LINKSYS®
A Division of Cisco Systems, Inc.

16- or 24-Port 10/100/1000 Gigabit Switch

with WebView User Guide

WIRED

Cisco Systems

Model No. **SRW2016 or SRW2024**

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WARNING: This product contains chemicals, including lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. ***Wash hands after handling.***

How to Use this Guide

Your guide to the 16- or 24-Port 10/100/1000 Gigabit Switch with WebView has been designed to make understanding networking with the switch easier than ever. Look for the following items when reading this User Guide:

✓ This checkmark means there is a note of interest and is something you should pay special attention to while using the Switch.

⚠ This exclamation point means there is a caution or warning and is something that could damage your property or the Switch.

❓ This question mark provides you with a reminder about something you might need to do while using the Switch.

In addition to these symbols, there are definitions for technical terms that are presented like this:

word: *definition.*

Also, each figure (diagram, screenshot, or other image) is provided with a figure number and description, like this:

Figure 0-1: Sample Figure Description

Figure numbers and descriptions can also be found in the “List of Figures” section.

SRW2016_SRW2024-UG-50429C JL

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Chapter 1: Introduction

Welcome

Thank you for choosing the 16- or 24-Port 10/100/1000 Gigabit Switch with WebView. This Switch will allow you to network better than ever.

This new Linksys rackmount switch delivers non-blocking, wire speed switching for your 10, 100, and 1000Mbps network clients, plus multiple options for connecting to your network backbone. 16 or 24, 10/100/1000 ports wire up your workstations or connect to other switches and the backbone. And the mini-GBIC ports allow future expansion to alternate transmission media, such as fiber optic cabling.

The Switch features WebView monitoring and configuration via your web browser, making it easy to manage your VLANs and trunking groups. Or if you prefer, you can use the Switch's console interface to configure the Switch.

Use the instructions in this User Guide to help you connect the Switch, set it up, and configure it to bridge your different networks. These instructions should be all you need to get the most out of the 16- or 24-Port 10/100/1000 Gigabit Switch with WebView.

What’s in this User Guide?

This user guide covers the steps for setting up and using the Switch.

- Chapter 1: Introduction
  This chapter describes the Switch’s applications and this User Guide.
- Chapter 2: Getting to Know the Switch
  This chapter describes the physical features of the Switch.
- Chapter 3: Connecting the Switch
  This chapter explains how to install and connect the Switch.
- Chapter 4: Using the Console Interface for Configuration
  This chapter instructs you on how to use the Switch’s console interface when you configure the Switch.
- Chapter 5: Using the Web-based Utility for Configuration
  This chapter shows you how to configure the Switch using the Web-based Utility.
- Appendix A: About Gigabit Ethernet and Fiber Optic Cabling
  This appendix gives a general description of Gigabit Ethernet and fiber optic cabling.
- Appendix B: Windows Help
  This appendix describes how you can use Windows Help for instructions about networking, such as installing the TCP/IP protocol.
- Appendix C: Glossary
  This appendix gives a brief glossary of terms frequently used in networking.
- Appendix D: Specifications
  This appendix provides the Switch’s technical specifications.
- Appendix E: Warranty Information
  This appendix supplies the Switch’s warranty information.
- Appendix F: Regulatory Information
  This appendix supplies the Switch’s regulatory information.
- Appendix G: Contact Information
  This appendix provides contact information for a variety of Linksys resources, including Technical Support.

Chapter 2: Getting to Know the Switch

Overview

The 16- and 24-Port Switches differ in number of LEDs and ports. Pictured in this chapter is the 16-Port Switch; however, the other Switch is similar in form and function.

The Front Panel

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

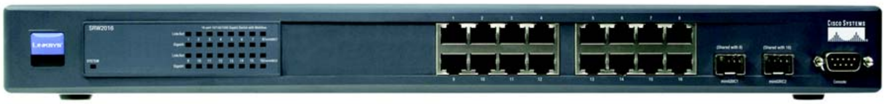


Figure 2-1: Front Panel of the 16-Port Switch

LEDs

SYSTEM Green. The **SYSTEM** LED lights up to indicate that the Switch is powered on.

Link/Act Green. The **Link/Act** LED lights up to indicate a functional network link through the corresponding port (1 through 16 or 1 through 24) with an attached device. It flashes to indicate that the Switch is actively sending or receiving data over that port.

Gigabit Orange. The **Gigabit** LED lights up to indicate a Gigabit connection on the corresponding port (1 through 16 or 1 through 24).

Ports

1-24 The Switch is equipped with 16 or 24 auto-sensing, Ethernet network ports, which use RJ-45 connectors. These ports support network speeds of 10Mbps, 100Mbps, and 1000Mbps. 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 (10Mbps, 100Mbps, or 1000Mbps), and adjust its speed and duplex accordingly.

For the 16-Port Switch, ports 8 and 16 are shared with miniGBIC1 and miniGBIC2, respectively. For the 24-Port Switch, ports 12 and 24 are shared with miniGBIC1 and miniGBIC2, respectively.

NOTE: If shared ports are both connected, then the miniGBIC port has priority.

miniGBIC1/2 The Switch provides two mini-GBIC ports. The mini-GBIC (gigabit interface converter) port is a connection point for a mini-GBIC expansion module, so the Switch can be uplinked via fiber to another switch. Each mini-GBIC port provides a link to a high-speed network segment or individual workstation at speeds of up to 1000Mbps.

Use the Linksys MGBT1, MGBSX1, or MGBLH1 mini-GBIC 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.

Console The Console port is where you can connect a serial cable to a PC's serial port for configuration using your PC's HyperTerminal program. Refer to "Chapter 4: Using the Console Interface for Configuration" for more information.

The Back Panel

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

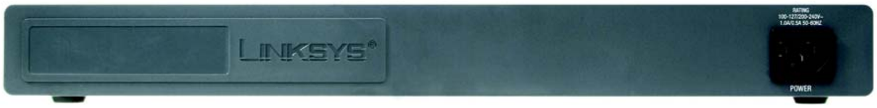


Figure 2-2: Back Panel of the 16-Port Switch

Power The **Power** port is where you will connect the power cord.

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.

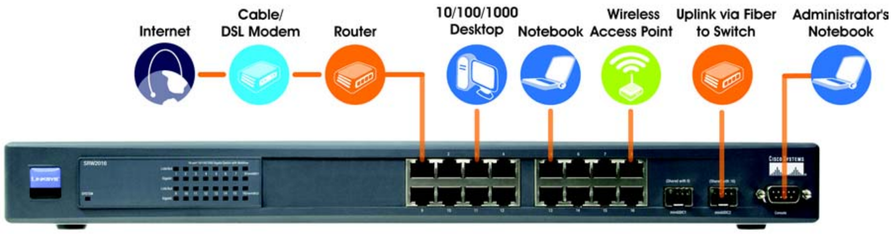


Figure 3-1: Typical Network Configuration for the 16-Port Switch

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

Table 1: 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 100Mbps hub, including regular hubs and stackable hubs. A 10Mbps hub connected to another 10Mbps 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 that the Switch will be 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, be sure to provide a minimum clearance of two inches (50 mm).
- Do not stack free-standing Switches more than four units high.

Placement Options

Before connecting cables to the Switch, first you will physically install the Switch. Either set the Switch on its four rubber feet for desktop placement or mount the Switch in a standard-sized, 19-inch wide, 1U high rack for rack-mount placement.

Desktop Placement

1. Attach the rubber feet to the recessed areas on the bottom of the Switch.
2. Place the Switch on a desktop near an AC power source.
3. Keep enough ventilation space for the Switch and check the environmental restrictions mentioned in the specifications.
4. Proceed to the section, “Connecting the Switch.”

Rack-Mount Placement

To mount the Switch in any standard-sized, 19-inch wide, 1U high rack, follow these instructions:

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. Then attach the other bracket to the other side.
3. Make sure the brackets are properly attached to the Switch.
4. Use the appropriate screws (not included) to securely attach the brackets to your rack.
5. Proceed to the section, “Connecting the Switch.”

IMPORTANT: Make sure you use the screws supplied with the mounting brackets. Using the wrong screws could damage the Switch and would invalidate your warranty.

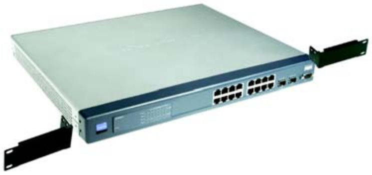


Figure 3-2: Attach the Brackets to the Switch

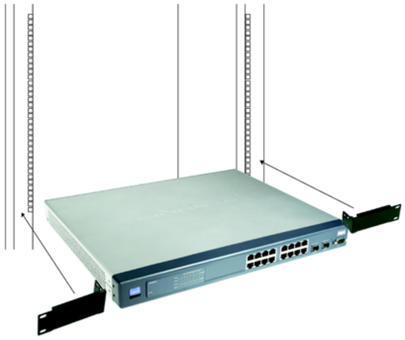


Figure 3-3: Mount the Switch in the Rack

Connecting the Switch

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 a 10/100Mbps devices, connect a Category 5 Ethernet network cable to one of the numbered ports on the Switch. For a 1000Mbps 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 mini-GBIC port, then connect the mini-GBIC module to the mini-GBIC 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.

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

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.

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.

If you will use the Switch's console interface to configure the Switch, proceed to "Chapter 4: Using the Console Interface for Configuration" for directions.

If you will use the Switch's Web-based Utility to configure the Switch, proceed to "Chapter 5: Using the Web-based Utility for Configuration."

Chapter 4: Using the Console Interface for Configuration

Overview

The Switch features a menu-driven console interface for basic configuration of the Switch and management of your network. Before you can use the console interface, you will need to configure the HyperTerminal application on your PC.

Configuring the HyperTerminal Application

1. Click the **Start** button. Select **Programs** and then **Accessories**. Select **Communications**. HyperTerminal should be one of the options listed in this menu. Select **HyperTerminal**.
2. On the *Connection Description* screen, enter a name for this connection. In the example, the name of connection is SRW2016. Select an icon for the application. Then click **OK**.
3. On the *Connect To* screen, select a port to communicate with the Switch, **COM1**, **COM2**, or **TCP/IP**.

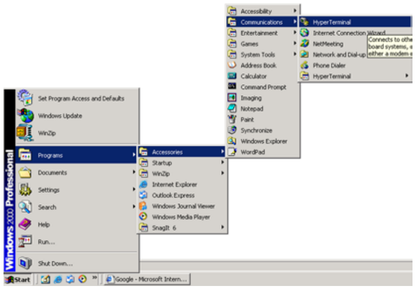
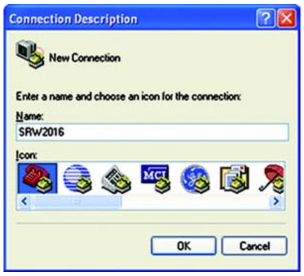


Figure 4-1: Finding HyperTerminal



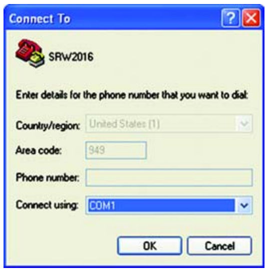
New Connection

Enter a name and choose an icon for the connection:

Name: SRW2016

Icon:

Figure 4-2: Connection Description



SRW2016

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

Country/region: United States (1)

Area code: 949

Phone number:

Connect using: COM1

Figure 4-3: Connect To

4. Set the serial port settings as follows:

   Bits per second: **38400**

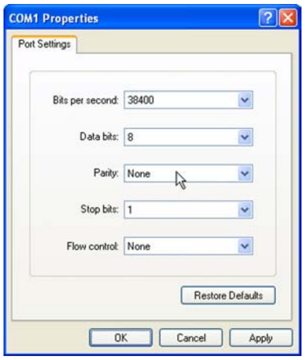
   Data bits: **8**

   Parity: **None**

   Stop bits: **1**

   Flow control: **None**

   Then click **OK**.



COM1 Properties

Port Settings

Bits per second: 38400

Data bits: 8

Parity: None

Stop bits: 1

Flow control: None

Figure 4-4: COM1 Properties

Configuring the Switch through the Console Interface

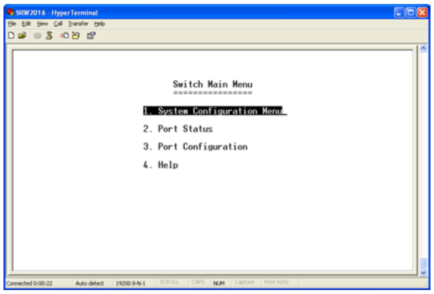
The console screens consist of a series of menus. Each menu has several options, which are listed vertically. You select a menu option when you highlight it; pressing the Enter key activates the highlighted option.

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



SRW2016 - HyperTerminal

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

1. System Configuration Menu

2. Port Status

3. Port Configuration

4. Help
```

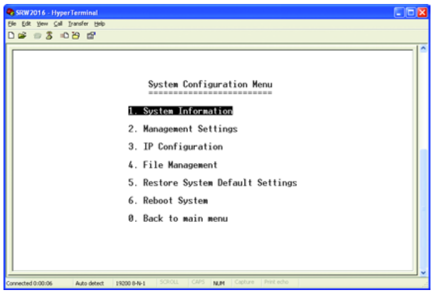
Connected 0:00:22 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 4-5: Switch Main Menu

System Configuration Menu

On the *System Configuration Menu* screen, you have these choices:

1. System Information
2. Management Settings
3. IP Configuration
4. File Management
5. Restore System Default Settings
6. Reboot System
0. Back to main menu



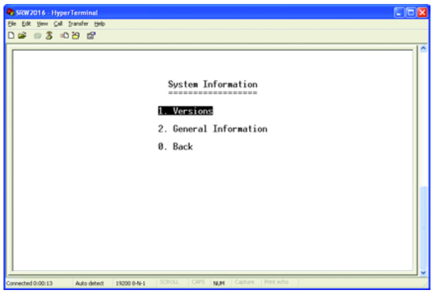
```
                 System Configuration Menu
                 =========================

              1. System Information
              2. Management Settings
              3. IP Configuration
              4. File Management
              5. Restore System Default Settings
              6. Reboot System
              0. Back to main menu
```

SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:00:06 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 4-6: System Configuration Menu

System Information

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



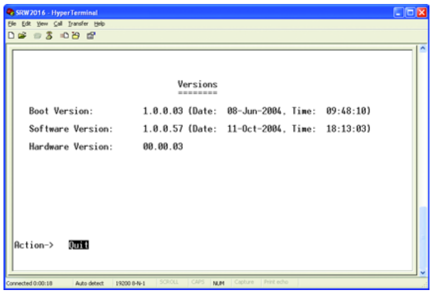
```
                   System Information
                   ==================

                 1. Versions
                 2. General Information
                 0. Back
```

SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:00:13 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 4-7: System Information

Versions

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



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

  Boot Version:          1.0.0.03 (Date:  08-Jun-2004, Time:  09:48:10)
  Software Version:      1.0.0.57 (Date:  11-Oct-2004, Time:  18:13:03)
  Hardware Version:      00.00.03




Action->   Quit
```

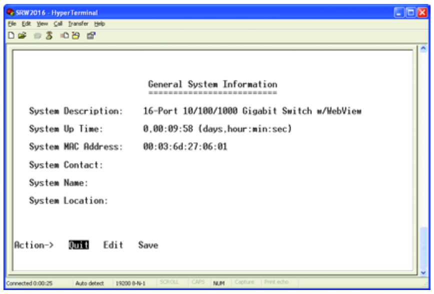
SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:00:18 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 4-8: Versions

General System Information

The *General System Information* screen displays the Switch's description, System Up Time, System MAC Address, System Contact, System Name, and System Location.

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.

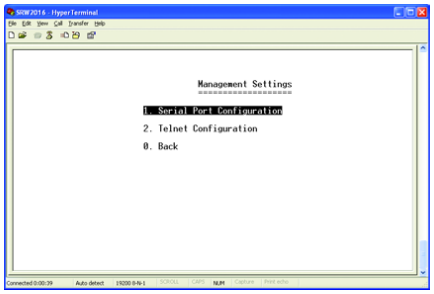

SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:00:25 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

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

  System Description:    16-Port 10/100/1000 Gigabit Switch w/WebView
  System Up Time:        0,00:09:58 (days,hour:min:sec)
  System MAC Address:    00:03:6d:27:06:01
  System Contact:
  System Name:
  System Location:


Action->    Quit    Edit    Save
```

Figure 4-9: General System Information

Management Settings

You have a choice of Serial Port Configuration or Telnet Configuration.


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:00:39 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

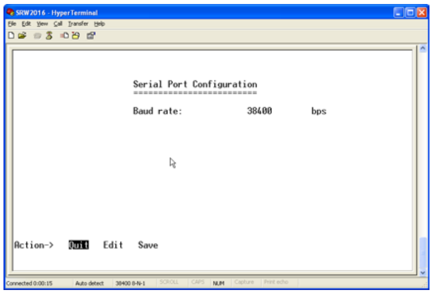
```
                            Management Settings
                            ===================

                  1. Serial Port Configuration
                  2. Telnet Configuration
                  0. Back
```

Figure 4-10: Management Settings

Serial Port Configuration

On the *Serial Port Configuration* screen, the Switch's baud rate is displayed.

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.


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:00:15 Auto detect 38400 8-N-1 SCROLL CAPS NUM Capture Print echo

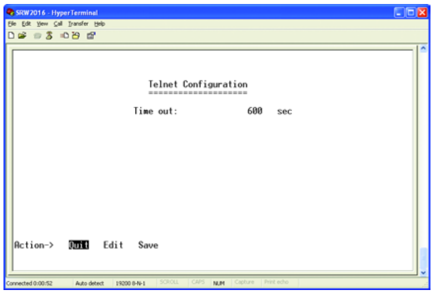
```
                Serial Port Configuration
                =========================

                Baud rate:            38400        bps


Action->    Quit    Edit    Save
```

Figure 4-11: Serial Port Configuration

Telnet Configuration

On the *Telnet Configuration* screen, the time-out is displayed.

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.

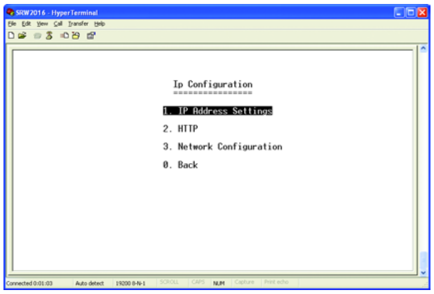


```
                    Telnet Configuration
                    ====================
                 Time out:              600   sec




Action->  Quit   Edit   Save
```

Figure 4-12: Telnet Configuration

IP Configuration

The *IP Configuration* screen displays these choices: the Switch's IP Address Settings, HTTP, and Network Configuration.



```
                      Ip Configuration
                      ================

                    1. IP Address Settings
                    2. HTTP
                    3. Network Configuration
                    0. Back
```

Figure 4-13: IP Configuration

IP Address Configuration

The Switch's IP information is displayed here.

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.

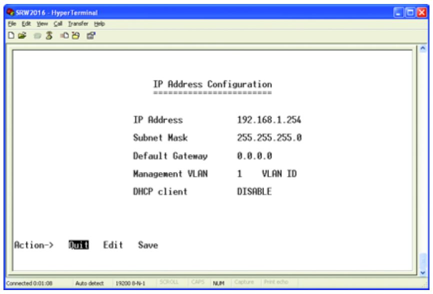
Subnet Mask. The subnet mask of the Switch is displayed.

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.



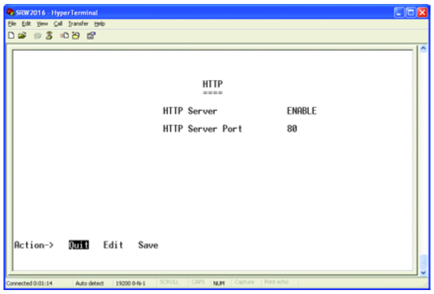
```
                    IP Address Configuration
                    ========================

                 IP Address          192.168.1.254
                 Subnet Mask         255.255.255.0
                 Default Gateway     0.0.0.0
                 Management VLAN     1    VLAN ID
                 DHCP client         DISABLE


Action->  Quit   Edit   Save
```

Figure 4-14: IP Address Configuration

HTTP

The *HTTP* screen displays the status and port number of the HTTP Server.

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.

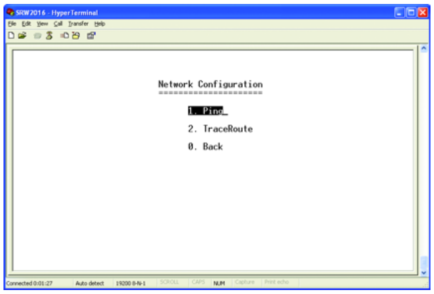

SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:01:14 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

```
                         HTTP
                         ====
                 HTTP Server          ENABLE
                 HTTP Server Port     80

Action->  Quit  Edit  Save
```

Figure 4-15: HTTP

Network Configuration

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


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:01:27 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

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

Figure 4-16: Network Configuration

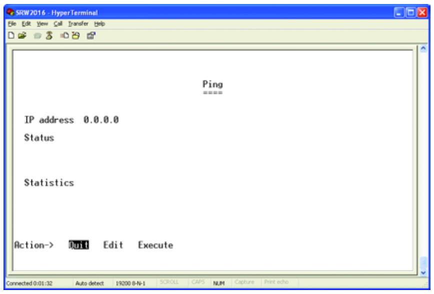
Ping

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

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

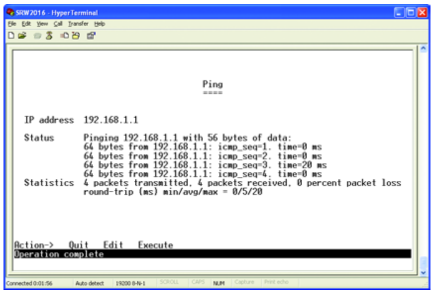
After the ping test is complete, the *Ping* screen displays the IP address, status, and statistics of the ping test.

Select **Edit** 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.


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:01:32 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

```
                                  Ping
                                  ====

 IP address  0.0.0.0

 Status


 Statistics



Action->   Quit   Edit   Execute
```

Figure 4-17: Ping


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:01:56 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

```
                                  Ping
                                  ====

 IP address  192.168.1.1

 Status      Pinging 192.168.1.1 with 56 bytes of data:
             64 bytes from 192.168.1.1: icmp_seq=1. time=0 ms
             64 bytes from 192.168.1.1: icmp_seq=2. time=0 ms
             64 bytes from 192.168.1.1: icmp_seq=3. time=20 ms
             64 bytes from 192.168.1.1: icmp_seq=4. time=0 ms
 Statistics  4 packets transmitted, 4 packets received, 0 percent packet loss
             round-trip (ms) min/avg/max = 0/5/20



Action->   Quit   Edit   Execute
Operation complete
```

Figure 4-18: Ping Test Results

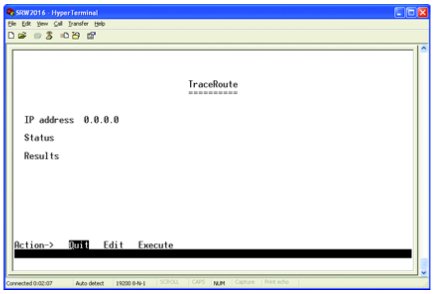
TraceRoute

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

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

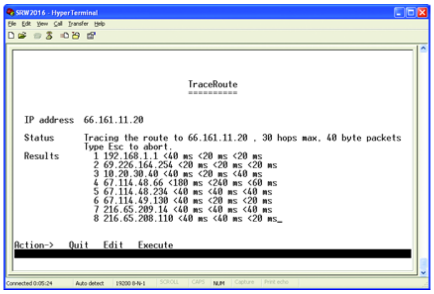
After the traceroute test is complete, the *TraceRoute* screen displays the IP address, status, and statistics of the traceroute test.

Select **Edit** 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.


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:02:07 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

```
                               TraceRoute
                               ==========

 IP address  0.0.0.0

 Status

 Results




Action->   Quit   Edit   Execute
```

Figure 4-19: TraceRoute


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:05:24 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

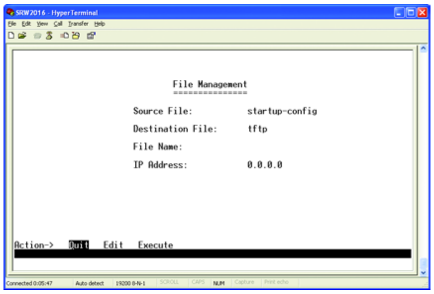
```
                              TraceRoute
                              ==========

 IP address  66.161.11.20

 Status      Tracing the route to 66.161.11.20 , 30 hops max, 40 byte packets
             Type Esc to abort.
 Results       1 192.168.1.1 <40 ms <20 ms <20 ms
               2 69.226.164.254 <20 ms <20 ms <20 ms
               3 10.20.30.40 <40 ms <20 ms <40 ms
               4 67.114.48.66 <180 ms <240 ms <60 ms
               5 67.114.48.234 <40 ms <40 ms <40 ms
               6 67.114.49.130 <40 ms <20 ms <20 ms
               7 216.65.209.14 <40 ms <40 ms <40 ms
               8 216.65.208.110 <40 ms <40 ms <20 ms_

Action->   Quit   Edit   Execute
```

Figure 4-20: TraceRoute Test Results

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.

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. After you download a file to the Switch, it may need to be rebooted.


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:05:47 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

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

                Source File:          startup-config

                Destination File:     tftp

                File Name:

                IP Address:           0.0.0.0



Action->   Quit   Edit   Execute
```

Figure 4-21: File Management

Restore System Default Settings

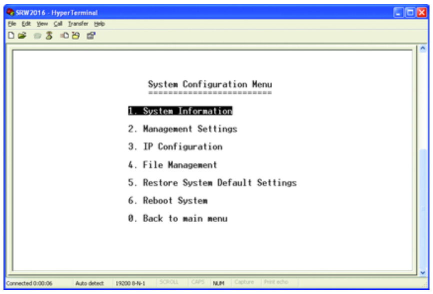
To restore the Switch back to the factory default settings, select **Restore System Default Settings** and press the **Enter** key. You will be asked if you want to continue. Press the **y** key to restore the Switch's default settings, or press the **n** key to cancel.

Reboot System

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.


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:00:06 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

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

                1. System Information

                2. Management Settings

                3. IP Configuration

                4. File Management

                5. Restore System Default Settings

                6. Reboot System

                0. Back to main menu
```

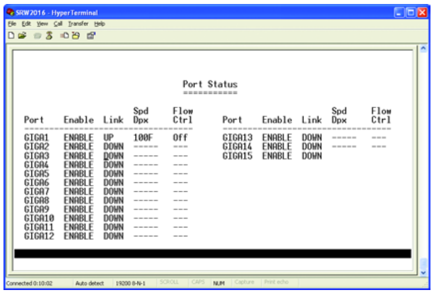
Figure 4-22: System Configuration Menu

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.

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.


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:10:02 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

```
                              Port Status
                              ===========
                         Spd      Flow                                  Spd      Flow
Port      Enable   Link  Dpx      Ctrl      Port      Enable   Link  Dpx      Ctrl
-----------------------------------------   -----------------------------------------
GIGA1     ENABLE   UP    100F     Off       GIGA13    ENABLE   DOWN  -----    ---
GIGA2     ENABLE   DOWN  -----    ---       GIGA14    ENABLE   DOWN  -----    ---
GIGA3     ENABLE   DOWN  -----    ---       GIGA15    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  -----    ---
```

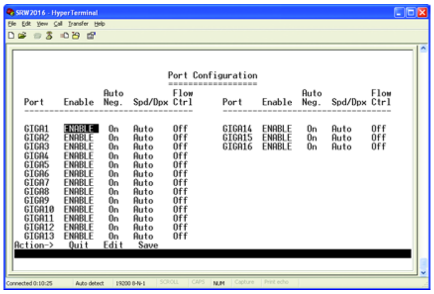
Figure 4-23: Port Status

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.

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.

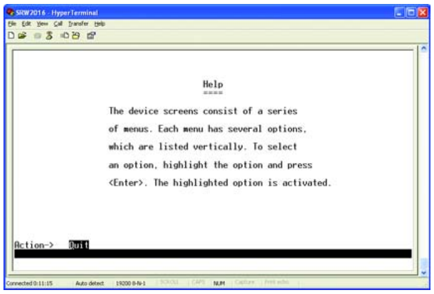

SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:10:25 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

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

GIGA1     ENABLE   On     Auto      Off       GIGA14    ENABLE   On     Auto      Off
GIGA2     ENABLE   On     Auto      Off       GIGA15    ENABLE   On     Auto      Off
GIGA3     ENABLE   On     Auto      Off       GIGA16    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
GIGA13    ENABLE   On     Auto      Off
Action->    Quit    Edit    Save
```

Figure 4-24: Port Configuration

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.


SRW2016 - HyperTerminal
File Edit View Call Transfer Help
Connected 0:11:15 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo

```
                            Help
                            ====
               The device screens consist of a series

               of menus. Each menu has several options,

               which are listed vertically. To select

               an option, highlight the option and press

               <Enter>. The highlighted option is activated.



Action->    Quit
```

Figure 4-25: Help

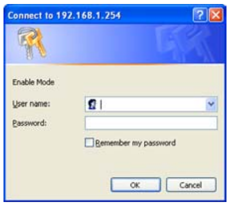
Chapter 5: Using the Web-based Utility for Configuration

Overview

This chapter describes the Web-based Utilities for the 16- and 24-Port Switches, which are identical except for two screens. The Utility for the 24-Port Switch includes two additional webpages, the *Security - Management Configuration* screen, as well as the *Security - TACACS* (Terminal Access Controller Access Control System) screen.

Accessing the Web-based Utility

Open your web browser and enter **192.168.1.254** into the *Address* field. Press the **Enter** key and the login screen will appear. 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. You can set a password later from the *System Password* screen.



Connect to 192.168.1.254

Enable Mode

User name:

Password:

□ Remember my password

Figure 5-1: Login Screen

The first screen that appears is the *System Description* screen. This allows you to access six main tabs: Sys. Info. (System Information), IP Conf. (Configuration), Switch Conf. (Configuration), QoS (Quality of Service), Security, SNTP (Simple Network Time Protocol), Statistics, Logs, Maintenance, and Help. Click one of the main tabs to view additional tabs.

At the top of each screen is a picture of the 16- or 24-Port Switch. The LEDs display status information about their corresponding ports. A green LED indicates a connection, while a blue LED indicates no connection. When you click a port's LED, the statistics for that port are displayed.

NOTE: The LEDs displayed in the Web-based Utility are not the same as the LEDs on the front panel of the Switch. The front panel LEDs display different status information, which is described in "Chapter 2: Getting to Know the Switch."

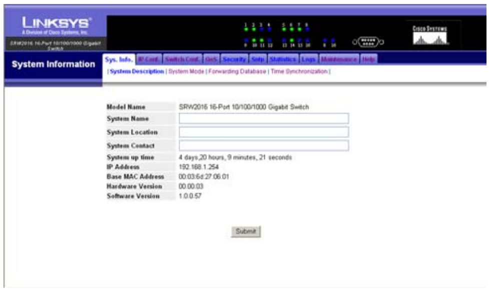
Sys. Info. (System Information) Tab - System Description

The *System Description* screen lets you enter general information about the Switch.

Model Name. This is the model number and name of the Switch.

System Name. Enter a name for the Switch.

System Location. Describe the location of the Switch.



LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
System Information
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Sntp
Statistics
Logs
Maintenance
Help
| System Description | System Mode | Forwarding Database | Time Synchronization |

Model Name	SRW2016 16-Port 10/100/1000 Gigabit Switch
System Name	
System Location	
System Contact	
System up time	4 days,20 hours, 9 minutes, 21 seconds
IP Address	192.168.1.254
Base MAC Address	00:03:6d:27:06:01
Hardware Version	00.00.03
Software Version	1.0.0.57

Figure 5-2: System Information - System Description

System Contact. Enter the name of the contact person for this Switch.

System up time. This displays the amount of time that has elapsed since the Switch was last reset.

IP Address. This is the IP address of the Switch.

Base MAC Address. This is the MAC address of the Switch.

Hardware Version. Displayed here is the version number of the Switch's hardware.

Software Version. Displayed here is the version number of the Switch's software.

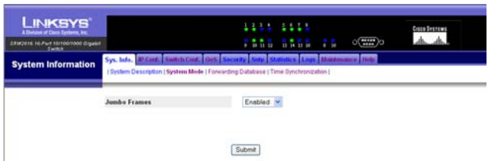
Click the **Submit** button to save your changes.

Sys. Info. (System Information) Tab - System Mode

The *System Mode* screen allows you to enable or disable the Jumbo Frames feature. Jumbo Frames enable the travel of identical data in fewer frames; this promotes faster data transmissions.

Jumbo Frames. If you want to enable this feature on the Switch, select **Enabled**. You will be notified that this feature will be enabled after the Switch is reset. Otherwise, select **Disabled**.

Click the **Submit** button to save your changes.


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
System Information
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| System Description | System Mode | Forwarding Database | Time Synchronization |
Submit

Jumbo Frames: Enabled

Figure 5-3: System Information - System Mode

Sys. Info. (System Information) Tab - Forwarding Database

The *Forwarding Database* screen lets you define the aging interval of the Switch.

Aging Interval. This specifies the aging out period on the Forwarding Database.

Click the **Submit** button to save your changes.

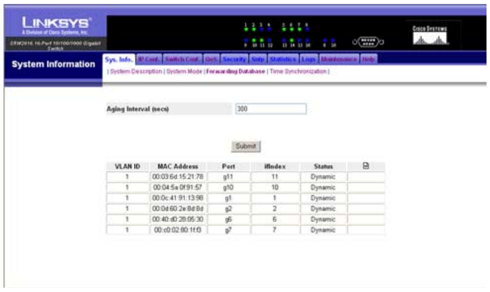
A table of VLAN (Virtual Local Area Network) entries is listed.

VLAN ID. Displayed here is the ID number of the VLAN for this entry.

MAC Address. This is the MAC address of the entry.

Port. This is the port number for this entry.

ifIndex. This is the interface for this entry.


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
System Information
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| System Description | System Mode | Forwarding Database | Time Synchronization |
Submit

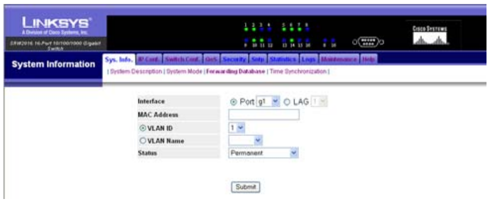
Aging Interval (secs): 300

VLAN ID	MAC Address	Port	ifIndex	Status	🗎
1	00:03:6d:15:21:78	g11	11	Dynamic	
1	00:04:5a:0f:91:57	g10	10	Dynamic	
1	00:0c:41:91:13:98	g1	1	Dynamic	
1	00:0d:60:2e:8d:8d	g2	2	Dynamic	
1	00:40:d0:28:05:30	g6	6	Dynamic	
1	00:c0:02:80:1f:f3	g7	7	Dynamic	

Figure 5-4: System Information - Forwarding Database

Status. This indicates how the entry was created, Dynamic (dynamically learned) or Static (statically configured).

When you click the paper and pencil icon, you can add a forwarding interface by configuring these settings:


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
System Information
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| System Description | System Mode | Forwarding Database | Time Synchronization |
Submit

Interface	● Port g1 ○ LAG 1
MAC Address	
● VLAN ID	1
○ VLAN Name	
Status	Permanent

Figure 5-5: Forwarding Database - Add Entry

Interface. Select the appropriate interface, either a port number or LAG (Link Aggregation Group) number.

MAC Address. Enter the MAC address for this entry.

VLAN ID. If you want to use a VLAN ID, then select the radio button and enter the ID number of the VLAN.

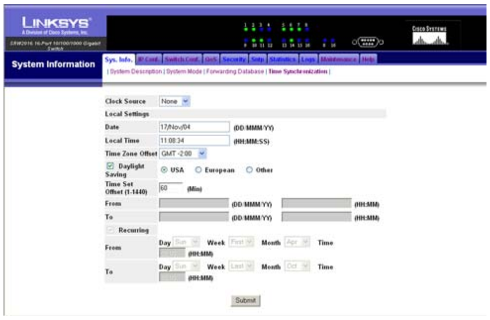
VLAN Name. If you want to use a VLAN Name, select the radio button and then enter a name here.

Status. Select the status of your entry, **Permanent**, **Delete On Reset**, or **Delete On Time Out**.

Click the **Submit** button to save your changes.

Sys. Info. (System Information) Tab - Time Synchronization

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


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
System Information
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| System Description | System Mode | Forwarding Database | Time Synchronization |
Submit

Clock Source	None
Local Settings	
Date	17/Nov/04 (DD/MMM/YY)
Local Time	11:08:34 (HH:MM:SS)
Time Zone Offset	GMT -2:00
☑ Daylight Saving	● USA ○ European ○ Other
Time Set Offset (1-1440)	60 (Min)
From	(DD/MMM/YY) (HH:MM)
To	(DD/MMM/YY) (HH:MM)
□ Recurring	
From	Day Sun Week First Month Apr Time (HH:MM)
To	Day Sun Week Last Month Oct Time (HH:MM)

Figure 5-6: System Information - Time Synchronization

Clock Source. If you want to set the system clock via an SNTP (Simple Network Time Protocol) server, then select **SNTP**. Otherwise, select **None**.

Local Settings

Date. Specify the system date here.

Local Time. Specify the system time here.

Time Zone Offset. Enter the difference between Greenwich Mean Time (GMT) and local time.

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 **Other** 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.

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

To. If you selected Other for the *Daylight Saving* setting, then 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, then select **Recurring**.

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

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

Click the **Submit** button to save your changes.

IP Conf. (Configuration) Tab - IP Addr. (Address)

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

DHCP Interface. If you are using the DHCP Interface, then select the radio button and specify the VLAN on which the DHCP IP address is configured.

Host Name. Enter the DHCP Host Name here.

Static Address. If you are using a static IP address, then select the radio button and enter the IP settings.

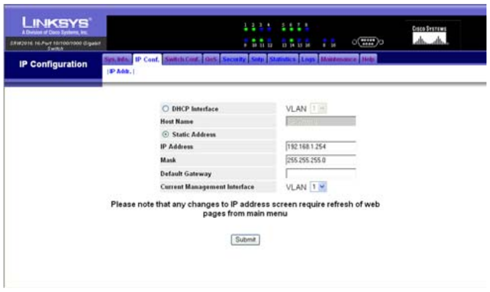
IP Address. Enter the interface IP address.

Mask. Enter the subnet mask of the currently configured IP address.

Default Gateway. Enter the IP address of the Default Gateway.

Current Management Interface. Specify the interface used to manage the Default Gateway.

Click the **Submit** button to save your changes.



○ DHCP Interface VLAN 1
Host Name
● Static Address
IP Address 192.168.1.254
Mask 255.255.255.0
Default Gateway
Current Management Interface VLAN 1

Please note that any changes to IP address screen require refresh of web pages from main menu

Figure 5-7: IP Configuration - IP Address

Switch Conf. (Configuration) Tab - Interface Conf. (Configuration)

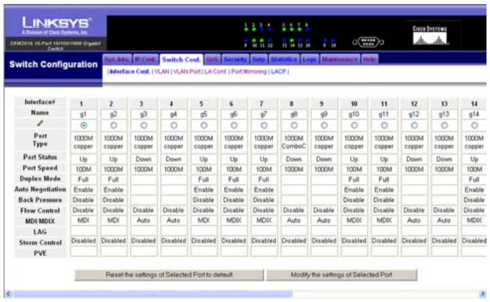
The *Interface Configuration* screen shows you the port settings for the Switch.

Interface#. This is the port number.

Name. This is the device port ID.

Port Type. This is the port type.

Port Status. Displayed here is the status of the port.


LINKSYS
A Division of Cisco Systems, Inc.
Cisco Systems
Switch Configuration
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Sntp
Statistics
Logs
Maintenance
Help
| Interface Conf. | VLAN | VLAN Port | LA Conf | Port Mirroring | LACP |
Reset the settings of Selected Port to default
Modify the settings of Selected Port

Interface#	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Name	g1	g2	g3	g4	g5	g6	g7	g8	g9	g10	g11	g12	g13	g14
✎	●	○	○	○	○	○	○	○	○	○	○	○	○	○
Port Type	1000M copper	1000M copper	1000M copper	1000M copper	1000M copper	1000M copper	1000M copper	1000M ComboC	1000M copper	1000M copper	1000M copper	1000M copper	1000M copper	1000M copper
Port Status	Up	Up	Down	Down	Up	Up	Up	Down	Down	Up	Up	Down	Down	Up
Port Speed	100M	1000M	1000M	1000M	100M	100M	100M	1000M	1000M	100M	100M	1000M	1000M	100M
Duplex Mode	Full	Full			Full	Full	Full			Full	Full			Full
Auto Negotiation	Enable	Enable			Enable	Enable	Enable			Enable	Enable			Enable
Back Pressure	Disable	Disable			Disable	Disable	Disable			Disable	Disable			Disable
Flow Control	Disable	Disable	Disable	Disable	Disable	Disable	Disable	Disable	Disable	Disable	Disable	Disable	Disable	Disable
MDI/MDIX	MDI	MDI	Auto	Auto	MDI	MDIX	MDIX	Auto	Auto	MDIX	MDIX	Auto	Auto	MDIX
LAG														
Storm Control	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
PVE														

Figure 5-8: Switch Configuration - Interface Configuration

Port Speed. Displayed here is the configured rate for the port. The speed can be configured only when auto-negotiation is disabled on that port.

Duplex Mode. This is the port 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).

Auto Negotiation. This is the status of the port's Auto Negotiation feature.

Back Pressure. Displayed here is the status of the port's Back Pressure mode, which is used with Half Duplex Mode to disable ports from receiving messages. This mode is used for ports in Half Duplex Mode or on LAGs.

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

MDI/MDIX. This is the MDI/MDIX status of the port. The **Auto** setting is used when you want the port to automatically detect the cable 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.

LAG. This indicates if the port is part of a LAG.

Storm Control. When enabled, the Storm Control setting prevents an excessive number of broadcast and multicast messages.

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, except for MAC-to-me packets. Uplinks can be ports or LAGs.

If you want to reset a port's settings to its defaults, select a port by clicking its radio button. Then click the **Reset the settings of Selected Port to default** button.

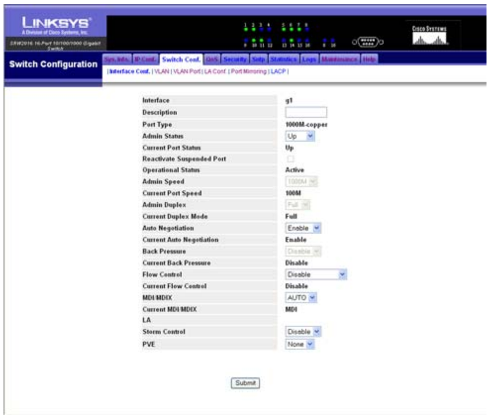
If you want to modify a port's changes, select a port by clicking its radio button. Then click the **Modify the settings of Selected Port** button.

On the new screen that appears, you can change the port's settings. (Some settings may not be available, depending on the other settings you have configured for the port.)

Interface. This is the port number.

Description. Enter a description for this port.

Port Type. This is the port type.



Interface	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
Back Pressure	Disable
Current Back Pressure	Disable
Flow Control	Disable
Current Flow Control	Disable
MDI MDIX	AUTO
Current MDI MDIX	MDI
LA	
Storm Control	Disable
PVE	None

Figure 5-9: Interface Configuration - Change Settings

Admin Status. Change the status of the port here.

Current Port Status. Displayed here is the status of the port.

Reactivate Suspended Port. If you want to reactivate a port that has been suspended, click the checkbox.

Operational Status. This indicates whether or not the port is active.

Admin Speed. Change the speed of the port here.

Current Port Speed. Displayed here is the current speed of the port.

Admin Duplex. Change the duplex mode here.

Current Duplex Mode. This is the duplex mode of the port.

Auto Negotiation. You can enable or disable the port's Auto Negotiation feature.

Current Auto Negotiation. This is the current setting of the port's Auto Negotiation feature.

Back Pressure. You can enable or disable the port's Back Pressure feature.

Current Back Pressure. Displayed here is the status of the port's Back Pressure mode.

Flow Control. You can enable or disable the port's Flow Control feature.

Current Flow Control. This is the flow control status of the port.

MDI/MDIX. Select the **Auto** setting if you want the port to automatically detect the cable type. Select **MDI** if the port is connected to an end station. Select **MDIX** if the port is connected to a hub or another switch.

Current MDI/MDIX. This is the current MDI/MDIX status of the port.

LA. This indicates if the port is part of a LAG.

Storm Control. You can enable or disable the port's Storm Control setting.

PVE. You can enable a port to be a Private VLAN Edge (PVE) port if you want it to bypass the Forwarding Database and forward all unicast, multicast, and broadcast traffic to an uplink, except for MAC-to-me packets.

Click the **Submit** button to save your changes.

Switch Conf. (Configuration) Tab - VLAN

The *VLAN* screen lets you create subgroups of a LAN (Local Area Network) using software. The VLAN groups are listed on this screen.

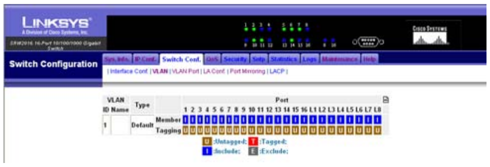
VLAN ID. This displays the VLAN ID number.

VLAN Name. This displays the name of the VLAN.

Type. Displayed here is the VLAN type, Dynamic (dynamically created), Static (created by user), or Default (the Switch has one default VLAN).

Member/Tagging. Each port is described as included in or excluded from the VLAN, as well as tagged (identified) or untagged as a specific member of a VLAN. (VLAN tagging adds a tag to packet headers.)

If you want to delete a current VLAN, then select the VLAN's X icon and click the **Submit** button.


LINKSYS
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Cisco Systems
Switch Configuration
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Interface Conf | VLAN | VLAN Port | LA Conf | Port Mirroring | LACP |

VLAN ID	VLAN Name	Type		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	L1	L2	L3	L4	L5	L6	L7	L8
1		Default	Member	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
			Tagging	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U

U :Untagged; T :Tagged;
I :Include; E :Exclude;

Figure 5-10: Switch Configuration - VLAN

To create a VLAN, click the paper and pencil icon. To modify a VLAN, click the VLAN's pencil icon. On the new screen that appears, you can modify the VLAN.

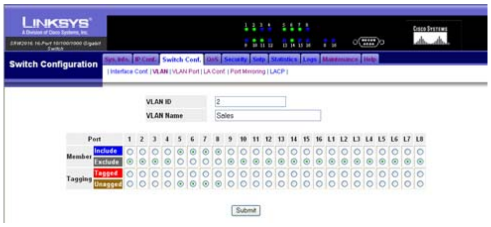
VLAN ID. Complete the *VLAN ID* field.

VLAN Name. Complete the *VLAN Name* field.

Member (Include/Exclude). For each port or LAG, click the **Include** radio button to select it as a member of the VLAN. The default is **Exclude**.

Tagging (Tagged/Untagged). For each port or LAG, click the **Tagged** radio button to enable VLAN tagging, or click the **Untagged** radio button to disable VLAN tagging.

Click the **Submit** button to save your changes.


LINKSYS
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Cisco Systems
Switch Configuration
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Interface Conf | VLAN | VLAN Port | LA Conf | Port Mirroring | LACP |
Submit

VLAN ID: 2
VLAN Name: Sales

Port		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	L1	L2	L3	L4	L5	L6	L7	L8
Member	Include	○	○	○	○	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Exclude	●	●	●	●	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Tagging	Tagged	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Unagged	○	○	○	○	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Figure 5-11: VLAN - Add VLAN

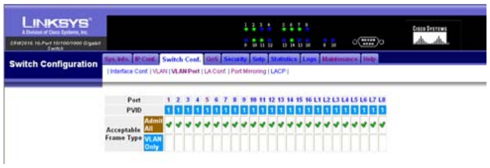
Switch Conf. (Configuration) Tab - VLAN Port

The *VLAN Port* screen allows you to manage ports that are part of a VLAN.

Port. Displayed here is the port's physical address.

PVID. Displayed here is the VLAN ID to untagged packets.

Acceptable Frame Type. Displayed here is the packet type accepted on the port, Admit All (all packets are accepted) or VLAN Only (only VLAN packets are accepted).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QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Interface Conf | VLAN | VLAN Port | LA Conf | Port Mirroring | LACP |

Port		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	L1	L2	L3	L4	L5	L6	L7	L8
PVID		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Acceptable Frame Type	Admit All	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VLAN Only																								

Figure 5-12: Switch Configuration - VLAN Port

To change a VLAN port’s settings, click the port number. On the new screen that appears, you can modify the settings.

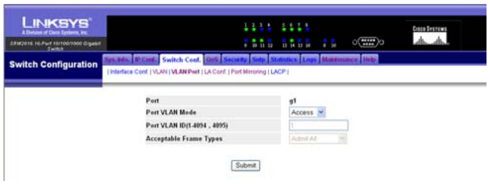
Port. Displayed here is the port’s physical address.

Port VLAN Mode. Select **Access** or **Trunk** from the drop-down menu.

Port VLAN ID. If available, complete the *Port VLAN ID* field.

Acceptable Frame Types. If available, select **Admit All** or **VLAN Only** from the drop-down menu.

Click the **Submit** button to save your changes.



Port	g1
Port VLAN Mode	Access
Port VLAN ID(1-4094 , 4095)	1
Acceptable Frame Types	Admit All

Figure 5-13: VLAN Port - Change Settings

Switch Conf. (Configuration) Tab - LA Conf. (Configuration)

The Switch supports up to eight Link Aggregated Groups (LAGs), which maximize port usage by linking a group of ports together to form a single group. LAGs multiply the bandwidth between the network devices, increase port flexibility, and provide link redundancy. The Switch’s LAGs are listed on the *LA Configuration* screen, which also allows you to modify them.

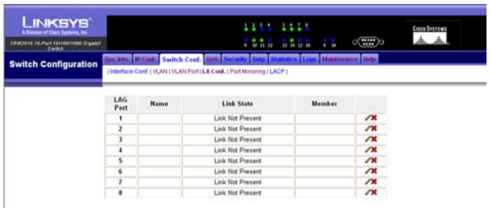
LAG Port. This displays the LAG number.

Name. This is the port name.

Link State. Displayed here is the status of the link.

Member. This shows the ports configured to the LAG.

If you want to delete a current LAG, then select the LAG’s X icon and click the **Submit** button.



LAG Port	Name	Link State	Member	
1		Link Not Present		✎✖
2		Link Not Present		✎✖
3		Link Not Present		✎✖
4		Link Not Present		✎✖
5		Link Not Present		✎✖
6		Link Not Present		✎✖
7		Link Not Present		✎✖
8		Link Not Present		✎✖

Figure 5-14: Switch Configuration - LA Configuration

To modify a LAG, click the LAG’s pencil icon. On the new screen that appears, you can modify the LAG.

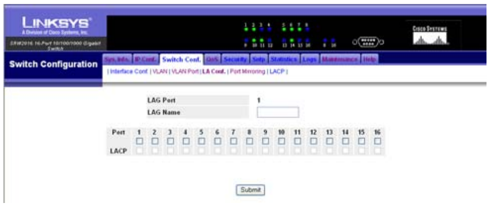
LAG Port. This displays the LAG number.

LAG Name. Complete the *LAG Name* field.

Port. Select the ports you want to include in this LAG.

LACP. Select the ports for which you want to enable the use of Link Aggregation Control Protocol (LACP).

Click the **Submit** button to save your changes.



LAG Port	1
LAG Name	

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

Figure 5-15: LA Configuration - Change Settings

Switch Conf. (Configuration) Tab - Port Mirroring

The *Port Mirroring* screen lets you configure the Switch's port mirroring settings. Port mirroring can be used for diagnostics or debugging. It forwards copies of incoming and outgoing packets from one port to a monitoring port.

Ports to be Mirrored. Select the port number from which port traffic is mirrored.

Probe Port. Select the port number to which port traffic is copied.

Mode. Select the appropriate port mode configuration, **RxOnly** (receiving only), **TxOnly** (transmitting only), or **Both** (receiving and transmitting).

Click the **Submit** button to save your changes.

Your port mirroring sessions are listed in a table.

Probe Port. This is the port number to which port traffic is copied.

Port To Be Mirrored. This is the port number from which port traffic is mirrored.

Copy Direction. This displays the traffic direction(s) being monitored.

Remove. If you want to delete a port mirroring session, click its **Remove** checkbox and the **Remove** button.

Switch Conf. (Configuration) Tab - LACP

The *LACP* screen allows you to enable the use of the Link Aggregation Control Protocol (LACP) on relevant links for LAGs. Listed on this screen are the LACP LAGs.

Port. This is the port number using LACP.

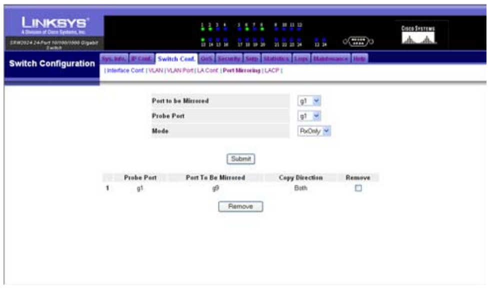
Port Priority. This is the LACP priority value for the port.

LACP Timeout. This is the administrative LACP timeout period, Short or Long.

Click the pencil icon to modify settings for a port. A new screen will appear, displaying the available LACP settings.

Global Parameters

LACP System Priority. Select the LACP priority value for the system.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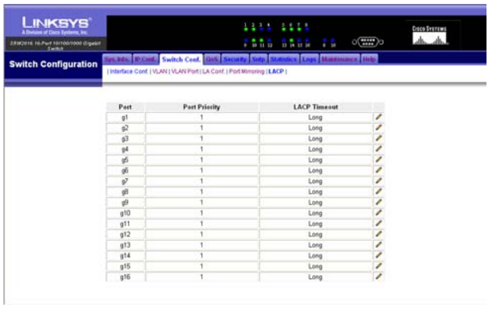
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Interface Conf | VLAN | VLAN Port | LA Conf | Port Mirroring | LACP |
Submit
Remove

Port to be Mirrored	g1
Probe Port	g1
Mode	RxOnly

	Probe Port	Port To Be Mirrored	Copy Direction	Remove
1	g1	g9	Both	□

Figure 5-16: Switch Configuration - Port Mirroring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SRW2016 16-Port 10/100/1000 Gigabit Switch
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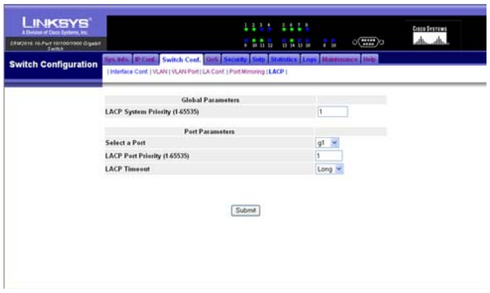
Switch Configuration
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Interface Conf | VLAN | VLAN Port | LA Conf. | Port Mirroring | LACP |

Port	Port Priority	LACP Timeout	
g1	1	Long	✎
g2	1	Long	✎
g3	1	Long	✎
g4	1	Long	✎
g5	1	Long	✎
g6	1	Long	✎
g7	1	Long	✎
g8	1	Long	✎
g9	1	Long	✎
g10	1	Long	✎
g11	1	Long	✎
g12	1	Long	✎
g13	1	Long	✎
g14	1	Long	✎
g15	1	Long	✎
g16	1	Long	✎

Figure 5-17: Switch Configuration - LACP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Cisco Systems
Switch Configuration
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Interface Conf | VLAN | VLAN Port | LA Conf. | Port Mirroring | LACP |
Submit

Global Parameters	
LACP System Priority (1-65535)	1

Port Parameters	
Select a Port	g1
LACP Port Priority (1-65535)	1
LACP Timeout	Long

Figure 5-18: LACP - Change Settings

Port Parameters

Port. Select the port you want.

LACP Port Priority. Select the LACP priority value for the port.

LACP Timeout. Select the LACP timeout period for this port, **Short** or **Long**.

Click the **Submit** button to save your changes.

QoS Tab - CoS Settings

Quality of Service (QoS) allows you to implement priority queuing within a network, so different types of traffic are assigned different priority queues. Class of Service (CoS) services are then assigned to the queues, using one of two methods, Strict Priority, for which time-sensitive applications are forwarded using the quickest path, or Weighted Round Robin (WRR), for which no single application dominates the forwarding capacity.

The *CoS Settings* screen lets you enable or disable CoS for various ports.

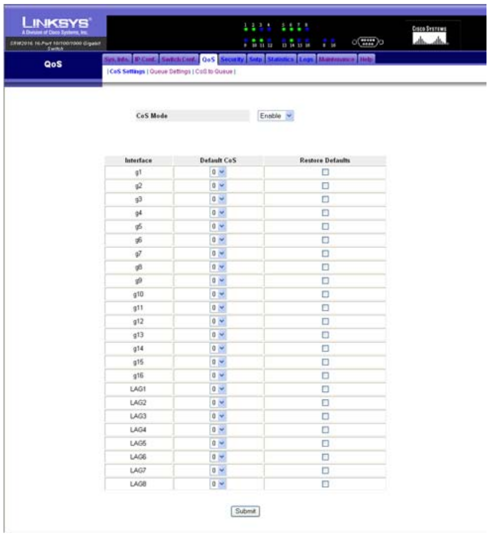
CoS Mode. This indicates whether CoS is enabled or disabled for the Switch.

Interface. This indicates the interface to be configured.

Default CoS. This defines the default CoS queue for incoming untagged packets.

Restore Defaults. To reset a port to its default value, select this checkbox.

Click the **Submit** button to save your changes.


LINKSYS
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Cisco Systems
QoS
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Sntp
Statistics
Logs
Maintenance
Help
| CoS Settings | Queue Settings | CoS to Queue |
Submit

CoS Mode: Enable

Interface	Default CoS	Restore Defaults
g1	0	□
g2	0	□
g3	0	□
g4	0	□
g5	0	□
g6	0	□
g7	0	□
g8	0	□
g9	0	□
g10	0	□
g11	0	□
g12	0	□
g13	0	□
g14	0	□
g15	0	□
g16	0	□
LAG1	0	□
LAG2	0	□
LAG3	0	□
LAG4	0	□
LAG5	0	□
LAG6	0	□
LAG7	0	□
LAG8	0	□

Figure 5-19: QoS - CoS Settings

QoS Tab - Queue Settings

The *Queue Settings* screen lets you select the CoS method and assign bandwidth values for your queues.

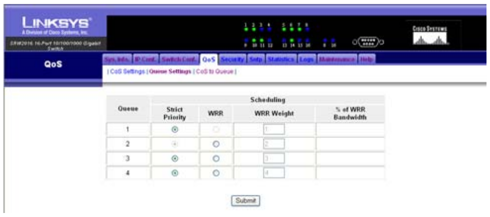
Queue. This is the queue number.

Scheduling

Strict Priority. If you want traffic scheduling to be based on queue priority, then click this radio button.

WRR. If you want to assign a WRR weight to a queue, then click this radio button.

WRR Weight. If a queue uses WRR, then enter the WRR weight in this field.


LINKSYS
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Cisco Systems
QoS
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Sntp
Statistics
Logs
Maintenance
Help
| CoS Settings | Queue Settings | CoS to Queue |
Submit

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

Figure 5-20: QoS - Queue Settings

% of WRR Bandwidth. This is the percentage of bandwidth used by WRR. This automatically changes if you change the WRR Weight for a queue.

Click the **Submit** button to save your changes.

QoS Tab - CoS to Queue

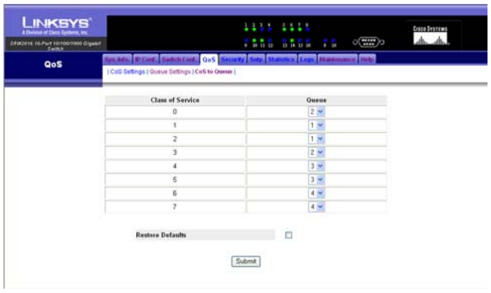
The *CoS to Queue* screen lets you assign CoS settings to traffic queues.

Class of Service. This specifies the CoS priority tag values (0 is the lowest and 7 is the highest).

Queue. This indicates the traffic forwarding queue to which the CoS priority is mapped. You can designate up to four traffic priority queues.

Restore Defaults. To restore the factory defaults for mapping CoS values to a forwarding queue, click this checkbox.

Click the **Submit** button to save your changes.


LINKSYS
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QoS
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IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| CoS Settings | Queue Settings | CoS to Queue |

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

Restore Defaults □

Figure 5-21: QoS - CoS to Queue

Security Tab - ACL

The *ACL* screen lists the access profiles and allows you to configure access profiles for the Switch.

Access Profile. This is the name of the access profile.

Activated. You can activate an access profile by selecting the radio button. You can deactivate an access profile by deselecting the radio button.

If you want to delete a current access profile, then select the access profile's X icon and click the **Submit** button.

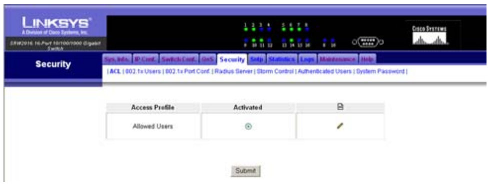
To create an access profile, click the paper and pencil icon. To modify an access profile, click the access profile's pencil icon. On the new screen that appears, you can modify the access profile.

Access Profile Name. This is the name of the access profile.

Rule Priority. This is the rule priority. When a packet is matched to a rule, user groups are granted permission or denied access.

Management Method. This is the method for which the access profile is defined.

Interface. This indicates the interface type to which the rule applies.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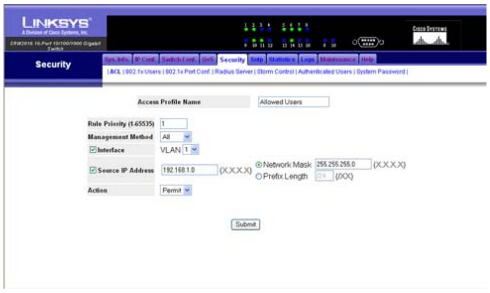
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| ACL | 802.1x Users | 802.1x Port Conf. | Radius Server | Storm Control | Authenticated Users | System Password |

Access Profile	Activated	
Allowed Users	●	✎

Figure 5-22: Security Tab - ACL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Switch Conf.
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Maintenance
Help
| ACL | 802.1x Users | 802.1x Port Conf. | Radius Server | Storm Control | Authenticated Users | System Password |

Access Profile Name: Allowed Users

Rule Priority (1-65535): 1

Management Method: All

☑ Interface: VLAN 1

☑ Source IP Address: 192.168.1.0 (X.X.X.X) ● Network Mask 255.255.255.0 (X.X.X.X) ○ Prefix Length 24 (/XX)

Action: Permit

Figure 5-23: ACL - Add Access Profile

Source IP Address. This is the interface source IP address to which the rule applies.

Network Mask. This is the IP subnetwork mask (or subnet mask).

Prefix Length. This is the number of bits that comprise the source IP address prefix or network mask of the source IP address.

Action. This indicates whether to permit or deny management access per device.

Click the **Submit** button to save your changes.

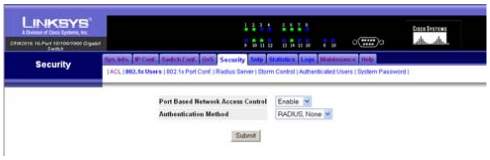
Security Tab - 802.1x Users

The *802.1x Users* screen allows you to enable port-based authentication and specify the authentication method you want to use.

Port Based Network Access Control. Enable or disable port-based network access on the Switch.

Authentication Method. Select the authentication method you want to use, **RADIUS, None**; **RADIUS**; or **None**. For the RADIUS, None method, port authentication is performed first via RADIUS (Remote Authentication Dial In User Service). If the RADIUS server cannot be reached, then no authentication method is used. However, if a failure occurs, the port remains unauthorized and access is not granted. If you want the authentication to occur at the RADIUS server, select **RADIUS**. If you do not want to use an authentication method, then select **None**.

Click the **Submit** button to save your changes.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Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| ACL | 802.1x Users | 802.1x Port Conf. | Radius Server | Storm Control | Authenticated Users | System Password |
Submit

Port Based Network Access Control: Enable
Authentication Method: RADIUS, None

Figure 5-24: Security - 802.1x Users

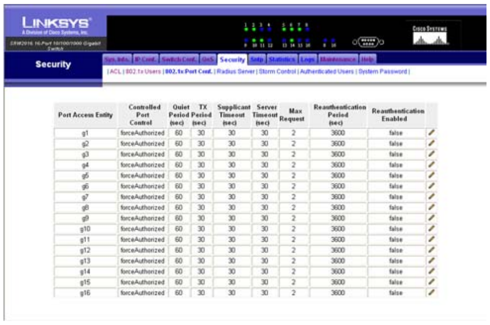
Security Tab - 802.1x Port Conf. (Configuration)

The *802.1x Port Configuration* screen lists the Switch's 802.1x ports and allows you to configure the authentication settings per port. This authentication method uses a RADIUS server and the Extensible Authentication Protocol (EAP).

Port Access Entity. This is the port name.

Controlled Port Control. This is the state of the port authorization. Traffic is forwarded if the state is forceAuthorized. Traffic is discarded if the state is forceUnauthorized. If the state is Auto, then that means the controlled port state is set by the authentication method.

Quiet Period. This is the number of seconds the Switch remains in the quiet state after an authentication exchange has failed.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Switch Conf.
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Security
Snmp
Statistics
Logs
Maintenance
Help
| ACL | 802.1x Users | 802.1x Port Conf. | Radius Server | Storm Control | Authenticated Users | System Password |

Port Access Entity	Controlled Port Control	Quiet Period (sec)	TX Period (sec)	Supplicant Timeout (sec)	Server Timeout (sec)	Max Request	Reauthentication Period (sec)	Reauthentication Enabled	
g1	forceAuthorized	60	30	30	30	2	3600	false	✎
g2	forceAuthorized	60	30	30	30	2	3600	false	✎
g3	forceAuthorized	60	30	30	30	2	3600	false	✎
g4	forceAuthorized	60	30	30	30	2	3600	false	✎
g5	forceAuthorized	60	30	30	30	2	3600	false	✎
g6	forceAuthorized	60	30	30	30	2	3600	false	✎
g7	forceAuthorized	60	30	30	30	2	3600	false	✎
g8	forceAuthorized	60	30	30	30	2	3600	false	✎
g9	forceAuthorized	60	30	30	30	2	3600	false	✎
g10	forceAuthorized	60	30	30	30	2	3600	false	✎
g11	forceAuthorized	60	30	30	30	2	3600	false	✎
g12	forceAuthorized	60	30	30	30	2	3600	false	✎
g13	forceAuthorized	60	30	30	30	2	3600	false	✎
g14	forceAuthorized	60	30	30	30	2	3600	false	✎
g15	forceAuthorized	60	30	30	30	2	3600	false	✎
g16	forceAuthorized	60	30	30	30	2	3600	false	✎

Figure 5-25: Security - 802.1x Port Configuration

TX Period. This is the number of seconds the Switch waits for a response to an EAP request/identity frame, before resending the request.

Supplicant Timeout. This is the number of seconds that the Switch waits before EAP requests are resent to the client.

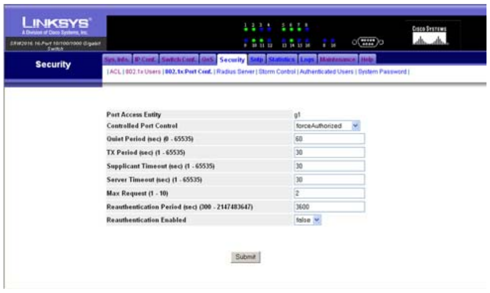
Server Timeout. This is the number of seconds that the Switch waits before it resends a request to the RADIUS server.

Max Request. This is the total number of EAP requests sent. If a response is not received in time, the authentication process is restarted.

Reauthentication Period. This is the number of seconds that the Switch waits before initiating the reauthentication process.

Reauthentication Enabled. True indicates that reauthentication is automatic, while false indicates that reauthentication is manual.

To modify the settings for an 802.1x port, click the port's pencil icon. On the new screen that appears, you can modify the port settings.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Snmp
Statistics
Logs
Maintenance
Help
| ACL | 802.1x Users | 802.1x Port Conf. | Radius Server | Storm Control | Authenticated Users | System Password |
Submit

Port Access Entity	g1
Controlled Port Control	forceAuthorized
Quiet Period (sec) (0 - 65535)	60
TX Period (sec) (1 - 65535)	30
Supplicant Timeout (sec) (1 - 65535)	30
Server Timeout (sec) (1 - 65535)	30
Max Request (1 - 10)	2
Reauthentication Period (sec) (300 - 2147483647)	3600
Reauthentication Enabled	false

Figure 5-26: 802.1x Port Configuration - Change Settings

Port Access Entity. This is the port name.

Controlled Port Control. Select **forceAuthorized** if you want traffic to be forwarded. Select **forceUnauthorized** if you want traffic to be discarded. Select **Auto** if you want the controlled port state set by the authentication method.

Quiet Period. Enter the number of seconds the Switch remains in the quiet state after an authentication exchange has failed.

TX Period. Enter the number of seconds the Switch waits for a response to an EAP request/identity frame, before resending the request.

Supplicant Timeout. Enter the number of seconds that the Switch waits before EAP requests are resent to the client.

Server Timeout. Enter the number of seconds that the Switch waits before it resends a request to the RADIUS server.

Max Request. Enter the total number of EAP requests sent. If a response is not received in time, the authentication process is restarted.

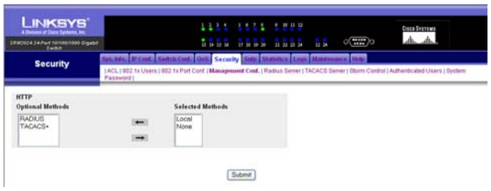
Reauthentication Period. Enter the number of seconds that the Switch waits before initiating the reauthentication process.

Reauthentication Enabled. If you want reauthentication to proceed automatically, then select **true**. Otherwise, select **false**.

Click the **Submit** button to save your changes.

Security Tab - Management Conf. (Configuration)

Available only for the 24-Port Switch, the *Management Configuration* screen allows you to assign authentication profiles to management methods.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Switch Conf.
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Maintenance
Help
| ACL | 802.1x Users | 802.1x Port Conf. | Management Conf. | Radius Server | TACACS Server | Storm Control | Authenticated Users | System Password |
←
→
Submit

HTTP

Optional Methods	Selected Methods
RADIUS TACACS+	Local None

Figure 5-27: Security - Management Configuration

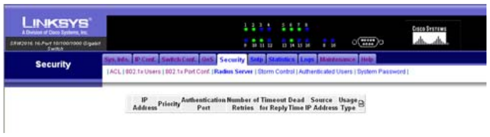
HTTP Optional Methods. The choices are None, Local, RADIUS, and TACACS+. None indicates that no authentication method is used. Local indicates that authentication occurs locally, using a username and password. RADIUS uses authentication via a RADIUS server. TACACS+ uses authentication via a TACACS+ server.

Selected Methods. To select a method, select a method in the *HTTP Optional Methods* column. Then click the right arrow button. To deselect a method, select a method in the *Selected Methods* column. Then click the left arrow button.

Click the **Submit** button to save your changes.

Security Tab - RADIUS Server

The *RADIUS Server* screen lists the RADIUS servers used for authentication. You can use this screen to access a server's settings.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Switch Conf.
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Snmp
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Logs
Maintenance
Help
| ACL | 802.1x Users | 802.1x Port Conf. | Radius Server | Storm Control | Authenticated Users | System Password |

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

Figure 5-28: Security - RADIUS Server

IP Address. This is the IP address of the RADIUS server.

Priority. This is the server priority, which is used to configure the server query order.

Authentication Port. This is the authentication port used to verify the RADIUS server authentication.

Number of Retries. This is the number of requests sent to the RADIUS server before a failure occurs.

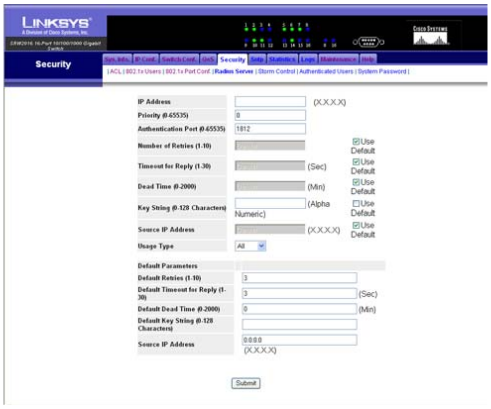
Timeout for Reply. This is the number of seconds the Switch waits for an answer from the RADIUS server before retrying the query or switching to the next server.

Dead Time. This is the number of minutes that a RADIUS server is bypassed for service requests.

Source IP Address. This is the source IP address used for communication with the RADIUS server.

Usage Type. This is the RADIUS server authentication. Log in indicates that the RADIUS server is used for authentication of usernames and passwords, while 802.1x indicates that the RADIUS server is used for 802.1x authentication. All indicates that the RADIUS server is used for authentication of usernames and passwords, as well as 802.1x authentication.

To add a RADIUS server, click the paper and pencil icon. On the new screen that appears, you can configure its settings. To modify the settings of a RADIUS server, click the server's pencil icon. On the new screen that appears, you can modify its settings.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Maintenance
Help
| ACL | 802.1x Users | 802.1x Port Conf. | Radius Server | Storm Control | Authenticated Users | System Password |

IP Address		(X.X.X.X)	
Priority (0-65535)	0		
Authentication Port (0-65535)	1812		
Number of Retries (1-10)			☑Use Default
Timeout for Reply (1-30)		(Sec)	☑Use Default
Dead Time (0-2000)		(Min)	☑Use Default
Key String (0-128 Characters)		(Alpha Numeric)	□Use Default
Source IP Address		(X.X.X.X)	☑Use Default
Usage Type	All		
Default Parameters			
Default Retries (1-10)	3		
Default Timeout for Reply (1-30)	3	(Sec)	
Default Dead Time (0-2000)	0	(Min)	
Default Key String (0-128 Characters)			
Source IP Address	0.0.0.0	(X.X.X.X)	

Submit

Figure 5-29: RADIUS Server - Change Settings

IP Address. Enter the IP address of the RADIUS server.

Priority. Enter the server priority.

Authentication Port. Enter the number of the authentication port.

Number of Retries. Enter the number of retries allowed before a failure occurs. To use the default, click the **Use Default** checkbox.

Timeout for Reply. Enter the number of seconds the Switch waits for an answer from the RADIUS server before retrying the query or switching to the next server. To use the default, click the **Use Default** checkbox.

Dead Time. Enter the number of minutes that a RADIUS server is bypassed for service requests. To use the default, click the **Use Default** checkbox.

Key String. Enter the pre-shared key in this field. To use the default, click the **Use Default** checkbox.

Source IP Address. Enter the source IP address used for communication with the RADIUS server. To use the default, click the **Use Default** checkbox.

Usage Type. This is the RADIUS server authentication. Select **Log in** if you want the RADIUS server used for authentication of usernames and passwords. Select **802.1x** if you want the RADIUS server used for 802.1x authentication. Select **All** if you want the RADIUS server used for authentication of usernames and passwords, as well as 802.1x authentication.

Default Parameters

Default Retries. Enter the number of retries allowed before a failure occurs. To use the default, click the **Use Default** checkbox.

Default Timeout for Reply. Enter the default number of seconds the Switch waits for an answer from the RADIUS server before retrying the query or switching to the next server.

Default Dead Time. Enter the default number of minutes that a RADIUS server is bypassed for service requests.

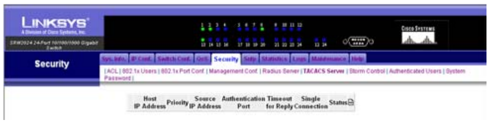
Default Key String. Enter the default pre-shared key in this field.

Source IP Address. Enter the default source IP address used for communication with the RADIUS server.

Click the **Submit** button to save your changes.

Security Tab - TACACS Server

Available only for the 24-Port Switch, the *TACACS Server* screen lists the TACACS+ servers used for authentication. TACACS+ performs authentication via username and password, as well as authorization. You can use this screen to access a server's settings.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Switch Conf.
QoS
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Sntp
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Logs
Maintenance
Help
| ACL | 802.1x Users | 802.1x Port Conf. | Management Conf. | Radius Server | TACACS Server | Storm Control | Authenticated Users | System Password |

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

Figure 5-30: Security - TACACS Server

Host IP Address. This is the IP address of the TACACS+ server.

Priority. This is the order in which the TACACS+ servers are used.

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

Authentication Port. This is the authentication port through which the TACACS+ session occurs.

Timeout for Reply. This is the number of seconds allowed before the connection between the device and the TACACS+ server times out.

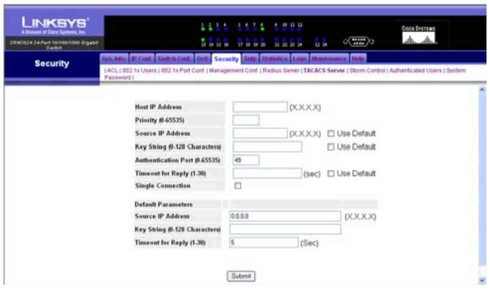
Single Connection. This indicates whether you want a single connection between the device and the TACACS+ server to stay open.

Status. This is the connection status between the device and the TACACS+ server.

To add a TACACS+ server, click the paper and pencil icon. On the new screen that appears, you can configure its settings. To modify the settings of a TACACS+ server, click the server's pencil icon. On the new screen that appears, you can modify its settings.

Host IP Address. Enter the IP address of the TACACS+ server.

Priority. Enter the priority number of the TACACS+ server.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Statistics
Logs
Maintenance
Help
| ACL | 802.1x Users | 802.1x Port Conf. | Management Conf. | Radius Server | TACACS Server | Storm Control | Authenticated Users | System Password |
Submit

Host IP Address	(X.X.X.X)	
Priority (0-65535)		
Source IP Address	(X.X.X.X)	□ Use Default
Key String (0-128 Characters)		□ Use Default
Authentication Port (0-65535)	49	
Timeout for Reply (1-30)	(sec)	□ Use Default
Single Connection	□	
Default Parameters		
Source IP Address	0.0.0.0 (X.X.X.X)	
Key String (0-128 Characters)		
Timeout for Reply (1-30)	5 (Sec)	

Figure 5-31: TACACS Server - Change Settings

Source IP Address. Enter the source IP address used for the session between the device and the TACACS+ server. To use the default, click the **Use Default** checkbox.

Key String. Enter the key used for authentication and encryption. This must match the key used on the TACACS+ server. To use the default, click the **Use Default** checkbox.

Authentication Port. Enter the number of the port through which the TACACS+ session occurs.

Timeout for Reply. Enter the number of seconds allowed before the connection between the device and the TACACS+ server times out.

Single Connection. If you click the checkbox, then a single connection between the device and the TACACS+ server stays open.

Number of Retries. Enter the number of retries allowed before a failure occurs. To use the default, click the **Use Default** checkbox.

Default Parameters

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

Key String. Enter the default key used for authentication and encryption.

Timeout for Reply. Enter the default number of seconds the Switch waits for an answer from the RADIUS server before retrying the query or switching to the next server.

Click the **Submit** button to save your changes.

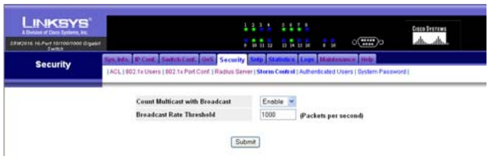
Security Tab - Storm Control

The *Storm Control* screen allows you to enable or disable Storm Control, which limits the number of multicast and broadcast frames accepted and forwarded by the Switch.

Count Multicast with Broadcast. If you enable this feature, then broadcast and multicast traffic is counted. If you disable this feature, then only broadcast traffic is counted.

Broadcast Rate Threshold. Enter the maximum rate at which broadcast packets are forwarded.

Click the **Submit** button to save your changes.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Cisco Systems
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Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Snmp | Statistics | Logs | Maintenance | Help
| ACL | 802.1x Users | 802.1x Port Conf. | Radius Server | Storm Control | Authenticated Users | System Password |
Submit

Count Multicast with Broadcast: Enable
Broadcast Rate Threshold: 1000 (Packets per second)

Figure 5-32: Security - Storm Control

Security Tab - Authenticated Users

The *Authenticated Users* screen shows the user port access lists.

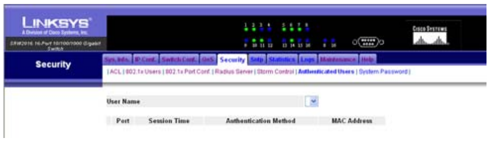
User Name. Use this drop-down list to view the users who were authenticated and are permitted on each port.

Port. This is the port number.

Session Time. This is the number of seconds the user was logged on the port.

Authentication Method. This is the authentication method used during the most recent session. Remote indicates that the port is forceauthorized. None indicates that no authentication method was used. RADIUS indicates authentication by a RADIUS server.

MAC Address. Displayed here is the MAC address of the user.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| ACL | 802.1x Users | 802.1x Port Conf. | Radius Server | Storm Control | Authenticated Users | System Password |

User Name

Port	Session Time	Authentication Method	MAC Address

Figure 5-33: Security - Authenticated Users

Security Tab - System Password

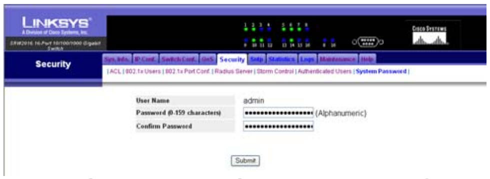
The *System Password* screen lets you set a password for access to the Switch.

User Name. The User Name is automatically displayed.

Password. Enter the system password for this user.

Confirm Password. Enter the same system password in this field.

Click the **Submit** button to save your changes.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Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Sntp | Statistics | Logs | Maintenance | Help
| ACL | 802.1x Users | 802.1x Port Conf. | Radius Server | Storm Control | Authenticated Users | System Password |
Submit

User Name: admin
Password (0-159 characters): •••••••••••••••••• (Alphanumeric)
Confirm Password: ••••••••••••••••••

Figure 5-34: Security - System Password

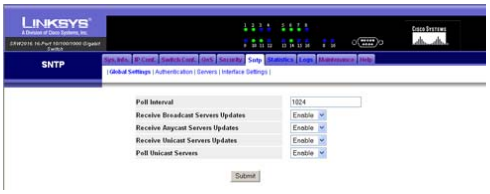
SNTP Tab - Global Settings

The *Global Settings* screen lets you set the Simple Network Time Protocol (SNTP) settings. SNTP makes possible accurate time synchronization by a network SNTP server for network devices. Using SNTP, the Switch is synchronized with the rest of the network and set with the correct time.

Poll Interval. Enter the interval (in seconds) at which the SNTP server is polled for unicast information.

Receive Broadcast Servers Updates. If enabled, the Switch listens to the SNTP servers for broadcast server time information on selected interfaces.

Receive Anycast Servers Updates. If enabled, the Switch polls the SNTP server for anycast server time information.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SNTP
Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Sntp | Statistics | Logs | Maintenance | Help
| Global Settings | Authentication | Servers | Interface Settings |
Submit

Poll Interval	1024
Receive Broadcast Servers Updates	Enable
Receive Anycast Servers Updates	Enable
Receive Unicast Servers Updates	Enable
Poll Unicast Servers	Enable

Figure 5-35: SNTP - Global Settings

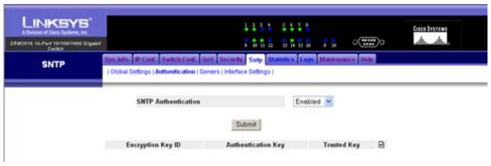
Receive Unicast Servers Updates. If enabled, the Switch polls the SNTP server for unicast server time information.

Poll Unicast Servers. If enabled, the Switch sends SNTP unicast forwarding information to the SNTP server.

Click the **Submit** button to save your changes.

SNTP Tab - Authentication

The Authentication screen lists the keys used to authenticate the SNTP server.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Cisco Systems
SNTP
Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Sntp | Statistics | Logs | Maintenance | Help
| Global Settings | Authentication | Servers | Interface Settings |
Submit

SNTP Authentication: Enabled

Encryption Key ID	Authentication Key	Trusted Key

Figure 5-36: SNTP - Authentication

SNTP Authentication. Enable or disable authentication of an SNTP session between the Switch and an SNTP server.

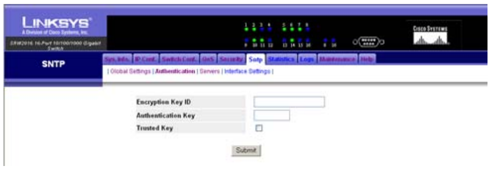
Click the **Submit** button to save your change.

Encryption Key ID. Displayed here is the encryption key used to authenticate the SNTP server and Switch.

Authentication Key. This is the key used for authentication.

Trusted Key. This indicates if there is an encryption key used (unicast/anycast) or elected (broadcast) to authenticate the SNTP server.

To add an entry, click the paper and pencil icon. On the new screen that appears, you can configure its settings. To modify the settings of an entry, click its pencil icon. On the new screen that appears, you can modify its settings.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SNTP
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| Global Settings | Authentication | Servers | Interface Settings |
Submit

Encryption Key ID
Authentication Key
Trusted Key ☐

Figure 5-37: Authentication - Modify Settings

Encryption Key ID. Enter the encryption key used to authenticate the SNTP server and Switch.

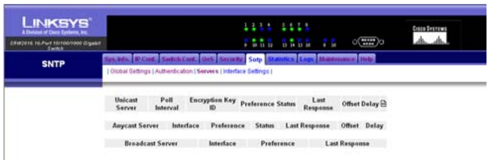
Authentication Key. Enter the key used for authentication.

Trusted Key. If there is an encryption key used (unicast/anycast) or elected (broadcast) to authenticate the SNTP server, then click the checkbox.

Click the **Submit** button to save your changes.

SNTP Tab - Servers

On the *Servers* screen, you can see a list of servers and their settings.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Help
| Global Settings | Authentication | Servers | Interface Settings |

Unicast Server	Poll Interval	Encryption Key ID	Preference	Status	Last Response	Offset	Delay

Anycast Server	Interface	Preference	Status	Last Response	Offset	Delay

Broadcast Server	Interface	Preference	Last Response

Figure 5-38: SNTP - Servers

Unicast Server

Unicast Server. Displayed here is the IP address of the unicast server.

Poll Interval. This is the interval (in seconds) at which the unicast server is polled for unicast information.

Encryption Key ID. This is the encryption key used to authenticate the unicast server and Switch.

Preference. This is the Switch's preference for this particular unicast server.

Status. Displayed here is the status of the unicast server.

Last Response. This describes the last response of the unicast server.

Offset. This is the difference between the Switch's time zone and the server's time zone.

Delay. This shows how long it takes for data from the server to travel to the Switch.

Anycast Server

Anycast Server. Displayed here is the IP address of the anycast server.

Interface. This is the interface that the anycast server uses.

Preference. This is the Switch's preference for this particular anycast server.

Status. Displayed here is the status of the anycast server.

Last Response. This describes the last response of the anycast server.

Offset. This is the difference between the Switch's time zone and the server's time zone.

Delay. This shows how long it takes for data from the server to travel to the Switch.

Broadcast Server

Broadcast Server. Displayed here is the IP address of the broadcast server.

Interface. This is the interface that the broadcast server uses.

Preference. This is the Switch’s preference for this particular broadcast server.

Last Response. This describes the last response of the broadcast server.

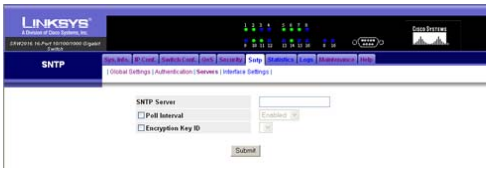
To add an SNTP server, click the paper and pencil icon. On the new screen that appears, you can configure its settings. To modify the settings of an SNTP server, click its pencil icon. On the new screen that appears, you can modify its settings.

SNTP Server. Enter the IP address of an SNTP server. You can have up to eight SNTP servers.

Poll Interval. Enable this feature if you want the Switch to poll the SNTP server for system time information.

Encryption Key ID. Select the encryption key used to communicate between the SNTP server and Switch.

Click the **Submit** button to save your changes.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SNTP
Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Sntp | Statistics | Logs | Maintenance | Help
| Global Settings | Authentication | Servers | Interface Settings |
Submit

SNTP Server

□ Poll Interval — Enabled

□ Encryption Key ID

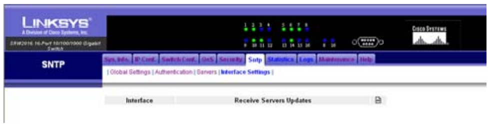
Figure 5-39: Servers - Change Settings

SNTP Tab - Interface Settings

The *Interface Settings* screen shows the SNTP settings for different interfaces.

Interface. This shows the interface on which SNTP can be enabled, either a port, LAG, or VLAN.

Receive Servers Updates. This shows whether or not updates are received.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Cisco Systems
SNTP
Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Sntp | Statistics | Logs | Maintenance | Help
| Global Settings | Authentication | Servers | Interface Settings |

Interface	Receive Servers Updates

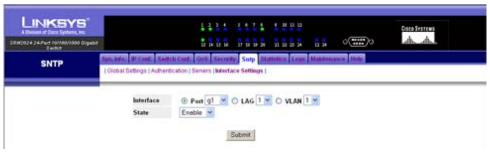
Figure 5-40: SNTP - Interface Settings

To add an interface, click the paper and pencil icon. On the new screen that appears, you can configure its settings. To modify the settings of an interface, click its pencil icon. On the new screen that appears, you can modify its settings.

Interface. Select the appropriate interface, **Port**, **LAG**, or **VLAN**. Then select the appropriate number from the drop-down menu.

State. If you want the interface to receive updates, select **Enable**. Otherwise, select **Disable**.

Click the **Submit** button to save your changes.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Cisco Systems
SNTP
Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Sntp | Statistics | Logs | Maintenance | Help
| Global Settings | Authentication | Servers | Interface Settings |
Submit

Interface — ● Port g1 ○ LAG 1 ○ VLAN 1

State — Enable

Figure 5-41: Interface Settings - Change Settings

Statistics Tab - Interface Statistics

The *Interface Statistics* screen displays statistics for received and transmitted packets.

Interface. Select the appropriate interface, **Port**, **LAG**, or **VLAN**. Then select the appropriate number from the drop-down menu.

Refresh Rate. Select how often you want the interface statistics refreshed.

Receive Statistics

Total Bytes. This is the number of octets received on the selected interface.

Unicast Packets. Displayed here is the number of unicast packets received on the selected interface.

Multicast Packets. Displayed here is the number of multicast packets received on the selected interface.

Broadcast Packets. Displayed here is the number of broadcast packets received on the selected interface.

Packets with Errors. This is the number of error packets received from the selected interface.s

Transmit Statistics

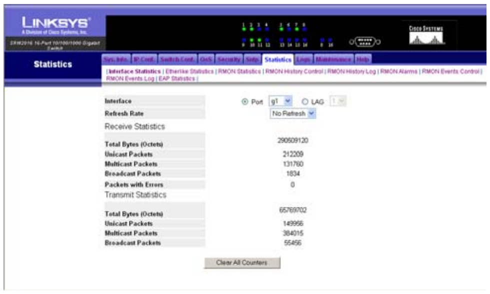
Total Bytes. This is the number of octets transmitted from the selected interface.

Unicast Packets. Displayed here is the number of unicast packets transmitted from the selected interface.

Multicast Packets. Displayed here is the number of multicast packets transmitted from the selected interface.

Broadcast Packets. Displayed here is the number of broadcast packets transmitted from the selected interface.

Click the **Clear All Counters** button to reset all statistics to zero.


LINKSYS
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Statistics
Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Sntp | Statistics | Logs | Maintenance | Help
| Interface Statistics | Etherlike Statistics | RMON Statistics | RMON History Control | RMON History Log | RMON Alarms | RMON Events Control | RMON Events Log | EAP Statistics |
Clear All Counters

Interface ● Port g1 ○ LAG 1
Refresh Rate No Refresh

Receive Statistics

Total Bytes (Octets)	290509120
Unicast Packets	212209
Multicast Packets	131760
Broadcast Packets	1834
Packets with Errors	0

Transmit Statistics

Total Bytes (Octets)	65769702
Unicast Packets	149956
Multicast Packets	384015
Broadcast Packets	55456

Figure 5-42: Statistics - Interface Statistics

Statistics Tab - Etherlike Statistics

The *Etherlike Statistics* screen displays interface statistics.

Interface. Select the appropriate interface, **Port**, **LAG**, or **VLAN**. Then select the appropriate number from the drop-down menu.

Refresh Rate. Select how often you want the interface statistics refreshed.

Frame Check Sequence (FCS) Errors. Displayed here is the number of FCS errors received on the selected interface.

Single Collision Frames. Displayed here is the number of single collision frames received on the selected interface.

Late Collisions. Displayed here is the number of late collision frames received on the selected interface.

Excessive Collisions. Displayed here is the number of excessive collisions received on the selected interface.

Internal MAC Transmit Errors. Displayed here is the number of internal MAC transmit errors on the selected interface.

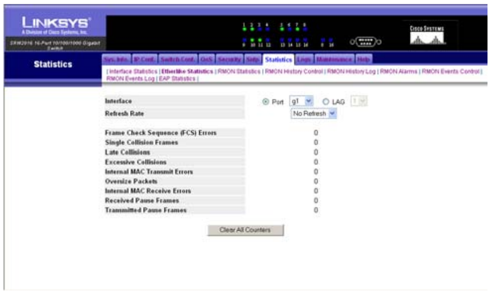
Oversize Packets. Displayed here is the number of oversized packet errors on the selected interface.

Internal MAC Receive Errors. Displayed here is the number of internal MAC received errors on the selected interface.

Received Pause Frames. Displayed here is the number of received paused frames on the selected interface.

Transmitted Pause Frames. Displayed here is the number of paused frames transmitted from the selected interface.

Click the **Clear All Counters** button to reset all statistics to zero.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Switch Conf.
QoS
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Sntp
Statistics
Logs
Maintenance
Help
| Interface Statistics | Etherlike Statistics | RMON Statistics | RMON History Control | RMON History Log | RMON Alarms | RMON Events Control | RMON Events Log | EAP Statistics |
Clear All Counters

Interface	● Port g1 ○ LAG 1
Refresh Rate	No Refresh
Frame Check Sequence (FCS) Errors	0
Single Collision Frames	0
Late Collisions	0
Excessive Collisions	0
Internal MAC Transmit Errors	0
Oversize Packets	0
Internal MAC Receive Errors	0
Received Pause Frames	0
Transmitted Pause Frames	0

Figure 5-43: Statistics - Etherlike Statistics

Statistics Tab - RMON Statistics

The *RMON Statistics* screen displays information about the Switch's use and errors. (RMON stands for Remote Monitoring.)

Interface. Select the appropriate interface, **Port**, **LAG**, or **VLAN**. Then select the appropriate number from the drop-down menu.

Refresh Rate. Select how often you want the interface statistics refreshed.

Drop Events. This is the number of dropped events that have occurred on the interface since the Switch was last refreshed.

Received Bytes. This is the number of octets received on the interface since the Switch was last refreshed. (This number excludes framing bits.)

Received Packets. This is the number of packets received on the interface since the Switch was last refreshed.

Broadcast Packets Received. This is the number of good broadcast packets received on the interface since the Switch was last refreshed. (This number excludes multicast packets.)s

Multicast Packets Received. This is the number of good multicast packets received on the interface since the Switch was last refreshed.

CRC & Align Errors. This is the number of CRC and Align errors that have occurred on the interface since the Switch was last refreshed.

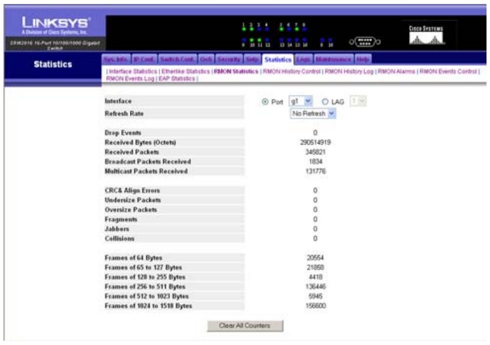
Undersize Packets. This is the number of undersized packets (fewer than 64 octets) received on the interface since the Switch was last refreshed.

Oversize Packets. This is the number of oversized packets (over 1518 packets) received on the interface since the Switch was last refreshed.

Fragments. This is the number of fragments (packets with fewer than 64 octets, excluding framing bits) received on the interface since the Switch was last refreshed.

Jabbers. This is the total number of received packets that were longer than 1518 octets. (This number excludes framing bits.)

Collisions. This is the number of collisions received on the interface since the Switch was last refreshed.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Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Snmp | Statistics | Logs | Maintenance | Help
| Interface Statistics | Etherlike Statistics | RMON Statistics | RMON History Control | RMON History Log | RMON Alarms | RMON Events Control | RMON Events Log | EAP Statistics |

Interface	● Port g1 ○ LAG 1
Refresh Rate	No Refresh
Drop Events	0
Received Bytes (Octets)	290514919
Received Packets	345821
Broadcast Packets Received	1834
Multicast Packets Received	131776
CRC& Align Errors	0
Undersize Packets	0
Oversize Packets	0
Fragments	0
Jabbers	0
Collisions	0
Frames of 64 Bytes	20554
Frames of 65 to 127 Bytes	21858
Frames of 128 to 255 Bytes	4418
Frames of 256 to 511 Bytes	136446
Frames of 512 to 1023 Bytes	5945
Frames of 1024 to 1518 Bytes	156600

Figure 5-44: Statistics - RMON Statistics

Frames of 64 Bytes. This is the number of 64-byte frames received on the interface since the Switch was last refreshed.

Frames of 65 to 127 Bytes. This is the number of 65- to 127-byte frames received on the interface since the Switch was last refreshed.

Frames of 128 to 255 Bytes. This is the number of 128- to 255-byte frames received on the interface since the Switch was last refreshed.

Frames of 256 to 511 Bytes. This is the number of 256- to 511-byte frames received on the interface since the Switch was last refreshed.

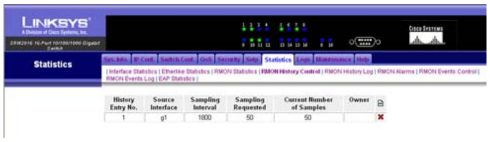
Frames of 512 to 1023 Bytes. This is the number of 512- to 1023-byte frames received on the interface since the Switch was last refreshed.

Frames of 1024 to 1518 Bytes. This is the number of 1024- to 1518-byte frames received on the interface since the Switch was last refreshed.

Click the **Clear All Counters** button to reset all statistics to zero.

Statistics Tab - RMON History Control

The *RMON History Control* screen contains information about samples of data taken from ports.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History Entry No.	Source Interface	Sampling Interval	Sampling Requested	Current Number of Samples	Owner	
1	g1	1800	50	50		✖

Figure 5-45: Statistics - RMON History Control

History Entry No. This is the entry number for a RMON History entry.

Source Interface. This is the interface from which the history samples were taken, either a port or LAG.

Sampling Interval. This is the time during which samples were taken from the ports.

Sampling Requested. This is the number of samples requested.

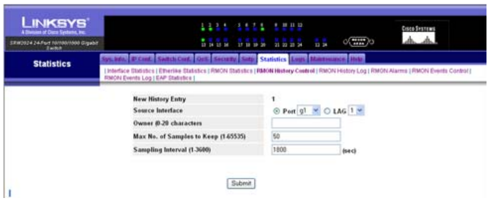
Current Number of Samples. This is the current number of samples.

Owner. This is the user who requested the RMON information.

To delete an entry, click its X icon.

To add an entry, click the paper and pencil icon. On the new screen that appears, you can configure its settings.

New History Entry. The entry number is automatically displayed.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Submit

New History Entry	1
Source Interface	● Port g1 ○ LAG 1
Owner (0-20 characters)	
Max No. of Samples to Keep (1-65535)	50
Sampling Interval (1-3600)	1800 (sec)

Figure 5-46: RMON History Control - Add Entry

Source Interface. Select the source interface, either a port or LAG. Then select the appropriate number from the drop-down menu.

Owner. Enter the name of the user.

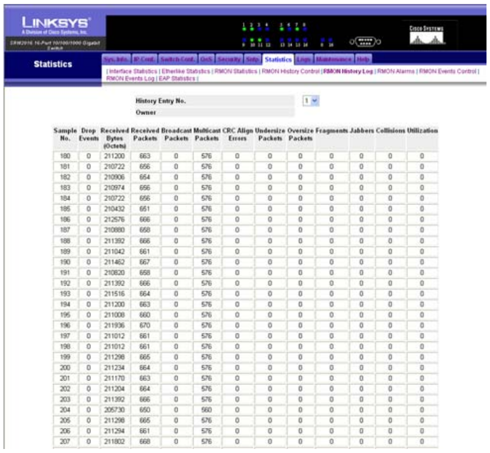
Max No. of Samples to Keep. Specify the maximum number of samples to keep for this entry.

Sampling Interval. Enter the number of seconds during which samples should be taken from the ports.

Click the **Submit** button to save your changes.

Statistics Tab - RMON History Log

The *RMON History Log* screen shows interface-specific statistics involving network sampling. Each entry has statistics from a single sample.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| Interface Statistics | Etherlike Statistics | RMON Statistics | RMON History Control | RMON History Log | RMON Alarms | RMON Events Control | RMON Events Log | EAP Statistics |

History Entry No.	1
Owner	

Sample No.	Drop Events	Received Bytes (Octets)	Received Packets	Broadcast Packets	Multicast Packets	CRC Align Errors	Undersize Packets	Oversize Packets	Fragments	Jabbers	Collisions	Utilization
180	0	211200	663	0	576	0	0	0	0	0	0	0
181	0	210722	656	0	576	0	0	0	0	0	0	0
182	0	210906	654	0	576	0	0	0	0	0	0	0
183	0	210974	656	0	576	0	0	0	0	0	0	0
184	0	210722	656	0	576	0	0	0	0	0	0	0
185	0	210432	651	0	576	0	0	0	0	0	0	0
186	0	212576	666	0	576	0	0	0	0	0	0	0
187	0	210880	658	0	576	0	0	0	0	0	0	0
188	0	211392	666	0	576	0	0	0	0	0	0	0
189	0	211042	661	0	576	0	0	0	0	0	0	0
190	0	211462	667	0	576	0	0	0	0	0	0	0
191	0	210820	658	0	576	0	0	0	0	0	0	0
192	0	211392	666	0	576	0	0	0	0	0	0	0
193	0	211516	664	0	576	0	0	0	0	0	0	0
194	0	211200	663	0	576	0	0	0	0	0	0	0
195	0	211008	660	0	576	0	0	0	0	0	0	0
196	0	211936	670	0	576	0	0	0	0	0	0	0
197	0	211012	661	0	576	0	0	0	0	0	0	0
198	0	211012	661	0	576	0	0	0	0	0	0	0
199	0	211298	665	0	576	0	0	0	0	0	0	0
200	0	211234	664	0	576	0	0	0	0	0	0	0
201	0	211170	663	0	576	0	0	0	0	0	0	0
202	0	211204	664	0	576	0	0	0	0	0	0	0
203	0	211392	666	0	576	0	0	0	0	0	0	0
204	0	205730	650	0	560	0	0	0	0	0	0	0
205	0	211298	665	0	576	0	0	0	0	0	0	0
206	0	211294	661	0	576	0	0	0	0	0	0	0
207	0	211802	668	0	576	0	0	0	0	0	0	0

Figure 5-47: Statistics - RMON History Log

History Entry No. Select the history entry whose statistics you want to view.

Owner. This is the user who requested this sampling.

Sample No. This is the sample number from which the statistics were taken.

Drop Events. This is the number of dropped events that have occurred on the interface since the Switch was last refreshed.

Received Bytes. This is the number of octets received on the interface since the Switch was last refreshed. This excludes framing bits.

Received Packets. This is the number of packets received on the interface since the Switch was last refreshed.

Broadcast Packets. This is the number of good broadcast packets receive on the interface since the Switch was last refreshed.

Multicast Packets. This is the number of good multicast packets received on the interface since the Switch was last refreshed.

CRC Align Errors. This is the number of CRC and Align errors that occurred on the interface since the Switch was last refreshed.

Undersize Packets. This is the number of undersized packets (fewer than 64 octets) received on the interface since the Switch was last refreshed.

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

Fragments. This is the number of fragments (packets with fewer than 64 octets, excluding framing bits) received on the interface since the Switch was last refreshed.

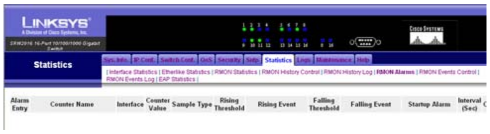
Jabbers. This is the total number of received packets that were longer than 1518 octets. (This number excludes frame bits.)

Collisions. This is the number of collisions received on the interface since the Switch was last refreshed.

Utilization. This is the percentage of packet utilization across the entire Switch.

Statistics Tab - RMON Alarms

The *RMON Alarms* screen displays the network alarms you have set. When the network experiences problems or events, such as rising and falling thresholds, then a network alarm will occur.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RMON Events Log | EAP Statistics |

Alarm Entry	Counter Name	Interface	Counter Value	Sample Type	Rising Threshold	Rising Event	Falling Threshold	Falling Event	Startup Alarm	Interval (Sec)	C

Figure 5-48: Statistics - RMON Alarms

Alarm Entry. This identifies a specific alarm.

Counter Name. This is the selected MIB (Management Information Base) variable; for example, this can be the total number of octets received, the number of unicast packets transmitted, the number of pause frames received, the number of oversize packets.

Interface. This is the interface for which RMON statistics are displayed, either a port or LAG.

Counter Value. This is the value of the selected MIB variable.

Sample Type. This is the sampling method for the selected variable, Delta, which subtracts the last sampled value from the current value and then compares the difference to the threshold, or Absolute, which compares values directly with the thresholds at the end of the sampling interval.

Rising Threshold. This is the rising counter value that triggers the rising threshold alarm.

Rising Event. This is how alarms are reported, by Log, Trap, or Log and Trap.

Falling Threshold. This is the falling counter value that triggers the falling threshold alarm.

Falling Event. This is how alarms are reported, by Log, Trap, or Log and Trap.

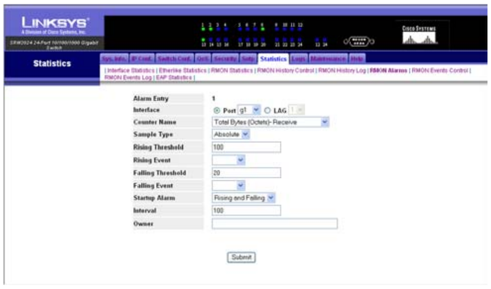
Startup Alarm. This is the trigger that activates the alarm generation.

Interval. This is the alarm interval, measured in seconds.

Owner. This is the user who requested this alarm.

To delete an entry, click its X icon.

To add an entry, click the paper and pencil icon. On the new screen that appears, you can configure its settings.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| Interface Statistics | Etherlike Statistics | RMON Statistics | RMON History Control | RMON History Log | RMON Alarms | RMON Events Control | RMON Events Log | EAP Statistics |

Alarm Entry	1
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 and Falling
Interval	100
Owner	

Figure 5-49: RMON Alarms - Add Entry

Alarm Entry. This is the number of the alarm entry.

Interface. Select the interface for which RMON statistics are displayed, either a port or LAG. Then select the appropriate number from the drop-down menu.

Counter Name. Select the MIB (Management Information Base) variable from the drop-down menu.

Sample Type. Select the sampling method, **Delta**, which subtracts the last sampled value from the current value and then compares the difference to the threshold, or **Absolute**, which compares values directly with the thresholds at the end of the sampling interval.

Rising Threshold. Enter the rising counter value that triggers the rising threshold alarm.

Rising Event. Select how alarms are reported, **Log**, **Trap**, or **Log and Trap**.

Falling Threshold. Enter the falling counter value that triggers the falling threshold alarm.

Falling Event. Select how alarms are reported, **Log**, **Trap**, or **Log and Trap**.

Startup Alarm. Select the trigger that activates the alarm generation.

Interval. Enter the alarm interval, measured in seconds.

Owner. Enter the name of the user who requested this alarm.

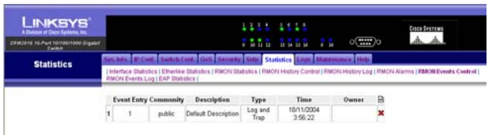
Click the **Submit** button to save your changes.

Statistics Tab - RMON Events Control

The *RMON Events Control* screen shows the RMON events you have configured.

Event Entry. This identifies the event.

Community. This is the community to which the event belongs.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Snmp
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Maintenance
Help
| Interface Statistics | Etherlike Statistics | RMON Statistics | RMON History Control | RMON History Log | RMON Alarms | RMON Events Control | RMON Events Log | EAP Statistics |

	Event Entry	Community	Description	Type	Time	Owner	🗎
1	1	public	Default Description	Log and Trap	18/11/2004 3:56:22		✖

Figure 5-50: Statistics - RMON Events Control

Description. This is the description of the event.

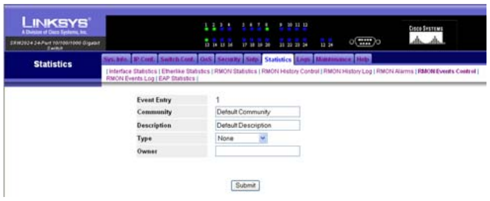
Type. This is the event type, Log, Trap, Log and Trap, or None. Log indicates that the event is a log entry. Trap indicates that the event is a trap. An event can be both a log entry and a trap. None indicates that no event has occurred.

Time. This is the time at which the event occurred.

Owner. This is the user that defined the event.

To delete an entry, click its X icon.

To add an entry, click the paper and pencil icon. On the new screen that appears, you can configure its settings.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| Interface Statistics | Etherlike Statistics | RMON Statistics | RMON History Control | RMON History Log | RMON Alarms | RMON Events Control | RMON Events Log | EAP Statistics |
Submit

Event Entry 1

Community Default Community

Description Default Description

Type None

Owner

Figure 5-51: RMON Events Control - Add Entry

Event Entry. This is the number of the event.

Community. Enter the name of the event's community.

Description. Describe the event in this field.

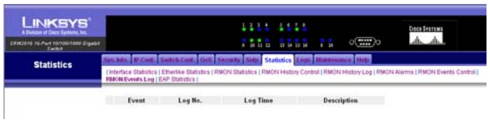
Type. Select the event type, **Log**, **Trap**, **Log and Trap**, or **None**. Log indicates that the event is a log entry. Trap indicates that the event is a trap. An event can be both a log entry and a trap. None indicates that no event has occurred.

Owner. Enter the name of the user defining this event.

Click the **Submit** button to save your changes.

Statistics Tab - RMON Events Log

The *RMON Events Log* screen displays a list of RMON events.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| Interface Statistics | Etherlike Statistics | RMON Statistics | RMON History Control | RMON History Log | RMON Alarms | RMON Events Control | RMON Events Log | EAP Statistics |

Event	Log No.	Log Time	Description

Figure 5-52: Statistics - RMON Events Log

Event. This is the number of the RMON Event Log entry.

Log No. This is the log number.

Log Time. This is the time when the log entry was entered.

Description. This is the description of the log entry.

Statistics Tab - EAP Statistics

The *EAP Statistics* screen displays information about EAP packets received on a specific port.

Port. Select the port you want to poll for statistics.

Refresh Rate. Select how often you want the EAP statistics to be refreshed.

Frames Receive. Displayed here is the number of valid EAPOL (Extensible Authentication Protocol Over Local Area Network) frames received on the port.

Frames Transmit. Displayed here is the number of EAPOL frames transmitted on the port.

Start Frames Receive. Displayed here is the number of EAPOL Start frames received on the port.

Log off Frames Receive. Displayed here is the number of EAPOL Logoff frames received on the port.

Respond ID Frames Receive. Displayed here is the number of EAP Respond/ID frames received on the port.

Respond Frames Receive. Displayed here is the number of valid EAP Response frames received on the port.

Request ID Frames Transmit. Displayed here is the number of EAP Request/ID frames transmitted on the port.

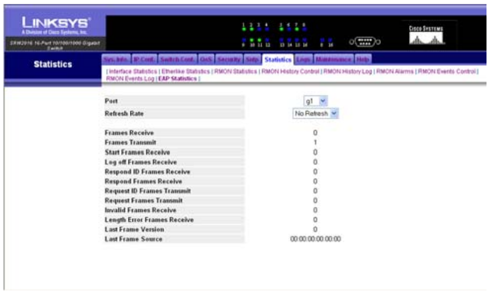
Request Frames Transmit. Displayed here is the number of EAP Request frames transmitted on the port.

Invalid Frames Receive. Displayed here is the number of unrecognized EAPOL frames received on the port.

Length Error Frames Receive. Displayed here is the number of EAPOL frames with an invalid Packet Body Length received on the port.

Last Frame Version. This is the protocol version number attached to the most recently received EAPOL frame.

Last Frame Source. This is the source MAC address attached to the most recently received EAPOL frame.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| Interface Statistics | Etherlike Statistics | RMON Statistics | RMON History Control | RMON History Log | RMON Alarms | RMON Events Control | RMON Events Log | EAP Statistics |

Port	g1
Refresh Rate	No Refresh
Frames Receive	0
Frames Transmit	1
Start Frames Receive	0
Log off Frames Receive	0
Respond ID Frames Receive	0
Respond Frames Receive	0
Request ID Frames Transmit	0
Request Frames Transmit	0
Invalid Frames Receive	0
Length Error Frames Receive	0
Last Frame Version	0
Last Frame Source	00:00:00:00:00:00

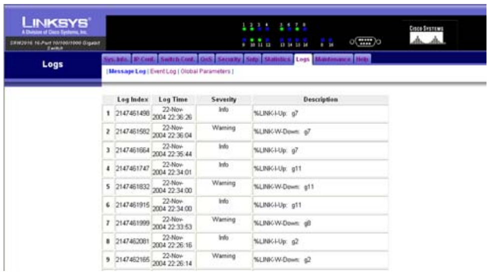
Figure 5-53: Statistics - EAP Statistics

Logs Tab - Message Log

The *Message Log* screen shows information about log entries saved to the Log file in flash memory.

(log number). This is the number of the log entry in the Message Log.

Log Index. This is the log number.


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Logs
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Sntp
Statistics
Logs
Maintenance
Help
| Message Log | Event Log | Global Parameters |

	Log Index	Log Time	Severity	Description
1	2147461498	22-Nov-2004 22:36:26	Info	%LINK-I-Up: g7
2	2147461582	22-Nov-2004 22:36:04	Warning	%LINK-W-Down: g7
3	2147461664	22-Nov-2004 22:35:44	Info	%LINK-I-Up: g7
4	2147461747	22-Nov-2004 22:34:01	Info	%LINK-I-Up: g11
5	2147461832	22-Nov-2004 22:34:00	Warning	%LINK-W-Down: g11
6	2147461915	22-Nov-2004 22:34:00	Info	%LINK-I-Up: g11
7	2147461999	22-Nov-2004 22:33:53	Warning	%LINK-W-Down: g8
8	2147462081	22-Nov-2004 22:26:16	Info	%LINK-I-Up: g2
9	2147462165	22-Nov-2004 22:26:14	Warning	%LINK-W-Down: g2

Figure 5-54: Logs - Message Log

Log Time. Displayed here are the date and time at which the log was generated.

Severity. This is the severity level of the log.

Description. Displayed here is the log message text.

Click the **Clear Logs** button to clear the logs on this screen.

Logs Tab - Event Log

The *Event Log* screen shows information about all system logs that are saved in RAM. These logs are listed in chronological order.

(log number). This is the number of the log entry in the Event Log.

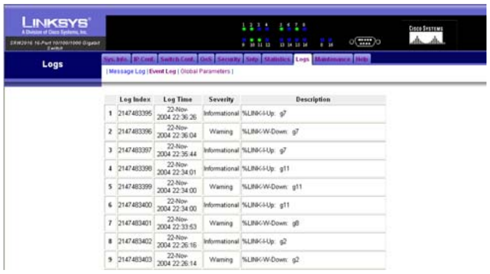
Log Index. This is the log number.

Log Time. Displayed here are the date and time at which the log was generated.

Severity. This is the severity level of the log.

Description. Displayed here is the log message text.

Click the **Clear Logs** button to clear the logs on this screen.


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Logs
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Message Log | Event Log | Global Parameters |

	Log Index	Log Time	Severity	Description
1	2147483395	22-Nov-2004 22:36:26	Informational	%LINK-I-Up: g7
2	2147483396	22-Nov-2004 22:36:04	Warning	%LINK-W-Down: g7
3	2147483397	22-Nov-2004 22:35:44	Informational	%LINK-I-Up: g7
4	2147483398	22-Nov-2004 22:34:01	Informational	%LINK-I-Up: g11
5	2147483399	22-Nov-2004 22:34:00	Warning	%LINK-W-Down: g11
6	2147483400	22-Nov-2004 22:34:00	Informational	%LINK-I-Up: g11
7	2147483401	22-Nov-2004 22:33:53	Warning	%LINK-W-Down: g8
8	2147483402	22-Nov-2004 22:26:16	Informational	%LINK-I-Up: g2
9	2147483403	22-Nov-2004 22:26:14	Warning	%LINK-W-Down: g2

Figure 5-55: Logs - Event Log

Logs Tab - Global Parameters

The *Global Parameters* screen lets you define which events are recorded by which logs. You can enable logs for the Switch and define specific logs.

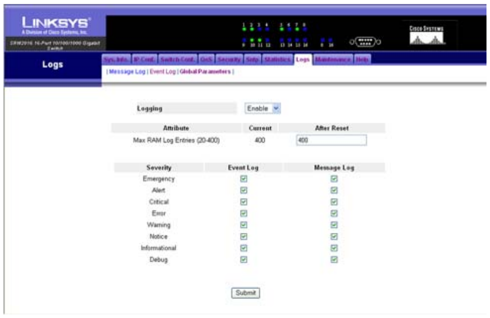
Logging. If you want the Switch to keep logs, select **Enable**. Otherwise, select **Disable**.

Attribute. Displayed here is Max RAM Log Entries (20-400). This stands for the maximum number of log entries held in RAM. The minimum number is 20, and the maximum number is 400.

Current. Displayed here is the current maximum number of log entries.

After Reset. Enter the maximum number of log entries you want to allow. After you save this change, you will need to reset the Switch so the change will take effect.

Severity. This is a list of severity levels, in order of severity from highest (Emergency) to lowest (Debug).


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Logs
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Message Log | Event Log | Global Parameters |
Submit

Logging: Enable

Attribute	Current	After Reset
Max RAM Log Entries (20-400)	400	400

Severity	Event Log	Message Log
Emergency	☑	☑
Alert	☑	☑
Critical	☑	☑
Error	☑	☑
Warning	☑	☑
Notice	☑	☑
Informational	☑	☑
Debug	☑	☑

Figure 5-56: Logs - Global Parameters

Event Log. Select the types of logs that you want to save to the Event Log.

Message Log. Select the types of logs that you want to save to the Message Log.

Click the **Submit** button to save your changes.

Maintenance Tab - Telnet

The *Telnet* screen lets you connect to the Switch through telnet, a terminal emulation TCP/IP protocol.

Connect Via Telnet. If you use a telnet connection, click **Connect Via Telnet**. The HyperTerminal screen will automatically appear.

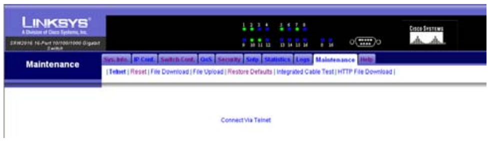

LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Maintenance
Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Snmp | Statistics | Logs | Maintenance | Help
| Telnet | Reset | File Download | File Upload | Restore Defaults | Integrated Cable Test | HTTP File Download |
Connect Via Telnet

Figure 5-57: Maintenance - Telnet

Maintenance Tab - Reset

The *Reset* screen lets you reset the Switch from a remote location.

NOTE: Before you reset the Switch, you should update your startup configuration file so you will not lose your current configuration settings.

Reset the Device. If you want to reset the Switch, click **Reset the Device**. You will be asked to confirm the reset. Click the **OK** button. After the Switch is reset, you will be prompted for a user name and password before you can access the Web-based Utility.

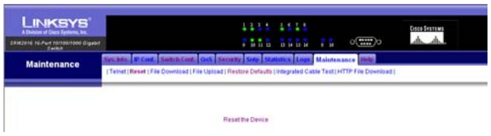

LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Maintenance
Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Snmp | Statistics | Logs | Maintenance | Help
| Telnet | Reset | File Download | File Upload | Restore Defaults | Integrated Cable Test | HTTP File Download |
Reset the Device

Figure 5-58: Maintenance - Reset

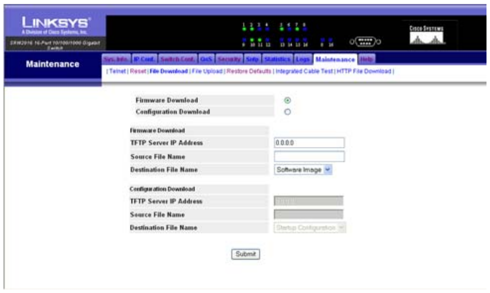
Maintenance Tab - File Download

The *File Download* screen lets you download firmware or a configuration file to the Switch. You cannot download both at the same time.

Firmware Download. If you want to download firmware, click this radio button. If this is selected, then the *Configuration Download* fields will not be available.

Configuration Download. If you want to download a configuration file, click this radio button. If this is selected, then the *Firmware Download* fields will not be available.

NOTE: You can perform only one type of download at a time.


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Maintenance
Sys. Info. | IP Conf. | Switch Conf. | QoS | Security | Snmp | Statistics | Logs | Maintenance | Help
| Telnet | Reset | File Download | File Upload | Restore Defaults | Integrated Cable Test | HTTP File Download |
Submit

Firmware Download ●
Configuration Download ○

Firmware Download
TFTP Server IP Address: 0.0.0.0
Source File Name:
Destination File Name: Software Image

Configuration Download
TFTP Server IP Address:
Source File Name:
Destination File Name: Startup Configuration

Figure 5-59: Maintenance - File Download

Firmware Download

TFTP Server IP Address. Enter the IP address of the TFTP server.

Source File Name. Enter the name of the firmware file you want to download.

Destination File Name. Specify the file type, **Software Image** or **Boot Code**.

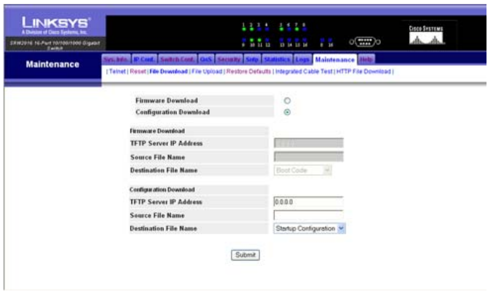
Configuration Download

TFTP Server IP Address. Enter the IP address of the TFTP server.

Source File Name. Enter the name of the configuration file you want to download.

Destination File Name. Specify the file type, **Running Configuration** or **Startup Configuration**. The Running Configuration file holds all startup file commands and commands entered during the current session. The Startup Configuration file holds the startup file commands needed by the Switch to power on or be rebooted.

Click the **Submit** button to begin the download of the firmware or configuration file.


LINKSYS
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SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Maintenance
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Telnet | Reset | File Download | File Upload | Restore Defaults | Integrated Cable Test | HTTP File Download |
Submit

Firmware Download ○
Configuration Download ●

Firmware Download
TFTP Server IP Address
Source File Name
Destination File Name: Boot Code

Configuration Download
TFTP Server IP Address: 0.0.0.0
Source File Name
Destination File Name: Startup Configuration

Figure 5-60: File Download - Configuration Download

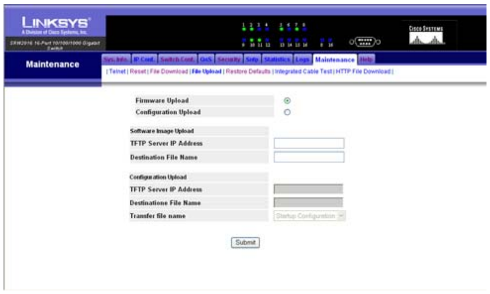
Maintenance Tab - File Upload

The *File Upload* screen lets you upload firmware or a configuration file to a TFTP server. You cannot upload both at the same time.

Firmware Upload. If you want to upload firmware, click this radio button. If this is selected, then the *Configuration Upload* fields will not be available.

Configuration Upload. If you want to upload a configuration file, click this radio button. If this is selected, then the *Firmware Upload* fields will not be available.

NOTE: You can perform only one type of upload at a time.


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Maintenance
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Telnet | Reset | File Download | File Upload | Restore Defaults | Integrated Cable Test | HTTP File Download |
Submit

Firmware Upload ●
Configuration Upload ○

Software Image Upload
TFTP Server IP Address
Destination File Name

Configuration Upload
TFTP Server IP Address
Destinatione File Name
Transfer file name: Startup Configuration

Figure 5-61: Maintenance - File Upload

Software Image Upload

TFTP Server IP Address. Enter the IP address of the TFTP server.

Destination File Name. Enter the software image file path to which the file will be uploaded.

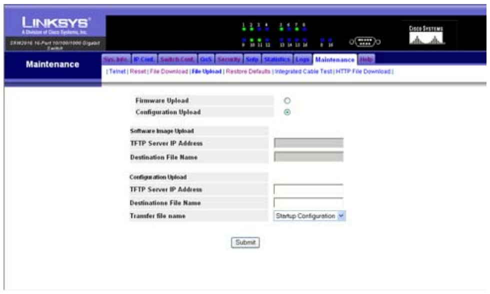
Configuration Upload

TFTP Server IP Address. Enter the IP address of the TFTP server.

Destination File Name. Enter the configuration file name to which the file will be uploaded.

Transfer File Name. Specify the file type, **Running Configuration** or **Startup Configuration**. The Running Configuration file holds all startup file commands and commands entered during the current session. The Startup Configuration file holds the startup file commands needed by the Switch to power on or be rebooted.

Click the **Submit** button to begin the upload of the firmware or configuration file.


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Maintenance
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Sntp
Statistics
Logs
Maintenance
Help
| Telnet | Reset | File Download | File Upload | Restore Defaults | Integrated Cable Test | HTTP File Download |
Submit

Firmware Upload ○
Configuration Upload ●

Software Image Upload
TFTP Server IP Address
Destination File Name

Configuration Upload
TFTP Server IP Address
Destinatione File Name
Transfer file name: Startup Configuration

Figure 5-62: File Upload - Configuration Upload

Maintenance Tab - Restore Defaults

The *Restore Defaults* screen lets you restore the Switch's factory defaults.

NOTE: Before you restore the Switch's factory defaults, note any settings you may want to use later.

Restore Company Defaults. Click **Restore Company Defaults** to restore the factory default settings.

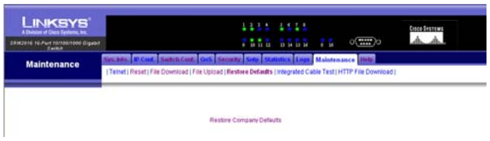

LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Maintenance
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Sntp
Statistics
Logs
Maintenance
Help
| Telnet | Reset | File Download | File Upload | Restore Defaults | Integrated Cable Test | HTTP File Download |
Restore Company Defaults

Figure 5-63: Maintenance - Restore Defaults

Maintenance Tab - Integrated Cable Test

The Integrated 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. This is the port to which the cable is connected.

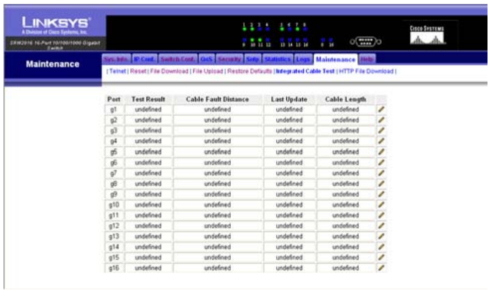
Test Result. This is the test result. OK indicates that the cable passed the test. No Cable means there is no cable connected to the port. Open Cable means the cable is connected on only one side. Short Cable indicates that a short has occurred in the cable. Undefined indicates that the test could not 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.

Cable Length. This is the approximate length of the cable. The Approximate Cable Length test can be performed only when the port is up and operating at 1Gbps.

Click the pencil icon of a port to test the port's cable. A new screen will appear so you can perform the test.


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Maintenance
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Sntp
Statistics
Logs
Maintenance
Help
| Telnet | Reset | File Download | File Upload | Restore Defaults | Integrated Cable Test | HTTP File Download |

Port	Test Result	Cable Fault Distance	Last Update	Cable Length	
g1	undefined	undefined	undefined	undefined	✎
g2	undefined	undefined	undefined	undefined	✎
g3	undefined	undefined	undefined	undefined	✎
g4	undefined	undefined	undefined	undefined	✎
g5	undefined	undefined	undefined	undefined	✎
g6	undefined	undefined	undefined	undefined	✎
g7	undefined	undefined	undefined	undefined	✎
g8	undefined	undefined	undefined	undefined	✎
g9	undefined	undefined	undefined	undefined	✎
g10	undefined	undefined	undefined	undefined	✎
g11	undefined	undefined	undefined	undefined	✎
g12	undefined	undefined	undefined	undefined	✎
g13	undefined	undefined	undefined	undefined	✎
g14	undefined	undefined	undefined	undefined	✎
g15	undefined	undefined	undefined	undefined	✎
g16	undefined	undefined	undefined	undefined	✎

Figure 5-64: Maintenance - Integrated Cable Test

Port. Select the port you want to test.

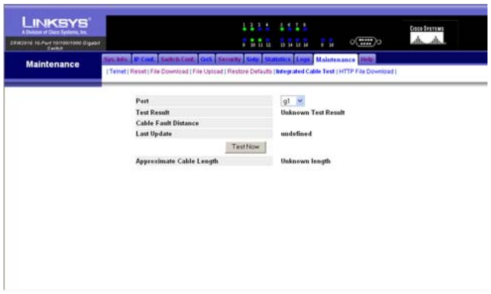
Test Result. This is the test result. OK indicates that the cable passed the test. No Cable means there is no cable connected to the port. Open Cable means the cable is connected on only one side. Short Cable indicates that a short has occurred in the cable. Undefined indicates that the test could not 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 Now. Click the Test Now button to perform the test.

Approximate Cable Length. This is the approximate length of the tested cable. The Approximate Cable Length test can be performed only when the port is up and operating at 1Gbps.


LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Maintenance
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Telnet | Reset | File Download | File Upload | Restore Defaults | Integrated Cable Test | HTTP File Download |
Test Now

Port	g1
Test Result	Unknown Test Result
Cable Fault Distance	
Last Update	undefined
Approximate Cable Length	Unknown length

Figure 5-65: Integrated Cable Test - Perform Test

Maintenance Tab - HTTP File Download

The *HTTP File Download* screen allows you to download a file to the Switch via HTTP.

Source File Name. Enter the file path of the file you want to download, or click the **Browse** button to browse for the source file.

Click the **Submit** button to begin the download.

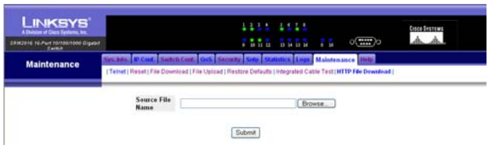
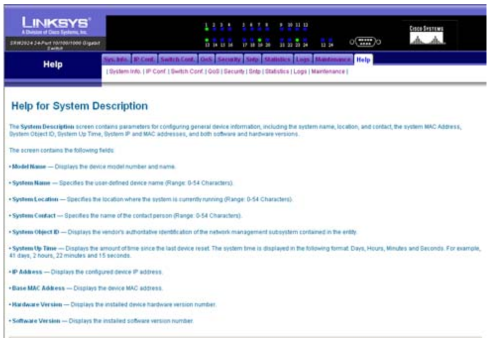

LINKSYS
A Division of Cisco Systems, Inc.
SRW2016 16-Port 10/100/1000 Gigabit Switch
Cisco Systems
Maintenance
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| Telnet | Reset | File Download | File Upload | Restore Defaults | Integrated Cable Test | HTTP File Download |
Source File Name
Browse...
Submit

Figure 5-66: Maintenance - HTTP File Download

Help Tab

When you are viewing any screen of the Web-based Utility and you want help information about the settings on that screen, click the **Help** tab. The relevant help information will automatically be displayed. At the end of the help information, there is a link available to take you to an index of help information, if you want additional information.


LINKSYS
A Division of Cisco Systems, Inc.
SRW2024 24-Port 10/100/1000 Gigabit Switch
Cisco Systems
Help
Sys. Info.
IP Conf.
Switch Conf.
QoS
Security
Snmp
Statistics
Logs
Maintenance
Help
| System Info. | IP Conf | Switch Conf. | QoS | Security | Snmp | Statistics | Logs | Maintenance |

Help for System Description

The **System Description** screen contains parameters for configuring general device information, including the system name, location, and contact, the system MAC Address, System Object ID, System Up Time, System IP and MAC addresses, and both software and hardware versions.

The screen contains the following fields:

- **Model Name** — Displays the device model number and name.
- **System Name** — Specifies the user-defined device name (Range: 0-54 Characters).
- **System Location** — Specifies the location where the system is currently running (Range: 0-54 Characters).
- **System Contact** — Specifies the name of the contact person (Range: 0-54 Characters).
- **System Object ID** — Displays the vendor's authoritative identification of the network management subsystem contained in the entity.
- **System Up Time** — Displays the amount of time since the last device reset. The system time is displayed in the following format: Days, Hours, Minutes and Seconds. For example, 41 days, 2 hours, 22 minutes and 15 seconds.
- **IP Address** — Displays the configured device IP address.
- **Base MAC Address** — Displays the device MAC address.
- **Hardware Version** — Displays the installed device hardware version number.
- **Software Version** — Displays the installed software version number.

Figure 5-67: Help - System Description

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 mini-GBIC 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: Glossary

Adapter - A device that adds network functionality to your PC.

AES (**A**dvanced **E**ncryption **S**tandard) - A security method that uses symmetric 128-bit block data encryption.

Backbone - The part of a network that connects most of the systems and networks together, and handles the most data.

Bandwidth - The transmission capacity of a given device or network.

Bit - A binary digit.

Boot - To start a device and cause it to start executing instructions.

Bridge - A device that connects different networks.

Broadband - An always-on, fast Internet connection.

Browser - An application program that provides a way to look at and interact with all the information on the World Wide Web.

Buffer - A shared or assigned memory area that is used to support and coordinate different computing and networking activities so one isn't held up by the other.

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.

CSMA/CA (**C**arrier **S**ense **M**ultiple **A**ccess/**C**ollision **A**voidance) - A method of data transfer that is used to prevent data collisions.

CTS (**C**lear **T**o **S**end) - A signal sent by a wireless device, signifying that it is ready to receive data.

Daisy Chain - A method used to connect devices in a series, one after the other.

Database - A collection of data that is organized so that its contents can easily be accessed, managed, and updated.

DDNS (**D**ynamic **D**omain **N**ame **S**ystem) - 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 (**D**ynamic **H**ost **C**onfiguration **P**rotocol) - 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.

DMZ (**D**e**m**ilitarized **Z**one) - Removes the Router's firewall protection from one PC, allowing it to be "seen" from the Internet.

DNS (**D**omain **N**ame **S**erver) - 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 (**D**igital **S**ubscriber **L**ine) - An always-on broadband connection over traditional phone lines.

DTIM (**D**elivery **T**raffic **I**ndication **M**essage) - A message included in data packets that can increase wireless efficiency.

Dynamic IP Address - A temporary IP address assigned by a DHCP server.

EAP (**E**xtensible **A**uthentication **P**rotocol) - A general authentication protocol used to control network access. Many specific authentication methods work within this framework.

EAP-PEAP (**E**xtensible **A**uthentication **P**rotocol-**P**rotected **E**xtensible **A**uthentication **P**rotocol) - A mutual authentication method that uses a combination of digital certificates and another system, such as passwords.

EAP-TLS (**E**xtensible **A**uthentication **P**rotocol-**T**ransport **L**ayer **S**ecurity) - A mutual authentication method that uses digital certificates.

Encryption - Encoding data transmitted in a network.

Ethernet - A networking protocol that specifies how data is placed on and retrieved from a common transmission medium.

Finger - A program that tells you the name associated with an e-mail address.

Firewall - A set of related programs located at a network gateway server that protects the resources of a network from users from other networks.

Firmware - The programming code that runs a networking device.

Fragmentation -Breaking a packet into smaller units when transmitting over a network medium that cannot support the original size of the packet.

FTP (**F**ile **T**ransfer **P**rotocol) - 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.

Gateway - A device that interconnects networks with different, incompatible communications protocols.

Half Duplex - Data transmission that can occur in two directions over a single line, but only one direction at a time.

Hardware - The physical aspect of computers, telecommunications, and other information technology devices.

HTTP (**H**yper**T**ext **T**ransport **P**rotocol) - The communications protocol used to connect to servers on the World Wide Web.

IP (**I**nternet **P**rotocol) - 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 (**I**nternet **P**rotocol **Sec**urity) - A VPN protocol used to implement secure exchange of packets at the IP layer.

ISM band - Radio bandwidth utilized in wireless transmissions.

ISP (**I**nternet **S**ervice **P**rovider) - A company that provides access to the Internet.

LAN - The computers and networking products that make up your local network.

LEAP (**L**ightweight **E**xtensible **A**uthentication **P**rotocol) - A mutual authentication method that uses a username and password system.

MAC (**M**edia **A**ccess **C**ontrol) **Address** - The unique address that a manufacturer assigns to each networking device.

Mbps (**M**ega**B**its **P**er **S**econd) - One million bits per second; a unit of measurement for data transmission.

mIRC - An Internet Relay Chat program that runs under Windows.

Multicasting - Sending data to a group of destinations at once.

NAT (**N**etwork **A**ddress **T**ranslation) - NAT technology translates IP addresses of a local area network to a different IP address for the Internet.

Network - A series of computers or devices connected for the purpose of data sharing, storage, and/or transmission between users.

NNTP (**N**etwork **N**ews **T**ransfer **P**rotocol) - The protocol used to connect to Usenet groups on the Internet.

Node - A network junction or connection point, typically a computer or work station.

Packet - A unit of data sent over a network.

Passphrase - Used much like a password, a passphrase simplifies the WEP encryption process by automatically generating the WEP encryption keys for Linksys products.

PEAP (**P**rotected **E**xtensible **A**uthentication **P**rotocol) - A mutual authentication method that uses a combination of digital certificates and another system, such as passwords.

Ping (**P**acket **IN**ternet **G**roper) - An Internet utility used to determine whether a particular IP address is online.

POP3 (**P**ost **O**ffice **P**rotocol **3**) - A standard mail server commonly used on the Internet.

Port - The connection point on a computer or networking device used for plugging in cables or adapters.

Power **o**ver **E**thernet (**PoE**) - A technology enabling an Ethernet network cable to deliver both data and power.

PPPoE (**P**oint to **P**oint **P**rotocol **o**ver **E**thernet) - A type of broadband connection that provides authentication (username and password) in addition to data transport.

PPTP (**P**oint-to-**P**oint **T**unneling **P**rotocol) - A VPN protocol that allows the Point to Point Protocol (PPP) to be tunneled through an IP network. This protocol is also used as a type of broadband connection in Europe.

Preamble - Part of the wireless signal that synchronizes network traffic.

RADIUS (**R**emote **A**uthentication **D**ial-**I**n **U**ser **S**ervice) - A protocol that uses an authentication server to control network access.

RJ-45 (**R**egistered **J**ack**-45**) - An Ethernet connector that holds up to eight wires.

Roaming - The ability to take a wireless device from one access point's range to another without losing the connection.

Router - A networking device that connects multiple networks together.

RTS (**R**equest **T**o **S**end) - A networking method of coordinating large packets through the RTS Threshold setting.

Server - Any computer whose function in a network is to provide user access to files, printing, communications, and other services.

SMTP (**S**imple **M**ail **T**ransfer **P**rotocol) - The standard e-mail protocol on the Internet.

SNMP (**S**imple **N**etwork **M**anagement **P**rotocol) - A widely used network monitoring and control protocol.

Software - Instructions for the computer. A series of instructions that performs a particular task is called a “program”.

SOHO (**S**mall **O**ffice/**H**ome **O**ffice) - Market segment of professionals who work at home or in small offices.

SPI (**S**tateful **P**acket **I**nspection) **Firewall** - A technology that inspects incoming packets of information before allowing them to enter the network.

Static IP Address - A fixed address assigned to a computer or device that is connected to a network.

Static Routing - Forwarding data in a network via a fixed path.

Subnet Mask - An address code that determines the size of the network.

Switch - 1. A data switch that connects computing devices to host computers, allowing a large number of devices to share a limited number of ports. 2. A device for making, breaking, or changing the connections in an electrical circuit.

TCP (**T**ransmission **C**ontrol **P**rotocol) - A network protocol for transmitting data that requires acknowledgement from the recipient of data sent.

TCP/IP (**T**ransmission **C**ontrol **P**rotocol/**I**nternet **P**rotocol) - 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 (**T**rivial **F**ile **T**ransfer **P**rotocol) - 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.

Topology - The physical layout of a network.

TX Rate - Transmission Rate.

UDP (**U**ser **D**atagram **P**rotocol) - A network protocol for transmitting data that does not require acknowledgement from the recipient of the data that is sent.

Upgrade - To replace existing software or firmware with a newer version.

Upload - To transmit a file over a network.

URL (**U**niform **R**esource **L**ocator) - The address of a file located on the Internet.

VPN (**V**irtual **P**rivate **N**etwork) - A security measure to protect data as it leaves one network and goes to another over the Internet.

WAN (**W**ide **A**rea **N**etwork)- The Internet.

WINIPCFG - A Windows 98 and Me utility that displays the IP address for a particular networking device.

Appendix D: Specifications

Models	SRW2016 - 16-Port 10/100/1000 Gigabit Switch with WebView SRW2024 - 24-Port 10/100/1000 Gigabit Switch with WebView
Standards	IEEE 802.3, 802.3u, 802.3ab, 802.3x, 802.1p, 802.1q
Ports	SRW2016 - 16 10/100/1000 RJ-45 ports and 2 shared MiniGBIC slots SRW2024 - 24 10/100/1000 RJ-45 ports and 2 shared MiniGBIC slots
Cabling Type	Cat5e or better
LEDs	System, Link/Activity, Gigabit
Security Features	ACL, 802.1x
Dimensions (W x H x D)	16.93" x 1.75" x 13.78" (430 mm x 44.45 mm x 350 mm)
Unit Weight	SRW2016 - 7.30 lbs. (3.31 kg) SRW2024 - 7.35 lbs. (3.33 kg)
Power	100-240V 0.5A
Certifications	UL (UL 1950), CSA (CSA 22.2), CE mark, EN60950 (2001)
Operating Temp.	0ºC to 50ºC (32ºF to 122ºF)
Storage Temp.	-40ºC to 70ºC (-40ºF to 158ºF)
Operating Humidity	20% to 95%, Non-Condensing
Storage Humidity	5% to 90% Non-Condensing

Appendix E: Warranty Information

LIMITED WARRANTY

Linksys warrants to You that, for a period of five years (the “Warranty Period”), your Linksys Product will be substantially free of defects in materials and workmanship under normal use. Your exclusive remedy and Linksys' entire liability under this warranty will be for Linksys at its option to repair or replace the Product or refund Your purchase price less any rebates. This limited warranty extends only to the original purchaser.

If the Product proves defective during the Warranty Period call Linksys Technical Support in order to obtain a Return Authorization Number, if applicable. BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CALLING. If You are requested to return the Product, mark the Return Authorization Number clearly on the outside of the package and include a copy of your original proof of purchase. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. You are responsible for shipping defective Products to Linksys. Linksys pays for UPS Ground shipping from Linksys back to You only. Customers located outside of the United States of America and Canada are responsible for all shipping and handling charges.

ALL IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY 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 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 warranty gives You specific legal rights, and You may also have other rights which vary by jurisdiction.

This warranty does not apply if the Product (a) has been altered, except by Linksys, (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Linksys, or (c) has been subjected to abnormal physical or electrical stress, misuse, negligence, or accident. In addition, due to the continual development of new techniques for intruding upon and attacking networks, Linksys does not warrant that the Product will be free of vulnerability to intrusion or attack.

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 Agreement 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.

Please direct all inquiries to: Linksys, P.O. Box 18558, Irvine, CA 92623.

Appendix F: Regulatory Information

FCC STATEMENT

This product has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

INDUSTRY CANADA (CANADA)

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

EC DECLARATION OF CONFORMITY (EUROPE)

In compliance with the EMC Directive 89/336/EEC, Low Voltage Directive 73/23/EEC, and Amendment Directive 93/68/EEC, this product meets the requirements of the following standards:

- EN55022 Emission
- EN55024 Immunity

Appendix G: Contact Information

Need to contact Linksys?

Visit us online for information on the latest products and updates to your existing products at:	http://www.linksys.com or ftp.linksys.com
Can't find information about a product you want to buy on the web? Do you want to know more about networking with Linksys products? Give our advice line a call at:	800-546-5797 (LINKSYS)
Or fax your request in to:	949-823-3002
If you experience problems with any Linksys product, you can call us at:	800-326-7114
Don't wish to call? You can e-mail us at:	support@linksys.com
If any Linksys product proves defective during its warranty period, you can call the Linksys Return Merchandise Authorization department for obtaining a Return Authorization Number at:	949-823-3000
(Details on Warranty and RMA issues can be found in the Warranty Information section in this Guide.)	