



SW24MGSFP

10/100/1000 Mbps + 2 Gb SFP

Web Smart Ethernet Switch



User Manual





Version 1.0 (January 2011)


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PACKING LIST

Before you start to install the SW24MGSFP Ethernet Switch, make sure the package contains the following items:

1. Ethernet switch	
2. Mounting hardware (2 “L” brackets and 8 screws)	
3. Four rubber feet	
4. Console cable	

5. Power cable	
6. User's manual CD	

PRODUCT OVERVIEW

Features

- Complies with IEEE802.3, IEEE802.3u and IEEE802.3ab standards
- Twenty-four 10/100/1000 Mb auto-negotiation RJ45 ports supporting Auto-MDI/MDIX
- Two 1000 Mb fiber SFP (Mini GBIC) interfaces that multiplex with RJ45 port 1 and port 2, with higher priority than RJ45 port 1 and port 2
- Supports IEEE802.3x flow control for full-duplex, backpressure flow control for half-duplex
- Up to 48 Gbps backplane bandwidth with support for non-blocking wire-speed forwarding
- Store and forward architecture and integrated 8K MAC address table
- Supports up to 24 VLAN groups for 802.1q VLAN
- Supports up to 24 trunks with up to 16 ports in a trunk
- Supports IGMP(Internet Group Management Protocol)
- Supports SNMP(v1,v2)
- Supports port bandwidth control
- Supports QoS (Quality of Service)
- Supports port-based access control (IEEE 802.1X)
- Supports source IP filter per port to block unwanted access
- Supports broadcast storm smart control
- Supports port mirror
- Support Web Smart and console manager
- Supports HTTP switch system software upgrading, configuration file, backup and reset function
- Supports circuit diagnoses
- Supports flow statistic function, dynamic display switch port receiving - transferring data package situation
- Standard 19" rack mount (1U) steel case with internal power supply

HARDWARE INSTALLATION

Location

Choose a suitable location for the rack mountable switch, considering the following requirements:

- Suitable power source
- Keep it away from heat sources and sunlight
- Keep it away from electromagnetic interference
- Allow 10 cm space above the unit for good ventilation

Installation

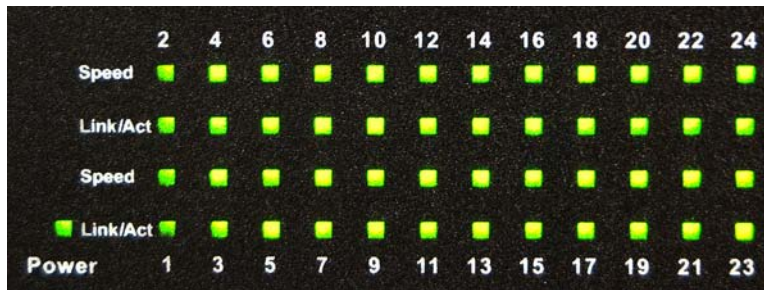
1. Remove the backing paper from the rubber feet and stick one in each of the indicated locations on the bottom of the switch.



2. Attach the “L” brackets to the front corners of the switch using the mounting screws.



3. Place the switch in a standard EIA 19" rack. Adjust the mounting brackets so the holes align with the mounting holes in the rack and fasten the switch to the rack (NOTE: screws are not provided with the switch for this purpose).
4. Plug the power cable into the socket at the rear of the switch and an appropriate power source. The switch will adjust the input voltage automatically within the input range indicated on the rear panel.
5. The switch performs a self-test (all LED indicators on the status panel flash then sweep from left to right).



When the lights turn off, the test is finished and the switch is ready for use.

6. To connect data sources, plug one end of an Ethernet cable into one of the numbered RJ45 ports of the switch and connect the other end to the source. Category 3, 4 or 5 cables can be used, however Category 5 is recommended.

Caution: Do not connect a phone line to the RJ-45 port; phone signals will damage the unit.

LED Indicators

When the power to the switch is on, the following indicators show system status:

LED	Status	Indication
Power	On	Power on
	Off	Power Off
Link/Act	On	Port connected
	Off	Port not connected
	Flashing	Data frames transmitting
Speed	On	Transmission rate 1000 Mbps
	Off	Transmission rate 10/100 Mbps

CONFIGURATION

Connection

1. Connect a standard Ethernet cable between any of the numbered ports on the switch and the Ethernet connector of the PC that will be used to configure the switch parameters.

NOTE: Do not connect the Ethernet cable to the Console port on the front of the switch. The Console port is used for a serial connection only (see Command Line Interface section).

2. Set the network configuration of the PC to any static IP address on the 192.168.2.x subnet except 192.168.2.1 and set the subnet mask to 255.255.255.0.

NOTE: The Ethernet interface of the PC used to configure the switch must be set to a static IP address on the 192.168.2.x subnet. The default IP address of the switch is 192.168.2.1.

3. Open a Web browser and enter the address <http://192.168.2.1>. The switch's login window appears.

AIR802 SW24MGSFP Web Smart Switch

Configuration

- System
- Ports
- VLANs
- Aggregation
- LACP
- RSTP
- 802.1X
- IGMP Snooping
- Mirroring
- Quality of Service
- Filter
- Rate Limit
- Storm Control

Monitoring

- Statistics Overview
- Detailed Statistics
- LACP Status
- RSTP Status
- IGMP Status
- VeriPHY
- Ping

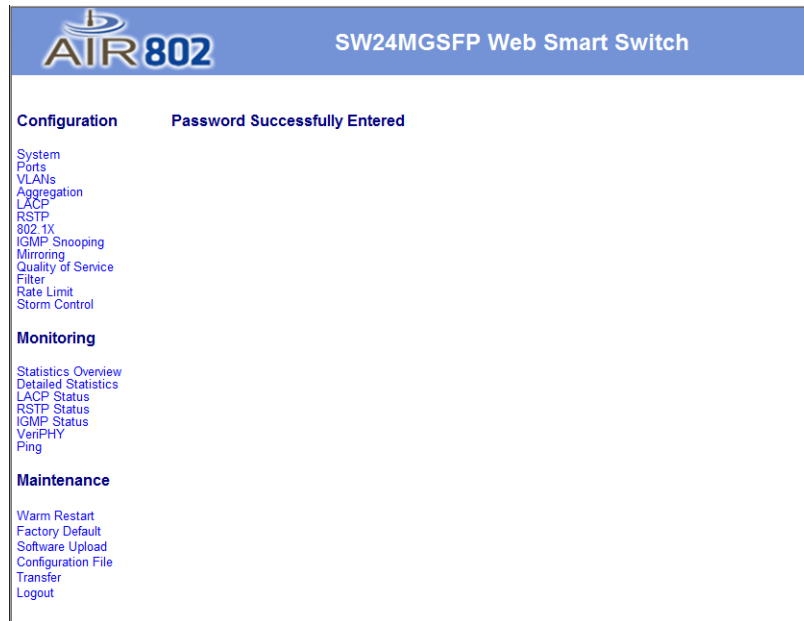
Maintenance

- Warm Restart
- Factory Default
- Software Upload
- Configuration File Transfer
- Logout

Please enter password to login

Password:


Enter the password for the switch (the default for a new switch is no password, leave the password field blank). Click **Apply**. The configuration window appears.



The system configuration options are listed in the Configuration menu at the left side of the screen. Click on a menu item to open the corresponding configuration screen.

The following sections explain these options.

System



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System Configuration

MAC Address	00-1f-35-00-fe-1e
S/W Version	SW24MGSFP Rev.A0
H/W Version	1.0
Temperature	0 °C
Active IP Address	192.168.2.1
Active Subnet Mask	255.255.255.0
Active Gateway	192.168.2.1
DHCP Server	0.0.0.0
Lease Time Left	0 secs

DHCP Enabled	<input type="checkbox"/>
Fallback IP Address	192.168.2.1
Fallback Subnet Mask	255.255.255.0
Fallback Gateway	192.168.2.1
Management VLAN	1
Name	
Password	
Inactivity Timeout (secs)	0
SNMP enabled	<input checked="" type="checkbox"/>
SNMP Trap destination	0.0.0.0
SNMP Read Community	public
SNMP Write Community	private
SNMP Trap Community	public

Apply

Refresh

This screen displays the current status of the following:

- MAC address: Display the current switch MAC address.
- Software Version: Display the switch software version.
- Hardware Version: Display the switch hardware version.
- Temperature: This item is non-functional.
- Active IP Address: 192.168.2.1 (default)
- Active Subnet Mask: 255.255.255.0 (default)
- Active Gateway: 192.168.2.1 (default)
- DHCP Server : 0.0.0.0 (default)
- Lease Time Left : 0 (default)

It also shows the current settings for the following.

- DHCP Enabled
- Fallback IP Address
- Fallback Subnet Mask
- Fallback Gateway
- Management VLAN
- Name
- Password
- Inactivity Timeout (secs)
- SNMP enabled
- SNMP Trap destination
- SNMP Read Community
- SNMP Write Community
- SNMP Trap Community

To change a setting, click the check box or enter a new value in the text box.

Ports

AIR802 SW24MGSFP Web Smart Switch

Configuration **Port Configuration**

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Enable Jumbo Frames ☐

Port	Link	Mode	Flow Control
1	1000FDX	Auto Speed	<input type="checkbox"/>
2	Down	Auto Speed	<input type="checkbox"/>
3	Down	10 Half	<input type="checkbox"/>
4	Down	10 Full	<input type="checkbox"/>
5	Down	100 Half	<input type="checkbox"/>
6	Down	100 Full	<input type="checkbox"/>
7	Down	1000 Full	<input type="checkbox"/>
8	Down	Disabled	<input type="checkbox"/>
9	Down	Auto Speed	<input type="checkbox"/>
10	Down	Auto Speed	<input type="checkbox"/>
11	Down	Auto Speed	<input type="checkbox"/>
12	Down	Auto Speed	<input type="checkbox"/>
13	Down	Auto Speed	<input type="checkbox"/>
14	Down	Auto Speed	<input type="checkbox"/>
15	Down	Auto Speed	<input type="checkbox"/>
16	Down	Auto Speed	<input type="checkbox"/>
17	Down	Auto Speed	<input type="checkbox"/>
18	Down	Auto Speed	<input type="checkbox"/>
19	Down	Auto Speed	<input type="checkbox"/>
20	Down	Auto Speed	<input type="checkbox"/>
21	Down	Auto Speed	<input type="checkbox"/>
22	Down	Auto Speed	<input type="checkbox"/>
23	Down	Auto Speed	<input type="checkbox"/>
24	Down	Auto Speed	<input type="checkbox"/>

Drop frames after excessive collisions ☐

Apply **Refresh**

The Ports screen displays the status of each input port Link (active connection with green background, port Down by red background).

To set the operating Mode for individual ports, click the arrow at the right side of the selection box and choose a setting: Auto Speed (default), 10M half-duplex, 10M full-duplex, 100M half-duplex, 100M full-duplex, 1000M full-duplex, or Disabled.

To enable or disable flow control, click the check box to enter a check mark (Enabled) or remove the check mark (Disabled).

VLAN

The screenshot shows the web interface of an AIR802 SW24MGSFP Web Smart Switch. The top header is blue with the AIR802 logo and the text "SW24MGSFP Web Smart Switch". The main content area is divided into three sections: Configuration, Monitoring, and Maintenance. The Configuration section is active and contains a "Port Segmentation (VLAN) Configuration" sub-section. This sub-section has an "Add a VLAN" section with a "VLAN ID" input field and an "Add" button. Below this is a "VLAN Configuration List" table with one row showing VLAN 1. To the right of the table are buttons for "Modify", "Delete", "Refresh", and "Port Config". The Monitoring section contains links for "Statistics Overview", "Detailed Statistics", "LACP Status", "RSTP Status", "IGMP Status", "VeriPHY", and "Ping". The Maintenance section contains links for "Warm Restart", "Factory Default", "Software Upload", "Configuration File Transfer", and "Logout".

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Rate Limit
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Port Segmentation (VLAN) Configuration

Add a VLAN

VLAN ID

Add

VLAN Configuration List

1							
---	--	--	--	--	--	--	--

Modify Delete Refresh

Port Config

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The VLAN screen allows configuration of up to 24 VLAN groups for 802.1q VLAN.

To add a VLAN, enter an ID for the group and click **Add**. Click the selection box beside each port to be added to the group to place a check mark in the box, then click **Apply**.

To **Modify**, **Delete**, or **Refresh** a group, click the button below the group and then click the button for the required action.

To configure individual VLAN ports, click **Port Config**.


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VLAN Per Port Configuration

Port	VLAN aware Enabled	Ingress Filtering Enabled	Packet Type	Pvid
Port 1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 8	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 10	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 11	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 12	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 13	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 14	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 15	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 16	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 17	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 18	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 19	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 20	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 21	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 22	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 23	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼
Port 24	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/> All <input type="radio"/> Tagged Only	1 ▼

Aggregation



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Configuration File

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Aggregation/Trunking Configuration

Group\Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Normal	<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"/>	<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"/>
Group 1	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 2	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 3	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 4	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 5	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 6	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 7	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 8	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Apply


Refresh

Link aggregation or “trunking” allows use of multiple network ports in parallel to increase the link speed beyond the limits of a single port and increases redundancy for higher availability.

To create a trunk group, click the button corresponding to each port to be added to the group, then click **Apply**.

NOTE: A trunk group cannot span the VLAN; all the trunk members must be in the same VLAN. Two trunk groups cannot be connected together and two switches cannot be connected by two trunk passages. These will make the network cycle and stop the network.

LACP



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LACP Port Configuration

Port	Protocol Enabled	Key Value
1	<input type="checkbox"/>	auto
2	<input type="checkbox"/>	auto
3	<input type="checkbox"/>	auto
4	<input type="checkbox"/>	auto
5	<input type="checkbox"/>	auto
6	<input type="checkbox"/>	auto
7	<input type="checkbox"/>	auto
8	<input type="checkbox"/>	auto
9	<input type="checkbox"/>	auto
10	<input type="checkbox"/>	auto
11	<input type="checkbox"/>	auto
12	<input type="checkbox"/>	auto
13	<input type="checkbox"/>	auto
14	<input type="checkbox"/>	auto
15	<input type="checkbox"/>	auto
16	<input type="checkbox"/>	auto
17	<input type="checkbox"/>	auto
18	<input type="checkbox"/>	auto
19	<input type="checkbox"/>	auto
20	<input type="checkbox"/>	auto
21	<input type="checkbox"/>	auto
22	<input type="checkbox"/>	auto
23	<input type="checkbox"/>	auto
24	<input type="checkbox"/>	auto


Apply

Refresh

LACP (IEEE 802.3ad Link Aggregation Control Protocol) allows automatic aggregation between switches. It negotiates automatic bundling of links by sending LACP packets to the peer.

Click the check box beside each port to be enabled for LACP to place a check mark in the box, then click **Apply**. To disable LACP, click check boxes to remove the check mark, then click **Apply**.

RSTP

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RSTP System Configuration

System Priority

32768

Hello Time

2

Max Age

20

Forward Delay

15

Force version

Normal

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RSTP Port Configuration

Port	Protocol Enabled	Edge	Path Cost
Aggregations	<input type="checkbox"/>		
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
11	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
12	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
13	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
14	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
15	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
16	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
17	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
18	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
19	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
20	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
21	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
22	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
23	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto


Apply

Refresh

RSTP (Rapid Spanning Tree Protocol) is a network protocol that prevents bridge loops in the network and creates spare (redundant) links to provide automatic backup paths if an active link fails, without the danger of bridge loops or the need for manual enabling/disabling of these backup links.

If a port is operating in half-duplex mode and is not connected to any further bridges participating in STP or RSTP, then the port is an edge port. Click the check box to add a check mark.

802.1x



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802.1X Configuration

Mode:

RADIUS IP:

RADIUS UDP Port:

RADIUS Secret:

Port	Admin State	Port State			
1	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
2	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
3	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
4	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
5	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
6	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
7	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
8	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
9	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
10	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
11	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
12	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
13	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
14	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
15	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
16	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
17	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
18	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
19	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
20	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
21	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
22	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
23	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
24	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
			Re-authenticate All	Force Reinitialize All	


Parameters

Apply

Refresh

This screen displays and allows configuration of 802.1X processes for each port of the switch.

IGMP Snooping



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IGMP Configuration

IGMP Enabled

☐

Router Ports

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐
9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐
17 ☐ 18 ☐ 19 ☐ 20 ☐ 21 ☐ 22 ☐ 23 ☐ 24 ☐

Unregistered IPMC Flooding enabled

☒

VLAN ID	IGMP Snooping Enabled	IGMP Querying Enabled
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Apply

Refresh

IGMP snooping is the process of listening to Internet Group Management Protocol (IGMP) network traffic in order to prune multicast traffic from links that do not contain a multicast listener (an IGMP client), preventing unnecessary load on host devices.

When enabled, IGMP snooping will function in each statically defined VLAN (i.e., VLANs stored in non-volatile configuration memory). The IGMP snooping module listens to IP multicast router IGMP queries and IGMP reports from hosts, and updates the switch device MAC table with IP multicast group MAC addresses and port masks according to the received reports. If no IP multicast router is present in an IGMP enabled VLAN, the switch will perform the querying itself in that particular VLAN.

The switch querying functionality can be enabled and disabled per VLAN. The switch must be setup for IP management in order for the querying to work.

Mirroring



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Mirroring Configuration

Port	Mirror Source
1	<input type="checkbox"/>
2	<input type="checkbox"/>
3	<input type="checkbox"/>
4	<input type="checkbox"/>
5	<input type="checkbox"/>
6	<input type="checkbox"/>
7	<input type="checkbox"/>
8	<input type="checkbox"/>
9	<input type="checkbox"/>
10	<input type="checkbox"/>
11	<input type="checkbox"/>
12	<input type="checkbox"/>
13	<input type="checkbox"/>
14	<input type="checkbox"/>
15	<input type="checkbox"/>
16	<input type="checkbox"/>
17	<input type="checkbox"/>
18	<input type="checkbox"/>
19	<input type="checkbox"/>
20	<input type="checkbox"/>
21	<input type="checkbox"/>
22	<input type="checkbox"/>
23	<input type="checkbox"/>
24	<input type="checkbox"/>

Mirror Port

1

Apply

Refresh

Port mirroring sends a copy of network packets seen on one switch port to a network monitoring connection on another switch port. This is commonly used for network appliances that require monitoring of network traffic, such as an intrusion-detection system.

Monitor port bandwidth should be greater than or equal to the monitored port bandwidth.

Quality of Service

The screenshot shows the 'QoS Configuration' page for the AIR802 SW24MGSFP Web Smart Switch. The 'QoS Mode' is set to '802.1p' and 'Prioritize Traffic' is set to 'Custom'. The '802.1p Configuration' table is displayed with 8 rows, each with a value and a priority.

802.1p Value	Priority	802.1p Value	Priority	802.1p Value	Priority	802.1p Value	Priority
0	normal	1	low	2	low	3	normal
4	medium	5	medium	6	high	7	high

Buttons: APPLY, CANCEL

The screenshot shows the 'QoS Configuration' page for the AIR802 SW24MGSFP Web Smart Switch. The 'QoS Mode' is set to 'DSCP' and 'Prioritize Traffic' is set to 'Custom'. The 'DSCP Configuration' table is displayed with 8 rows, each with a DSCP value and a priority.


DSCP Value(0..63)	Priority
All others	

Buttons: APPLY, CANCEL

Quality of Service (QoS) allows prioritization of network traffic elements to guarantee the bandwidth relationship between individual applications or protocols.

Select either **802.1p** or **DSCP** (Differentiated Services Code Point) mode from the QoS Mode drop-down box, enter settings as required, then click **APPLY**.

Filter



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Filter Configuration

Port	Mode	Source IP Filter		DHCP Server Allowed
		IP Address	IP Mask	
1	Static	0.0.0.0	0.0.0.0	<input checked="" type="checkbox"/>
2	Disabled			<input checked="" type="checkbox"/>
3	Static			<input checked="" type="checkbox"/>
4	DHCP			<input checked="" type="checkbox"/>
5	Disabled			<input checked="" type="checkbox"/>
6	Disabled			<input checked="" type="checkbox"/>
7	Disabled			<input checked="" type="checkbox"/>
8	Disabled			<input checked="" type="checkbox"/>
9	Disabled			<input checked="" type="checkbox"/>
10	Disabled			<input checked="" type="checkbox"/>
11	Disabled			<input checked="" type="checkbox"/>
12	Disabled			<input checked="" type="checkbox"/>
13	Disabled			<input checked="" type="checkbox"/>
14	Disabled			<input checked="" type="checkbox"/>
15	Disabled			<input checked="" type="checkbox"/>
16	Disabled			<input checked="" type="checkbox"/>
17	Disabled			<input checked="" type="checkbox"/>
18	Disabled			<input checked="" type="checkbox"/>
19	Disabled			<input checked="" type="checkbox"/>
20	Disabled			<input checked="" type="checkbox"/>
21	Disabled			<input checked="" type="checkbox"/>
22	Disabled			<input checked="" type="checkbox"/>
23	Disabled			<input checked="" type="checkbox"/>
24	Disabled			<input checked="" type="checkbox"/>

Filter lets you set a Source IP filter for any port to block unwanted access. Select either Static or DHCP Mode from the drop-down box. If you select Static Mode, enter the IP Address and IP Mask in the appropriate areas.

Rate Limit



SW24MGSFP Web Smart Switch

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Rate Limit Configuration

Port	Policer	Shaper
1	3968 kbps	No Limit
2	384 kbps	No Limit
3	512 kbps	No Limit
4	640 kbps	No Limit
5	768 kbps	No Limit
6	896 kbps	No Limit
7	1024 kbps	No Limit
8	1152 kbps	No Limit
9	1280 kbps	No Limit
10	1408 kbps	No Limit
11	1536 kbps	No Limit
12	1664 kbps	No Limit
13	1792 kbps	No Limit
14	1920 kbps	No Limit
15	2048 kbps	No Limit
16	2176 kbps	No Limit
17	2304 kbps	No Limit
18	2432 kbps	No Limit
19	2560 kbps	No Limit
20	2688 kbps	No Limit
21	2816 kbps	No Limit
22	2944 kbps	No Limit
23	3072 kbps	No Limit
24	3200 kbps	No Limit
25	3328 kbps	No Limit
26	3456 kbps	No Limit
27	3584 kbps	No Limit
28	3712 kbps	No Limit
29	3840 kbps	No Limit
30	3968 kbps	No Limit
31	No Limit	No Limit
32	No Limit	No Limit
33	No Limit	No Limit
34	No Limit	No Limit
35	No Limit	No Limit
36	No Limit	No Limit
37	No Limit	No Limit
38	No Limit	No Limit
39	No Limit	No Limit
40	No Limit	No Limit
41	No Limit	No Limit
42	No Limit	No Limit
43	No Limit	No Limit
44	No Limit	No Limit
45	No Limit	No Limit
46	No Limit	No Limit
47	No Limit	No Limit
48	No Limit	No Limit
49	No Limit	No Limit
50	No Limit	No Limit
51	No Limit	No Limit
52	No Limit	No Limit
53	No Limit	No Limit
54	No Limit	No Limit
55	No Limit	No Limit
56	No Limit	No Limit
57	No Limit	No Limit
58	No Limit	No Limit
59	No Limit	No Limit
60	No Limit	No Limit
61	No Limit	No Limit
62	No Limit	No Limit
63	No Limit	No Limit
64	No Limit	No Limit
65	No Limit	No Limit
66	No Limit	No Limit
67	No Limit	No Limit
68	No Limit	No Limit
69	No Limit	No Limit
70	No Limit	No Limit
71	No Limit	No Limit
72	No Limit	No Limit
73	No Limit	No Limit
74	No Limit	No Limit
75	No Limit	No Limit
76	No Limit	No Limit
77	No Limit	No Limit
78	No Limit	No Limit
79	No Limit	No Limit
80	No Limit	No Limit
81	No Limit	No Limit
82	No Limit	No Limit
83	No Limit	No Limit
84	No Limit	No Limit
85	No Limit	No Limit
86	No Limit	No Limit
87	No Limit	No Limit
88	No Limit	No Limit
89	No Limit	No Limit
90	No Limit	No Limit
91	No Limit	No Limit
92	No Limit	No Limit
93	No Limit	No Limit
94	No Limit	No Limit
95	No Limit	No Limit
96	No Limit	No Limit
97	No Limit	No Limit
98	No Limit	No Limit
99	No Limit	No Limit
100	No Limit	No Limit

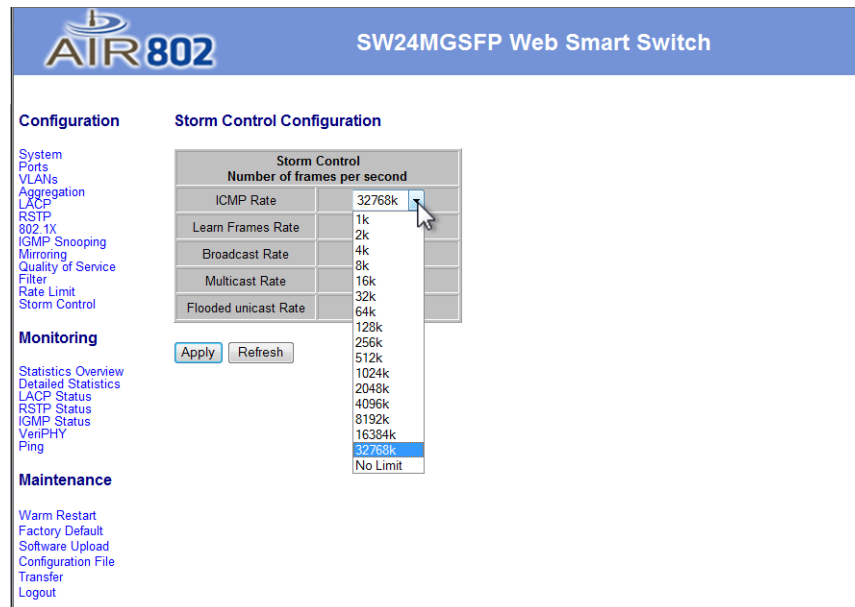
Apply

Refresh

Rate limits are used to control the transmit rate at which traffic enters and exits the switch ports to prevent ports from occupying too much bandwidth.

Select **Policer** and **Shaper** rates from 128 kbps to 3968 kbps for each port and then click **Apply**.

Storm Control



Storm control prevents the network from being disrupted by a “broadcast storm”, which occurs when broadcast packets flood the subnet, creating excessive traffic and degrading network performance. You can configure storm control to rate limit broadcast traffic and unknown unicast traffic at a specified level and to drop packets when the specified traffic level is exceeded.

Select each rate from the drop-down list and then click **Apply**.

Notes:

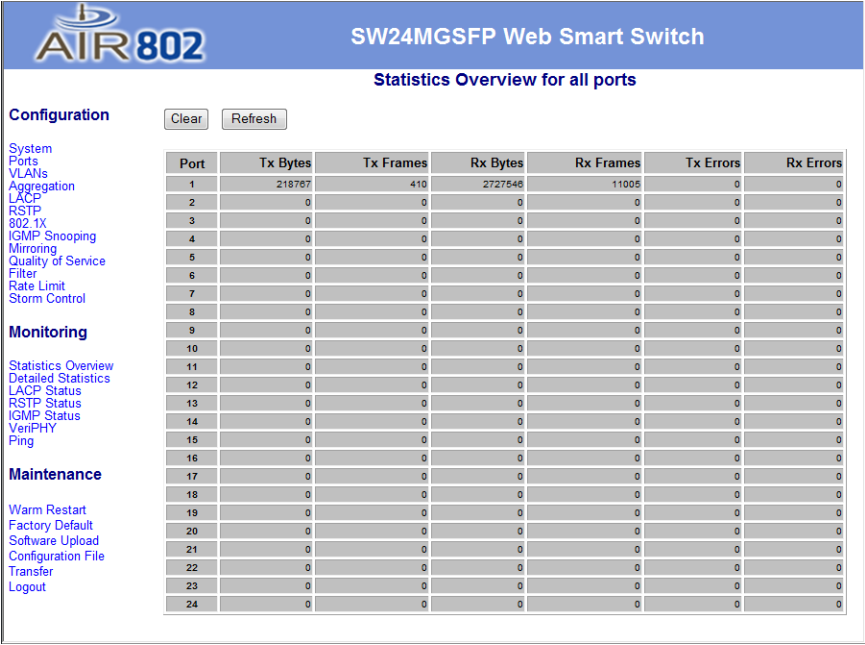
- ICMP (Internet Control Message Protocol) carries network status information. Example is the “ping” utility that probes remote hosts.
- Broadcast packets are sent to all network hosts.
- Multicast packets are sent to a group of hosts.
- Unicast packets are sent to one host.

Monitoring

The system monitoring options are listed in the Monitoring menu at the left side of the screen. Click on a menu item to open the corresponding monitoring screen.

The following sections explain these options.


Statistics Overview



AIR802		SW24MGSFP Web Smart Switch				
Statistics Overview for all ports						
Configuration <input type="button" value="Clear"/> <input type="button" value="Refresh"/>						
Port	Tx Bytes	Tx Frames	Rx Bytes	Rx Frames	Tx Errors	Rx Errors
1	218787	410	2727548	11005	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	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
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0

The Statistics screen displays transmit (Tx) and receive (Rx) information for all ports, including Bytes, Frames and Errors.

Detailed Statistics



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Clear

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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 17

Port 18

Port 19

Port 20

Port 21

Port 22

Port 23

Port 24

Receive Total		Transmit Total	
Rx Packets	11236	Tx Packets	424
Rx Octets	2787462	Tx Octets	222809
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	10678	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/Alignment	-	Tx Collisions	-
Rx Undersize	-	Tx Drops	-
Rx Oversize	-	Tx Overflow	-
Rx Fragments	-		
Rx Jabber	-		
Rx Drops	-		

The Detailed Statistics screen display detailed transmit and receive information for a specific port.

Click on a port number at the top of the screen to view the information for that port.

LACP

AIR802

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LACP Aggregation Overview

Group/Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Normal																								

Legend

Down

Port link down

Blocked

Port Blocked by RSTP. Number is Partner port number if other switch has LACP enabled

Learning

Port Learning by RSTP

Forwarding

Port link up and forwarding frames

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		

The Link Aggregation Control Protocol (LACP) screen displays the status of aggregated ports.

RSTP Status



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RSTP VLAN Bridge Overview

VLAN Id	Bridge Id	Hello Time	Max Age	Fwd Delay	Topology	Root Id
1	32769-00-1f-35-00-fe-1f	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	1	20000	yes	yes	RSTP	Forwarding
Port 2						Disabled
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
Port 17						Non-STP
Port 18						Non-STP
Port 19						Non-STP
Port 20						Non-STP
Port 21						Non-STP
Port 22						Non-STP
Port 23						Non-STP
Port 24						Non-STP

The RSTP (Rapid Spanning Tree Protocol) screen displays the status of RSTP ports.

IGMP Status



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IGMP Status

VLAN ID	Querier	Queries transmitted	Queries received	v1 Reports	v2 Reports	v3 Reports	v2 Leaves
1	Idle	0	0	0	0	0	0

Refresh

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The IGMP Status screen displays details of Internet Group Management Protocol (IGMP) network traffic.

VeriPHY



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VeriPHY Cable Diagnostics

Port

Port 1

Mode

Full

Apply

Cable Status

Pair	Length [m]	Status
A	5	Proper
B	5	Proper
C	5	Proper
D	5	Proper

VeriPHY determines the characteristics of the Ethernet cable attached to any port of the switch. It calculates the cable length and provides status information such as cable termination mismatch, including short and open states; identification of improperly terminated cable pairs, and coupling between cable pairs.

Select a port from the drop-down menu at the top of the screen and click **Apply**.

Ping

The screenshot shows the web interface of an AIR802 SW24MGSFP Web Smart Switch. The interface is divided into three main sections: Configuration, Ping Parameters, and Monitoring.

Configuration: A list of links including System, Ports, VLANs, Aggregation, LACP, RSTP, 802.1X, IGMP Snooping, Mirroring, Quality of Service, Filter, Rate Limit, and Storm Control.

Ping Parameters: A form with the following fields:

- Target IP address:
- Count:
- Time Out (in secs):

Below the form is an **Apply** button.

Monitoring: A list of links including Statistics Overview, Detailed Statistics, LACP Status, RSTP Status, IGMP Status, VeriPHY, and Ping.

Ping Results: A table showing the results of the ping test:

Ping Results	
Target IP address	192.168.2.3
Status	Test starting...
Received replies	0
Request timeouts	0
Average Response Time (in ms)	0

Below the table is a **Refresh** button.

Maintenance: A list of links including Warm Restart, Factory Default, Software Upload, Configuration File, Transfer, and Logout.

Ping is a network administration utility used to test the reachability of a network host and measure the round-trip time for messages sent from the switch to the destination computer.

Enter a Target IP address and click **Apply**.

Maintenance

The system maintenance options are listed in the Maintenance menu at the left side of the screen. Click on a menu item to open the corresponding maintenance screen.

The following sections explain these options.

Warm Restart



A warm restart (or “soft reboot”) restarts the switch under software control, without removing power.

Click **Yes** to restart the switch.

Factory Default



The Factory Default screen lets you restore the switch configuration to the factory default settings.

Click **Yes** to return the switch to factory default settings.

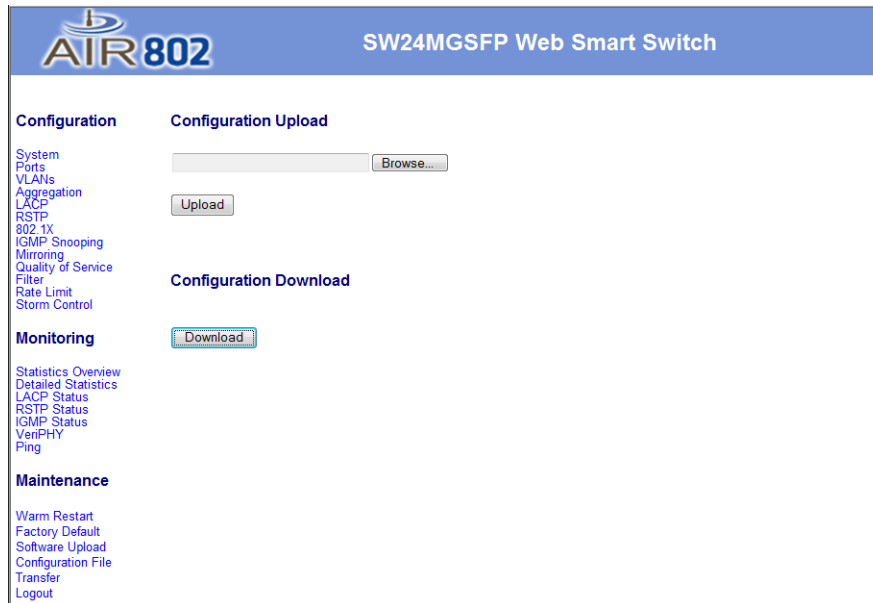
Software Upload

The screenshot shows the web interface of an AIR802 SW24MGSFP Web Smart Switch. The header is blue with the AIR802 logo on the left and the text 'SW24MGSFP Web Smart Switch' on the right. The main content area is white and divided into three sections: Configuration, Software Upload, and Monitoring. The Configuration section on the left lists various settings like System, Ports, VLANs, Aggregation, LACP, RSTP, 802.1X, IGMP Snooping, Mirroring, Quality of Service, Filter, Rate Limit, and Storm Control. The Software Upload section in the center has a text input field with a 'Browse...' button next to it and an 'Upload' button below it. The Monitoring section on the left lists various status pages like Statistics Overview, Detailed Statistics, LACP Status, RSTP Status, IGMP Status, VeriPHY, and Ping. The Maintenance section at the bottom left lists Warm Restart, Factory Default, Software Upload, Configuration File Transfer, and Logout.

From time to time, updated operating software for you switch may be issued. This software is installed from the Software Upload screen.

Enter the location of the software to be loaded or click **Browse** to navigate to the software location, then click **Upload**.

Configuration File



A configuration file can be used to automatically configure a series of switches with the same settings or restore switch settings when a switch has been replaced.

To upload a saved configuration file, enter the location of the software to be loaded or click **Browse** to navigate to the software location, then click **Upload**.

To save a configuration file, click **Download**. In the pop-up box that appears, click **Save**, navigate to the location where you want to save the file, and click **Save**.

Logout

Click **Logout** to exit the switch software and return to the Login screen.

Command Line Interface

Connection

To use the CLI (Command Line Interface), you require a PC with RS-232 (serial) port; a terminal program such as WinRS (included with Windows 7 and Windows Vista), HyperTerminal (included with Windows XP), or a Telnet program such as PuTTY; and the Console Cable included with the switch. The COM port must be configured for 8 data bits, 1 stop bit, no parity, 115200 baud and no flow control.

Connect the Console Cable between the RS-232 (serial) port of the PC and the Console connector on the front of the switch, then open the terminal program on the PC.

Command Hierarchy

The CLI is hierarchical with two levels: the top level and a group level. The group level consists of the following groups: System, Console, Port, MAC, VLAN, Aggregation, LACP, RSTP, User Group, QoS, Mirror, IP, Dot1X, Debug.

At the top level you can execute a command by entering the full command string, including group, or you may change context to a group by entering the name of the group.

At group level you can enter commands for the particular group you have chosen without specifying the group name or return to the top level by entering the **up** command.

The current level and group is indicated by the prompt. If you are at the top level, the prompt is ">". If you are at group level, the prompt displays the actual group, e.g., "System>".

At group level you also have the option of using the slash (/) key to refer to a context relative to the top level, e.g., from the System group you can enter /console to enter the Console group.

Login/Logout Procedures

The CLI login procedure includes a password check, however the factory default for the password is an empty string, which disables the check. Therefore, when the terminal program connects to the switch, you can immediately begin entering commands.

To enable the password check, from the Console level enter

Console Password [<password>]

The next time a terminal program attempts to logon to the switch, the password will be required.

To disable the password check, change the password to an empty string, i.e., from the Console level enter

Console Password “”

To logout from the switch, enter **exit** from any level.

Help Utility

At any time while using the CLI you can get help information by pressing the ? key or entering “help”. The help information displayed depends on the context:

At top level, a list of command groups is displayed.

At group level, a list of the command syntaxes for the current group is displayed.

If the help command is issued for a specific command, the command syntax and a description of the command are shown.

Example 1 — commands at the top level:

> ? <enter> returns

System	– System commands
Console	– Console commands
Port	– Port commands
MAC	– MAC table commands
VLAN	– VLAN commands
Aggregation	– Aggregation/Trunking commands
LAC	– IEEE802.3ad Link aggregation commands
RSTP	– IEEE802.1w Rapid Spanning Tree commands
User Group	– User Group commands
QoS	– QoS commands/
Mirror	– Mirror commands
IP	– IP commands
Dot1x	– Dot1x commands
Debug	– Debug commands

Example 2 — commands at the Console level:

```
> console <enter>
> ? <enter> returns
Console Configuration
Console Password [<password>]
Console Timeout [<timeout>]
Console Prompt [<prompt string>]
```

Example 3 — command syntax:

```
> console <enter>
> password ? <enter> returns
```

Syntax:
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.

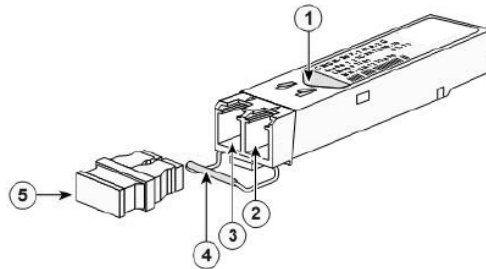
SFP Transceivers

Slots SFP1 and SFP2 on the front of the switch accept SFP (small form-factor pluggable) or Mini-GBIC transceivers that can be used to interface the switch to fiber optic networking cable for gigabit single/multi-mode transmission over distances to 80 km.

Supported optical transceivers include:

SFP-GIG-SX	Gigabit Ethernet optical transceiver (supports 850nm wavelength multi-mode, LC connector). Up to 550 meters through 50/125 μm multi-mode fiber, and up to 275 meters through 62.5/125 μm multi-mode fiber.
SFP-GIG-LX	Gigabit Ethernet optical transceiver(LC connector). Up to 10 km through 1310 nm wavelength single-mode fiber.
SFP-GIG-LH40	Gigabit Ethernet optical transceiver (LC connector). Up to 40 km through 1310 nm wavelength single-mode fiber.
SFP-GIG-LH80	Gigabit Ethernet optical transceiver (LC connector). Up to 80 km through 1550 nm wavelength single-mode fiber.

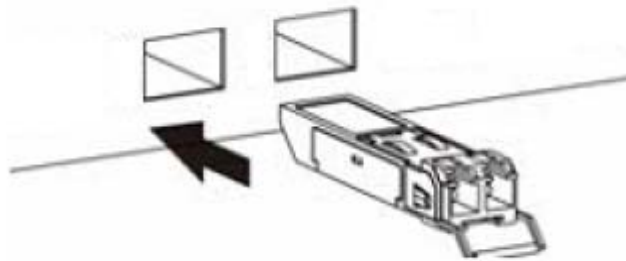
SFP Module Components



1. Specification label
2. Incoming optical signal jack
3. Outgoing optical signal jack
4. Bale-clasp latch
5. Dust plug

SFP Module Installation

1. Remove the module's packaging and the dust plug.
2. Grasp the module between your thumb and index finger, and carefully slide it into one of the SFP slots.



3. Remove the rubber caps from the incoming (Rx) and outgoing (Tx) optical signal cables and insert each cable into the corresponding module connector until it locks into place.

Cautions regarding optical connections:

For maximum transmission distance and to avoid possible damage, only connect fiber optic cables that meet the specifications shown on the specification label.

To avoid contamination, do not touch the optical surfaces.

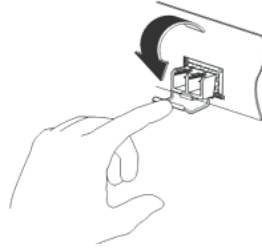
To avoid possible eye damage, do not look directly into an optical interface.

Do not excessively bend optical cables.

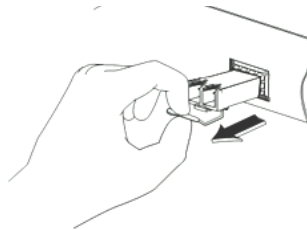
If necessary, clean the fiber-optic connectors using standard procedures.

SFP Module Removal

1. Press the locking tabs on each optical signal cable and remove the cable from the module. Place rubber caps on the connectors to protect them from contamination.
2. Pull the bale-clasp latch out and down to eject the module.



3. Grasp the module between your thumb and index finger, and carefully remove it from the module slot.



4. Place the removed module in an antistatic bag or other protective environment.

Cautions regarding optical connections:

To avoid contamination, do not touch the optical surfaces.

To avoid possible eye damage, do not look directly into an optical interface.

Do not excessively bend optical cables.

If necessary, clean the fiber-optic connectors using standard procedures.

