LINKSYS®
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USER GUIDE

BUSINESS SERIES

WebView Switches

Model: SRW2048, SRW2024, SRW2016, SRW248G4, SRW224G4

About This Guide

Icon Descriptions

While reading through the User Guide you may see various icons that call attention to specific items. Below is a description of these icons:

✓ **NOTE:** This check mark indicates that there is a note of interest and is something that you should pay special attention to while using the product.

⚠ **WARNING:** This exclamation point indicates that there is a caution or warning and it is something that could damage your property or product.

WEB: This globe icon indicates a noteworthy website address or e-mail address.

Online Resources

Website addresses in this document are listed without **http://** in front of the address because most current web browsers do not require it. If you use an older web browser, you may have to add **http://** in front of the web address.

Resource	Website
Linksys	www.linksys.com
Linksys International	www.linksys.com/international
Glossary	www.linksys.com/glossary
Network Security	www.linksys.com/security

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Chapter 1: Introduction

Thank you for choosing Linksys WebView Switches. This User Guide covers five product models:

- **SRW2048** 48-port 10/100/1000 Gigabit Switch with WebView. Includes 48 10/100/1000 RJ-45 ports and 4 shared SFP (MiniGBIC) slots.
- **SRW2024** 24-Port 10/100/1000 Gigabit Switch with WebView. Includes 24 10/100/1000 RJ-45 ports and 2 shared SFP (MiniGBIC) slots.
- **SRW2016** 16-Port 10/100/1000 Gigabit Switch with WebView. Includes 16 10/100/1000 RJ-45 ports and 2 shared SFP (MiniGBIC) slots.
- **SRW248G4** 48-port 10/100 + 4-Port Gigabit Switch with WebView. Includes 48 10/100 RJ-45 ports and 4 10/100/1000 RJ-45 ports and 2 shared SFP (MiniGBIC) slots.
- **SRW224G4** 24-port 10/100 + 4-Port Gigabit Switch with WebView Includes 24 10/100 RJ-45 ports and 4 10/100/1000 RJ-45 ports and 2 shared SFP (MiniGBIC) slots.

For the purpose of this manual, whenever a feature applies to all models, the name WebView Switch will be referenced. If a specific model number is mentioned, then the feature is specific to that model.

The Linksys WebView Managed Switch allows you to expand your network securely. Configuration of the switch is secured using SSL for Web access. User control is secured using 802.1x security using a RADIUS authentication mechanism and can also be controlled using MAC-based filtering.

Extensive QoS features makes the solution ideal for real-time applications like Voice and Video. The 4 priority queues together with the Weighted Round Robin and Strict Priority scheduling techniques facilitate efficient coexistence of real-time traffic with data traffic allowing them each to meet their QoS needs.

Individual users or applications can be prioritized above others using various Class of Service options - by port, layer 2 priority (802.1p), and Layer 3 priority (TOS or DSCP). Intelligent Broadcast, and Multicast storm control minimizes and contain the effect of these types of traffic on regular traffic. IGMP Snooping limits bandwidth-intensive video traffic to only the requestors without flooding to all users.

Incoming traffic can be policed and outgoing traffic can be shaped allowing you to control network access and traffic flow.

There are features that allow you to expand and grow your network of switches. Link aggregation allows multiple high-bandwidth trunks between switches to be setup.

This also provides a level of reliability in that the system continues to operate if one of the links break. Spanning Tree (STP), Fast Linkover, Rapid Spanning Tree (RSTP) and Multiple Spanning Tree (MSTP) allows you to build a mesh of switches increasing the availability of the system.

The rich management functionality of the WebView switches includes SNMP, RMON, Telnet, and HTTP Management options, allowing you to flexibly integrate and manage these devices in your network.

Chapter 2: Product Overview

SRW2048

Front Panel

The Switch's LEDs and ports are located on the front panel.

Front Panel of the SRW2048

LEDs

POWER (Green) Lights up green to indicate that power is being supplied to the Switch.

LINK/ACT (1-48) (Green/Amber) Lights up green to indicate a functional 10/100-Mbps network link through the corresponding port (1 through 48) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port. Lights up amber to indicate a 1000-Mbps connection on the corresponding port (1 through 48) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port.

ETHERNET 1-48 The Switch is equipped with 48 auto-sensing, Ethernet network ports, which use RJ-45 connectors. The Fast Ethernet ports support network speeds of 10 Mbps, 100 Mbps, or 1000 Mbps. They can operate in half and full-duplex modes. Auto-sensing technology enables each port to automatically detect the speed of the device connected to it (10 Mbps, 100 Mbps, or 1000 Mbps), and adjust its speed and duplex accordingly.

MiniGBIC (1-4) The miniGBIC (gigabit interface converter) port is a connection point for a miniGBIC expansion module, so the Switch can be uplinked via fiber to another switch. The MiniGBIC port provides a link to a high-speed network segment or individual workstation at speeds of up to 1000 Mbps.

Use the Linksys MGBT1, MGBSX1, or MGBLH1 miniGBIC modules with the Switch. The MGBSX1 and the MGBLH1 require fiber cabling with LC connectors, while the MGBT1 requires a Category 5e Ethernet cable with an RJ-45 connector.

NOTE: On the SRW2048, MiniGBIC ports are shared with standard ports. If a miniGBIC port is used, then the shared standard port on the Switch cannot be used. The following table provides port mapping details of the SRW2048 Switch.

SRW2048 Shared Port Mapping

miniGBIC Port	Standard Port
miniGBIC 1	Port 23
miniGBIC 2	Port 24
miniGBIC 3	Port 47
miniGBIC 4	Port 48

Back Panel

The power port is located on the back panel of the Switch.

Back Panel of the SRW2048

POWER The Power port is where you will connect the AC power.

CONSOLE The Switch is equipped with a serial port labeled Console (located on the back of the switch) that allows you to connect to a computer's serial port (for configuration purposes) using the provided serial cable. You can use HyperTerminal to manage the Switch using the console port.

Refer to *Chapter 4: Configuration Using the Console Interface* for more information.

NOTE: If you need to reset the Switch, unplug the power cord from the back of the Switch. Wait a few seconds and then reconnect it.

SRW2024

Front Panel

The Switch's LEDs and ports are located on the front panel.

Front Panel of the SRW2024

LEDs

POWER (Green) Lights up green to indicate that power is being supplied to the Switch.

LINK/ACT (1-24) (Green/Amber) Lights up green to indicate a functional 10/100-Mbps network link through the corresponding port (1 through 24) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port. Lights up amber to indicate a 1000-Mbps connection on the corresponding port (1 through 24) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port.

ETHERNET 1-24 The Switch is equipped with 24 auto-sensing Ethernet network ports, which use RJ-45 connectors. The Fast Ethernet ports support network speeds. The Fast Ethernet ports support network speeds of 10 Mbps, 100 Mbps, or 1000 Mbps. They can operate in half and full-duplex modes. Auto-sensing technology enables each port to automatically detect the speed of the device connected to it (10 Mbps, 100 Mbps, or 1000 Mbps), and adjust its speed and duplex accordingly.

MiniGBIC (1-2) The miniGBIC (gigabit interface converter) port is a connection point for a miniGBIC expansion module, so the Switch can be uplinked via fiber to another switch. The MiniGBIC port provides a link to a high-speed network segment or individual workstation at speeds of up to 1000 Mbps.

Use the Linksys MGBT1, MGBSX1, or MGBLH1 miniGBIC modules with the Switch. The MGBSX1 and the MGBLH1 require fiber cabling with LC connectors, while the MGBT1 requires a Category 5e Ethernet cable with an RJ-45 connector.

NOTE: On the SRW2024, MiniGBIC ports are shared with standard ports. If a miniGBIC port is used, then the shared standard port on the Switch cannot be used. The following table provides port mapping details of the SRW2024 Switch.

SRW2024 Shared Port Mapping

miniGBIC Port	Standard Port
miniGBIC 1	Port 12
miniGBIC 2	Port 24

Back Panel

The power port is located on the back panel of the Switch.

Back Panel of the SRW2024

POWER The Power port is where you will connect the AC power.

CONSOLE The Switch is equipped with a serial port labeled Console (located on the back of the switch) that allows you to connect to a computer's serial port (for configuration purposes) using the provided serial cable. You can use HyperTerminal to manage the Switch using the console port.

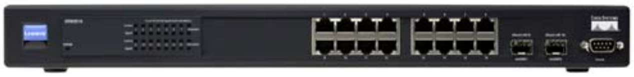
Refer to *Chapter 4: Configuration Using the Console Interface* for more information.

NOTE: If you need to reset the Switch, unplug the power cord from the back of the Switch. Wait a few seconds and then reconnect it.

SRW2016

Front Panel

The Switch's LEDs and ports are located on the front panel.



Front Panel of the SRW2016

LEDs

POWER (Green) Lights up green to indicate that power is being supplied to the Switch.

LINK/ACT (1-16) (Green) Lights up green to indicate a functional 10/100-Mbps network link through the corresponding port (1 through 16) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port.

Gigabit (1-16) (Amber) Lights up amber to indicate a 1000-Mbps connection on the corresponding port (1 through 16) with an attached device.

ETHERNET 1-16 The Switch is equipped with 16 auto-sensing, Ethernet network ports, which use RJ-45 connectors. The Fast Ethernet ports support network speeds of 10 Mbps, 100 Mbps, or 1000 Mbps. They can operate in half and full-duplex modes. Auto-sensing technology enables each port to automatically detect the speed of the device connected to it (10 Mbps, 100 Mbps, or 1000 Mbps), and adjust its speed and duplex accordingly.

MiniGBIC (1-2) The miniGBIC (gigabit interface converter) port is a connection point for a miniGBIC expansion module, so the Switch can be uplinked via fiber to another switch. The MiniGBIC port provides a link to a high-speed network segment or individual workstation at speeds of up to 1000 Mbps.

Use the Linksys MGBT1, MGBSX1, or MGBLH1 miniGBIC modules with the Switch. The MGBSX1 and the MGBLH1 require fiber cabling with LC connectors, while the MGBT1 requires a Category 5e Ethernet cable with an RJ-45 connector.

NOTE: On the SRW2016, MiniGBIC ports are shared with standard ports. If a miniGBIC port is used, then the shared standard port on the Switch cannot be used. The following table provides port mapping details of the SRW2016 Switch.

SRW2016 Shared Port Mapping

miniGBIC Port	Standard Port
miniGBIC 1	Port 8
miniGBIC 2	Port 16

The Back Panel

The power port is located on the back panel of the Switch.

Back Panel of the SRW2016

POWER The Power port is where you will connect the AC power.

CONSOLE The Switch is equipped with a serial port labeled Console (located on the back of the switch) that allows you to connect to a computer's serial port (for configuration purposes) using the provided serial cable. You can use HyperTerminal to manage the Switch using the console port.

Refer to *Chapter 4: Configuration Using the Console Interface* for more information.

NOTE: If you need to reset the Switch, unplug the power cord from the back of the Switch. Wait a few seconds and then reconnect it.

SRW248G4

Front Panel

The Switch's LEDs and ports are located on the front panel.

Front Panel of the SRW248G4

LEDs

POWER (Green) Lights up green to indicate that power is being supplied to the Switch.

LINK/ACT (1-48) (Green) Lights up green to indicate a functional 10/100-Mbps network link through the corresponding port (1 through 48) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port.

LINK/ACT (G1-G4) (Green/Amber) Lights up green to indicate a functional 10/100Mbps network link through the corresponding port (G1 through G4) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port.

Lights up orange to indicate a 1000-Mbps connection on the corresponding port (G1 through G4) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port.

ETHERNET 1-48 The Switch is equipped with 48 auto-sensing Ethernet network ports, which use RJ-45 connectors. The Fast Ethernet ports support network speeds of 10 Mbps or 100 Mbps. They can operate in half and full-duplex modes. Auto-sensing technology enables each port to automatically detect the speed of the device connected to it (10 Mbps or 100 Mbps), and adjust its speed and duplex accordingly.

ETHERNET G1-G4 The Switch is equipped with 4 auto-sensing Gigabit Ethernet network ports, which use RJ-45 connectors. The Gigabit Ethernet ports support network speeds of 10 Mbps, 100 Mbps, or 1000 Mbps. They can operate in half and full-duplex modes. Auto-sensing technology enables each port to automatically detect the speed of the device connected to it (10 Mbps, 100 Mbps, or 1000 Mbps), and adjust its speed and duplex accordingly.

MiniGBIC (1-2) The miniGBIC (gigabit interface converter) port is a connection point for a miniGBIC expansion module, so the Switch can be uplinked via fiber to another switch. The MiniGBIC port provides a link to a high-speed network segment or individual workstation at speeds of up to 1000 Mbps.

Use the Linksys MGBT1, MGBSX1, or MGBLH1 miniGBIC modules with the Switch. The MGBSX1 and the MGBLH1 require fiber cabling with LC connectors, while the MGBT1 requires a Category 5e Ethernet cable with an RJ-45 connector.

NOTE: On the SRW248G4, MiniGBIC ports are shared with Gigabit Ethernet ports. If a miniGBIC port is used, then the shared Gigabit Ethernet port on the Switch cannot be used. The following table provides port mapping details of the SRW248G4 Switch.

SRW248G4 Shared Port Mapping

miniGBIC Port	Standard Port
miniGBIC 1	Port G3
miniGBIC 2	Port G4

Back Panel

The power port is located on the back panel of the Switch.

Back Panel of the SRW248G4

POWER The Power port is where you will connect the AC power.

CONSOLE The Switch is equipped with a serial port labeled Console (located on the back of the switch) that allows you to connect to a computer's serial port (for configuration purposes) using the provided serial cable. You can use HyperTerminal to manage the Switch using the console port.

Refer to *Chapter 4: Configuration Using the Console Interface* for more information.

NOTE: If you need to reset the Switch, unplug the power cord from the back of the Switch. Wait a few seconds and then reconnect it.

SRW224G4

Front Panel

The Switch's LEDs and ports are located on the front panel.

Front Panel of the SRW224G4

LEDs

POWER (Green) Lights up green to indicate that power is being supplied to the Switch.

LINK/ACT (1-24) (Green) Lights up green to indicate a functional 10/100-Mbps network link through the corresponding port (1 through 24) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port.

LINK/ACT (G1-G4) (Green) Lights up green to indicate a functional 10/100-Mbps network link through the corresponding port (G1 through G4) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port..

1000Mbps (G1-G4) (Amber) Lights up amber to indicate a 1000-Mbps connection on the corresponding port (G1 through G4) with an attached device.

ETHERNET 1-24 The Switch is equipped with 24 auto-sensing, Ethernet network ports, which use RJ-45 connectors. The Fast Ethernet ports support network speeds of 10 Mbps, 100 Mbps, or 1000 Mbps. They can operate in half and full-duplex modes. Auto-sensing technology enables each port to automatically detect the speed of the device connected to it (10 Mbps, 100 Mbps, or 1000 Mbps), and adjust its speed and duplex accordingly.

ETHERNET G1-G4 The Switch is equipped with 4 auto-sensing Gigabit Ethernet network ports, which use RJ-45 connectors. The Gigabit Ethernet ports support network speeds of 10 Mbps, 100 Mbps, or 1000 Mbps. They can operate in half and full-duplex modes. Auto-sensing technology enables each port to automatically detect the speed of the device connected to it (10 Mbps, 100 Mbps, or 1000 Mbps), and adjust its speed and duplex accordingly.

MiniGBIC (1-2) The miniGBIC (gigabit interface converter) port is a connection point for a miniGBIC expansion module, so the Switch can be uplinked via fiber to another switch. The MiniGBIC port provides a link to a high-speed network segment or individual workstation at speeds of up to 1000 Mbps.

Use the Linksys MGBT1, MGBSX1, or MGBLH1 miniGBIC modules with the Switch. The MGBSX1 and the MGBLH1 require fiber cabling with LC connectors, while the MGBT1 requires a Category 5e Ethernet cable with an RJ-45 connector.

SRW224G4 Shared Port Mapping

miniGBIC Port	Standard Port
miniGBIC 1	Port G3
miniGBIC 2	Port G4

Back Panel

The power port is located on the back panel of the Switch.

Back Panel of the SRW224G4

POWER The Power port is where you will connect the AC power.

CONSOLE The Switch is equipped with a serial port labeled Console (located on the back of the switch) that allows you to connect to a computer's serial port (for configuration purposes) using the provided serial cable. You can use HyperTerminal to manage the Switch using the console port.

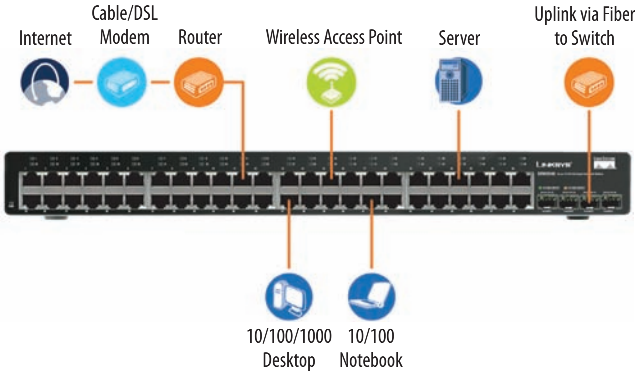
Refer to *Chapter 4: Configuration Using the Console Interface* for more information.

NOTE: If you need to reset the Switch, unplug the power cord from the back of the Switch. Wait a few seconds and then reconnect it.

Chapter 3: Connecting the Switch

Overview

This chapter will explain how to connect network devices to the Switch. For an example of a typical network configuration, see the application diagram shown below.



Typical Network Configuration for the SRW2048

When you connect your network devices, make sure you don't exceed the maximum cabling distances, which are listed in the following table:

Maximum Cabling Distances

From	To	Maximum Distance
Switch	Switch or Hub	100 meters (328 feet)
Hub	Hub	5 meters (16.4 feet)
Switch or Hub	Computer	100 meters (328 feet)

†A hub refers to any type of 100-Mbps hub, including regular hubs and stackable hubs. A 10-Mbps hub connected to another 10-Mbps hub can span up to 100 meters (328 feet).

Before You Install the Switch...

When you choose a location for the Switch, observe the following guidelines:

- Make sure the Switch is accessible and that the cables can be easily connected.
- Keep cabling away from sources of electrical noise, power lines, and fluorescent lighting fixtures.
- Position the Switch away from water and moisture sources.
- To ensure adequate air flow around the Switch, provide a minimum clearance of two inches (50 mm).
- Do not stack free-standing Switches more than four units high.

Placement Options

There are two ways to physically install the Switch, either set the Switch on its four rubber feet for desktop placement or mount the switch in a standard-sized, 482.6-mm wide, 1U-high rack for rack-mount placement.

Desktop Placement

- Attach the rubber feet to the recessed areas on the bottom of the Switch.
- Place the Switch on a desktop near an AC power source.
- Keep enough ventilation space for the switch and check the environmental restrictions mentioned in the *Specifications* Appendix as you are placing the Switch.
- Connect the Switch to network devices according to the Hardware Installation instructions below.

Rack-Mount Placement

When rack-mounting the Switch, please observe the following guidelines

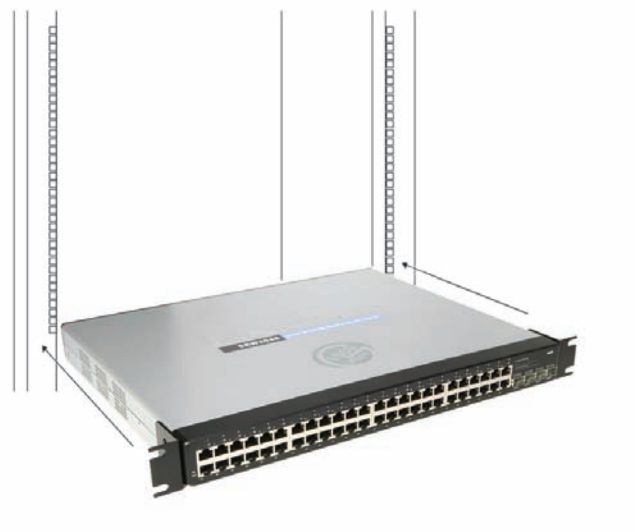
- **Elevated Operating Ambient** If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- **Reduced Air Flow** Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical Loading** Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit Overloading** Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable Earthing** Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).

To rack-mount the Switch in any standard 482.6-mm wide, 1U high rack, follow the instructions described below.

1. Place the Switch on a hard flat surface with the front panel facing you.
2. Attach a rack–mount bracket to one side of the Switch with the supplied screws and secure the bracket tightly.

Attach the Brackets to the Switch

3. Follow the same steps to attach the other bracket to the opposite side.
4. After the brackets are attached to the Switch, use suitable screws to securely attach the brackets to any standard 482.6-mm rack.



Mount the Switch in the Rack

5. Connect the Switch to network devices according to the Hardware Installation instructions below.

Hardware Installation

To connect network devices to the Switch, follow these instructions:

1. Make sure all the devices you will connect to the Switch are powered off.
2. For 10/100-Mbps devices, connect a Category 5 Ethernet network cable to one of the numbered ports on the Switch. For a 1000-Mbps device, connect a Category 5e Ethernet network cable to one of the numbered ports on the Switch.
3. Connect the other end to a PC or other network device.
4. Repeat steps 2 and 3 to connect additional devices.
5. If you are using the miniGBIC port, then connect the miniGBIC module to the miniGBIC port. For detailed instructions, refer to the module's documentation.
6. If you will use the Switch's console interface to configure the Switch, then connect the supplied serial cable to the Switch's Console port, and tighten the captive retaining screws. Connect the other end to your PC's serial port. (This PC must be running the VT100 terminal emulation software, such as HyperTerminal.)
7. Connect the supplied power cord to the Switch's power port, and plug the other end into an electrical outlet.

WARNING: Make sure you use the power cord that is supplied with the Switch. Use of a different power cord could damage the Switch.

8. Power on the network devices connected to the Switch. Each active port's corresponding Link/Act LED will light up on the Switch. If a port has an active Gigabit connection, then its corresponding Gigabit LED will also light up.

NOTE: If you need to reset the Switch, unplug the power cord from the back of the Switch. Wait a few seconds and then reconnect it.

Configuring the Switch

To use the Switch's console interface to configure the Switch, proceed to *Chapter 4: Configuration Using the Console Interface* for directions.

To use the Switch's Web-based Utility to configure the Switch, proceed to *Chapter 5: Advanced Configuration*.

Chapter 4: Configuration Using the Console Interface

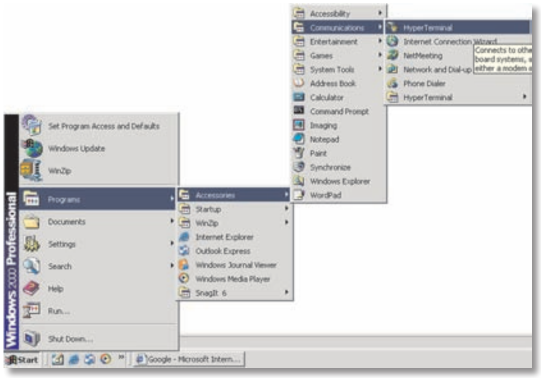
Overview

The Switch features a menu-driven console interface for basic configuration of the Switch and management of your network. The Switch can be configured using CLI through the console interface or through a Telnet connection. This chapter describes console interface configuration. Configuration can also be performed through the web utility, which is covered in the next chapter.

Configuring the HyperTerminal Application

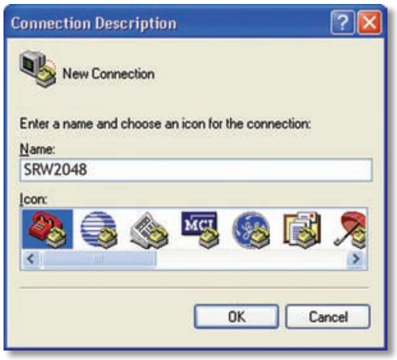
Before using the console interface, configure the HyperTerminal application on your PC as follows:

1. Click the **Start** button.
2. Select **Programs** > **Accessories** > **Communications** > **HyperTerminal**.



Start > Programs > Accessories > Communications > HyperTerminal

3. Enter a name for this connection. In this example, the name of connection is SRW2048. Select an icon for the application, then click **OK**.



New Connection

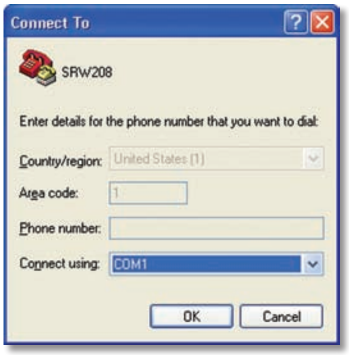
Enter a name and choose an icon for the connection:

Name: SRW2048

Icon:

HyperTerminal Connection Description Screen

4. Select a port to communicate with the Switch: **COM1**, **COM2**, or **TCP/IP**.



SRW208

Enter details for the phone number that you want to dial:

Country/region: United States (1)

Area code: 1

Phone number:

Connect using: COM1

HyperTerminal Connect To Screen

5. Set the serial port settings as follows:

   Bits per second: **38,400**

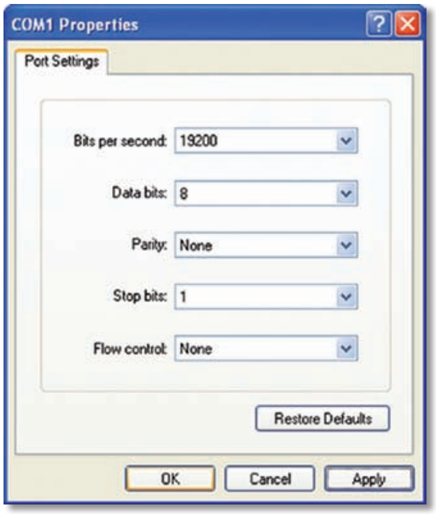
   Data bits: **8**

   Parity: **None**

   Stop bits: **1**

   Flow control: **None**

6. Click **OK**.



Bits per second: 19200

Data bits: 8

Parity: None

Stop bits: 1

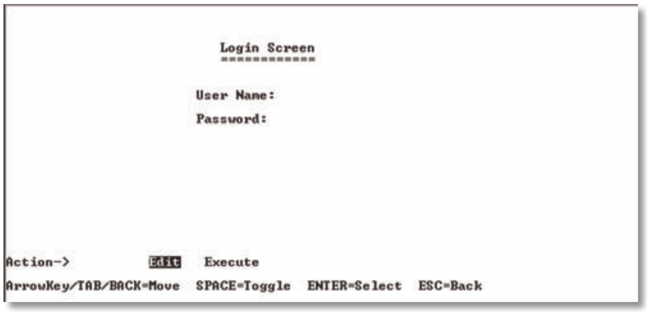
Flow control: None

HyperTerminal Properties Screen

Connecting to the Switch through a Telnet Session

Open a command-line editor and enter **telnet 192.168.1.254**. Then, press the **Enter** key.

The *Login* screen appears. The first time you open the command-line interface (CLI), select **Edit** and press **Enter**. Enter **admin** in the *User Name* field. Leave the *Password* field blank.



```
                         Login Screen
                         ============

                       User Name:
                       Password:




Action->          Edit    Execute
ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Telnet Login Screen

Press the **Esc** button to return to the login screen. Use the **right arrow** button to navigate to the **Execute** option and press the **Enter** button to open CLI interface.

Configuring the Switch through the Console Interface

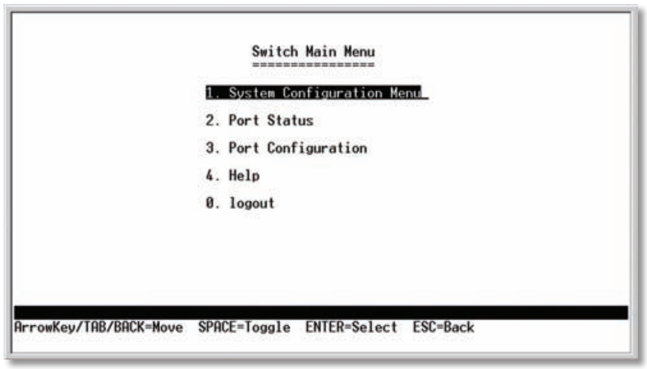
The console screens consist of a series of menus. Each menu has several options, which are listed vertically. You select a menu option when you highlight it; pressing the **Enter** key activates the highlighted option.

To navigate through the menus and actions of the console interface, use the **up** or **down** arrow keys to move up or down, and use the **left** or **right** arrow keys to move left or right. Use the **Enter** key to select a menu option, and use the **Esc** key to return to the previous selection. Menu options and any values entered or present will be highlighted. The bottom of the screen lists the actions available.

Switch Main Menu

The *System Main Menu* screen displays these choices:

1. System Configuration Information Menu
2. Port Status
3. Port Configuration
4. Help
5. Logout



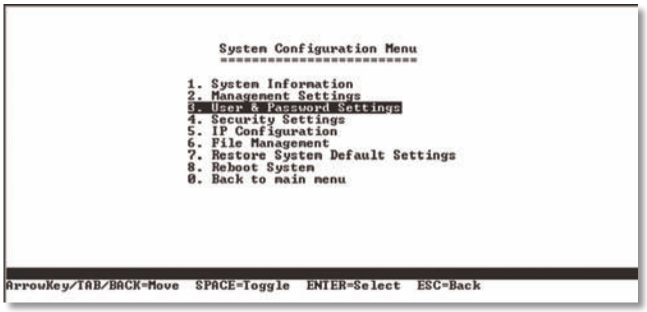
```
                       Switch Main Menu
                       ================

                    1. System Configuration Menu
                    2. Port Status
                    3. Port Configuration
                    4. Help
                    0. logout



ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Switch Main Menu

System Configuration Menu

On the *System Configuration Menu* screen, you can choose from the following:

1. System Information
2. Management Settings
3. User & Password Settings
4. Security Settings
5. IP Configuration
6. File Management
7. Restore System Default Settings
8. Reboot System
9. Back to main menu

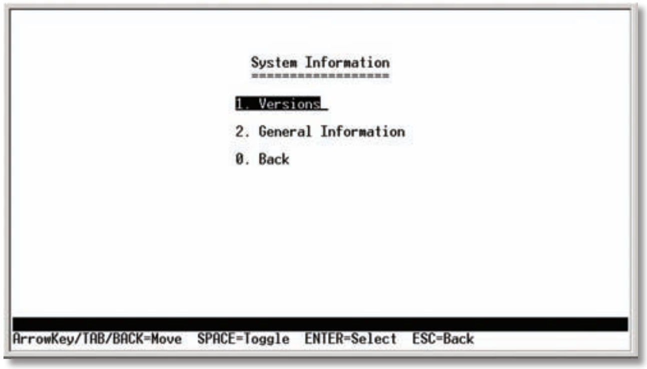


```
                    System Configuration Menu
                    =========================

              1. System Information
              2. Management Settings
              3. User & Password Settings
              4. Security Settings
              5. IP Configuration
              6. File Management
              7. Restore System Default Settings
              8. Reboot System
              0. Back to main menu


ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

System Configuration Menu

System Information

Using *System Information* screen, you can check the Switch's firmware versions and general system information.

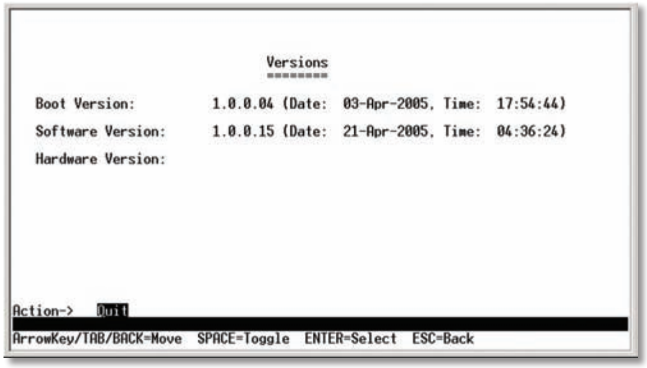


```
                       System Information
                       ==================

                     1. Versions
                     2. General Information
                     0. Back



ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

System Configuration Menu

Versions

The *Versions* screen displays the Switch’s boot, software, and hardware firmware versions.

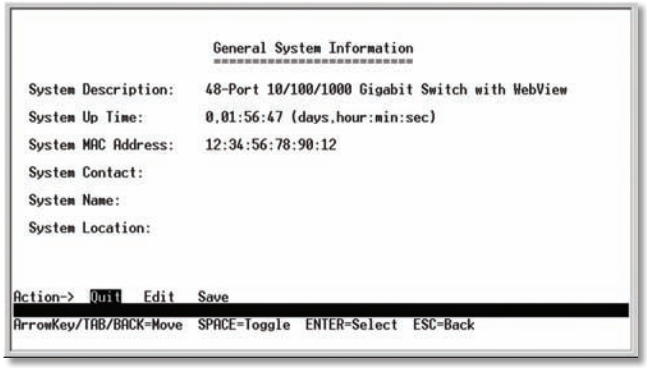


```
                          Versions
                          ========

  Boot Version:         1.0.0.04 (Date:  03-Apr-2005, Time:  17:54:44)
  Software Version:     1.0.0.15 (Date:  21-Apr-2005, Time:  04:36:24)
  Hardware Version:



Action->   Quit
ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Versions

General System Information

The *General System Information* screen displays general information about the Switch.



```
                      General System Information
                      ==========================

  System Description:   48-Port 10/100/1000 Gigabit Switch with WebView
  System Up Time:       0,01:56:47 (days,hour:min:sec)
  System MAC Address:   12:34:56:78:90:12
  System Contact:
  System Name:
  System Location:

Action->  Quit   Edit   Save
ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

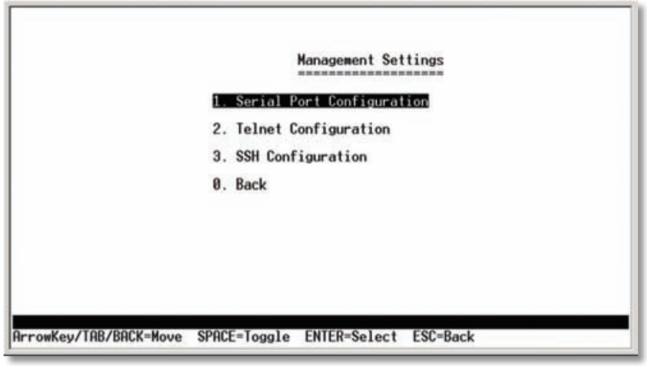
General System Information

Select **Edit** and press the **Enter** key to make changes. When your changes are complete, press the **Esc** key to return to the *Action* menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

Management Settings

From the *Management Settings* screen, you can set the following options:

- Serial Port Session Configuration
- Telnet Session Configuration
- Secure Telnet (SSH) Configuration.

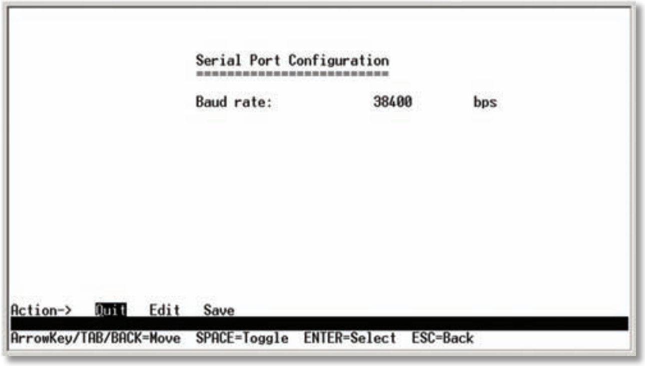


```
                          Management Settings
                          ===================

                      1. Serial Port Configuration
                      2. Telnet Configuration
                      3. SSH Configuration
                      0. Back



ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Management Settings Menu

Serial Port Configuration

The *Serial Port Configuration* screen displays the Switch’s baud rate.



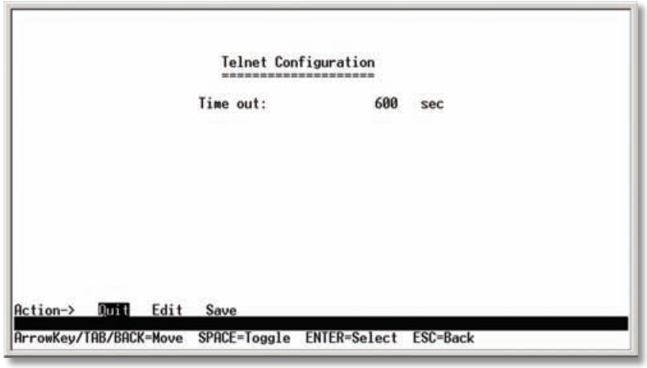
```
                      Serial Port Configuration
                      =========================

                      Baud rate:          38400       bps



Action->  Quit   Edit   Save
ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Serial Port Configuration

Select **Edit** and press the **Enter** key to make changes. Toggle to the desired speed and when your changes are complete, press the **Esc** key to return to the *Action* menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

Telnet Configuration

The *Telnet Configuration* screen displays the timeout value. The value is entered in seconds. If you do not want the Telnet session to timeout, you may enter a value of 0 sec.



```
                         Telnet Configuration
                         ====================
                      Time out:              600   sec

Action->  Quit   Edit   Save
ArrowKey/TAB/BACK=Move   SPACE=Toggle   ENTER=Select   ESC=Back
```

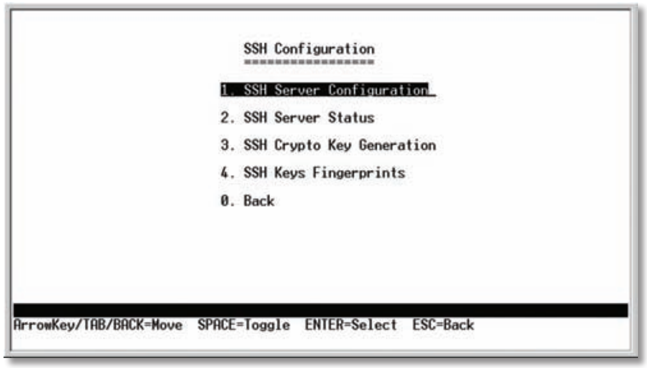
Telnet Configuration

Select **Edit** and press the **Enter** key to make changes. When your changes are complete, press the **Esc** key to return to the *Action* menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

SSH Configuration

The *SSH Configuration* screen displays the following options:

- SSH Server Configuration
- SSH Server Status
- SSH Crypto Key Generation
- SSH Keys Fingerprints

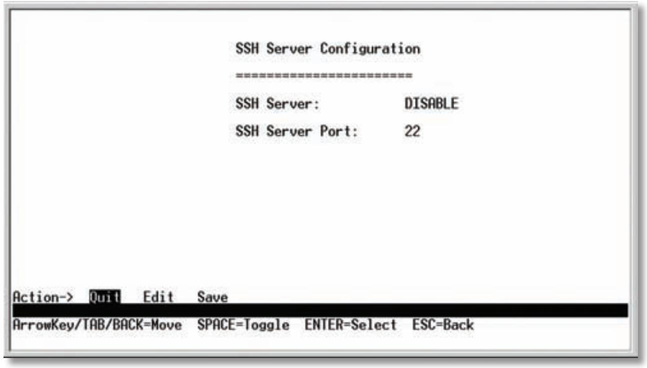


```
                           SSH Configuration
                           =================
                         1. SSH Server Configuration
                         2. SSH Server Status
                         3. SSH Crypto Key Generation
                         4. SSH Keys Fingerprints
                         0. Back

ArrowKey/TAB/BACK=Move   SPACE=Toggle   ENTER=Select   ESC=Back
```

SSH Configuration

SSH Server Configuration

On the *SSH Server Configuration* screen, you can enable or disable the SSH Server by navigating to the SSH Server option and using the **SPACE** bar to toggle the option. The SSH Server Port can be modified by entering in the value.



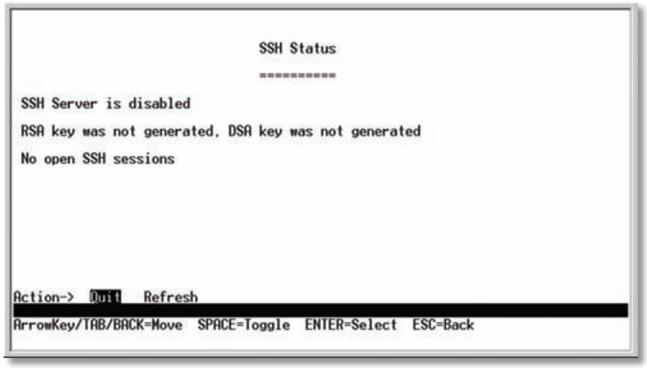
```
                         SSH Server Configuration
                         ========================
                         SSH Server:           DISABLE
                         SSH Server Port:      22

Action->  Quit   Edit   Save
ArrowKey/TAB/BACK=Move   SPACE=Toggle   ENTER=Select   ESC=Back
```

SSH Server Configuration

Select **Edit** and press the **Enter** key to make changes. When your changes are complete, press the **Esc** key to return to the *Action* menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

SSH Status

The *SSH Status* screen displays whether the SSH Server is enabled, the RSA and DSA key status, and any open SSH sessions.



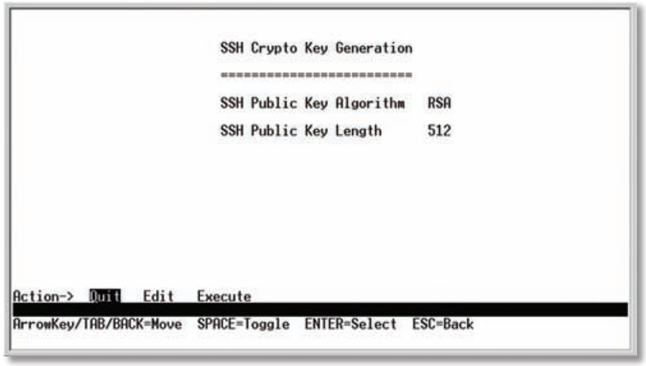
```
                              SSH Status
                              ==========
 SSH Server is disabled
 RSA key was not generated, DSA key was not generated
 No open SSH sessions

Action->  Quit   Refresh
ArrowKey/TAB/BACK=Move   SPACE=Toggle   ENTER=Select   ESC=Back
```

SSH Status

Select **Refresh** to update the screen if necessary. To exit, select **Quit** and press the **Enter** key.

SSH Crypto Key Generation

On the *SSH Crypto Key Generation* screen, you can toggle between RSA and DSA using the **SPACE** bar. The SSH Public Key Length cannot be modified.



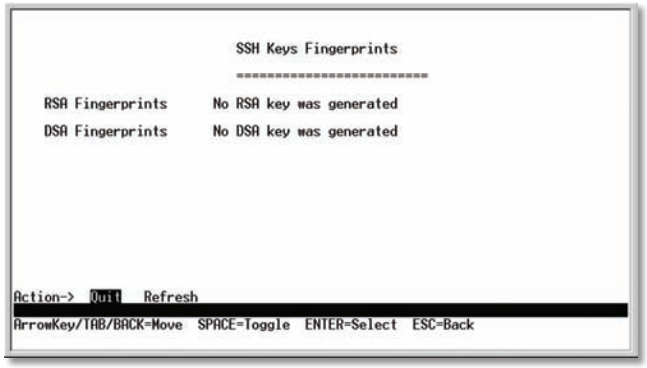
```
                    SSH Crypto Key Generation
                    =========================
                    SSH Public Key Algorithm    RSA
                    SSH Public Key Length       512



Action->  Quit   Edit   Execute
ArrowKey/TAB/BACK=Move   SPACE=Toggle   ENTER=Select   ESC=Back
```

SSH Crypto Key Generation

Select **Edit** and press the **Enter** key to make changes. When your changes are complete, press the **Esc** key to return to the *Action* menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

SSH Keys Fingerprints

On the *SSH Keys Fingerprints* screen, the RSA and DSA keys are displayed if they have been generated.



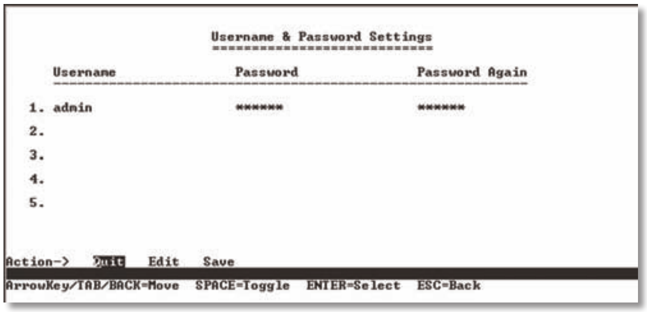
```
                      SSH Keys Fingerprints
                      =========================
   RSA Fingerprints     No RSA key was generated
   DSA Fingerprints     No DSA key was generated



Action->  Quit   Refresh
ArrowKey/TAB/BACK=Move   SPACE=Toggle   ENTER=Select   ESC=Back
```

Keys Fingerprints

Select **Refresh** to update the screen if necessary. To exit, select **Quit** and press the **Enter** key.

Username & Password Settings

From the Username & Password Settings screen, you can administer the user names and passwords of those accessing the Switch.



```
                        Username & Password Settings
                        ============================
    Username                 Password                 Password Again
 ---------------------------------------------------------------------
  1. admin                   ******                   ******
  2.
  3.
  4.
  5.

Action->   Quit   Edit   Save
ArrowKey/TAB/BACK=Move   SPACE=Toggle   ENTER=Select   ESC=Back
```

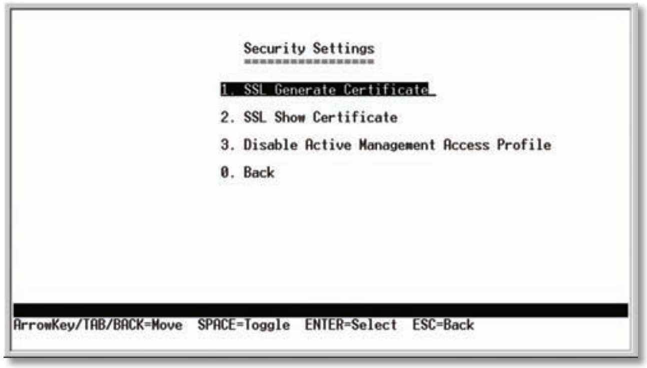
Username & Password Settings

Select **Edit** and press the **Enter** key to make changes. When your changes are complete, press the **Esc** key to return to the **Action** menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

NOTE: The Username & Password Settings screen can also be used to set passwords for other users.

Security Settings

The *Security Settings* screen enables you to configure security settings on the Switch, as well as generate and display the certificate.

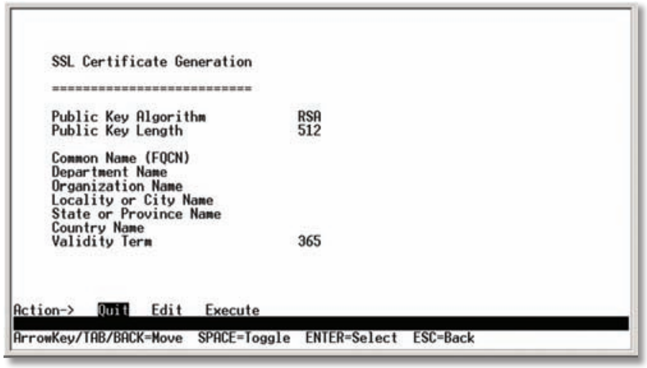


```
                     Security Settings
                     =================
                  1. SSL Generate Certificate
                  2. SSL Show Certificate
                  3. Disable Active Management Access Profile
                  0. Back



ArrowKey/TAB/BACK=Move   SPACE=Toggle   ENTER=Select   ESC=Back
```

Security Settings

SSL Certificate Generation

Use the *Certificate Generation* screen to specify a device-generated certificate.



```
SSL Certificate Generation

==========================

Public Key Algorithm            RSA
Public Key Length               512

Common Name (FQCN)
Department Name
Organization Name
Locality or City Name
State or Province Name
Country Name
Validity Term                   365


Action->   Quit   Edit   Execute

ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

SSL Certificate Generation

Public Key Length Specifies the SSL RSA key length. (Range: **512–2048**)

Organization Name Specifies the organization name. (Range: **1–64**)

Locality or City Name Specifies the location or city name. (Range: **1–64**)

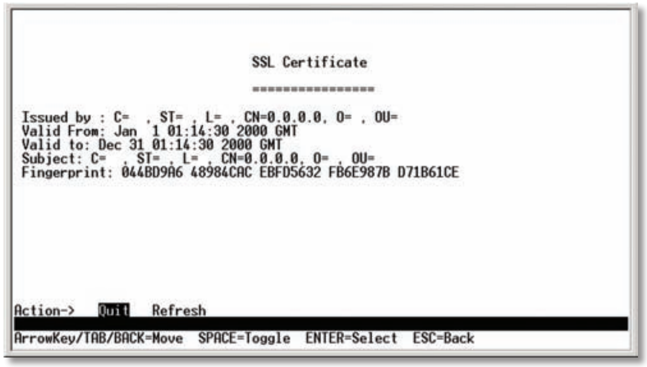
State or Province Name Specifies the state or province name. (Range: **1–64**)

Country Name Specifies the country name. (Range: **2–2**)

Validity Term Specifies number of days certification is valid. (Range: **30–3650**)

Show Certificate

Use the *Show Certificate* screen to display the internal certificate.

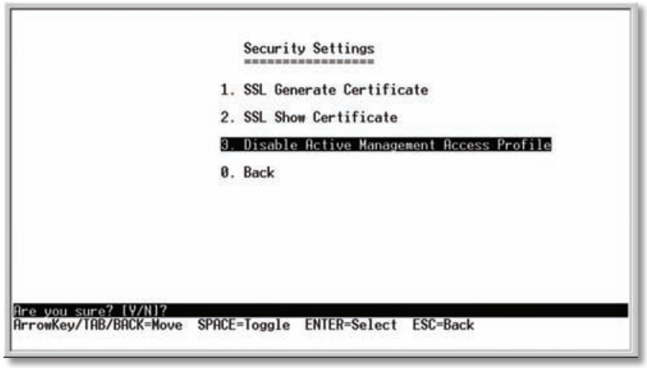


```
                          SSL Certificate

                          ================

 Issued by : C=  , ST= , L= , CN=0.0.0.0, O= , OU=
 Valid From: Jan  1 01:14:30 2000 GMT
 Valid to: Dec 31 01:14:30 2000 GMT
 Subject: C=  , ST= , L= , CN=0.0.0.0, O= , OU=
 Fingerprint: 044BD9A6 48984CAC EBFD5632 FB6E987B D71B61CE


Action->   Quit   Refresh

ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

SSL Certificate

Disable Active Management Profile

To disable the active management profile, selecting **Disable Active Management Profile** from the Security Settings screen. You are prompted for confirmation.



```
                     Security Settings
                     =================

                  1. SSL Generate Certificate

                  2. SSL Show Certificate

                  3. Disable Active Management Access Profile

                  0. Back


Are you sure? [Y/N]?
ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

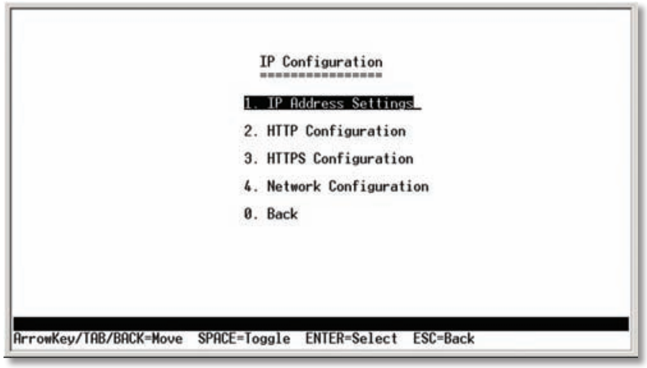
Security Settings

NOTE: This setting has no effect when Management Access Rules are not defined.

IP Configuration

The *IP Configuration* screen lets you configure the following options:

- IP Address Settings
- HTTP Configuration
- HTTPS Configuration
- Network Configuration.

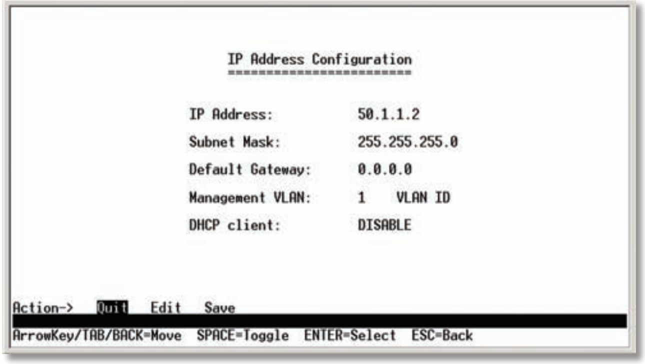


```
                       IP Configuration
                       ================

                     1. IP Address Settings

                     2. HTTP Configuration

                     3. HTTPS Configuration

                     4. Network Configuration

                     0. Back


ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

IP Configuration

IP Address Configuration

The IP Address Configuration screen lets you configure the Switch's IP address information.



```
                    IP Address Configuration
                    ========================

               IP Address:          50.1.1.2
               Subnet Mask:         255.255.255.0
               Default Gateway:     0.0.0.0
               Management VLAN:     1    VLAN ID
               DHCP client:         DISABLE

Action->  Quit  Edit  Save
ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

IP Address Configuration

IP Address The IP Address of the Switch is displayed. (The default IP address is **192.168.1.254**.) Verify that the address you enter is correct and does not conflict with another device on the network.

Subnet Mask The subnet mask of the Switch is displayed.

Default Gateway The IP address of your network's default gateway is displayed.

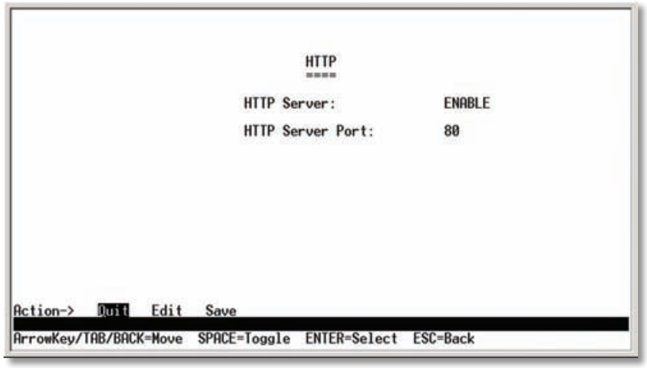
Management VLAN The VLAN ID number is displayed.

DHCP client The status of the DHCP client is displayed. If you want the Switch to be a DHCP client, then select **ENABLE**. If you want to assign an static IP address to the Switch, then enter the IP settings and select **DISABLE**.

Select **Edit** to make changes. When your changes are complete, press the **Esc** key to return to the *Action* menu, and select **Save** to save your changes.

HTTP

The HTTP screen lets you configure the status and port number of the HTTP Server.



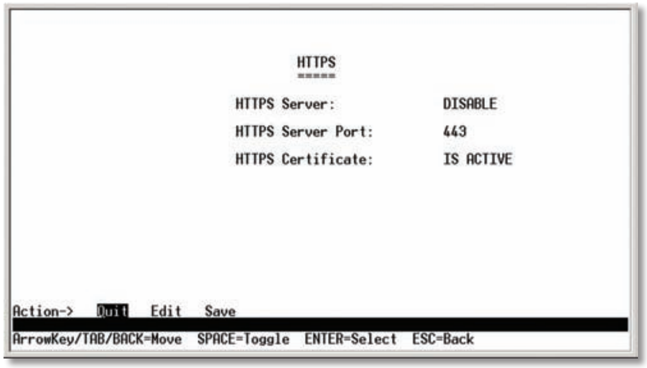
```
                              HTTP
                              ====

                    HTTP Server:              ENABLE
                    HTTP Server Port:         80

Action->  Quit  Edit  Save
ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

HTTP

Select **Edit** and press the **Enter** key to make changes. When your changes are complete, press the **Esc** key to return to the *Action* menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

HTTPS Configuration

The *HTTPS Configuration* screen lets you configure the HTTPS settings. You can enable or disable the HTTPS server and configure the port on which the session is enabled.



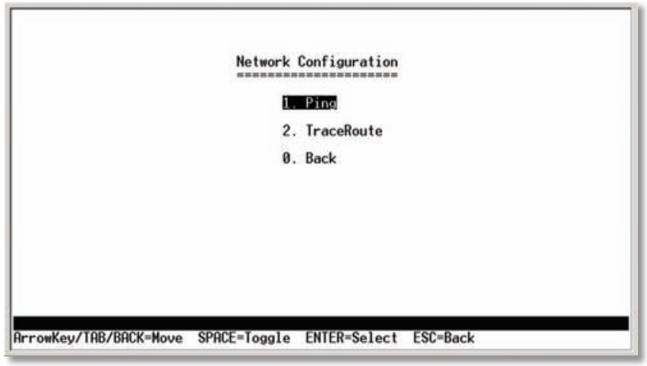
```
                             HTTPS
                             =====

                   HTTPS Server:              DISABLE
                   HTTPS Server Port:         443
                   HTTPS Certificate:         IS ACTIVE

Action->  Quit  Edit  Save
ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

HTTPS Configuration

Select **Edit** and press the **Enter** key to make changes. When your changes are complete, press the **Esc** key to return to the *Action* menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

Network Configuration

The *Network Configuration* screen offers a choice of two tests: Ping and TraceRoute.

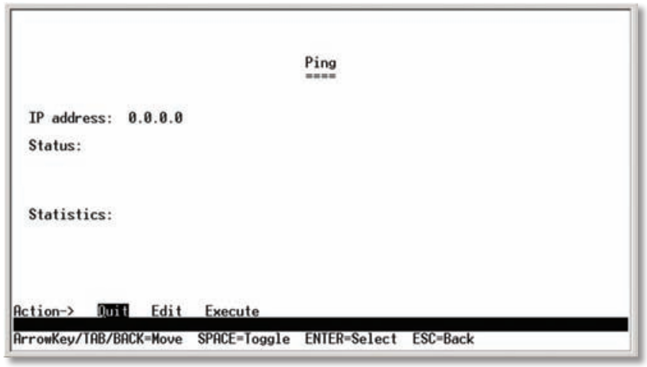


```
                     Network Configuration
                     =====================
                        1. Ping
                        2. TraceRoute
                        0. Back




ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Network Configuration

Ping

The *Ping* screen displays the IP address of the location you want to contact.



```
                              Ping
                              ====
 IP address:  0.0.0.0
 Status:


 Statistics:



Action->   Quit   Edit   Execute
ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Ping Test

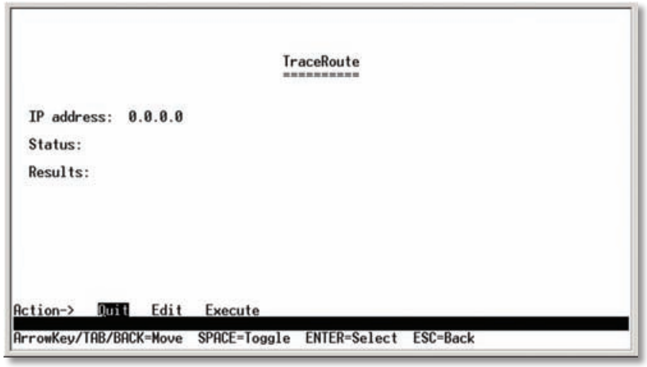
Select **Edit** to change the IP address, and select **Execute** to begin the ping test.

After the ping test is complete, the *Ping* screen displays the IP address, status, and statistics of the ping test.

Select **Edit** and press the **Enter** key to make changes. When your changes are complete, press the **Esc** key to return to the *Action* menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

TraceRoute

The *TraceRoute* screen displays the IP address of the address whose route you want to trace.



```
                           TraceRoute
                           ==========
 IP address:  0.0.0.0
 Status:
 Results:





Action->   Quit   Edit   Execute
ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

TraceRoute Test

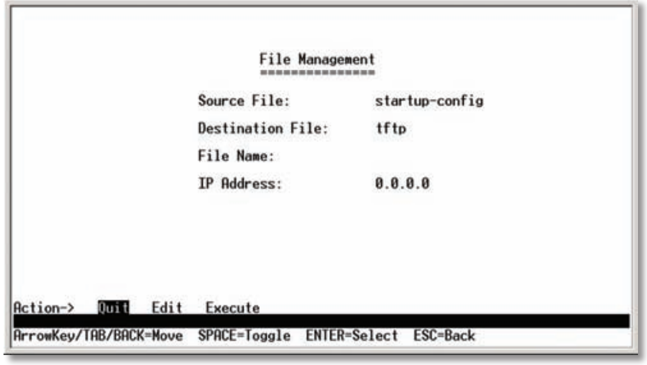
Select **Edit** to change the IP address, and select **Execute** to begin the traceroute test.

After the traceroute test is complete, the *TraceRoute* screen displays the IP address, status, and statistics of the traceroute test.

Select **Edit** and press the **Enter** key to make changes. When your changes are complete, press the **Esc** key to return to the **Action** menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

File Management

The *File Management* screen allows you to upload or download files, such as the startup configuration, boot, or image file, using a TFTP server.



```
                    File Management
                    ===============

          Source File:          startup-config

          Destination File:     tftp

          File Name:

          IP Address:           0.0.0.0




Action->  Quit   Edit   Execute

ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

File Management

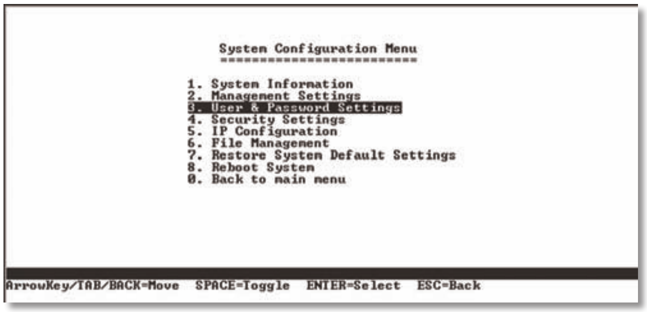
Select **Edit** to change the settings. When your changes are complete, press the **Esc** key to return to the *Action* menu, and select **Execute** to upload or download the designated file.

If you are downloading a new boot & image, please follow these steps:

1. Download the new boot code. DO NOT RESET THE DEVICE!
2. Download the new software image.
3. Reset the device now.

NOTE: When downloading a configuration file, be sure that it is a valid configuration file. If you have edited the file, ensure that only valid entries have been configured.

Restore System Default Settings

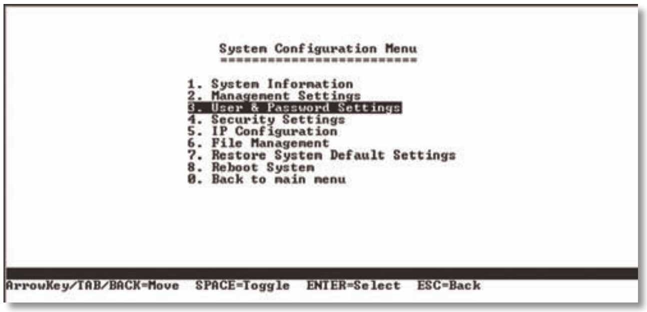


```
              System Configuration Menu
              =========================

          1. System Information
          2. Management Settings
          3. User & Password Settings
          4. Security Settings
          5. IP Configuration
          6. File Management
          7. Restore System Default Settings
          8. Reboot System
          0. Back to main menu




ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Restore System Default Settings

To restore the Switch back to the factory default settings, select **Restore System Default Settings** and press the **Enter** key. You will be asked if you want to continue. Press the **y** key to restore the Switch's default settings, or press the **n** key to cancel.

Reboot System



```
              System Configuration Menu
              =========================

          1. System Information
          2. Management Settings
          3. User & Password Settings
          4. Security Settings
          5. IP Configuration
          6. File Management
          7. Restore System Default Settings
          8. Reboot System
          0. Back to main menu




ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Reboot System

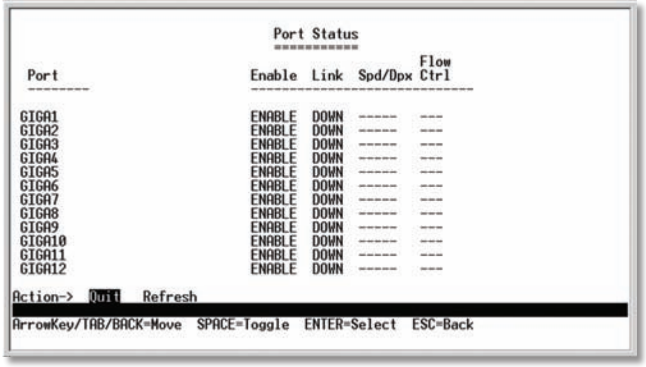
Select **Reboot System** and press the **Enter** key if you want to restart the Switch. You will be asked if you want to continue. Press the **y** key to reboot the Switch, or press the **n** key to cancel. After the Switch has rebooted, the *Switch Main Menu* screen will appear.

Back to main menu

Select **Back to main menu** and press the **Enter** key if you want to return to the *Switch Main Menu* screen.

Port Status

On the *Switch Main Menu* screen, select **Port Status** and press the **Enter** key if you want to view the status information for the Switch's ports.



```
                          Port Status
                          ===========
                                                      Flow
  Port                          Enable  Link  Spd/Dpx Ctrl
  --------                      ----------------------------

 GIGA1                          ENABLE  DOWN  ------  ---
 GIGA2                          ENABLE  DOWN  ------  ---
 GIGA3                          ENABLE  DOWN  ------  ---
 GIGA4                          ENABLE  DOWN  ------  ---
 GIGA5                          ENABLE  DOWN  ------  ---
 GIGA6                          ENABLE  DOWN  ------  ---
 GIGA7                          ENABLE  DOWN  ------  ---
 GIGA8                          ENABLE  DOWN  ------  ---
 GIGA9                          ENABLE  DOWN  ------  ---
 GIGA10                         ENABLE  DOWN  ------  ---
 GIGA11                         ENABLE  DOWN  ------  ---
 GIGA12                         ENABLE  DOWN  ------  ---

Action->  Quit   Refresh

ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Port Status

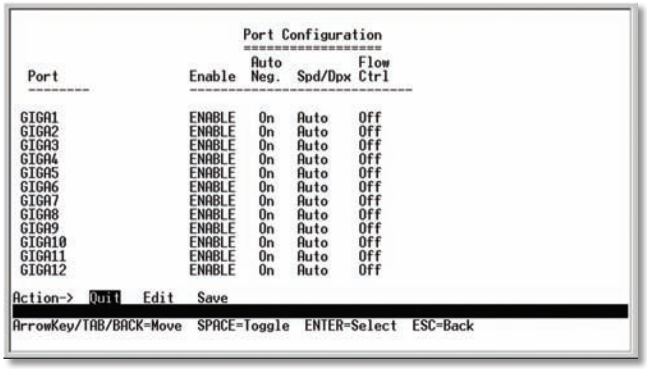
The *Port Status* screen displays the port numbers, their status, Link status, speed and duplex mode, and status of flow control, which is the flow of packet transmissions.

If you want to change any settings for a port, you must use the *Port Configuration* screen.

Port Configuration

On the *Switch Main Menu* screen, select **Port Configuration** and press the **Enter** key if you want to configure the Switch's ports.

The *Port Configuration screen* displays the port numbers, their status, auto-negotiation status, speed and duplex mode, and status of flow control, which is the flow of packet transmissions.



```
                          Port Configuration
                          ==================
                                Auto          Flow
 Port                  Enable   Neg.  Spd/Dpx Ctrl
 --------              ------------------------------

GIGA1                  ENABLE   On    Auto    Off
GIGA2                  ENABLE   On    Auto    Off
GIGA3                  ENABLE   On    Auto    Off
GIGA4                  ENABLE   On    Auto    Off
GIGA5                  ENABLE   On    Auto    Off
GIGA6                  ENABLE   On    Auto    Off
GIGA7                  ENABLE   On    Auto    Off
GIGA8                  ENABLE   On    Auto    Off
GIGA9                  ENABLE   On    Auto    Off
GIGA10                 ENABLE   On    Auto    Off
GIGA11                 ENABLE   On    Auto    Off
GIGA12                 ENABLE   On    Auto    Off
Action->  Quit   Edit   Save

ArrowKey/TAB/BACK=Move  SPACE=Toggle  ENTER=Select  ESC=Back
```

Port Configuration

Select **Edit** and press the **Enter** key to make changes. When your changes are complete, press the **Esc** key to return to the *Action* menu. Select **Save** and press the **Enter** key to save your changes. To exit, select **Quit** and press the **Enter** key.

Help

Select **Help** and press the **Enter** key if you want to view the help information. This screen explains how to navigate the various screens of the console interface.

Chapter 5: Advanced Configuration

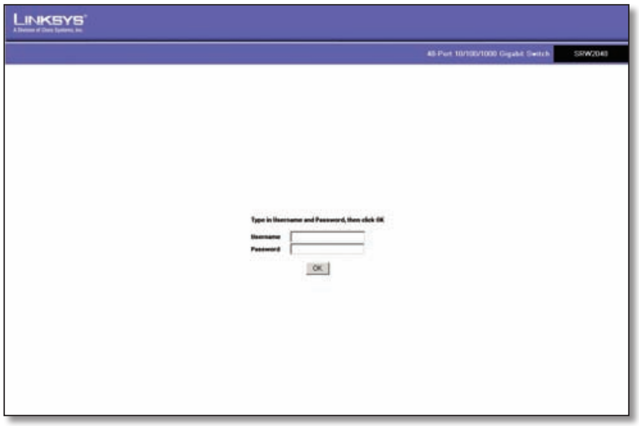
Overview

This chapter describes the features included in the Web-based Utility. All of the features shown in this chapter, unless specifically identified, are included in all of the WebView Switches. The screen images were taken from the SRW2048 Switch. Additional features for specific Switches are noted. The SRW224G4, SRW248G4, SRW2016, and SRW2024 Switches may not support all functions.

Accessing the Web-based Utility

NOTE: The Web-based Utility is optimized for viewing with a screen resolution of 1024 x 768. Internet Explorer version 5.5 or above is recommended.

Open your web browser and enter **192.168.1.254** into the *Address field*. Press the **Enter** key and the *login* screen appears.


LINKSYS
A Division of Cisco Systems, Inc.
48-Port 10/100/1000 Gigabit Switch
SRW2048

Type in Username and Password, then click OK

Username □

Password □

OK

Login Screen

NOTE: The default IP address of the device is **192.168.1.254**. If you have modified this address, enter the correct IP address. The device should be on the same subnet as the management station used to configure the device.

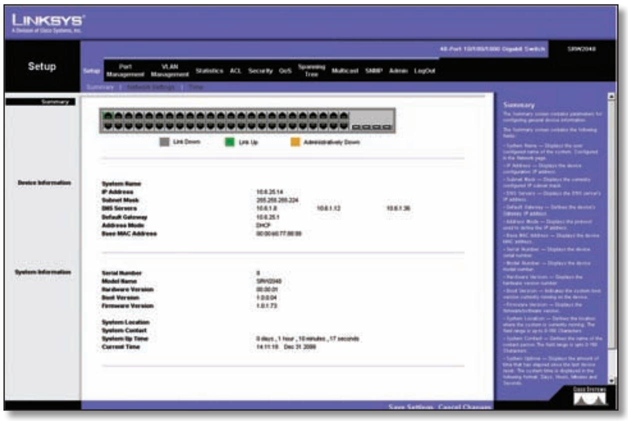
The first time you open the Web-based Utility, enter **admin** in the *User Name* field, and leave the *Password* field blank. Click the **OK** button. For security purposes, it is recommended that you set a new password on the System Password screen. the *System Password* screen.

NOTE: After configuring values using the Web-based Utility, you may be required to refresh the page to see the updated configuration.

The first screen that appears is the *Setup Summary* screen. Twelve main tabs are accessible from the Web-based Utility: **Setup**, **Port Management**, **VLAN Management**, **Statistics**, **ACL**, **Security**, **QoS (Quality of Service)**, **Spanning Tree**, **Multicast**, **SNMP**, **Admin**, and **Logout**. Click one of the main tabs to view additional tabs.

Setup > Summary

The *Summary* screen provides device and system information about the Switch.



Device Information

System Name
IP Address 10.6.25.14
Subnet Mask 255.255.255.224
DNS Servers 10.6.1.8 10.6.1.12 10.6.1.36
Default Gateway 10.6.25.1
Address Mode DHCP
Base MAC Address 00:00:e8:77:88:99

System Information

Serial Number 0
Model Name SRW2048
Hardware Version 00.00.01
Boot Version 1.0.0.04
Firmware Version 1.0.1.73
System Location
System Contact
System Up Time 0 days, 1 hour, 10 minutes, 17 seconds
Current Time 14:11:18 Dec 31 2000

Setup > Summary

At the top of the *Summary* screen, an image of the Switch's front panel provides the following color-coded status information for the Switch's Ethernet ports:

Green Indicates a connection.

Grey Indicates no connection.

Orange Indicates the port has been closed down by the administrator.

When you click a port's LED, the statistics for that port are displayed.

NOTE: The port colors in the Summary screen are not related to the colors of the LEDs on the Switch's ports. The port LEDs display different status information, as described in *Chapter 2: Product Overview*.

Device Information

System Name Displays the name for the Switch, if one has been entered on the Setup tab's *Network Settings* screen.

IP Address The IP address assigned to the Switch. This setting can be configured from the Setup tab's *Network Settings* screen.

Subnet Mask The Subnet Mask assigned to the Switch. This setting can be configured from the Setup tab's *Network Settings* screen.

DNS Servers The IP address of your ISP's server that translates the names of websites into IP addresses. This setting can be configured from the Setup tab's *Network Settings* screen.

Default Gateway The IP address of the gateway router between the Switch and management stations on other network segments. This setting can be configured from the Setup tab's *Network Settings* screen.

Address Mode Specifies whether IP functionality is enabled via manual configuration (**Static**) or Dynamic Host Configuration Protocol (**DHCP**). This setting can be configured from the Setup tab's *Network Settings* screen.

Base MAC Address Displays the MAC address of the Switch.

System Information

Serial Number Displays the Switch's Serial Number.

Model Name Displays the model name of the Switch.

Hardware Version Displays the Switch's current hardware version.

Boot Version Displays the current boot version of the Switch.

Firmware Version Displays the Switch's software version.

System Location Displays the location of the system if it has been defined. This setting can be configured from the Setup tab's *Network Settings* screen.

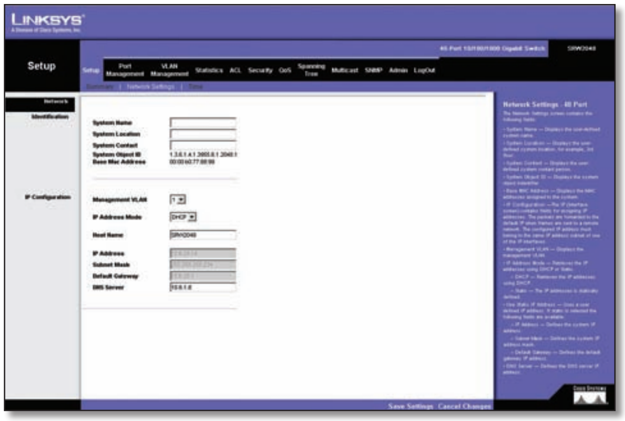
System Contact The name of the administrator appears here, if one has been defined. This setting can be configured from the Setup tab's *Network Settings* screen.

System Up Time Displays the length of time that has elapsed since the Switch was last reset.

Current Time Displays the current time. This setting can be configured from the Setup tab's *Time* screen.

Setup > Network Settings

The *Network Settings* screen allows you to assign DHCP or static IP settings to interfaces and assign default gateways.



System Name
System Location
System Contact
System Object ID 1.3.6.1.4.1.3955.6.1.2048.1
Base Mac Address 00:00:60:77:88:99

Management VLAN 1
IP Address Mode DHCP
Host Name SRW2048
IP Address
Subnet Mask
Default Gateway
DNS Server 10.0.1.6

Setup > Network Settings

Identification

System Name Specifies the name of the Switch. Enter the name into the text field provided. By default, a system name is not defined.

System Location This field is used to enter a description of where the Switch is physically located, such as **3rd Floor**.

System Contact Enter the name of the administrator responsible for the system.

System Object ID Displays the system object identifier.

Base MAC Address Displays the physical address of the Switch.

IP Configuration

Management VLAN This drop-down menu allows you to select the Management VLAN.

IP Address Mode Specifies whether IP functionality is enabled via manual configuration (Static) or Dynamic Host Configuration Protocol (DHCP). Select **Static** or **DHCP** from the drop-down menu. Selecting Static will allow you to enter a static IP address, subnet mask and default gateway using the text field provided. The default setting is **DHCP**.

Host Name Enter the DHCP Host Name here.

IP Address If you are using a static IP address, enter the IP address here.

Subnet Mask If you are using a static IP address, enter the subnet mask for the currently configured IP address.

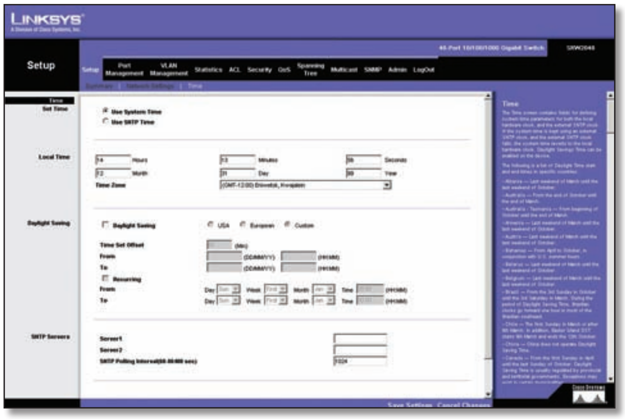
Default Gateway If you are using a static IP address, enter the IP address of the default gateway.

DNS Server If you are using a static IP address, enter the IP address of the DNS server. A second DNS address can be specified in the additional text field provided.

Click **Save Settings** to save your changes. Click **Cancel Changes** to cancel your changes.

Setup > Time

The *Time* screen allows you to configure the time settings for the Switch.



● Use System Time
○ Use SNTP Time

Hours: 14 Minutes: 13 Seconds: 56
Month: 12 Day: 31 Year: 99
Time Zone: (GMT-12:00) Eniwetok, Kwajalein

□ Daylight Saving ○ USA ○ European ○ Custom
Time Set Offset (Min)
From (DD/MM/YY) (HH:MM)
To (DD/MM/YY) (HH:MM)
□ Recurring
From Day Sun Week First Month Jan Time (HH:MM)
To Day Sun Week First Month Jan Time (HH:MM)

Server1
Server2
SNTP Polling Interval(60-86400 sec): 1024

Setup > Time

Set Time

Use System Time Select this option to use the local hardware clock.

Use SNTP Time Select this option to synchronize the time to an SNTP (Simple Network Time Protocol) server.

Local Time

Hours Enter the two-digit hour here.

Minutes Enter the two-digit minutes here.

Seconds Enter the two-digit seconds here.

Month Enter the two-digit month here.

Day Enter the two-digit day here.

Year Enter the last two digits of the year here (for example, **08** instead of **2008**).

Time Zone Select your time zone from the drop-down menu. Time zones are identified by the difference between Greenwich Mean Time (GMT) and local time.

Daylight Saving

Daylight Saving Select **Daylight Saving** to enable it on the Switch. If the Switch should use US daylight savings, then select **USA**. If the Switch should use EU daylight savings, then select **European**. If it should use another kind of daylight savings, then select **Custom** and complete the *From* and *To* fields.

Time Set Offset For non-US and European countries, specify the amount of time for daylight savings. The default is **60** minutes. The range is (**1–1440**).

From If you selected **Other** for the *Daylight Saving* setting, enter the date and time when daylight savings begins.

To If you selected **Other** for the *Daylight Saving* setting, enter the date and time when daylight savings ends.

Recurring If you selected **Other** for the *Daylight Saving* setting and daylight savings has the same start and end dates and times every year, select **Recurring**.

From If you selected **Recurring**, enter the date and time when daylight savings begins.

To If you selected **Recurring**, enter the date and time when daylight savings ends.

SNTP Servers

Server1 Enter the primary SNTP server here.

Server2 Enter a secondary SNTP server here.

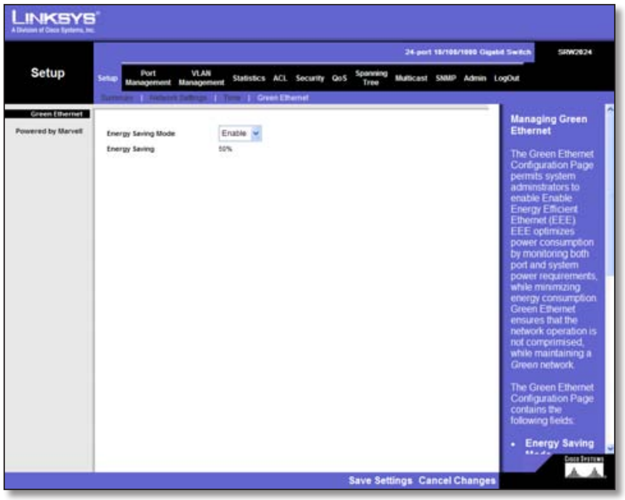
SNTP Polling Interval (60–86400 sec) Specify the amount of time (in seconds) before the Switch polls the SNTP server. The default value is every **1024** seconds (approx. 17 minutes).

Click the **Save Settings** button to save your changes or click Cancel Changes to discard the information.

Setup > Green Ethernet

The *Green Ethernet Configuration* screen allows you to enable energy-efficient Ethernet (EEE). EEE optimizes power consumption by monitoring both port and system power requirements, while minimizing energy consumption. Green Ethernet ensures that the network operation is not comprimised, while at the same time maintaining a Green network.

This feature has been added to version 1.1 of SRW2048 and to version 1.3 of SRW2024 and SRW2016.



Energy Saving Mode: Enable

Energy Saving: 50%

Managing Green Ethernet

The Green Ethernet Configuration Page permits system adminstrators to enable Enable Energy Efficient Ethernet (EEE) EEE optimizes power consumption by monitoring both port and system power requirements, while minimizing energy consumption Green Ethernet ensures that the network operation is not comprimised, while maintaining a Green network

The Green Ethernet Configuration Page contains the following fields:

- Energy Saving

Setup > Green Ethernet

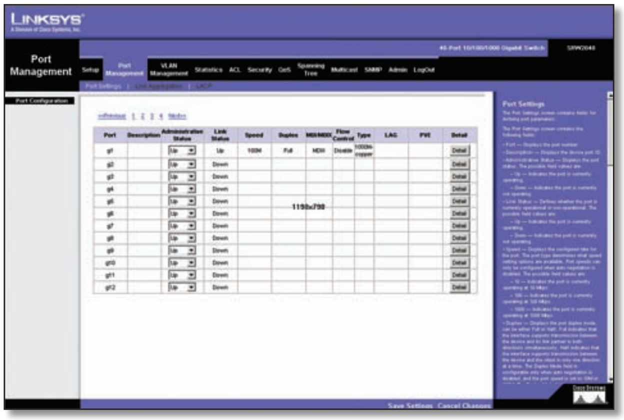
Energy Saving Mode Indicates if Green Ethernet is enabled on the device. The possible field values are:

- **Enable** Enables Green Ethernet on the device. This is the default value.
- **Disable** Disables Green Ethernet on the device.

Energy Saving Indicates the amount of energy conserved by enabling Green Ethernet.

Port Management > Port Settings

The *Port Settings* screen shows you the settings for each of the Switch's ports.



Port	Description	Administrative Status	Link Status	Speed	Duplex	MDI/MDIX	Flow Control	Type	LAG	PVE	Detail
g1		Up	Up	100M	Full	MDIX	Disable	1000M-copper			Detail
g2		Up	Down								Detail
g3		Up	Down								Detail
g4		Up	Down								Detail
g5		Up	Down								Detail
g6		Up	Down								Detail
g7		Up	Down								Detail
g8		Up	Down								Detail
g9		Up	Down								Detail
g10		Up	Down								Detail
g11		Up	Down								Detail
g12		Up	Down								Detail

Port Settings

Port Management > Port Settings

Port The port number. To use an SFP module, click the **Detail** button of the appropriate port (G1, G2).

Description A brief description of the port. To enter or modify the description, click the **Detail** button.

Administrative Status The port's administrative status. To take the port offline, select the **Down** option. To allow normal access to the port, select **Up**.

Link Status The port's operational status. **Up** indicates a port has an active connection. **Down** indicates there is no active connection or the port has been taken offline by an Administrator.

Speed The port's configured rate in Mbps. The speed can be configured only when *auto-negotiation* is disabled on that port.

Duplex The port's current duplex mode: **Full** (transmission occurs in both directions simultaneously) or **Half** (transmission occurs in only one direction at a time). This mode can be configured only when auto-negotiation is disabled and port speed is set to **10Mbps** or **100Mbps**. It cannot be configured on Link Aggregation Groups (LAGs).

MDI/MIDX The MDI/MDIX status of the port. The **MDI** setting is used if the port is connected to an end station. The **MDIX** setting is used if the port is connected to a hub or another switch.

Flow Control The type of flow control currently in use. It is active when the port uses the Full Duplex Mode.

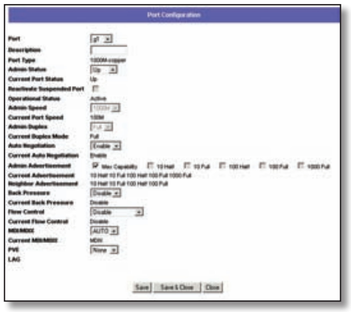
Type The port type.

LAG The Link Aggregated Group (LAG) to which the port belongs, if the port is a LAG member.

PVE When a port is a Private VLAN Edge (PVE) port, it bypasses the Forwarding Database and forwards all unicast, multicast, and broadcast traffic to an uplink. Uplinks can be ports or LAGs.

Detail The **Detail** button opens the *Port Configuration Detail* screen.

Port Settings > Port Configuration



Port Configuration

Port	g1
Description	
Port Type	1000M-copper
Admin Status	Up
Current Port Status	Up
Reactivate Suspended Port	□
Operational Status	Active
Admin Speed	1000M
Current Port Speed	100M
Admin Duplex	Full
Current Duplex Mode	Full
Auto Negotiation	Enable
Current Auto Negotiation	Enable
Admin Advertisement	☑ Max Capability □ 10 Half □ 10 Full □ 100 Half □ 100 Full □ 1000 Full
Current Advertisement	10 Half 10 Full 100 Half 100 Full 1000 Full
Neighbor Advertisement	10 Half 10 Full 100 Half 100 Full
Back Pressure	Disable
Current Back Pressure	Disable
Flow Control	Disable
Current Flow Control	Disable
MDI/MDIX	AUTO
Current MDI/MDIX	MDIX
PVE	None
LAG	

Port Settings > Port Configuration

Port The port number.

Description User-defined port description. To modify the description, click **Detail**.

Port Type (Read-only) The port's connection type and speed.

Admin Status The port's administrative status. Select either **Up** or **Down** to enable or disable traffic forwarding through the port.

Current Port Status (Read-only) The port's connection status, either **Up** or **Down**.

Reactivate Suspended Port If the port has been suspended, select this checkbox to reactivate the port.

Operational Status (Read-only) Displays whether the port is operational or non-operational.

Admin Speed Use this to manually set the port's configured transmission rate in Mbps. You can select **10M**, **100M**, or **1000M** (Gigabit ports only). Before you change this setting, make sure that *Auto Negotiation* is disabled.

Current Port Speed (Read-only) The port's current rate in Mbps.

Admin Duplex The port's duplex mode (**Full** or **Half**).

Current Duplex Mode (Read-only) The port's current duplex mode.

Auto Negotiation Select **Enable** (default) or **Disable** to enable or disable Auto-Negotiation on the port. Auto-Negotiation allows a port to advertise its transmission rate, duplex mode, and flow control settings to other ports. If using a small-form-factor pluggable (SFP) module, select **Disable**.

Current Auto Negotiation (Read-only) The port's current Auto-Negotiation status.

Admin Advertisement Specifies the capabilities to be advertised by the port. Multiple options may be selected or Max Capability can be selected to cover all of the options. The available options are:

- **Max Capability** The port advertises all speeds and duplex mode settings.
- **10 Half** The port advertises 10 Mbps half-duplex operation.
- **10 Full** The port advertises 10 Mbps full-duplex operation.
- **100 Half** The port advertises 100 Mbps half-duplex operation.
- **100 Full** The port advertises 100 Mbps full-duplex operation.
- **1000 Full** (Gigabit ports only) The port advertises 1000 Mbps full-duplex operation.

NOTE: The SRW248G4 and SRW224G4 offer only the **1000** option on ports G1-G4.

Current Advertisement (Read-only) The speed and duplex mode settings that the port is currently advertising.

Neighbor Advertisement (Read-only) The speed and duplex mode settings that the neighbor port (the port to which the selected port is connected) is advertising. If the port has no neighbor port, this field displays "Unknown."

Back Pressure Select **Enable** or **Disable** (default) to enable or disable Back Pressure mode on the port.

Current Back Pressure (Read-only) The current Back Pressure mode on the port.

Flow Control Select **Enable** or **Disable** to manually enable or disable flow control, or select **Auto-Negotiation** for automatic selection of flow control on the port.

Current Flow Control (Read-only) The current flow control setting.

MDI/MDIX Select the port's MDI/MDIX type, either **MDI**, **MDIX**, or **Auto** (automatically detect type). The **MDI** setting is used if the port is connected to an end station. The **MDIX** setting is used if the port is connected to a hub or another switch.

Current MDI/MDIX (Read-only) The port's current MDI/MDIX type.

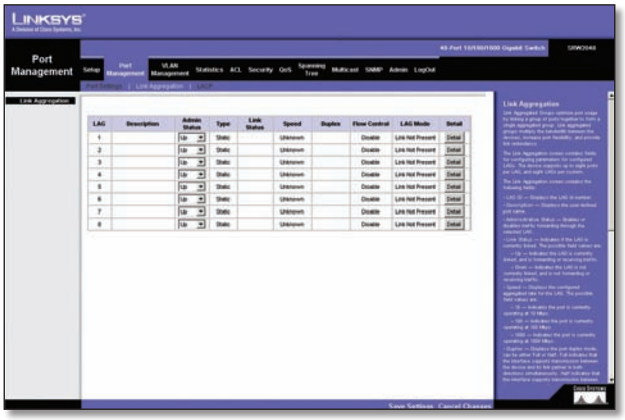
PVE When a port is a Private VLAN Edge (PVE) port, it bypasses the Forwarding Database and forwards all unicast, multicast, and broadcast traffic to an uplink.

NOTE: All ports in the same PVE group should join the same VLAN group.

LAG (Read-only) The LAG to which this port belongs, if the port is a LAG member.

Click **Save** to save the settings and leave the screen open. Click **Save & Close** to save the settings and close the screen. Click **Close** to close the screen without saving the settings.

Port Management > Link Aggregation



LAG	Description	Admin Status	Type	Link Status	Speed	Duplex	Flow Control	LAG Mode	Detail
1		Up	Static		Unknown		Disable	Link Not Present	Detail
2		Up	Static		Unknown		Disable	Link Not Present	Detail
3		Up	Static		Unknown		Disable	Link Not Present	Detail
4		Up	Static		Unknown		Disable	Link Not Present	Detail
5		Up	Static		Unknown		Disable	Link Not Present	Detail
6		Up	Static		Unknown		Disable	Link Not Present	Detail
7		Up	Static		Unknown		Disable	Link Not Present	Detail
8		Up	Static		Unknown		Disable	Link Not Present	Detail

Port Management > Link Aggregation

LAG The LAG number (1-8).

Description The user-defined description for the LAG.

Admin Status The administrative status of the LAG. **Up** indicates that the LAG is available. **Down** indicates that administrator has taken the port offline. When modifying the option, click **Save Settings**.

Type Indicates if a LAG has been manually configured (static) or dynamically set through LACP.

Link Status Displays the status of the link.

Speed Displays the port speed.

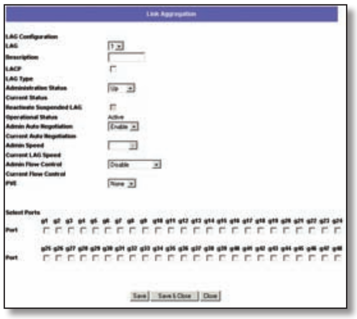
Duplex Displays the duplex mode.

Flow Control Displays the flow control status of the LAG. It is active when the port uses Full Duplex Mode.

LAG Mode Displays the LAG status: **On**, **Off**, or **Not Present**.

Detail To create a new LAG, click **Detail** in the *Detail* column to display the *Link Aggregation* detail screen.

Link Aggregation > Detail



LAG Configuration
LAG: 1
Description:
LACP: □
LAG Type
Administration Status: Up
Current Status
Reactivate Suspended LAG: □
Operational Status: Active
Admin Auto Negotiation: Enable
Current Auto Negotiation
Admin Speed:
Current LAG Speed
Admin Flow Control: Disable
Current Flow Control
PVE: None

Select Ports
Port: g1 □ g2 □ g3 □ g4 □ g5 □ g6 □ g7 □ g8 □ g9 □ g10 □ g11 □ g12 □ g13 □ g14 □ g15 □ g16 □ g17 □ g18 □ g19 □ g20 □ g21 □ g22 □ g23 □ g24 □
Port: g25 □ g26 □ g27 □ g28 □ g29 □ g30 □ g31 □ g32 □ g33 □ g34 □ g35 □ g36 □ g37 □ g38 □ g39 □ g40 □ g41 □ g42 □ g43 □ g44 □ g45 □ g46 □ g47 □ g48 □

Link Aggregation > Detail

LAG Configuration

LAG The LAG number (**1**-**8**). To display or edit another LAG, select the number from the drop-down menu.

Description The user-defined LAG description of up to 64 characters. This field is blank by default.

LACP Select the checkbox to enable Link Aggregation Control Protocol (LACP).

LAG Type (Read-only) The LAG type.

Administrative Status The LAG's administrative status. Select either **Up** or **Down** to enable or disable the LAG.

Current Status (Read-only) The LAG's status, either **Up** or **Down**.

Reactivate Suspended LAG If the LAG has been suspended, select this checkbox to reactivate the LAG.

Operational Status (Read-only) Displays whether the LAG is operational or non-operational.

Admin Auto Negotiation Enables or disables Auto Negotiation on the LAG. Auto-negotiation is a protocol between two link partners that enables a LAG to advertise its transmission rate, duplex mode and flow control (the flow control default is disabled) abilities to its partner.

Current Auto Negotiation The current *Auto Negotiation* setting.

Admin Speed The configured speed at which the LAG is operating.

Current LAG Speed (Read-only) The current speed at which the LAG is operating.

Admin Flow Control Enables or disables flow control or enables the auto negotiation of flow control on the LAG.

Current Flow Control (Read-only) The current flow control setting.

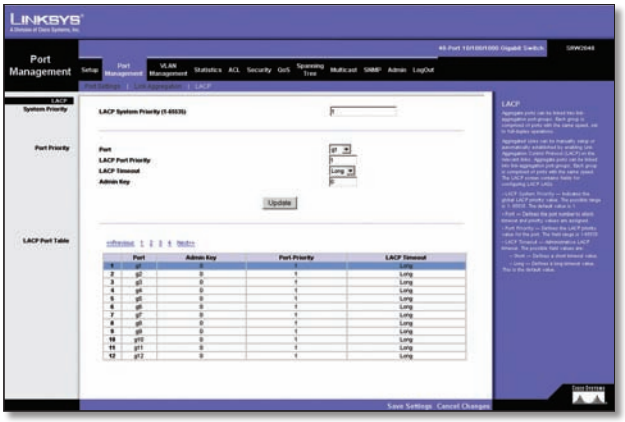
PVE Displays the PVE group to which the LAG is configured.

Select Ports

Ports Displays the ports that are members of the selected LAG.

Port Management > LACP

You can use the Link Aggregation Control Protocol (LACP) to link aggregate ports into link aggregation port groups. Each group is comprised of ports with the same speed, set to full-duplex operation.



LACP System Priority (1-65535): 1

Port: g1
LACP Port Priority: 1
LACP Timeout: Long
Admin Key: 0

	Port	Admin Key	Port Priority	LACP Timeout
1	g1	0	1	Long
2	g2	0	1	Long
3	g3	0	1	Long
4	g4	0	1	Long
5	g5	0	1	Long
6	g6	0	1	Long
7	g7	0	1	Long
8	g8	0	1	Long
9	g9	0	1	Long
10	g10	0	1	Long
11	g11	0	1	Long
12	g12	0	1	Long

Port Management > LACP

You can manually set up aggregated links or automatically establish them by enabling LACP on the relevant links. The *LACP* screen contains fields for configuring LACP LAGs.

LACP System Priority The global LACP priority value. The possible range is **1–65,535**. The default value is **1**.

Port The port number to which timeout and priority values are assigned.

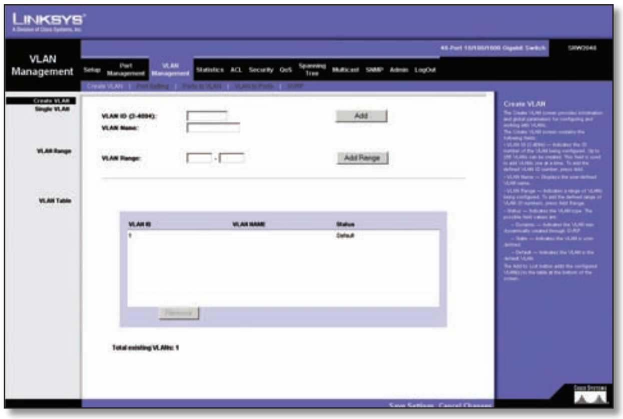
LACP Port Priority The LACP priority value for the port. The field range is **1–65,535**.

LACP Timeout Administrative LACP timeout. A short or long timeout value can be selected. Long is the default.

Admin Key A channel will only be formed between ports having the same admin key. This only applies to ports located on the same switch.

VLAN Management > Create VLAN

The *Create VLAN* screen provides information and global parameters for configuring and working with VLANs.



VLAN ID (2-4094):
VLAN Name:

VLAN Range: -

VLAN ID	VLAN NAME	Status
1		Default

Total existing VLANs: 1

VLAN Management > Create VLAN

Single VLAN

VLAN ID (2–4094) The ID number of the VLAN being configured. Up to 256 VLANs can be created. This field is used to add VLANs one at a time. To add the defined VLAN ID number, click **Add**.

VLAN Name The user-defined VLAN name.

VLAN Range

VLAN Range The range of VLANs being configured. To add the defined range of VLAN ID numbers, click **Add Range**.

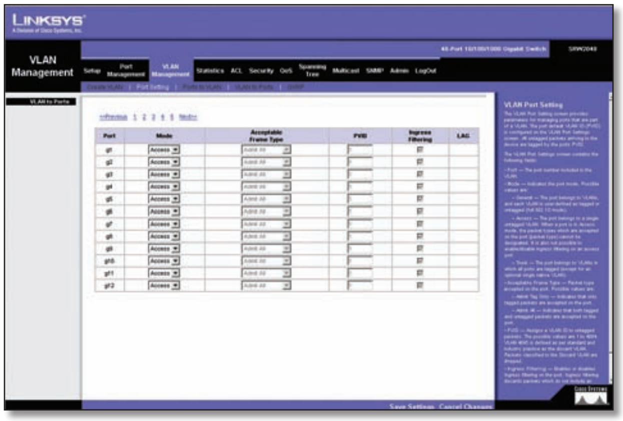
VLAN Table

The VLAN Table displays a list of all configured VLANs. The VLAN ID, VLAN Name, and status of the VLAN are displayed here. To remove a VLAN, click **Remove**.

NOTE: VLANs that are created dynamically using GARP VLAN Registration Protocol (GVRP) are assigned a VLAN name "Undefined."

VLAN Management > Port Setting

The *VLAN Port Setting* screen provides parameters for managing ports that are part of a VLAN. The port default VLAN ID (PVID) is configured on the *VLAN Port Setting* screen. All untagged packets arriving to the device are tagged by the ports PVID.



VLAN Management > Port Settings

Port The port number included in the VLAN.

Mode Indicates the port mode. Possible values are:

- **General** The port belongs to VLANs, and each VLAN is user-defined as tagged or untagged (full 802.1Q mode).
- **Access** The port belongs to a single untagged VLAN. When a port is in Access mode, the packet types which are accepted on the port (packet type) cannot be designated. It is also not possible to enable or disable ingress filtering on an access port.
- **Trunk** The port belongs to VLANs in which all ports are tagged (except for an optional single native VLAN).

Acceptable Frame Type Packet type accepted on the port. Possible values are:

- **Admit All** Indicates that both tagged and untagged packets are accepted on the port.
- **Admit Tag Only** Indicates that only tagged packets are accepted on the port.

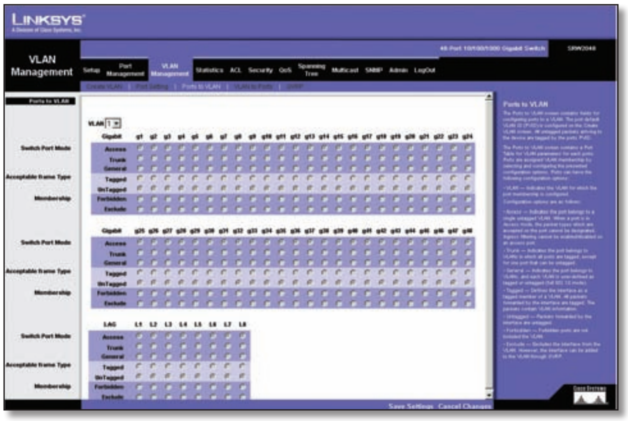
PVID Assigns a VLAN ID to untagged packets. The possible values are **2–4094**. VLAN 4095 is defined as per standard and industry practice as the discard VLAN. Packets classified to the Discard VLAN are dropped.

Ingress Filtering Enables or disables Ingress filtering on the port. Ingress filtering discards packets which do not include an ingress port.

LAG Indicates the LAG to which the VLAN is defined.

VLAN Management > Ports to VLAN

The *Ports to VLAN* screen contains fields for configuring ports to a VLAN. The port default VLAN ID (PVID) is configured on the *Create VLAN* screen. All untagged packets arriving to the device are tagged by the ports PVID.



VLAN Management > Ports to VLAN

The *Ports to VLAN* screen contains a Port Table for VLAN parameters for each port. Ports are assigned VLAN membership by selecting and configuring the presented configuration options.

VLAN The VLAN number.

Access Indicates the port belongs to a single untagged VLAN. When a port is in Access mode, the packet types which are accepted on the port cannot be designated. Ingress filtering cannot be enabled or disabled on an access port.

Trunk Indicates the port belongs to VLANs in which all ports are tagged, except for one port that can be untagged.

General Indicates the port belongs to VLANs, and each VLAN is user-defined as tagged or untagged (full 802.1Q mode).

Tagged Defines the interface as a tagged member of a VLAN. All packets forwarded by the interface are tagged. The packets contain VLAN information.

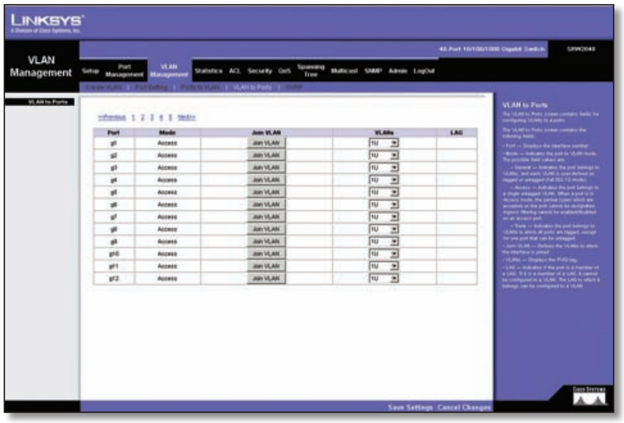
Untagged Packets forwarded by the interface are untagged.

Forbidden Forbidden ports are not included in the VLAN.

Exclude Excludes the interface from the VLAN. However, the interface cannot be added to the VLAN through GVRP.

VLAN Management > VLAN to Ports

The *VLAN to Ports* screen contains fields for configuring VLANs to a ports.



Port	Mode	Join VLAN	VLANs	LAG
g1	Access	Join VLAN	1U	
g2	Access	Join VLAN	1U	
g3	Access	Join VLAN	1U	
g4	Access	Join VLAN	1U	
g5	Access	Join VLAN	1U	
g6	Access	Join VLAN	1U	
g7	Access	Join VLAN	1U	
g8	Access	Join VLAN	1U	
g9	Access	Join VLAN	1U	
g10	Access	Join VLAN	1U	
g11	Access	Join VLAN	1U	
g12	Access	Join VLAN	1U	

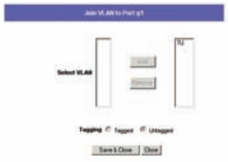
VLAN Management > VLAN to Ports

Port Displays the interface number.

Mode Indicates the port-to-VLAN mode. The possible field values are:

- **General** Indicates the port belongs to VLANs, and each VLAN is user-defined as tagged or untagged (full 802.1Q mode).
- **Access** Indicates the port belongs to a single untagged VLAN. When a port is in **Access** mode, the packet types which are accepted on the port cannot be designated. Ingress filtering cannot be enabled or disabled on an access port.
- **Trunk** Indicates the port belongs to VLANs in which all ports are tagged, except for one port that can be untagged.

Join VLAN Defines the VLANs to which the interface is joined.



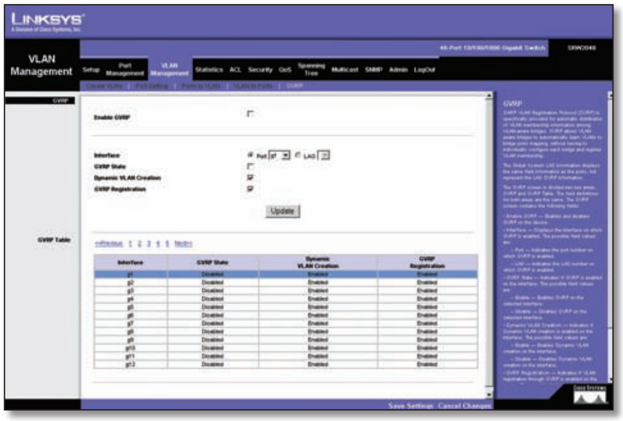
VLAN to Ports > Join VLAN

VLANs Displays the PVID tag.

LAG Indicates if the port is a member of a LAG. If it is a member of a LAG, it cannot be configured to a VLAN. The LAG to which it belongs can be configured to a VLAN.

VLAN Management > GVRP

GARP VLAN Registration Protocol (GVRP) is specifically provided for automatic distribution of VLAN membership information among VLAN-aware bridges. GVRP allows VLAN-aware bridges to automatically learn VLANs to bridge ports mapping, without having to individually configure each bridge and register VLAN membership.



Enable GVRP □

Interface ● Port g1 ○ LAG

GVRP State □

Dynamic VLAN Creation ☑

GVRP Registration ☑

Interface	GVRP State	Dynamic VLAN Creation	GVRP Registration
g1	Disabled	Enabled	Enabled
g2	Disabled	Enabled	Enabled
g3	Disabled	Enabled	Enabled
g4	Disabled	Enabled	Enabled
g5	Disabled	Enabled	Enabled
g6	Disabled	Enabled	Enabled
g7	Disabled	Enabled	Enabled
g8	Disabled	Enabled	Enabled
g9	Disabled	Enabled	Enabled
g10	Disabled	Enabled	Enabled
g11	Disabled	Enabled	Enabled
g12	Disabled	Enabled	Enabled

VLAN Management > GVRP

The Global System LAG information displays the same field information as the ports, but represents the LAG GVRP information.

The *GVRP* screen is divided into two areas, GVRP and GVRP Table. The field definitions for both areas are the same.

Enable GVRP Enables and disables GVRP on the device.

Interface Displays the interface on which GVRP is enabled. The possible field values are:

- **Port** Indicates the port number on which GVRP is enabled.
- **LAG** Indicates the LAG number on which GVRP is enabled.

GVRP State Check this checkbox to enable GVRP on the interface.

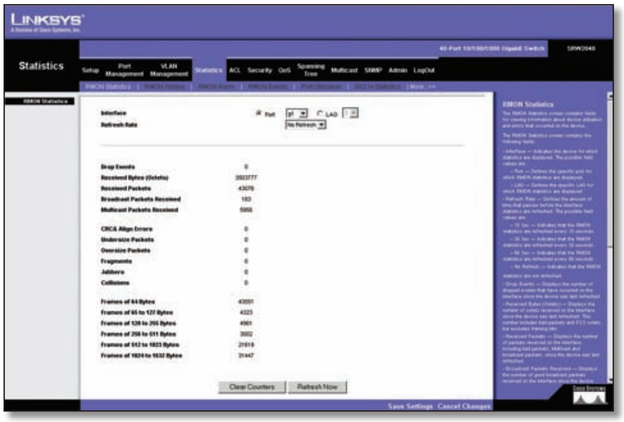
Dynamic VLAN Creation Check this checkbox to enable Dynamic VLAN creation on the interface.

GVRP Registration Check this checkbox to enable VLAN registration through GVRP on the device.

The **Update** button adds the configured GVRP setting to the table at the bottom of the screen.

Statistics > RMON Statistics

The *RMON Statistics* screen contains fields for viewing information about device utilization and errors that occurred on the device.


LINKSYS
Statistics
48-Port 10/100/1000 Gigabit Switch
SRW2048
Setup Port Management VLAN Management Statistics ACL Security QoS Spanning Tree Multicast SNMP Admin LogOut
RMON Statistics | RMON History | RMON Alarm | RMON Events | Port Utilization | 802.1x Statistics | More >>
RMON Statistics
Clear Counters
Refresh Now
Save Settings Cancel Changes

Interface	● Port g1 ○ LAG 1
Refresh Rate	No Refresh
Drop Events	0
Received Bytes (Octets)	3503777
Received Packets	43076
Broadcast Packets Received	183
Multicast Packets Received	5956
CRC& Align Errors	0
Undersize Packets	0
Oversize Packets	0
Fragments	0
Jabbers	0
Collisions	0
Frames of 64 Bytes	43551
Frames of 65 to 127 Bytes	4325
Frames of 128 to 255 Bytes	4061
Frames of 256 to 511 Bytes	3002
Frames of 512 to 1023 Bytes	21819
Frames of 1024 to 1632 Bytes	31447

Statistics > RMON Statistics

Interface Indicates the device for which statistics are displayed. The possible field values are:

- **Port** Defines the specific port for which RMON statistics are displayed.
- **LAG** Defines the specific LAG for which RMON statistics are displayed.

Refresh Rate Defines the amount of time that passes before the interface statistics are refreshed. The possible field values are:

- **No Refresh** Indicates that the RMON statistics are not refreshed.
- **15 Sec** Indicates that the RMON statistics are refreshed every 15 seconds.
- **30 Sec** Indicates that the RMON statistics are refreshed every 30 seconds.
- **60 Sec** Indicates that the RMON statistics are refreshed every 60 seconds.

Drop Events Displays the number of dropped events that have occurred on the interface since the device was last refreshed.

Received Bytes (Octets) Displays the number of octets received on the interface since the device was last refreshed. This number includes bad packets and Frame Check Sequence (FCS) octets, but excludes framing bits.

Received Packets Displays the number of packets received on the interface (including bad packets, Multicast, and broadcast packets) since the device was last refreshed.

Broadcast Packets Received Displays the number of good broadcast packets received on the interface since the device was last refreshed. This number does not include Multicast packets.

Multicast Packets Received Displays the number of good Multicast packets received on the interface since the device was last refreshed.

CRC & Align Errors Displays the number of CRC and Align errors that have occurred on the interface since the device was last refreshed.

Undersize Packets Displays the number of undersized packets (less than 64 octets) received on the interface since the device was last refreshed.

Oversize Packets Displays the number of oversized packets (over 1518 octets) received on the interface since the device was last refreshed.

Fragments Displays the number of fragments (packets with less than 64 octets, excluding framing bits, but including FCS octets) received on the interface since the device was last refreshed.

Jabbers Displays the total number of received packets that were longer than 1518 octets. This number excludes frame bits, but includes FCS octets that had either a bad FCS with an integral number of octets (FCS Error) or a bad FCS with a non-integral octet (Alignment Error) number. The field range to detect jabbers is **20–150** ms.

Collisions Displays the number of collisions received on the interface since the device was last refreshed.

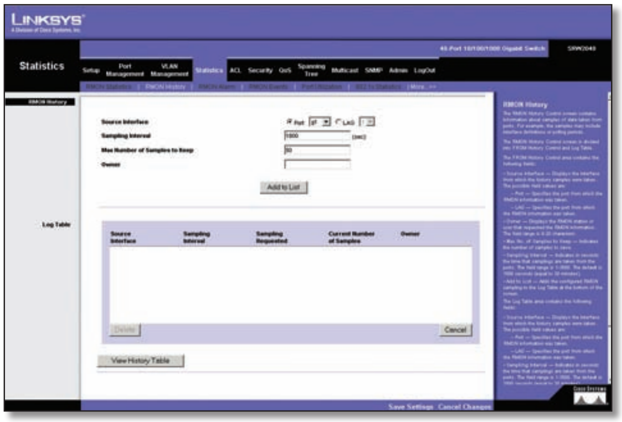
Frames of xx Bytes Number of xx-byte frames received on the interface since the device was last refreshed.

Clear Counters button This option will reset all of the statistic counts.

Refresh Now button Use this option to refresh the statistics that are displayed on the page.

Statistics > RMON History

The *RMON History* screen contains information about samples of data taken from ports. For example, the samples may include interface definitions or polling periods.



Source Interface ● Port g1 ○ LAG 1
Sampling Interval 1800 (sec)
Max Number of Samples to Keep 50
Owner

Source Interface	Sampling Interval	Sampling Requested	Current Number of Samples	Owner

Statistics > RMON History

The *RMON History Control* screen is divided into RMON History and Log Table.

Source Interface Displays the interface from which the history samples were taken. The possible field values are:

- **Port** Specifies the port from which the RMON information was taken.
- **LAG** Specifies the port from which the RMON information was taken.

Sampling Interval Indicates (in seconds) the time that samplings are taken from the ports. The field range is **1–3600**. The default is **1800** seconds (equal to 30 minutes).

Max No of Samples to Keep. Indicates the number of samples to save.

Owner Displays the RMON station or user that requested the RMON information. The field range is **0–20** characters.

The **Add to List** button adds the configured RMON sampling to the Log Table at the bottom of the screen.

Log Table

Source Interface Displays the interface from which the history samples were taken.

Sampling Interval Indicates the time in seconds that samplings are taken from the port.

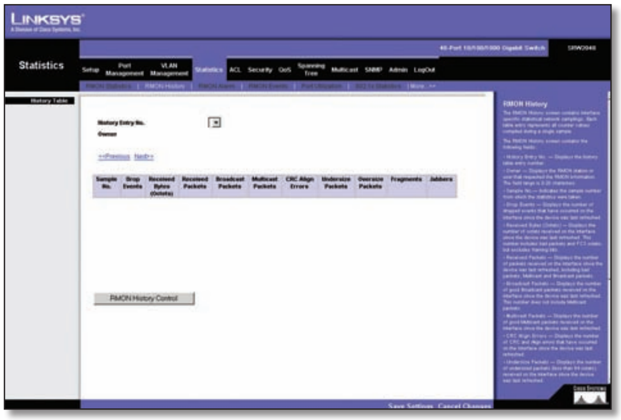
Sampling Requested Displays the number of samples to be saved. The field range is **1–65,535**. The default value is **50**.

Current Number of Samples Displays the current number of samples taken.

View History Table button This button opens the *RMON History* screen.

RMON History

The *RMON History* screen contains interface-specific statistical network samplings. Each table entry represents all counter values compiled during a single sample.



History Entry No.
Owner

Sample No.	Drop Events	Received Bytes (Octets)	Received Packets	Broadcast Packets	Multicast Packets	CRC Align Errors	Undersize Packets	Oversize Packets	Fragments	Jabbers

RMON History Table

History Entry No Displays the history table entry number.

Owner Displays the RMON station or user that requested the RMON information. The field range is 0–20 characters.

Sample No Indicates the sample number from which the statistics were taken.

Drop Events Displays the number of dropped events that have occurred on the interface since the device was last refreshed. This option is not available on the SRW224G4 and SRW248G4.

Received Bytes (Octets) Displays the number of octets received on the interface since the device was last refreshed. This number includes bad packets and FCS octets, but excludes framing bits.

Received Packets Displays the number of packets received on the interface since the device was last refreshed, including bad packets, Multicast and Broadcast packets.

Broadcast Packets Displays the number of good Broadcast packets received on the interface since the device was last refreshed. This number does not include Multicast packets.

Multicast Packets Displays the number of good Multicast packets received on the interface since the device was last refreshed.

CRC Align Errors Displays the number of CRC and Align errors that have occurred on the interface since the device was last refreshed.

Undersize Packets Displays the number of undersized packets (less than 64 octets) received on the interface since the device was last refreshed.

Oversize Packets Displays the number of oversized packets (over 1518 octets) received on the interface since the device was last refreshed.

Fragments Displays the number of fragments (packets with less than 64 octets, excluding framing bits, but including FCS octets) received on the interface since the device was last refreshed.

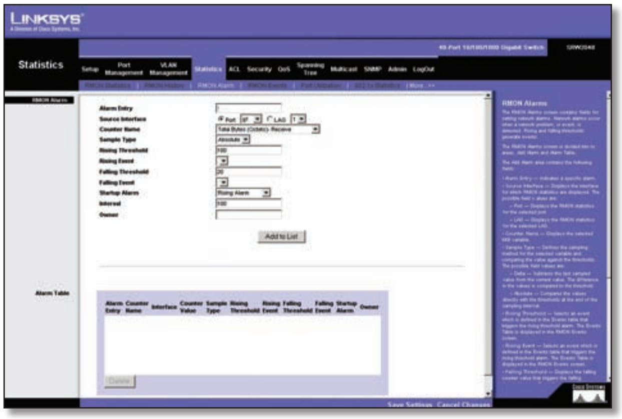
Jabbers Displays the total number of received packets that were longer than 1518 octets. This number excludes frame bits, but includes FCS octets that had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral octet (Alignment Error) number. The field range to detect jabbers is **20–150** ms.

Collisions Displays the number of collisions received on the interface since the device was last refreshed.

Utilization Displays the percentage of the interface utilized.

Statistics > RMON Alarm

The *RMON Alarm* screen contains fields for setting network alarms. Network alarms occur when a network problem, or event, is detected. Rising and falling thresholds generate events.



Alarm Entry: 1
Source Interface: ● Port g1 ○ LAG 1
Counter Name: Total Bytes (Octets) Receive
Sample Type: Absolute
Rising Threshold: 100
Rising Event:
Falling Threshold: 20
Falling Event:
Startup Alarm: Rising Alarm
Interval: 100
Owner:

Alarm Table

Alarm Entry	Counter Name	Interface	Counter Value	Sample Type	Rising Threshold	Rising Event	Falling Threshold	Falling Event	Startup Alarm	Owner

Statistics > RMON Alarm

Alarm Entry Indicates a specific alarm.

Source Interface Displays the interface for which RMON statistics are displayed. The possible field values are:

- **Port** Displays the RMON statistics for the selected port.
- **LAG** Displays the RMON statistics for the selected LAG.

Counter Name Displays the selected MIB variable.

Sample Type Defines the sampling method for the selected variable and comparing the value against the thresholds. The possible field values are:

- **Absolute** Compares the values directly with the thresholds at the end of the sampling interval.
- **Delta** Subtracts the last sampled value from the current value. The difference in the values is compared to the threshold.

Rising Threshold Displays the rising counter value that triggers the rising threshold alarm. The rising threshold is presented on top of the graph bars. Each monitored variable is designated a color.

Rising Event Displays the mechanism in which the alarms are reported. The possible field values are:

- **LOG** Indicates there is not a saving mechanism for either the device or in the management system. If the device is not reset, the entry remains in the Log Table.
- **TRAP** Indicates that an SNMP trap is generated, and sent via the Trap mechanism. The Trap can also be saved using the Trap mechanism.
- **Both** Indicates that both the Log and Trap mechanism are used to report alarms.

Falling Threshold Displays the falling counter value that triggers the falling threshold alarm. The falling threshold is graphically presented on top of the graph bars. Each monitored variable is designated a color.

Falling Event Displays the mechanism in which the alarms are reported. The possible field values are:

- **LOG** Indicates there is not a saving mechanism for either the device or in the management system. If the device is not reset, the entry remains in the Log Table.
- **TRAP** Indicates that a SNMP trap is generated, and sent via the Trap mechanism. The Trap can also be saved using the Trap mechanism.
- **Both** Indicates that both the Log and Trap mechanism are used to report alarms.

Startup Alarm Displays the trigger that activates the alarm generation. Rising is defined by crossing the threshold from a low-value threshold to a higher-value threshold.

Interval Defines the alarm interval time in seconds.

Owner Displays the device or user that defined the alarm.

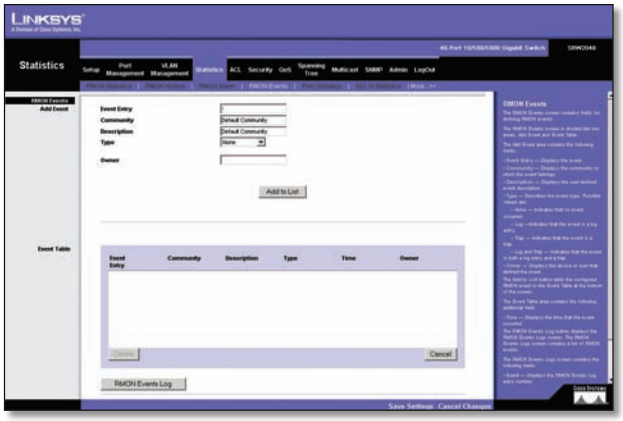
Use the **Add to List** button to add the RMON Alarms Table entry.

The Alarm Table area contains the following additional field:

Counter Value Displays the current counter value for the particular alarm.

Statistics > RMON Events

The *RMON Events* screen contains fields for defining RMON events.



Event Entry
Community: Default Community
Description: Default Community
Type: None
Owner

Event Entry	Community	Description	Type	Time	Owner

Statistics > RMON Events

Add Event

Event Entry Displays the event.

Community Displays the community to which the event belongs.

Description Displays the user-defined event description.

Type Describes the event type. Possible values are:

- **None** Indicates that no event occurred.
- **Log** Indicates that the event is a log entry.
- **Trap** Indicates that the event is a trap.
- **Log and Trap** Indicates that the event is both a log entry and a trap.

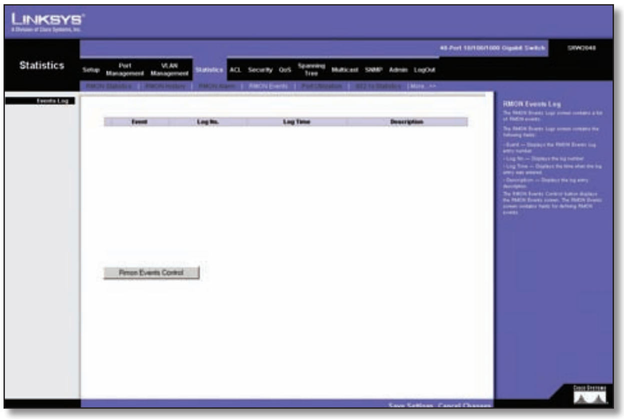
Owner Displays the device or user that defined the event.

Use the **Add to List** button to add the configured RMON event to the Event Table at the bottom of the screen.

The Event Table area contains the following additional field:

Time Displays the time that the event occurred.

RMON Events Log



Event	Log No.	Log Time	Description

RMON Events > Events Log

Event Displays the RMON events log entry number.

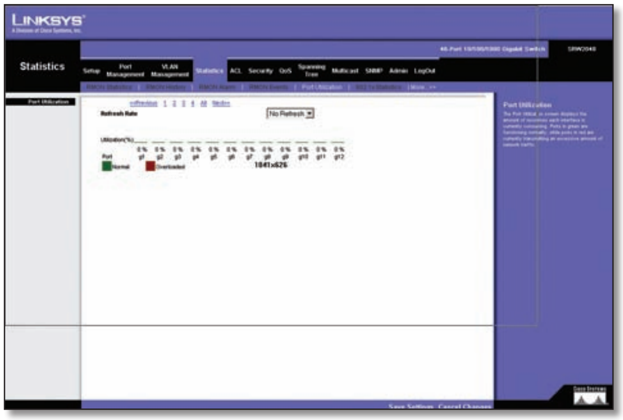
Log No Displays the log number.

Log Time Displays the time the log entry was entered.

Description Displays the log entry description.

Statistics > Port Utilization

The *Port Utilization* screen displays the amount of resources each interface is currently consuming. Ports in green are functioning normally, while ports in red are currently transmitting an excessive amount of network traffic.



Refresh Rate: No Refresh

Port	g1	g2	g3	g4	g5	g6	g7	g8	g9	g10	g11	g12
Utilization(%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

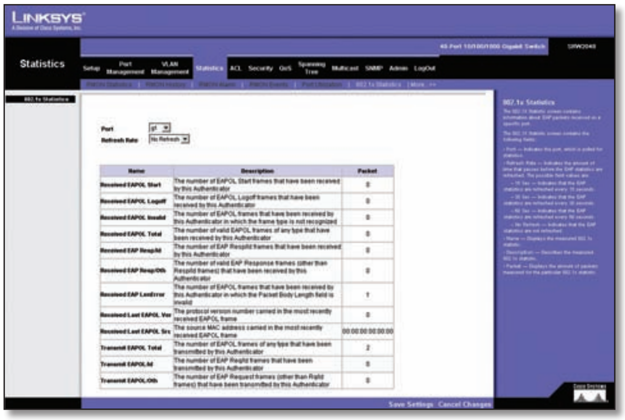
Statistics > Port Utilization

Refresh Rate Indicates the amount of time that passes before the port utilization statistics are refreshed. The possible field values are:

- **No Refresh** Statistics are not refreshed.
- **15 Sec** Statistics are refreshed every 15 seconds.
- **30 Sec** Statistics are refreshed every 30 seconds.
- **60 Sec** Statistics are refreshed every 60 seconds.

Statistics > 802.1x Statistics

The *802.1X Statistic* screen contains information about EAP packets received on a specific port.



Port gi1
Refresh Rate No Refresh

Name	Description	Packet
Received EAPOL Start	The number of EAPOL Start frames that have been received by this Authenticator	0
Received EAPOL Logoff	The number of EAPOL Logoff frames that have been received by this Authenticator	0
Received EAPOL Invalid	The number of EAPOL frames that have been received by this Authenticator in which the frame type is not recognized	0
Received EAPOL Total	The number of valid EAPOL frames of any type that have been received by this Authenticator	0
Received EAP RespId	The number of EAP RespId frames that have been received by this Authenticator	0
Received EAP Resp/Oth	The number of valid EAP Response frames (other than RespId frames) that have been received by this Authenticator	0
Received EAP LenError	The number of EAPOL frames that have been received by this Authenticator in which the Packet Body Length field is invalid	1
Received Last EAPOL Ver	The protocol version number carried in the most recently received EAPOL frame	0
Received Last EAPOL Src	The source MAC address carried in the most recently received EAPOL frame	00:00:00:00:00:00
Transmit EAPOL Total	The number of EAPOL frames of any type that have been transmitted by this Authenticator	2
Transmit EAPOL Id	The number of EAP ReqId frames that have been transmitted by this Authenticator	0
Transmit EAPOL Oth	The number of EAP Request frames (other than RqId frames) that have been transmitted by this Authenticator	0

Statistics > 802.1x Statistics

Port Indicates the port, which is polled for statistics.

Refresh Rate Indicates the amount of time that passes before the EAP statistics are refreshed. The possible field values are:

- **No Refresh** Indicates that the EAP statistics are not refreshed.
- **15 Sec** Indicates that the EAP statistics are refreshed every 15 seconds.
- **30 Sec** Indicates that the EAP statistics are refreshed every 30 seconds.
- **60 Sec** Indicates that the EAP statistics are refreshed every 60 seconds.

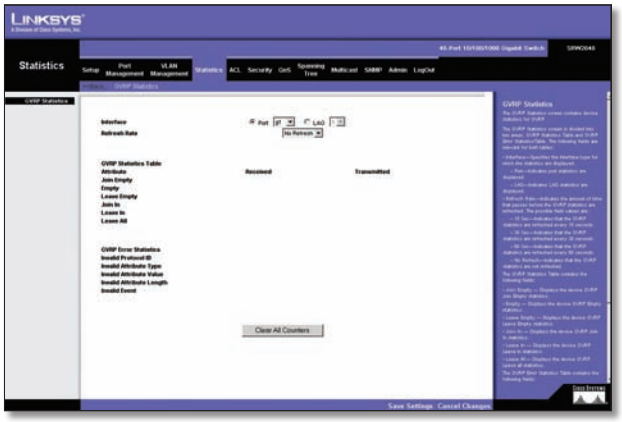
Name Displays the measured 802.1x statistic.

Description Describes the measured 802.1x statistic.

Packet Displays the amount of packets measured for the particular 802.1x statistic.

Statistics > GVRP Statistics

The *GVRP Statistics* screen contains device statistics for GVRP.



Interface ● Port gi1 ○ LAG 1
Refresh Rate No Refresh

GVRP Statistics Table
Attribute Received Transmitted
Join Empty
Empty
Leave Empty
Join In
Leave In
Leave All

GVRP Error Statistics
Invalid Protocol ID
Invalid Attribute Type
Invalid Attribute Value
Invalid Attribute Length
Invalid Event

Statistics > GVRP Statistics

The *GVRP Statistics* screen is divided into two areas, GVRP Statistics Table and GVRP Error Statistics Table. The following fields are relevant for both tables:

Interface Specifies the interface type for which the statistics are displayed.

- **Port** Indicates port statistics are displayed.
- **LAG** Indicates LAG statistics are displayed.

Refresh Rate Indicates the amount of time that passes before the GVRP statistics are refreshed. The possible field values are:

- **No Refresh** Indicates that the GVRP statistics are not refreshed.
- **15 Sec** Indicates that the GVRP statistics are refreshed every 15 seconds.
- **30 Sec** Indicates that the GVRP statistics are refreshed every 30 seconds.
- **60 Sec** Indicates that the GVRP statistics are refreshed every 60 seconds.

The GVRP Statistics Table contains the following fields:

Join Empty Displays the device GVRP Join Empty statistics.

Empty Displays the device GVRP Empty statistics.

Leave Empty Displays the device GVRP Leave Empty statistics.

Join In Displays the device GVRP Join In statistics.

Leave In Displays the device GVRP Leave in statistics.

Leave All Displays the device GVRP Leave all statistics.

The GVRP Error Statistics Table contains the following fields:

Invalid Protocol ID Displays the device GVRP Invalid Protocol ID statistics.

Invalid Attribute Type Displays the device GVRP Invalid Attribute ID statistics.

Invalid Attribute Value Displays the device GVRP Invalid Attribute Value statistics.

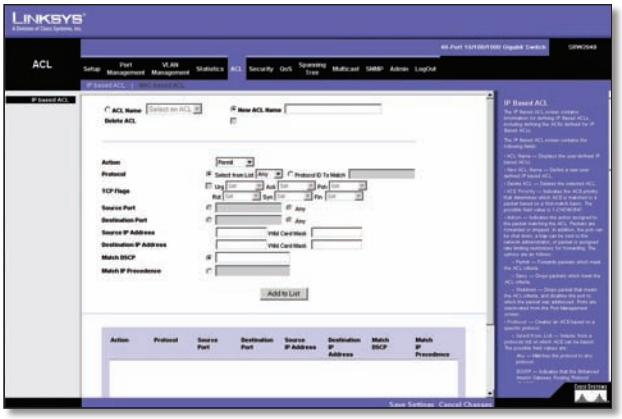
Invalid Attribute Length Displays the device GVRP Invalid Attribute Length statistics.

Invalid Event Displays the device GVRP Invalid Events statistics.

Use the **Clear All Counters** button to reset all tables.

ACL > IP Based ACL

The *IP Based ACL (Access Control List)* screen contains information for defining IP-based Access Control Lists (ACLs).



○ ACL Name [Select an ACL] ● New ACL Name [ ]
Delete ACL □

Action: Permit
Protocol: ● Select from List Any ○ Protocol ID To Match
TCP Flags: □ Urg Set, Ack Set, Psh Set, Rst Set, Syn Set, Fin Set
Source Port: ○ ● Any
Destination Port: ○ ● Any
Source IP Address: Wild Card Mask
Destination IP Address: Wild Card Mask
Match DSCP: ●
Match IP Precedence: ○

Action	Protocol	Source Port	Destination Port	Source IP Address	Destination IP Address	Match DSCP	Match IP Precedence

ACL > IP Based ACL

ACL Name Displays the user-defined IP based ACLs.

New ACL Name Define a new user-defined IP based ACL, the name cannot include spaces.

Delete ACL Deletes the selected ACL.

Action Indicates the action assigned to the packet matching the ACL. Packets are forwarded or dropped. In addition, the port can be shut down, a trap can be sent to the network administrator, or a packet assigned rate limiting restrictions for forwarding. The options are as follows:

- **Permit** Forwards packets which meet the ACL criteria.
- **Deny** Drops packets which meet the ACL criteria.
- **Shutdown** Drops packet that meets the ACL criteria, and disables the port to which the packet was addressed. Ports are reactivated from the *Port Management* screen.

Protocol Creates an Access Control Entry (ACE) based on a specific protocol.

- **Select from List** Selects from a protocols list on which ACE can be based. The possible field values are:
  - **Any** Matches the protocol to any protocol.
  - **EIGRP** Indicates that the Enhanced Interior Gateway Routing Protocol (EIGRP) is used to classify network flows.
  - **ICMP** Indicates that the Internet Control Message Protocol (ICMP) is used to classify network flows.
  - **IGMP** Indicates that the Internet Group Management Protocol (IGMP) is used to classify network flows.
  - **TCP** Indicates that the Transmission Control Protocol is used to classify network flows.
  - **OSPF** Matches the packet to the Open Shortest Path First (OSPF) protocol.
  - **UDP** Indicates that the User Datagram Protocol is used to classify network flows.
- **Protocol ID To Match** Adds user-defined protocols to which packets are matched to the ACE. Each protocol has a specific protocol number which is unique. The possible field range is **0–255**.

TCP Flags Filters packets by TCP flag. Filtered packets are either forwarded or dropped. Filtering packets by TCP flags increases packet control, which increases network security. The values that can be assigned are:

- **Set** Enables filtering packets by selected flags.
- **Unset** Disables filtering packets by selected flags.
- **Don't care** Indicates that selected packets do not influence the packet filtering process.

The TCP Flags that can be selected are:

- **Urg** Indicates the packet is urgent.
- **Ack** Indicates the packet is acknowledged.
- **Psh** Indicates the packet is pushed.
- **Rst** Indicates the connection is dropped.
- **Syn** Indicates request to start a session.
- **Fin** Indicates request to close a session.

Source Port Defines the TCP/UDP source port to which the ACE is matched. This field is active only if 800/6-TCP or 800/17-UDP are selected in the *Select from List* drop-down menu. The possible field range is **0–65,535**.

Destination Port Defines the TCP/UDP destination port. This field is active only if 800/6-TCP or 800/17-UDP are selected in the *Select from List* drop-down menu. The possible field range is **0–65,535**.

Source IP Address Matches the source port IP address to which packets are addressed to the ACE.

- **Wildcard Mask** Defines the source IP address wildcard mask. Wildcard masks specify which bits are used and which bits are ignored. A wild card mask of **255.255.255.255** indicates that no bit is important. A wildcard of **0.0.0.0** indicates that all the bits are important. For example, if the source IP address **149.36.184.198** and the wildcard mask is **255.36.184.00**, the first eight bits of the IP address are ignored, while the last eight bits are used.

Dest. IP Address Matches the destination port IP address to which packets are addressed to the ACE.

- **Wildcard Mask** Defines the destination IP address wildcard mask.

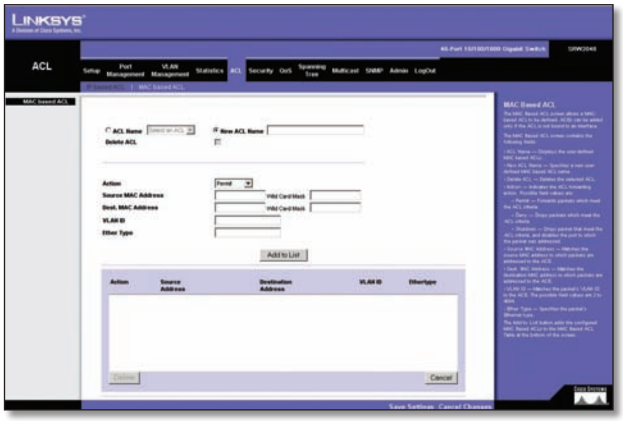
Match DSCP Matches the packet DSCP value to the ACE. Either the DSCP value or the IP Precedence value is used to match packets to ACLs. The possible field range is **0–63**.

Match IP Precedence Matches the packet IP Precedence value to the ACE. Either the DSCP value or the IP Precedence value is used to match packets to ACLs. The possible field range is **0–7**.

The **Add to List** button adds the configured IP Based ACLs to the IP Based ACL Table at the bottom of the screen.

ACL > MAC Based ACL

The *MAC Based ACL* screen allows a MAC based ACL to be defined. ACEs can be added only if the ACL is not bound to an interface.



ACL > Mac Based ACL

ACL Name Displays the user-defined MAC based ACLs.

New ACL Name Specifies a new user-defined MAC based ACL name, the name cannot include spaces.

Delete ACL Deletes the selected ACL.

Action Indicates the ACL forwarding action. Possible field values are:

- **Permit** Forwards packets which meet the ACL criteria.
- **Deny** Drops packets which meet the ACL criteria.
- **Shutdown** Drops packet that meet the ACL criteria, and disables the port to which the packet was addressed.

Source MAC Address Matches the source MAC address to which packets are addressed to the ACE.

- **Wildcard Mask** Defines the source IP address wildcard mask. Wildcard masks specify which bits are used and which bits are ignored. A wild card mask of **255.255.255.255** indicates that no bit is important. A wildcard of **0.0.0.0** indicates that all the bits are important. For example, if the source IP address **149.36.184.198** and the wildcard mask is **255.36.184.00**, the first eight bits of the IP address are ignored, while the last eight bits are used.

Dest. MAC Address Matches the destination MAC address to which packets are addressed to the ACE.

- **Wildcard Mask** Defines the destination IP address wildcard mask.

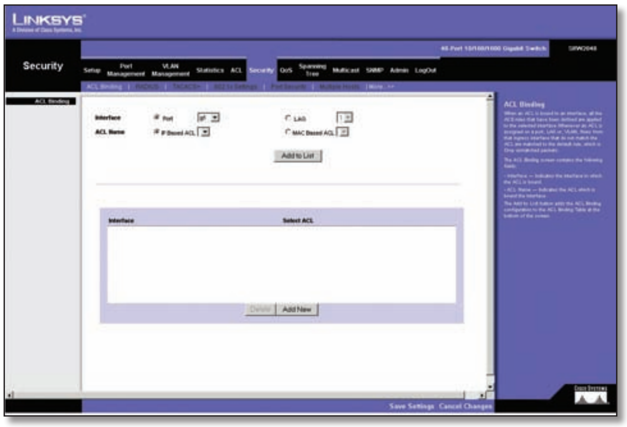
VLAN ID Matches the packet's VLAN ID to the ACE. The possible field values are **2–4094**.

Ether Type Specifies the packet's Ethernet type.

Use the **Add to List** button to add the configured MAC Based ACLs to the MAC Based ACL Table at the bottom of the screen.

Security > ACL Binding

When an ACL is bound to an interface, all the ACE rules that have been defined are applied to the selected interface. Whenever an ACL is assigned on a port, LAG or, VLAN, flows from that ingress interface that do not match the ACL are matched to the default rule, which is **Drop unmatched packets**.



Interface: ● Port ○ LAG 1

ACL Name: ● IP Based ACL ○ MAC Based ACL

Security > ACL Binding

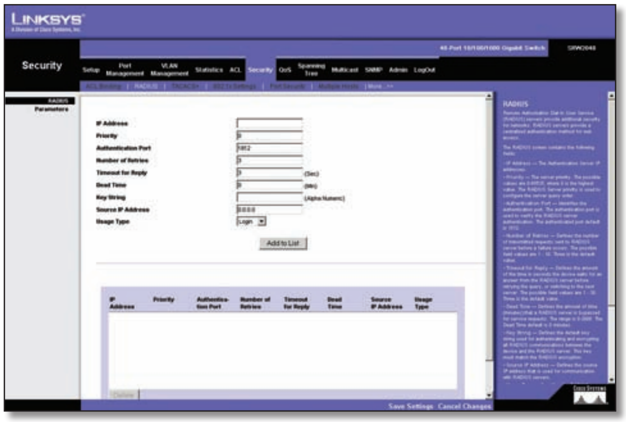
Interface Indicates the interface to which the ACL is bound.

ACL Name Indicates the ACL which is bound to the interface.

Use the **Add to List** button to add the ACL Binding configuration to the ACL Binding Table at the bottom of the screen.

Security > RADIUS

Remote Authorization Dial-In User Service (RADIUS) servers provide additional security for networks. RADIUS servers provide a centralized authentication method for web access.



IP Address:
Priority: 0
Authentication Port: 1812
Number of Retries: 3
Timeout for Reply: 3 (Sec)
Dead Time: 0 (Min)
Key String: (Alpha Numeric)
Source IP Address: 0.0.0.0
Usage Type: Login

IP Address	Priority	Authentication Port	Number of Retries	Timeout for Reply	Dead Time	Source IP Address	Usage Type

Security > RADIUS

IP Address The Authentication Server IP address.

Priority The server priority. The possible values are **0–65,535**, where 1 is the highest value. The RADIUS Server priority is used to configure the server query order.

Authentication Port Identifies the authentication port. The authentication port is used to verify the RADIUS server authentication. The authenticated port default is **1812**.

Number of Retries Defines the number of transmitted requests sent to RADIUS server before a failure occurs. The possible field values are **1–10**. The default value is **3**.

Timeout for Reply Defines the amount of the time in seconds the device waits for an answer from the RADIUS server before retrying the query, or switching to the next server. The possible field values are **1–30**. The default value is **3**.

Dead Time Defines the amount of time (minutes) that a RADIUS server is bypassed for service requests. The range is **0–2000**. The Dead Time default is **0** minutes.

Key String Defines the default key string used for authenticating and encrypting all RADIUS communications between the device and the RADIUS server. This key must match the RADIUS encryption.

Source IP Address Defines the source IP address that is used for communication with RADIUS servers.

Usage Type Specifies the RADIUS server authentication type. The default value is **Login**. The possible field values are:

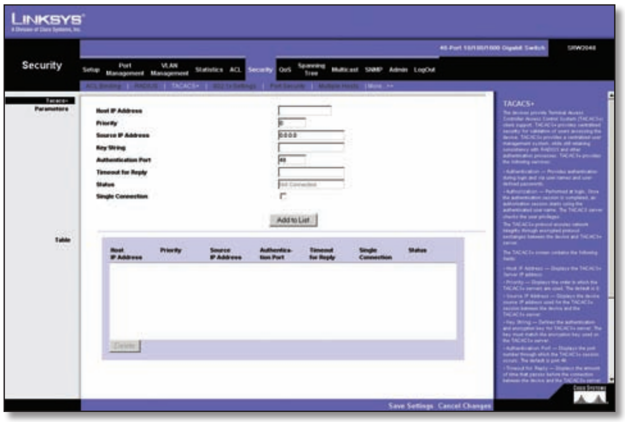
- **Login** Indicates that the RADIUS server is used for authenticating user name and passwords.

- **802.1X** Indicates that the RADIUS server is used for 802.1X authentication.
- **All** Indicates that the RADIUS server is used for authenticating user name and passwords, and 802.1X port authentication.

Use the **Add to List** button to add the RADIUS configuration to the RADIUS Table at the bottom of the screen.

Security > TACACS+

The device provides Terminal Access Controller Access Control System (TACACS+) client support. TACACS+ provides centralized security for validation of users accessing the device. TACACS+ provides a centralized user management system, while still retaining consistency with RADIUS and other authentication processes. The TACACS+ protocol ensures network integrity through encrypted protocol exchanges between the device and TACACS+ server.



Host IP Address	
Priority	0
Source IP Address	0.0.0.0
Key String	
Authentication Port	49
Timeout for Reply	
Status	Not Connected
Single Connection	□

Add to List

Host IP Address	Priority	Source IP Address	Authentication Port	Timeout for Reply	Single Connection	Status

Delete

Security > TACACS+

Host IP Address Displays the TACACS+ Server IP address.

Priority Displays the order in which the TACACS+ servers are used. The default is **0**.

Source IP Address Displays the device source IP address used for the TACACS+ session between the device and the TACACS+ server.

Key String Defines the authentication and encryption key for TACACS+ server. The key must match the encryption key used on the TACACS+ server.

Authentication Port Displays the port number through which the TACACS+ session occurs. The default is port **49**.

Timeout for Reply Displays the amount of time that passes before the connection between the device and the TACACS+ server times out. The field range is **1–30** seconds.

Status Displays the connection status between the device and the TACACS+ server. The possible field values are:

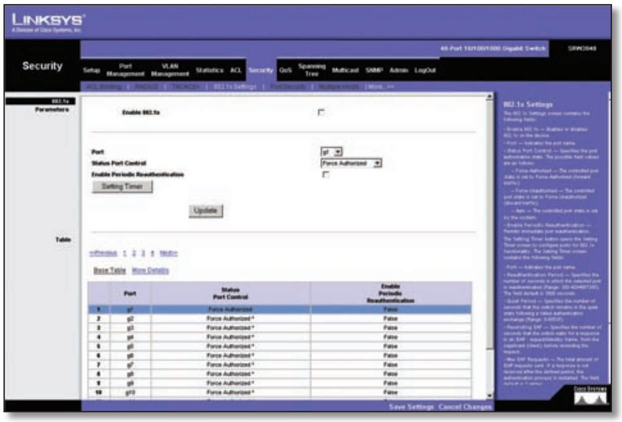
- **Connected** There is currently a connection between the device and the TACACS+ server.
- **Not Connected** There is not currently a connection between the device and the TACACS+ server.

Single Connection Maintains a single open connection between the device and the TACACS+ server when selected

Use the **Add to List** button to add the TACACS+ configuration to the TACACS+ table at the bottom of the screen.

Security > 802.1x Settings

Port based authentication enables authenticating system users on a per-port basis via an external server. Only authenticated and approved system users can transmit and receive data. Ports are authenticated via the RADIUS server using the Extensible Authentication Protocol (EAP).



Enable 802.1x	□
Port	g1
Status Port Control	Force Authorized
Enable Periodic Reauthentication	□

Setting Timer

Update

<<Previous 1 2 3 4 Next>>

Base Table More Details

	Port	Status Port Control	Enable Periodic Reauthentication
1	g1	Force Authorized	False
2	g2	Force Authorized *	False
3	g3	Force Authorized *	False
4	g4	Force Authorized *	False
5	g5	Force Authorized *	False
6	g6	Force Authorized *	False
7	g7	Force Authorized *	False
8	g8	Force Authorized *	False
9	g9	Force Authorized *	False
10	g10	Force Authorized *	False

Security > 802.1x Settings

Enable 802.1x Select the checkbox to enable 802.1x authentication.

Port Indicates the port name.

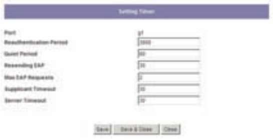
Status Port Control Specifies the port authorization state. The possible field values are as follows:

- **Force-Unauthorized** The controlled port state is set to Force-Unauthorized (discard traffic).
- **Auto** The controlled port state is set by the system.
- **Force-Authorized** The controlled port state is set to Force-Authorized (forward traffic).

Enable Periodic Reauthentication Permits immediate port reauthentication.

Use the **Setting Timer** button to open the *Setting Timer* screen to configure ports for 802.1x functionality.

802.1x Settings > Setting Timer



Port	g1
Reauthentication Period	3600
Quiet Period	60
Resending EAP	30
Max EAP Requests	2
Supplicant Timeout	30
Server Timeout	30

802.1x Settings > Setting Timer

Port Indicates the port name.

Reauthentication Period Specifies the number of seconds in which the selected port is reauthenticated (Range: **300–4,294,967,295**). The field default is **3600** seconds.

Quiet Period Specifies the number of seconds that the switch remains in the quiet state following a failed authentication exchange (Range: **0–65,535**).

Resending EAP Specifies the number of seconds that the switch waits for a response to an EAP - request/identity frame, from the supplicant (client), before resending the request.

Max EAP Requests Displays the total amount of EAP requests sent. If a response is not received after the defined period, the authentication process is restarted. The field default is **2** retries.

Supplicant Timeout Displays the number of seconds that lapses before EAP requests are resent to the supplicant (Range: **1–65,535**). The field default is **30** seconds.

Server Timeout Specifies the number of seconds (**1–65,535**) that lapses before the switch resends a request to the authentication server. The default is **30** seconds.

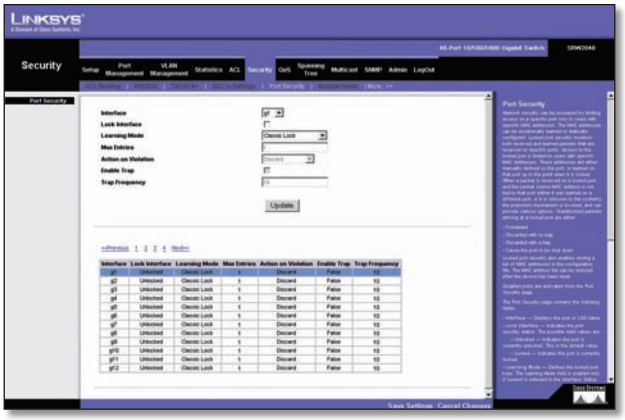
Security > Port Security

Network security can be increased by limiting access on a specific port only to users with specific MAC addresses. MAC addresses can be dynamically learned or statically configured. Locked port security monitors both received and learned packets that are received on specific ports. Access to the locked port is limited to users with specific MAC addresses. These addresses are either manually defined on the port, or learned on that port up to the point when it is locked. When a packet is received on a locked port, and the packet source MAC address is not tied to that port (either it was learned on a different port, or it is unknown to the system), the protection mechanism is invoked, and can provide various options. Unauthorized packets arriving at a locked port are either:

- Forwarded
- Discarded with no trap
- Discarded with a trap
- Cause the port to be shut down.

Locked port security also enables storing a list of MAC addresses in the configuration file. The MAC address list can be restored after the device has been reset.

Disabled ports are activated from the *Port Security* page.



Interface	g1
Lock Interface	□
Learning Mode	Classic Lock
Max Entries	1
Action on Violation	Discard
Enable Trap	□
Trap Frequency	10

Interface	Lock Interface	Learning Mode	Max Entries	Action on Violation	Enable Trap	Trap Frequency
g1	Unlocked	Classic Lock	1	Discard	False	10
g2	Unlocked	Classic Lock	1	Discard	False	10
g3	Unlocked	Classic Lock	1	Discard	False	10
g4	Unlocked	Classic Lock	1	Discard	False	10
g5	Unlocked	Classic Lock	1	Discard	False	10
g6	Unlocked	Classic Lock	1	Discard	False	10
g7	Unlocked	Classic Lock	1	Discard	False	10
g8	Unlocked	Classic Lock	1	Discard	False	10
g9	Unlocked	Classic Lock	1	Discard	False	10
g10	Unlocked	Classic Lock	1	Discard	False	10
g11	Unlocked	Classic Lock	1	Discard	False	10
g12	Unlocked	Classic Lock	1	Discard	False	10

Security > Port Security

Interface Displays the port or LAG name.

Lock Interface Selecting this option locks the specified interface.

Learning Mode Defines the locked port type. The *Learning Mode* field is enabled only if **Locked** is selected in the *Interface Status* field. The possible field values are:

- **Classic Lock** Locks the port using the classic lock mechanism. The port is immediately locked, regardless of the number of addresses that have already been learned.
- **Limited Dynamic Lock** Locks the port by deleting the current dynamic MAC addresses associated with the port. The port learns up to the maximum addresses allowed on the port. Both relearning and aging MAC addresses are enabled.

In order to change the Learning Mode, the Lock Interface must be set to **Unlocked**. Once the mode is changed, the Lock Interface can be reinstated.

Max Entries Specifies the number of MAC addresses that can be learned on the port. The *Max Entries* field is enabled only if **Locked** is selected in the *Interface Status* field. In addition, the Limited Dynamic Lock mode is selected. The default is **1**.

Action on Violation Indicates the action to be applied to packets arriving on a locked port. The possible field values are:

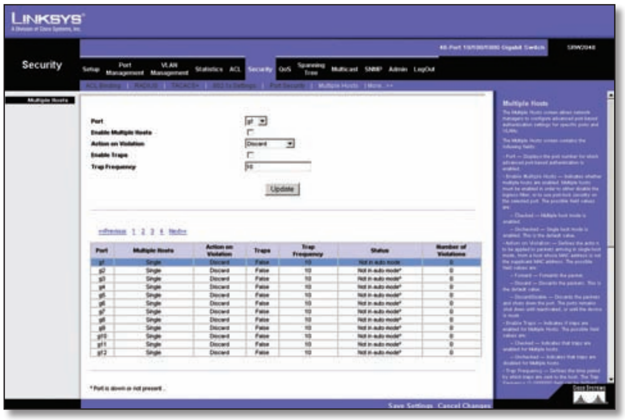
- **Discard** Discards packets from any unlearned source. This is the default value.
- **Forward Normal** Forwards packets from an unknown source without learning the MAC address.
- **Discard Disable** Discards packets from any unlearned source and shuts down the port. The port remains shut down until reactivated, or until the device is reset.

Enable Trap Enables traps when a packet is received on a locked port.

Trap Frequency The amount of time (in seconds) between traps. The default value is **10** seconds.

Security > Multiple Hosts

The *Multiple Hosts* screen allows network managers to configure advanced port-based authentication settings for specific ports and VLANs.


LINKSYS
A Division of Cisco Systems, Inc.
Security
Setup
Port Management
VLAN Management
Statistics
ACL
Security
QoS
Spanning Tree
Multicast
SNMP
Admin
LogOut
ACL Binding | RADIUS | TACACS+ | 802.1x Settings | Port Security | Multiple Hosts | More..>>
Multiple Hosts
Update
<<Previous 1 2 3 4 Next>>
Save Settings Cancel Changes

Port g1
Enable Multiple Hosts ☐
Action on Violation Discard
Enable Traps ☐
Trap Frequency 10

Port	Multiple Hosts	Action on Violation	Traps	Trap Frequency	Status	Number of Violations
g1	Single	Discard	False	10	Not in auto mode	0
g2	Single	Discard	False	10	Not in auto mode*	0
g3	Single	Discard	False	10	Not in auto mode*	0
g4	Single	Discard	False	10	Not in auto mode*	0
g5	Single	Discard	False	10	Not in auto mode*	0
g6	Single	Discard	False	10	Not in auto mode*	0
g7	Single	Discard	False	10	Not in auto mode*	0
g8	Single	Discard	False	10	Not in auto mode*	0
g9	Single	Discard	False	10	Not in auto mode*	0
g10	Single	Discard	False	10	Not in auto mode*	0
g11	Single	Discard	False	10	Not in auto mode*	0
g12	Single	Discard	False	10	Not in auto mode*	0

* Port is down or not present.

Security > Multiple Hosts

Port Displays the port number for which advanced port-based authentication is enabled.

Enable Multiple Hosts When checked, indicates that multiple hosts are enabled. Multiple hosts must be enabled in order to either disable the ingress-filter, or to use port-lock security on the selected port.

Action on Violation Defines the action to be applied to packets arriving in single-host mode, from a host whose MAC address is not the supplicant MAC address. The possible field values are:

- **Discard** Discards the packets. This is the default value.
- **Forward** Forwards the packet.
- **Discard Disable** Discards the packets and shuts down the port. The ports remains shut down until reactivated, or until the device is reset.

Enable Traps When checked, indicates that traps are enabled for Multiple Hosts.

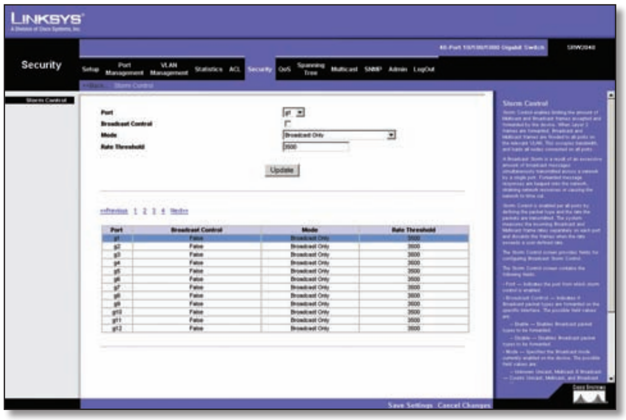
Trap Frequency Defines the time period by which traps are sent to the host. The Trap Frequency (**1–1,000,000**) field can be defined only if multiple hosts are disabled. The default is **10** seconds.

The table contains the following additional fields:

Status Indicates the host status. If there is an asterisk (*), the port is either not linked or is down. The possible field values are:

Number of Violations Indicates the number of packets that arrived on the interface in single-host mode, from a host whose MAC address is not the supplicant MAC address.

Security > Storm Control



Port g1
Broadcast Control ☐
Mode Broadcast Only
Rate Threshold 3500

Port	Broadcast Control	Mode	Rate Threshold
g1	False	Broadcast Only	3500
g2	False	Broadcast Only	3500
g3	False	Broadcast Only	3500
g4	False	Broadcast Only	3500
g5	False	Broadcast Only	3500
g6	False	Broadcast Only	3500
g7	False	Broadcast Only	3500
g8	False	Broadcast Only	3500
g9	False	Broadcast Only	3500
g10	False	Broadcast Only	3500
g11	False	Broadcast Only	3500
g12	False	Broadcast Only	3500

Security > Storm Control

Port Displays the port number for which storm control is enabled.

Broadcast Control Indicates whether broadcast packet types are forwarded on the specific interface.

Mode Specifies the Broadcast mode currently enabled on the device. The possible field values are:

- **Unknown Unicast, Multicast & Broadcast** Counts Unicast, Multicast, and Broadcast traffic. This option is not available on the SRW224G4 and SRW248G4.
- **Multicast & Broadcast** Counts Broadcast and Multicast traffic together.
- **Broadcast Only** Counts only Broadcast traffic.

Rate Threshold The maximum rate (packets per second) at which unknown packets are forwarded. The default value is **3500**. The range is **70–100,000**.

QoS

Network traffic is usually unpredictable, and the only basic assurance that can be offered is best effort traffic delivery. To overcome this challenge, Quality of Service (QoS) is applied throughout the network. This ensures that network traffic is prioritized according to specified criteria, and that specific traffic receives preferential treatment. QoS in the network optimizes network performance and entails two basic facilities:

Classifying incoming traffic into handling classes, based on an attribute, including:

- The ingress interface
- Packet content
- A combination of these attributes

Providing various mechanisms for determining the allocation of network resources to different handling classes, including:

- The assignment of network traffic to a particular hardware queue
- The assignment of internal resources
- Traffic shaping

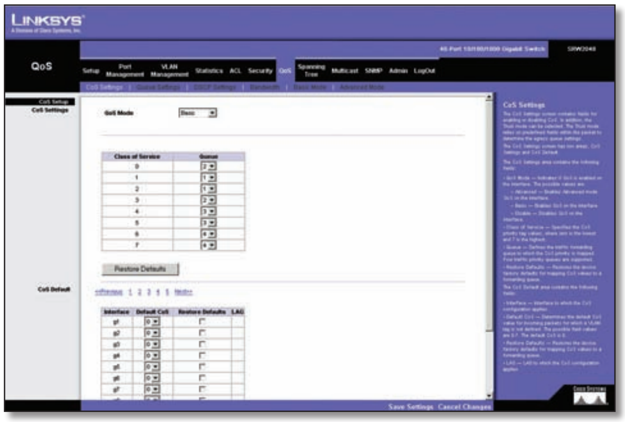
The terms Class of Service (CoS) and QoS are used in the following context:

CoS provides varying Layer 2 traffic services. CoS refers to classification of traffic to traffic-classes, which are handled as an aggregate whole, with no per-flow settings. CoS is usually related to the 802.1p service that classifies flows according to their Layer 2 priority, as set in the VLAN header.

QoS refers to Layer 2 traffic and above. QoS handles per-flow settings, even within a single traffic class.

QoS > CoS Settings

The *CoS Settings* screen contains fields for enabling or disabling CoS. In addition, the Trust mode can be selected. The Trust mode relies on predefined fields within the packet to determine the egress queue settings.



QoS Mode Basic

Class of Service	Queue
0	2
1	1
2	1
3	2
4	3
5	3
6	4
7	4

Interface	Default CoS	Restore Defaults	LAG
g1	0	☐	
g2	0	☐	
g3	0	☐	
g4	0	☐	
g5	0	☐	
g6	0	☐	
g7	0	☐	

QoS > CoS Settings

The *CoS Settings* screen has two areas, CoS Settings and CoS to Queue.

QoS Mode Indicates if QoS is enabled on the interface. The possible values are:

- **Disable** Disables QoS on the interface.
- **Basic** Enables QoS on the interface.
- **Advanced** Enables Advanced mode QoS on the interface. This feature has been added to version 1.2 of the SRW2024/SRW2016 and version 1.1 of the SRW224G4/SRW248G4.

Class of Service Specifies the CoS priority tag values, where **0** is the lowest and **7** is the highest.

Queue Defines the traffic forwarding queue to which the CoS priority is mapped. Four traffic priority queues are supported.

The **Restore Defaults** button restores the device factory defaults for mapping CoS values to a forwarding queue.

CoS Default

Interface Interface to which the CoS configuration applies.

Default CoS Determines the default CoS value for incoming packets for which a VLAN tag is not defined. The possible field values are **0–7**. The default CoS is **0**.

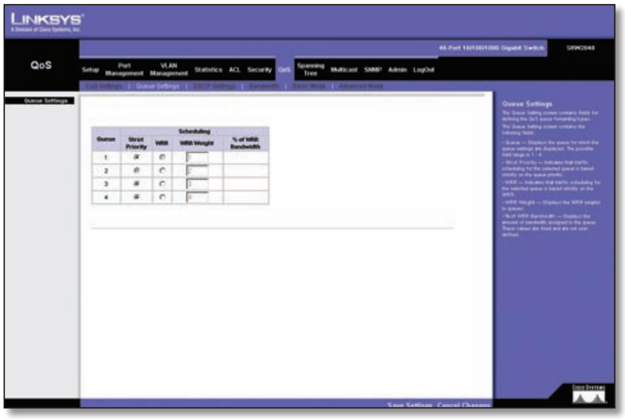
Restore Defaults Restores the device factory defaults for mapping CoS values to a forwarding queue.

LAG LAG to which the CoS configuration applies.

QoS > Queue Settings

The *Queue Setting* screen contains fields for defining the QoS queue forwarding types.

NOTE: Individual queues cannot be assigned on the SRW224G4 and SRW248G4.



Queue	Strict Priority	WRR	Scheduling WRR Weight	% of WRR Bandwidth
1	●	○		
2	●	○		
3	●	○		
4	●	○		

QoS > Queue Settings

Queue Displays the queue for which the queue settings are displayed. The range is **1–4**.

Strict Priority Indicates that traffic scheduling for the selected queue is based strictly on the queue priority.

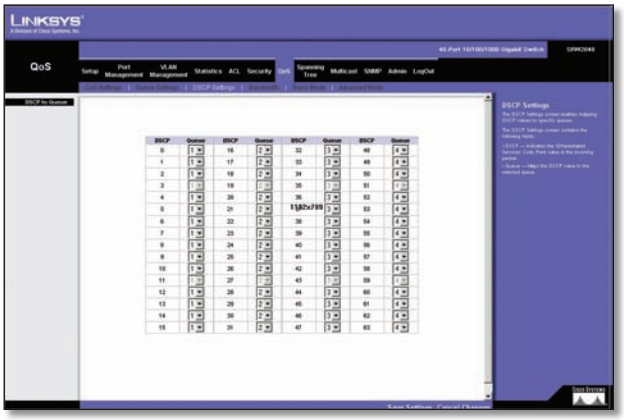
WRR Indicates that traffic scheduling for the selected queue is based strictly on weighted round-robin (WRR).

WRR Weight Displays the WRR weights to queues.

% of WRR Bandwidth Displays the amount of bandwidth assigned to the queue. These values are fixed and are not user defined.

QoS > DSCP Settings

The *DSCP Settings* screen enables mapping DSCP values to specific queues.



DSCP	Queue	DSCP	Queue	DSCP	Queue	DSCP	Queue
0	1	16	2	32	3	48	4
1	1	17	2	33	3	49	4
2	1	18	2	34	3	50	4
3	1	19	2	35	3	51	4
4	1	20	2	36	3	52	4
5	1	21	2	1182x789	3	53	4
6	1	22	2	38	3	54	4
7	1	23	2	39	3	55	4
8	1	24	2	40	3	56	4
9	1	25	2	41	3	57	4
10	1	26	2	42	3	58	4
11	1	27	2	43	3	59	4
12	1	28	2	44	3	60	4
13	1	29	2	45	3	61	4
14	1	30	2	46	3	62	4
15	1	31	2	47	3	63	4

QoS > DSCP Settings

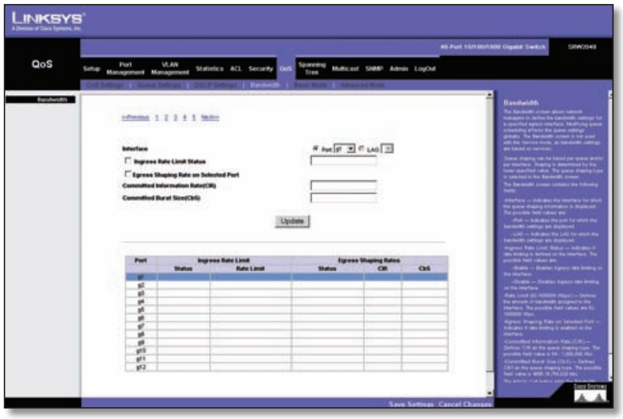
The *DSCP Settings* screen contains the following fields:

DSCP Indicates the Differentiated Services Code Point value in the incoming packet.

Queue Maps the DSCP value to the selected queue.

QoS > Bandwidth

The *Bandwidth* screen allows network managers to define the bandwidth settings for a specified egress interface. Modifying queue scheduling affects the queue settings globally. The *Bandwidth* screen is not used with the Service mode, as bandwidth settings are based on services. This feature has been added to version 1.2 of the SRW2024/SRW2016 and version 1.1 of the SRW224G4/SRW248G4.



Interface ● Port ○ LAG
□ Ingress Rate Limit Status
□ Egress Shaping Rate on Selected Port
Committed Information Rate(CIR)
Committed Burst Size(CbS)

Port	Ingress Rate Limit Status	Ingress Rate Limit Rate Limit	Egress Shaping Rates Status	Egress Shaping Rates CIR	Egress Shaping Rates CbS
g1					
g2					
g3					
g4					
g5					
g6					
g7					
g8					
g9					
g10					
g11					
g12					

QoS > Bandwidth

Queue shaping can be based per queue and/or per interface. Shaping is determined by the lower specified value. The queue shaping type is selected in the *Bandwidth* screen.

Interface Indicates the interface for which the queue shaping information is displayed. The possible field values are:

- **Port** Indicates the port for which the bandwidth settings are displayed.
- **LAG** Indicates the LAG for which the bandwidth settings are displayed.

Ingress Rate Limit Status Indicates if rate limiting is defined on the interface.

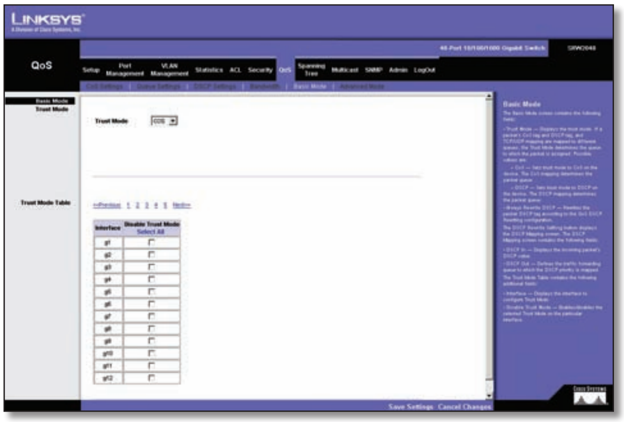
Egress Shaping Rate on Selected Port Indicates if rate limiting is enabled on the interface.

Committed Information Rate (CIR) Defines CIR as the queue shaping type. The range is **64–1,000,000** Kbps.

Committed Burst Size (CBS) Defines CBS as the queue shaping type. The possible field value is **4096–16,769,020** bits.

Use the **Add to List** button to add the Bandwidth configuration to the Bandwidth Table at the bottom of the screen.

QoS > Basic Mode



Trust Mode: CoS

Interface	Disable Trust Mode Select All
g1	□
g2	□
g3	□
g4	□
g5	□
g6	□
g7	□
g8	□
g9	□
g10	□
g11	□
g12	□

QoS > Basic Mode

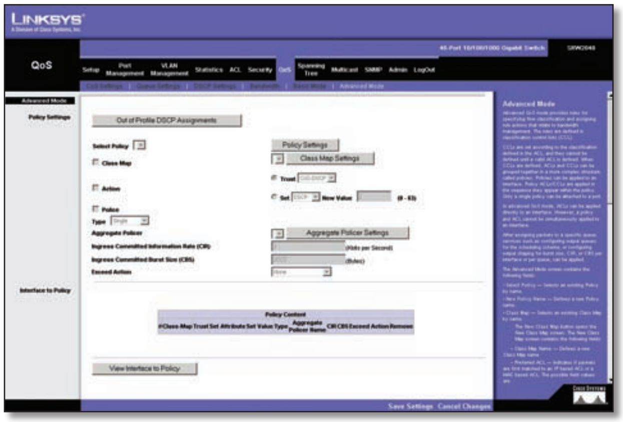
The *Basic Mode* screen contains the following fields:

Trust Mode Displays the trust mode. If a packet's CoS tag and DSCP tag are mapped to different queues, the Trust Mode determines the queue to which the packet is assigned. Possible values are:

- **CoS** Sets trust mode to CoS on the device. The CoS mapping determines the packet queue
- **DSCP** Sets trust mode to DSCP on the device. The DSCP mapping determines the packet queue

QoS > Advanced Mode

Advanced QoS mode provides rules for specifying flow classification and assigning rule actions that relate to bandwidth management. The rules are based on the ACLs (see Access Control Tab). This feature has been added to version 1.2 of the SRW2024/SRW2016 and version 1.1 of the SRW224G4/SRW248G4.



□ Class Map

□ Action

● Trust: CoS-DSCP

○ Set: DSCP, New Value: (0 - 63)

□ Police

Type: Single

Aggregate Policer

Ingress Committed Information Rate (CIR): (Kbits per Second)

Ingress Committed Burst Size (CBS): (Bytes)

Exceed Action: None

Policy Content										
#	Class-Map	Trust	Set Attribute	Set Value	Type	Aggregate Policer Name	CIR	CBS	Exceed Action	Remove

QoS > Advanced Mode

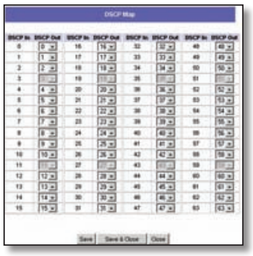
MAC ACLs and IP ACLs can be grouped together in more complex structures, called policies. Policies can be applied to an interface. Policy ACLs are applied in the sequence they appear within the policy. Only a single policy can be attached to a port.

In advanced QoS mode, ACLs can be applied directly to an interface in Security > ACL Binding. However, a policy and ACL cannot be simultaneously applied to an interface.

After assigning packets to a specific queue, services such as configuring output queues for the scheduling scheme, or configuring output shaping for burst size, CIR, or CBS per interface or per queue, can be applied.

Out of Profile DSCP Assignments This button opens up the *Out of Profile DSCP* screen.

Advanced Mode > Out of Profile DSCP



DSCP Map

DSCP In	DSCP Out	DSCP In	DSCP Out	DSCP In	DSCP Out	DSCP In	DSCP Out
0	0	16	16	32	32	48	48
1	1	17	17	33	33	49	49
2	2	18	18	34	34	50	50
3	[illegible]	19	[illegible]	35	[illegible]	51	[illegible]
4	4	20	20	36	36	52	52
5	5	21	21	37	37	53	53
6	6	22	22	38	38	54	54
7	7	23	23	39	39	55	55
8	8	24	24	40	40	56	56
9	9	25	25	41	41	57	57
10	10	26	26	42	42	58	58
11	[illegible]	27	[illegible]	43	[illegible]	59	[illegible]
12	12	28	28	44	44	60	60
13	13	29	29	45	45	61	61
14	14	30	30	46	46	62	62
15	15	31	31	47	47	63	63

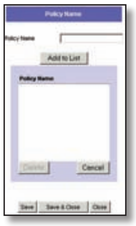
Advanced Mode > Out of Profile DSCP

DSCP In Displays the DSCP In value.

DSCP Out Displays the current DSCP Out value. A new value can be selected from the pull-down menu.

Use the **Policy Settings** button to open the *Policy Name* screen.

Advanced Mode > Policy Name

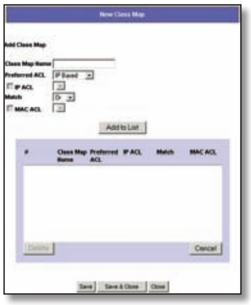


Advanced Mode > Policy Name

Policy Name Defines a new Policy name.

Add to List The **Add to List** button lets you add the policy to the Policy Name table.

Advanced Mode > New Class Map



Preferred ACL: IP Based

Match: Or

Advanced Mode > New Class Map

Class Map Name Defines a new Class Map name.

Preferred ACL Indicates if packets are first matched to an IP-based ACL or a MAC based ACL. The possible field values are:

- **IP Based ACLs** Matches packets to IP-based ACLs first, then matches packets to MAC based ACLs.
- **MAC Based ACLs** Matches packets to MAC-based ACLs first, then matches packets to IP-based ACLs.

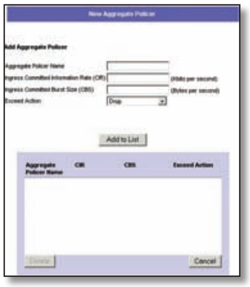
IP ACL Matches packets to IP-based ACLs first, then matches packets to MAC-based ACLs.

Match Criteria used to match IP addresses and/or MAC addresses with an ACL's address. The possible field values are:

- **And** Both the MAC-based and the IP-based ACL must match a packet.
- **Or** Either the MAC-based or the IP-based ACL must match a packet.

MAC ACL Matches packets to MAC-based ACLs first, then matches packets to IP-based ACLs.

Advanced Mode > New Aggregate Policer



Exceed Action: Drop

Advanced Mode > New Aggregate Policer

Aggregate Policer Name Enter a name in this field.

Ingress Committed Information Rate (CIR) Defines the CIR in bits per second. This field is only relevant when the Police value is **Single**.

Ingress Committed Burst Size (CBS) Defines the CBS in bytes per second. This field is only relevant when the Police value is **Single**.

Exceed Action Action assigned to incoming packets exceeding the CIR. This field is only relevant when the Police value is **Single**. Possible values are:

- **Drop** Drops packets exceeding the defined CIR value.
- **Remark DSCP (Out of Profile DSCP)** Remarks packet's DSCP values exceeding the defined CIR value.
- **None** Forwards packets exceeding the defined CIR value.

Spanning Tree

Spanning Tree Protocol (STP) provides tree topography for any arrangement of bridges. STP also provides one path between end stations on a network, eliminating loops.

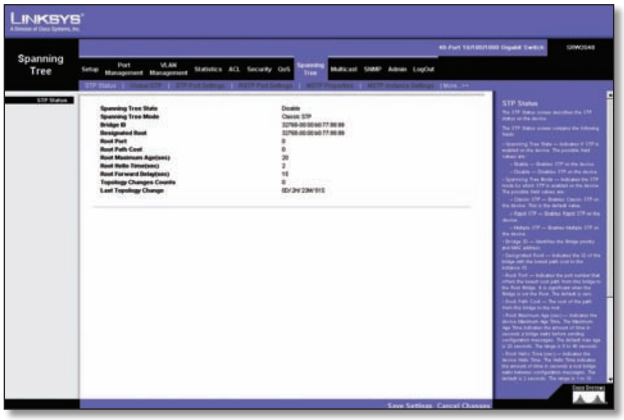
Loops occur when alternate routes exist between hosts. Loops in an extended network can cause bridges to forward traffic indefinitely, resulting in increased traffic and reducing network efficiency.

The device supports the following Spanning Tree versions:

- **Classic STP** Provides a single path between end stations, avoiding and eliminating loops.
- **Rapid STP** Detects and uses network topologies that provide faster convergence of the spanning tree, without creating forwarding loops.
- **Multiple STP** Provides full connectivity for packets allocated to any VLAN. Multiple STP is based on the RSTP. In addition, Multiple STP transmits packets assigned to different VLANs through different MST regions. MST regions act as a single bridge.

Spanning Tree > STP Status

The *STP Status* screen describes the STP status on the device.



Spanning Tree State	Disable
Spanning Tree Mode	Classic STP
Bridge ID	32768-00:00:b0:77:88:99
Designated Root	32768-00:00:b0:77:88:99
Root Port	0
Root Path Cost	0
Root Maximum Age(sec)	20
Root Hello Time(sec)	2
Root Forward Delay(sec)	15
Topology Changes Counts	0
Last Topology Change	0D/2H/23M/51S

Spanning Tree > STP Status

Spanning Tree State Indicates if STP is enabled on the device.

Spanning Tree Mode Indicates the STP mode by which STP is enabled on the device.

Bridge ID Identifies the Bridge priority and MAC address.

Designated Root Indicates the ID of the bridge with the lowest path cost to the instance ID.

Root Port Indicates the port number that offers the lowest cost path from this bridge to the Root Bridge. It is significant when the Bridge is not the Root. The default is **0**.

Root Path Cost The cost of the path from this bridge to the root.

Root Maximum Age (sec) Indicates the device Maximum Age Time. The Maximum Age Time indicates the amount of time in seconds a bridge waits before sending configuration messages. The default max age is **20** seconds. The range is **6–40** seconds.

Root Hello Time (sec) Indicates the device Hello Time. The Hello Time indicates the amount of time in seconds a root bridge waits between configuration messages. The default is **2** seconds. The range is **1–10** seconds.

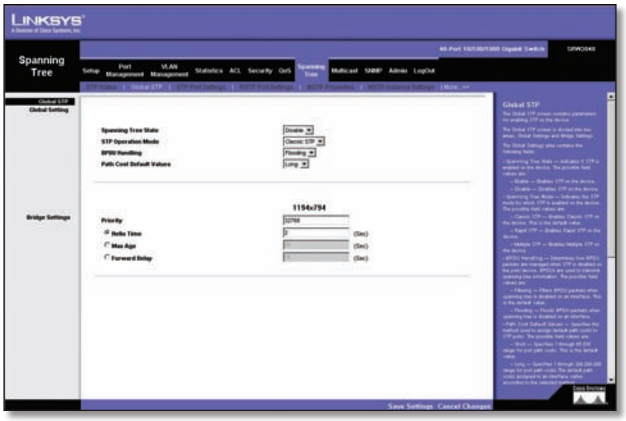
Root Forward delay (sec) Indicates the device forward delay time. The Forward Delay Time indicates the amount of time in seconds a bridge remains in a listening and learning state before forwarding packets. The default is **15** seconds. The range is **4–30** seconds.

Topology Changes Counts Indicates the total amount of STP state changes that have occurred.

Last Topology Change Indicates the amount of time that has elapsed since the bridge was initialized or reset, and the last topographic change occurred. The time is displayed in a day hour minute second format, for example, 2 days 5 hours 10 minutes and 4 seconds.

Spanning Tree > Global STP

The *Global STP* screen contains parameters for enabling STP on the device.



Spanning Tree State	Disable
STP Operation Mode	Classic STP
BPDU Handling	Flooding
Path Cost Default Values	Long
Priority	32768
● Hello Time	2 (Sec)
○ Max Age	(Sec)
○ Forward Delay	(Sec)

Spanning Tree > Global STP

Global Setting

Spanning Tree State Indicates if STP is enabled on the device.

STP Operation Mode Indicates the STP mode by which STP is enabled on the device. The possible field values are:

- **Classic STP** Enables Classic STP on the device. This is the default value.
- **Rapid STP** Enables Rapid STP on the device.
- **Multiple STP** Enables Multiple STP on the device.

BPDU Handling Determines how BPDU packets are managed when STP is disabled on the port/device. BPDUs are used to transmit spanning tree information. The possible field values are:

- **Filtering** Filters BPDU packets when spanning tree is disabled on an interface. This is the default value.
- **Flooding** Floods BPDU packets when spanning tree is disabled on an interface.

Path Cost Default Values Specifies the method used to assign default path costs to STP ports. The possible field values are:

- **Short** Specifies a **1–65,535** range for port path costs. This is the default value.
- **Long** Specifies a **1–200,000,000** range for port path costs. The default path costs assigned to an interface varies according to the selected method.

Bridge Settings

Priority Specifies the bridge priority value. When switches or bridges are running STP, each is assigned a priority. After exchanging BPDUs, the device with the lowest priority value becomes the Root Bridge. The default value is **32,768**. The port priority value is provided in increments of 4096. For example, 4096, 8192, 12,288, and so on. The range is **0–65,535**.

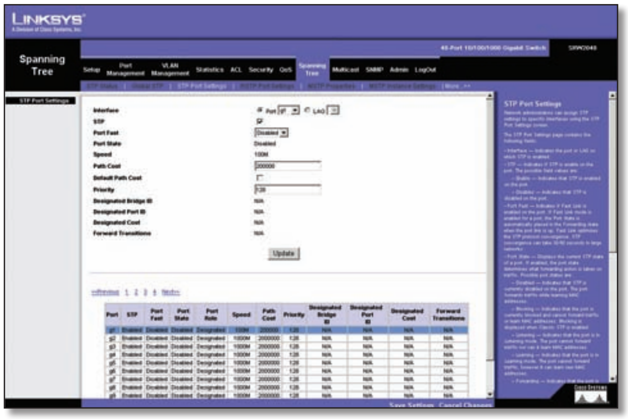
Hello Time Specifies the device Hello Time. The Hello Time indicates the amount of time in seconds a root bridge waits between configuration messages. The default is **2** seconds. The range is **1–10** seconds.

Max Age Specifies the device Maximum Age Time. The Maximum Age Time indicates the amount of time in seconds a bridge waits before sending configuration messages. The default max age is **20** seconds. The range is **6–40** seconds.

Forward Delay Specifies the device forward delay time. The Forward Delay Time indicates the amount of time in seconds a bridge remains in a listening and learning state before forwarding packets. The default is **15** seconds. The range is **4–30** seconds.

Spanning Tree > STP Port Settings

Network administrators can assign STP settings to specific interfaces using the *STP Interface Settings* screen.


LINKSYS
Spanning Tree
48-Port 10/100/1000 Gigabit Switch
SRW2048
Setup
Port Management
VLAN Management
Statistics
ACL
Security
QoS
Spanning Tree
Multicast
SNMP
Admin
LogOut
STP Status | Global STP | STP Port Settings | RSTP Port Settings | MSTP Properties | MSTP Instance Settings | More...>>
STP Port Settings
Update
<<Previous 1 2 3 4 Next>>
Save Settings
Cancel Changes

Interface ● Port g1 ○ LAG 1
STP ☑
Port Fast Disabled
Port State Disabled
Speed 100M
Path Cost 200000
Default Path Cost ☐
Priority 128
Designated Bridge ID N/A
Designated Port ID N/A
Designated Cost N/A
Forward Transitions N/A

Port	STP	Port Fast	Port State	Port Role	Speed	Path Cost	Priority	Designated Bridge ID	Designated Port ID	Designated Cost	Forward Transitions
g1	Enabled	Disabled	Disabled	Designated	100M	200000	128	N/A	N/A	N/A	N/A
g2	Enabled	Disabled	Disabled	Designated	1000M	2000000	128	N/A	N/A	N/A	N/A
g3	Enabled	Disabled	Disabled	Designated	1000M	2000000	128	N/A	N/A	N/A	N/A
g4	Enabled	Disabled	Disabled	Designated	1000M	2000000	128	N/A	N/A	N/A	N/A
g5	Enabled	Disabled	Disabled	Designated	1000M	2000000	128	N/A	N/A	N/A	N/A
g6	Enabled	Disabled	Disabled	Designated	1000M	2000000	128	N/A	N/A	N/A	N/A
g7	Enabled	Disabled	Disabled	Designated	1000M	2000000	128	N/A	N/A	N/A	N/A
g8	Enabled	Disabled	Disabled	Designated	1000M	2000000	128	N/A	N/A	N/A	N/A
g9	Enabled	Disabled	Disabled	Designated	1000M	2000000	128	N/A	N/A	N/A	N/A

Spanning Tree > STP Port Settings

The STP Interface Settings page contains the following fields:

Interface Indicates the port or LAG on which STP is enabled.

STP Indicates if STP is enabled on the port.

Port Fast Indicates if Fast Link is enabled on the port. If Fast Link mode is enabled for a port, the Port State is automatically placed in the Forwarding state when the port link is up. Fast Link optimizes the STP protocol convergence. STP convergence can take **30–60** seconds in large networks.

Port State Displays the current STP state of a port. If enabled, the port state determines what forwarding action is taken on traffic. Possible port states are:

- **Disabled** Indicates that STP is currently disabled on the port. The port forwards traffic while learning MAC addresses.
- **Blocking** Indicates that the port is currently blocked and cannot forward traffic or learn MAC addresses. Blocking is displayed when Classic STP is enabled.
- **Listening** Indicates that the port is in Listening mode. The port cannot forward traffic nor can it learn MAC addresses.
- **Learning** Indicates that the port is in Learning mode. The port cannot forward traffic, however it can learn new MAC addresses.
- **Forwarding** Indicates that the port is in Forwarding mode. The port can forward traffic and learn new MAC addresses.

Speed Indicates the speed at which the port is operating.

Path Cost Indicates the port contribution to the root path cost. The path cost is adjusted to a higher or lower value, and is used to forward traffic when a path being rerouted.

Default Path Cost When selected the default path cost is implemented.

Priority Priority value of the port. The priority value influences the port choice when a bridge has two ports connected in a loop. The priority value is between **0–240**. The priority value is provided in increments of 16.

Designated Bridge ID Indicates the bridge priority and the MAC Address of the designated bridge.

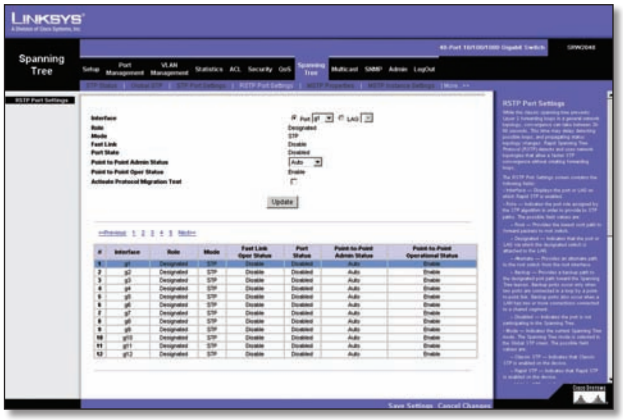
Designated Port ID Indicates the selected port's priority and interface.

Designated Cost Indicates the cost of the port participating in the STP topology. Ports with a lower cost are less likely to be blocked if STP detects loops.

Forward Transitions Indicates the number of times the port has changed from the Blocking state to Forwarding state.

Spanning Tree > RSTP Port Settings

While the classic spanning tree prevents Layer 2 forwarding loops in a general network topology, convergence can take between **30–60** seconds. This time may delay detecting possible loops, and propagating status topology changes. Rapid Spanning Tree Protocol (RSTP) detects and uses network topologies that allow a faster STP convergence without creating forwarding loops.



Interface: ● Port g1 ○ LAG
Role: Designated
Mode: STP
Fast Link: Disable
Port State: Disabled
Point to Point Admin Status: Auto
Point to Point Oper Status: Enable
Activate Protocol Migration Test: □

#	Interface	Role	Mode	Fast Link Oper Status	Port Status	Point-to-Point Admin Status	Point-to-Point Operational Status
1	g1	Designated	STP	Disable	Disabled	Auto	Enable
2	g2	Designated	STP	Disable	Disabled	Auto	Enable
3	g3	Designated	STP	Disable	Disabled	Auto	Enable
4	g4	Designated	STP	Disable	Disabled	Auto	Enable
5	g5	Designated	STP	Disable	Disabled	Auto	Enable
6	g6	Designated	STP	Disable	Disabled	Auto	Enable
7	g7	Designated	STP	Disable	Disabled	Auto	Enable
8	g8	Designated	STP	Disable	Disabled	Auto	Enable
9	g9	Designated	STP	Disable	Disabled	Auto	Enable
10	g10	Designated	STP	Disable	Disabled	Auto	Enable
11	g11	Designated	STP	Disable	Disabled	Auto	Enable
12	g12	Designated	STP	Disable	Disabled	Auto	Enable

Spanning Tree > RSTP Port Settings

Interface Displays the port or LAG on which Rapid STP is enabled.

Role Indicates the port role assigned by the STP algorithm in order to provide to STP paths. The possible field values are:

- **Root** Provides the lowest cost path to forward packets to root switch.
- **Designated** Indicates that the port or LAG via which the designated switch is attached to the LAN.
- **Alternate** Provides an alternate path to the root switch from the root interface.
- **Backup** Provides a backup path to the designated port path toward the Spanning Tree leaves. Backup ports occur only when two ports are connected in a loop by a point-to-point link. Backup ports also occur when a LAN has two or more connections connected to a shared segment.
- **Disabled** Indicates the port is not participating in the Spanning Tree.

Mode Indicates the current Spanning Tree mode. The Spanning Tree mode is selected in the *Global STP* screen. The possible field values are:

- **Classic STP** Indicates that Classic STP is enabled on the device.
- **Rapid STP** Indicates that Rapid STP is enabled on the device.

- **Multiple STP** Indicates that Multiple STP is enabled on the device.

Fast Link Indicates if Fast Link is enabled or disabled for the port or LAG. If Fast Link is enabled for a port, the port is automatically placed in the forwarding state (configurable from Spanning Tree > STP Port Settings).

Port State Indicates if RSTP is enabled on the interface.

Point-to-Point Admin Status Indicates if a point-to-point links are established, or permits the device to establish a point-to-point link. The possible field values are:

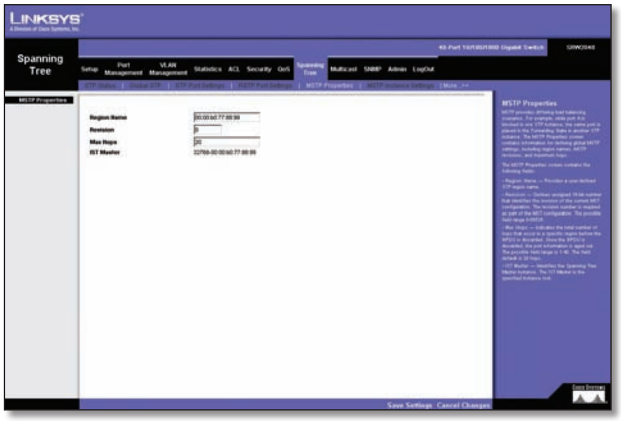
- **Auto** Enables automatic establishment of point-to-point links.
- **Enabled** Enables the device to establish a point-to-point link. To establish communications over a point-to-point link, the originating PPP first sends Link Control Protocol (LCP) packets to configure and test the data link. After a link is established and optional facilities are negotiated as needed by the LCP, the originating PPP sends Network Control Protocols (NCP) packets to select and configure one or more network layer protocols. When each of the chosen network layer protocols has been configured, packets from each network layer protocol can be sent over the link. The link remains configured for communications until explicit LCP or NCP packets close the link, or until some external event occurs. This is the actual switch port link type. It may differ from the administrative state.
- **Disabled** Disables point-to-point link.

Point-to-Point Oper Status Indicates the Point-to-Point operating state.

Activate Protocol Migration Test This option sends Link Control Protocol (LCP) packets to test if a data link is enabled.

Spanning Tree > MSTP Properties

Multiple Spanning Tree Protocol (MSTP) provides differing load balancing scenarios. For example, while port A is blocked in one STP instance, the same port is placed in the Forwarding State in another STP instance. The *MSTP Properties* screen contains information for defining global MSTP settings, including region names, MSTP revisions, and maximum hops.



Region Name 00:00:b0:77:88:99
Revision 0
Max Hops 20
IST Master 32768-00:00:b0:77:88:99

Spanning Tree > MSTP Properties

The *MSTP Properties* screen contains the following fields:

Region Name Provides a user-defined STP region name.

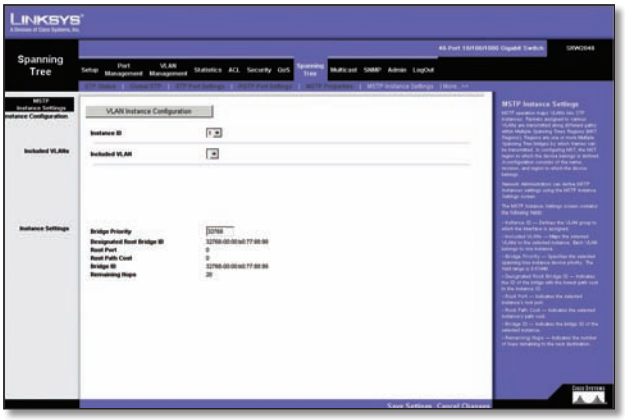
Revision Defines unsigned 16-bit number that identifies the revision of the current MST configuration. The revision number is required as part of the MST configuration. The possible field range **0–65,535**.

Max Hops Indicates the total number of hops that occur in a specific region before the BPDU is discarded. Once the BPDU is discarded, the port information is aged out. The possible field range is **1–40**. The field default is **20** hops.

IST Master Identifies the Spanning Tree Master instance. The IST Master is the specified instance root.

Spanning Tree > MSTP Instance Settings

MSTP operation maps VLANs into STP instances. Packets assigned to various VLANs are transmitted along different paths within Multiple Spanning Trees Regions (MST Regions). Regions are one or more Multiple Spanning Tree bridges by which frames can be transmitted. In configuring MST, the MST region to which the device belongs is defined. A configuration consists of the name, revision, and region to which the device belongs.



Instance ID 1
Included VLAN
Bridge Priority 32768
Designated Root Bridge ID 32768-00:00:a0:77:88:99
Root Port 0
Root Path Cost 0
Bridge ID 32768-00:00:a0:77:88:99
Remaining Hops 20

Spanning Tree > MSTP Instance Settings

Network Administrators can define MSTP Instances settings using the *MSTP Instance Settings* screen.

Instance ID Defines the VLAN group to which the interface is assigned.

Included VLAN Maps the selected VLAN to the selected instance. Each VLAN belongs to one instance.

Bridge Priority Specifies the selected spanning tree instance device priority. The field range is **0–61,440**.

Designated Root Bridge ID Indicates the ID of the bridge with the lowest path cost to the instance ID.

Root Port Indicates the selected instance's root port.

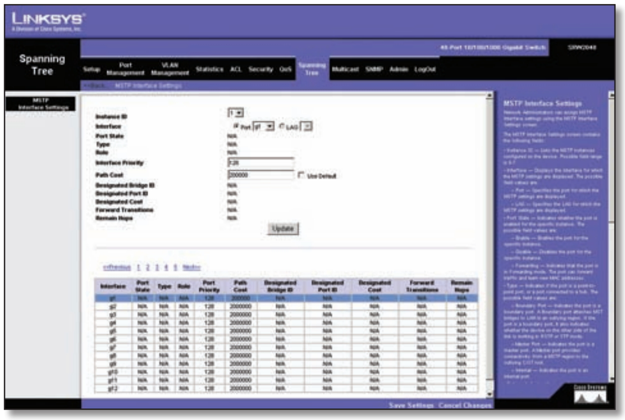
Root Path Cost Indicates the selected instance's path cost.

Bridge ID Indicates the bridge ID of the selected instance.

Remaining Hops Indicates the number of hops remaining to the next destination.

Spanning Tree > MSTP Interface Settings

Network Administrators can assign MSTP Interface settings using the *MSTP Interface Settings* screen.



Instance ID 1
Interface ● Port g1 ○ LAG
Port State N/A
Type N/A
Role N/A
Interface Priority 128
Path Cost 200000 □ Use Default
Designated Bridge ID N/A
Designated Port ID N/A
Designated Cost N/A
Forward Transitions N/A
Remain Hops N/A

Interface	Port State	Type	Role	Port Priority	Path Cost	Designated Bridge ID	Designated Port ID	Designated Cost	Forward Transitions	Remain Hops
g1	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g2	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g3	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g4	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g5	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g6	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g7	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g8	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g9	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g10	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g11	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A
g12	N/A	N/A	N/A	128	2000000	N/A	N/A	N/A	N/A	N/A

Spanning Tree > MSTP Interface Settings

The *MSTP Interface Settings* screen contains the following fields:

Instance ID Lists the MSTP instances configured on the device. Possible field range is **0–15**.

Interface Displays the interface for which the MSTP settings are displayed. The possible field values are:

- **Port** Specifies the port for which the MSTP settings are displayed.
- **LAG** Specifies the LAG for which the MSTP settings are displayed.

Port State Indicates whether the port is enabled for the specific instance.

Type Indicates if the port is a point-to-point port, or a port connected to a hub. The possible field values are:

- **Boundary Port** Indicates the port is a boundary port. A Boundary port attaches MST bridges to LAN in an outlying region. If the port is a boundary port, it also indicates whether the device on the other side of the link is working in RSTP or STP mode.
- **Master Port** Indicates the port is a master port. A Master port provides connectivity from a MSTP region to the outlying CIST root.
- **Internal** Indicates the port is an internal port.

Role Indicates the port role assigned by the STP algorithm in order to provide to STP paths. The possible field values are:

- **Root** Provides the lowest cost path to forward packets to root device.
- **Designated** Indicates the port or LAG via which the designated device is attached to the LAN.

- **Alternate** Provides an alternate path to the root device from the root interface.
- **Backup** Provides a backup path to the designated port path toward the Spanning Tree leaves. Backup ports occur only when two ports are connected in a loop by a point-to-point link. Backup ports also occur when a LAN has two or more connections connected to a shared segment.
- **Disabled** Indicates the port is not participating in the Spanning Tree.

Interface Priority Defines the interface priority for specified instance. The default value is **128**.

Path Cost Indicates the port contribution to the Spanning Tree instance. The range should always be **1–200,000,000**.

Designated Bridge ID Indicates that the bridge ID number that connects the link or shared LAN to the root.

Designated Port ID Indicates that the Port ID number on the designated bridge that connects the link or the shared LAN to the root.

Designated Cost Indicates that the default path cost is assigned according to the method selected on the *Spanning Tree Global Settings* screen.

Forward Transitions Indicates the number of times the port has changed from **Forwarding** state to **Blocking** state.

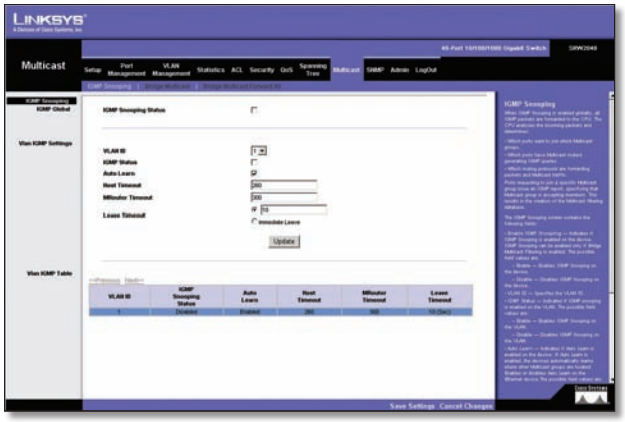
Remaining Hops Indicates the hops remaining to the next destination.

Multicast > IGMP Snooping

When Internet Group Management Protocol (IGMP) Snooping is enabled globally, all IGMP packets are forwarded to the CPU. The CPU analyzes the incoming packets and determines:

- Which ports want to join which Multicast groups?
- Which ports have Multicast routers generating IGMP queries?
- Which routing protocols are forwarding packets and Multicast traffic?

Ports requesting to join a specific Multicast group issue an IGMP report, specifying that Multicast group is accepting members. This results in the creation of the Multicast filtering database.



IGMP Snooping Status ☐

VLAN ID 1

IGMP Status ☐

Auto Learn ☑

Host Timeout 260

MRouter Timeout 300

Leave Timeout ● 10

○ Immediate Leave

VLAN ID	IGMP Snooping Status	Auto Learn	Host Timeout	MRouter Timeout	Leave Timeout
1	Disabled	Enabled	260	300	10 (Sec)

Multicast > IGMP Snooping

IGMP Snooping Status Indicates if IGMP Snooping is enabled on the device. IGMP Snooping can be enabled only if Bridge Multicast Filtering is enabled.

VLAN ID Specifies the VLAN ID.

IGMP Status Indicates if IGMP snooping is enabled on the VLAN.

Auto Learn Indicates if Auto Learn is enabled on the device. If Auto Learn is enabled, the device automatically learns where other Multicast groups are located. Enables or disables Auto Learn on the Ethernet device.

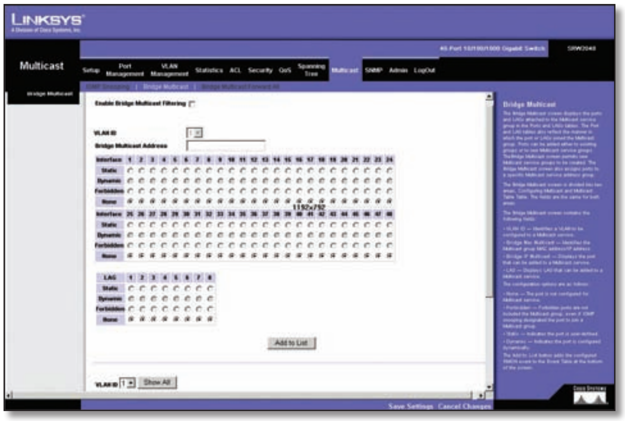
Host Timeout Indicates the amount of time the host waits to receive a message before timing out. The default time is **260** seconds.

MRouter Timeout Indicates the amount of the time the Multicast router waits to receive a message before it times out. The default value is **300** seconds.

Leave Timeout Indicates the amount of time the host waits, after requesting to leave the IGMP group and not receiving a Join message from another station, before timing out. If a Leave Timeout occurs, the switch notifies the Multicast device to stop sending traffic The Leave Timeout value is either user-defined, or an immediate leave value. The default timeout is **10** seconds.

Multicast > Bridge Multicast

The *Bridge Multicast* screen displays the ports and LAGs attached to the Multicast service group in the Ports and LAGs tables. The Port and LAG tables also reflect the manner in which the port or LAGs joined the Multicast group. Ports can be added either to existing groups or to new Multicast service groups. The *Bridge Multicast* screen permits new Multicast service groups to be created. The *Bridge Multicast* screen also assigns ports to a specific Multicast service address group.



Multicast > Bridge Multicast

The *Bridge Multicast* screen is divided into two areas, Configuring Multicast and Multicast Table. The fields are the same for both areas.

Enable Bridge Multicast Filtering Enables Bridge Multicast Filtering.

VLAN ID Identifies a VLAN to be configured to a Multicast service.

Bridge Multicast Address Identifies the Multicast group MAC address/IP address.

Bridge IP Multicast Displays the port that can be added to a Multicast service.

Interface or LAG Displays LAG that can be added to a Multicast service.

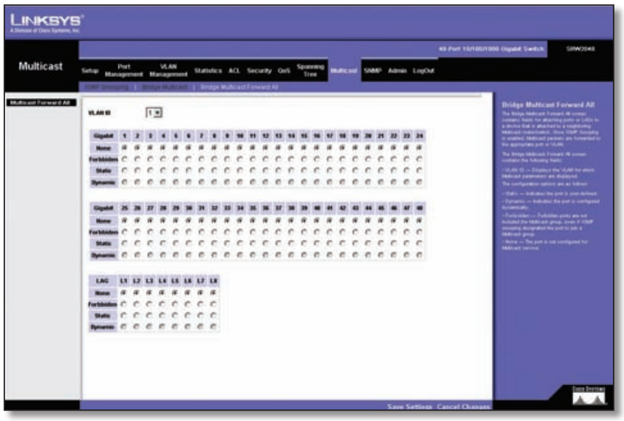
The configuration options are as follows:

- **Static** The port is user-defined.
- **Dynamic** The port is configured dynamically.
- **Forbidden** Forbidden ports are not included the Multicast group, even if IGMP snooping designated the port to join a Multicast group.
- **None** The port is not configured for Multicast service.

Use the **Add to List** button to add the configured RMON event to the Event Table at the bottom of the screen.

Multicast > Bridge Multicast Forward All

The *Bridge Multicast Forward All* screen contains fields for attaching ports or LAGs to a device that is attached to a neighboring Multicast router/switch. Once IGMP Snooping is enabled, Multicast packets are forwarded to the appropriate port or VLAN.



Multicast > Bridge Multicast Forward All

The *Bridge Multicast Forward All* screen contains the following fields:

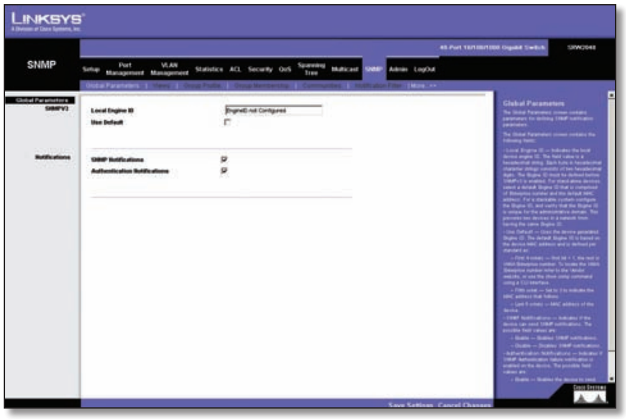
VLAN ID Displays the VLAN for which Multicast parameters are displayed.

The configuration options are as follows:

- **None** The port is not configured for Multicast service.
- **Forbidden** Forbidden ports are not included the Multicast group, even if IGMP snooping designated the port to join a Multicast group.
- **Static** The port is user-defined.
- **Dynamic** The port is configured dynamically.

SNMP > Global Parameters

The *Global Parameters* screen contains parameters for defining SNMP notification parameters.



Local Engine ID: EngineID not Configured
Use Default □
SNMP Notifications ☑
Authentication Notifications ☑

SNMP > Global Parameters

Local Engine ID Indicates the local device engine ID. The field value is a hexadecimal string. Each byte in hexadecimal character strings consists of two hexadecimal digits. Each byte can be separated by a period or a colon. The Engine ID must be defined before SNMPv3 is enabled. For stand-alone devices, select a default Engine ID that is comprised of Enterprise number and the default MAC address. For a stackable system configure the Engine ID, and verify that the Engine ID is unique for the administrative domain. This prevents two devices in a network from having the same Engine ID.

Use Default Uses the device generated Engine ID. The default Engine ID is based on the device MAC address and is defined per standard as:

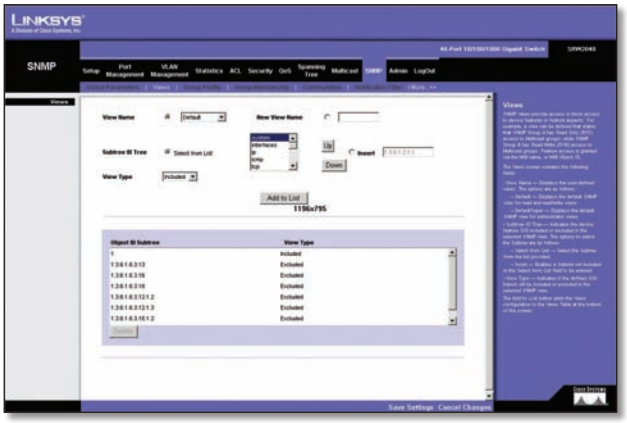
- First 4 octets—first bit = 1, the rest is IANA Enterprise number.
- Fifth octet—Set to **3** to indicate the MAC address that follows.
- Last 6 octets—MAC address of the device.

SNMP Notifications Indicates if the device can send SNMP notifications.

Authentication Notifications Indicates if SNMP Authentication failure notification is enabled on the device.

SNMP > Views

SNMP Views provide access or block access to device features or feature aspects. For example, a view can be defined that states that SNMP Group A has Read Only (R/O) access to Multicast groups, while SNMP Group B has Read-Write (R/W) access to Multicast groups. Feature access is granted via the MIB name, or MIB Object ID.



View Name ● Default
New View Name ○
Subtree ID Tree ● Select from List ○ Insert 1.3.6.1.2.1.1
View Type Included

Object ID Subtree	View Type
1	Included
1.3.6.1.6.3.13	Excluded
1.3.6.1.6.3.16	Excluded
1.3.6.1.6.3.18	Excluded
1.3.6.1.6.3.12.1.2	Excluded
1.3.6.1.6.3.12.1.3	Excluded
1.3.6.1.6.3.15.1.2	Excluded

SNMP > Views

View Name Displays the user-defined views. The options are as follows:

- **Default** Displays the default SNMP view for read and read/write views.
- **DefaultSuper** Displays the default SNMP view for administrator views.

Subtree ID Tree Indicates the device feature OID included or excluded in the selected SNMP view. The options to select the Subtree are as follows:

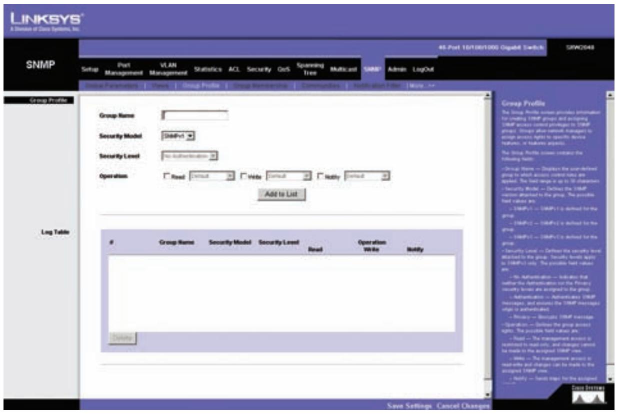
- **Select from List** Select the Subtree from the list provided.
- **Insert** Enables a Subtree not included in the Select from List field to be entered.

View Type Indicates if the defined OID branch will be included or excluded in the selected SNMP view.

Use the **Add to List** button to add the Views configuration to the Views Table at the bottom of the screen.

SNMP > Group Profile

The *Group Profile* screen provides information for creating SNMP groups and assigning SNMP access control privileges to SNMP groups. Groups allow network managers to assign access rights to specific device features, or features aspects.



SNMP > Group Profile

Group Name Displays the user-defined group name (up to 30 characters) to which access control rules are applied.

Security Model Defines the SNMP version attached to the group. The possible field values are:

- **SNMPv1** SNMPv1 is defined for the group.
- **SNMPv2** SNMPv2 is defined for the group.
- **SNMPv3** SNMPv3 is defined for the group.

Security Level Defines the security level attached to the group. Security levels apply to SNMPv3 only. The possible field values are:

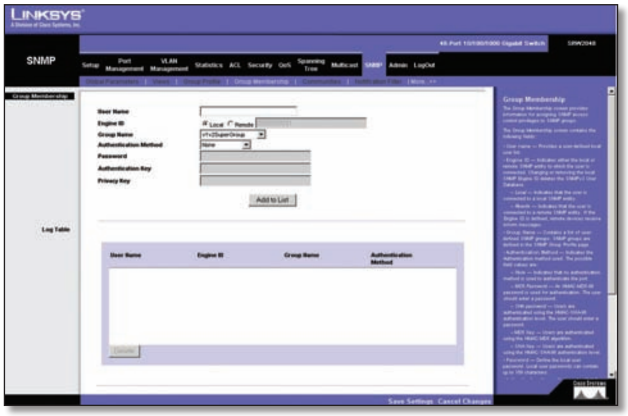
- **No Authentication** Indicates that neither the Authentication nor the Privacy security levels are assigned to the group.
- **Authentication** Authenticates SNMP messages, and ensures the SNMP messages origin is authenticated.
- **Privacy** Encrypts SNMP messages.

Operation Defines the group access rights. The possible field values are:

- **Read** The management access is restricted to read-only, and changes cannot be made to the assigned SNMP view.
- **Write** The management access is read-write and changes can be made to the assigned SNMP view.
- **Notify** Sends traps for the assigned SNMP view.

SNMP > Group Membership

The *Group Membership* screen provides information for assigning SNMP access control privileges to SNMP groups.



SNMP > Group Membership

User name Provides a user-defined local user list.

Engine ID Indicates either the local or remote SNMP entity to which the user is connected. Changing or removing the local SNMP Engine ID deletes the SNMPv3 User Database.

- **Local** Indicates that the user is connected to a local SNMP entity.
- **Remote** Indicates that the user is connected to a remote SNMP entity. If the Engine ID is defined, remote devices receive inform messages.

Group Name Contains a list of user-defined SNMP groups. SNMP groups are defined in the SNMP Group Profile page.

Authentication Method Indicates the Authentication method used. The possible field values are:

- **None** Indicates that no authentication method is used to authenticate the port.
- **MD5 Password** Indicates that port authentication is performed via HMAC-MD5-96 password authentication.
- **SHA Password** Indicates that port authentication is performed via HMAC-SHA-96 password authentication.
- **MD5 Key** Indicates that port authentication is performed via the HMAC-MD5 algorithm.
- **SHA Key** Indicates that port authentication is performed via HMAC-SHA-96 authentication.

Password Define the local user password. Local user passwords can contain up to 159 characters.

Authentication Key Defines the HMAC-MD5-96 or HMAC-SHA-96 authentication level. The authentication and privacy keys are entered to define the authentication key. If only authentication is required, 16 bytes are defined. If both privacy and authentication are required, 32 bytes are defined. Each byte in hexadecimal character strings is two hexadecimal digits. Each byte can be separated by a period or a colon.

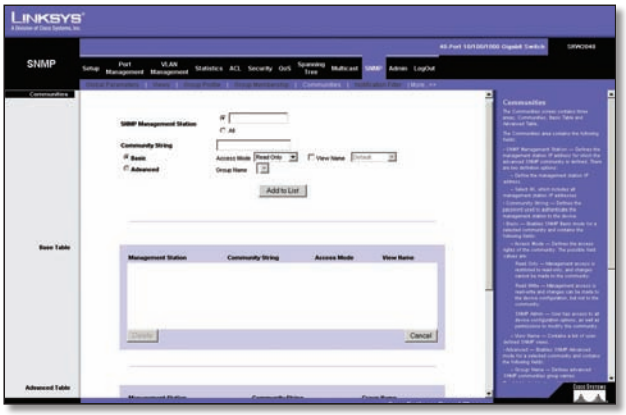
Privacy Key Defines the Privacy Key (LSB). If only authentication is required, 20 bytes are defined. If both privacy and authentication are required, 36 bytes are defined. Each byte in hexadecimal character strings is two hexadecimal digits. Each byte can be separated by a period or colon.

Use the **Add to List** button to add the Group Membership configuration to the respective table at the bottom of the screen.

SNMP > Communities

The *Communities* screen contains three areas:

- Communities
- Basic Table
- Advanced Table



SNMP > Communities

SNMP Management Station Defines the management station IP address for which the advanced SNMP community is defined. There are two definition options:

- Define the management station IP address.
- **All** Includes all management station IP addresses.

Community String Defines the password used to authenticate the management station to the device.

Basic Enables SNMP Basic mode for a selected community and contains the following fields:

Access Mode Defines the access rights of the community. The possible field values are:

- **Read Only** Management access is restricted to read-only, and changes cannot be made to the community.
- **Read Write** Management access is read-write and changes can be made to the device configuration, but not to the community.
- **SNMP Admin** User has access to all device configuration options, as well as permissions to modify the community.

View Name Contains a list of user-defined SNMP views.

Advanced Enables SNMP Advanced mode for a selected community and contains the following fields:

Group Name Defines advanced SNMP communities group names.

Use the **Add to List** button to add the Communities configuration to the respective Table at the bottom of the screen.

Base Table

Management Station Displays the management station IP address for which the basic SNMP community is defined.

Community String Displays the password used to authenticate the management station to the device.

Access Mode Displays the access rights of the community.

View Name Displays the user-defined SNMP view.

Advanced Table

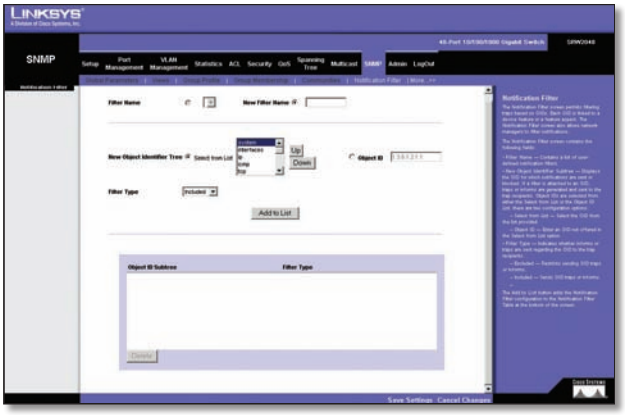
Management Station Displays the management station IP address for which the basic SNMP community is defined.

Community String Displays the password used to authenticate the management station to the device.

Group Name Displays advanced SNMP communities group name.

SNMP > Notification Filter

The *Notification Filter* screen permits filtering traps based on OIDs (Object Identifiers). Each OID is linked to a device feature or a feature aspect. The *Notification Filter* screen also allows network managers to filter notifications.



SNMP > Notification Filter

Filter Name Contains a list of user-defined notification filters.

New Object Identifier Subtree Displays the OID for which notifications are sent or blocked. If a filter is attached to an OID, traps or informs are generated and sent to the trap recipients. Object IDs are selected from either the Select from List or the Object ID List. There are two configuration options:

Select from List Select the OID from the list provided.

Object ID Enter an OID not offered in the Select from List option.

Filter Type Indicates whether informs or traps are sent regarding the OID to the trap recipients.

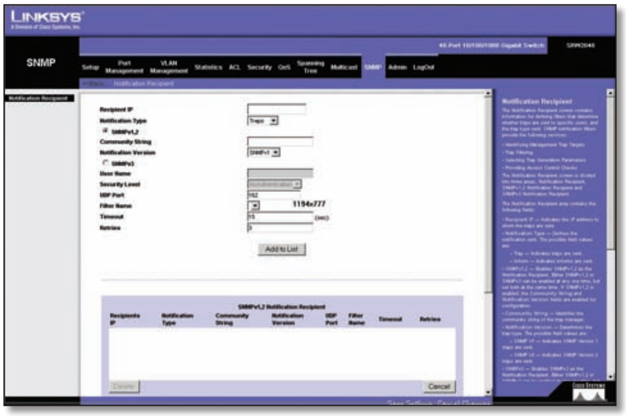
- **Excluded** Restricts sending OID traps or informs.
- **Included** Sends OID traps or informs.

Use the **Add to List** button to add the Notification Filter configuration to the Notification Filter Table at the bottom of the screen.

SNMP > Notification Recipient

The *Notification Recipient* screen contains information for defining filters that determine whether traps are sent to specific users, and the trap type sent. SNMP notification filters provide the following services:

- Identifying Management Trap Targets
- Trap Filtering
- Selecting Trap Generation Parameters
- Providing Access Control Checks



SNMP > Notification Recipient

Recipient IP Indicates the IP address to whom the traps are sent.

Notification Type Defines the notification sent. The possible field values are:

- **Traps** Indicates traps are sent.
- **Informs** Indicates informs are sent.

SNMPv1,2 Enables SNMPv1,2 as the Notification Recipient. Either SNMPv1,2 or SNMPv3 can be enabled at any one time, but not both at the same time. If SNMPv1,2 is enabled, the Community String and Notification Version fields are enabled for configuration:

- **Community String** Identifies the community string of the trap manager.
- **Notification Version** Determines the trap type. The possible field values are:
    - **SNMP V1** Indicates SNMP Version 1 traps are sent.
    - **SNMP V2** Indicates SNMP Version 2 traps are sent.

SNMPv3 Enables SNMPv3 as the Notification Recipient. Either SNMPv1,2 or SNMPv3 can be enabled at any one time, but not both at the same time. If SNMPv3is enabled, the User Name and Security Level fields are enabled for configuration:

User Name Defines the user to whom SNMP notifications are sent.

Security Level Defines the means by which the packet is authenticated. The possible field values are:

- **No Authentication** The packet is neither authenticated nor encrypted.
- **Authentication** The packet is authenticated.
- **Privacy** Indicates the packet is both authenticated and encrypted.

UDP Port Displays the UDP port used to send notifications. The default is **162**.

Filter Name Indicates if the SNMP filter for which the SNMP Notification filter is defined.

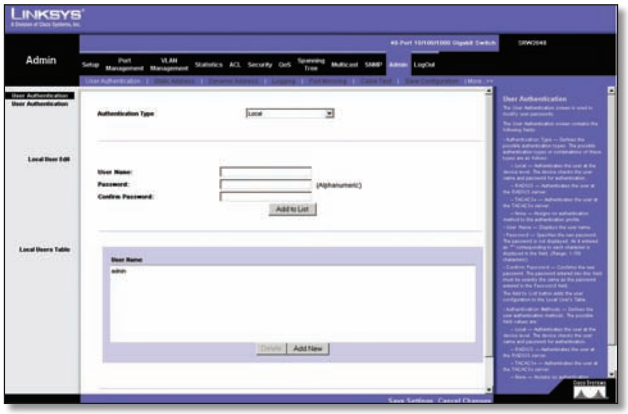
Timeout Indicates the amount of time (seconds) the device waits before resending informs. The default is **15** seconds.

Retries Indicates the amount of times the device resends an inform request. The default is **3** seconds.

Use the **Add to List** button to add the Notification Recipient configuration to the relevant table at the bottom of the screen.

Admin > User Authentication

You can modify user passwords in the *User Authentication* screen.



Admin > User Authentication

Authentication Type Defines the user authentication methods. Combinations of all the authentication methods can be selected. The possible field values are:

- **Local** Authenticates the user at the device level. The device checks the user name and password for authentication.
- **RADIUS** Authenticates the user at the RADIUS server.
- **TACACS+** Authenticates the user at the TACACS+ server.
- **None** Assigns no authentication method to the authentication profile.

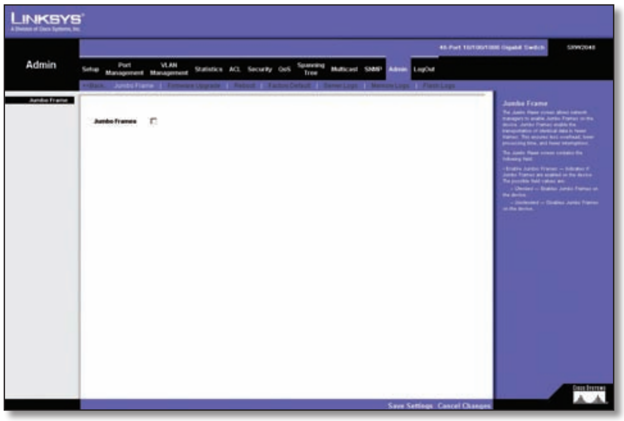
User Name Displays the user name.

Password Specifies the new password. The password is not displayed. As it entered an "*" corresponding to each character is displayed in the field. The range is **1–159** characters.

Confirm Password Confirms the new password. The password entered into this field must be exactly the same as the password entered in the Password field.

Use the **Add to List** button to add the user configuration to the Local User's Table.

Admin > Jumbo Frames



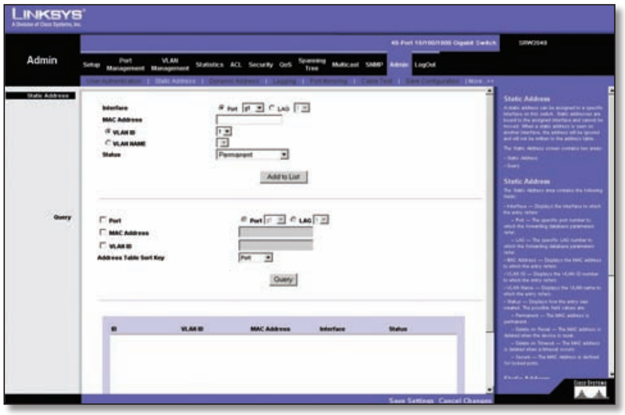
Admin > Jumbo Frames

Jumbo Frames This option enables the transportation of identical data in fewer frames. This ensures less overhead, lower processing time and fewer interruptions.

NOTE: The Jumbo Frames tab is not an available option on the SRW224G4 and SRW248G4 Switches.

Admin > Static Address

A static address can be assigned to a specific interface on this switch. Static addresses are bound to the assigned interface and cannot be moved. When a static address is seen on another interface, the address will be ignored and will not be written to the address table.



Admin > Static Address

Interface Displays the interface to which the entry refers:

- **Port** The specific port number to which the forwarding database parameters refer.
- **LAG** The specific LAG number to which the forwarding database parameters refer.

MAC Address Displays the MAC address to which the entry refers.

VLAN ID Displays the VLAN ID number to which the entry refers.

VLAN Name Displays the VLAN name to which the entry refers.

Status Displays how the entry was created. The possible field values are:

- **Permanent** The MAC address is permanent.
- **Delete on Reset** The MAC address is deleted when the device is reset.
- **Delete on Timeout** The MAC address is deleted when a timeout occurs.
- **Secure** The MAC Address is defined for locked ports.

Query

Port Specifies the interface for which the table is queried. There are two interface types from which to select.

- **Port** The specific port number.
- **LAG** The specific LAG number.

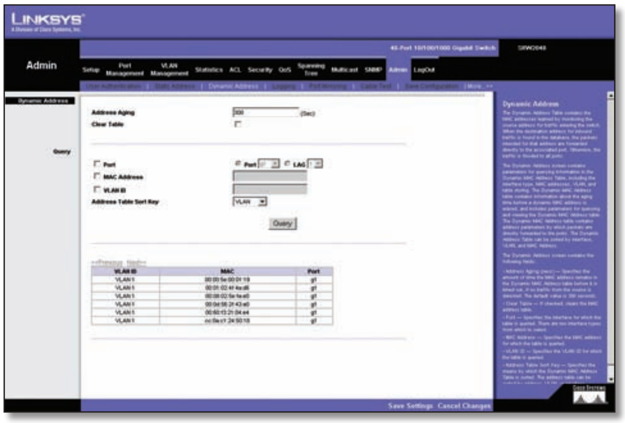
MAC Address Specifies the MAC address for which the table is queried.

VLAN ID Specifies the VLAN ID for which the table is queried.

Address Table Sort Key Specifies the means by which the Dynamic MAC Address Table is sorted. The address table can be sorted by address, VLAN, or interface.

Admin > Dynamic Address

The Dynamic Address Table contains the MAC addresses learned by monitoring the source address for traffic entering the switch. When the destination address for inbound traffic is found in the database, the packets intended for that address are forwarded directly to the associated port. Otherwise, the traffic is flooded to all ports.



Address Aging 300 (Sec)
Clear Table □

□ Port ● Port g1 ○ LAG 1
□ MAC Address
□ VLAN ID
Address Table Sort Key VLAN

VLAN ID	MAC	Port
VLAN 1	00:00:5e:00:01:19	g1
VLAN 1	00:01:02:4f:4a:d6	g1
VLAN 1	00:08:02:5e:fa:e0	g1
VLAN 1	00:0d:56:2f:43:a0	g1
VLAN 1	00:60:13:21:04:e4	g1
VLAN 1	[illegible]	g1

Admin > Dynamic Address

The *Dynamic Address* screen contains parameters for querying information in the Dynamic MAC Address Table, including the interface type, MAC addresses, VLAN, and table storing. The Dynamic MAC Address table contains information about the aging time before a dynamic MAC address is erased, and includes parameters for querying and viewing the Dynamic MAC Address table. The Dynamic MAC Address table contains address parameters by which packets are directly forwarded to the ports. The Dynamic Address Table can be sorted by interface, VLAN, and MAC Address.

Address Aging Specifies the amount of time (in seconds) the MAC address remains in the Dynamic MAC Address table before it times out, if no traffic from the source is detected. The default value is **300** seconds.

Clear Table If checked, clears the MAC address table.

Query

Port Specifies the interface for which the table is queried. There are two interface types from which to select.

- **Port** The specific port number.
- **LAG** The specific LAG number.

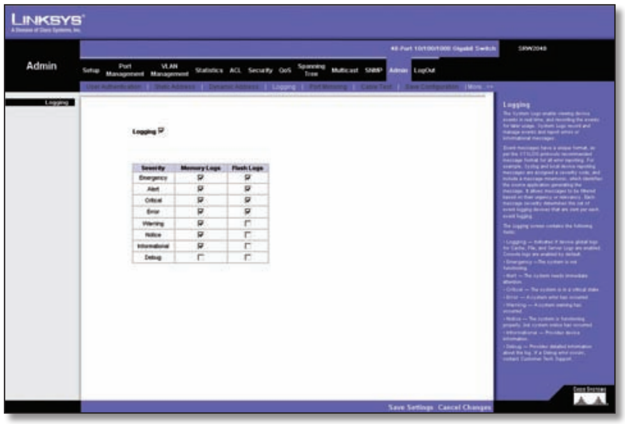
MAC Address Specifies the MAC address for which the table is queried.

VLAN ID Specifies the VLAN ID for which the table is queried.

Address Table Sort Key Specifies the means by which the Dynamic MAC Address Table is sorted. The address table can be sorted by address, VLAN, or interface.

Admin > Logging

The System Logs enable viewing device events in real time, and recording the events for later usage. System Logs record and manage events and report errors or informational messages.


LINKSYS
A Division of Cisco Systems, Inc.
48-Port 10/100/1000 Gigabit Switch
SRW2048
Admin
Setup
Port Management
VLAN Management
Statistics
ACL
Security
QoS
Spanning Tree
Multicast
SNMP
Admin
LogOut
User Authentication | Static Address | Dynamic Address | Logging | Port Mirroring | Cable Test | Save Configuration | More >>
Logging
Logging
Save Settings
Cancel Changes

Logging ☑

Severity	Memory Logs	Flash Logs
Emergency	☑	☑
Alert	☑	☑
Critical	☑	☑
Error	☑	☑
Warning	☑	□
Notice	☑	□
Informational	☑	□
Debug	□	□

Admin > Logging

Event messages have a unique format, as per the SYSLOG protocols recommended message format for all error reporting. For example, Syslog and local device reporting messages are assigned a severity code, and include a message mnemonic, which identifies the source application generating the message. It allows messages to be filtered based on their urgency or relevancy. Each message severity determines the set of event logging devices that are sent per each event logging.

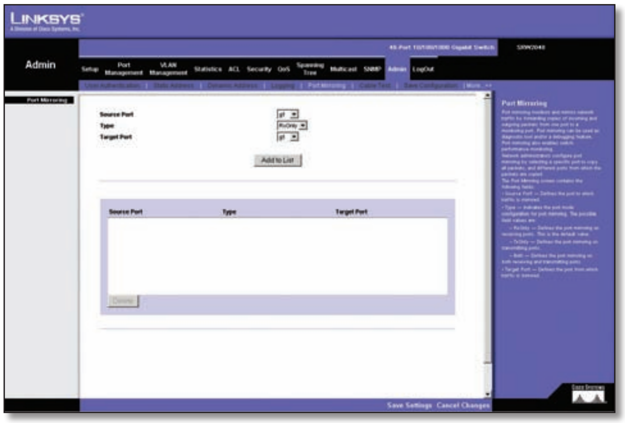
Logging Indicates if device global logs for Cache, File, and Server Logs are enabled. Console logs are enabled by default.

- **Emergency** The system is not functioning.
- **Alert** The system needs immediate attention.
- **Critical** The system is in a critical state.

- **Error** A system error has occurred.
- **Warning** A system warning has occurred.
- **Notice** The system is functioning properly, but system notice has occurred.
- **Informational** Provides device information.
- **Debug** Provides detailed information about the log. If a Debug error occurs, contact Customer Tech Support.

Admin > Port Mirroring

Port mirroring monitors and mirrors network traffic by forwarding copies of incoming and outgoing packets from one port to a monitoring port. Port mirroring can be used as diagnostic tool and/or a debugging feature. Port mirroring also enables switch performance monitoring.



Source Port: g1
Type: RxOnly
Target Port: g1

Source Port	Type	Target Port

Admin > Port Mirroring

Network administrators configure port mirroring by selecting a specific port to copy all packets, and different ports from which the packets are copied.

Source Port Defines the port to which traffic is mirrored.

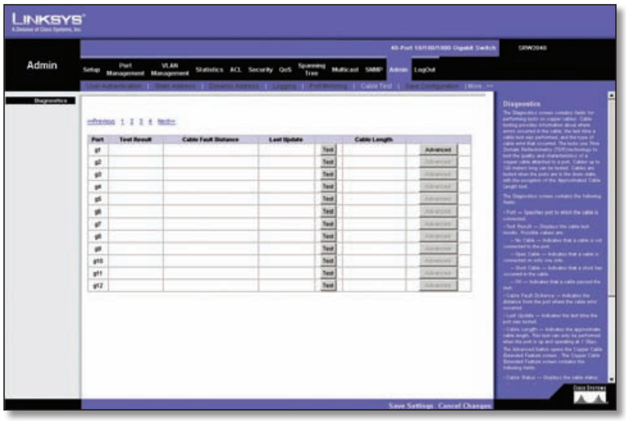
Type Indicates the port mode configuration for port mirroring. The possible field values are:

- **RxOnly** Defines the port mirroring on receiving ports. This is the default value.
- **TxOnly** Defines the port mirroring on transmitting ports.
- **Both** Defines the port mirroring on both receiving and transmitting ports.

Target Port Defines the port from which traffic is mirrored.

Admin > Cable Test

The *Cable Test* screen shows you results from performance tests on copper cables. The maximum cable length that can be tested is 120 meters. Cables are tested when the ports are in the down state, except for the Approximate Cable Length test.



Port	Test Result	Cable Fault Distance	Last Update		Cable Length	
g1				Test		Advanced
g2				Test		Advanced
g3				Test		Advanced
g4				Test		Advanced
g5				Test		Advanced
g6				Test		Advanced
g7				Test		Advanced
g8				Test		Advanced
g9				Test		Advanced
g10				Test		Advanced
g11				Test		Advanced
g12				Test		Advanced

Admin > Cable Test

Port This is the port to which the cable is connected.

Test Result This is the test result. **OK** indicates that the cable passed the test. **No Cable** means there is no cable connected to the port. **Open Cable** means the cable is connected on only one side. **Short Cable** indicates that a short has occurred in the cable. **Undefined** indicates that the test could not be properly performed.

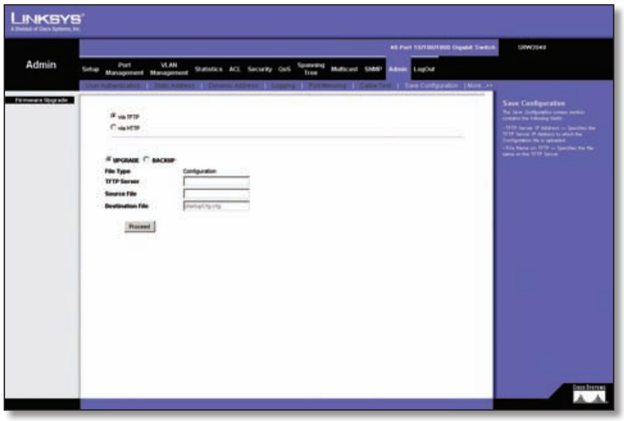
Cable Fault Distance This is the distance from the port at which the cable error occurred.

Last Update This is the last time the port was tested.

Test Click the **Test** button to perform the test.

Cable Length This is the approximate length of the cable. The Cable Length test can be performed only when the port is up and operating at 1Gbps.

Admin > Save Configuration



● via TFTP
○ via HTTP

● UPGRADE ○ BACKUP

File Type Configuration

TFTP Server

Source File

Destination File

Admin > Save Configuration

Via TFTP

Upgrade Select this option to upgrade the switch from a file located on a TFTP server.

- **TFTP Server** The TFTP Server IP Address that contains the source file to upgrade from.
- **Source File** Specifies the name of the upgrade file on the TFTP Server.

Backup To backup the switch configuration via TFTP, enter the TFTP server address.

- **TFTP Server** Specifies the TFTP Server IP Address to which the Configuration file will be saved.
- **Destination File** Specifies the name of the configuration file. The default is **StartupCfg.cfg**.

Via HTTP

This *HTTP Firmware Upgrade* screen is used for saving configuration information using your Web browser.

Upgrade Select this option to upgrade the switch from a file on the local hard drive.

- **Source File** Type in the name and path of the file or Browse to locate the upgrade file.

Backup

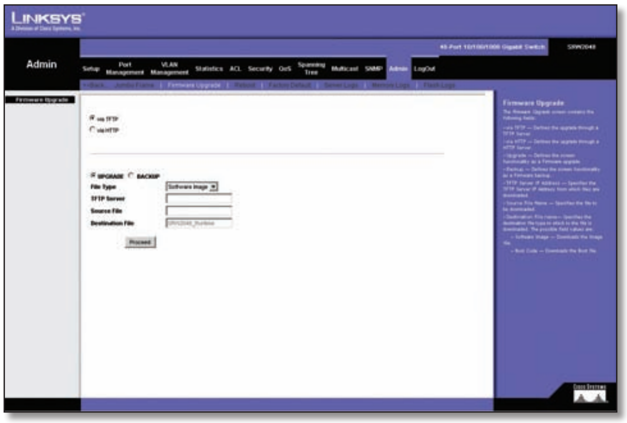
- **Proceed** The **Proceed** button is used to backup the configuration to the local hard drive.

> **NOTE:** When downloading a configuration file, be sure that it is a valid configuration file. If you have edited the file, ensure that only valid entries have been configured.

Admin > Firmware Upgrade

After you download a new image file, the device should be rebooted. If you are downloading a new boot image, please follow these steps:

1. Download the new boot code. DO NOT RESET THE DEVICE!
2. Download the new software image.
3. Reset the device now.



● via TFTP
○ via HTTP

● UPGRADE ○ BACKUP

File Type Software Image

TFTP Server

Source File

Destination File

Admin > Firmware Upgrade

The *Firmware Upgrade* screen contains the following fields:

via TFTP Defines the upgrade through a TFTP Server.

via HTTP Allows you to upgrade the firmware using your Web browser.

Upgrade Defines the screen functionality as a Firmware upgrade.

Backup Defines the screen functionality as a Firmware backup.

TFTP Server IP Address Specifies the TFTP Server IP Address from which files are downloaded.

Source File Name Specifies the file to be downloaded.

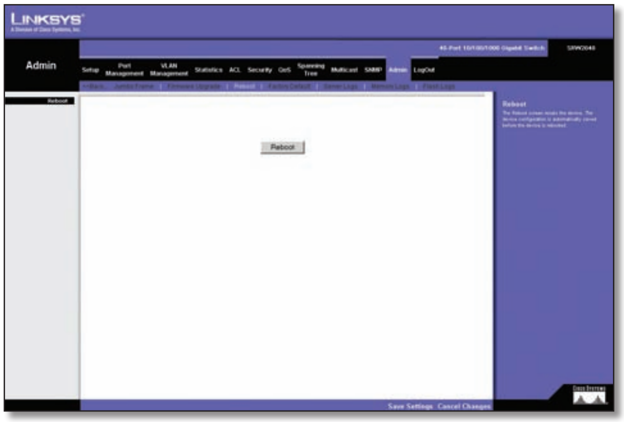
Destination File name Specifies the destination file type to which the file is downloaded. The possible field values are:

Software Image Downloads the Image file.

Boot Code Downloads the Boot file.

Admin > Reboot

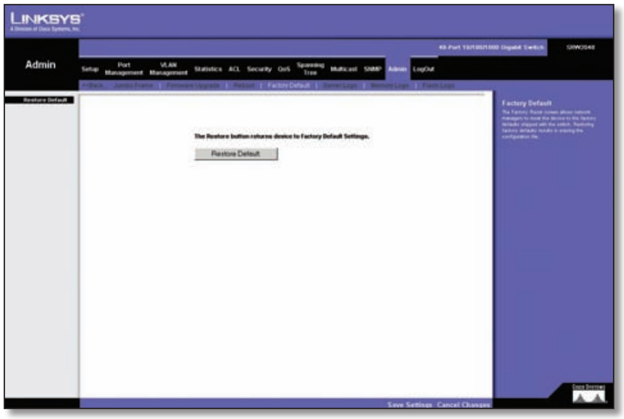
The *Reboot* screen resets the device. The device configuration is automatically saved before the device is rebooted.



Admin > Reboot

Admin > Factory Defaults

The *Factory Reset* screen allows network managers to reset the device to the factory defaults shipped with the switch. Restoring factory defaults results in erasing the configuration file.



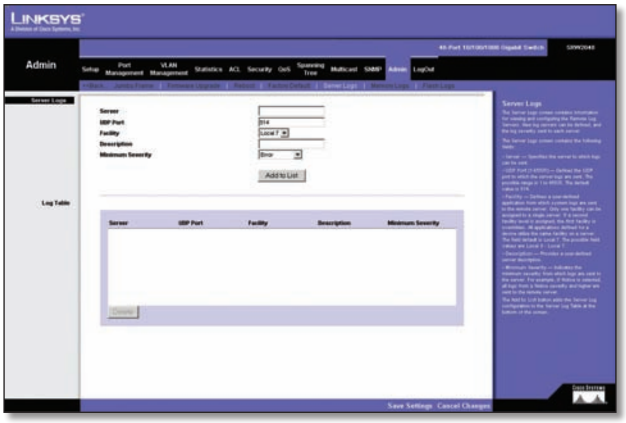
The Restore button returns device to Factory Default Settings.

Admin > Factory Defaults

NOTE: Restoring the factory defaults will erase all configuration settings that you have made. You can save a backup of your current configuration settings from Admin > Save Configuration.

Admin > Server Logs

The *Server Logs* screen contains information for viewing and configuring the Remote Log Servers. New log servers can be defined, and the log severity sent to each server.



Server:
UDP Port: 514
Facility: Local 7
Description:
Minimum Severity: Error

Server	UDP Port	Facility	Description	Minimum Severity

Admin > Server Logs

Server Specifies the server to which logs can be sent.

UDP Port Defines the UDP port to which the server logs are sent. The possible range is **1–65,535**. The default value is **514**.

Facility Defines a user-defined application from which system logs are sent to the remote server. Only one facility can be assigned to a single server. If a second facility level is assigned, the first facility is overridden. All applications defined for a device utilize the same facility on a server. The field default is **Local 7**. The range is **Local 0–Local 7**.

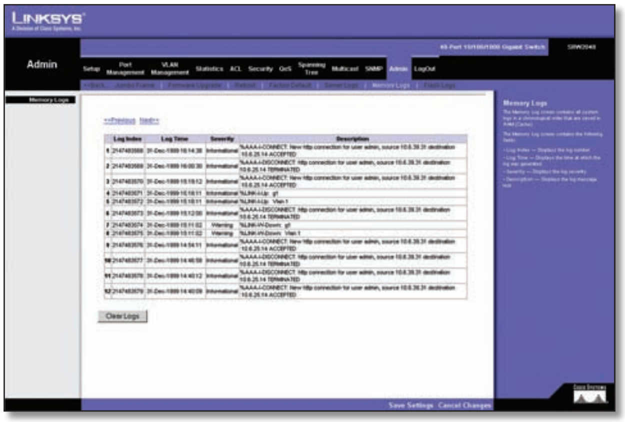
Description Provides a user-defined server description.

Minimum Severity Indicates the minimum severity from which logs are sent to the server. For example, if Notice is selected, all logs from a Notice severity and higher are sent to the remote server.

Use the **Add to List** button to add the Server Log configuration to the Server Log Table at the bottom of the screen.

Admin > Memory Logs

The *Memory Log* screen contains all system logs in a chronological order that are saved in RAM (Cache).



	Log Index	Log Time	Severity	Description
1	[illegible]	31-Dec-1999 [illegible]	Informational	%AAA-I-CONNECT: New http connection for user admin, source 10.6.39.31 destination 10.6.25.14 ACCEPTED
2	[illegible]	31-Dec-1999 [illegible]	Informational	%AAA-I-DISCONNECT: Http connection for user admin, source 10.6.39.31 destination 10.6.25.14 TERMINATED
3	[illegible]	31-Dec-1999 [illegible]	Informational	%AAA-I-CONNECT: New http connection for user admin, source 10.6.39.31 destination 10.6.25.14 ACCEPTED
4	[illegible]	31-Dec-1999 [illegible]	Informational	%LINK-I-Up: g1
5	[illegible]	31-Dec-1999 [illegible]	Informational	%LINK-I-Up: Vlan 1
6	[illegible]	31-Dec-1999 [illegible]	Informational	%AAA-I-DISCONNECT: Http connection for user admin, source 10.6.39.31 destination 10.6.25.14 TERMINATED
7	[illegible]	31-Dec-1999 [illegible]	Warning	%LINK-W-Down: g1
8	[illegible]	31-Dec-1999 [illegible]	Warning	%LINK-W-Down: Vlan 1
9	[illegible]	31-Dec-1999 [illegible]	Informational	%AAA-I-CONNECT: New http connection for user admin, source 10.6.39.31 destination 10.6.25.14 ACCEPTED
10	[illegible]	31-Dec-1999 [illegible]	Informational	%AAA-I-DISCONNECT: Http connection for user admin, source 10.6.39.31 destination 10.6.25.14 TERMINATED
11	[illegible]	31-Dec-1999 [illegible]	Informational	%AAA-I-DISCONNECT: Http connection for user admin, source 10.6.39.31 destination 10.6.25.14 TERMINATED
12	[illegible]	31-Dec-1999 [illegible]	Informational	%AAA-I-CONNECT: New http connection for user admin, source 10.6.39.31 destination 10.6.25.14 ACCEPTED

Admin > Memory Logs

Log Index Displays the log number.

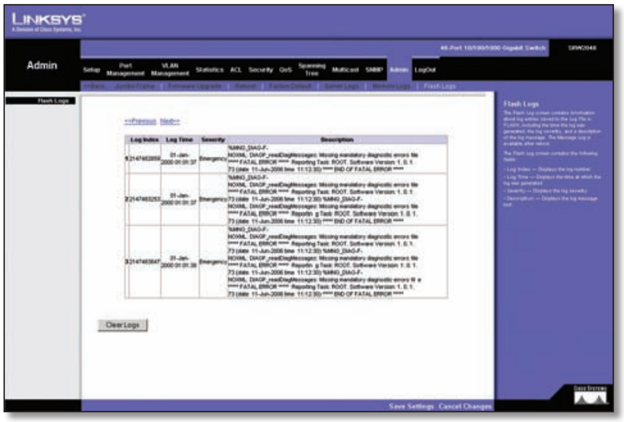
Log Time Displays the time at which the log was generated.

Severity Displays the log severity.

Description Displays the log message text.

Admin > Flash Logs

The *Flash Log* screen contains information about log entries saved to the Log File in FLASH, including the time the log was generated, the log severity, and a description of the log message. The Message Log is available after reboot.



	Log Index	Log Time	Severity	Description
1	[illegible]	01-Jan-2000 01:01:37	Emergency	%MNG_DIAG-F-NOXML: DIAGP_readDiagMessages: Missing mandatory diagnostic errors file ***** FATAL ERROR ***** Reporting Task: ROOT. Software Version: 1.0.1.73 (date 11-Jun-2006 time 11:12:30) ***** END OF FATAL ERROR *****
2	[illegible]	01-Jan-2000 01:01:37	Emergency	%MNG_DIAG-F-NOXML: DIAGP_readDiagMessages: Missing mandatory diagnostic errors file ***** FATAL ERROR ***** Reporting Task: ROOT. Software Version: 1.0.1.73 (date 11-Jun-2006 time 11:12:30) %MNG_DIAG-F-NOXML: DIAGP_readDiagMessages: Missing mandatory diagnostic errors file ***** FATAL ERROR ***** Reportin g Task: ROOT. Software Version: 1.0.1.73 (date 11-Jun-2006 time 11:12:30) ***** END OF FATAL ERROR *****
3	[illegible]	01-Jan-2000 01:01:38	Emergency	%MNG_DIAG-F-NOXML: DIAGP_readDiagMessages: Missing mandatory diagnostic errors file ***** FATAL ERROR ***** Reporting Task: ROOT. Software Version: 1.0.1.73 (date 11-Jun-2006 time 11:12:30) %MNG_DIAG-F-NOXML: DIAGP_readDiagMessages: Missing mandatory diagnostic errors file ***** FATAL ERROR ***** Reportin g Task: ROOT. Software Version: 1.0.1.73 (date 11-Jun-2006 time 11:12:30) %MNG_DIAG-F-NOXML: DIAGP_readDiagMessages: Missing mandatory diagnostic errors fil e ***** FATAL ERROR ***** Reporting Task: ROOT. Software Version: 1.0.1.73 (date 11-Jun-2006 time 11:12:30) ***** END OF FATAL ERROR *****

Admin > Flash Logs

Log Index Displays the log number.

Log Time Displays the time at which the log was generated.

Severity Displays the log severity.

Description Displays the log message text.

Appendix A: About Gigabit Ethernet and Fiber Optic Cabling

Gigabit Ethernet

Gigabit Ethernet runs at speeds of 1Gbps (Gigabit per second), ten times faster than 100Mbps Fast Ethernet, but it still integrates seamlessly with 100Mbps Fast Ethernet hardware. Users can connect Gigabit Ethernet hardware with either fiber optic cabling or copper Category 5e cabling, with fiber optics more suited for network backbones. As the Gigabit standard gradually integrates into existing networks, current computer applications will enjoy faster access time for network data, hardware, and Internet connections.

Fiber Optic Cabling

Fiber optic cabling is made from flexible, optically efficient strands of glass and coated with a layer of rubber tubing, fiber optics use photons of light instead of electrons to send and receive data. Although fiber is physically capable of carrying terabits of data per second, the signaling hardware currently on the market can handle no more than a few gigabits of data per second.

Fiber cables come with two main connector types. The most commonly used fiber optic cable is multi-mode fiber cable (MMF), with a 62.5 micron fiber optic core. Single-mode fiber cabling is somewhat more efficient than multi-mode but far more expensive, due to its smaller optic core that helps retain the intensity of traveling light signals. A fiber connection always require two fiber cables: one transmits data, and the other receives it.

Each fiber optic cable is tipped with a connector that fits into a fiber port on a network adapter, hub, or switch. In the USA, most cables use a square SC connector that slides and locks into place when plugged into a port or connected to another cable. In Europe, the round ST connector is more prevalent.

You must use the Linksys MGBT1, MGBSX1, or MGBLH1 miniGBIC modules with the Linksys Gigabit Switches. The MGBSX1 and the MGBLH1 require fiber cabling with LC connectors, and the MGBT1 requires a Category 5e Ethernet cable with an RJ-45 connector.

Appendix B: Windows Help

Almost all networking products require Microsoft Windows. Windows is the most used operating system in the world and comes with many features that help make networking easier. These features can be accessed through Windows Help and are described in this appendix.

TCP/IP

Before a computer can communicate within a network, TCP/IP must be enabled. TCP/IP is a set of instructions, or protocol all PCs follow to communicate over a network. This is true for wireless networks as well. Your PCs will not be able to utilize wireless networking without having TCP/IP enabled. Windows Help provides complete instructions on enabling TCP/IP.

Shared Resources

If you wish to share printers, folder, or files over your network, Windows Help provides complete instructions on utilizing shared resources.

Network Neighborhood/My Network Places

Other PCs on your network will appear under Network Neighborhood or My Network Places (depending upon the version of Windows you're running). Windows Help provides complete instructions on adding PCs to your network.

Appendix C: Downloading using Xmodem

Startup Menu Procedures

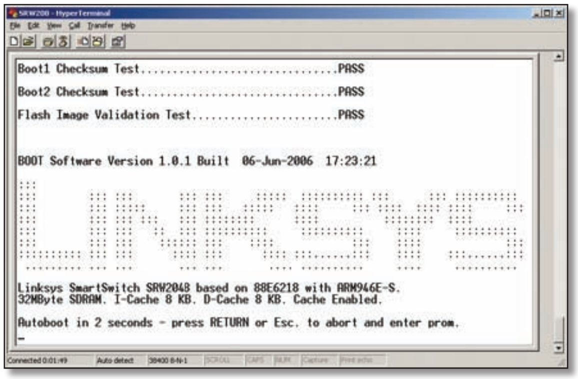
The Startup menu can be entered when booting the device. There is a two second window of time to enter the Startup Menu immediately after the POST test. The menu can be accessed directly from a terminal connected to the console port. The Startup menu procedures can be done using the ASCII terminal or Windows HyperTerminal.

The software download procedure is performed when a new version must be downloaded to replace corrupted files, update or upgrade the system software. To download software from the Startup menu:

To enter the Startup menu:

1. Power off your computer and Switch.
2. Connect the provided null modem cable from the COM port on your computer to the Console port on the Switch.
3. Power on your computer and launch HyperTerminal, follow the instructions in *Chapter 4: Configuration Using the Console Interface* to configure HyperTerminal to connect to the Switch.
4. Power on the Switch and watch for the auto-boot message:

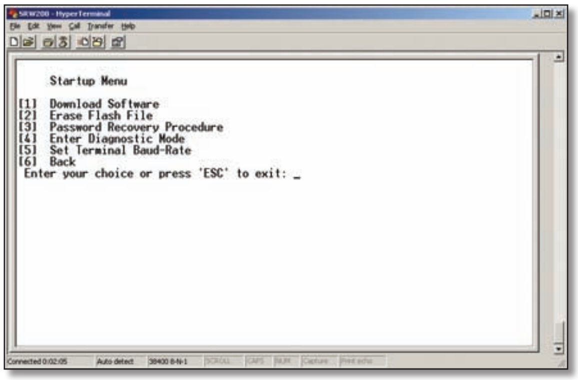
   Autoboot in 2 seconds - press RETURN or Esc. to abort and enter prom.



```
Boot1 Checksum Test..............................PASS

Boot2 Checksum Test..............................PASS

Flash Image Validation Test......................PASS


BOOT Software Version 1.0.1 Built  06-Jun-2006  17:23:21

Linksys SmartSwitch SRW2048 based on 88E6218 with ARM946E-S.
32MByte SDRAM. I-Cache 8 KB. D-Cache 8 KB. Cache Enabled.

Autoboot in 2 seconds - press RETURN or Esc. to abort and enter prom.
_
```

Auto-Boot Message

5. When the auto-boot message appears, press the **Enter** key to access the Startup menu.



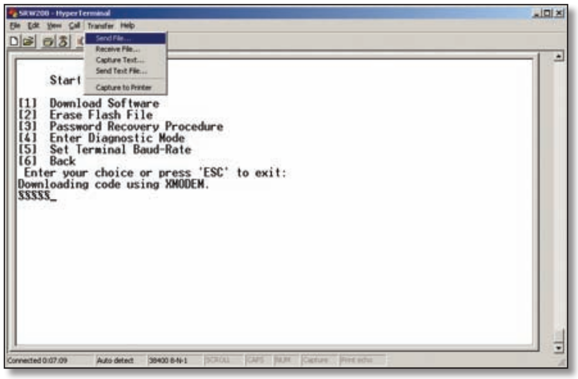
```
     Startup Menu

[1]  Download Software
[2]  Erase Flash File
[3]  Password Recovery Procedure
[4]  Enter Diagnostic Mode
[5]  Set Terminal Baud-Rate
[6]  Back
 Enter your choice or press 'ESC' to exit: _
```

Startup Menu

NOTE: If a selection is not made within 35 seconds (default), the device times out and you will need to disconnect the power to restart the process.

6. Select **[1] Download Software** and a message will appear Downloading code using XMODEM with characters running across the screen.

   If you do not perform the remaining steps to locate the file for download within a certain time, the device will reset.
7. Select **Send File** from the Transfer pull-down menu.



```
     Start

[1]  Download Software
[2]  Erase Flash File
[3]  Password Recovery Procedure
[4]  Enter Diagnostic Mode
[5]  Set Terminal Baud-Rate
[6]  Back
 Enter your choice or press 'ESC' to exit:
Downloading code using XMODEM.
$$$$$_
```

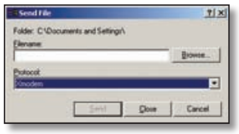
Send File

8. In the Filename: field, enter the file path for the file to be downloaded or click **Browse** to locate the file.

   Only valid files, with a *.ros or *.rfb suffix, that have been provided by Linksys, can be downloaded. Downloading invalid files will result in unpredictable behavior.

   Ensure that the Xmodem protocol is selected in the Protocol: field.

9. Press **Send** and the software is downloaded.



Send File

Folder: C:\Documents and Settings\

Filename:

Protocol: Xmodem

Download

After the software has been downloaded, the device will reboot automatically.

Appendix D: Glossary

This glossary contains some basic networking terms you may come across when using this product.

WEB: For additional terms, please visit the glossary at **www.linksys.com/glossary**

Access Mode Specifies the method by which user access is granted to the system.

Access Point A device that allows wireless-equipped computers and other devices to communicate with a wired network. Also used to expand the range of a wireless network.

Access Profiles Allows network managers to define profiles and rules for accessing the device. Access to management functions can be limited to user groups, which are defined by the following criteria:

- Ingress interfaces
- Source IP address and/or Source IP subnets.

ACE Filters in Access Control Lists (ACL) that determine which network traffic is forwarded. An ACE is based on the following criteria:

- Protocol
- Protocol ID
- Source Port
- Destination Port
- Wildcard Mask
- Source IP Address
- Destination IP Address

ACL (Access Control List) Access Control Lists are used to grant, deny, or limit access devices, features, or applications.

Auto-negotiation Allows 10/100 Mbps or 10/100/1000 Mbps Ethernet ports to automatically establish the optimal duplex mode, flow control, and speed.

Back Pressure A mechanism used with Half Duplex mode that enables a port not to receive a message.

Bandwidth The transmission capacity of a given device or network.

Bandwidth Assignments Indicates the amount of bandwidth assigned to a specific application, user, and/or interface.

Baud Indicates the number of signaling elements transmitted each second.

Best Effort Indicates that traffic is assigned to the lowest priority queue, and packet delivery is not guaranteed.

Bit A binary digit.

Boot To start a device and cause it to start executing instructions.

Browser An application program that provides a way to look at and interact with all the information on the World Wide Web.

Bridge A device that connect two networks. Bridges are hardware specific, however they are protocol independent. Bridges operate at Layer 1 and Layer 2 levels.

Broadcast Domain Devices sets that receive broadcast frames originating from any device within a designated set. Routers bind Broadcast domains, because routers do not forward broadcast frames.

Broadcast Storm An excessive amount of broadcast messages simultaneously transmitted across a network by a single port. Forwarded message responses are heaped onto the network, overloading network resources or causing the network to time out.

Burst A packet transmission at faster than normal rates. Bursts are limited in time and only occur under specific conditions.

Burst Size Indicates the burst size transmitted at a faster than normal rate.

Byte A unit of data that is usually eight bits long

Cable Modem A device that connects a computer to the cable television network, which in turn connects to the Internet.

CBS (Committed Burst Size) Indicates the maximum number of data bits transmitted within a specific time interval.

CIR (Committed Information Rate) The data rate is averaged over a minimum time increment.

Class Maps An aspect of Quality of Service system that is comprised of an IP ACL and/or a MAC ACL. Class maps are configured to match packet criteria, and are matched to packets in a first-fit fashion.

Combo Ports A single logical port with two physical connections, including an RJ-45 connection and a SFP connection.

Communities Specifies a group of users which retain the same system access rights.

CoS (Class of Service) The 802.1p priority scheme. CoS provides a method for tagging packets with priority information. A CoS value between 0-7 is added to the Layer II header of packets, where zero is the lowest priority and seven is the highest.

DDNS (Dynamic Domain Name System) Allows the hosting of a website, FTP server, or e-mail server with a fixed domain name (e.g., www.xyz.com) and a dynamic IP address.

Default Gateway A device that forwards Internet traffic from your local area network.

DHCP (Dynamic Host Configuration Protocol) A networking protocol that allows administrators to assign temporary IP addresses to network computers by "leasing" an IP address to a user for a limited amount of time, instead of assigning permanent IP addresses.

DHCP Clients An Internet host using DHCP to obtain configuration parameters, such as a network address.

DHCP Server An Internet host that returns configuration parameters to DHCP clients.

DNS (Domain Name Server) The IP address of your ISP's server, which translates the names of websites into IP addresses.

Domain A specific name for a network of computers.

Download To receive a file transmitted over a network.

DSL (Digital Subscriber Line) An always-on broadband connection over traditional phone lines.

DSCP (DiffServ Code Point) Provides a method of tagging IP packets with QoS priority information.

Dynamic IP Address A temporary IP address assigned by a DHCP server.

EIGRP (Enhanced Interior Gateway Routing Protocol) Provides fast convergence, support for variable-length subnet mask, and supports multiple network layer protocols.

Encryption Encoding data transmitted in a network.

Ethernet IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium.

Firmware The programming code that runs a networking device.

Flow Control Enables lower speed devices to communicate with higher speed devices. This is implemented by the higher speed device refraining from sending packets.

FTP (File Transfer Protocol) A protocol used to transfer files over a TCP/IP network.

Full Duplex The ability of a networking device to receive and transmit data simultaneously.

GARP (General Attributes Registration Protocol) Registers client stations into a multicast domain.

Gateway A device that interconnects networks with different, incompatible communications protocols.

GBIC (GigaBit Interface Converter) A hardware module used to attach network devices to fiber-based transmission systems. GBIC converts the serial electrical signals to serial optical signals and vice versa.

GVRP (GARP VLAN Registration Protocol) Registers client stations into a VLANs.

Half Duplex Data transmission that can occur in two directions over a single line, but only one direction at a time.

HTTP (HyperText Transport Protocol) The communications protocol used to connect to servers on the World Wide Web.

HTTPS (HyperText Transport Protocol Secure) An extension to the standard HTTP protocol that provides confidentiality by encrypting the traffic from the website. By default this protocol uses TCP port 443.

ICMP (Internet Control Message Protocol) Allows the gateway or destination host to communicate with the source host. For example, to report a processing error.

IGMP (Internet Group Management Protocol) Allows hosts to notify their local switch or router that they want to receive transmissions assigned to a specific multicast group.

IP (Internet Protocol) A protocol used to send data over a network.

IP Address The address used to identify a computer or device on a network.

IPCONFIG A Windows 2000 and XP utility that displays the IP address for a particular networking device.

IPSec (Internet Protocol Security) A VPN protocol used to implement secure exchange of packets at the IP layer.

ISP (Internet Service Provider) A company that provides access to the Internet.

Jumbo Frames Enable transporting identical data in fewer frames. Jumbo Frames reduce overhead, lower processing time, and ensure fewer interrupts.

LAG (Link Aggregated Group) Aggregates ports or VLANs into a single virtual port or VLAN.

LAN The computers and networking products that make up your local network.

MAC (Media Access Control) Address The unique address that a manufacturer assigns to each networking device.

Mask A filter that includes or excludes certain values, for example parts of an IP address.

Mbps (MegaBits Per Second) One million bits per second; a unit of measurement for data transmission.

MD5 (Message Digest 5) An algorithm that produces a 128-bit hash. MD5 is a variation of MD4, and increases MD4 security. MD5 verifies the integrity of the communication and authenticates the origin of the communication.

MDI (Media Dependent Interface) A cable used for end stations.

MDIX (Media Dependent Interface with Crossover) A cable used for hubs and switches.

MIB (Management Information Base) MIBs contain information describing specific aspects of network components.

Multicast Transmits copies of a single packet to multiple ports.

Network A series of computers or devices connected for the purpose of data sharing, storage, and/or transmission between users.

NMS (Network Management System) An interface that provides a method of managing a system.

OID (Object Identifier) Used by SNMP to identify managed objects. In the SNMP Manager/Agent network management paradigm, each managed object must have an OID to identify it.

Packet A unit of data sent over a network.

Ping (Packet INternet Groper) An Internet utility used to determine whether a particular IP address is online.

Policing Determines if traffic levels are within a specified profile. Policing manages the maximum traffic rate used to send or receive packets on an interface.

Port The connection point on a computer or networking device used for plugging in cables or adapters.

Port Mirroring Monitors and mirrors network traffic by forwarding copies of incoming and outgoing packets from one port to a monitoring port.

Power over Ethernet (PoE) A technology enabling an Ethernet network cable to deliver both data and power.

QoS (Quality of Service) Provides policies that contain sets of filters (rules). QoS allows network managers to decide how and what network traffic is forwarded according to priorities, application types, and source and destination addresses.

RADIUS (Remote Authentication Dial-In User Service) A protocol that uses an authentication server to control network access.

RJ-45 (Registered Jack-45) An Ethernet connector that holds up to eight wires.

RMON (Remote Monitoring) Provides network information to be collected from a single workstation.

Router A networking device that connects multiple networks together.

RSTP (Rapid Spanning Tree Protocol) Detects and uses network topologies that allow a faster convergence of the spanning tree, without creating forwarding loops.

Server Any computer whose function in a network is to provide user access to files, printing, communications, and other services.

SMTP (Simple Mail Transfer Protocol) The standard e-mail protocol on the Internet.

SNMP (Simple Network Management Protocol) A widely used network monitoring and control protocol.

SSH Secure Shell. A utility that uses strong authentication and secure communications to log in to another computer over a network.

SSL (Secure Socket Layer) Encryption technology for the Internet used to provide secure transactions, such as the transmission of credit card numbers for e-commerce.

Static IP Address A fixed address assigned to a computer or device that is connected to a network.

STP (Spanning Tree Protocol) Prevents loops in network traffic. The Spanning Tree Protocol (STP) provides tree topography for any arrangement of bridges. STP provides one path between end stations on a network, eliminating loops.

Subnet (Sub-network) Subnets are portions of a network that share a common address component. In TCP/IP networks, devices that share a prefix are part of the same subnet. For example, all devices with a prefix of 157.100.100.100 are part of the same subnet.

Subnet Mask An address code that determines the size of the network.

Switch Filters and forwards packets between LAN segments. Switches support any packet protocol type.

TACACS+ (Terminal Access Controller Access Control System Plus) Proprietary Cisco enhancement to Terminal Access Controller Access Control System (TACACS). Provides additional support for authentication, authorization, and accounting.

TCP (Transmission Control Protocol) A network protocol for transmitting data that requires acknowledgement from the recipient of data sent.

TCP/IP (Transmission Control Protocol/Internet Protocol) A set of instructions PCs use to communicate over a network.

Telnet A user command and TCP/IP protocol used for accessing remote PCs.

TFTP (Trivial File Transfer Protocol) A version of the TCP/IP FTP protocol that has no directory or password capability.

Throughput The amount of data moved successfully from one node to another in a given time period.

Trunking Link Aggregation. Optimizes port usage by linking a group of ports together to form a single trunk (aggregated groups).

TX Rate Transmission Rate.

UDP (User Data Protocol) Communication protocol that transmits packets but does not guarantee their delivery.

Upgrade To replace existing software or firmware with a newer version.

Upload To transmit a file over a network.

URL (Uniform Resource Locator) The address of a file located on the Internet.

VLAN (Virtual Local Area Networks) Logical subgroups that constitute a Local Area Network (LAN). This is done in software rather than defining a hardware solution.

WAN (Wide Area Network) Networks that cover a large geographical area.

Wildcard Mask Specifies which IP address bits are used, and which bits are ignored. A wild card mask of 255.255.255.255 indicates that no bit is important. A wildcard of 0.0.0.0 indicates that all the bits are important.

For example, if the destination IP address is 149.36.184.198 and the wildcard mask is 255.36.184.00, the first two bits of the IP address are used, while the last two bits are ignored.

Appendix E: Specifications

SRW2048

Ports	48 RJ-45 connectors for 10BASE-T, 100BASE-TX and 1000BASE-T with 4 shared SFP (miniGBIC) slots
Cabling Type	UTP CAT 5 or better for 10BASE-T/100BASE-TX, UTP CAT 5e or better for 1000BASE-T
LEDs	Power, Link/Act, Speed

Performance

Switching Capacity	96 Gbps, non-blocking
MAC table size	8K
Number of VLANs	256 - Static and Dynamic

Management

Web User Interface	Built-in Web UI for easy browser-based configuration (HTTP/HTTPS)
SNMP	SNMP version v1, v2c, v3 with support for traps
SNMP MIBs	RFC1213 MIB-2, RFC2863 Interface MIB, RFC2665 Ether-like MIB, RFC1493 Bridge MIB, RFC2674 Extended Bridge MIB (P-bridge, Q-bridge), RFC2819 RMON MIB (groups 1, 2, 3, 9 only), RFC2737 Entity MIB, RFC 2618 RADIUS Client MIB
RMON	Embedded Remote Monitoring (RMON) software agent supports four RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis
Firmware Upgrade	Web Browser upgrade (HTTP and TFTP), CLI via console or Telnet, TFTP upgrade
Port Mirroring	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe
Other Management	RFC854 Telnet (Menu-driven configuration) Secure Shell (SSH) and Telnet Management Telnet Client SSL security for Web UI Switch Audit Log DHCP Client BootP SNTP Xmodem upgrade Cable Diagnostics PING Traceroute

Security features

IEEE 802.1x	802.1x - RADIUS Authentication. MD5 Encryption
Access Control	Filtering: MAC-based

Availability

Link Aggregation	Link Aggregation using IEEE 802.3ad LACP Up to 8 ports in up to 8 trunks
Storm Control	Broadcast, Multicast, and Unknown Unicast
Spanning Tree	IEEE 802.1d Spanning Tree, IEEE 802.1s Multiple Spanning Tree, IEEE 802.1w Rapid Spanning Tree, Fast Linkover
IGMP Snooping	IGMP (v1/v2) snooping provides for fast client joins and leaves of multicast streams and limits bandwidth-intensive video traffic to only the requestors

QoS

Priority levels	4 Hardware queues
Scheduling	Priority Queueing and Weighted Round Robin (WRR) Class of Service Port-based 802.1p VLAN priority based IP TOS/DSCP based IPv4 & IPv6 Traffic Class based COS MAC Address port security VLAN ID MAC Address IP Address Subnet Mask Service Type Protocol TCP/UDP Port
Rate Limiting	Ingress Policer, Egress Shaper

Layer 2

VLAN	Port-based and 802.1q based VLANs Private VLAN Edge (PVE) Management VLAN
HOL Blocking	Head of line blocking prevention
Jumbo frame	Supports frames up to 10K byte frames
Dynamic VLAN	GVRP - Dynamic VLAN Registration
Standards	802.3i 10BASE-T Ethernet, 802.3u 100BASE-TX Fast Ethernet, 802.3ab 1000BASE-T Gigabit Ethernet, 802.3z Gigabit Ethernet, 802.3x Flow Control

ENVIRONMENTAL

Device Dimensions	430 x 44.45 x 350 mm
Weight	8.60 lb (3.9 kg)
Power	Internal switching power
Certification	FCC Part15 Class A, CE Class A, UL, cUL, CE mark, CB
Operating Temperature	32 to 104°F (0 to 40°C)
Storage Temperature	–4 to 158°F (–20 to 70°C)
Operating Humidity	10% to 90%
Storage Humidity	10% to 95%

SRW2016/SRW2024

Standards	IEEE 802.3, 802.3u, 802.3ab, 802.3x, 802.1p, 802.1q
Ports	16 or 24 10/100/1000 RJ-45 ports and 2 shared SFP (miniGBIC) slots
Cabling Type	Cat5e or better
LEDs	System, Link/Activity, Gigabit

Performance

Switching	Capacity 32 or 48 Gbps, non-blocking
MAC table size	8K
Number of VLANs	256 VLANs

Management

Web User Interface	Built-in Web UI for easy browser-based configuration (HTTP/HTTPS)
SNMP	SNMP version v1, v2c, v3 with support for traps
SNMP MIBs	RFC1213 MIB-2, RFC2863 Interface MIB, RFC2665 Ether-like MIB, RFC1493 Bridge MIB, RFC2674 Extended Bridge MIB (P-bridge, Q-bridge), RFC2819 RMON MIB (groups 1, 2, 3, 9 only), RFC2737 Entity MIB, RFC 2618 RADIUS Client MIB
RMON	Embedded Remote Monitoring (RMON) software agent supports four RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis
Firmware Upgrade	Web Browser upgrade (HTTP) TFTP upgrade
Port Mirroring	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe

Other Management	RFC854 Telnet (Menu-driven configuration) Secure Shell (SSH) and Telnet Management RADIUS TACACS+ Telnet Client SSL security for Web UI Switch Audit Log DHCP Client BootP SNTP Xmodem upgrade Cable Diagnostics PING Traceroute Syslog

Security Features

IEEE 802.1x	802.1x - RADIUS Authentication. MD5 Encryption
Access Control	MAC based ACL

Availability

Link Aggregation	Link Aggregation using IEEE 802.3ad LACP Up to 8 ports in up to 8 trunks
Storm Control	Broadcast, Multicast, and Unknown Unicast
Spanning Tree	IEEE 802.1d Spanning Tree, IEEE 802.1s Multiple Spanning Tree, IEEE 802.1w Rapid Spanning Tree, Fast Linkover
IGMP Snooping	IGMP (v1/v2) snooping provides for fast client joins and leaves of multicast streams and limits bandwidth-intensive video traffic to only the requestors.

QoS

Priority levels	4 Hardware queues
Scheduling	Priority Queueing and Weighted Round Robin (WRR)
Class of Service	Port-based 802.1p VLAN priority based IP TOS/DSCP based IPv4 & IPv6 Traffic Class based COS MAC Address port security* VLAN ID* MAC Address* IP Address* Subnet Mask* Service Type* Protocol* TCP/UDP Port*
Rate Limiting	Ingress Policer, Egress Shaper

Layer 2

VLAN	Port-based and 802.1q based VLANs Private VLAN Edge (PVE) Management VLAN
HOL Blocking	Head of line blocking prevention
Jumbo frame	Supports frames up to 10K byte frames
Dynamic VLAN	GVRP - Dynamic VLAN Registration
Standards	802.3i 10BASE-T Ethernet, 802.3u 100BASE-TX Fast Ethernet, 802.3ab 1000BASE-T Gigabit Ethernet, 802.3z Gigabit Ethernet, 802.3x Flow Control

Environmental

Dimensions	430 x 44.5 x 350 mm
Unit Weight	7.3 lb (3.311 kg)
Power	100–240V 0.5A
Certification	FCC Part15 Class A, CE Class A, UL, cUL, CE mark, CB
Operating Temperature	32 to 104°F (0 to 40°C)
Storage Temperature	–4 to 158°F (–20 to 70°C)
Operating Humidity	20% to 95% relative humidity, noncondensing
Storage Humidity	5% to 90% noncondensing

* Denotes features found in only version 1.2 or later of the hardware

SRW224G4/SRW248G4

Ports	24 or 48 RJ-45 connectors for 10BASE-T and 100BASE-TX, 4 RJ-45 connectors for 10BASE-T/100BASE-TX/1000BASE-T with 2 shared SFP (miniGBIC) slots Auto MDI/MDI-X Autonegotiate/Manual setting
Cabling Type	UTP CAT 5 or better for 10BASE-T/100BASE-TX, UTP CAT 5e or better for 1000BASE-T
LEDs	Power, Link/Act, Speed

Performance

Switching Capacity	12.8 (SRW224G4) or 17.6 (SRW248G4) Gig non-blocking
MAC table size	8K
Number of VLANs	256 - Static

Management

Web User Interface	Built-in Web UI for easy browser-based configuration (HTTP/HTTPS)
SNMP	SNMP version 1, 2, 3 with support for traps
SNMP MIBs	RFC1213 MIB-2, RFC2863 Interface MIB, RFC2665 Ether-like MIB, RFC1493 Bridge MIB, RFC2674 Extended Bridge MIB (P-bridge, Q-bridge), RFC2819 RMON MIB (groups 1, 2, 3, 9 only), RFC 2618 RADIUS Client MIB
RMON	Embedded Remote Monitoring (RMON) software agent supports four RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis
Firmware Upgrade	Web Browser upgrade (HTTP) TFTP upgrade
Port Mirroring	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe
Other Management	RFC854 Telnet (Menu-driven configuration) Secure Shell (SSH) and Telnet Management Telnet Client SSL security for Web UI Switch Audit Log DHCP Client BootP SNTP Xmodem upgrade Cable Diagnostics PING Traceroute Syslog

Security

IEEE 802.1x	802.1x - RADIUS Authentication. MD5 Encryption
Access Control	Filtering: MAC-based

Availability

Link Aggregation	Link Aggregation using IEEE 802.3ad LACP Up to 8 ports in up to 8 trunks
Storm Control	Broadcast, Multicast, and Unknown Unicast
Spanning Tree	IEEE 802.1d Spanning Tree, IEEE 802.1s Multiple Spanning Tree, IEEE 802.1w Rapid Spanning Tree, Fast Linkover
IGMP Snooping	IGMP (v1/v2) snooping provides for fast client joins and leaves of multicast streams and limits bandwidth-intensive video traffic to only the requestors

QoS

Priority levels	4 Hardware queues
Scheduling	Priority Queueing and Weighted Round Robin (WRR)
Class of Service	Port-based 802.1p VLAN priority based IP TOS/DSCP based IPv4 & IPv6 Traffic Class based COS MAC Address port security† VLAN ID* MAC Address* IP Address* Subnet Mask* Service Type* Protocol* TCP/UDP Port*
Rate Limiting	Ingress Policer, Egress Shaper

Layer 2

VLAN	Port-based and 802.1q based VLANs Private VLAN Edge (PVE) Management VLAN
HOL Blocking	Head of line blocking prevention
Mini jumbo frame	Supports frames up to 1600 bytes
Dynamic VLAN	GVRP - Dynamic VLAN Registration
Standards	802.3i 10BASE-T Ethernet, 802.3u 100BASE-TX Fast Ethernet, 802.3ab 1000BASE-T Gigabit Ethernet, 802.3z Gigabit Ethernet, 802.3x Flow Control

Environmental

Dimensions	SRW224G4 - 430 x 44 x 203 mm
H x W x D	SRW248G4 - 430 x 44 x 350 mm
Weight	SRW224G4 - 4.41 lb (2 kg)
	SRW248G4 - 8.60 lb (3.9 kg)
Power	Internal Switching Power
Certification	FCC Part15 Class A, CE Class A, UL, cUL, CE mark, CB
Operating Temp.	0 to 40°C
Storage Temp.	–20 to 70°C
Operating Humidity	10% to 90%
Storage Humidity	10% to 95%

† Denotes features found in only version 1.1 or later of the hardware

Appendix F: Warranty Information

Limited Warranty

Linksys warrants this Linksys hardware product against defects in materials and workmanship under normal use for the Warranty Period, which begins on the date of purchase by the original end-user purchaser and lasts for the period specified for this product at **www.linksys.com/warranty**. The internet URL address and the web pages referred to herein may be updated by Linksys from time to time; the version in effect at the date of purchase shall apply.

This limited warranty is non-transferable and extends only to the original end-user purchaser. Your exclusive remedy and Linksys' entire liability under this limited warranty will be for Linksys, at its option, to (a) repair the product with new or refurbished parts, (b) replace the product with a reasonably available equivalent new or refurbished Linksys product, or (c) refund the purchase price of the product less any rebates. Any repaired or replacement products will be warranted for the remainder of the original Warranty Period or thirty (30) days, whichever is longer. All products and parts that are replaced become the property of Linksys.

Exclusions and Limitations

This limited warranty does not apply if: (a) the product assembly seal has been removed or damaged, (b) the product has been altered or modified, except by Linksys, (c) the product damage was caused by use with non-Linksys products, (d) the product has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Linksys, (e) the product has been subjected to abnormal physical or electrical stress, misuse, negligence, or accident, (f) the serial number on the Product has been altered, defaced, or removed, or (g) the product is supplied or licensed for beta, evaluation, testing or demonstration purposes for which Linksys does not charge a purchase price or license fee.

ALL SOFTWARE PROVIDED BY LINKSYS WITH THE PRODUCT, WHETHER FACTORY LOADED ON THE PRODUCT OR CONTAINED ON MEDIA ACCOMPANYING THE PRODUCT, IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND. Without limiting the foregoing, Linksys does not warrant that the operation of the product or software will be uninterrupted or error free. Also, due to the continual development of new techniques for intruding upon and attacking networks, Linksys does not warrant that the product, software or any equipment, system or network on which the product or software is used will be free of vulnerability to intrusion or attack. The product may include or be bundled with third party software or service offerings. This limited warranty shall not apply to such third party software or service offerings. This limited warranty does not guarantee any continued availability of a third party's service for which this product's use or operation may require.

TO THE EXTENT NOT PROHIBITED BY LAW, ALL IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE DURATION OF THE WARRANTY PERIOD. ALL OTHER EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF NON-INFRINGEMENT, ARE DISCLAIMED. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This limited warranty gives you specific legal rights, and you may also have other rights which vary by jurisdiction.

TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL LINKSYS BE LIABLE FOR ANY LOST DATA, REVENUE OR PROFIT, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, REGARDLESS OF THE THEORY OF LIABILITY (INCLUDING NEGLIGENCE), ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE THE PRODUCT (INCLUDING ANY SOFTWARE), EVEN IF LINKSYS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL LINKSYS' LIABILITY EXCEED THE AMOUNT PAID BY YOU FOR THE PRODUCT. The foregoing limitations will apply even if any warranty or remedy provided under this limited warranty fails of its essential purpose. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Obtaining Warranty Service

If you have a question about your product or experience a problem with it, please go to **www.linksys.com/support** where you will find a variety of online support tools and information to assist you with your product. If the product proves defective during the Warranty Period, contact the Value Added Reseller (VAR) from whom you purchased the product or Linksys Technical Support for instructions on how to obtain warranty service. The telephone number for Linksys Technical Support in your area can be found in the product User Guide and at **www.linksys.com**. Have your product serial number and proof of purchase on hand when calling. A DATED PROOF OF ORIGINAL PURCHASE IS REQUIRED TO PROCESS WARRANTY CLAIMS. If you are requested to return your product, you will be given a Return Materials Authorization (RMA) number. You are responsible for properly packaging and shipping your product to Linksys at your cost and risk. You must include the RMA number and a copy of your dated proof of original purchase when returning your product. Products received without a RMA number and dated proof of original purchase will be rejected. Do not include any other items with the product you are returning to Linksys. Defective product covered by this limited warranty will be repaired or replaced and returned to you without charge. Customers outside of the United States of America and Canada are responsible for all shipping and handling charges, custom duties, VAT and other associated taxes and charges. Repairs or replacements not covered under this limited warranty will be subject to charge at Linksys' then-current rates.

Technical Support

This limited warranty is neither a service nor a support contract. Information about Linksys' current technical support offerings and policies (including any fees for support services) can be found at: **www.linksys.com/support**.

This limited warranty is governed by the laws of the jurisdiction in which the Product was purchased by you.

Please direct all inquiries to: Linksys, P.O. Box 18558, Irvine, CA 92623.

Appendix G: Regulatory Information

FCC Statement

This equipment has been tested and complies with the specifications for a Class A digital device, pursuant to 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. These limits are designed to provide reasonable protection against harmful interference when 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.

WARNING: You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Safety Notices

- Caution: To reduce the risk of fire, use only No.26 AWG or larger telecommunication line cord.
- Do not use this product near water, for example, in a wet basement or near a swimming pool.
- Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.

WARNING: This product contains lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling.

Industry Canada Statement

This Class B digital apparatus complies with Canadian ICES-003.

Operation is subject to the following two conditions:

1. This device may not cause interference and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Avis d’Industrie Canada

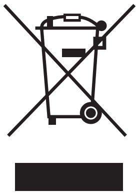
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Le fonctionnement est soumis aux conditions suivantes :

1. Ce périphérique ne doit pas causer d’interférences;
2. Ce périphérique doit accepter toutes les interférences reçues, y compris celles qui risquent d’entraîner un fonctionnement indésirable.

User Information for Consumer Products Covered by EU Directive 2002/96/EC on Waste Electric and Electronic Equipment (WEEE)

This document contains important information for users with regards to the proper disposal and recycling of Linksys products. Consumers are required to comply with this notice for all electronic products bearing the following symbol:



English - Environmental Information for Customers in the European Union

European Directive 2002/96/EC requires that the equipment bearing this symbol 🗑 on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your old equipment, please contact your local authorities, waste disposal service, or the shop where you purchased the product.

Български (Bulgarian) - Информация относно опазването на околната среда за потребители в Европейския съюз

Европейска директива 2002/96/EC изисква уредите, носещи този символ 🗑 върху изделието и/или опаковката му, да не се изхвърля т с несортирани битови отпадъци. Символът обозначава, че изделието трябва да се изхвърля отделно от сметосъбирането на обикновените битови отпадъци. Ваша е отговорността този и другите електрически и електронни уреди да се изхвърлят в предварително определени от държавните или общински органи специализирани пунктове за събиране. Правилното изхвърляне и рециклиране ще спомогнат да се предотвратят евентуални вредни за околната среда и здравето на населението последствия. За по-подробна информация относно изхвърлянето на вашите стари уреди се обърнете към местните власти, службите за сметосъбиране или магазина, от който сте закупили уреда.

Ceština (Czech) - Informace o ochraně životního prostředí pro zákazníky v zemích Evropské unie

Evropská směrnice 2002/96/ES zakazuje, aby zařízení označené tímto symbolem 🗑 na produktu anebo na obalu bylo likvidováno s netříděným komunálním odpadem. Tento symbol udává, že daný produkt musí být likvidován odděleně od běžného komunálního odpadu. Odpovídáte za likvidaci tohoto produktu a dalších elektrických a elektronických zařízení prostřednictvím určených sběrných míst stanovených vládou nebo místními úřady. Správná likvidace a recyklace pomáhá předcházet potenciálním negativním dopadům na životní prostředí a lidské zdraví. Podrobnější informace o likvidaci starého vybavení si laskavě vyžádejte od místních úřadů, podniku zabývajícího se likvidací komunálních odpadů nebo obchodu, kde jste produkt zakoupili.

Dansk (Danish) - Miljøinformation for kunder i EU

EU-direktiv 2002/96/EF kræver, at udstyr der bærer dette symbol 🗑 på produktet og/eller emballagen ikke må bortskaffes som usorteret kommunalt affald. Symbolet betyder, at dette produkt skal bortskaffes adskilt fra det almindelige husholdningsaffald. Det er dit ansvar at bortskaffe dette og andet elektrisk og elektronisk udstyr via bestemte indsamlingssteder udpeget af staten eller de lokale myndigheder. Korrekt bortskaffelse og genvinding vil hjælpe med til at undgå mulige skader for miljøet og menneskers sundhed. Kontakt venligst de lokale myndigheder, renovationstjenesten eller den butik, hvor du har købt produktet, angående mere detaljeret information om bortskaffelse af dit gamle udstyr.

Deutsch (German) - Umweltinformation für Kunden innerhalb der Europäischen Union

Die Europäische Richtlinie 2002/96/EC verlangt, dass technische Ausrüstung, die direkt am Gerät und/oder an der Verpackung mit diesem Symbol versehen ist 🗑, nicht zusammen mit unsortiertem Gemeindeabfall entsorgt werden darf. Das Symbol weist darauf hin, dass das Produkt von regulärem Haushaltmüll getrennt entsorgt werden sollte. Es liegt in Ihrer Verantwortung, dieses Gerät und andere elektrische und elektronische Geräte über die dafür zuständigen und von der Regierung oder örtlichen Behörden dazu bestimmten Sammelstellen zu entsorgen. Ordnungsgemäßes Entsorgen und Recyceln trägt dazu bei, potentielle negative Folgen für Umwelt und die menschliche Gesundheit zu vermeiden. Wenn Sie weitere Informationen zur Entsorgung Ihrer Altgeräte benötigen, wenden Sie sich bitte an die örtlichen Behörden oder städtischen Entsorgungsdienste oder an den Händler, bei dem Sie das Produkt erworben haben.

Eesti (Estonian) - Keskkonnaalane informatsioon Euroopa Liidus asuvatele klientidele

Euroopa Liidu direktiivi 2002/96/EÜ nõuete kohaselt on seadmeid, millel on tootel või pakendil käesolev sümbol ⌧, keelatud kõrvaldada koos sorteerimata olmejäätmetega. See sümbol näitab, et toode tuleks kõrvaldada eraldi tavalistest olmejäätmevoogudest. Olete kohustatud kõrvaldama käesoleva ja ka muud elektri- ja elektroonikaseadmed riigi või kohalike ametiasutuste poolt ette nähtud kogumispunktide kaudu. Seadmete korrektne kõrvaldamine ja ringlussevõtt aitab vältida võimalikke negatiivseid tagajärgi keskkonnale ning inimeste tervisele. Vanade seadmete kõrvaldamise kohta täpsema informatsiooni saamiseks võtke palun ühendust kohalike ametiasutustega, jäätmekäitlusfirmaga või kauplusega, kust te toote ostsite.

Español (Spanish) - Información medioambiental para clientes de la Unión Europea

La Directiva 2002/96/CE de la UE exige que los equipos que lleven este símbolo ⌧ en el propio aparato y/o en su embalaje no deben eliminarse junto con otros residuos urbanos no seleccionados. El símbolo indica que el producto en cuestión debe separarse de los residuos domésticos convencionales con vistas a su eliminación. Es responsabilidad suya desechar este y cualesquiera otros aparatos eléctricos y electrónicos a través de los puntos de recogida que ponen a su disposición el gobierno y las autoridades locales. Al desechar y reciclar correctamente estos aparatos estará contribuyendo a evitar posibles consecuencias negativas para el medio ambiente y la salud de las personas. Si desea obtener información más detallada sobre la eliminación segura de su aparato usado, consulte a las autoridades locales, al servicio de recogida y eliminación de residuos de su zona o pregunte en la tienda donde adquirió el producto.

ξλληνικά (Greek) - Στοιχεία περιβαλλοντικής προστασίας για πελάτες εντός της Ευρωπαϊκής Ένωσης

Η Κοινοτική Οδηγία 2002/96/EC απαιτεί ότι ο εξοπλισμός ο οποίος φέρει αυτό το σύμβολο ⌧ στο προϊόν και/ή στη συσκευασία του δεν πρέπει να απορρίπτεται μαζί με τα μικτά κοινοτικά απορρίμματα. Το σύμβολο υποδεικνύει ότι αυτό το προϊόν θα πρέπει να απορρίπτεται ξεχωριστά από τα συνήθη οικιακά απορρίμματα. Είστε υπεύθυνος για την απόρριψη του παρόντος και άλλου ηλεκτρικού και ηλεκτρονικού εξοπλισμού μέσω των καθορισμένων εγκαταστάσεων συγκέντρωσης απορριμμάτων οι οποίες παρέχονται από το κράτος ή τις αρμόδιες τοπικές αρχές. Η σωστή απόρριψη και ανακύκλωση συμβάλλει στην πρόληψη πιθανών αρνητικών συνεπειών για το περιβάλλον και την υγεία. Για περισσότερες πληροφορίες σχετικά με την απόρριψη του παλιού σας εξοπλισμού, παρακαλώ επικοινωνήστε με τις τοπικές αρχές, τις υπηρεσίες απόρριψης ή το κατάστημα από το οποίο αγοράσατε το προϊόν.

Français (French) - Informations environnementales pour les clients de l'Union européenne

La directive européenne 2002/96/CE exige que l'équipement sur lequel est apposé ce symbole ⌧ sur le produit et/ou son emballage ne soit pas jeté avec les autres ordures ménagères. Ce symbole indique que le produit doit être éliminé dans un circuit distinct de celui pour les déchets des ménages. Il est de votre responsabilité de jeter ce matériel ainsi que tout autre matériel électrique ou électronique par les moyens de collecte indiqués par le gouvernement et les pouvoirs publics des collectivités territoriales. L'élimination et le recyclage en bonne et due forme ont pour but de lutter contre l'impact néfaste potentiel de ce type de produits sur l'environnement et la santé publique. Pour plus d'informations sur le mode d'élimination de votre ancien équipement, veuillez prendre contact avec les pouvoirs publics locaux, le service de traitement des déchets, ou l'endroit où vous avez acheté le produit.

Italiano (Italian) - Informazioni relative all'ambiente per i clienti residenti nell'Unione Europea

La direttiva europea 2002/96/EC richiede che le apparecchiature contrassegnate con questo simbolo ⌧ sul prodotto e/o sull'imballaggio non siano smaltite insieme ai rifiuti urbani non differenziati. Il simbolo indica che questo prodotto non deve essere smaltito insieme ai normali rifiuti domestici. È responsabilità del proprietario smaltire sia questi prodotti sia le altre apparecchiature elettriche ed elettroniche mediante le specifiche strutture di raccolta indicate dal governo o dagli enti pubblici locali. Il corretto smaltimento ed il riciclaggio aiuteranno a prevenire conseguenze potenzialmente negative per l'ambiente e per la salute dell'essere umano. Per ricevere informazioni più dettagliate circa lo smaltimento delle vecchie apparecchiature in Vostro possesso, Vi invitiamo a contattare gli enti pubblici di competenza, il servizio di smaltimento rifiuti o il negozio nel quale avete acquistato il prodotto.

Latviešu valoda (Latvian) - Ekoloģiska informācija klientiem Eiropas Savienības jurisdikcijā

Direktīvā 2002/96/EK ir prasība, ka aprīkojumu, kam pievienota zīme ⌧ uz paša izstrādājuma vai uz tā iesaiņojuma, nedrīkst izmest nešķirotā veidā kopā ar komunālajiem atkritumiem (tiem, ko rada vietēji iedzīvotāji un uzņēmumi). Šī zīme nozīmē to, ka šī ierīce ir jāizmet atkritumos tā, lai tā nenonāktu kopā ar parastiem mājsaimniecības atkritumiem. Jūsu pienākums ir šo un citas elektriskas un elektroniskas ierīces izmest atkritumos, izmantojot īpašus atkritumu savākšanas veidus un līdzekļus, ko nodrošina valsts un pašvaldību iestādes. Ja izmešana atkritumos un pārstrāde tiek veikta pareizi, tad mazinās iespējamais kaitējums dabai un cilvēku veselībai. Sīkākas ziņas par novecojuša aprīkojuma izmešanu atkritumos jūs varat saņemt vietējā pašvaldībā, atkritumu savākšanas dienestā, kā arī veikalā, kur iegādājāties šo izstrādājumu.

Lietuvškai (Lithuanian) - Aplinkosaugos informacija, skirta Europos Sąjungos vartotojams

Europos direktyva 2002/96/EC numato, kad įrangos, kuri ir kurios pakuotė yra pažymėta šiuo simboliu (įveskite simbolį), negalima šalinti kartu su nerūšiuotomis komunalinėmis atliekomis. Šis simbolis rodo, kad gaminį reikia šalinti atskirai nuo bendro buitinių atliekų srauto. Jūs privalote užtikrinti, kad ši ir kita elektros ar elektroninė įranga būtų šalinama per tam tikras nacionalinės ar vietinės valdžios nustatytas atliekų rinkimo sistemas. Tinkamai šalinant ir perdirbant atliekas, bus išvengta galimos žalos aplinkai ir žmonių sveikatai. Daugiau informacijos apie jūsų senos įrangos šalinimą gali pateikti vietinės valdžios institucijos, atliekų šalinimo tarnybos arba parduotuvės, kuriose įsigijote tą gaminį.

Malti (Maltese) - Informazzjoni Ambjentali għal Klijenti fl-Unjoni Ewropea

Id-Direttiva Ewropea 2002/96/KE titlob li t-tagħmir li jkun fih is-simbolu fuq il-prodott u/jew fuq l-ippakkjar ma jistax jintrema ma’ skart muniċipali li ma ġiex isseparat. Is-simbolu jindika li dan il-prodott għandu jintrema separatament minn ma’ l-iskart domestiku regolari. Hija responsabbiltà tiegħek li tarmi dan it-tagħmir u kull tagħmir ieħor ta’ l-elettriku u elettroniku permezz ta’ faċilitajiet ta’ ġbir appuntati apposta mill-gvern jew mill-awtoritajiet lokali. Ir-rimi b’mod korrett u r-riċiklaġġ jgħin jipprevjeni konsegwenzi negattivi potenzjali għall-ambjent u għas-saħħa tal-bniedem. Għal aktar informazzjoni dettaljata dwar ir-rimi tat-tagħmir antik tiegħek, jekk jogħġbok ikkuntattja lill-awtoritajiet lokali tiegħek, is-servizzi għar-rimi ta’ l-iskart, jew il-ħanut minn fejn xtrajt il-prodott.

Magyar (Hungarian) - Környezetvédelmi információ az európai uniós vásárlók számára

A 2002/96/EC számú európai uniós irányelv megkívánja, hogy azokat a termékeket, amelyeken, és/vagy amelyek csomagolásán az alábbi címke megjelenik, tilos a többi szelektálatlan lakossági hulladékkal együtt kidobni. A címke azt jelöli, hogy az adott termék kidobásakor a szokványos háztartási hulladékelszállítási rendszerektõl elkülönített eljárást kell alkalmazni. Az Ön felelõssége, hogy ezt, és más elektromos és elektronikus berendezéseit a kormányzati vagy a helyi hatóságok által kijelölt gyűjtõredszereken keresztül számolja fel. A megfelelõ hulladékfeldolgozás segít a környezetre és az emberi egészségre potenciálisan ártalmas negatív hatások megelõzésében. Ha elavult berendezéseinek felszámolásához további részletes információra van szüksége, kérjük, lépjen kapcsolatba a helyi hatóságokkal, a hulladékfeldolgozási szolgálattal, vagy azzal üzlettel, ahol a terméket vásárolta.

Nederlands (Dutch) - Milieu-informatie voor klanten in de Europese Unie

De Europese Richtlijn 2002/96/EC schrijft voor dat apparatuur die is voorzien van dit symbool op het product of de verpakking, niet mag worden ingezameld met niet-gescheiden huishoudelijk afval. Dit symbool geeft aan dat het product apart moet worden ingezameld. U bent zelf verantwoordelijk voor de vernietiging van deze en andere elektrische en elektronische apparatuur via de daarvoor door de landelijke of plaatselijke overheid aangewezen inzamelingskanalen. De juiste vernietiging en recycling van deze apparatuur voorkomt mogelijke negatieve gevolgen voor het milieu en de gezondheid. Voor meer informatie over het vernietigen van uw oude apparatuur neemt u contact op met de plaatselijke autoriteiten of afvalverwerkingsdienst, of met de winkel waar u het product hebt aangeschaft.

Norsk (Norwegian) - Miljøinformasjon for kunder i EU

EU-direktiv 2002/96/EF krever at utstyr med følgende symbol avbildet på produktet og/eller pakningen, ikke må kastes sammen med usortert avfall. Symbolet indikerer at dette produktet skal håndteres atskilt fra ordinær avfallsinnsamling for husholdningsavfall. Det er ditt ansvar å kvitte deg med dette produktet og annet elektrisk og elektronisk avfall via egne innsamlingsordninger slik myndighetene eller kommunene bestemmer. Korrekt avfallshåndtering og gjenvinning vil være med på å forhindre mulige negative konsekvenser for miljø og helse. For nærmere informasjon om håndtering av det kasserte utstyret ditt, kan du ta kontakt med kommunen, en innsamlingsstasjon for avfall eller butikken der du kjøpte produktet.

Polski (Polish) - Informacja dla klientów w Unii Europejskiej o przepisach dotyczących ochrony środowiska

Dyrektywa Europejska 2002/96/EC wymaga, aby sprzęt oznaczony symbolem znajdującym się na produkcie i/lub jego opakowaniu nie był wyrzucany razem z innymi niesortowanymi odpadami komunalnymi. Symbol ten wskazuje, że produkt nie powinien być usuwany razem ze zwykłymi odpadami z gospodarstw domowych. Na Państwu spoczywa obowiązek wyrzucania tego i innych urządzeń elektrycznych oraz elektronicznych w punktach odbioru wyznaczonych przez władze krajowe lub lokalne. Pozbywanie się sprzętu we właściwy sposób i jego recykling pomogą zapobiec potencjalnie negatywnym konsekwencjom dla środowiska i zdrowia ludzkiego. W celu uzyskania szczegółowych informacji o usuwaniu starego sprzętu, prosimy zwrócić się do lokalnych władz, służb oczyszczania miasta lub sklepu, w którym produkt został nabyty.

Português (Portuguese) - Informação ambiental para clientes da União Europeia

A Directiva Europeia 2002/96/CE exige que o equipamento que exibe este símbolo 🗑 no produto e/ou na sua embalagem não seja eliminado junto com os resíduos municipais não separados. O símbolo indica que este produto deve ser eliminado separadamente dos resíduos domésticos regulares. É da sua responsabilidade eliminar este e qualquer outro equipamento eléctrico e electrónico através das instalações de recolha designadas pelas autoridades governamentais ou locais. A eliminação e reciclagem correctas ajudarão a prevenir as consequências negativas para o ambiente e para a saúde humana. Para obter informações mais detalhadas sobre a forma de eliminar o seu equipamento antigo, contacte as autoridades locais, os serviços de eliminação de resíduos ou o estabelecimento comercial onde adquiriu o produto.

Română (Romanian) - Informații de mediu pentru clienții din Uniunea Europeană

Directiva europeană 2002/96/CE impune ca echipamentele care prezintă acest simbol 🗑 pe produs şi/sau pe ambalajul acestuia să nu fie casate împreună cu gunoiul menajer municipal. Simbolul indică faptul că acest produs trebuie să fie casat separat de gunoiul menajer obişnuit. Este responsabilitatea dvs. să casați acest produs şi alte echipamente electrice şi electronice prin intermediul unităților de colectare special desemnate de guvern sau de autoritățile locale. Casarea şi reciclarea corecte vor ajuta la prevenirea potențialelor consecințe negative asupra sănătății mediului şi a oamenilor. Pentru mai multe informații detaliate cu privire la casarea acestui echipament vechi, contactați autoritățile locale, serviciul de salubrizare sau magazinul de la care ați achiziționat produsul.

Slovenčina (Slovak) - Informácie o ochrane životného prostredia pre zákazníkov v Európskej únii

Podľa európskej smernice 2002/96/ES zariadenie s týmto symbolom 🗑 na produkte a/alebo jeho balení nesmie byť likvidované spolu s netriedeným komunálnym odpadom. Symbol znamená, že produkt by sa mal likvidovať oddelene od bežného odpadu z domácností. Je vašou povinnosťou likvidovať toto i ostatné elektrické a elektronické zariadenia prostredníctvom špecializovaných zberných zariadení určených vládou alebo miestnymi orgánmi. Správna likvidácia a recyklácia pomôže zabrániť prípadným negatívnym dopadom na životné prostredie a zdravie ľudí. Ak máte záujem o podrobnejšie informácie o likvidácii starého zariadenia, obráťte sa, prosím, na miestne orgány, organizácie zaoberajúce sa likvidáciou odpadov alebo obchod, v ktorom ste si produkt zakúpili.

Slovenčina (Slovene) - Okoljske informacije za stranke v Evropski uniji

Evropska direktiva 2002/96/EC prepoveduje odlaganje opreme, označene s tem simbolom 🗑 – na izdelku in/ali na embalaži – med običajne, nerazvrščene odpadke. Ta simbol opozarja, da je treba izdelek odvreči ločeno od preostalih gospodinjskih odpadkov. Vaša odgovornost je, da to in preostalo električno in elektronsko opremo odnesete na posebna zbirališča, ki jih določijo državne ustanove ali lokalna uprava. S pravilnim odlaganjem in recikliranjem boste preprečili morebitne škodljive vplive na okolje in zdravje ljudi. Če želite izvedeti več o odlaganju stare opreme, se obrnite na lokalno upravo, odpad ali trgovino, kjer ste izdelek kupili.

Suomi (Finnish) - Ympäristöä koskevia tietoja EU-alueen asiakkaille

EU-direktiivi 2002/96/EY edellyttää, että jos laitteistossa on tämä symboli 🗑 itse tuotteessa ja/tai sen pakkauksessa, laitteistoa ei saa hävittää lajittelemattoman yhdyskuntajätteen mukana. Symboli merkitsee sitä, että tämä tuote on hävitettävä erillään tavallisesta kotitalousjätteestä. Sinun vastuullasi on hävittää tämä elektroniikkatuote ja muut vastaavat elektroniikkatuotteet viemällä tuote tai tuotteet viranomaisten määräämään keräyspisteeseen. Laitteiston oikea hävittäminen estää mahdolliset kielteiset vaikutukset ympäristöön ja ihmisten terveyteen. Lisätietoja vanhan laitteiston oikeasta hävitystavasta saa paikallisilta viranomaisilta, jätteenhävityspalvelusta tai siitä myymälästä, josta ostit tuotteen.

Svenska (Swedish) - Miljöinformation för kunder i Europeiska unionen

Det europeiska direktivet 2002/96/EC kräver att utrustning med denna symbol 🗑 på produkten och/eller förpackningen inte får kastas med osorterat kommunalt avfall. Symbolen visar att denna produkt bör kastas efter att den avskiljts från vanligt hushållsavfall. Det faller på ditt ansvar att kasta denna och annan elektrisk och elektronisk utrustning på fastställda insamlingsplatser utsedda av regeringen eller lokala myndigheter. Korrekt kassering och återvinning skyddar mot eventuella negativa konsekvenser för miljön och personhälsa. För mer detaljerad information om kassering av din gamla utrustning kontaktar du dina lokala myndigheter, avfallshanteringen eller butiken där du köpte produkten.

WEB: For additional information, please visit **www.linksys.com**

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