You can configure the switch to forward multicast traffic intelligently. Based on the IGMP query and report messages, the switch forwards traffic only to the ports that request multicast traffic. This prevents the switch from broadcasting the traffic to all ports and possibly disrupting network performance.



Items	Functions
IGMP Enabled	When enabled, the switch will monitor network traffic to determine which hosts want to receive multicast traffic.
Router Ports	Set or show IGMP administrative router ports.
Unregistered IPMC Flooding enabled	Set or show forwarding mode for unregistered (not-joined) IP multicast traffic. Will flood when enabled, and forward to router-ports only when disabled
VLAN ID	ID of configured VLAN (1-4094).
IGMP Snooping Enabled	When enabled, it simply monitors the IGMP packets passing through it, picks out the group registration information, and configures the multicast filters accordingly.
IGMP Querying Enabled	When enabled, the switch can serve as the Querier, which is responsible for asking hosts if they want to receive multicast traffic.

Quality of Service

QoS enhances the communication quality by giving different precedence to classified packets. This switch provides QoS Disabled, 802.1P and DSCP modes:

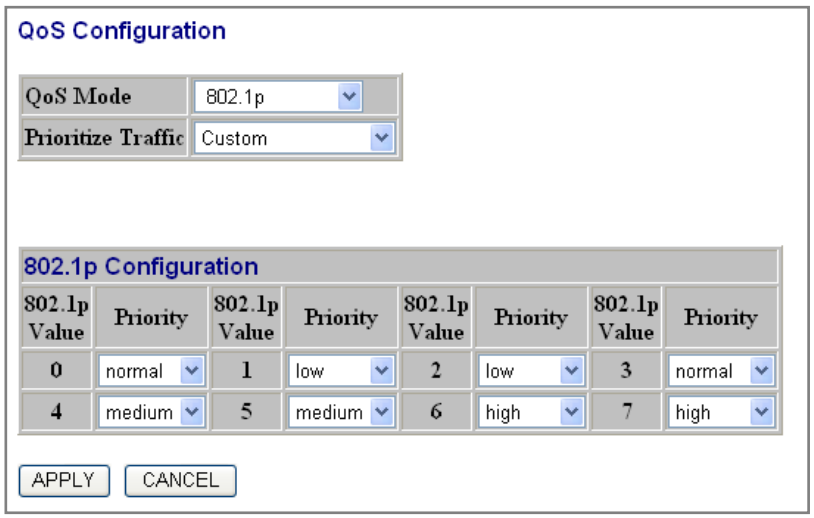


Select the QoS Mode

(1) 802.1p

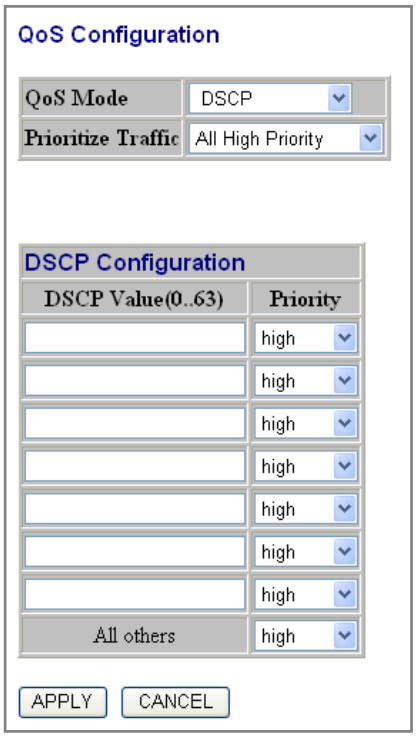
In IEEE 802.1p priority mode, when a switch port receives an untagged frame (a frame without priority tag), the port's default priority tag will be inserted into the frame before any other process.

This page is revealed when the "IEEE 802.1 p" mode is configured as shown below, Click on the drop list to specify priority levels, then click "Apply" to execute.



(2) DSCP

This page is revealed when the “DSCP” mode is configured as shown below. The DSCP mode QoS gives packet priority by the types of the incoming packets. DSCP value’s range is between 0 and 63. Give the priorities as normal/high/low for each precedence types, then click “**Apply**” to execute.

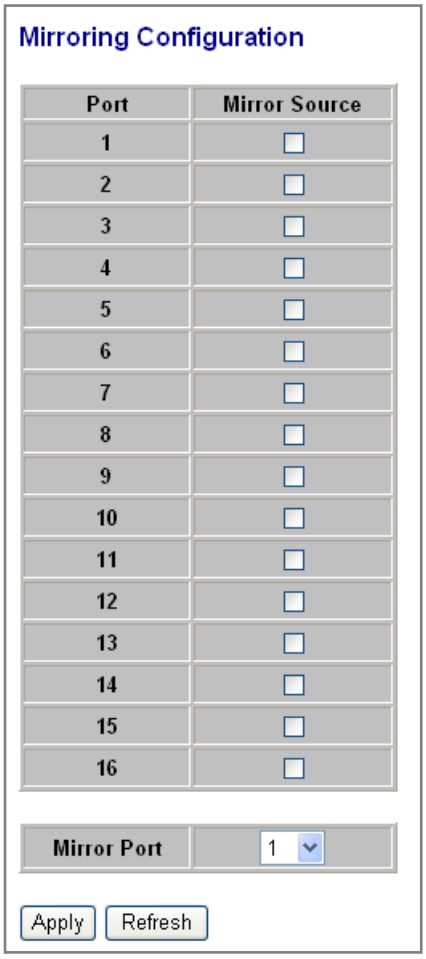


Mirror

The Mirror function copies all the packets that are transmitted by the source port to the destination port. It allows administrators to analyze and monitor the traffic of the monitored ports.

Mirror Configuration:

1. Select those ports that are going to be monitored by marking the checkboxes in "**Monitor Source**" column.
2. Click the drop list in "**Mirror Port**" column. Select a port as the administration port for monitoring those source ports.
3. Click "Apply" to activate.

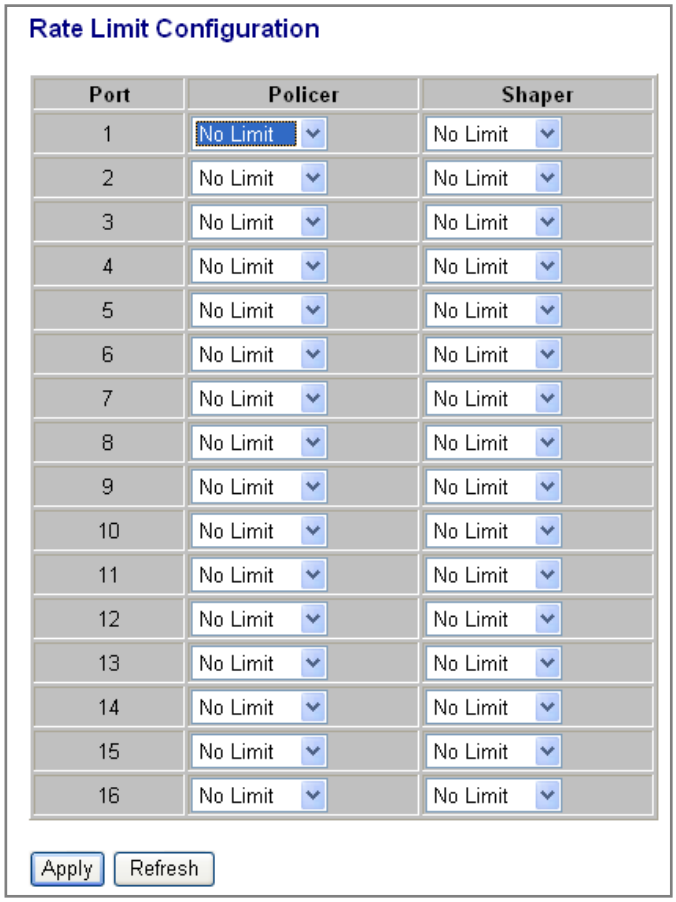


Rate Limit

This function allows the network manager to control the maximum rate for traffic transmitted or received on an interface. Rate limiting is configured on interfaces at the edge of a network to limit traffic into or out of the switch. Traffic that falls within the rate limit is transmitted, while packets that exceed the acceptable amount of traffic are dropped. This page allows users to limit the bandwidth for each port.

To configure the Rate Limit:

1. Click on each drop list to specify a speed for each frame type.
2. Click the **"Apply"** button to execute your configuration.

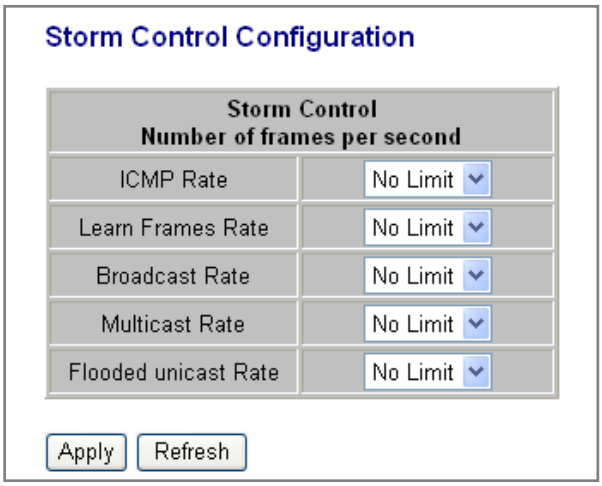


Storm Control

This “storm Control” page allows users to configure the rules for Storm Control. The allowed frame rates for ICMP frames, learn frames, multicasts, broadcasts and flooded unicasts are controlled using a central storm controller.

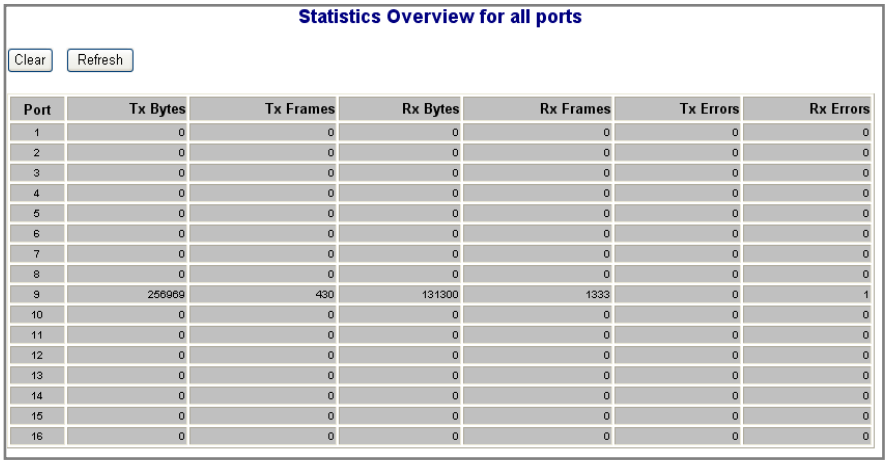
Rate: Allowed values are 1k, 2k, 4k, 8k, 16k, 32k, 64k, or No limit.

To perform storm control:
1. Click on each drop list to specify a speed for each frame type.
2. Click the “**Apply**” button to execute your configuration.



Statistics Overview

The Statistics Overview is provided for users to see the general transmitting and receiving status of each port. You may click the **“Clear”** button to clean all statistics or click the **“Refresh”** button to renew the statistics.



Statistics Overview for all ports

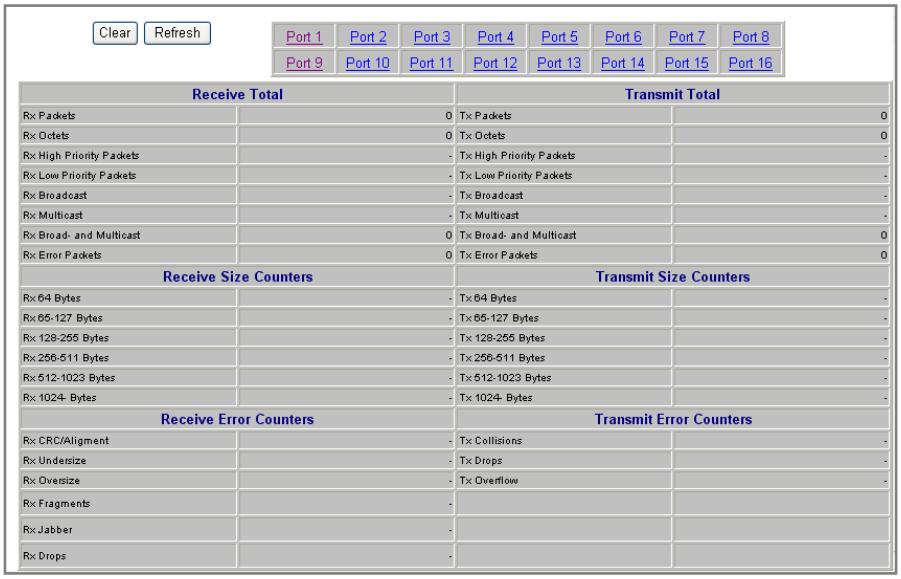
Clear Refresh

Port	Tx Bytes	Tx Frames	Rx Bytes	Rx Frames	Tx Errors	Rx Errors
1	0	0	0	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	256969	430	131300	1333	0	1
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0

Detailed Statistics

The Detailed Statistics is provided for users to see the detailed transmitting and receiving status of each port. Please click the hyperlinks above to select a port.

You may also click the **"Clear"** button to clean all statistics or click the **"Refresh"** button to renew the statistics.



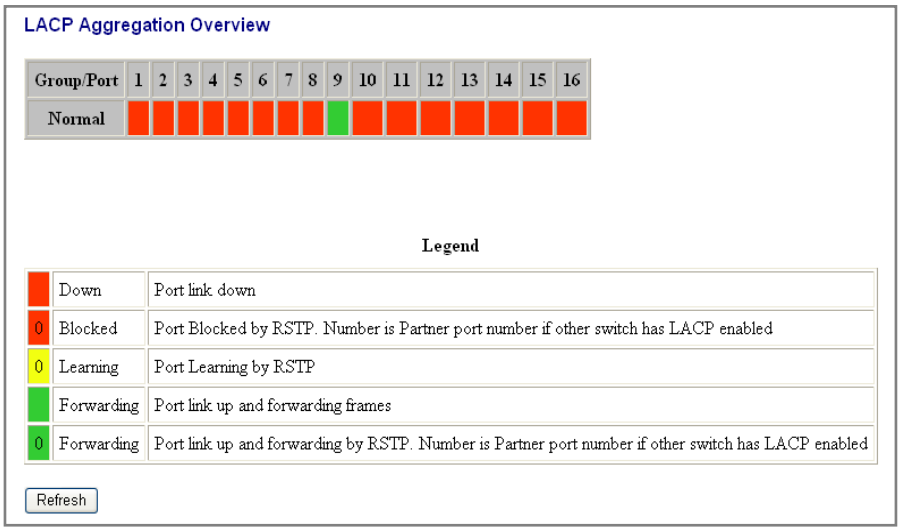
Clear Refresh

Port 1 Port 2 Port 3 Port 4 Port 5 Port 6 Port 7 Port 8
Port 9 Port 10 Port 11 Port 12 Port 13 Port 14 Port 15 Port 16

Receive Total		Transmit Total	
Rx Packets	0	Tx Packets	0
Rx Octets	0	Tx Octets	0
Rx High Priority Packets	-	Tx High Priority Packets	-
Rx Low Priority Packets	-	Tx Low Priority Packets	-
Rx Broadcast	-	Tx Broadcast	-
Rx Multicast	-	Tx Multicast	-
Rx Broad- and Multicast	0	Tx Broad- and Multicast	0
Rx Error Packets	0	Tx Error Packets	0
Receive Size Counters		**Transmit Size Counters**	
Rx 64 Bytes	-	Tx 64 Bytes	-
Rx 65-127 Bytes	-	Tx 65-127 Bytes	-
Rx 128-255 Bytes	-	Tx 128-255 Bytes	-
Rx 256-511 Bytes	-	Tx 256-511 Bytes	-
Rx 512-1023 Bytes	-	Tx 512-1023 Bytes	-
Rx 1024- Bytes	-	Tx 1024- Bytes	-
Receive Error Counters		**Transmit Error Counters**	
Rx CRC/Aligment	-	Tx Collisions	-
Rx Undersize	-	Tx Drops	-
Rx Oversize	-	Tx Overflow	-
Rx Fragments	-		
Rx Jabber	-		
Rx Drops	-		

LACP Status

LACP Status is provided for users to see the detailed LACP Aggregation status of each port. You may also click the “Refresh” button to renew the info.



LACP Aggregation Overview

Group/Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Normal																

Legend

	Down	Port link down
0	Blocked	Port Blocked by RSTP. Number is Partner port number if other switch has LACP enabled
0	Learning	Port Learning by RSTP
	Forwarding	Port link up and forwarding frames
0	Forwarding	Port link up and forwarding by RSTP. Number is Partner port number if other switch has LACP enabled

Refresh

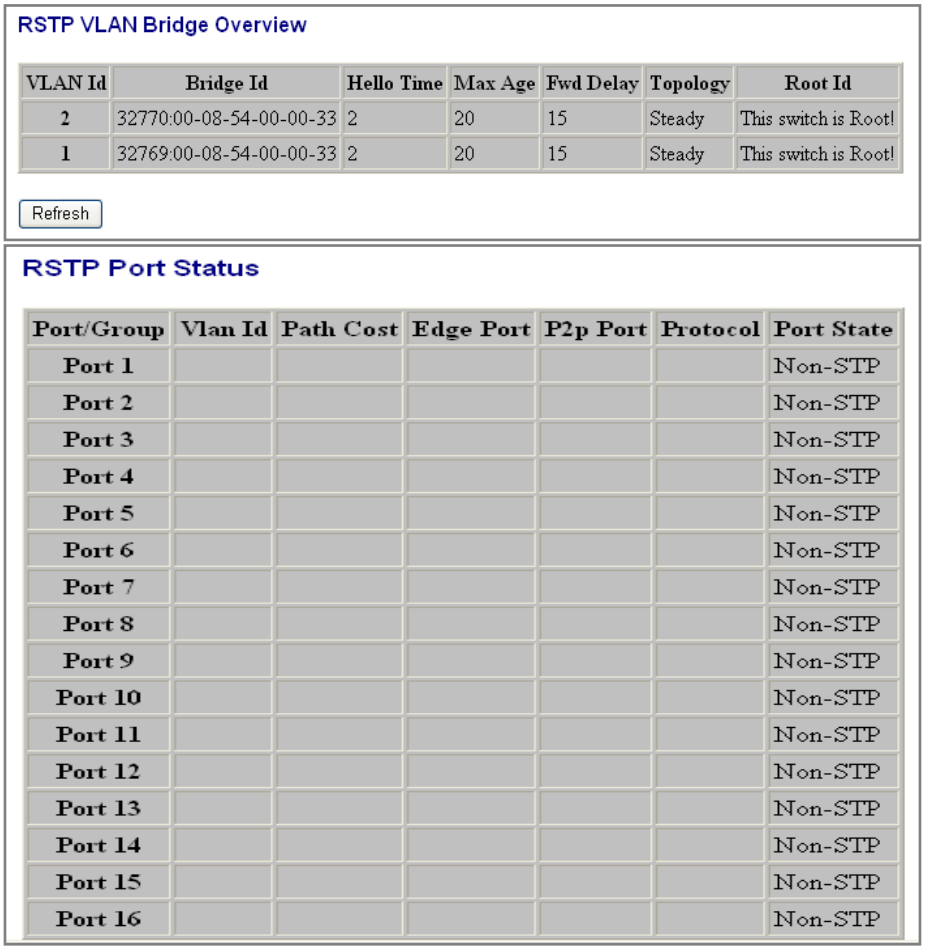
LACP Port Status

Port	Protocol Active	Partner Port Number	Operational Port Key
1	no		
2	no		
3	no		
4	no		
5	no		
6	no		
7	no		
8	no		
9	no		
10	no		
11	no		
12	no		
13	no		
14	no		
15	no		
16	no		

RSTP Status

RSTP Status is provided for users to see the detailed RSTP VLAN Bridge status for each port. You may also click the “Refresh” button to renew the info.

Bridge ID – A unique identifier for this bridge, consisting of the bridge priority and MAC address (where the address is taken from the switch system).
Hello time - Set or show the RSTP System Hello time. Number between 1 - 10 (default is 2)
Maxage - Set or show the RSTP System Max Age. Number between 6 - 40 (default is 20)
Fwd delay- Set or show the RSTP System Forward delay. Number between 4 - 30 (default is 15)



RSTP VLAN Bridge Overview

VLAN Id	Bridge Id	Hello Time	Max Age	Fwd Delay	Topology	Root Id
2	32770:00-08-54-00-00-33	2	20	15	Steady	This switch is Root!
1	32769:00-08-54-00-00-33	2	20	15	Steady	This switch is Root!

Refresh

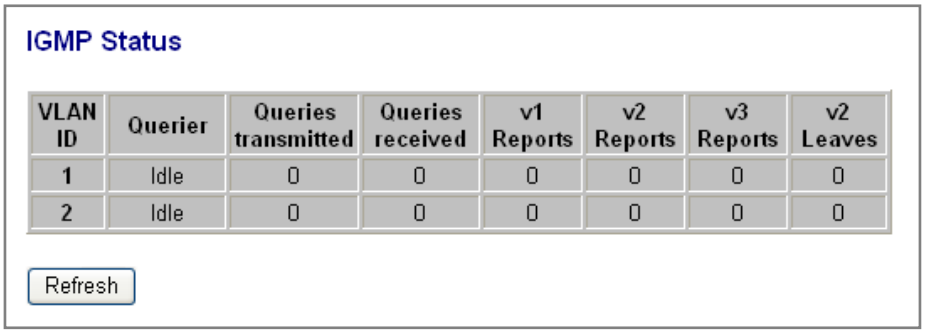
RSTP Port Status

Port/Group	Vlan Id	Path Cost	Edge Port	P2p Port	Protocol	Port State
Port 1						Non-STP
Port 2						Non-STP
Port 3						Non-STP
Port 4						Non-STP
Port 5						Non-STP
Port 6						Non-STP
Port 7						Non-STP
Port 8						Non-STP
Port 9						Non-STP
Port 10						Non-STP
Port 11						Non-STP
Port 12						Non-STP
Port 13						Non-STP
Port 14						Non-STP
Port 15						Non-STP
Port 16						Non-STP

IGMP Status

IGMP Status is provided for users to see the detailed status of each port. You may also click the "**Refresh**" button to renew the info.

IGMP Querier: Set or Show IGMP querier state per VLAN.

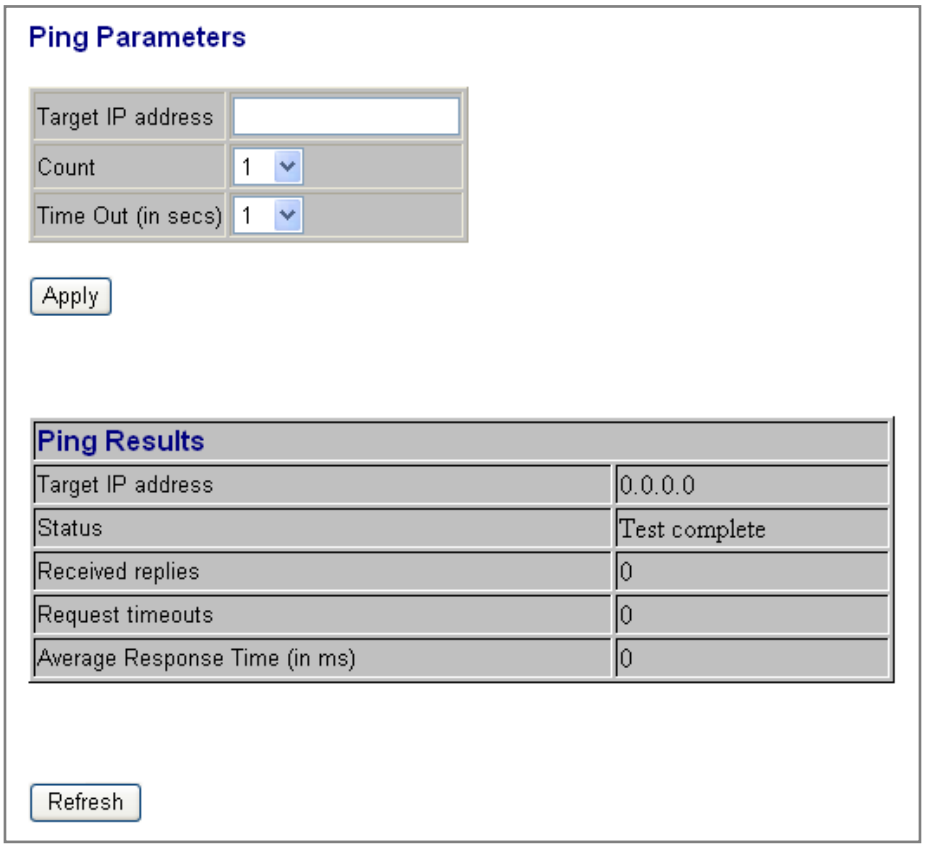


Ping

The ping function is to test the connectedness of the link between the switch and destination. Configure the following parameters, then click “Apply” to ping the connectedness.

Target IP Address: Indicates the IP Address of the test destination.
Count: Number of echo requests to send (default: 1).
Timeout: Timeout in seconds to wait for each reply (default: 2).

In the below table, it displays ping results contain Target IP Address /Status /Received replies/Request timeouts/Average Response Time(in ms).



Warm Restart

To restart the system, click the "**Yes"** button. The system restarts and shows the authentication window. Please fill in the username and password to continue.

Factory Default

Restore Factory Default:
To restore the factory default value, click the **Yes** button.

Note: The IP address of the device will also be configured as factory-default setting, which is 192.168.1.1.

Software Upload

This "Software Upload" page allows users to upgrade firmware for this switch.

To perform firmware upgrade:
1. Click the **"Browse"** button
2. Locate the firmware file
3. Click the **"Upload"** button to execute.

Product Specifications

Standard	IEEE802.3 10 BASE-T IEEE802.3u 100 BASE-TX IEEE802.3x full-duplex operation and flow control IEEE802.3ab/z 1000 BASE-T IEEE802.1Q VLAN interoperability IEEE802.1p Priority Operation
Interface	16/24* 10/100/1000 Mbps auto MDI/MDI-X RJ-45 switching ports 4* SFP (mini-GBIC) port 1 * Restore Default Button
Cable Connections	RJ-45 (10 BASE-T): Category 3,4,5 UTP/STP RJ-45 (100 BASE-TX): Category 5 UTP/STP RJ-45 (1000 BASE-T): Category 5e, 6 or enhanced UTP/STP Fiber: depend on mini-GBIC types
Network Data Rate	10/100/1000 Mbps Auto-negotiation
Transmission Mode	10/100 Mbps Full-duplex, Half-duplex 1000 Mbps Full-duplex
LED Indications	System Power RJ-45 Port 1000M, 10/100M
Memory	8K MAC entries 500K Bytes Buffer Memory 9600 Bytes Jumbo Frame
Emission	FCC, CE, VCCI Class A, RoHS
Operating Temperature	0° ~ 40°C (32° ~ 104°F)
Operating Humidity	10% - 90% (non-condensing)
Power Supply	Internal power supply 100-240V/ 50-60 Hz universal input

Appendix- Command Line Interface

Start-up and Terminal configuration

To start-up the command line interface, please connect a PC COM port to the RS-232 connector and activate a terminal emulation software (e.g. HyperTerminal of Windows).

The terminal emulation software should be started as the following configuration:

1. Data rate: 115200 baud.
2. Data format: 8 data bits, 1 stop bit and no parity.
3. Flow control: none.
4. Click the property icon, select settings, make sure that:
   "The Function, arrow, and ctrl keys act as": Terminal keys.
   "Emulation": VT 100.

Login/Logout Procedures

To get access to the CLI, you will have to Key in the password to pass the authentication. The factory default value of Password is blank, or other random value.

Note: We recommend users to configure a new password to prevent unauthorized users from accessing to the device.

```
Booting ...image 1
S/W Version: 2.03

Password: _
```

Command Hierarchy

After logging in, press ? + <enter> to show the 9 command groups.

```
Commands at top level:
System      - System commands
Console     - Console commands
Port        - Port commands
MAC         - MAC commands
VLAN        - VLAN commands
Aggr        - Aggregation commands
LACP        - IEEE 802.3ad Link Aggregation commands
RSTP        - IEEE 802.1w Rapid Spanning Tree commands
User Group  - User Group commands
QoS         - QoS commands
Mirror      - Mirror commands
IP          - IP commands
Dot1x       - Dot1x commands
IGMP        - IGMP Snooping commands
Debug       - Debug commands
```

Press **?** or **help** to get help. The help depends on the context:

- At top level, a list of command groups will be shown.
- At group level, a list of the command syntaxes will be shown.
- If given after a command, the syntax and a description of the command will be shown.

Entering Commands

To give any command, please key in your command and press enter.

EX,

1. Type “System” and press <enter> to get access to the system command group.
2. Type “Configuration” and press <enter> to perform “configuration”

```
System>configuration
System Configuration:
    Name:
    S/W Version: 2.03
```

```
CVS Tag: sw_8051_2_34d
Compile Date: Sep 21 2009 11:26:36
H/W Version: 1.0
MAC address: 00-08-54-00-00-31
SNMP:  enabled
Trap IP: 0.0.0.0
Readcommunity: public
Writecommunity: private
Trapcommunity: public
```

You can type "**up**" and press <enter> to go back to upper level.

Command Description

The following session introduces the command structure of the command line interface.

Command groups:

```
System        - System commands
Console       - Console commands
Port          - Port commands
MAC           - MAC commands
VLAN          - VLAN commands
Aggr          - Aggregation commands
LACP          - IEEE 802.3ad Link Aggregation commands
RSTP          - IEEE 802.1w Rapid Spanning Tree commands
User Group    - User Group commands
QoS           - QoS commands
Mirror        - Mirror commands
IP            - IP commands
Dot1x         - Dot1x commands
IGMP          - IGMP Snooping commands
Debug         - Debug commands
```

System Commands

```
System Configuration [all]
System Restore Default [keepIP]
System Name [<name>]
System Reboot
System SNMP [enable|disable]
System Trap [<IP Address>]
System Readcommunity [<community string>]
System Writecommunity [<community string>]
System Trapcommunity [<community string>]
System Power Saving [full|up|down|disable]
```

System Configuration [all]

Description:
Show system name, software version, hardware version and management MAC address. Optionally show the full configuration

[all]: Show the total switch configuration (default: System configuration only)

System Restore Default [keepIP]

Description:
Restore factory default configuration.

[keepIP]: Preserve IP configuration (default: Not preserved).

System Name [<name>]

Description:
Set or show the system name.

[<name>]: String of up to 16 characters (default: Show system name).

System Reboot

Description:
Reboot the switch.

SNMP [enable|disable]

Description:
Activate or deactivate the SNMP.

[enable|disable]: Enable/disable SNMP (default: Show SNMP mode).

Trap [<IP Address>]

Description:
Set or show SNMP traps destination.

<IP Address>: IP address to send traps to. (default: Show trap configuration)

Readcommunity [<community string>]

Description:
Set or show SNMP read community string.

[<community string>]: New community string. (default: Show current value).

Writecommunity [<community string>]

Description:
Set or show SNMP write community string.

[<community string>]: New community string. (default: Show current value).

Trapcommunity [<community string>]

Description:
Set or show SNMP trap community string.

[<community string>]: New community string. (default: Show current value).

Sytem Power Saving [full|up|down|disable]

Description:
Configure mode of power saving.
[full|up|down|disable]:
full : Power saving at both link-up and link-down.
up : Power saving at link-up only.
down : Power saving at link-down only.
disable : No power saving

Console Commands

Commands at Console level:
Console Configuration
Console Password [<password>]
Console Timeout [<timeout>]
Console Prompt [<prompt string>]

Console Configuration

Description:
Show configured console password and timeout.

Console Password [<password>]

Description:
Set or show the console password. The empty string ("") disables the password check.

[<password>]: Password string of up to 16 characters.

Console Timeout [<timeout>]

Description:
Set or show the console inactivity timeout in seconds. The value zero disables timeout.

[<timeout>]: Timeout value in seconds, 0,60-10000.

Console Prompt [<prompt_string>]

Description:
Set or show the console prompt string.

[<prompt_string>]: Command prompt string of up to 10 characters.

Port Commands

Commands at Port level:
Port Configuration [<portlist>]
Port Mode [<portlist>] [<mode>]
Port Flow Control [<portlist>] [enable|disable]
Port State [<portlist>] [enable|disable]
Port MaxFrame [<portlist>] [<framesize>|reset]
Port Statistics [<portlist>] [clear]
Port Excessive Collisions Drop [enable|disable]------

#Note: If you want to change maxframe bigger than 1518,
the [Flow Control] should be enabled!

Port Configuration [<portlist>]

Description:
Show the configured and current speed, duplex mode, flow control mode and state for the port.

[<portlist>]: Port list (Default: All ports).

Port Mode [<portlist>] [<mode>]

Description:
Set or show the speed and duplex mode for the port.

[<portlist>]: Port list (Default: All ports).
[<mode>] : Port speed and duplex mode (Default: Show configured and current mode).
10hdx : 10 Mbit/s, half duplex.
10fdx : 10 Mbit/s, full duplex.
100hdx : 100 Mbit/s, half duplex.
100fdx : 100 Mbit/s, full duplex.
1000fdx: 1 Gbit/s, full duplex.
auto : Auto negotiation of speed and duplex.

Port Flow Control [<portlist>] [enable|disable]

Description:
Set or show flow control mode for the port.

[<portlist>] : Port list (default: All ports).
[enable|disable]: Enable/disable flow control (default: Show flow control mode).

Port State [<portlist>] [enable/disable]

Description:
Set or show the state for the port.

[<portlist>] : Port list (default: All ports).
[enable|disable]: Enable or disable port state (default: Show state).

Port MaxFrame [<portlist>] [<framesize>|reset]

Description:
Set or show the maximum frame size in bytes (including FCS) for frames received on the port. Tagged frames are allowed to be 4 bytes longer than the maximum frame size. Use the reset option to return to default setting.

[<portlist>] : Port list (default: All ports).
[<framesize>|reset]: Maximum frame size [1518-9600] or reset to 1518 bytes (default: Show maximum frame size).

Port Statistics [<portlist>] [clear]

Description:
Show or clear statistics for the port.

[<portlist>]: Port list (default: All ports).
[clear] : Clear port statistics (default: Show statistics).

Port Excessive Collisions Drop [enable|disable]

Description:
Enable or disable drop of frames when excessive collisions occur in half duplex mode.

[enable|disable]: Enable/disable frame drop (default: Show Excessive Collisions Drop mode).

MAC Commands

Commands at MAC level:
MAC Configuration
MAC Add <macaddress> <portlist>|none [<vid>]
MAC Delete <macaddress> [<vid>]
MAC Lookup <macaddress> [<vid>]
MAC Table <vidlist>
MAC Flush
MAC Agetime [<agetime>]

MAC Configuration

Description:
Show the permanently stored MAC table and the MAC ageing timer.

MAC Add <macaddress> <portlist>|none [<vid>]

Description:
Add permanent MAC address and VLAN ID on ports.

<macaddress>: MAC address, 12 digit hex string, optionally separated with dashes or colons (e.g. 010203ABCDEF or 01-02-03-AB-CD-EF or 01:02:03:AB:CD:EF).
<portlist> : Port list. Use "none" to specify no ports.
[<vid>] : VLAN ID, 1-4094 (default: 1).

MAC Delete <macaddress> [<vid>]

Description:
Delete MAC address and VLAN ID.

<macaddress>: MAC address, 12 digit hex string, optionally separated with dashes or colons (e.g. 010203ABCDEF or 01-02-03-AB-CD-EF or 01:02:03:AB:CD:EF).
[<vid>] : VLAN ID (default: All).

MAC Lookup <macaddress> [<vid>]

Description:
Lookup MAC address and VLAN ID.

<macaddress>: MAC address, 12 digit hex string, optionally separated with

dashes or colons (e.g. 010203ABCDEF or 01-02-03-AB-CD-EF or 01:02:03:AB:CD:EF).
[<vid>] : VLAN ID, 1-4094 (default: 1).

MAC table <vidlist>

Description:
Show the MAC address table for VLAN ID list.

<vidlist> : VLAN ID list.

MAC Flush

Description:
Removes non-locked entries from the switch MAC table.

MAC Agetime [<agetime>]

Description:
Set or show the MAC age timer in seconds. The value zero disables ageing.

[<agetime>]: Age timer in seconds, 0 or 10-65535 (default: Show timer).

VLAN Commands

Commands at VLAN level:
VLAN Configuration [<portlist>]
VLAN Add <vidlist> [<portlist>]
VLAN Delete <vidlist>
VLAN Lookup <vidlist>
VLAN Aware [<portlist>] [enable|disable]
VLAN PVID [<portlist>] [<vid>|none]
VLAN Frame Type [<portlist>] [all|tagged]
VLAN Ingress Filtering [<portlist>] [enable|disable]

VLAN Configuration [<portlist>]

Description:
Show the VLAN aware mode, port VLAN ID and accepted frame type for the port and the permanently stored VLAN table.

[<portlist>]: Port list (default: All ports).

VLAN Add <vidlist> [<portlist>]

Description:
Add VLAN entry and include ports in member set.

<vidlist> : VLAN ID list.
[<portlist>]: Port list (default: All ports).

VLAN Delete <vidlist>

Description:
Delete VLAN entry (all ports excluded from member set).

<vidlist> : VLAN ID list.

VLAN Lookup <vidlist>

Description:
Lookup VLAN entry and show port list.

<vidlist> : VLAN ID list.

VLAN Aware [<portlist>] [enable|disable]

Description:
Set or show the VLAN awareness mode for the port. VLAN aware ports will strip the VLAN tag from received frames and insert the tag in transmitted frames (except PVID). VLAN unaware ports will not strip the tag from received frames or insert the tag in transmitted frames.

[<portlist>]: Port list (default: All ports).
[enable|disable]: Enable/disable VLAN awareness (default: Show awareness).

VLAN PVID [<portlist>] [<vid>|none]

Description:
Set or show the port VLAN ID. Untagged frames received on the port will be classified to this VLAN ID. Frames classified to this VLAN ID will be sent untagged on the port.

[<portlist>]: Port list (default: All ports).
[<vid>|none]: Port VLAN ID, 1-4094 (default: Show PVID).
The 'none' option can be used for trunk links.

VLAN Frame Type [<portlist>] [all|tagged]

Description:
Set or show the accepted frame type for the port.

[<portlist>]: Port list (default: All ports).
[all|tagged]: Accept all or only tagged (default: Show frame type).

VLAN Ingress Filtering [<portlist>] [enable|disable]

Description:
Set or show VLAN ingress filtering for the port.

[<portlist>]: Port list (default: All ports).
[enable|disable]: Enable or disable VLAN ingress filtering
(default: Show current setting).

Aggregation Commands

Commands at Aggr level:
Aggr Configuration
Aggr Add <portlist>
Aggr Delete <portlist>
Aggr Lookup <portlist>
Aggr Mode [smac|dmac|xor]

Aggr Configuration

Description:
Shows the aggregation groups and the aggregation mode.

Aggr Add <portlist>

Description:
Add link aggregation group including ports.
<portlist>: Aggregation port list.

Aggr Delete <portlist>

Description:
Delete link aggregation group.
<portlist>: Port list. Aggregations including any of the ports will be deleted.

Aggr Lookup <portlist>

Description:
Lookup and display link aggregation group.
<portlist>: Port list. Aggregations including any of the ports will be shown.

Aggr Mode [smac|dmac|xor]

Description:
Set or show link aggregation traffic distribution mode.
[smac|dmac|xor]: Aggregation mode, SMAC, DMAC or XOR (default: Show mode).

LACP Commands

Commands at LACP level:
LACP Configuration [<portlist>]
LACP Mode [<portlist>] [enable|disable]
LACP Key [<portlist>] [<key>|auto]
LACP Status
LACP Statistics

LACP Configuration [<portlist>]

Description:
Show LACP configuration.
[<portlist>]: Port list (Default: All ports).

LACP Mode [<portlist>] [enable|disable]

Description:
Enable or disable the LACP protocol on ports <portlist>.
[<portlist>]: Port list (Default: All ports).
[enable|disable]: Enable or disable.

LACP Key [<portlist>] [<key>|auto]

Description:
Set the LACP key on ports <portlist>.
[<portlist>]: Port list (Default: All ports).
[<key>]: Number between 1 - 255. Auto means auto generated key

LACP Status

Description:
Show LACP group and port states.

LACP Statistics

Description:
Show LACP protocol port statistics.

RSTP Commands

Commands at RSTP level:
RSTP Configuration [<portlist>]
RSTP sysprio [<sysprio>]
RSTP hellotime [<secs>]
RSTP maxage [<hops>]
RSTP fwddelay [<secs>]
RSTP version [normal|compat]
RSTP Mode [<portlist>] [enable|disable]
RSTP Aggr [enable|disable]
RSTP Edge [<portlist>] [enable|disable]
RSTP Pathcost [<portlist>] [<pathcost>|auto]
RSTP mcheck <portlist>
RSTP Status
RSTP Statistics

RSTP Configuration [<portlist>]

Description:
Show RSTP configuration.

[<portlist>]: Port list (Default: All ports).

RSTP sysprio [<sysprio>]

Description:
Set or show the RSTP System Priority.

[<sysprio>]: Number between 0 - 61440 in increments of 4096
This provides for 16 distinct values: 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344 and 61440.

RSTP hellotime [<secs>]

Description:
Set or show the RSTP System Hello time.

[<secs>]: Number between 1 - 10 (default is 2)

RSTP maxage [<hops>]

Description:
Set or show the RSTP System Max Age.

[<hops>]: Number between 6 - 40 (default is 20)

RSTP fwddelay [<secs>]

Description:
Set or show the RSTP System Forward delay.

[<secs>]: Number between 4 - 30 (default is 15)

RSTP version [normal|compat]

Description:
Set or show the RSTP protocol version to use.

[<version>]: normal - use RSTP, compat - compatible with old STP

RSTP Mode [<portlist>] [enable|disable]

Description:
Enable or disable the RSTP protocol on ports <portlist>.

[<portlist>]: Port list (Default: All ports).
[enable|disable]: Enable or disable.

RSTP aggr [enable|disable]

Description:
Enable or disable the RSTP protocol on aggregated links.

[enable|disable]: Enable or disable.

RSTP edge [enable|disable]

Description:
Expect the port to be an edge port (an end station) or a link to another STP device.

[enable|disable]: End-station or bridge.

RSTP pathcost [<portlist>] [<pathcost>|auto]

Description:
Set the RSTP pathcost on ports <portlist>.

[<portlist>]: Port list (Default: All ports).
[<pathcost>]: Number between 1 - 200000000. Auto means auto generated pathcost

RSTP mcheck <portlist>

Description:
Force a recheck of the RSTP protocol on the ports in <portlist>.

<portlist>: List of ports.

RSTP Status

Description:
Show RSTP bridge instances and port states.

RSTP Statistics

Description:
Show RSTP bridge instance and port statistics.

User Group Commands

Commands at User Group level:
User Group Configuration
User Group Add <grouplist> [<portlist>]
User Group Delete <grouplist>
User Group Lookup <grouplist>

User Group Configuration

Description:
Show the user groups.

User Group Add <grouplist> [<portlist>]

Description:
Add user group entry including the ports.

<grouplist> : User group ID list.
[<portlist>]: Port list (default: All ports).

User Group Delete <grouplist>

Description:
Delete user group entry.

<grouplist>: User group ID list.

User Group Lookup <grouplist>

Description:
Lookup user group entry and show port members.

<grouplist>: User group ID list.

QoS Commands

Commands at QoS level:
QoS Configuration [<portlist>]
QoS Mode [<portlist>] [tag|port|diffserv]
QoS Default [<portlist>] [<class>]
QoS Tagprio [<portlist>] [<tagpriolist>] [<class>]
QoS DiffServ [<dscpno>] [<class>]
QoS Userprio [<portlist>] [<tagprio>]
QoS Shaper [<portlist>] [enable|disable] [<rate>]
QoS Policer [<portlist>] [enable|disable] [<rate>]
QoS Storm Control [<traffic type>] [enable|disable] [<rate>]

<class> range: low|normal|medium|high
<traffic type>: ICMP|Learn|Broadcast|Multicast|Flood Unicast

QoS Configuration [<portlist>]

Description:
Show the configured QoS mode, VLAN user priority mapping, default class, default VLAN user priority and DSCP mapping for the port.

[<portlist>]: Port list (default: All ports).

QoS Mode [<portlist>] [tag|port|diffserv]

Description:
Set or show the QoS mode for the port.

[<portlist>] : Port list (default: All ports).
[tag|port|diffserv]: Enable tag, port or IP differentiated services class of service for the port (default: Show mode).

QoS Default [<portlist>] [<class>]

Description:
Set or show the default class. In tag mode, the default class is used for untagged frames. In port mode, the default class is used as the port priority. In diffserv mode, the default class is used for non-IP frames.

[<portlist>]: Port list (default: All ports).
[<class>] : Internal class of service (default: Show default class).

QoS Tagprio [<portlist>] [<tagpriolist>] [<class>]

Description:
Set or show the VLAN user priority mapping.

[<portlist>] : Port list (default: All ports).
[<tagpriolist>]: VLAN user priority list, 0-7 (default: All user priorities).
[<class>] : Internal class of service (default: Show class).

QoS DiffServ [<dscpno>] [<class>]

Description:
Set or show the IP Differentiated Services mapping.

[<dscpno>]: IP DSCP number, 0-63 (default: All DSCP values).
[<class>] : Internal class of service (default: Show class).

QoS Userprio [<portlist>] [<tagprio>]

Description:
Set or show the default VLAN user priority for received untagged frames.

[<portlist>]: Port list (default: All ports).
[<tagprio>] : VLAN tag user priority, 0-7 (default: Show user priority).

QoS Shaper [<portlist>] [enable|disable] [<rate>]

Description:
Set or show the shaper configuration.

[<portlist>] : Port list (default: All ports).
[enable|disable] : Enable or disable shaper.
[<rate>] : Disable or set leaky bucket rate in Kbit/s

[0k,128k,256k,384k,512k,640k,768k,896k,1024k,1152k,1280k

1408k,1536k,1664k,1792k,1920k,2048k,2176k,2304k,2432k

2560k,2688k,2816k,2944k,3072k,3200k,3328k,3456k,3584k
3712k,3840k,3968k]
(default: Show shaper rate 0k is disable).

QoS Policer [<portlist>] [disable | <rate>]

Description:
Set or show the policer configuration.

[<portlist>] : Port list (default: All ports).
[enable|disable] : Enable or disable policer.
[<rate>] : Disable or set leaky bucket rate in Kbit/s

[0k,128k,256k,384k,512k,640k,768k,896k,1024k,1152k,1280k

1408k,1536k,1664k,1792k,1920k,2048k,2176k,2304k,2432k

2560k,2688k,2816k,2944k,3072k,3200k,3328k,3456k,3584k
3712k,3840k,3968k]
(default: Show policer rate 0k is disable).

QoS Storm Control [<traffic type>] [enable|disable] [<rate>]

Description:
Set or show the storm control configuration. The allowed frame rates for ICMP frames, learn frames, multicasts, broadcasts and flooded unicasts are controlled using a central storm controller.

[<traffic type>] : Storm controller to set. Can be one of:
[ICMP|Learn|Broadcast|Multicast|Flood Unicast]
(default: Show all).
[enable|disable] : Enable or disable specified storm controller.
[<rate>] : Frame rate in kiloframes
Allowed values are 1k, 2k, 4k, 8k, 16k, 32k, 64k,

Mirror Commands

Commands at Mirror level:
Mirror Configuration
Mirror Port [<port>]
Mirror Source [<portlist>] [enable|disable]

Mirror Configuration

Description:
Show the mirror destination port and mirror mode for source ports.

Mirror Port [<port>]

Description:
Set or show the mirror destination port.

[<port>]: Mirror destination port (default: Show mirror port).

Mirror Source [<portlist>] [enable|disable]

Description:
Set or show the source port mirror mode.

[<portlist>] : Source port list (default: All ports).
[enable|disable]: Enable/disable mirroring of frames received on port (default: Show mirror mode).

IP Commands

Commands at IP level:
IP Configuration
IP Status
IP Setup [<ipaddress> [<ipmask> [<ipgateway>]]] [<vid>]
IP Mode [enable|disable]
IP Ping [-n <count>] [-w <timeout>] <ipaddress>
IP Arp
IP Dhcp [enable|disable]

IP Configuration

Description:
Show IP configured IP address, mask, gateway, VLAN ID and mode.

IP Status

Description:
Show current IP status.

IP Setup [<ipaddress> [<ipmask> [<ipgateway>]]] [<vid>]

Description:
Setup or show IP configuration.

[<ipaddress>]: IP address. (default: Show IP configuration)
[<ipmask>] : IP subnet mask (default: Subnet mask for address class).
[<ipgateway>]: Default IP gateway, (default: 0.0.0.0).
[<vid>] : VLAN ID, 1-4094 (default: 1).

IP Mode [enable|disable]

Description:
Activate or deactivate the IP configuration.

[enable|disable]: Enable/disable IP (default: Show IP mode).

IP Ping [-n <count>][-w <timeout>] <ipaddress>

Description:
Ping the specified IP address.
[-n <count>]: Number of echo requests to send (default: 1).
[-w <timeout>]: Timeout in seconds to wait for each reply (default: 2).

IP Arp

Description:
Show the content of the ARP table.

IP DHCP [enable|disable]

Description:
Activate or deactivate the DHCP protocol.

[enable|disable]: Enable/disable DHCP (default: Show DHCP mode).

Dot1x Commands

Commands at Dot1x level:
Dot1x Configuration
Dot1x Mode [enable|disable]
Dot1x State [<portlist>] [Auto|ForceAuthorized|ForceUnauthorized]
Dot1x Server [<IP Address>]
Dot1x UDP Port [<value>]
Dot1x Secret [<Shared Secret>]
Dot1x Statistics [<portlist>]
Dot1x Reauthenticate [<portlist>] [now]
Dot1x Parameters [<parameter>] [<value>]

Dot1x Configuration

Description:
Show current 802.1X configuration.

Dot1x Mode [enable|disable]

Description:
Enable or disable 802.1X process for the switch.

[enable|disable]: new mode (default: Show current configuration).

Dot1x State [<portlist>]

[Auto|ForceAuthorized|ForceUnauthorized]

Description:
Set or show the 802.1X state for the port.

[<portlist>] : Port list (default: All ports).
[Auto|ForceAuthorized|ForceUnauthorized]: Set 802.1X state for the ports.
(default: Show mode).

Dot1x Server [<IP Address>]

Description:
Set or show RADIUS server IP address.

[<IP Address>]: IP address of external RADIUS server.
(default: Show current configuration)

Dot1x UDP Port [<value>]

Description:
Set up UDP Port for the external RADIUS server.

[<value>]: The UDP port the RADIUS server listens to
(default: Show current configuration).

Dot1x Secret [<Shared Secret>]

Description:
Set or show the secret shared with the RADIUS server.

[<Shared Secret>]: Shared secret shared with external RADIUS server.
(default: Show current configuration)

Dot1x Statistics [<portlist>]

Description:
Show 802.1X statistics for the port.

[<portlist>]: Port list (default: All ports).

Dot1x Reauthenticate [<portlist>] [now]

Description:
Refresh (restart) 802.1X authentication process for the port
by setting reAuthenticate TRUE.

[<portlist>]: Port list (default: All ports).
[now]: if specified, force re-authentication immediately.

Dot1x Parameters [<parameter>] [<value>]

Description:
Set up advanced 802.1X parameters.

[<parameter>]: Parameter to change.
[<value>]: New value for the given parameter.

IGMP Commands

Commands at IGMP level:
IGMP Configuration
IGMP Status
IGMP Groups <vidlist>
IGMP Mode [enable|disable]
IGMP State <vidlist> [enable|disable]
IGMP Querier <vidlist> [enable|disable]
IGMP Router ports [<portlist>] [enable|disable]
IGMP Unregistered Flood [enable|disable]
Ratelimit Configuration

IGMP Configuration

Description:
Show the IGMP configuration.

IGMP Status

Description:
Show the IGMP operational status and statistics.

IGMP Groups <vidlist>

Description:
Show IGMP groups for given VLANs.

IGMP Mode [enable|disable]

Description:
Set or show global IGMP mode.
(default: Show current mode)

IGMP State <vidlist> [enable|disable]

Description:
Set or Show IGMP state per VLAN.
(default: Show IGMP state)

IGMP Querier <vidlist> [enable|disable]

Description:
Set or Show IGMP querier state per VLAN.
(default: Show IGMP querier state)

IGMP Router ports [<portlist>] [enable|disable]

Description:
Set or show IGMP administrative router ports.
(default: Show current router ports)

IGMP Unregistered Flood [enable|disable]

Description:
Set or show forwarding mode for unregistered (not-joined) IP multicast traffic. Will flood when enabled, and forward to router-ports only when disabled

(default: Show current mode)

Debug Commands

Commands at Debug level:
Debug Read Register <block> <subblock> <address>

Debug Read Register <block> <subblock> <address>

Description:
Read register address.

<block> : Block identifier, 0-7 or 0x0-0x7.
<subblock> : Sub block identifier: 0-15 or 0x0-0xf.
<address> : Register address within block, 0-255 or 0x00-0xff.