

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 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

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Unpacking Information

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

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

Introduction

General Description

Easily boosting your networking throughput, the 16-Ports Gigabit Web Smart Switch provides you 16 10/100/1000Mbps 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 one mini GBIC slot for your flexible fiber connection. Use of the mini-GBIC port disables the connection of its corresponding copper port automatically.

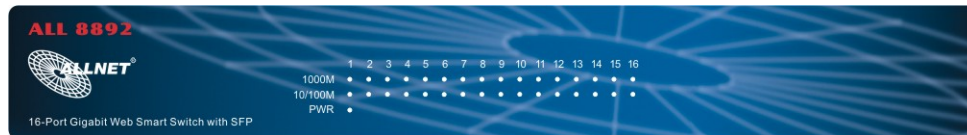
The management functionalities provide efficient network usage. VLAN reduces the collisions from widely broadcasting. Port Aggregation enlarges the bandwidth of backbone connection. QoS is supported to secure the bandwidth for some bandwidth-demanded applications including VoIP or videoconference. The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

Key Features

- 16 fixed 10/100/1000Mbps Gigabit Ethernet ports for easy network connecting application.
- Equips one SFP port for optional fiber connection.
- Provide Auto-discovery Function for easy Network management.
- Provide 8K MAC address entries and 16 groups VLAN table
- Support Port Mirror.
- Support up to 8 ports and 8 groups port aggregation.
- Support QoS for better communication quality.
- Support full duplex flow control and half duplex back pressure
- Store-and-forward forwarding scheme
- Error packet filtering
- Support Jumbo frame 9K bytes
- Supports 340K bytes buffer Memory
- Support Web-based management interface.
- FCC Class A, CE, VCCI. Meet RoHS.

The Front Panel

The front panel consists of 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.

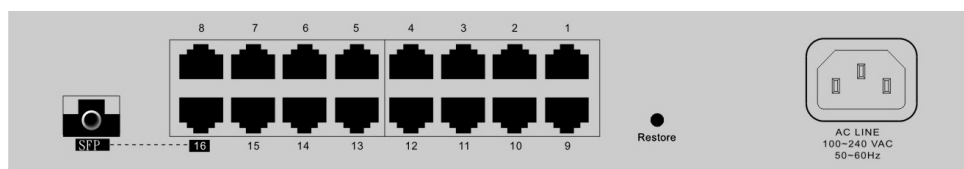
10/100M LED: Shows the link status and the activities on the port.

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 RJ-45 (copper) port.

The Rear Panel

The rear panel of the switch:



Port Operation

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

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

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 240VAC, 50/60Hz. 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 25mm 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 5eUTP/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
10/100/1000Mbps copper	10Mbps	Category 3,4,5 Utp/STP
	100Mbps	Category 5 UTP/STP
	1000Mbps	Category 5,5e UTP/STP
1000Mbps Fiber (Mini GBIC required)	1000Mbps	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 interrupts.

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 4 group and 8 members 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 Switch

This section instructs you how to enter and proceed the advanced management capability, which can be accessed by Telnet session / Internet Browser over the network (in-band).

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 user name and password to pass the authentication. The factory default value of User Name and Password is "admin".



Homepage

After authentication procedure, the "**SYSTEM Configuration**" page shows up as the Homepage. You may click the hyperlinks on the left side of each page to get access to each management functions.

The screenshot shows a web browser window titled "16 Port Gigabit Switch - Microsoft Internet Explorer". The address bar shows "http://192.168.1.1/". The main content area is titled "16 Port Gigabit Ethernet Switch" and "System Configuration". On the left, there is a navigation menu with three sections: Configuration, Monitoring, and Maintenance. The Configuration section is expanded, showing links for System, Port, VLAN, Aggregation, Quality of Service, Mirror, Rate Limit, SNMP, and Discovery. The Monitoring section shows links for Statistics Overview and Detailed Statistics. The Maintenance section shows links for Restart, Factory Default, Smart Boot, and Software Upload. The main content area contains a table with the following fields and values:

MAC Address	00-e0-7d-cc-16-88
S/W Version	v1.1
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Gateway	192.168.1.254
Management VLAN	1
User name	admin
Password	*****
Systemname	16-Giga-switch

Below the table are two buttons: "Apply" and "Refresh".

System

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

The screenshot shows a 'System Configuration' window with a purple background. It contains a table of configuration fields:

Item	Value
MAC Address	00-e0-7d-cc-16-88
S/W Version	v1.1
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Gateway	192.168.1.254
Management VLAN	1
User name	admin
Password	*****
Systemname	16-Giga-switch

At the bottom of the window are two buttons: 'Apply' and 'Refresh'.

Items	Functions
MAC Address:	The MAC address of this device..
S/W Version:	The software version of this device.
IP Address:	Setup the IP address of the switch
Subnet Mask:	Setup the Subnet Mask of the switch
Gateway:	Setup the Gateway of the switch
Management VLAN:	The VLAN group that is allowed to access the WEB-based management interface.
User Name:	The Login name. (Default: admin)
Password:	The Login password. (Default: admin)
System Name:	The name of the device.

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 and Max frame size for each port.

Port Configuration

Port	Link	Mode	Flow Control	MaxFrame
1	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
2	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
3	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
4	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
5	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
6	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
7	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
8	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
9	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
10	100FDX	Auto Speed	<input checked="" type="checkbox"/>	1518
11	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
12	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
13	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
14	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
15	Down	Auto Speed	<input checked="" type="checkbox"/>	1518
16	Down	Auto Speed	<input checked="" type="checkbox"/>	1518

Items	Functions
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.
Flow Control	Mark the checkbox to enable the FDX Flow control, or unmark to disable.
Max Frame length	To adjust the size of Jumbo Frame. The length is 1518 bytes. The Maximum value can be up to 9600 bytes.

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. Please follow the instructions to configure.

- To add new VLAN groups,
 1. Fill in a VLAN id from 2 to 4094 in the **"VLAN\Port"** column.
 2. Select the ports for each VLAN groups.
 3. Click the **"Apply"** button to execute.
- To delete a VLAN group
 1. Clear the members of this VLAN group by clicking those marked checkboxes.
 2. Clear the VLAN id of the VLAN you want to remove in the **"VLAN\Port"** column. (Don't type N/A. Just leave it blank)
 3. Click the **"Apply"** button to execute.

Port Segmentation (VLAN) Configuration

VLAN	Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
NA		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NA		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NA		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NA		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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NA		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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NA		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NA		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NA		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PVID setting Apply Refresh

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.

Items	Functions																				
Port	Port Number 1~16																				
Egress	<p>Select "tagged" in the drop list to enable the PVID checking and tag inserting of one port, and select "untagged" to cancel.</p> <p>For example, if an Egress-tagged port receives an untagged frame, it will be transmitted as a PVID tagged frame. For the detail tagging status, please refer to the following table.</p> <table><tr><th colspan="2">Untagged</th><th colspan="2">Tagged</th></tr><tr><td>Packet Frames In</td><td>Packet Frames Out</td><td>Packet Frames In</td><td>Packet Frames Out</td></tr><tr><td>Untagged</td><td>Untagged</td><td>Untagged</td><td>Tagged (PVID)</td></tr><tr><td>Tagged</td><td>Untagged</td><td>Tagged (VID)</td><td>Tagged (VID)</td></tr><tr><td>Pri-tagged</td><td>Untagged</td><td>Pri-tagged</td><td>Tagged (PVID)</td></tr></table>	Untagged		Tagged		Packet Frames In	Packet Frames Out	Packet Frames In	Packet Frames Out	Untagged	Untagged	Untagged	Tagged (PVID)	Tagged	Untagged	Tagged (VID)	Tagged (VID)	Pri-tagged	Untagged	Pri-tagged	Tagged (PVID)
Untagged		Tagged																			
Packet Frames In	Packet Frames Out	Packet Frames In	Packet Frames Out																		
Untagged	Untagged	Untagged	Tagged (PVID)																		
Tagged	Untagged	Tagged (VID)	Tagged (VID)																		
Pri-tagged	Untagged	Pri-tagged	Tagged (PVID)																		
PVID	Port VLAN ID(1~4094)																				
Only tagged	<p>Enable: block all un-tagged packets from accessing this port.</p> <p>Disable: All packets are allowed to access this port.</p>																				

PVID Configuration

Port	Egress	PVID	Only tagged
1	Untagged ▼	1	Disable ▼
2	Untagged ▼	1	Disable ▼
3	Untagged ▼	1	Disable ▼
4	Untagged ▼	1	Disable ▼
5	Untagged ▼	1	Disable ▼
6	Untagged ▼	1	Disable ▼
7	Untagged ▼	1	Disable ▼
8	Untagged ▼	1	Disable ▼
9	Untagged ▼	1	Disable ▼
10	Untagged ▼	1	Disable ▼
11	Untagged ▼	1	Disable ▼
12	Untagged ▼	1	Disable ▼
13	Untagged ▼	1	Disable ▼
14	Untagged ▼	1	Disable ▼
15	Untagged ▼	1	Disable ▼
16	Untagged ▼	1	Disable ▼

Aggregation/ Trunk Configuration

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 the "Apply" to save the setting.

There are three aggregation modes for you to setup, SMAC, DMAC, and XOR. SMAC mode selects the path of packets according to source MAC while DMAC mode selects path according to destination MAC. XOR mode calculates the result of DMAC and SMAC mode to decide the path of packets.

Aggregation/Trunking Configuration

Mode	xor															
Group\Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Normal	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Group 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group 7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group 8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Quality of Service

QoS enhances the communication quality by giving different precedence to classified packets. This switch provides port-based, tag-based and DSCP QoS modes:

QoS Configuration

Port	Mode
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	Port

Port priority

Tag priority

DSCP priority

Apply

Refresh

Port-based mode QoS:

The port-based QoS allows users to configure certain ports as high or low priority. To give priority level for each port:

1. Select **"Port"** in the **"Mode"** column for those ports that are going to perform port-based QoS. Click the **"Apply"** button.
2. Click the **"Port priority"** button. The **"Port Priority Setting"** page shows up.
3. Click on the drop list to specify priority levels.
4. Click **"Apply"** to execute.

Port priority setting

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

Apply Refresh

Tag based QoS:

The Tag based QoS decides packet priority according to the tags that adding on the packets.

To configure Tag Based QoS configuration:

1. Select **"Tagged"** in the **"Mode"** column for those ports that are going to perform tag-based QoS. Click the **"Apply"** button.
2. Click the **"Tag priority"** button. The **"Tag Priority Setting"** page shows up.
3. Select the port that you are going to configure from the drop list.
4. Give the priorities as high or low for each Priority Tag types.
5. Click the **"Apply"** button again to execute your configuration.

Tag priority setting

Port	Bit 0	Bit 1	Bit 2	Priority
Port1	0	0	0	Low
	0	0	1	Low
	0	1	0	Low
	0	1	1	Low
	1	0	0	Low
	1	0	1	Low
	1	1	0	Low
	1	1	1	Low

Apply Refresh

DSCP mode QoS:

The DSCP mode QoS gives packet priority by the types of the incoming packets. We distinguish those packets according to the "Delay", "Throughput" and "Reliability" information attaching on the packet. The types are listed as the following table:

Bit 0 (Delay)	Bit 1 (Throughput)	Bit 3 (Reliability)
0 (Normal)	0 (Normal)	0 (Normal)
1 (Low)	1 (High)	1 (High)

Note: The device distinguishes packets with DSCP precedence "000(routine)" only.

To configure DSCP Based QoS configuration:

1. Select **"DSCP"** in the **"Mode"** column for those ports that are going to perform DSCP-based QoS. Click the **"Apply"** button.
2. Click the **"DSCP priority"** button. The **"DSCP Priority Setting"** page shows up.
3. Give the priorities as high or low for each precedence types.
4. Click the **"Apply"** button again to execute your configuration.

DSCP priority setting

Bit 0	Bit 1	Bit 2	Priority
0	0	0	Low
0	0	1	Low
0	1	0	Low
0	1	1	Low
1	0	0	Low
1	0	1	Low
1	1	0	Low
1	1	1	Low

Apply Refresh

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 Port**" column.
2. Click the drop list in "**Sniffer Port**" column. Select a port as the administration port for monitoring those source ports.
3. Click "**Apply**" to activate.

The image shows a 'Mirror Configuration' window with a purple header. It contains two main sections: 'Sniffer port' and 'Monitor port'. The 'Sniffer port' section has a dropdown menu currently showing 'port1'. The 'Monitor port' section consists of a grid of 16 checkboxes, each labeled from 'port1' to 'port16'. At the bottom of the window are two buttons: 'Apply' and 'Refresh'.

Sniffer port	
port1	

Monitor port															
<input type="checkbox"/> port1	<input type="checkbox"/> port2	<input type="checkbox"/> port3	<input type="checkbox"/> port4	<input type="checkbox"/> port5	<input type="checkbox"/> port6	<input type="checkbox"/> port7	<input type="checkbox"/> port8								
<input type="checkbox"/> port9	<input type="checkbox"/> port10	<input type="checkbox"/> port11	<input type="checkbox"/> port12	<input type="checkbox"/> port13	<input type="checkbox"/> port14	<input type="checkbox"/> port15	<input type="checkbox"/> port16								

Apply Refresh

Rate Limit

This **"Rate Limit"** page allows users to configure the rules for Storm Control. You may also limit the speed of incoming and outgoing frames for each port.

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.



Rate Limit Configuration

Storm Control	
Number of frames per second	
ICMP Rate	No Limit
Broadcast Rate	No Limit
Multicast Rate	No Limit

To restrict the incoming and outgoing speed for each port:

1. Click the **"Ingress"** drop list to specify the speed of incoming frames for each port.
2. Click the **"Egress"** drop list to specify the speed of outgoing frames for each port.



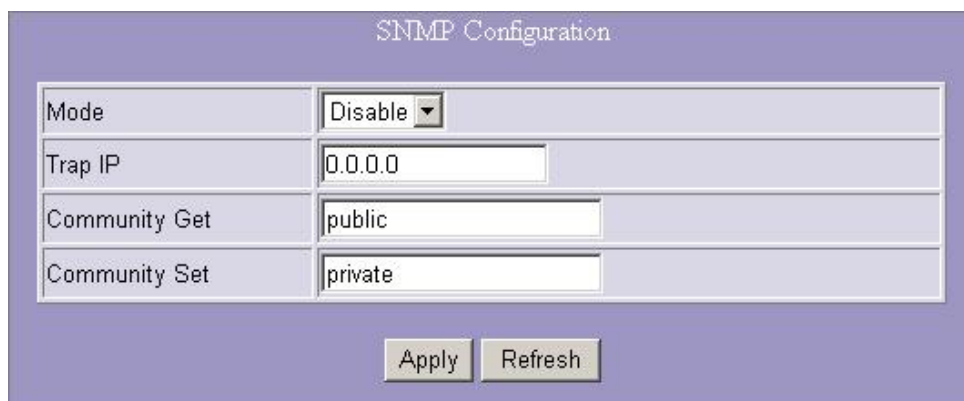
Port	Ingress	Egress
1	No Limit	No Limit
2	No Limit	No Limit
3	No Limit	No Limit
4	No Limit	No Limit
5	No Limit	No Limit
6	No Limit	No Limit
7	No Limit	No Limit
8	No Limit	No Limit
9	No Limit	No Limit
10	No Limit	No Limit
11	No Limit	No Limit
12	No Limit	No Limit
13	No Limit	No Limit
14	No Limit	No Limit
15	No Limit	No Limit
16	No Limit	No Limit

Apply Refresh

SNMP

This device supports SNMP-management, which allows network administrators to monitor and configure this device with SNMP software. To allow this device to be managed via SNMP:

1. Select **"enable"** in the drop list.
2. Specify a trap IP. A trap IP is the destination port for sending trap information, which is usually the IP address of network administrators.
3. Fill in a name in the **"Community Get"** column, which is the password for accessing MIB with read-only authority.
4. Fill in a name in the **"Community Set"** column, which is the password for accessing MIB with read and write authority.



The image shows a web-based configuration form titled "SNMP Configuration". It contains four rows of input fields. The first row is "Mode" with a dropdown menu currently showing "Disable". The second row is "Trap IP" with a text box containing "0.0.0.0". The third row is "Community Get" with a text box containing "public". The fourth row is "Community Set" with a text box containing "private". Below the input fields are two buttons: "Apply" and "Refresh".

SNMP Configuration	
Mode	Disable ▼
Trap IP	0.0.0.0
Community Get	public
Community Set	private

Apply Refresh

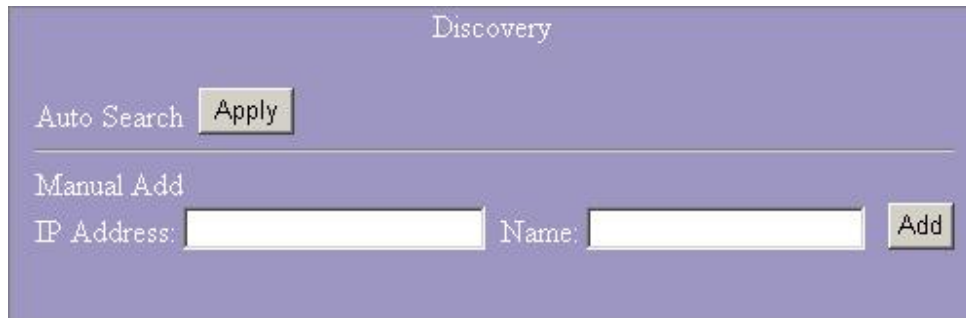
Discovery

After installing series of our switches, the discovery management tool helps users to search and get access to those switches within the LAN.

Note. The discovery tool lists the Maximum 16 devices respectively for auto and manual modes.

Auto Search

1. Click the "Apply" button to start.
2. The devices being found are listed below.
3. Click the IP address hyperlink to get access to the device.

The screenshot shows a web-based interface titled "Discovery" in a light purple header. Below the header, there are two main sections. The first section, "Auto Search", contains a single button labeled "Apply". The second section, "Manual Add", contains two input fields: "IP Address:" followed by a text box, and "Name:" followed by another text box. To the right of these fields is a button labeled "Add".

Manual Add

Add

1. Enter the IP address & name in the text box
2. Click "**Add**" to add the new IP address on the table

Delete

1. Click the check box of the one you want to remove
2. Click "**Delete**" to remove.

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						
<div>Clear Refresh</div>						
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	0	0	0	0	0	0
10	191851	406	27926576	358782	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.

Statistics for Port 1			
<div>Clear Refresh</div>			
<div>Port 1Port 2Port 3Port 4Port 5Port 6Port 7Port 8Port 9Port 10Port 11Port 12Port 13Port 14Port 15Port 16</div>			
Receive Total		Transmit Total	
Rx Packets	0	Tx Packets	0
Rx Octets	0	Tx Octets	0
Rx Broad- and Multicast	0	Tx Broad- and Multicast	0
Rx Error Packets	0	Tx Error Packets	0

Warm Restart

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.

Warm Restart

Are you sure you want to perform a Warm Restart? Yes No

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.

Factory Default

Are you sure you want to perform a Factory Default? Yes No

Smart Boot

This Smart Boot page allows users to select the booting flash of the device. **"Active image number"** shows the current flash for booting the device. To change the booting flash, click on your demanding flash in the **"Boot image number"** column and click the **"Apply"** button to execute.

Booting flash Configuration

Active image number:	Version 1.1
Boot image number:	<input checked="" type="radio"/> Auto detect <input type="radio"/> Version 1.1 <input type="radio"/> Version 1.1

Apply Refresh

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.

Note: This new firmware is going to be applied on the other flash that you select in "**Smart Boot**", that is, the new firmware is going to be applied on the flash that is **NOT** chosen as the booting flash. Please ensure that you boot this device with correct flash before performing firmware upgrade.

The image shows a web interface titled "Software Upload" in blue text on a purple background. Below the title is a white text input field. To the right of the input field is a button labeled "Browse...". Below the input field and the "Browse..." button is a button labeled "Upload".

Product Specifications

Standard	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE802.3x full-duplex operation and flow control IEEE802.3ab/z 1000BASE-T IEEE802.1Q VLAN interoperability IEEE802.1p Priority Operation
Interface	16* 10/100/1000Mbps auto MDI/MDI-X RJ-45 switching ports 1* SFP(mini-GBIC) port 1 * Restore Default Button
Cable Connections	RJ-45 (10BASE-T): Category 3,4,5 UTP/STP RJ-45 (100BASE-TX): Category 5 UTP/STP RJ-45 (1000BASE-T): Category 5,5e or enhanced UTP/STP Fiber: depend on Mini-GBIC types
Network Data Rate	10/100/1000Mbps Auto-negotiation
Transmission Mode	10/100Mbps Full-duplex, Half-duplex 1000Mbps Full-duplex
LED indications	System Power RJ-45 Port 1000M, 10/100M
Memory	8K MAC entries 340K Buffer Memory 9K Byte Jumbo Frame
Emission	FCC Class A, CE, VCCI, RoHS
Operating Temperature	0 ⁰ ~ 40 ⁰ C (32 ⁰ ~ 104 ⁰ F)
Operating Humidity	10% - 90% (non-condensing)
Power Supply	Internal power supply 100-240V/ 50-60Hz universal input