



Baseline Switch 2848-SFP Plus

User Guide

Installationsanleitung

3C16486

www.3com.com

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ABOUT THIS GUIDE

This guide describes how to install your 3Com Switch and perform initial management configurations.

This guide is intended for use by those responsible for installing and setting up network equipment; consequently, it assumes a basic working knowledge of LANs (Local Area Networks).

Diese Anleitung ist für die Benutzung durch Netzwerkadministratoren vorgesehen, die für die Installation und das Einstellen von Netzwerkkomponenten verantwortlich sind; sie setzt Erfahrung bei der Arbeit mit LANs (Local Area Networks) voraus.



If release notes are shipped with your product and the information there differs from the information in this guide, follow the instructions in the release notes.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the 3Com World Wide Web site:

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Conventions

Table 1 and Table 2 list conventions that are used throughout this guide.

Table 1 Notice Icons

Icon	Notice Type	Description
	Information note	Information that describes important features or instructions
	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
	Warning	Information that alerts you to potential personal injury

Table 2 Text Conventions

Convention	Description
The words "enter" and "type"	When you see the word "enter" in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says "type."
Keyboard key names	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press Ctrl+Alt+Del
Words in <i>italics</i>	Italics are used to: <ul style="list-style-type: none"> ■ Emphasize a point. ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names, menu commands, and software button names. Examples: From the <i>Help</i> menu, select <i>Contents</i>. Click <i>OK</i>.

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Please include the following information when contacting us:

- Document title
- Document part number (on the title page)
- Page number (if appropriate)

Example:

- Baseline Switch 2848-SFP Plus User Guide
- Part number: DUA1648-6AAA01
- Page 25

Please note that we can only respond to comments and questions about 3Com product documentation at this e-mail address. Questions related to technical support or sales should be directed in the first instance to your network supplier.

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`http://esupport.3com.com`

1 INTRODUCING THE BASELINE SWITCH

This chapter provides an overview of the features and capabilities of the 3Com Baseline Switch 2848-SFP Plus. It also identifies the contents of the Switch package and helps you get to know the physical features of the device.

Overview of the Baseline Switch

The 3Com® Baseline Switch 2848-SFP Plus is a versatile, easy-to-use configurable Switch. It is ideal for users who want the high-speed performance of 10/100/1000 switching with the added functionality of Gigabit fiber links, but do not need sophisticated management capabilities. The Switch is shipped ready for use. No configuration is necessary.

Features and Capabilities

The Switch has 44 shielded RJ-45, 10/100/1000 Mbps auto-negotiating ports and 4 Gigabit combo ports (which comprised of a RJ-45 port and a Small Form Factor Pluggable (SFP) transceiver slot) on the front panel for easy, flexible connection to fiber-based Gigabit media.

Autosensing of MDI/MDIX Connections

All ports on the Switch can autosense both medium dependent interface (MDI) and medium dependent interface crossover (MDIX) connections. This allows you to connect network devices to each port using either a normal straight-through TP (twisted pair) cable or a 'crossover' TP cable.

Any port can therefore be used to connect to another switch port, server, or workstation without additional configuration.

Autonegotiating 10/100/1000 Mbps Ports

Each 10/100/1000 Mbps port automatically determines the speed and duplex mode of the connected equipment and provides a suitable switched connection.

10/100 Mbps connections on these 1000BASE-T ports can operate in either half-duplex or full-duplex mode. 1000 Mbps connections, on the other hand, only operate in full duplex mode.

SFP Ports

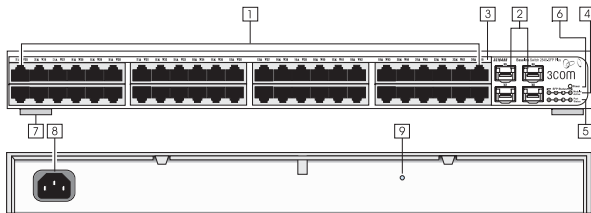
The four SFP ports support fiber Gigabit Ethernet short-wave (SX) and long-wave (LX) SFP transceivers in any combination. This offers you the flexibility of using SFP transceivers to provide connectivity between the Switch and a 1000 Mbps core network.

When an SFP port is in operation, the corresponding 10/100/1000BASE-T port is disabled.

Physical Features

Figure 1 shows the front and rear panels of the Switch. The numbers in this diagram refer to numbered sections in “Front Panel” on page 8 and “Rear Panel” on page 11.

Figure 1 Front and Rear Panels



Front Panel

The front panel of the Switch contains a series of indicator lights (LEDs) that help describe the state of various networking and connection operations.

(1) RJ-45 10/100/1000 Ports



WARNING: *RJ-45 Ports. These are shielded RJ-45 data sockets. They cannot be used as standard traditional telephone sockets, or to connect the unit to a traditional PBX or public telephone network. Only connect RJ-45 data connectors, network telephony systems, or network telephones to these sockets. Either shielded or unshielded data cables with shielded or unshielded jacks can be connected to these data sockets.*



AVERTISSEMENT: *Points d'accès RJ-45. Ceux-ci sont protégés par des prises de données. Ils ne peuvent pas être utilisés comme prises de téléphone conventionnelles standard, ni pour la connection de l'unité à un réseau téléphonique central privé ou public. Raccorder seulement connecteurs de données RJ-45, systèmes de réseaux de téléphonie ou téléphones de réseaux à ces prises.*

Il est possible de raccorder des câbles protégés ou non protégés avec des jacks protégés ou non protégés à ces prises de données.



WARNHINWEIS: RJ-45-Porte. Diese Porte sind geschützte Datensteckdosen. Sie dürfen weder wie normale traditionelle Telefonsteckdosen noch für die Verbindung der Einheit mit einem traditionellem privatem oder öffentlichem Telefonnetzwerk gebraucht werden. Nur RJ-45-Datenanschlüsse, Telefonnetzsysteme oder Netztelefone an diese Steckdosen anschließen. Entweder geschützte oder ungeschützte Buchsen dürfen an diese Datensteckdosen angeschlossen werden.

The Switch has 44 10/100/1000 Mbps auto-negotiating ports. Each port supports automatic MDI/MDI-X detection and can be connected to either a 10BASE-T, 100BASE-TX, or a 1000BASE-T device.

For each port, the speed and duplex mode (half duplex or full duplex for 10BASE-T and 100BASE-TX, full duplex only for 1000BASE-T) are automatically determined by the capabilities of the connected device.



CAUTION: The Switch supports full duplex auto-negotiation. If auto-negotiation is disabled for 1000BASE-T, then the Switch uses the forced-mode default of 100 full duplex mode. If the connected device does not support auto-negotiation, the Switch will operate in half duplex mode (even if the attached device is operating in full duplex mode). In such a configuration, you may notice some degradation of network performance. 3Com recommends that you use devices that are capable of auto-negotiation (and that you ensure that auto-negotiation is enabled, if it is a configurable option).

(2) Gigabit Combo Ports (RJ-45/SFP)

The Gigabit combo ports (RJ-45/Small Form Factor Pluggable (SFP) ports) are numbered 45 to 48. If the link connections on the Gigabit combo ports are active, the associated RJ-45 port of the same number is disabled.

The four SFP ports support fiber Gigabit Ethernet short-wave (SX) and long-wave (LX) SFP transceivers in any combination. This offers you the flexibility of using SFP transceivers to provide connectivity between the Switch and remote 1000 Mbps workgroups or to create a high-capacity aggregated link backbone connection. The default active port is the SFP port. The selection of active ports can be configured via the Web interface.

The SFP port supports full duplex mode only.



SFP ports are numbered 45-48 on the Switch. When an SFP port is active it has priority over the 10/100/1000 port of the same number. The corresponding 10/100/1000 port is disabled when an SFP link connection is active.

(3) Link/Activity Status LEDs

The following table lists LEDs visible on the front of the Switch, and provides information on how to read their status according to color.

Status	Meaning
Green	The link is operating at 1000 Mbps.
Yellow	The link is operating at 10 or 100 Mbps.

Flashing Green	Packets are being received or transmitted on the port at 1000 Mbps.
Flashing Yellow	Packets are being received or transmitted on the port at 10 or 100 Mbps.
Off	<p>The link has not been established, either nothing is connected to the port, or there is a problem:</p> <ul style="list-style-type: none"> ■ Check that the attached device is powered on. ■ Check that the cable or fiber is the correct type and is not faulty. ■ For fiber connections, ensure that the receive (RX) and transmit (TX) cable connectors are not swapped. <p>If these checks do not identify the cause of the problem, it may be that the unit or the device connected to the port is faulty. Contact your supplier for further advice.</p>

(4) Module Active LEDs

The Module Active LEDs show the status of the SFP ports.

Status	Meaning
Green	Module present.
Off	No module present.

(5) SFP Port Status LEDs

The SFP Port Status LEDs show the transmit and receive activity of the SFP ports.

Status	Meaning
Flashing Green	Packets are being received or transmitted on the port at 1000 Mbps.
Off	No link.

(6) Power LED

The Power LED shows the power status of the Switch.

Status	Meaning
Green	The unit is powered on and ready for use.
Flashing Green	POST test in progress.
Yellow	Internal power, POST, or loopback test has failed. Switch is in fail-safe mode.
Off	<p>The unit is not receiving power.</p> <ul style="list-style-type: none"> ■ Check that the power cord is connected correctly. ■ If the unit still does not operate, contact your supplier.

(7) Self-adhesive Pads

The unit is supplied with four self-adhesive rubber pads.



Do not apply the pads if you intend to rack mount the unit.

If the unit is to be part of a free-standing stack, apply the pads to each marked corner area on the underside of the unit. Place the unit on top of the lower unit, ensuring that the pads locate with the recesses of the lower unit.

Rear Panel

The rear panel of the Switch contains a power supply socket and a recovery button.

(8) Power Socket

The Switch automatically adjusts to the supply voltage. Only use the power cord that is supplied with the unit.

(9) Recovery Button

The recovery button reinitializes the Switch. This returns the Switch to the factory default settings if, for example, you have forgotten the default IP address, or forgotten your user name or password.



CAUTION: *3Com recommends that you back up your configuration settings before you recover the Switch, otherwise your configuration may be lost. Refer to "Configuration" on page 41 for details.*

Package Contents

Before installing and using the Switch, verify that your Switch package is complete. The Switch comes with:

- One power cord
- Four standard height, self-adhesive rubber pads
- One mounting kit
- Installation CD
- This User Guide
- Warranty flyer

The Switch is powered from the AC supply.

If any of the above items are damaged or missing, contact your 3Com network supplier immediately.



2 INSTALLING THE SWITCH

This chapter contains information that you need to install and set up the Switch. It covers the following topics:

- Before You Begin
- Positioning the Switch
- Rack-Mounting or Free-Standing
- Supplying Power to the Switch
- Using SFP Transceivers
- Performing Spot Checks

Before You Begin



WARNING: *Safety Information. Before installing or removing any components from the Switch or carrying out any maintenance procedures, read the safety information provided in Appendix C of this guide.*



AVERTISSEMENT: *Consignes de Sécurité. Avant d'installer ou d'enlever tout composant du Switch ou d'entamer une procédure de maintenance, lisez les informations relatives à la sécurité qui se trouvent dans l'Appendice C (Appendix C) de ce guide.*



WARNHINWEIS: *Sicherheitsinformationen. Bevor Sie Komponenten aus dem Switch entfernen oder dem Switch hinzufuegen oder Instandhaltungsarbeiten verrichten, lesen Sie die Sicherheitsanweisungen, die in Anhang C (Appendix C) in diesem Handbuch aufgefuehrt sind.*



ADVERTENCIA: *Información de Seguridad. Antes de instalar o extraer cualquier componente del product o de realizar tareas de mantenimiento, debe leer la información de seguridad facilitada en el Apéndice C (Appendix C) de esta guía del usuario.*



AVVERTENZA: *Informazioni di Sicurezza. Prima di installare o rimuovere qualsiasi componente dal product o di eseguire qualsiasi procedura di manutenzione, leggere le informazioni di sicurezza riportate nell'Appendice C (Appendix C) della presente guida per l'utente.*

Positioning the Switch

The Switch is suitable for use in an office environment where it can be free-standing or mounted in a standard 19-inch equipment rack.

Alternatively, the Switch can be rack-mounted in a wiring closet or equipment room. A mounting kit, containing two mounting brackets and four screws, is supplied with the Switch.

When deciding where to position the Switch, ensure that:

- It is accessible and cables can be connected easily.
- Cabling is away from sources of electrical noise. These include lift shafts, microwave ovens, and air conditioning units. Electromagnetic fields can interfere with the signals on copper cabling and introduce errors, therefore slowing down your network.
- Water or moisture cannot enter the case of the unit.
- Air flow around the unit and through the vents on the side of the case is not restricted (3Com recommends that you provide a minimum of 25 mm (1 in.) clearance).
- The air is as free from dust as possible.
- Temperature operating limits are not likely to be exceeded. It is recommended that the unit is installed in a clean, air conditioned environment.



It is always good practice to wear an anti-static wrist strap when installing network equipment, connected to a ground point. If one is not available, try to keep in contact with a grounded rack and avoid touching the unit's ports and connectors, if possible. Static discharge can cause reliability problems in your equipment.

Rack-Mounting or Free-Standing

The unit can be mounted in a 19-inch equipment rack using the mounting kit or it can be free standing. Do not place objects on top of the unit or stack.



CAUTION: *If installing the Switch in a free-standing stack of different size Baseline or Superstack 3 units, the smaller units must be installed above the larger ones. Do not have a free-standing stack of more than six units.*

Using the Mounting Kit

The Switch is supplied with two mounting brackets and four screws. These are used for rack mounting the unit. When mounting the unit, you should take note of the guidelines given in "Positioning the Switch" on page 13.

The Switch is 1U (1.7 inches) high and will fit in a standard 19-inch rack.



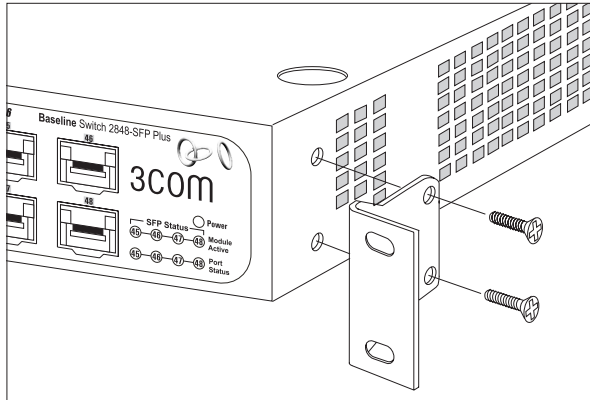
CAUTION: *Disconnect all cables from the unit before continuing. Remove the self-adhesive pads from the underside of unit, if already fitted.*

To rack-mount the Switch:

- 1 Place the unit the right way up on a hard, flat surface with the front facing towards you.
- 2 Locate a mounting bracket over the mounting holes on one side of the unit.

- 3 Insert the two screws supplied in the mounting kit and fully tighten with a suitable screwdriver.

Figure 2 Rack Mounting the Unit



- 4 Repeat steps 2 and 3 for the other side of the unit.
- 5 Insert the unit into the 19-inch rack and secure with suitable screws (not provided).
- 6 Reconnect the cables.

Montagesatz Anweisungen

Der Switch wird mit zwei Halterungen und vier Schrauben geliefert. Diese werden für den Einbau in einen Baugruppenträger benutzt. Bei der Montage der Baugruppe beachten Sie die Anweisungen aus "Positioning the Switch" on page 13.

Der Switch ist eine Baueinheit hoch und passt in einen Standard 19" (Zoll) Baugruppenträger.



ACHTUNG: Entfernen Sie alle Kabel, bevor Sie fortfahren. Entfernen Sie die selbstklebenden Polster (Füße) von der Unterseite der Baugruppe, falls diese bereits angebracht sind.

- 1 Platzieren Sie die Baugruppe aufrecht auf einer harten, ebenen Fläche mit der Vorderseite zu Ihnen.
- 2 Ordnen Sie eine der Halterungen über den Löchern an der Seite der Baugruppe an.
- 3 Stecken Sie zwei der mitgelieferten Schrauben in die Löcher und drehen Sie diese mit einem geeigneten Schraubendreher fest.
- 4 Wiederholen Sie letzten beiden Schritte auf der anderen Seite der Baugruppe.
- 5 Führen Sie die Baugruppe in den 19" (Zoll) Baugruppenträger ein und sichern Sie die Baugruppe mit geeigneten Schrauben. (Nicht im Lieferumfang enthalten).
- 6 Schließen Sie alle Kabel wieder an.

Placing Units On Top of Each Other

If the Switch units are free-standing, up to six units can be placed one on top of the other. If you are mixing a variety of Baseline and SuperStack units, the smaller units must be positioned at the top.

If you are placing Switch units one on top of the other, you must use the self-adhesive rubber pads supplied. Apply the pads to the underside of each Switch, sticking one in the marked area at each corner.

Place the Switch units on top of each other, ensuring that the pads of the upper unit line up with the recesses of the lower unit.

Supplying Power to the Switch

Power problems can be the cause of serious failures and downtime in your network. Ensure that the power input to your system is clean and free from sags and surges to avoid unforeseen network outages. 3Com recommends that you install power conditioning, especially in areas prone to blackout, power dips and electrical storms.

The unit is intended to be grounded. Ensure it is connected to earth ground during normal use. Installing proper grounding helps to avoid damage from lightning and power surges.



Before powering on the Switch, verify that the network cables and the power cable are securely connected.



CAUTION: *The Switch has no ON/OFF switch. The only way to power on and power off the Switch is by connecting and disconnecting the power cord. This is called “power cycling”.*

To power on the Switch:

- 1 Plug the power cord into the power socket on the rear panel of the Switch. Refer to “(8) Power Socket” on page 11 for more information.
- 2 Plug the other end of the power cord into a power outlet.

When the Switch is powered on, the Power LED lights up. If the Power LED does not light up, refer to “(6) Power LED” on page 10 for more information.

Checking for Correct Operation

After you power on the Switch, it automatically performs a power-on self-test (POST). During POST, the Power LED on the front panel of the Switch flashes green.

When POST is complete, the Power LED turns green. If the Power LED turns yellow after POST, it means that POST failed and the Switch has entered fail-safe mode.

The following summarizes the possible colors for the Power LED after POST.

Status	Meaning
Green	The unit is powered on and ready to use.
Yellow	Power-on self-test or loopback test failed. The Switch is in fail-safe mode. This can happen if a port or ports fail when the Switch was powered on.

-
- | | |
|-----|--|
| Off | <p>The unit is not receiving power:</p> <ul style="list-style-type: none"> ■ Verify that the power cord is connected correctly, and then try powering on the Switch again ■ If the Switch still does not operate, contact your 3Com network supplier |
|-----|--|
-

If POST fails, try the following:

- Power off the Switch, and then power it on again. Check the Power LED and see if POST was successfully completed.
- Reset the Switch. See “Resetting to Factory Defaults” on page 42.



CAUTION: *Resetting the Switch to its factory defaults erases all your settings. You will need to reconfigure the Switch after you reset it.*

If these do not resolve the issue:

- Check the 3Com Knowledgebase for a solution. To visit the 3Com Knowledgebase Web site, start your Web browser, and then enter **<http://knowledgebase.3com.com>**.
- Contact your 3Com network supplier for assistance.

Using SFP Transceivers

The following sections describe how to insert an SFP transceiver into an SFP slot.



SFP transceivers are hot-insertable and hot-swappable. You can remove them from and insert them into any SFP port without having to power down the Switch.

Approved SFP Transceivers

The following list of approved SFP transceivers is correct at the time of publication:

- 3CSFP91 SFP (SX)
- 3CSFP92 SFP (LX)

To access the latest list of approved SFP transceivers for the Switch on the 3Com Web site, enter this URL into your Internet browser:

<http://www.3com.com>



3Com recommends using 3Com SFPs on the Switch. If you insert an SFP transceiver that is not supported, the Switch will not recognize it.

Inserting an SFP Transceiver

To be recognized as valid, the SFP transceiver must have the following characteristics:

- 1000BASE-SX or 1000BASE-LX media type:
 - 1000BASE-SX SFP transceiver
Use this transceiver to connect the Switch directly to a multimode fiber-optic cable.

- 1000BASE-LX SFP transceiver
Use this transceiver to connect the Switch directly to a single mode fiber-optic cable or to multi-mode fiber using a conditioned launch cable.

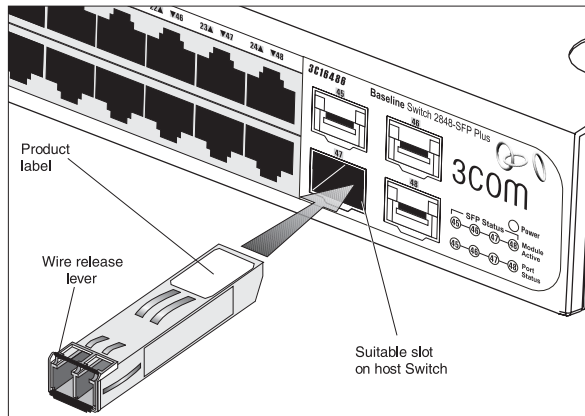


If the SFP transceiver is faulty, it will not operate within the Switch. See "Troubleshooting" on page 45.

To activate the SFP port:

- 1 Hold the transceiver so that the fiber connector is toward you and the product label is visible, as shown in Figure 3. Ensure the wire release lever is closed (in the upright position).

Figure 3 Inserting an SFP Transceiver



- 2 Gently slide the transceiver into the SFP slot until it clicks into place.



CAUTION: SFP transceivers are keyed and can be properly inserted only one way. If the transceiver does not click when you insert it, remove it, turn it over, and reinsert it.

- 3 Remove the plastic protective cover, if fitted.
- 4 Connect the fiber cable.
- 5 Attach a male duplex LC connector on the network cable into the duplex LC connector on the transceiver.
- 6 Connect the other end of the cable to a device fitted with an appropriate Gigabit Ethernet connection.
- 7 Check the Module Active LEDs on the front of the Switch to ensure that the SFP transceiver is operating correctly.

Removing an SFP Transceiver

Removing an SFP transceiver does not require powering off the Switch.

To remove an SFP transceiver:

- 1 Disconnect the cable from the transceiver.
- 2 Move the wire release lever downwards until it is pointing toward you.
- 3 Pull the wire release lever toward you to release the catch mechanism.

The SFP transceiver should slide out easily.

Performing Spot Checks

At frequent intervals, you should visually check the Switch. Regular checks can give you an early warning of a possible failure; any problems can then be attended to when there will be least effect on users.

3Com recommends periodically checking the items listed in Table 1.

Table 1 Items to Check

Cabling	Check that all external cabling connections are secure and that no cables are pulled taut.
Cooling fan	Where possible, check that the cooling fan is operating by listening to the unit. The fan is fitted near to the front right hand side of the unit (when viewed from the front).

If you experience any problems operating the Switch, refer to "Troubleshooting" on page 45.



3 CONNECTING TO THE WEB INTERFACE

The Switch has a built-in Web interface that you can use to set the admin password, change the IP address that is assigned to the Switch, and configure its advanced settings.



If you only want the Switch to function as a basic layer 2 switch, you do not need to access the Web interface and configure the Switch.

This chapter provides information on how to gain access to the Web interface using the Discovery application. It also introduces the menu items and buttons that are available on the Web interface.

The following topics are covered:

- Requirements for Accessing the Web Interface
- Running the Discovery Application
- Logging On to the Web Interface
- Navigating Around the Web Interface
- Accessing the Interface Without Using Discovery

Requirements for Accessing the Web Interface

To connect to the Web interface, you need the following:

- The Discovery application, which is included on 3Com Baseline Switch 2848-SFP Plus CD-ROM that is supplied with your Switch
- A computer that is connected to the Switch and that has a Web browser

Running the Discovery Application

The 3Com Baseline Switch 2848-SFP Plus CD-ROM contains, among others, the Discovery application.

The Discovery application can be used for detecting and connecting to the Switch on the network. The application will launch a Web interface that provides the user with options to configure, modify, and upgrade the Switch.

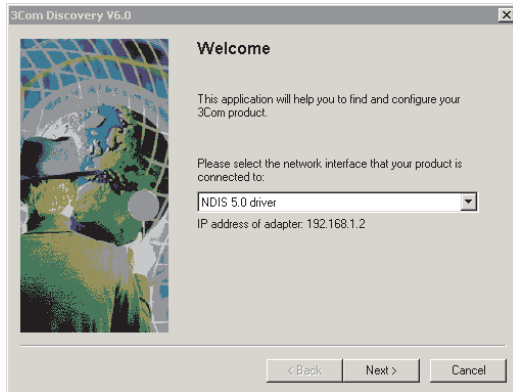
To use Discovery to connect to the Web interface, do the following:

- 1 On a computer that is connected to the Switch, insert the CD-ROM into its CD drive.

Discovery should start automatically. If it does not start automatically, go to the \Discovery folder on the CD-ROM, and then double-click `discovery.exe`.

The Welcome screen of Discovery appears.

Figure 4 Welcome Screen of Discovery

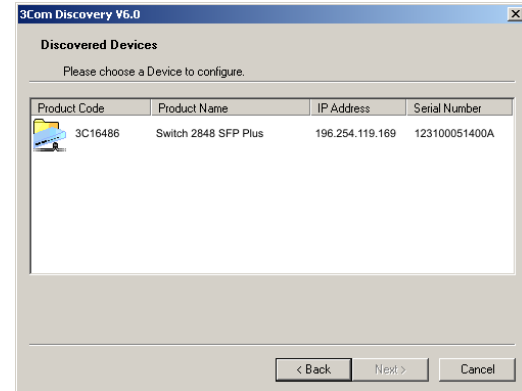


- 2 If the computer has multiple network adapters, select the adapter that connects the computer to the Switch, and then click *Next*.

If the computer has only one adapter, click *Next*.

Discovery searches the network for 3Com devices. When detection is complete, the Discovered Devices screen displays detected network devices.

Figure 5 Discovered Devices Screen



- 3 On the Discovered Devices screen, click *Baseline Switch 2848-SFP Plus*, and then click *Next*.

The Completing the 3Com Discovery Application screen appears.

- 4 Click *Finish*.

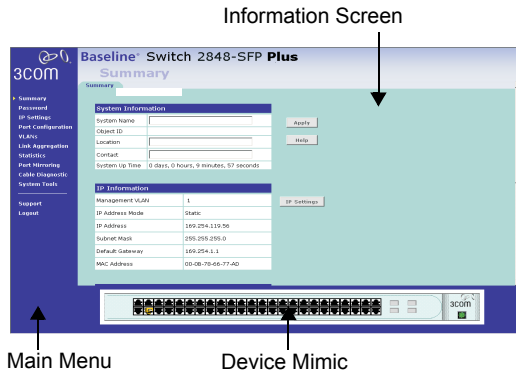
The Web interface loads in your Web browser.

Logging On to the Web Interface

After the Web interface loads in your Web browser, the first page that appears is the logon screen. On this screen, you need to enter the administration user name and password to gain access to the Web interface.

The logon screen also displays the IP address that the Switch is currently using.

Figure 6 Logon Screen



To log on to the Web interface:

- 1 In *Username*, type **admin**.
- 2 Leave the *Password* field blank.
- 3 Click *OK*.

Navigating Around the Web Interface

The Web interface has been designed to enable you to easily perform advanced configuration tasks and view information about the Switch.

Main Menu

The menu is located on the left side of the Web interface. When you click an item on the menu, the related screen appears in the main part of the interface.

Figure 7 Switch Screen Layout

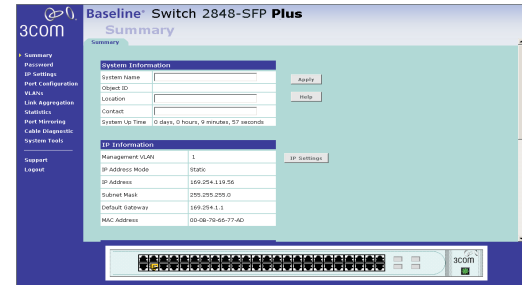


Table 2 lists the available items on the menu.

Table 2 Available Menu Items

Menu Item	Description
Summary	Provides a summary of the Switch's basic settings and versions of current components
Password	Allows you to change the administrator password
IP Setting	Allows you to configure the IP address settings of the Switch
Port Configuration	Allows you to configure the Switch's port settings
VLANs	Allows you to create VLAN groups, add port members, and specify how VLAN tagging is used
Link Aggregation	Allows you to set up and maintain trunk membership for port groups
Statistics	Provides a summary of traffic statistics for all ports.
Port Mirroring	Allows you to perform port traffic monitoring on the Switch. To monitor a port, you will also need a network analyzer.
Cable Diagnostics	Allows you to detect and resolve cable issues
(continued)	

System Tools	Allows you to perform various system maintenance tasks, such as upgrading the firmware, resetting the Switch, backing up and restoring configuration
Support	Displays 3Com contact information and describes how to use the online help system
Log Out	Allows you to securely log off the Web interface

Buttons

Depending on the screen that is currently displayed, the following buttons may appear:

- *Apply* – Click to save and apply any changes that you have made
- *Cancel* – Click to discard any unsaved changes
- *Help* – Click to display the context-sensitive help information for the screen that is currently displayed. The help pages provide information on the tasks that you can perform on each screen.

Device Mimic

At the bottom of each screen is an image of the Switch's front panel, which indicates ports that are currently in use.

To configure a port, click the port on the image. This takes you to the *Basic Port Configuration* tab, where you can:

- Assign a name (or label) to the port

- Enable or disable the port
- Enable or disable flow control
- Configure the speed duplex settings
- Set the priority of the port

Accessing the Interface Without Using Discovery

The Discovery application works by automatically detecting the IP address that is assigned to the Switch, and then using that address to connect to the Web interface. If you know the Switch's IP address, you can access the Web interface without using Discovery.

This section describes how to access the interface directly, without using Discovery.



If you do not configure the Switch's IP address settings, it will perform auto IP configuration to assign an IP address to itself. For more information, refer to "Automatic IP Configuration" on page 29.

To determine the IP address that the Switch will assign to itself during auto IP configuration, check the sticker on the base of the Switch. This sticker contains the MAC address and default IP address of the Switch.

DHCP Assigned IP Address

If you set the IP address mode to DHCP, check the DHCP server for the IP address that is assigned to the

Switch, and then use that IP address to access the Web interface.

For example, if the DHCP server assigned the IP address 192.168.0.123 to the Switch, start your Web browser, and then type `http://192.168.0.123`.

Manually Assigned (Static) IP Address

If you assigned a static IP address to the Switch, you need to use that IP address to access the Web interface the next time you want to configure the Switch.

For example, if you assigned the Switch the IP address 192.168.0.123, start your Web browser, and then type `http://192.168.0.123`.



4 CONFIGURING THE SWITCH

This chapter provides information on how to configure the Switch's features. Topics include:

- Configuration Overview
- Viewing Switch Information
- Changing the Admin Password
- Modifying the IP Address Settings

Configuration Overview

The Switch is shipped ready for use. If you only want the Switch to function as a basic layer 2 switch, you do not need to access the Web interface and configure the Switch.

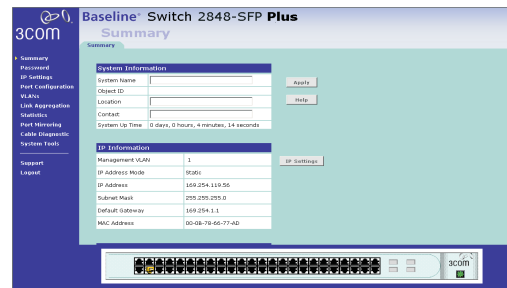
You only need to access the Web interface if you want to:

- Set the administration password to the Web interface
- Assign an IP address to the Switch
- Configure the Switch's advanced features
- Upgrade the firmware

Viewing Switch Information

The Summary screen, which automatically loads after you log on to the Web interface, provides a snapshot of the Switch's basic settings and versions of current components.

Figure 8 Summary Screen



Information that you can view on the Summary screen include:

- System Information – Contains optional fields that you can fill out to identify the Switch. It also shows the object ID and the time elapsed since the Switch was last started. After you update any of the editable fields in this section, click *Apply* to save your changes.
- IP Information – Shows the IP address settings of the Switch. To modify any of these settings, click *IP Settings*. This takes you to the IP Settings screen, shown in Figure 10 on page 30.
- Switch Information – Shows the serial number, total number of ports, and the version of the hardware (board) on the Switch.
- Management Software Information – Shows the versions of the loader (firmware), and the operation code version.

Changing the Admin Password

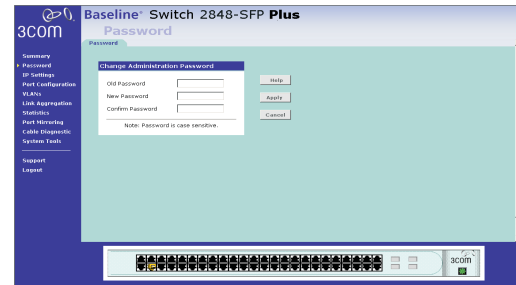
To prevent unauthorized users from accessing the Web interface and modifying the Switch's settings, the interface is password-protected.

The default admin account settings are:

- User name – **admin**
- Password – blank (no password)

To ensure that unauthorized users do not access the Web interface, 3Com recommends that you set an admin password when you first configure the Switch.

Figure 9 Password Screen



To set the admin password:

- 1 On the menu, click *Password*. The Change Administration Password screen appears.
- 2 In *Old Password*, type your current password.

By default, the Switch does not have any password. If this is your first time to access this screen or if you have not previously set a password, leave this field blank.

- 3 In *New Password*, type the password that you want to set.
- 4 In *Confirm Password*, retype the password you typed in step 3 to confirm.



The password is case-sensitive.

- 5 Click *Apply*.

If you want to modify the admin password later on, follow the same procedure.

If you forget the administration password after you set it, refer to “Forgotten Password” on page 45 for information on how to regain access to the Web interface.

Modify the IP Address Settings

To enable devices on the network to communicate with the Switch, you need to assign an IP address to it — either by DHCP or by manually assigning a static IP address.

By default, the Switch performs automatic IP configuration and assigns an IP address to itself. This is necessary for the Discovery application to be able to connect to the Web interface.

Automatic IP Configuration

When you power on the Switch for the first time, it automatically uses the default IP address 169.254.x.y, where x and y are the last two bytes of its MAC address.



To determine the exact IP address that the Switch assigns to itself during auto IP configuration, check the sticker on the base of the Switch. This sticker contains the MAC address and default IP address of the Switch.

To detect its IP information using the automatic configuration process, the Switch goes through the following sequence of steps:

- 1 The Switch tries to configure itself with the default IP address 169.254.x.y, where x and y are converted from the last two bytes of the Switch’s MAC address.

For example, if the MAC address is 08004E000102, the IP address would be 169.254.1.2. This address is used if the Switch is operating in a standalone mode, or no other Switches on the network have this IP address.

The Switch also assigns the subnet mask 255.255.0.0 (default class B mask) to itself.

- 2 If this default IP address is already in use on the network then the Switch detects this, and increments the last byte of the MAC address by one to generate its IP address. The IP address would therefore become 169.254.1.3.
- 3 The Switch repeats step 2 until an unused IP address is found.



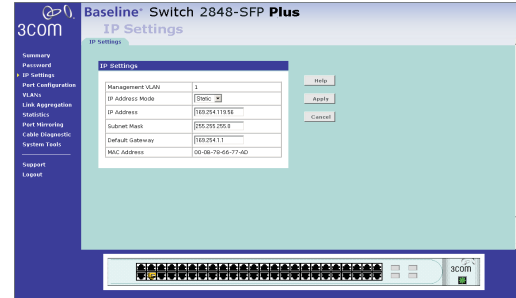
3Com recommends using automatic IP configuration only for the initial setup. Once you gain access to the console, you should assign an IP address to the Switch (either by using DHCP or assigning a static IP address) to ensure successful communication between the Switch and other network devices.

Setting the IP Address

To set the IP address for the Switch:

- 1 On the menu, click *IP Settings*. The IP Settings screen appears.

Figure 10 IP Settings Screen



- 2 Configure the Switch's IP settings. Available options are listed in Table 3.

Table 3 IP Setting Options

Status	Meaning
Management VLAN	Indicates the VLAN from which the Web interface can be accessed. By default, all port belong to VLAN 1. If you create other VLANs, you will only be able to access that Web interface from a computer that belongs to VLAN 1.

(continued)

IP Address Mode	Specify how the Switch will get its IP address. Available options include: <ul style="list-style-type: none"> ■ DHCP – Select this option if you have a DHCP server on the network and you want the Switch to automatically obtain an IP address from it ■ Static – Select this option if you want to manually assign an IP address to the Switch
IP Address	Specify an IP address that you want to assign to the Switch. This option is only available if <i>IP Address Mode</i> is set to <i>Static</i> . The IP address that is assigned to the Switch also becomes the IP address for VLAN 1.
Subnet Mask	Specify a subnet mask address that you want to assign to the Switch. This option is only available if <i>IP Address Mode</i> is set to <i>Static</i> . The default subnet mask is 255.255.0.0.
Default Gateway	Specify the IP address of the gateway router between this Switch and management stations on other network segments. This option is only available if <i>IP Address Mode</i> is set to <i>Static</i> .
MAC Address	Read-only field that displays the Switch's MAC or physical address

After you configure the Switch's IP address settings, click *Apply* to save your changes.

Configure Port Settings

Using the Web interface, you can configure the speed/duplex, flow control, and the priority settings of each port. You can also view the current connection status of each port or shut down or disable ports.

Two tabs are available on the Port Configuration screen:

- Basic Port Configuration
- Advanced Port Configuration

Basic Port Configuration

Use the *Basic Port Configuration* tab to enable and disable the port and its flow control settings and to set the speed/duplex of the port.

The following options are available:

- Port – Physical port number
- Label – Optional name for the port to help you identify the device connected to it. For example, if an access point is connected to this port, you can label it as Access Point.
- Status – Enables and disables the port
- Flow Control – Enables and disables flow control on the port. When flow control is enabled for the port, the Switch regulates the packet flow so that a sending device does not transmit more packets than a receiving device can process. If flow control is disabled, packets may be dropped under certain

periods of high traffic. Flow control is enabled by default.

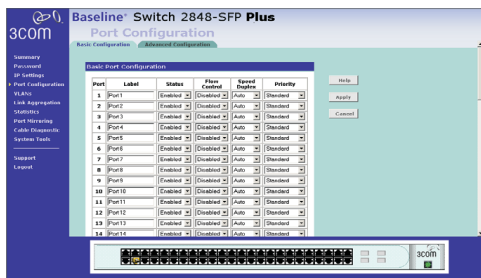
- Speed Duplex – Sets the speed and duplex mode of the port. Available options include auto, 10 half-duplex, 10 full-duplex, 100-half duplex, and 100 full-duplex. For 1000 Mbps connections, see “Speed/Duplex for 1000 Mbps Connections” on page 32.

Auto (or autonegotiation), which is enabled by default, sets the optimum combination of speed and duplex that can be supported by both ends of the link.

- Priority - Sets the priority of the port. Available options include high, intermediate, standard, or low.

If you modify any of these basic port settings, click *Apply* to save your changes.

Figure 11 Basic Port Configuration Screen



Speed/Duplex for 1000 Mbps Connections

You cannot preset the speed to 1000 Mbps. To run a port at 1000 Mbps, you must enable autonegotiation for the port. When autonegotiation is enabled, the Switch will automatically connect at 1000 Mbps, provided the connected device also supports this speed.

1000 Mbps connections are always full-duplex. Half-duplex connections are only available for 10 Mbps and 100 Mbps settings.



CAUTION: Before manually setting a port to full-duplex, verify that the device connected to the port is also manually set to the same speed and duplex setting. If connecting link partners are left to autonegotiate for a link manually set on this switch to full-duplex, they will always negotiate to half-duplex, resulting in a duplex mismatch. This can result in a significant reduction in network performance. If you are unsure of how to configure the speed/duplex setting, simply enable autonegotiation for the port.



You cannot modify the speed/duplex settings of ports that are members of a trunk or aggregated link.



Supported SFP transceivers only operate at 1000 Mbps full-duplex. Inserting an SFP transceiver into a Gigabit port disables the corresponding RJ-45 port, even if no fiber cable is inserted.

Advanced Port Configuration

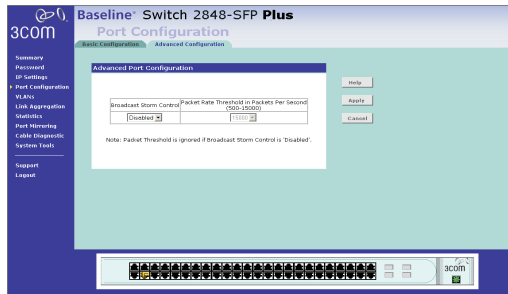
Use the *Advanced Port Configuration* tab to set the Switch's broadcast storm control and threshold limits.

A broadcast storm is an incorrect packet sent out on a network that causes most hosts to respond all at once, typically with wrong answers that start the process over again. Broadcast storms use substantial network bandwidth and may cause network time-outs.

Advanced settings include:

- Broadcast Storm Control – Enables and disables broadcast storm control
- Packet Rate Threshold – Sets the broadcast storm threshold (64 to 95232000 bytes per packet)

Figure 12 Advanced Port Configuration Screen



Default Port Settings

If you do not configure the Switch's port settings, the ports will use the following default settings:

- All ports are enabled
- Autonegotiation is enabled
- Flow control is enabled
- Priority is disabled

Configuring VLANs

A virtual LAN (VLAN) is a collection of network nodes that share the same collision domain, regardless of their physical location or connection point in the network. A VLAN serves as a logical workgroup with no physical barriers, and allows users to share information and resources as though located on the same LAN.

You can use the Switch to create VLANs to organize any group of ports into separate broadcast domains. VLANs confine broadcast traffic to the originating group and help eliminate broadcast storms in large networks. This also provides for a more secure and cleaner network environment.

Using the Switch, you can create up to 64 VLANs, add specific ports to a chosen VLAN (so that the port can only communicate with other ports on the VLAN), or configure a port make it a member of all VLANs.

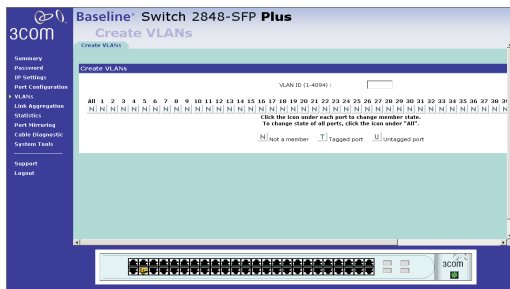
Communication between different VLANs can only take place if they are all connected to a router or layer 3 switch.

Creating a VLAN

Use the Create VLANs screen to create VLANs on the Switch. To propagate information about VLAN groups used on this Switch to external devices, you must specify a VLAN ID for each VLAN.

- 1 In *VLAN ID*, choose “Create New VLAN” from the drop down menu.

Figure 13 Create VLANs Screen



- *VLAN ID* — ID of configured VLAN (1-4094, no leading zeroes).

For examples on setting up VLANs, refer to “Sample VLAN Configurations” on page 35.



CAUTION: *At least one port must always be an untagged member of VLAN 1 (the management VLAN). If you choose to connect all ports to VLANs other than VLAN 1, you will no longer be able to access the Web interface. If this happens, you will need to reset the Switch to factory settings.*

By default, all ports belong to VLAN 1 as an untagged member. Also, newly created VLANs will initially have no ports associated with them.

Each port will always belong to either VLAN 0 or 1 as an untagged member. However, they can belong to multiple VLANs as a tagged member.

Modify VLANs

Click the icon under each port number to configure the port mode of a selected VLAN. To change the mode of all ports, click the icon under “All”.

Available options for each port include (only one option can be associated with a single port):

- *N* – *Not a member*. If you select this, the port is not a member of the currently selected VLAN.
- *T* – *Tagged*. If you select this, the port is able to communicate with all VLANs on the Switch.
- *U* – *Untagged*. If you select this, the port can only communicate with other ports assigned to the same VLAN selected in the VLAN ID drop down list.



A tagged port is sometimes referred to as an uplink port. The two terms refer to the same feature.

If a port is already an untagged member of VLAN 0, making it an untagged member of VLAN 1 will disassociate it from VLAN 0. The same result happens from VLAN 1 to VLAN 0.

Delete VLANs

Click the Remove button to remove the selected VLAN group from the current list.

- 1 In *VLAN ID*, click the ID of the VLAN group that you want to delete.
- 2 Click *Remove*.

If any port is assigned to this VLAN group as untagged, it will be reassigned to VLAN group 1 as untagged.

Forwarding Tagged/Untagged Frames

Each port on the Switch is capable of passing tagged or untagged frames.

The following describes how the Switch will handle tagged and untagged frames.

- When a port receives a tagged frame with a VLAN ID and the port is a member (untagged or tagged) of that VLAN, the frame is accepted. Otherwise if the port is not a member of that VLAN, the frame is discarded.

- When a port receives an untagged frame and the port is an untagged member of a VLAN, the frame is accepted and assigned to that VLAN ID. Otherwise if the port is not an untagged member of any VLAN, the frame is discarded.

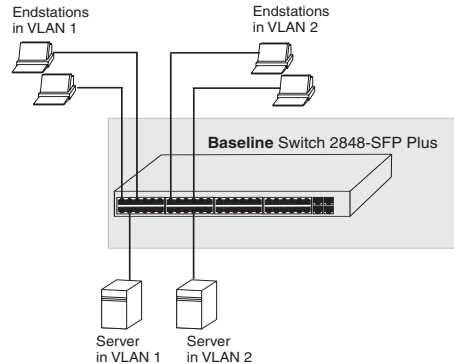
The Switch will only forward a frame to ports that are members (tagged or untagged) of the VLAN to which the frame is assigned. If the port is an untagged member, the egress frame will be stripped of the VLAN tag and forwarded as untagged. However, if the port is a tagged member, the egress frame is forwarded as tagged.

Sample VLAN Configurations

To illustrate how you can segment network devices that are connected to the Switch, the following sample configurations are provided.

Setting Up Two VLANs on the Same Switch

Figure 14 illustrates how you can set up a simple VLAN on the Switch using untagged connections.

Figure 14 Untagged VLAN Configuration Example

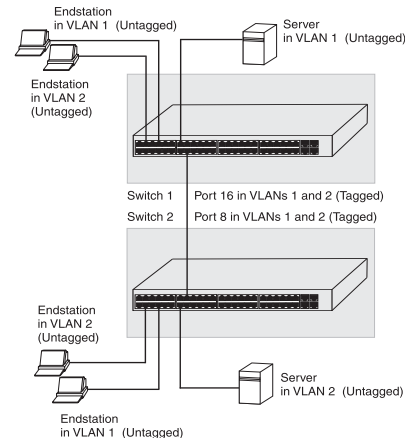
This example explains how you can set up a simple VLAN Configuration on your Switch using untagged connections. If you want to add ports 7, 8 and 16 to VLAN2, as shown in Figure 14, so that the ports on the default VLAN1 and the ports on VLAN2 cannot communicate with each other, do the following:

- 1 Use the Create VLANs screen (Figure 13) to create VLAN2. (VLAN1 is the default VLAN and already exists.)
- 2 Click the icon under port number 7 until you see the letter *U* for *Untagged*.
- 3 Repeat step 2 for ports 8 and 16.
- 4 Click *Apply*.

Ports 7, 8 and 16 now belong to VLAN2, and will not communicate with any other ports until you add another port to the VLAN, or change the port configuration.

Setting Up a VLAN Across Two Switches

This example explains how you can set up a VLAN across two Switches using tagged connections. This enables ports that are members of the same VLAN (but are on different switches) to communicate, provided that a port on each Switch is set to tagged, and that these ports are connected.

Figure 15 Tagged VLAN Configuration Example

To set up the configuration shown in Figure 15, do the following:

- 1 Use the Create VLANs screen (Figure 13) to create VLAN2 on both Switch 1 and Switch 2. (VLAN1 is the default VLAN and already exists.)
- 2 For Switch 1, click the icon under port numbers you want to add to VLAN2 until you see the letter *U* for *Untagged*. Select *T* or *Tagged* as the mode for port 16.
- 3 Click *Apply*.
- 4 For Switch 2, click the icon under port numbers you want to add to VLAN2 until you see the letter *U* for *Untagged*. Select *T* or *Tagged* as the mode for port 8.
- 5 Click *Apply*.
- 6 Connect port 16 on Switch 1 to port 8 on Switch 2.

Those ports on Switch 1 that are members of VLAN2 can now communicate with those ports on Switch 2 that are members of VLAN2.

Configuring Trunking

Ports can be statically grouped into a trunk, also known as an aggregated link under the IEEE 802.1ad standard. This increases the bandwidth of a network connection and ensures fault recovery. Trunking permits the connection of multiple ports to the same remote device to achieve higher network throughput.

For link aggregation to work, the trunks must be configured on both ends of the switches.



The Switch does not support the Link Aggregation Control Protocol (LACP), which is specified in IEEE 802.3ad.

Guidelines for creating Trunks

- Any of the ports on the Switch can be used for creating a trunk.
- This Switch can support a maximum of 4 trunks.
- Each trunk may contain up to 8 members.
- A port may only be a member of one trunk at any one time.

All ports in a trunk must be configured in an identical manner, including communication modes such as speed, duplex mode and flow control.

Defining the Members of a Trunk

Use the *Membership/Setup* tab of the Link Aggregation page to specify the members of a trunk.

To define the members of a trunk:

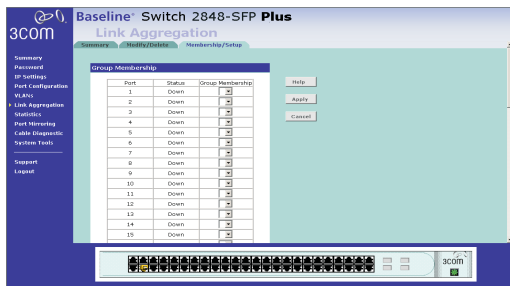
- 1 On the *Membership/Setup* tab, select the same trunk number under Group Membership for the ports that you want to trunk.

For example, if you want ports 2, 3, 4, and 5 to become members of Trunk 2, set the Group Membership for these ports to 2.

- 2 Click *Apply*.

The Status column refers to the speed and duplex mode of the trunk members. To change the speed and duplex mode of the trunk, click the *Modify/Delete* tab.

Figure 16 Trunking Membership Screen



Modifying Trunk Settings and Deleting a Trunk

Use the *Modify/Delete* tab to modify the trunk name and configure flow control and duplex settings of the trunk.

To modify trunk settings:

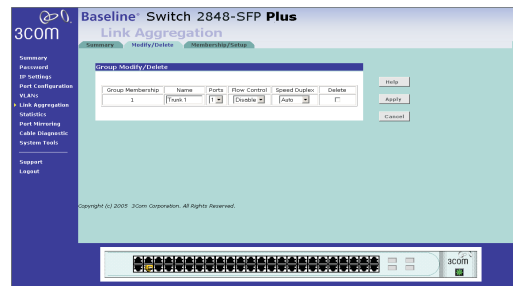
- 1 On the *Modify/Delete* tab, modify any of the following settings:
 - **Name** — Allows you to label an interface (up to characters)
 - **Flow Control** — Allows automatic or manual selection of flow control.

- **Speed Duplex** – Allows auto-negotiation to be enabled or disabled. When autonegotiation is disabled, you can force the settings for speed, duplex mode, and flow control.

- 2 Click *Apply*.

To delete a trunk, click the corresponding *Delete* check box, and then click *Apply*.

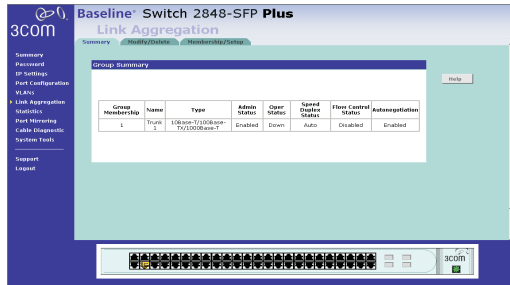
Figure 17 Trunking Screen



Viewing the Trunk Summary

If you want to view a summary of the trunk settings, click the *Summary* tab.

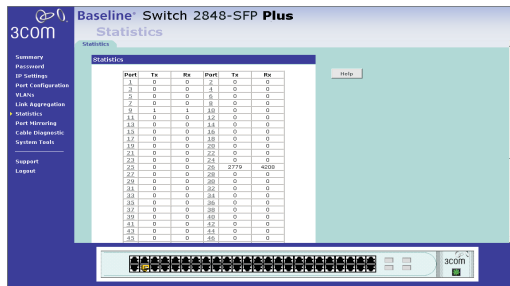
Figure 18 Trunking Summary Screen



Viewing Statistics

The Statistics page shows a summary of traffic statistics for all ports, as shown in Figure 19.

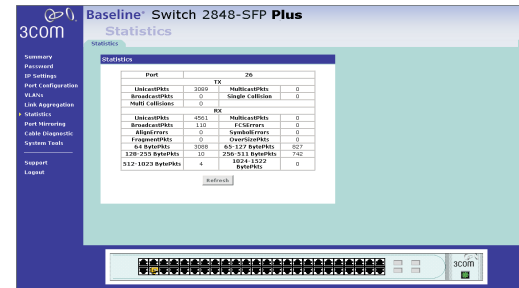
Figure 19 Statistics Page



Figures that appear onscreen indicate the number of packets transmitted (Tx) and received (Rx).

- To reset all packet counts to zero, click *Clear Counters*.
- To view detailed statistics for each port, click the port number. The statistics page for the port appears, as shown in Figure 20.

Figure 20 Port Statistics Page



Figures on the Statistics page for individual ports are not updated in real time. To view the latest statistics for the port, click Refresh.

Monitoring Traffic

The Switch allows you to monitor traffic going in and out of a particular port. For traffic monitoring to work,

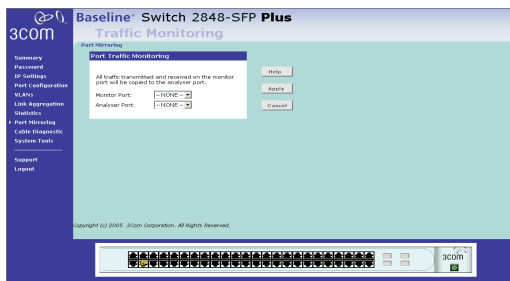
you need to attach a network analyzer to one port and use it to monitor the traffic of other ports in the stack.

To set up traffic monitoring, you need to set an analyzer port (the port that is connected to the analyzer), and a monitor port (the port that is to be monitored). Once the pair is defined, and you enable traffic monitoring, the Switch takes all the traffic going in and out of the monitor port and copies it to the analyzer port.



CAUTION: *The analyzer port should have a higher bandwidth than the monitor port. Otherwise, the Switch may not be able to copy all traffic effectively during periods of high traffic.*

Figure 21 Traffic Monitoring Screen



To set up traffic monitoring for a port:

- 1 Attach a network analyzer to a port.
- 2 Access the Web interface, and then click *Port Mirroring* on the menu.

- 3 Specify the monitor port and analyzer port from the list.
 - *Monitor Port* — This is the port that is to be monitored.
 - *Analyzer Port* — This is the port to which the analyzer is attached.
- 4 Click *Apply*.

For information on how to interpret the output on the port analyzer, refer to its accompanying documentation.

Running Cable Diagnostic

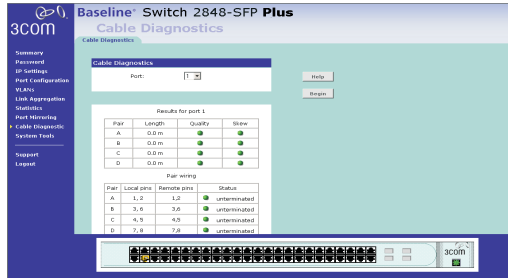
The Switch provides cable diagnostic, which helps you detect and resolve issues with the attached cables. The Switch will run three types of cable diagnostic tests:

- Basic Diag (Pair Quality and Pair Skew)
- Pair Wiring
- Link Information

To run the tests on a port:

- 1 In *Port*, select a port number to diagnose.
- 2 Click *Apply*.

Figure 22 Cable Diagnostic Screen



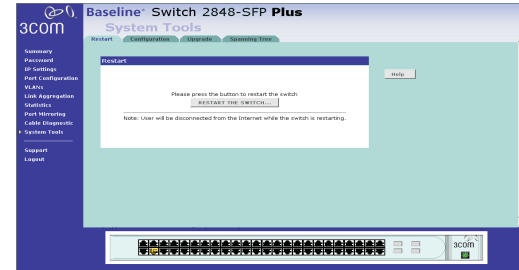
Using the System Tools

The System Tools menu includes five administration items: *Restart*, *Configuration*, *Upgrade* and *Spanning Tree*.

Restart

Pressing the *Restart the Switch* button has the same effect as power cycling the unit. No configuration information will be lost. This function may be of use if you are experiencing problems and you want to re-establish your Internet connection.

Figure 23 Restart Screen

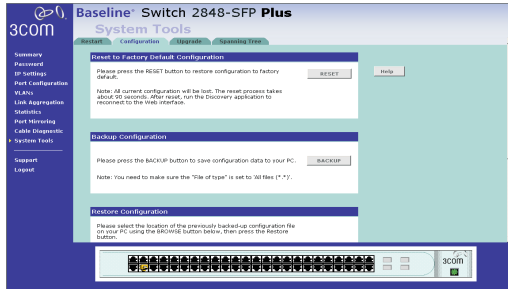


Any network users who are currently accessing the Internet will have their access interrupted while the restart takes place, and they may need to reboot their computers when the restart has completed and the Switch is operational again.

Configuration

Use the *Configuration* tab to reset the Switch to factory defaults and to back up or restore configuration settings.

Figure 24 Configuration Screen



Resetting to Factory Defaults

If the Switch does not operate normally or if the firmware becomes corrupted, you can reset the Switch to its factory defaults.



CAUTION: *Resetting the Switch to its factory defaults erases all your settings. You will need to reconfigure the Switch after you reset it.*

To reset the Switch to factory defaults, click *Reset*. The Switch LAN IP address will revert to the default IP address 169.254.x.y (using the process described in “Automatic IP Configuration” on page 29). You may need to restart your computer to re-establish communication with the Switch.

Backing Up and Restoring Configuration

To back up the Switch’s setting to a configuration file, click *Backup*. You will be prompted to download and save a file to disk.

To reload previously saved configuration:

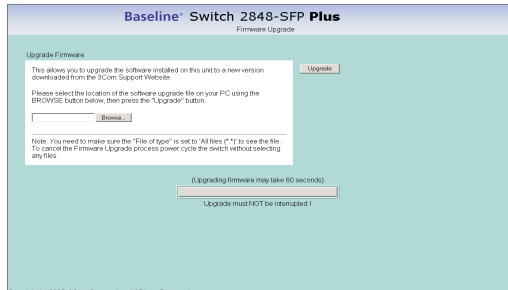
- 1 Scroll down the page, and then click *Browse* to locate the backup file on your computer.
- 2 Click *Restore* to copy the configuration back to the Switch.

For security purposes, restoring the configuration does not change the password.

Upgrade

The Upgrade feature allows you to install on the Switch any new releases of system software that 3Com may make available. To check for available software upgrades, refer to “Access Software Downloads” on page 49.

The newer version of software can be downloaded via HTTP and once copied to the Switch; the Switch will restart and apply the newer system software version.

Figure 25 Upgrade Screen

Once you have downloaded the software, use the *Browse* button to locate the file on your computer, and then click on *Apply*.



*You may need to change the file type in the dialog box displayed by your Web browser to *.* to be able to see the file.*

The file will be copied to the Switch, and once this has completed, the Switch will restart. Although the upgrade process has been designed to preserve your configuration settings, 3Com recommends that you make a backup of the configuration beforehand, in case the upgrade process fails for any reason (for example, the connection between the computer and the Switch is lost while the new software is being copied to the Switch).

The upgrade procedure can take a few minutes, and is complete when the Power LED has stopped flashing and is permanently green. Make sure that you do not interrupt power to the Switch during the upgrade procedure; if you do, the software may be corrupted and the Switch may not start up properly afterwards. If the Power LED continues to flash after a failed upgrade, refer to “Troubleshooting” on page 45.

Spanning Tree

This administrative tool supports the configuration of the Switch to forward, or block and discard 802.1D spanning tree BPDU packets.

Spanning tree is a bridge-based system for providing fault tolerance on networks and can be used to detect and disable network loops. The spanning tree ensures that the optimal path is maintained between spanning tree-compliant networked devices by:

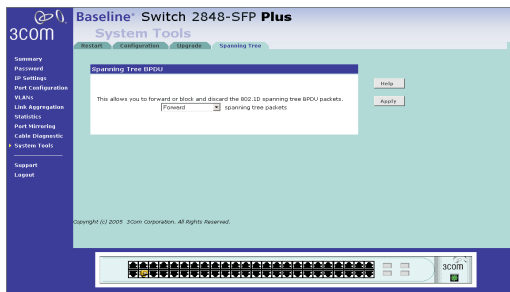
- Disabling redundant paths when the main paths are operational.
- Enabling redundant paths if the main paths fail.

Spanning tree uses a distributed algorithm to select a bridging device that serves as the root of the spanning tree network. The bridging device known as the Root Bridge generates BPDUs (Bridge Protocol Data Units) on all ports at a regular interval known as the Hello Time. All other spanning tree-compliant devices on the network have a designated Root Port. This is the Port nearest the Root Bridge and it is used for receiving the

BPDUs initiated by the Root Bridge. If a bridge does not get a Hello BPDU after a predetermined interval, the bridge assumes that the link to the Root Bridge is down. This bridge will then initiate negotiations with other bridges to reconfigure the network to re-establish a valid network topology.

After all the bridges on the network have determined the configuration of their ports, each bridge only forwards traffic between the Root Port and the ports that are the Designated Bridge Ports for each network segment. All other ports are blocked, which means that they are prevented from forwarding traffic.

Figure 26 Spanning Tree Screen



- **Forward** — Spanning tree BPDU packets received on a port are forwarded to all other ports.

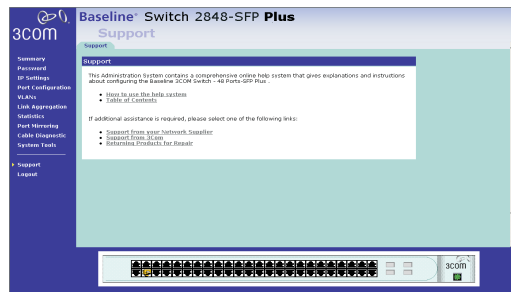
- **Block and Discard** — Spanning tree BPDUs received on a port are dropped. The Switch does not forward BPDUs to other ports.

The Switch does not participate as a bridge node in the spanning tree, it can only be configured to forward or block spanning tree BPDUs. If the Switch is connected to other bridging devices, such as switches, that are part of the spanning tree network, set the Switch to "Forward." If the Switch is connected only to workstations, it can be set to "Block and Discard."

Support

Selecting *Support* on the main menu displays the support links screen, which contains a list of Internet links that provide information and support concerning the Switch. (Figure 27)

Figure 27 Support Screen



5 TROUBLESHOOTING

This chapter lists some issues that you may encounter while installing, using, and managing the Switch, with suggested courses of corrective action to take.

If you encounter an issue that is not listed here and you cannot solve it, check the 3Com Knowledgebase at <http://knowledgebase.3com.com> before contacting your local technical support representative.

For more information on how to obtain support for your Switch, refer to Appendix A.

Forgotten Password

If you forget the password to the Web interface after you set it, you will need to reset the Switch to regain access. See “Resetting to Factory Defaults” on page 42 for instructions.

After resetting the Switch, log on to the Web interface using the default admin account settings:

- User name – admin
- Password – blank (no password)

Forgotten Static IP Address

If you forget the static IP address that you assigned to the Switch and you need to access the Web interface, use the Discovery application to automatically detect the IP address and connect to the interface.

For information on using the Discovery application, refer to “Running the Discovery Application” on page 21.

Solving LED Issues

This section lists some issues that are related to the LEDs on the front panel of the Switch. For information on basic LED checks, refer to the following topics in Chapter 1:

- (3) Link/Activity Status LEDs
- (4) Module Active LEDs
- (5) SFP Port Status LEDs
- (6) Power LED

A link is connected but the Link/Activity Status LED for the port does not light

There is a problem with this connection. Check that:

- The device being connected to is powered on and operating correctly.
- The cable is connected at both ends.
- The cable is not damaged.
- If the connection is to a workstation, that the workstation's network interface is installed and configured correctly.
- The correct category of cable is being used for the required link speed. Category 3 cable can be used for 10BASE-T operation only. Category 5 cable is required for 100BASE-TX or 1000BASE-T. 3Com recommends Category 5e or 6 cable for 1000BASE-T operation.

A fiber cable is connected but the Module Present LED does not light

Check that:

- The Receive (RX) and Transmit (TX) cable connectors are not swapped.
- The fiber cable is in good condition.
- The SFP module is correctly inserted.
- A 3Com SFP module is being used. Refer to "Approved SFP Transceivers" on page 17 for details.

- The equipment at the far end is installed and correctly configured.

The Link/Activity LED is lit but the network performance of the Switch is poor

The Switch supports full-duplex auto-negotiation. If the connected device does not support auto-negotiation, ensure it is configured for half-duplex operation only. If the connected device has auto-negotiation disabled or over-ridden, and is configured as full duplex, the Switch will configure the link as half duplex, causing a mis-match that will reduce network performance when data is transmitting and receiving simultaneously on the same link.

Ensure that the connected device has either:

- Auto-negotiation enabled, or
- The ports are configured for half-duplex operation

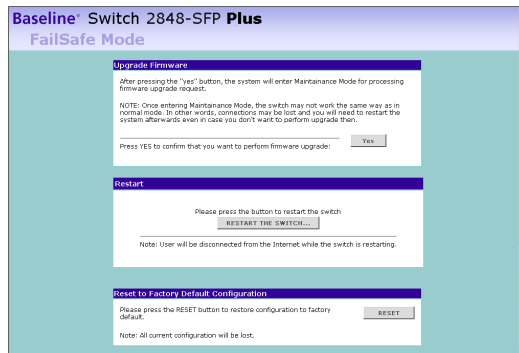
All ports appear to show continual activity

There may be broadcast storms on the network. Remove port connections one at a time, waiting a few seconds between each port. If the LEDs go off after removing a port connection, the device that was connected to that port is introducing an excessive amount of broadcast frames to the network (some pieces of network equipment operate by sending out broadcast frames regularly). Refer to the documentation that accompanies the device for information on disabling the broadcast operation.

The firmware image has become corrupted

If the firmware image becomes corrupted, you need to upgrade the firmware, refer to “Upgrade” on page 42. The Switch goes into Fail Safe mode, and the screen shown in Figure 28 displays.

Figure 28 Fail Safe Mode Screen



To upgrade the firmware, click *Browse*, and follow the on-screen instructions to upgrade the Switch to the required version of firmware.

Alternatively, click *reset* to return the Switch to its factory default settings.



CAUTION: Before recovering the Switch, save the Switch's current configuration. Recovering the Switch will cause the current configuration to be lost.

You forget the Switch's default IP address, or you forget the user name or password that you assigned to the Switch.

The Discovery application can be used for detecting the Switch on the network. Otherwise, you can restore the default settings, using the recovery button on the rear panel of the Switch.



For details on how to use Discovery to detect the Switch on the network, refer to “Running the Discovery Application” on page 21.



CAUTION: Before recovering the Switch, save the Switch's current configuration. Recovering the Switch will cause the current configuration to be lost.

To recover the Switch:

- 1 Back up the current configuration. Refer to “Configuration” on page 41 for details.
- 2 Power off the Switch.
- 3 Press and hold the recovery button on the rear panel of the Switch using a pointed tool, and then power on the Switch. After at least 5 seconds, or when the LED flashes, release the recovery button. The Switch will now enter fail safe mode, whereby the Switch's IP address, user name and password will be reset to the factory defaults.
- 4 Click on the *Restart the Switch* button.
- 5 Restore the configuration file that you backed up in step 1. Refer to “Configuration” on page 41 for details.

If the Problem Persists

If the problem persists and the unit still does not operate successfully, contact your supplier with the following information:

- Product number and serial number (printed on a label supplied with the unit).
- A brief description of the fault.

A OBTAINING SUPPORT FOR YOUR PRODUCT

Register Your Product

Warranty and other service benefits start from the date of purchase, so it is important to register your product quickly to ensure you get full use of the warranty and other service benefits available to you.

Warranty and other service benefits are enabled through product registration. Register your product at <http://eSupport.3com.com/>. 3Com eSupport services are based on accounts that you create or have authorization to access. First time users must apply for a user name and password that provides access to a number of eSupport features including Product Registration, Repair Services, and Service Request. If you have trouble registering your product, please contact 3Com Global Services for assistance.

Purchase Value-Added Services

To enhance response times or extend warranty benefits, contact 3Com or your authorized 3Com reseller. Value-added services like 3Com ExpressSM and GuardianSM can include 24x7 telephone technical support, software upgrades, onsite assistance or advance hardware replacement. Experienced engineers

are available to manage your installation with minimal disruption to your network. Expert assessment and implementation services are offered to fill resource gaps and ensure the success of your networking projects. More information on 3Com maintenance and Professional Services is available at www.3com.com.

Contact your authorized 3Com reseller or 3Com for a complete list of the value-added services available in your area.

Troubleshoot Online

You will find support tools posted on the 3Com Web site at www.3com.com/

3Com Knowledgebase helps you troubleshoot 3Com products. This query-based interactive tool is located at <http://knowledgebase.3com.com> and contains thousands of technical solutions written by 3Com support engineers.

Access Software Downloads

Software Updates are the bug fix/maintenance releases for the version of software initially purchased with the product. In order to access these Software

Updates you must first register your product on the 3Com Web site at <http://eSupport.3com.com/>.

First time users will need to apply for a user name and password. A link to software downloads can be found at <http://eSupport.3com.com/>, or under the Product Support heading at www.3com.com/

Software Upgrades are the feature releases that follow the software version included with your original product. In order to access upgrades and related documentation you must first purchase a service contract from 3Com or your reseller.

Telephone Technical Support and Repair

To obtain telephone support as part of your warranty and other service benefits, you must first register your product at <http://eSupport.3com.com/>

Warranty and other service benefits start from the date of purchase, so it is important to register your product quickly to ensure you get full use of the warranty and other service benefits available to you.

When you contact 3Com for assistance, please have the following information ready:

- Product model name, part number, and serial number
- Proof of purchase, if you have not pre-registered your product

- A list of system hardware and software, including revision level
- Diagnostic error messages
- Details about recent configuration changes, if applicable

To send a product directly to 3Com for repair, you must first obtain a return authorization number (RMA). Products sent to 3Com, without authorization numbers clearly marked on the outside of the package, will be returned to the sender unopened, at the sender's expense. If your product is registered and under warranty, you can obtain an RMA number online at <http://eSupport.3com.com/>. First time users will need to apply for a user name and password.

Contact Us

3Com offers telephone, e-mail and Internet access to technical support and repair services. To access these services for your region, use the appropriate telephone number, URL or e-mail address from the list below.

Telephone numbers are correct at the time of publication. Find a current directory of support telephone numbers posted on the 3Com Web site at <http://csoweb4.3com.com/contactus/>

Country	Telephone Number
Asia, Pacific Rim Telephone Technical Support and Repair	
Australia	1 800 678 515
Hong Kong	800 933 486
India	+61 2 9424 5179 or 000800 6501111
Indonesia	001 803 61 009
Japan	00531 616 439 or 03 3507 5984
Malaysia	1800 801 777
New Zealand	0800 446 398
Pakistan	+61 2 9937 5083
Philippines	1235 61 266 2602 or 1800 1 888 9469
P.R. of China	800 810 3033
Singapore	800 6161 463
S. Korea	080 333 3308
Taiwan	00801 611 261
Thailand	001 800 611 2000

You can also obtain support in this region using the following e-mail: apr_technical_support@3com.com

Or request a repair authorization number (RMA) by fax using this number: +65 543 6348

Europe, Middle East, and Africa Telephone Technical Support and Repair

From anywhere in these regions, call: +44 (0)1442 435529

From the following countries, you may use the numbers shown:

Country	Telephone Number
Austria	0800 297 468
Belgium	0800 71429
Denmark	800 17309
Finland	0800 113153
France	0800 917959
Germany	0800 182 1502
Hungary	06800 12813
Ireland	1 800 553 117
Israel	1800 945 3794
Italy	800 879489
Luxembourg	800 23625
Netherlands	0800 0227788
Norway	800 11376
Poland	00800 4411 357
Portugal	800 831416
South Africa	0800 995 014
Spain	900 938 919
Sweden	020 795 482
Switzerland	0800 553 072
U.K.	0800 096 3266

You can also obtain support in this region using the following URL: <http://emea.3com.com/support/email.html>

Country	Telephone Number
Latin America Telephone Technical Support and Repair	
Antigua Barbuda	AT&T +800 988 2112
Argentina Local Number	54 11 5556 3200
Argentina	0 810 444 3COM
Argentina	810 44 32 66
Aruba	AT&T +800 998 2112
Bahamas	AT&T +800 998 2112
Barbados	AT&T +800 998 2112
Belize	AT&T +800 998 2112
Bermuda	AT&T +800 998 2112
Bolivia	AT&T +800 998 2112
Brazil Local Number	55 11 5643 2700
Brazil	800 133 266
British Virgin Islands	AT&T +800 998 2112
Cayman Islands	AT&T +800 998 2112
Chile	AT&T +800 998 2112
Columbia Local Number	57 1 592 5000
Colombia	800 011 3266
Costa Rica	AT&T +800 998 2112
Curacao	AT&T +800 998 2112
Dominica	AT&T +800 998 2112
Dominique	AT&T +800 998 2112
Equador	AT&T +800 998 2112
El Salvador	AT&T +800 998 2112
French Guiana	AT&T +800 998 2112
Grenada	AT&T +800 998 2112
Guadalupe	AT&T +800 998 2112
Guatemala	AT&T +800 998 2112
Guyana	AT&T +800 998 2112
Haïti	AT&T +800 998 2112
Honduras	AT&T +800 998 2112
Jamaica	AT&T +800 998 2112
Mexico Local Number	52 55 52 01 00 04
Mexico	01 800 849CARE
Mexico	01 800 849 2273
Montserrat	AT&T +800 998 2112
Nicaragua	AT&T +800 998 2112
Panama	AT&T +800 998 2112
Paraguay	AT&T +800 998 2112
Peru	AT&T +800 998 2112

Country	Telephone Number
Puerto Rico	AT&T +800 998 2112
Saba Anquilla	AT&T +800 998 2112
St. Kitts Neives	AT&T +800 998 2112
St. Lucia	AT&T +800 998 2112
St. Vincent	AT&T +800 998 2112
Suriname	AT&T +800 998 2112
Trinidad and Tobago	AT&T +800 998 2112
Turks and Caycos	AT&T +800 998 2112
Uruguay - Montevideo	AT&T +800 998 2112
Venezuela	AT&T +800 998 2112
Virgin Islands	AT&T +800 998 2112

You can also obtain support in this region using the following:

Spanish speakers, enter the URL:

<http://lat.3com.com/lat/support/form.html>

Portuguese speakers, enter the URL:

<http://lat.3com.com/br/support/form.html>

English speakers in Latin America should send e-mail to:

lat_support_anc@3com.com

US and Canada Telephone Technical Support and Repair

1 800 876 3266

B TECHNICAL INFORMATION

Related Standards

The Baseline Switch 2848-SFP Plus has been designed to the following standards:

Functional	IEEE 802.3 (Ethernet), IEEE 802.3u (Fast Ethernet), IEEE 802.3ab and IEEE 802.3z (Gigabit Ethernet), IEEE 802.3x (Flow Control), IEEE 802.1D 1993 (Bridging), IEEE D802.1Q 1998 (Virtual LAN)
MAC Address	4096
Safety	UL/CUL (UL 60950-1, CSA 22.2 No 60950-1), TUV/GS (EN 60950-1), IEC 60950-1, CB
EMC Emissions	EN50081-1, EN 55022 Class A, EN50082-1, IEC 1000-4-2/3/4/6, EN60555-2 Class A, EN 60555-3, FCC Part 15 Subpart B Class A,
Immunity	EN 55024

Environmental

Operating Temperature	0-45 °C (32-113 °F)
Storage Temperature	-40-70 °C (-40-158 °F)
Humidity	0-95% (non-condensing)
Standard	EN 60068 (IEC 68)—various parts

Physical

Width	44 cm (17.3 in.)
Depth	23.8 cm (9.4 in.)
Height	4.4 cm (1.7 in.) or 1U
Weight	3.2 kg (7.05 lb)
Mounting	Free standing, or 19 in. rack mounted using the mounting kit supplied

Electrical

Power Inlet	IEC 320
AC Line Frequency	50/60 Hz (+/- 3 Hz)
Input Voltage	100-240 VAC (auto range)
Current Rating	2 Amp (maximum)
Maximum Power Consumption	84 W
Maximum Power Dissipation	286.7 BTU/hr



C SAFETY INFORMATION

Important Safety Information

Please read the following safety information carefully before installing the Baseline Switch 2848-SFP Plus.



WARNING: *Installation and removal of the unit must be carried out by qualified personnel only.*

- If installing the Switch unit in a stack with other units, the Switch unit must be installed below the narrower units and above the deeper units.
- The unit must be connected to an earthed (grounded) outlet to comply with international safety standards.
- Do not connect the unit to an A.C. outlet (power supply) without an earth (ground) connection.
- The appliance coupler (the connector to the unit and not the wall plug) must have a configuration for mating with an EN60320/IEC320 appliance inlet.
- The socket outlet must be near to the unit and easily accessible. You can only remove power from the unit by disconnecting the power cord from the outlet.
- This unit operates under SELV (Safety Extra Low Voltage) conditions according to IEC 60. The conditions are only maintained if the equipment to

which it is connected also operates under SELV conditions.

France and Peru only

This unit cannot be powered from IT[†] supplies. If your supplies are of IT type, this unit must be powered by 230 V (2P+T) via an isolation transformer ratio 1:1, with the secondary connection point labelled Neutral, connected directly to earth (ground).

[†] Impédance à la terre

Power Cord Set

This must be approved for the country where it will be used.

- | | |
|-------------------|--|
| U.S.A. and Canada | <ul style="list-style-type: none"> ■ The cord set must be UL-approved and CSA certified. ■ The minimum specifications for the flexible cord are:
No. 18 AWG
Type SV or SJ
3-conductor ■ The cord set must have a rated current capacity of at least 10 A. ■ The attachment plug must be an earth-grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration. |
| Denmark | <ul style="list-style-type: none"> ■ The supply plug must comply with Section 107-2-D1, Standard DK2-1a or DK2-5a. |
| Switzerland | <ul style="list-style-type: none"> ■ The supply plug must comply with SEV/ASE 1011. |
| UK | <ul style="list-style-type: none"> ■ The supply plug must comply with BS1363 (3-pin 13-amp) and be fitted with a 5 A fuse which complies with BS1362. ■ The mains cord must be <HAR> or <BASEC> marked and be of type HO3VVF3GO.75 (minimum). |
| Europe | <ul style="list-style-type: none"> ■ The supply plug must comply with CEE77 ("SCHUKO") ■ The mains cord must be <HAR> or <BASEC> marked and be of type HO3VVF3GO.75 (minimum). |



WARNING: Fiber optic ports - optical safety



Never look at the transmit laser while it is powered on. Never look directly at the fiber ports and fiber cable ends when they are powered on.



WARNING: Use of controls or adjustments of performance or procedures other than those specified herein may result in hazardous laser emissions.

L'Information De Sécurité Importante

Veillez lire à fond l'information de la sécurité suivante avant d'installer le Baseline Switch 2848-SFP Plus.



AVERTISSEMENT: L'installation et la dépose de ce groupe doivent être confiés à un personnel qualifié.

- Si vous entassez l'unité Switch avec les unités SuperStack 3 Hub, l'unité Baseline Switch 2816S doit être installée en dessous des unités Hub plus étroites.
- Ne branchez pas votre appareil sur une prise secteur (alimentation électrique) lorsqu'il n'y a pas de connexion de mise à la terre (mise à la masse).
- Vous devez raccorder ce groupe à une sortie mise à la terre (mise à la masse) afin de respecter les normes internationales de sécurité.
- Le coupleur d'appareil (le connecteur du groupe et non pas la prise murale) doit respecter une

configuration qui permet un branchement sur une entrée d'appareil EN60320/IEC 320.

- La prise secteur doit se trouver à proximité de l'appareil et son accès doit être facile. Vous ne pouvez mettre l'appareil hors circuit qu'en débranchant son cordon électrique au niveau de cette prise.
- L'appareil fonctionne à une tension extrêmement basse de sécurité qui est conforme à la norme IEC60950. Ces conditions ne sont maintenues que si l'équipement auquel il est raccordé fonctionne dans les mêmes conditions.

France et Pérou uniquement:

Ce groupe ne peut pas être alimenté par un dispositif à impédance à la terre. Si vos alimentations sont du type impédance à la terre, ce groupe doit être alimenté par une tension de 230 V (2 P+T) par le biais d'un transformateur d'isolement à rapport 1:1, avec un point secondaire de connexion portant l'appellation Neutre et avec raccordement direct à la terre (masse).

Cordon électrique

Il doit être agréé dans le pays d'utilisation.

- | | |
|-----------------------|---|
| Etats-Unis et Canada: | <ul style="list-style-type: none"> ■ Le cordon doit avoir reçu l'homologation des UL et un certificat de la CSA. ■ Le cordon souple doit respecter, à titre minimum, les spécifications suivantes:
calibre 18 AWG
type SV ou SJ
à 3 conducteurs ■ Le cordon doit être en mesure d'acheminer un courant nominal d'au moins 10 A. ■ La prise femelle de branchement doit être du type à mise à la terre (mise à la masse) et respecter la configuration NEMA 5-15P (15 A, 125 V) ou NEMA 6-15P (15 A, 250 V). |
| Danemark: | <ul style="list-style-type: none"> ■ La prise mâle d'alimentation doit respecter la section 107-2 D1 de la norme DK2 1a ou DK2 5a. |
| Suisse: | <ul style="list-style-type: none"> ■ La prise mâle d'alimentation doit respecter la norme SEV/ASE 1011. |
| Europe | <ul style="list-style-type: none"> ■ La prise secteur doit être conforme aux normes CEE 7/7 ("SCHUKO") ■ LE cordon secteur doit porter la mention <HAR> ou <BASEC> et doit être de type HO3VVF3GO.75 (minimum). |



AVERTISSEMENT: Ports pour fibres optiques – sécurité sur le plan optique



*Ne regardez jamais le laser tant qu'il est sous tension.
Ne regardez jamais directement le port à fibres optiques
et les embouts de câbles à fibres optiques tant qu'ils
sont sous tension.*



AVERTISSEMENT: *L'utilisation de contrôles, de réglages de performances ou de procédures autres que ceux qui sont spécifiés au sein du présent document risquent d'entraîner l'exposition à des rayonnements laser dangereux.*

Wichtige Sicherheitinformationen

Bitte unbedingt vor dem Einbauen des Baseline Switch 2848-SFP Plus die folgenden Sicherheitsanweisungen durchlesen.



WARNUNG: *Die Installation und der Ausbau des Geräts darf nur durch Fachpersonal erfolgen.*

- Wenn der Baseline Switch 2848-SFP Plus mit anderen 3Com Hubs oder Switches gestapelt werden soll, müssen grössere Geräte unter den schmalen Hubs eingebaut werden.
- Das Gerät sollte nicht an eine ungeerdete Wechselstromsteckdose angeschlossen werden.
- Das Gerät muß an eine geerdete Steckdose angeschlossen werden, welche die internationalen Sicherheitsnormen erfüllt.
- Der Gerätestecker (der Anschluß an das Gerät, nicht der Wandsteckdosenstecker) muß einen gemäß EN 60320/IEC 320 konfigurierten Geräteeingang haben.
- Die Netzsteckdose muß in der Nähe des Geräts und leicht zugänglich sein. Die Stromversorgung des Geräts kann nur durch Herausziehen des

Gerätenetzkabels aus der Netzsteckdose unterbrochen werden.

- Der Betrieb dieses Geräts erfolgt unter den SELV-Bedingungen (Sicherheitskleinstspannung) gemäß IEC 60950. Diese Bedingungen sind nur gegeben, wenn auch die an das Gerät angeschlossenen Geräte unter SELV-Bedingungen betrieben werden.

Stromkabel. Dies muss von dem Land, in dem es benutzt wird geprüft werden:

- | | |
|---------|--|
| Schweiz | ■ Dieser Stromstecker muß die SEV/ASE 1011 Bestimmungen einhalten. |
| Europe | ■ Das Netzkabel muß vom Typ HO3VVH3GO.75 (Mindestanforderung) sein und die Aufschrift <HAR> oder <BASEC> tragen. |
| | ■ Der Netzstecker muß die Norm CEE 7/7 erfüllen ("SCHUKO"). |



WARNUNG: *Die Installation und der Ausbau des Geräts darf nur durch Fachpersonal erfolgen.*



Niemals ein Übertragungslaser betrachten, während dieses eingeschaltet ist. Niemals direkt auf die Faseranschlüsse und auf die Faserkabelenden schauen, während diese eingeschaltet sind.



WARNUNG: *Die Verwendung von Steuerelementen oder die Anpassung von Leistungen und Verfahren in anderer als der hierin genannten Weise kann zu gefährlichen Laseremissionen führen.*

GLOSSARY

10BASE-T

The IEEE specification for 10 Mbps Ethernet over Category 3, 4 or 5 twisted pair cable.

100BASE-TX

The IEEE specification for 100 Mbps Fast Ethernet over Category 5 twisted-pair cable.

1000BASE-LX

IEEE 802.3z specification for Gigabit Ethernet over 9/125 micron core single-mode fiber cable.

1000BASE-SX

IEEE 802.3z specification for Gigabit Ethernet over two strands of 50/125 or 62.5/125 micron core multimode fiber cable.

1000BASE-T

IEEE 802.3ab specification for Gigabit Ethernet over 100-ohm Category 5, 5e or 6 twisted-pair cable (using all four wire pairs).

Auto-negotiation

Auto-negotiation is where two devices sharing a link, automatically configure to use the best common speed. The order of preference (best first) is: 1000BASE-T full duplex, 100BASE-TX full duplex, 100BASE-TX half duplex, 10BASE-T full duplex, and 10BASE-T half duplex. Auto-negotiation is defined in the IEEE 802.3 standard for Ethernet and is an operation that takes place in a few milliseconds. Auto-negotiation must be enabled for the 1000BASE-T ports to operate at 1000 Mbps, full duplex.

Bandwidth

The information capacity, measured in bits per second, that a channel can transmit. The bandwidth of Ethernet is 10 Mbps, the bandwidth of Fast Ethernet is 100 Mbps and Gigabit Ethernet is 1000 Mbps.

BPDU

Bridge Protocol Data Unit. A type of information packet that ensures that data is efficiently exchanged between Switches in a LAN. BPDU messages detect loops in a network, and remove them by shutting down the bridge causing the loop.

Category 3 Cables

One of five grades of Twisted Pair (TP) cabling defined by the EIA/TIA-568 standard. Category 3 is voice grade cable and can only be used in Ethernet networks (10BASE-T) to transmit data at speeds of up to 10 Mbps.

Category 5 Cables

One of five grades of Twisted Pair (TP) cabling defined by the EIA/TIA-568 standard. Category 5 can be used in Ethernet (10BASE-T) and Fast Ethernet networks (100BASE-TX) and can transmit data at speeds of up to 100 Mbps. Category 5 cabling is better to use for network cabling than Category 3, because it supports both Ethernet (10 Mbps) and Fast Ethernet (100 Mbps) speeds.

Category 5e Cables

One of five grades of Twisted Pair (TP) cabling defined by the EIA/TIA-568 standard. Category 5e can be used in Ethernet (10BASE-T), Fast Ethernet (100BASE-TX) and Gigabit Ethernet (1000BASE-T) networks, and can transmit data at speeds of up to 1000 Mbps.

Category 6 Cables

One of five grades of Twisted Pair (TP) cabling defined by the EIA/TIA-568-B standard. Category 6 can be used in Ethernet (10BASE-T), Fast Ethernet (100BASE-TX) and Gigabit Ethernet (1000BASE-T) networks, and can transmit data at speeds of up to 1000 Mbps.

Client

The term used to describe the desktop PC that is connected to your network.

DHCP

Dynamic Host Configuration Protocol. This protocol automatically assigns an IP address for every computer on your network. Windows 95, Windows 98 and Windows NT 4.0 contain software that assigns IP addresses to workstations on a network. These assignments are made by the DHCP server software that runs on Windows NT Server.

Ethernet

A LAN specification developed jointly by Xerox, Intel and Digital Equipment Corporation. Ethernet networks use CSMA/CD to transmit packets at a rate of 10 Mbps and 100 Mbps over a variety of cables.

Ethernet Address

See MAC address.

Fast Ethernet

An Ethernet system that is designed to operate at 100 Mbps.

Gigabit Ethernet

An Ethernet system that is designed to operate at 1000 Mbps.

Full Duplex

A system that allows packets to be transmitted and received at the same time and, in effect, doubles the potential throughput of a link.

Half Duplex

A system that allows packets to be transmitted and received, but not at the same time. Half duplex is not supported for 1000 Mbps. Contrast with full duplex.

IEEE

Institute of Electrical and Electronics Engineers. This American organization was founded in 1963 and sets standards for computers and communications.

IEEE 802.1D

Specifies a general method for the operation of MAC bridges, including the Spanning Tree Protocol.

IEEE 802.1Q

VLAN Tagging - Defines Ethernet frame tags which carry VLAN information. It allows switches to assign endstations to different virtual LANs, and defines a standard way for VLANs to communicate across switched networks.

IEEE 802.3ad

A standard that defines link aggregation. 802.3ad is now incorporated into the relevant sections of the IEEE Std. 802.3-2002.

IETF

Internet Engineering Task Force. An organization responsible for providing engineering solutions for TCP/IP networks. In the network management area, this group is responsible for the development of the SNMP protocol.

IP

Internet Protocol. IP is a layer 3 network protocol that is the standard for sending data through a network. IP is part of the TCP/IP set of protocols that describe the routing of packets to addressed devices. An IP address consists of 32 bits divided into two or three fields: a network number and a host number or a network number, a subnet number, and a host number.

IP Address

Internet Protocol Address. A unique identifier for a device attached to a network using TCP/IP. The address is written as four octets separated with periods (full-stops), and is made up of a network section, an optional subnet section and a host section.

ISP

Internet Service Provider. An ISP is a business that provides connectivity to the Internet for individuals and other businesses or organizations.

LAN

Local Area Network. A network of end stations (such as PCs, printers, servers) and network devices (hubs and

switches) that cover a relatively small geographic area (usually not larger than a floor or building). LANs are characterized by high transmission speeds over short distances (up to 1000 metres).

Layer 2

Data Link layer in the ISO 7-Layer Data Communications Protocol. This is related directly to the hardware interface for the network devices and passes on traffic based on MAC addresses.

Link Aggregation

See Trunking.

MAC

Media Access Control. A protocol specified by the IEEE for determining which devices have access to a network at any one time.

MAC Address

Media Access Control Address. Also called the hardware, physical or Ethernet address. A layer 2 address associated with a particular network device. Most devices that connect to a LAN have a MAC address assigned to them as they are used to identify other devices in a network. MAC addresses are 6 bytes long.

Network

A Network is a collection of computers and other computer equipment that are connected for the

purpose of exchanging information or sharing resources. Networks vary in size, some are within a single room, others span continents.

Ping

Packet Internet Groper. An Internet utility used to determine whether a particular IP address is online. It is used to test and debug a network by sending out a packet and waiting for a response.

Protocol

A set of rules for communication between devices on a network. The rules dictate format, timing, sequencing and error control.

RJ-45

A standard connector used to connect Ethernet networks. The "RJ" stands for "registered jack."

Server

A computer in a network that is shared by multiple end stations. Servers provide end stations with access to shared network services such as computer files and printer queues.

SFP

Small Form Factor Pluggable (SFP) Connectors are based on an open standard that enables hot swapping of various type of fiber optic and copper-based transceivers into the host equipment.

Subnet Address

An extension of the IP addressing scheme that allows a site to use a single IP network address for multiple physical networks.

Subnet Mask

A subnet mask, which may be a part of the TCP/IP information provided by your ISP, is a set of four numbers configured like an IP address. It is used to create IP address numbers used only within a particular network (as opposed to valid IP address numbers recognized by the Internet, which must assigned by InterNIC).

Subnets

A network that is a component of a larger network.

Switch

A device that interconnects several LANs to form a single logical LAN that comprises of several LAN segments. Switches are similar to bridges, in that they connect LANs of a different type; however they connect more LANs than a bridge and are generally more sophisticated.

TCP/IP

Transmission Control Protocol/Internet Protocol.

This is the name for two of the most well-known protocols developed for the interconnection of networks. Originally a UNIX standard, TCP/IP is now supported on almost all platforms, and is the protocol of the Internet.

TCP relates to the content of the data travelling through a network — ensuring that the information sent arrives in one piece when it reaches its destination. IP relates to the address of the end station to which data is being sent, as well as the address of the destination network.

Traffic Monitoring

Enables the monitoring of port traffic by attaching a network analyzer to one switch port, in order to monitor the traffic of other ports on the Switch.

Trunking

A method which specifies how to create a single high-speed logical link that combines several lower-speed physical links.

VLAN

A Virtual LAN is a collection of network nodes that share the same collision domain regardless of their physical location or connection point in the network. A VLAN serves as a logical workgroup with no physical barriers, and allows users to share information and resources as though located on the same LAN.

REGULATORY NOTICES

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference to radio communications, in which case the user will be required to correct the interference at their own expense.

Information to the User

If this equipment does cause interference to radio or television reception, which can be determined 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 the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4. In order to meet FCC emissions limits, this equipment must be used only with cables which comply with IEEE 802.3.

CE Statement (Europe)

This product complies with the European Low Voltage Directive 73/23/EEC and EMC Directive 89/336/EEC as amended by European Directive 93/68/EEC.

CSA Statement

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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