HP StorageWorks

Enterprise File Services WAN Accelerator 3.0.4

installation and configuration guide

Enterprise File Services WAN Accelerator 3.0.4 installation and configuration guide

Contents

Introduction

In This Introduction

Welcome to the *HP StorageWorks Enterprise File Services WAN Accelerator installation and configuration guide.* Read this introduction for an overview of the information provided in this guide and for an understanding of the documentation conventions used throughout. This introduction contains the following sections:

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About This Guide

The *HP StorageWorks Enterprise File Services WAN Accelerator installation and configuration guide* describes how to install and configure the HP StorageWorks Enterprise File Services WAN Accelerator.

Types of Users

This guide is written for storage and network administrators with familiarity administering and managing networks using Common Internet File System (CIFS), Hypertext Transport Protocol (HTTP), File Transfer Protocol (FTP), and Microsoft Exchange.

Organization of This Guide

The *HP StorageWorks Enterprise File Services WAN Accelerator installation and configuration guide* includes the following chapters:

◆ Chapter 1, "Overview of the HP EFS WAN Accelerator," provides definitions for common terms, new features, upgrade instructions, technical and environmental specifications, and a description of the status lights for the HP EFS WAN Accelerator.

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A glossary of terms follows the chapters, and a comprehensive index directs you to areas of particular interest.

Document Conventions

This manual uses the following standard set of typographical conventions to introduce new terms, illustrate screen displays, describe command syntax, and so forth.

Convention	Meaning
italics	Within text, new terms and emphasized words appear in italic typeface.
boldface	Within text, commands, keywords, identifiers (names of classes, objects, constants, events, functions, program variables), environment variables, filenames, Graphical User Interface (GUI) controls, and other similar terms appear in bold typeface.

Convention	Meaning
Courier	Information displayed on your terminal screen and information that you are instructed to enter appear in Courier font.
KEYSTROKE	Keys that you are to press appear in uppercase letters in Helvetica font.
< >	Within syntax descriptions, values that you specify appear in angle brackets. For example: **interface <ipaddress>**
[ ]	Within syntax descriptions, optional keywords or variables appear in brackets. For example: **ntp peer <addr> [version <number>]**
{ }	Within syntax descriptions, required keywords or variables appear in braces. For example: **{delete <filename> | upload <filename>}**
|	Within syntax descriptions, the pipe symbol represents a choice to select one keyword or variable to the left or right of the symbol. (The keyword or variable can be either optional or required.) For example: **{delete <filename> | upload <filename>}**

Hardware and Software Dependencies

The following table summarizes the hardware and software requirements for the HP EFS WAN Accelerator.

HP Component	Hardware and Software Requirements
HP EFS WAN Accelerator	19 inch (483 mm) two or four-post rack.
HP EFS WAN Accelerator Management Console, HP StorageWorks Enterprise File Services WAN Accelerator Manager	Any computer that supports a Web browser with a color image display. The Management Console has been tested with Mozilla Firefox version 1.0.xand 1.5.x and Microsoft Internet Explorer version 6.0x. NOTE: Javascript and cookies must be enabled in your Web browser.

Ethernet Network Compatibility

The HP EFS WAN Accelerator supports the following types of Ethernet networks:

◆ Ethernet Logical Link Control (LLC) (IEEE 802.2 - 2002)

◆ Fast Ethernet 100 Base-TX (IEEE 802.3 - 2002)

◆ Gigabit Ethernet over Copper 1000 Base-T and Fiber 1000 Base-SX (LC connector) (IEEE 802.3 - 2002)

The Primary port in the HP EFS WAN Accelerator is 10 Base-T/100, Base-TX/1000, and Base-T/SX Mbps (IEEE 802.3 -2002).

In-path HP EFS WAN Accelerator ports are 10/100/1000 Base-TX or Gigabit Ethernet 1000Base-T/SX (IEEE 802.3 – 2002) (depending on your order).

The HP EFS WAN Accelerator supports Virtual Local Area Network (VLAN) Tagging (IEEE 802.1Q - 2003). It does not support the Cisco InterSwitch Link (ISL) protocol.

All copper interfaces are auto-sensing for speed and duplex (IEEE 802.3 - 2002).

The HP EFS WAN Accelerator auto-negotiates speed and duplex mode for all data rates and supports full duplex mode and flow control (IEEE 802.3 – 2002).

The HP EFS WAN Accelerator with a Gigabit Ethernet card supports Jumbo Frames on in-path and primary ports

Antivirus Compatibility

The HP EFS WAN Accelerator has been tested with the following antivirus software with no impact on performance:

◆ Network Associates (McAfee) VirusScan v7.0.0 Enterprise on the server

◆ Network Associates (McAfee) VirusScan v7.1.0 Enterprise on the server

◆ Network Associates (McAfee) VirusScan v7.1.0 Enterprise on the client

◆ Symantec (Norton) AntiVirus Corporate Edition v8.1 on the server

The HP EFS WAN Accelerator has been tested with the following antivirus software with moderate impact on performance:

◆ F-Secure Anti-Virus v5.43 on the client

◆ F-Secure Anti-Virus v5.5 on the server

◆ Network Associates (McAfee) NetShield v4.5 on the server

◆ Network Associates VirusScan v4.5 for multi-platforms on the client

◆ Symantec (Norton) AntiVirus Corporate Edition v8.1 on the client

Additional Resources

This section describes resources that supplement the information in this guide. It contains the following sections:

◆ "Related HP Documentation" on page 11

◆ "Online Documentation" on page 12

◆ "Related Reading" on page 12

Related HP Documentation

You can access the complete document set for the HP EFS WAN Accelerator from the documentation set CD-ROM:

◆ *HP StorageWorks Enterprise File Services WAN Accelerator Management Console User Guide* describes how to manage and administer an HP EFS WAN Accelerator using the Management Console.

◆ *HP StorageWorks Enterprise File Services WAN Accelerator Manager user's guide* describes how to install, configure, and administer a network made up of multiple HP EFS WAN Accelerators using the HP StorageWorks Enterprise File Services WAN Accelerator Manager

◆ *HP Enterprise File Services WAN Accelerator Command-Line Interface reference manual* is a reference manual for the HP EFS WAN Accelerator command-line interface. It lists commands, syntax, parameters, and example usage.

◆ *HP EFS WAN Accelerator deployment guide* describes how to deploy the HP EFS WAN Accelerator in complex network environments (for example, environments using Web Cache Communication Protocol (WCCP), Policy Based Routing (PBR), and Layer-4 switches).

◆ *HP Enterprise File Services WAN Accelerator Remote Copy user guide* describes how to install and deploy the HP EFS Remote Copy Utility (HP EFS RCU). The HP EFS RCU is an optional utility of the HP EFS WAN Accelerator that copies, mirrors, and transparently prepopulates data. You can download the HP EFS RCU from the HP Technical Support site located at **www.hp.com/support**.

◆ *HP StorageWorks Enterprise File Services WAN Accelerator Bypass NIC Installation Guide* describes how to install the bypass cards in the HP EFS WAN Accelerator.

Online Documentation

The HP EFS WAN Accelerator documentation set is periodically updated with new information. To access the most current version of the HP EFS WAN Accelerator documentation and other technical information, consult the HP Technical Support site located at **http://www.hp.com/support/manuals.**

Related Reading

To learn more about network administration, consult the following books:

◆ *Microsoft Windows 2000 Server Administrator's Companion* by Charlie Russell and Sharon Crawford (Microsoft Press, 2000)

◆ *Common Internet File System (CIFS) Technical Reference* by the Storage Networking Industry Association (Storage Networking Industry Association, 2002)

◆ *TCP/IP Illustrated, Volume I, The Protocols* by W. R. Stevens (Addison-Wesley, 1994)

◆ *Internet Routing Architectures (2nd Edition)* by Bassam Halabi (Cisco Press, 2000)

Safety Guidelines

Follow these safety precautions when installing and setting up your equipment.

IMPORTANT: Failure to follow these safety guidelines can result in injury or damage to the HP EFS WAN Accelerator. Mishandling of the HP EFS WAN Accelerator voids all warranties. Please read and follow safety guidelines and installation instructions carefully.

Equipment Guidelines

Follow these safety guidelines when you install, setup, or remove components in the HP EFS WAN Accelerator:

◆ Follow all caution and warning instructions in this manual and marked on the equipment.

◆ Do not block or cover the openings to the HP EFS WAN Accelerator. Do not install the HP EFS WAN Accelerator in or near a plenum, air duct, radiator, or heat register.

◆ Do not make mechanical modifications to the HP EFS WAN Accelerator. HP is not responsible for the regulatory compliance of HP equipment that has been modified.

- Make sure that the area in which you install the HP EFS WAN Accelerator is properly ventilated and climate-controlled. For detailed information regarding environmental requirements, see either the *HP ProLiant DL320 Generation 4 Server User Guide* or the *HP ProLiant DL380 Generation 4 Server Reference and Troubleshooting Guide.*

- Use caution when you remove or replace system components; they can become hot to the touch.

- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the electrical rating label of the equipment.

- Never push objects of any kind through openings in the equipment. Dangerous voltages can be present. Conductive foreign objects could produce a short circuit and cause fire, electric shock, or damage to your equipment.

- The HP ProLiant DL380-3010 and DL380-5010 can weigh up to 60 pounds (27.22 kg), and the HP ProLiant DL320-520, DL320-1020, and DL320-2020 can weigh up to 37 pounds (16.78 kg). Lift the HP EFS WAN Accelerator using both hands and with your knees bent.

- The HP EFS WAN Accelerator might have more than one power cord. To reduce the risk of electrical shock, disconnect all power cords before servicing the appliance.

- Make sure that the voltage and frequency of your power source match the voltage and frequency on the rating label of the equipment.

- Do not block or cover the openings to the HP EFS WAN Accelerator. Do not install the HP EFS WAN Accelerator in or near a plenum, air duct, radiator, or heat register.

Rack Guidelines

Prior to installing the HP EFS WAN Accelerator in a rack, adhere to the following rack installation guidelines:

- The rack cannot have solid or restricted airflow doors. You must use a mesh door on the front and back of the rack or remove the doors to ensure adequate air flow to the system.

- Use a two or four post mounting rack.

- The rack width and depth must allow for proper serviceability and cable management.

- Make sure the rack is properly secured to the floor or ceiling.

IMPORTANT: Please ensure that there is adequate airflow in the rack. Improper installation or restricted airflow can damage the equipment.

Contacting HP

This section describes how to contact departments within HP.

Technical Support

Be sure to have the following information available before calling:

◆ Technical support registration number (if applicable)

◆ Product serial numbers

◆ Product model names and numbers

◆ Applicable error messages

◆ Operating system type and revision level

◆ Detailed, specific questions

HP Storage Web Site

The HP web site has the latest information on this product, as well as the latest drivers. Access the storage site at: http://www.hp.com/country/us/en/prodserv/storage.html. From this web site, select the appropriate product or solution.

HP NAS Services Web Site

The HP NAS Services site allows you to choose from convenient HP Care Pack Services packages or implement a custom support solution delivered by HP ProLiant Storage Server specialists and/or our certified service partners. For more information see us at http://www.hp.com/hps/storage/ns_nas.html.

CHAPTER 1

Overview of the HP EFS WAN Accelerator

In This Chapter

This chapter provides an overview of common terms, new features, upgrade instructions, technical and environmental specifications, and a description of the status lights in the HP EFS WAN Accelerator. This chapter includes the following sections:

Overview of the HP EFS WAN Accelerator

The HP Optimization System (RiOS) is the software that powers the HP EFS WAN Accelerator and the HP StorageWorks Enterprise File Services WAN Accelerator Manager. With the HP EFS WAN Accelerator, you can solve a range of problems affecting Wide Area Networks (WANs) and application performance, including:

◆ Insufficient WAN bandwidth

◆ Inefficient transport protocols in high-latency environments

◆ Inefficient application protocols in high-latency environments

Definition of Terms

The following terms are used to describe features, attributes, and processes in the HP EFS WAN Accelerator:

◆ **Optimization**. The process of increasing data throughput and network performance over the WAN using the HP EFS WAN Accelerator. An optimized connection exhibits bandwidth reduction as it traverses the WAN.

◆ **Scalable Data Referencing (SDR)**. The proprietary algorithms that allow an arbitrarily large amount of data to be represented by a small number of references to the HP EFS WAN Accelerator data store. As data flows through the HP EFS WAN Accelerator, all Transmission Control Protocol (TCP) traffic is mapped onto references to data that is stored on either side of the network link. SDR increases WAN network performance and decreases consumed bandwidth.

◆ **Data Transfer**. The HP EFS RCU efficiently transfers data from a client to a specified target directory on a server across the WAN. The HP EFS RCU eliminates extra round-trips caused by Common Internet File System (CIFS), reducing that amount of time it takes to transfer data across the WAN.

◆ **Auto-discovery**. The process by which an HP EFS WAN Accelerator determines if another appliance is receiving the data for a particular TCP connection. When a second HP EFS WAN Accelerator is found, the two appliances work together to optimize the connection. By default, auto-discovery is applied to all IP addresses and the ports which are not secure or interactive.

◆ **Fixed-Target**. Fixed target rules directly specify out-of-path HP EFS WAN Accelerators near the target server that you want to optimize. You determine which servers you would like the HP EFS WAN Accelerator to optimize (and, optionally, which ports), and add fixed-target rules to specify the network of servers, ports, and out-of-path HP EFS WAN Accelerators to use.

◆ **Pass-Through**. Pass-through describes WAN traffic that traverses the network unoptimized. You define pass-through rules to exclude subnets from optimization. Traffic is also passed through when the HP EFS WAN Accelerator is in bypass mode. Pass-through might be due to in-path rules or because the connection was established before the HP EFS WAN Accelerator was put in place or before the HP EFS WAN Accelerator service was enabled.

◆ **Bypass**. The HP EFS WAN Accelerator is equipped with a bypass card to prevent a single point of failure. If there is a serious problem with the HP EFS WAN Accelerator or it is not powered on, it goes into bypass mode and the traffic is passed through unoptimized.

◆ **Failover**. You can deploy redundant HP EFS WAN Accelerators in your network to ensure optimization continues if there is a failure in one of the HP EFS WAN Accelerators. You can enable failover support in the HP EFS WAN Accelerator Management Console (Management Console) or you can use the HP EFS WAN Accelerator command-line interface (CLI).

Bypass Mode

The HP EFS WAN Accelerator is equipped with one of the following types of network interface bypass cards (depending on your order):

◆ HP EFS N2c WAN Accelerator 2-port 1000TX NIC

◆ HP EFS N4c WAN Accelerator 4-port 1000TX NIC

◆ HP EFS N2f WAN Accelerator 2-port 1000SX NIC

For detailed information about bypass card status lights, see "Bypass Card Status Lights" on page 66.

If there is a serious problem with the HP EFS WAN Accelerator or it is not powered on, it goes into bypass mode to prevent a single point of failure. If the HP EFS WAN Accelerator is in bypass mode, you are notified in the following ways:

◆ The Intercept/Bypass status light on the bypass card is triggered. For detailed information about bypass card status lights, see "Bypass Card Status Lights" on page 66.

◆ The Welcome page of the Management Console displays **Critical** in the Status bar.

◆ Simple Network Management Protocol (SNMP) traps are sent.

◆ The event is logged to system logs (**syslog**).

◆ Email notifications are sent (if you have set this option).

When the fault is corrected, new connections that are made receive optimization; however, connections made during the fault are not. To force all connections to be optimized, enable the *kickoff* feature. Generally, connections are short lived and kickoff is not necessary. For detailed information about enabling the kickoff feature, see the *HP Enterprise File Services WAN Accelerator Management Console User Guide*.

When the HP EFS WAN Accelerator is in bypass mode the traffic passes through uninterrupted. Traffic that was optimized might be interrupted, depending on the behavior of the application-layer protocols. When connections are restored, they succeed, although without optimization.

In an out-of-path deployment, if the HP EFS WAN Accelerator fails, the first connection from the client fails. After detecting that the HP EFS WAN Accelerator is not functioning, an **HP EFS WAN Accelerator ping** channel is setup from the client-side HP EFS WAN Accelerator to the server-side HP EFS WAN Accelerator. Subsequent connections are passed through unoptimized. When the **HP EFS WAN Accelerator ping** succeeds, processing is restored and subsequent connections are intercepted and optimized.

For detailed information about the **HP EFS WAN Accelerator ping** command, see the *HP Enterprise File Services WAN Accelerator Command-Line Interface Reference Manual*.

To upgrade from v2.1 to v3.0

1. Connect to the Management Console on each HP EFS WAN Accelerator.

2. Go to the Setup: Upgrade Software page and choose one of the following options:

    ◆ **URL**. Type the URL that points to software image in the text box.

    ◆ **Local File**. Browse your file system and select the software image.

3. Click **Install Upgrade**.

NOTE: If you upgrade to v3.0 and clear the data store while running v3.0, you will not be able to downgrade to a previous version of the software without clearing the data store again.

Upgrading from Version 1.2 to Version 2.1

The following section describes how to upgrade from v1.2 to v2.1. Version 2.1 interoperates with v1.2. These instructions assume you are familiar with the HP EFS WAN Accelerator, the CLI, and the Management Console.

> **IMPORTANT:** Do not clear the data store before performing a software upgrade.

The following upgrade instructions assume that you have a network of 10 HP EFS WAN Accelerators (HP EFS WAN Accelerator-1 through HP EFS WAN Accelerator-10). Initially, you will upgrade three HP EFS WAN Accelerators (HP EFS WAN Accelerator-1 through HP EFS WAN Accelerator-3).

To upgrade from 1.2 to v2.1

1. Connect to the Management Console on each HP EFS WAN Accelerator.

2. Install the v2.1 image in the Setup: Software Upgrade page.

3. Save the current configuration in the Setup: Configuration Manager page.

4. Reboot the HP EFS WAN Accelerator in the Setup: Reboot Appliance page.

5. Connect to the CLI on each of the 3 HP EFS WAN Accelerators that you want to upgrade.

6. At the system prompt, enter the following set of commands:

```
SH > enable
SH # configure terminal
SH (config) # peer 0.0.0.0 version min 5
SH (config) # peer 0.0.0.0 version max 5
SH (config) # write memory
```

This set of commands ensures that the v2.1 HP EFS WAN Accelerators can communicate with all the v1.2 appliances in your network.

To take advantage of the v2.1 features, you need to configure the v2.1 HP EFS WAN Accelerators to communicate with each other using the v2.1 protocol.

7. On HP EFS WAN Accelerator-1, at the system prompt, enter the following set of commands:

```
SH1 (config) # peer <HP EFS WAN Accelerator-2 IP addr> version min 6
SH1 (config) # peer <HP EFS WAN Accelerator-2 IP addr> version max 6
SH1 (config) # peer <HP EFS WAN Accelerator-3 IP addr> version min 6
SH1 (config) # peer <HP EFS WAN Accelerator-3 IP addr> version max 6
SH1 (config) # write memory
SH1 (config) # restart
```

8. On HP EFS WAN Accelerator-2, at the system prompt, enter the following set of commands:

```
SH2 (config) # peer <HP EFS WAN Accelerator-1 IP addr> version min 6
SH2 (config) # peer <HP EFS WAN Accelerator-1 IP addr> version max 6
SH2 (config) # peer <HP EFS WAN Accelerator-3 IP addr> version min 6
SH2 (config) # peer <HP EFS WAN Accelerator-3 IP addr> version max 6
SH2 (config) # write memory
SH2 (config) # restart
```

9. On HP EFS WAN Accelerator-3, at the system prompt, enter the following set of commands:

```
SH3 (config) # peer <HP EFS WAN Accelerator-2 IP addr> version min 6
SH3 (config) # peer <HP EFS WAN Accelerator-2 IP addr> version max 6
```

```
SH3 (config) # peer <HP EFS WAN Accelerator-1 IP addr> version min 6
SH3 (config) # peer <HP EFS WAN Accelerator-1 IP addr> version max 6
SH3 (config) # write memory
SH3 (config) # restart
```

Run the v2.1 software for a period of time to ensure stability.

Each time a new HP EFS WAN Accelerator is upgraded to v2.1, you must configure each of the HP EFS WAN Accelerators already running v2.1 to communicate with it using the v2.1 protocol. For example, if HP EFS WAN Accelerator-4 is upgraded to v2.1.

To upgrade HP EFS WAN Accelerators to v2.1 protocol

1. On HP EFS WAN Accelerator-1, at the system prompt, enter the following set of commands:

```
SH1 (config) # peer <HP EFS WAN Accelerator-4 IP addr> version min 6
SH1 (config) # peer <HP EFS WAN Accelerator-4 IP addr> version max 6
SH1 (config) # write memory
SH1 (config) # restart
```

2. On HP EFS WAN Accelerator-2, at the system prompt, enter the following set of commands:

```
SH2 (config) # peer <HP EFS WAN Accelerator-4 IP addr> version min 6
SH2 (config) # peer <HP EFS WAN Accelerator-4 IP addr> version max 6
SH2 (config) # write memory
SH2 (config) # restart
```

3. On HP EFS WAN Accelerator-3, at the system prompt, enter the following set of commands:

```
SH3 (config) # peer <HP EFS WAN Accelerator-4 IP addr> version min 6
SH3 (config) # peer <HP EFS WAN Accelerator-4 IP addr> version max 6
SH3 (config) # write memory
SH3 (config) # restart
```

4. On HP EFS WAN Accelerator-4, at the system prompt, enter the following set of commands:

```
SH4 (config) # peer 0.0.0.0 version min 5
SH4 (config) # peer 0.0.0.0 version max 5
SH4 (config) # peer <HP EFS WAN Accelerator-1 IP addr> version min 6
SH4 (config) # peer <HP EFS WAN Accelerator-1 IP addr> version max 6
SH4 (config) # peer <HP EFS WAN Accelerator-2 IP addr> version min 6
SH4 (config) # peer <HP EFS WAN Accelerator-2 IP addr> version max 6
SH4 (config) # peer <HP EFS WAN Accelerator-3 IP addr> version min 6
SH4 (config) # peer <HP EFS WAN Accelerator-3 IP addr> version max 6
SH4 (config) # write memory
SH4 (config) # restart
```

If you upgrade the remaining HP EFS WAN Accelerators in your network (HP EFS WAN Accelerator-5 through HP EFS WAN Accelerator-10) and there are no more v1.2 HP EFS WAN Accelerators in your network, you can remove all the version configurations on HP EFS WAN Accelerator-1 through HP EFS WAN Accelerator-4.

To remove the version configuration from the HP EFS WAN Accelerators

1. Connect to the Management Console on each HP EFS WAN Accelerator.

2. Install the v2.1 image in the Setup: Software Upgrade page.

3. Save the current configuration in the Setup: Configuration Manager page.

4. Reboot the HP EFS WAN Accelerator in the Setup: Reboot Appliance page.

5. Connect to the CLI on each of the HP EFS WAN Accelerators you originally upgraded (that is, HP EFS WAN Accelerator-1, HP EFS WAN Accelerator-2, HP EFS WAN Accelerator-3, HP EFS WAN Accelerator-4).

6. On HP EFS WAN Accelerator-1, at the system prompt, enter the following set of commands:

```
SH1 > enable
SH1 # configure terminal
SH1 (config) # no peer 0.0.0.0
SH1 (config) # no peer <HP EFS WAN Accelerator-2 IP addr>
SH1 (config) # no peer <HP EFS WAN Accelerator-3 IP addr>
SH1 (config) # no peer <HP EFS WAN Accelerator-4 IP addr>
SH1 (config) # write memory
SH1 (config) # restart
```

7. On HP EFS WAN Accelerator-2, at the system prompt, enter the following set of commands:

```
SH2 > enable
SH2 # configure terminal
SH2 (config) # no peer 0.0.0.0
SH2 (config) # no peer <HP EFS WAN Accelerator-1 IP addr>
SH2 (config) # no peer <HP EFS WAN Accelerator-3 IP addr>
SH2 (config) # no peer <HP EFS WAN Accelerator-4 IP addr>
SH2 (config) # write memory
SH2 (config) # restart
```

8. On HP EFS WAN Accelerator-3, at the system prompt, enter the following set of commands:

```
SH3 > enable
SH3 # configure terminal
SH3 (config) # no peer 0.0.0.0
SH3 (config) # no peer <HP EFS WAN Accelerator-1 IP addr>
SH3 (config) # no peer <HP EFS WAN Accelerator-2 IP addr>
SH3 (config) # no peer <HP EFS WAN Accelerator-4 IP addr>
SH3 (config) # write memory
SH3 (config) # restart
```

9. On HP EFS WAN Accelerator-4, at the system prompt, enter the following set of commands:

```
SH4 > enable
SH4 # configure terminal
SH4 (config) # no peer 0.0.0.0
SH4 (config) # no peer <HP EFS WAN Accelerator-1 IP addr>
SH4 (config) # no peer <HP EFS WAN Accelerator-2 IP addr>
SH4 (config) # no peer <HP EFS WAN Accelerator-3 IP addr>
SH4 (config) # write memory
SH4 (config) # restart
```

IMPORTANT: If you are downgrading to a previous version of the HP EFS WAN Accelerator software, you must downgrade to a version of the software that has previously run on your machine. For example, you cannot upgrade from v1.2.3 to v2.0 or v2.1 and downgrade to v1.2.8—you must downgrade to v1.2.3. and then upgrade to v1.2.8. If you do not follow this step, your configuration will be discarded in an unrecoverable way. (Work-around: either go back to a previously installed revision, or save the text results of a **show running-configuration** command before downgrading in a machine other than the HP EFS WAN Accelerator, and apply it after the downgrade.)

CHAPTER 2

Installing and Configuring the HP EFS WAN Accelerator

In This Chapter

This chapter describes how to install and configure the HP EFS WAN Accelerator. This chapter includes the following sections:

IMPORTANT: Please read and follow the safety guidelines described in the "Safety Guidelines" on page 10. Failure to follow these safety guidelines can result in damage to the equipment.

Choosing a Network Deployment

Before you begin the installation and configuration process, you need to select a network deployment:

◆ **Physical In-Path**. In a physical in-path deployment, the HP EFS WAN Accelerator is *physically* in the direct path between clients and servers. The clients and servers continue to see client and server Internet Protocol (IP) addresses. Physical in-path configurations are suitable for any location where the total bandwidth is within the limits of the installed HP EFS WAN Accelerator.

Figure 2-1. Physical In-Path Deployment
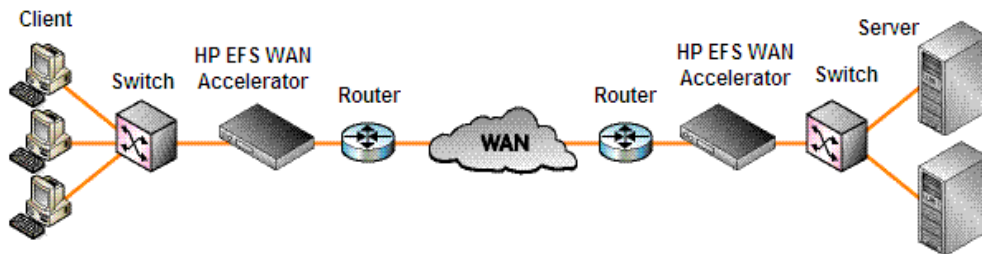
◆ **Logical In-Path**. In a logical in-path deployment, the HP EFS WAN Accelerator is *logically* in the path between clients and servers. In a logical in-path deployment, clients and servers continue to see client and server IP addresses. This deployment differs from a physical in-path deployment in that a packet redirection mechanism is used to direct packets to HP EFS WAN Accelerators that are not in the physical path of the client or server. Redirection mechanisms include Layer-4 switches, Web Cache Communication Protocol (WCCP), and Policy Based Routing (PBR). For detailed information about configuring the HP EFS WAN Accelerator in a logical in-path deployment, see the *HP EFS WAN Accelerator Deployment Guide*.

Figure 2-2. Logical In-Path: WCCP Deployment
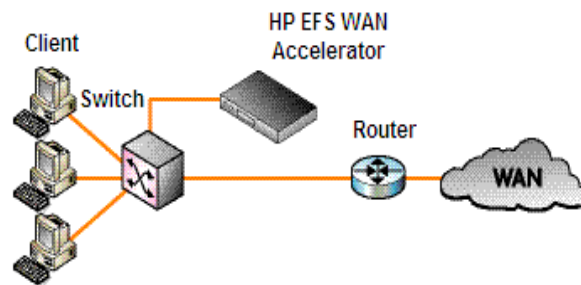
◆ **Out-of-Path**. An out-of-path deployment is a network configuration in which the HP EFS WAN Accelerator is not in the direct or logical path between the client and the server. In an out-of-path deployment, the HP EFS WAN Accelerator acts as a proxy. An out-of-path configuration is suitable for data center locations when physical in-path or logical in-path configurations are not possible.

Figure 2-3. Out-of-Path Deployment
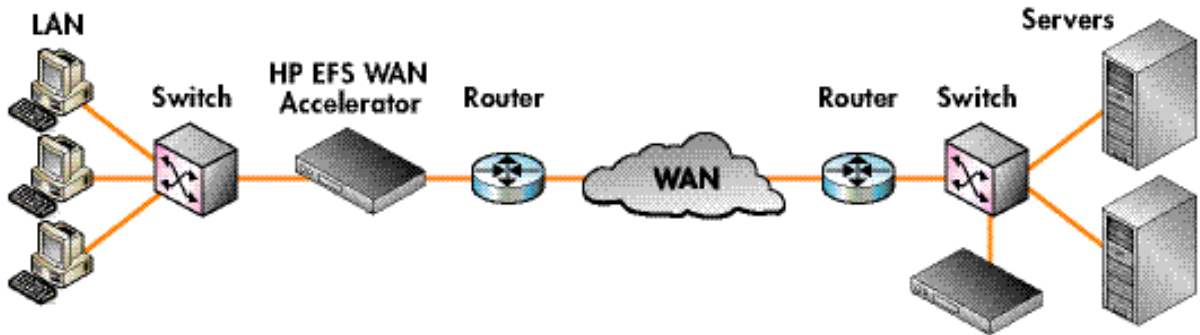
Checking Your Inventory

Your shipping carton contains the following items:

◆ The HP EFS WAN Accelerator—the HP ProLiant DL320-520, DL320-1020, DL320-2020, DL380-3010, or DL380-5010 (depending on your order)

◆ One CAT-5E straight-through cable

◆ One CAT-5E cross-over cable

◆ One RS-232 serial null-modem cable

◆ One or two rack mount power cables (depending on your order). In addition, you may have one or two power cables specific to your region or country.

◆ One rail kit

◆ Documentation set CD-ROM specific to your order

If any items are damaged or missing, notify HP Technical Support at **http://www.hp.com** for replacement or repair.

Preparing Your Site for Installation

The HP EFS WAN Accelerator is completely assembled with all the equipment parts in place and securely fastened.

Before you install the HP EFS WAN Accelerator make sure your site meets the following requirements:

◆ A standard electronic environment where the ambient temperature is between 10º C and 35º C (50º F and 95º F) and the relative humidity is between 10% and 90% (non-condensing). For detailed information, see Appendix A, "Status Lights, Technical Specifications, and Regulatory Information."

◆ Ethernet connections available within the standard Ethernet limit.

◆ Space on a two or four post 19-inch rack.

◆ A clean power source dedicated to computer devices and other electronic equipment.

Required Tools and Equipment

You need the following tools and equipment to mount the HP EFS WAN Accelerator to a rack:

◆ A standard 19-inch Telco-type mounting rack. The HP ProLiant DL380-3010 and DL380-5010 require 2 Units (U) of rack space. The HP ProLiant DL320-520, DL320-1020, and DL320-2020 require 1 U of rack space.

◆ Appropriate screwdriver for screws if mounting into a threded-hole rack. Refer to the instructions that came with the rack mount kit. Also refer to the documentation that came with your system for important rack planning resource instructions.

NOTE: If mounting a two-post rack, go to http://www.racksolutions.com/hp.

Completing the Configuration Checklist

Before you begin, consult the *Rack Installation Guide* for detailed information about how to install your model to a rack.

The following checklist lists the parameters you specify to complete the initial configuration of the HP EFS WAN Accelerator. Be prepared to provide values for the parameters listed in the following checklist

.

Appliance	Parameter	Your Value
HP EFS WAN Accelerator (the Primary Interface)	Host name	
	IP address	
	Netmask	
	Default gateway (the WAN gateway)	
	Domain Name Server (DNS) IP address	
	Domain name for the system	
	Administrator password	
	Simple Mail Transfer Protocol (SMTP) server IP address	
	Events and failures notification email address	
	Primary interface speed	
	Primary interface duplex	
In-Path Deployments	In-Path interface IP address	
	In-Path Netmask	
	In-path gateway	
	In-path: LAN interface speed	
	In-path: LAN interface duplex	
	In-path: WAN interface speed	
	In-path: WAN interface duplex	

NOTE: The HP EFS WAN Accelerator automatically negotiates duplex settings. If one end of the link is set to auto-negotiate and the other end of the link is not set to auto-negotiate, the duplex settings on the network device default to half-duplex. This duplex mismatch passes traffic, but it causes late collisions and results in degraded optimization. To achieve maximum optimization set the network devices to **100** and **full**.

HP EFS WAN Accelerator Ports

The following table summarizes the ports used to connect the HP EFS WAN Accelerator to your network.

Port	Description
Console	Connects the serial cable to a terminal device. You establish a serial connection to a terminal emulation program for console access to the configuration wizard and the HP EFS WAN Accelerator command-line interface (CLI).
Primary (PRI)	The management interface that connects the HP EFS WAN Accelerator to a LAN switch. This management interface enables you to connect to the Management Console and the HP EFS WAN Accelerator CLI. **TIP**: The Primary and Auxiliary ports cannot share the same network subnet. **TIP**: The Primary and in-path interfaces can share the same subnet. **TIP**: You must use the Primary port on the server-side for out-of-path deployments.
Auxiliary (AUX)	An optional port that provides an additional management interface for a secondary network. You cannot have the Primary and Auxiliary ports on the same subnet. **TIP**: The Auxiliary and in-path interfaces cannot share the same network subnet. **TIP**: You cannot use the Auxiliary port for out-of-path HP EFS WAN Accelerators.
WAN	Connects the WAN port of the HP EFS WAN Accelerator and the WAN router using a cross-over cable.
LAN	Connects the LAN port of the HP EFS WAN Accelerator and the LAN switch using a straight-through cable. **NOTE**: If the HP EFS WAN Accelerator is deployed between two switches, both the LAN and WAN ports must be connected with straight-through cables.

Interface Naming Conventions

The interface names for the bypass cards are a combination of the slot number and the port pairs (**<slot>_<pair>, <slot>_<pair>**). For example, if a four-port bypass card is located in slot 0 of your appliance, the interface names are: **lan0_0**, **wan0_0**, **lan0_1**, and **wan0_1** respectively. Alternatively, if the bypass card is located in slot 1 of your appliance, the interface names are: **lan1_0**, **wan1_0**, **lan1_1**, and **wan1_1** respectively. The maximum number of pairs is six, which is three four-port bypass cards. For detailed information about installing additional bypass cards, see the *HP StorageWorks Enterprise File Services WAN Accelerator Bypass NIC Installation Guide*.

Mounting the HP EFS WAN Accelerator to a Rack

Refer to the instructions that came with your rack kit.

HP ProLiant DL320-520, DL320-1020, and DL320-2020 Hardware

Figure 2-4. HP ProLiant DL320-520, DL320-1020, and DL320-2020 Hardware: Rear Panel
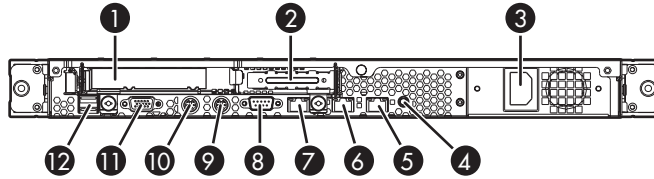
Table 0-1. HP ProLiant DL320-520, DL320-1020, DL320-2020 Hardware Explanation

Item	Description
1	Bypass card. Could be one of three possible cards: ◆ HP EFS N2c WAN Accelerator 2-port NIC ◆ HP EFS N2f WAN Accelerator 2-port NIC ◆ HP EFS N4c WAN Accelerator 4-port NIC
2	PCI-X expansion slot 1, low-profile half-length 64 bit/100 MHz 3.3 V
3	Power supply
4	UID button/LED
5	10/100/1000 NIC 2
6	10/100/1000 NIC 1
7	iLO management port
8	Serial connector
9	Keyboard connector
10	Mouse connector
11	Video connector
12	USB connectors

HP ProLiant DL380-3010 and DL380-5010 Hardware

Figure 2-5. HP ProLiant DL380-3010 and DL380-5010 Hardware
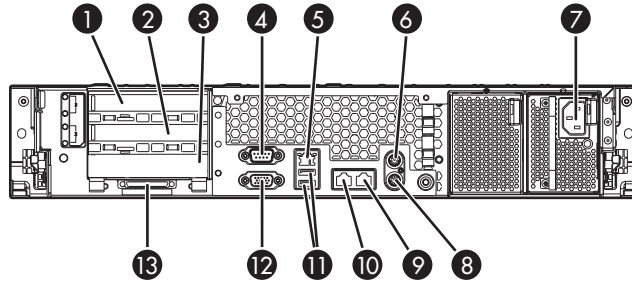
Table 0-2. HP ProLiant DL380-3010 and DL380-5010 Hardware Explanation

Item	Description
1	PCI-X expansion slot 3. **NOTE:** Be aware that the physical slot is labeled as *3*; however, the software refers to this slot as *2*.
2	PCI-X expansion slot 2. **NOTE:** Be aware that the physical slot is labeled as *2*; however, the software refers to this slot as *1*.
3	PCI-X expansion slot 1. **NOTE:** Be aware that the physical slot is labeled as *1*; however, the software refers to this slot as *0*.
4	Serial connector
5	iLO management port
6	Mouse connector
7	Power cord connector
8	Keyboard connector
9	NIC 1 connector
10	NIC 2 connector
11	USB connectors
12	Video connector
13	VHDCI SCSI connector (port 1)

* x8 PCI Express cards are supported and will run at x4 speeds.

NOTE:

Each PCI-X expansion slot could contain one of the following bypass cards:

◆ HP EFS N2c WAN Accelerator 2-port NIC
◆ HP EFS N2f WAN Accelerator 2-port NIC
◆ HP EFS N4c WAN Accelerator 4-port NIC

Only one type of card is allowed in the system. Up to two of the HP EFS N2c WAN Accelerator 2-port NIC or HP EFS N2f WAN Accelerator 2-port NIC bypass cards are allowed in the system. Up to three four-port copper Gig-E bypass cards are allowed in the system.

Therefore, the allowable configurations are:

1- or 2- HP EFS N2c WAN Accelerator 2-port NIC
1- or 2- HP EFS N2f WAN Accelerator 2-port NIC
1-, 2-, or 3- HP EFS N4c WAN Accelerator 4-port NIC

NIC Port LabelingTerminology Note

Labeling for the NIC ports can vary. To avoid confusion, the table below outlines the different labels for the NIC ports.

Location	Label 1	Label 2
In documentation, Command Line interface, and graphical user interface	Primary	AUX
HP ProLiant DL320-520, DL320-1020, and DL320-2020	NIC1	NIC2
HP ProLiant DL380-3010 and DL380-5010	1	2

Powering On the HP EFS WAN Accelerator

The following section describes how to connect the Alternating Current (AC) power and how to power on the HP EFS WAN Accelerator.

WARNING: Ensure that the HP EFS WAN Accelerator is properly grounded. See the *HP ProLiant DL320 Generation 4 Server User Guide* or the *HP ProLiant DL380 Generation 4 Server Reference and Troubleshooting Guide* for more information on grounding.

To power on the HP ProLiant DL320-520, DL320-1020, and DL320-2020

1. Plug the AC power cord into the HP EFS WAN Accelerator (Figure 2-4 on page 29, item 3).

2. Plug the AC power cord into an uninterrupted AC power source .

3. Press the Power On/Standby button on the front of the HP EFS WAN Accelerator (Figure 5-1 on page 63, item 6).

4. Check the status lights on the front and rear of the HP EFS WAN Accelerator (Figure 5-1 on page 63).

To power on the HP ProLiant DL380-3010 and DL380-5010

1. Plug the AC power cords into the HP EFS WAN Accelerator (Figure 2-5 on page 30, item 7).

2. Plug the AC power cords into an uninterrupted AC power source.

3. Press the Power On/Standby button on the front of the HP EFS WAN Accelerator (Figure 5-2 on page 65, item 6).

4. Check the status lights on the front and rear of the HP EFS WAN Accelerator (Figure 5-2 on page 65).

NOTE: The disk drives take about 2-5 minutes to boot.

HP System Management Homepage v2.0

The HP System Management Homepage v2.0 is a web-based interface that consolidates and simplifies the management of HP ProLiant servers. It provides a secure and intuitive interface to review in-depth hardware configuration and status data, performance metrics, system thresholds and software version control information. Go to the HP System Management Homepage v2.0 for more information.

Integrated Lights-Out

The Integrated Lights-Out (iLO) feature allows remote server management. Refer to the Integrated Lights-Out User Guide that came with the documentation set CD-ROM for your product.

Connecting to the HP EFS WAN Accelerator

To access the configuration wizard and the HP EFS WAN Accelerator command-line interface (CLI), you establish a serial connection using a terminal emulator program.

To connect to the HP StorageWorks Enterprise File Services WAN Accelerator

1. Plug the serial cable into the Console port and a terminal.

   ◆ For the HP ProLiant DL320-520, DL320-1020, and DL320-2020, refer to refer to Figure 2-4 on page 29, item 8.

   ◆ For the HP ProLiant DL380-3010 and DL380-5010, refer to Figure 2-5 on page 30, item 4.

TIP: You can also connect to the HP EFS WAN Accelerator using a cross-over cable. Plug a cross-over cable into the NIC1 (Primary) port of the HP EFS WAN Accelerator and your laptop computer. If you use this method, you will be disconnected after changing the primary default IP address (**169.254.169.254**) in the configuration wizard. You must reconnect using the new IP

address that you entered and restart the configuration wizard using the **configuration jump-start** command in the CLI.

2. Start your terminal emulation program, such as Terra Term Pro. The terminal device must have the following settings:

◆ Baud rate: 9600 bps

◆ Data bits: 8

◆ Parity: none

◆ Stop bits: 1

◆ vt100 emulation

◆ No flow control

NOTE: If you are using the HP EFS WAN Accelerator with a terminal server, the terminal server must use hardware flow control for the port connected to the HP EFS WAN Accelerator.

3. Log in as administrator user (**admin**) and enter the default password (**password**). For example:

```
login as: admin
Sent username "admin"
password: password
```

4. Check the system and disk drive status lights.

◆ For the HP ProLiant, refer to DL320-520, DL320-1020, and DL320-2020, refer to Figure 5-1 on page 63.

◆ For the HP ProLiant DL380-3010 and DL380-5010, refer to Figure 5-2 on page 65.

NOTE: For Bypass card status lights, see "Bypass Card Status Lights" on page 66

After you have established connection, you configure the HP EFS WAN Accelerator using the configuration wizard:

◆ For in-path configurations, see "Configuring In-Path HP EFS WAN Accelerators," next.

◆ For out-of-path configurations, see "Configuring Out-of-Path HP EFS WAN Accelerators" on page 41.

Configuring In-Path HP EFS WAN Accelerators

In a physical in-path deployment the HP EFS WAN Accelerator is physically in the direct path between clients and servers. The clients and servers continue to see client and server IP addresses. Physical in-path configurations are suitable for any location where the total bandwidth is within the limits of the installed HP EFS WAN Accelerator. For a detailed figure, see "Choosing a Network Deployment" on page 24.

For detailed information about in-path deployments, see the *HP EFS WAN Accelerator Deployment Guide*.

Before You Begin

Before you begin the configuration process, check the duplex and speed settings on the router and switch that will connect to your HP EFS WAN Accelerator. Make sure the settings on the router, switch, and the HP EFS WAN Accelerator match. For example, ensure settings are **auto** speed and duplex on the LAN and WAN or **100 FULL** on the LAN and WAN. If the settings do not match, optimization might be degraded.

The Configuration Wizard

The configuration wizard automatically starts when you log into the HP EFS WAN Accelerator command-line interface (CLI) for the first time.

The following rules apply to the configuration wizard:

◆ Press ENTER to enter the default value.

◆ Press '?' for help.

◆ Press CTRL-B to go back to the previous step.

If you mistakenly quit the configuration wizard, you can restart it from the HP EFS WAN Accelerator CLI. You must be in configuration mode to restart the configuration wizard.

To restart the configuration wizard

• Enter the following set of commands at the system prompt:

```
> enable
# configure terminal
(config) # configuration jump-start
```

For detailed information about the CLI, see the *HP Enterprise File Services WAN Accelerator Command-Line Interface reference manual*.

To configure the HP EFS WAN Accelerator in an in-path deployment

1. If you have a HP StorageWorks Enterprise File Services WAN Accelerator Manager installed in your network to manage multiple HP EFS WAN Accelerators you can use it to automatically configure them.

```
Do you want to auto-configure using a CMC? no
```

If you answer **yes**, you are prompted for the HP EFS WAN Accelerator Manager host name or IP address. The host name or IP address is used to contact the HP EFS WAN Accelerator Manager. The default value is set to **hpwam**. If you enter **no**, the wizard continues.

TIP: If you mistakenly answer **yes**, to return to the wizard from the CLI, enter the **configuration jump-start** command from configuration mode. For detailed information, see the .

---

2. To start the configuration wizard, enter **yes** at the system prompt. For example:

```
Do you want to use the configuration wizard for initial configuration?
yes
```

3. Complete the configuration wizard steps on the client-side and server-side HP EFS WAN Accelerators as described in the following table.

Wizard Prompt	Description	Example
Step 1: Hostname?	Enter the host name for the HP EFS WAN Accelerator Manager.	Step 1: Hostname? minna
Step 2: Use DHCP on the primary interface?	You are given the option to enable the Dynamic Host Configuration Protocol (DHCP) to automatically assign an IP address to the primary interface for the HP EFS WAN Accelerator. HP recommends that you do not set DHCP. The default value is **no**.	Step 2: Use DHCP? no
Step 3: Primary IP address?	Enter the IP address for the HP EFS WAN Accelerator.	Step 3: Primary IP address? 10.10.10.6
Step 4: Netmask?	Enter the netmask address.	Step 4: Netmask? 255.255.0.0
Step 5: Default gateway?	Enter the default gateway for the HP EFS WAN Accelerator.	Step 5: Default gateway? 10.0.0.1
Step 6: Primary DNS server?	Enter the primary DNS server IP address.	Step 6: Primary DNS server? 10.0.0.2
Step 7: Domain name?	Enter the domain name for the network on which the HP EFS WAN Accelerator is to reside. If you set a domain name, you can enter host names in the system without the domain name.	Step 7: Domain name? example.com
Step 8: Admin password?	HP strongly recommends that you change the default administrator password at this time. The password must be minimum of 6 characters. The default administrator password is **password**.	Step 8: Admin password? xxxyyy

Step 9: SMTP server?	Enter the SMTP server. External DNS and external access for SMTP traffic is required for email notification of events and failures to function. **IMPORTANT**: Make sure you provide a valid SMTP server to ensure email notifications for events and failures.	`Step 9: SMTP server? [natoma]`
Step 10: Notification email address?	Enter a valid email address to receive email notification of events and failures.	`Step 10: Notification email` `address? [example@xample.com]`
Step 11: Set the primary interface speed?	Enter the speed on the primary interface (that is, the HP EFS WAN Accelerator). Make sure this value matches the settings on your router or switch. The default value is **auto**.	`Step 11: Set the primary` `interface speed? [auto] auto`
Step 12: Set the primary interface duplex?	Enter the duplex mode on the primary interface, type a value at the system prompt. Make sure this value matches the settings on your router or switch. The default value is **auto**.	`Step 12: Set the primary` `interface duplex? [auto] auto`

Step 13: Would you like to activate the in path configuration?	Enter yes at the system prompt to configure in-path support. An in-path configuration is a configuration in which the HP EFS WAN Accelerator is in the direct path of the client and server.
	
	For detailed information about in-path configurations, see the *HP EFS WAN Accelerator Deployment Guide*.
		`Step 13: Would you like to`
		`activate the in path`
		`configuration? yes`

Step 14: In Path IP address?	Enter the in-path IP address for the HP EFS WAN Accelerator.	`Step 14: In-Path IP address?` `[10.11.11.6]`

Step 15: In-Path Netmask?	Enter the in-path netmask address.	`Step 15: In-Path Netmask?` `[255.255.0.0]`
Step 16: In-Path Default gateway?	Enter the in-path default gateway (the WAN gateway).	`Step 16: In-Path Default` `Gateway?`
Step 17: Set the in-path:LAN interface speed?	Enter the in-path, LAN interface speed. Make sure this value matches the settings on your router or switch. The default value is **auto**.	`Step 17: Set the in-path:LAN` `interface speed? [auto] auto`
Step 18: Set the in-path:LAN interface duplex?	Enter the in-path, LAN duplex. Make sure this value matches the settings on your router or switch. The default value is **auto**.	`Step 18: Set the in-path:LAN` `interface duplex? [auto] auto`
Step 19: Set the in-path:WAN interface speed?	Enter the in-path, WAN interface speed. Make sure this value matches the settings on your router or switch. The default value is **auto**.	`Step 19: Set the in-path:WAN` `interface speed? [auto] auto`
Step 20: Set the in-path:WAN interface duplex?	Enter the in-path, WAN duplex speed. Make sure this value matches the setting on your router or switch. The default value is **auto**.	`Step 20: Set the in-path:WAN` `interface duplex? [auto] auto`

4. The system confirms your settings.

```
You have entered the following information:
1. Hostname: minna
2. Use DHCP on primary interface: no
3. Primary IP address: 10.10.10.6
4. Netmask: 255.255.0.0
5. Default gateway: 10.0.0.1
6. Primary DNS server: 10.0.0.2
7. Domain name: example.com
8. Admin password: (unchanged)
9. SMTP server: natoma
10. Notification email address: example@example.com
11. Set the primary interface speed: auto
12. Set the primary interface duplex: auto
13. Would you like to activate the in-path configuration: yes
14. In-Path IP address: 10.11.11.6
15. In-Path Netmask: 255.255.0.0
16. In-Path Default gateway:
17. Set the in-path:LAN interface speed: auto
18. Set the in-path:LAN interface duplex: auto
19. Set the in-path:WAN interface speed: auto
20. Set the in-path:WAN interface duplex: auto
To change an answer, enter the step number to return to.
Otherwise hit <enter> to save changes and exit.
Choice:
```

The HP EFS WAN Accelerator configuration wizard automatically saves your configuration settings.

5. To log out of the system, enter the following command at the system prompt:

```
minna> exit
```

Connecting the HP EFS WAN Accelerator to Your Network

You use CAT-5E straight-through and cross-over cables to connect to your network in an in-path configuration. Make sure you use the correct cables to establish your network connections:

◆ **Straight-through cables**. Use straight-through cables to connect the NIC1 (Primary) and LAN ports on the HP EFS WAN Accelerator to the LAN switch.

◆ **Cross-over cable**. Use the cross-over cable to connect the WAN port on the HP EFS WAN Accelerator to the WAN router.

To connect the HP EFS WAN Accelerator to your network

1. Plug the straight-through cable into the NIC1 (Primary) port of the HP EFS WAN Accelerator and the LAN switch. (This can be any port on your LAN switch that acts as a host.)

   ◆ For the HP ProLiant DL320-520, DL320-1020, and DL320-2020, refer to Figure 2-4 on page 29, item 6.

   ◆ For the HP ProLiant DL380-3010 and DL380-5010, refer to Figure 2-5 on page 30, item 9.

2. Identify the straight-through cable that connects your WAN router to your LAN switch. Unplug the end connected to the WAN router.

Figure 2-6. Disconnecting the WAN Router

3. Plug the straight-through cable that you disconnected from the WAN router into the LAN port of the HP EFS WAN Accelerator.

   ◆ For the HP ProLiant DL320-520, DL320-1020, and DL320-2020, refer to Figure 2-4 on page 29, item 1.

   ◆ For the HP ProLiant DL380-3010 and DL380-5010, refer to Figure 2-5 on page 30, item 3.

4. Using the provided cross-over cable, plug the cable into the WAN port of the HP EFS WAN Accelerator and the WAN router. (This must be a cross-over cable.)

   ◆ For the HP ProLiant DL320-520, DL320-1020, and DL320-2020, refer to Figure 2-4 on page 29, item 1.

   ◆ For the HP ProLiant DL380-3010 and DL380-5010, refer to Figure 2-5 on page 30, item 3.

NOTE: If you have an HP EFS N4c WAN Accelerator 4-port NIC card, repeat Step 2 through Step 3. For detailed information about installing the bypass card, see the *HP StorageWorks Enterprise File Services WAN Accelerator Bypass NIC installation guide*.

Verifying Your Connections

Perform the following tasks to verify that you have properly connected the HP EFS WAN Accelerator.

**To verify your
connections**

1. Verify that you can connect to the HP EFS WAN Accelerator CLI using one of the
   following devices:

   ◆ An ASCII terminal or emulator that can connect to the serial console. It must
     have the following settings: 9600 baud, 8 bits, no parity, 1 stop bit, vt100, and
     no flow control.

   ◆ A computer with a Secure Shell (**ssh**) client that is connected to the HP EFS
     WAN Accelerator NIC1 (Primary) port.

2. At the system prompt, enter the following command:

   ```
   ssh admin@host.domain
   ```

   or

   ```
   ssh admin@ipaddress
   ```

3. You are prompted for the administrator password. This is the password you set in
   the configuration wizard.

4. At the system prompt, **ping** from the management interface.

   ```
   ping -I <primary-IP-address> <primary-default-gateway>
   ```

5. At the system prompt, **ping** from the in-path default gateway.

   ```
   ping -I <in-path-IP-address> <in-path-default-gateway>
   ```

Connecting to the HP EFS WAN Accelerator

After you configure the HP EFS WAN Accelerator, you can check and modify your
configuration settings, and view performance reports and system logs in the
Management Console. You can connect to the Management Consolethrough any
supported Web browser.

To connect to the Management Console you must know the host, domain, and
administrator password that you assigned in the initial configuration of the HP EFS
WAN Accelerator.

NOTE: Cookies and Javascript must be enabled in your Web browser.

**To connect to the
Management Console**

1. Enter the URL for the Management Console in the location box of your Web
   browser:

   ```
   protocol://host.domain
   ```

   protocol is **http** or **https**. Hypertext Transport Protocol Secure (HTTPS) uses the
   Secure Sockets Layer (SSL) protocol to ensure a secure environment. If you use
   HTTPS, to connect you are prompted to inspect and verify the SSL key.
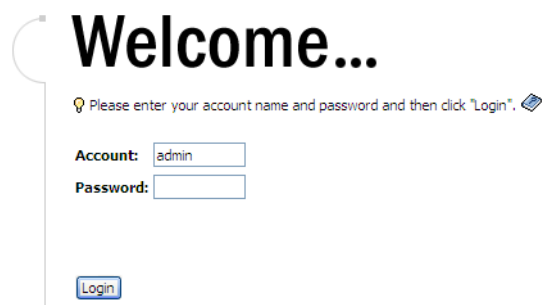
   host is the host name you assigned to the HP EFS WAN Accelerator during initial
   configuration. If your DNS server maps that IP address to a name, you can
   specify the DNS name.

   domain is the full domain name for the HP EFS WAN Accelerator.

> **NOTE:** Alternatively, you can specify the IP address instead of the host and domain. For example: http://169.254.169.254/.

The Management Console appears, displaying the Welcome page.

Figure 2-7. Welcome Page

2. In the **Account** text box, type the user login: **admin**, **monitor**, a login from a Remote Authentication Dial-In User Service (RADIUS), or a Terminal Access Controller Access Control System (TACACS+) database. The default login is **admin**.

   Users with administrator (**admin**) privileges can configure and administer the HP EFS WAN Accelerator. Users with monitor (**monitor)** privileges can view connected HP EFS WAN Accelerators, reports, and system logs.

3. In the **Password** text box, type the password you assigned in the configuration wizard.

4. Click **Login** to display the Home: Welcome page. The Home: Welcome page summarizes the current status of your system and provides links to connected HP EFS WAN Accelerators, a traffic summary, alarms, system logs, and HP technical support information.

Verifying Your Configuration

Perform the following tasks to verify that you have properly configured the HP EFS WAN Accelerator.

If you selected auto-negotiation (**auto**) for your in-path and primary interfaces, you must make sure that the HP EFS WAN Accelerator negotiated the speed and duplex at the rate that your devices expect. For example, ensure settings are **auto** on the LAN and WAN and **100 FULL** on the LAN and WAN. You can verify your speed and duplex settings in the Setup: Networking - In-Path (LAN/WAN) Interface page of the Management Console.

**To check for speed
and duplex errors**

1. In the Management Console, click Logging to display the Logging: System Log
page.

2. Under Network click Current Connections to display the Reports: Current
Connections page.

3. Check for duplex and speed errors.

4. If you find errors, check the speed and duplex settings on your LAN and WAN
interface in the Setup: Networking - In-Path (LAN/WAN) Interface page.

5. If there is a mismatch, change the speed and duplex settings on the HP EFS WAN
Accelerator to match the interface settings.

**To verify optimization
in an in-path
configuration**

1. Mount a remote drive on a client machine.

2. Drag and drop a 1 MB file.

3. Drag and drop the 1 MB file again. Performance improves significantly.

Configuring Out-of-Path HP EFS WAN Accelerators

In an out-of-path deployment the HP EFS WAN Accelerator is not in the direct path
between the client and the server. Servers see the IP address of the server-side HP EFS
WAN Accelerator rather than the client IP address. An out-of-path configuration is
suitable for data center locations where physical in-path or logical in-path
configurations are not possible. For a detailed figure, see "Choosing a Network
Deployment" on page 24.

For detailed information about out-of-path deployments, see the *HP EFS WAN
Accelerator Deployment Guide*.

Before You Begin

Before you begin the configuration process, check the duplex and speed settings on the
router and switch that will connect to your HP EFS WAN Accelerator. Make sure the
settings on the router, switch, and the HP EFS WAN Accelerator match. For example,
ensure settings are **auto** speed and duplex on the LAN and WAN or **100 FULL** on the
LAN and WAN. If the settings do not match, optimization might be degraded.

The configuration wizard automatically starts when you log into the HP EFS WAN
Accelerator command-line interface (CLI) for the first time. For detailed information
about the configuration wizard and how to restart it, see "The Configuration Wizard"
on page 34.

IMPORTANT: In an out-of-path configuration, the client-side HP EFS WAN Accelerator is
configured as an in-path device and the server-side HP EFS WAN Accelerator is configured as
an out-of-path device.

To configure the server-side HP EFS WAN Accelerator in an out-of-path deployment

1. If you have a HP StorageWorks Enterprise File Services WAN Accelerator Manager (HP EFS WAN Accelerator Manager) appliance installed in your network to manage multiple HP EFS WAN Accelerators you can use it to automatically configure them.

```
Do you want to auto-configure using a CMC? no
```

If you enter **yes**, you are prompted for the HP EFS WAN Accelerator Manager host name or IP address. The host name or IP address is used to contact the HP EFS WAN Accelerator Manager. The default value is set to **hpwam**. If you enter **no**, the wizard continues.

TIP: If you mistakenly answer **yes**, to return to the wizard from the CLI, enter the **configuration jump-start** command from configuration mode. For detailed information, see the .

---

2. To start the configuration wizard, enter **yes** at the system prompt. For example:

```
Do you want to use the configuration wizard for initial configuration?
yes
```

TIP: If you mistakenly answer **no**, to return to the wizard from the CLI, enter the **configuration jump-start** command from configuration mode. For detailed information, see the .

---

3. Complete the configuration wizard steps on the client-side and server-side.

Wizard Prompt	Description	Example
Step 1: Hostname?	Enter the host name for the HP EFS WAN Accelerator Manager.	`Step 1: Hostname? minna`
Step 2: Use DHCP on the primary interface?	You are given the option to enable the Dynamic Host Configuration Protocol (DHCP) to automatically assign an IP address to the primary interface for the HP EFS WAN Accelerator. HP recommends that you do not set DHCP. The default value is **no**.	`Step 2: Use DHCP? no`
Step 3: Primary IP address?	Enter the IP address for the HP EFS WAN Accelerator.	`Step 3: Primary IP address?` `10.10.10.6`
Step 4: Netmask?	Enter the netmask address.	`Step 4: Netmask? 255.255.0.0`
Step 5: Default gateway?	Enter the default gateway for the HP EFS WAN Accelerator.	`Step 5: Default gateway?` `10.0.0.1`
Step 6: Primary DNS server?	Enter the primary DNS server IP address.	`Step 6: Primary DNS server?` `10.0.0.2`

Step 7: Domain name?	Enter the domain name for the network on which the HP EFS WAN Accelerator is to reside. If you set a domain name, you can enter host names in the system without the domain name.	`Step 7: Domain name? example.com`
Step 8: Admin password?	HP strongly recommends that you change the default administrator password at this time. The password must be minimum of 6 characters. The default administrator password is **password**.	`Step 8: Admin password? xxxyyy`
Step 9: SMTP server?	Enter the SMTP server. External DNS and external access for SMTP traffic is required for email notification of events and failures to function. **IMPORTANT**: Make sure you provide a valid SMTP server to ensure email notifications for events and failures.	`Step 9: SMTP server? natoma`
Step 10: Notification email address?	Enter a valid email address to receive email notification of events and failures.	`Step 10: Notification email address? example@xample.com`
Step 11: Set the primary interface speed?	Enter the speed on the primary interface (that is, the HP EFS WAN Accelerator). Make sure this value matches the settings on your router or switch. The default value is **auto**.	`Step 11: Set the primary interface speed? [auto] auto`
Step 12: Set the primary interface duplex?	Enter the duplex mode on the primary interface, type a value at the system prompt. Make sure this value matches the settings on your router or switch. The default value is auto.	`Step 12: Set the primary interface duplex? [auto] auto`
Step 13: Would you like to activate the in path configuration?	Enter **no** at the system prompt to configure in-path support. An in-path configuration is a configuration in which the HP EFS WAN Accelerator is in the direct path of the client and server. For detailed information about in-path configurations, see the *HP EFS WAN Accelerator Deployment Guide*.	`Step 13: Would you like to activate the in path configuration? no`
Step 14: Would you like to activate the out-of-path configuration?	Enter yes at the system prompt to configure out-of-path support. An out-of-path configuration is a configuration in which the HP EFS WAN Accelerator is not in the direct path of the client and server. For detailed information about in-path configurations, see the *HP EFS WAN Accelerator Deployment Guide*.	`Step 14: Would you like to activate the out-of-path configuration? [no] yes`

The system confirms your settings.

```
You have entered the following information:
Step 1: Hostname? minna
Step 2: Use DHCP on primary interface? no
Step 3: Primary IP address? 10.10.10.6
Step 4: Netmask? 255.255.0.0
Step 5: Default gateway? 10.0.0.1
Step 6: Primary DNS server? 10.0.0.2
Step 7: Domain name? mydomain.com
Step 8: Admin password? xxxyyyy
Step 9: SMTP server? natoma
Step 10: Notification email address? example@example.com
Step 11: Set the primary interface speed? auto
Step 12: Set the primary interface duplex? auto
Step 13. Would you like to activate the in-path configuration: no
Step 14: Would you like to activate the out-of-path configuration? yes

To change an answer, enter the step number to return to.
Otherwise hit <enter> to save changes and exit.
```

The HP EFS WAN Accelerator configuration wizard automatically saves your configuration settings.

4. To log out of the system, enter the following command at the system prompt:

```
minna> exit
```

Connecting the HP EFS WAN Accelerator to Your Network

You use a CAT-5E straight-through cable to connect the Primary port of the HP EFS WAN Accelerator to the LAN switch in an out-of-path configuration.

To connect the HP EFS WAN Accelerator to your network

- Plug the straight-through cable into the NIC1 (Primary) port of the HP EFS WAN Accelerator and the LAN switch. This can be any port on your LAN switch which is configured to connect to a host.

  ◆ For the HP ProLiant DL320-520, DL320-1020, and DL320-2020, refer to , item 6.

  ◆ For the HP ProLiant DL380-3010 and DL380-5010, refer to , item 9.

For detailed information about the Management Console, see the *HP Enterprise File Services WAN Accelerator Management Console user guide*.

For detailed information about the CLI, see the *HP Enterprise File Services WAN Accelerator Command-Line Interface reference manual*.

The following procedures describe how to configure in-path rules using the Management Console.

To configure the client-side HP StorageWorks Enterprise File Services WAN Accelerator

1. Follow the procedures for an in-path configuration. For details, see "Configuring In-Path HP EFS WAN Accelerators" on page 34.

2. Connect to the Management Console. For details, see "Connecting to the HP EFS WAN Accelerator" on page 39.

3. Navigate to the Setup: Optimization Service - In-Path Rules page.

Figure 2-8. Setup: Service - In-Path Rules Page

4. Under Add New Rule, select **Fixed-Target** from the **Type** drop-down list.

5. Under Targets, type the IP address and port number for the HP EFS WAN Accelerator that is the peer in the **Target IP** and **Port** text boxes. The IP address must be the Primary Port IP address on the target HP EFS WAN Accelerator. The default port is **7810**.

NOTE: If you are not optimizing all ports in your out-of-path deployment and you want to optimize Messaging Application Programming Interface (MAPI) Exchange, you must specify the MAPI end-point port (**135**), the HP EFS WAN Accelerator port used for Exchange traffic (**7830**), and the HP EFS WAN Accelerator port used for Exchange directory Name Service Provider Interface (NSPI) traffic (**7840**). For detailed information about MAPI Exchange settings, see the *HP Enterprise File Services WAN Accelerator Management Console user guide*.

6. If you have a backup, out-of-path, HP EFS WAN Accelerator in your system (that is, failover support), type the IP address and port for the backup appliance in the **Backup IP** and **Port** text boxes. Use the following format: **0.0.0.0/0**. The default port is **7810**.

7. Click **Add Rule** to apply the rule to the running configuration.

8. Click **Save** to write your settings to memory or click **Reset** to return the settings to their previous values.

For detailed information about verifying your connections and configuration settings, see .

You can now optimize WAN traffic using the HP EFS WAN Accelerator.

SMB Signing and Windows Performance

The Common Internet File System (CIFS) protocol, used by Windows operating systems for file and print sharing, is based on the Server Message Block (SMB) protocol. To prevent security assaults that might modify transmissions, the SMB protocol supports signing all transmitted SMB packets. By default, Domain Controllers that also act as file servers have signing enabled.

NOTE: If you are not using your Domain Controller as a file server SMB Signing is not an issue.

SMB signing is a performance intensive operation for clients and servers. Hence this feature is not turned on all the time. This feature is negotiated between the client and the server.

SMB signing prevents the HP EFS WAN Accelerator from applying full optimization on CIFS connections and significantly reduces the performance gain from a HP EFS WAN Accelerator deployment. As many customers take additional security precautions (such as firewalls, internal-only reachable servers, and so forth), SMB signing adds little additional security, at a significant performance cost (even without deployed HP EFS WAN Accelerators).

NOTE: For detailed information about the performance impact of SMB signing, see the Microsoft support site. SMB signing was enabled on Windows 2000, Service Pack 3, Critical fix Q329170.

You can disable SMB signing using one of the following approaches:

◆ "Enabling the Secure-CIFS Feature," next

◆

IMPORTANT: HP recommends you disable SMB signing using the Secure-CIFS feature. If you are unsuccessful, disable SMB signing using the procedures described in .

Enabling the Secure-CIFS Feature

The Secure-CIFS feature enables you to automatically disable SMB signing using a CLI command or the Management Console.

By default, the Secure-CIFS feature is disabled. When a Windows server is set to **SecuritySignatureEnable**, the HP EFS WAN Accelerator stops CIFS optimization but continues performing HP EFS WAN Accelerator optimization.

If you enable Secure-CIFS using the CLI command **secure-sig-opt**, the HP EFS WAN Accelerator performs CIFS optimization for connections even when the **SecuritySignatureEnable** setting is specified.

IMPORTANT: The HP EFS WAN Accelerator performs Scalable Data Referencing (SDR) only if the **SecuritySignatureRequired** setting is specified on the server.

Before you enable Secure-CIFS, you must consider the following factors:

◆ If the client-side machine has **Required** signing, enabling Secure-CIFS prevents the client from connecting to the server.

◆ If the server-side machine has **Required** signing, connection occurs but you cannot perform full latency optimization with the HP EFS WAN Accelerator. Domain Controllers default to **Required**.

You can identify poor CIFS performance by the examining the HP EFS WAN Accelerator log files in the Management Console. For example, the client-side HP EFS WAN Accelerator:

```
Jan 22 00:01:11 dfcfe1 sport[3940]: [smbcfe.WARN] 728 {10.0.0.14:1605
10.0.0.4:445} Cifs parser shutting down due to
error=SMB_SHUTDOWN_ERR_SEC_SIG_ENABLED. Security signatures are enabled
on the server. Disabling latency optimization, only bandwidth will be
optimized.
```

For example, the server-side HP EFS WAN Accelerator:

```
Jan 22 00:04:49 dfcfe1 sport[3940]: [smbcfe.WARN] 733 {10.0.100.86:4688
10.0.0.4:445} Received cifs shutdown request from SFE:
error=SMB_SHUTDOWN_ERR_SEC_SIG_ENABLED
```

To enable Secure-CIFS   1. Connect to the CLI. For detailed information, see the *HP Enterprise File Services WAN Accelerator Command-Line Interface reference manual*.

2. Enter configuration mode. At the system prompt enter the following set of commands:

```
minna> enable
minna # configure terminal
minna (config) #
```

3. At the system prompt, enter the following command:

```
minna (config)# protocol cifs secure-sig-opt enable
```

IMPORTANT: Your changes only apply to new connections.

Disabling SMB Signing Using Active Directory

If the Secure-CIFS feature does not disable SMB signing, you must revise the default SMB registry parameters. SMB signing is controlled by the following registry parameters:

```
enablesecuritysignature (SSEn)
requiresecuritysignature (SSReq)
```

The registry settings are located in:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\l
anmanserver\parameters
```

The following table summarizes the default the SMB signing registry parameters.

Machine Role	SSEn	SSReq
Client/Workstation	ON	OFF
Member Server	OFF	OFF
Domain Controller	ON	ON

With these default registry parameters, SMB signing is negotiated in the following manner:

◆   SMB/CIFS exchanges between the Client/Workstation and the Member Server are not signed.

◆   SMB/CIFS exchanges between the Client/Workstation and the Domain Controller are always signed.

The following table lists the revised SMB registry parameters that ensure full optimization (that is, bandwidth and latency optimization) using the HP EFS WAN Accelerator.

Client or WorkStation		Member Server		Results
SSReq	SSEn	SSReq	SSEn	
OFF	OFF	OFF	OFF	Signature Disabled: Full Optimization
OFF	OFF	OFF	ON	Signature Disabled: Full Optimization
OFF	ON	OFF	OFF	Signature Disabled: Full Optimization

There are two sets of these parameters on each computer: one set for the computer as a server and the other set for the computer as a client.

NOTE: On the client, if SMB signing is set to **required**, do not disable it on the server.

To disable SMB signing on Windows 2000 Domain Controllers, member servers, and clients

1. Open Active Directory Users and Computers on the Domain Controller.

2. Right-click **Domain Controllers** and select **Properties**.

3. Click the **Group Policy** tab.

4. Click **Default Domain Controllers Policy** and select **Edit**.

5. Click **Default Domain Controllers Policy/Computer Configuration/Windows Settings/Security Settings/Local Policies/Security Options**.

6. Disable **Digitally sign client communication (always)** and **Digitally sign server communication (always)**.

7. Disable **Digitally sign client communication (when possible)** and **Digitally sign server communication (when possible)**.

8. Reboot all the Domain Controllers and member servers that you want to optimize.

To disable SMB signing on Windows 2003 Domain Controllers, member servers, and clients

1. Open Active Directory Users and Computers on the Domain Controller.

2. Right-click **Domain Controllers** and select **Properties**.

3. Click the **Group Policy** tab.

4. Click **Default Domain Controllers Policy** and select **Edit**.

5. Click **Default Domain Controllers Policy/Computer Configuration/Windows Settings/Security Settings/Local Policies/Security Options**.

6. Reboot all the Domain Controllers and member servers that you want to optimize.

You can verify that SMB signing has been disabled on your Domain Controllers, member servers, and clients. The following procedures assume that you have installed and configured the HP EFS WAN Accelerators in your network.

To verify that SMB signing has been disabled

1. Copy some files from the server to the client through the HP EFS WAN Accelerators.

2. To check for protocol errors, click Reports to display the Reports: Bandwidth Optimization page.

3. Under Network, click Current Connections to display the Reports: Network - Current Connections page.

4. Check for protocol errors. Protocol errors appear with a red triangle next to the connection.

5. If you have protocol errors:

   ◆ Disable **Digitally sign client communication (always)** and **Digitally sign server communication (always)**.

   ◆ Disable **Digitally sign client communication (when possible)** and **Digitally sign server communication (when possible)**.

CHAPTER 3

Troubleshooting Installation Problems

In This Chapter

This chapter describes common installation problems and solutions. It includes the following sections:

◆ "Common Problems Summary," next

◆ "Problem: Number of Errors on an Interface is 4294967295" on page 53

◆ "Problem: HP EFS WAN Accelerator Blocks Traffic When Switching To Bypass Mode" on page 54

◆ "Problem: HP EFS WAN Accelerator Boots Briefly, and Then Reboots" on page 54

◆ "Problem: HP EFS WAN Accelerator Boots, Displays the Login Prompt, and Then Reboots" on page 55

◆ "Problem: HP EFS WAN Accelerator Does Not Boot" on page 56

◆ "Problem: HP EFS WAN Accelerator Does Not Come Out of Bypass Mode" on page 56

For detailed information about the factors you must consider before you deploy the HP EFS WAN Accelerator, see the *HP EFS WAN Accelerator deployment guide*.

For additional information about troubleshooting problems with HP EFS WAN Accelerator deployment, see the *HP EFS WAN Accelerator deployment guide*.

Common Problems Summary

The problems described in this section are common problems encountered by customers who have contacted HP Technical Support for assistance. HP recommends that you begin by examining each of the items in the following table when troubleshooting installation problems.

The following section describes solutions using the CLI. It assumes you are connected to the CLI and in configuration mode. For detailed information about connecting to the CLI, see the *HP Enterprise File Services WAN Accelerator Command-Line Interface reference manual*.

If you are experiencing problems with HP EFS WAN Accelerator installation, make sure you check:

Checkpoint	Checklist
Physical Environment	**Cables**. Make sure you have connected your cables properly: • **Straight-through cables**. Primary and LAN ports on the appliance to the LAN switch. • **Cross-over cable**. WAN port on the appliance to the WAN router.
	Speed and duplex settings. Do not assume network auto-sensing is functioning properly. Make sure your speed and duplex settings match on the HP EFS WAN Accelerator and the router or switch. Use a **ping** flood to test duplex settings.
	WAN/LAN connections. Ensure the wide-area network (WAN) interface is connected to a traffic egress and the local-area network (LAN) interface is connected to a traffic ingress.

Appliance Configuration	**IP addresses**. To verify the IP address has been configured correctly:
	
	• Ensure the HP EFS WAN Accelerators are reachable via the IP address. For instance, use the HP EFS WAN Accelerator command-line interface (CLI) command **ping**.
	• Verify that the server-side HP EFS WAN Accelerator is visible to the client-side HP EFS WAN Accelerator. For example, at the system prompt, enter the CLI command:
	
	`tproxytrace -i inpath0_0 server:port`
	
	• Verify that the client-side HP EFS WAN Accelerator is visible to the server-side HP EFS WAN Accelerator. For example, at the system prompt, enter the CLI command:
	
	`tproxytrace -i inpath0_0 client:port`
	
	TIP: On Windows machines, the port is **139**.

	In-path rules. To verify that in-path rules are configured correctly, use Management Console or the following CLI command: `show in-path rules`
	In-path routes. Verify that in-path routes are configured correctly. For example, at the system prompt, enter the CLI command: `sh ip in-path route <interface-name>`
	HP EFS WAN Accelerator **service**. If necessary, enable the HP EFS WAN Accelerator service. For example, at the system prompt, enter the CLI command: `service enable`
	In-path support. If necessary, enable in-path support. For example, at the system prompt, enter the CLI command: `in-path enable`
	In-path client out-out-path support. If necessary, disable in-path client out-of-path support. For example, at the system prompt, enter the CLI command: `no in-path oop all-port enable`

(1 of 2)

Checkpoint	Checklist
Network (LAN/WAN) topology	**Packet traversion**. Physically draw out both sides of the entire network and make sure that packets traverse the same client and server HP EFS WAN Accelerators in both directions (from the client to the server and from the server to the client). Verify packet traversion by running a **traceroute** from the client to the server and the server to the client.
	Bi-directional continuity. Make sure there is bi-directional continuity between the client and the client-side HP EFS WAN Accelerator, and the server HP EFS WAN Accelerator and the network server.
	Auto-discovery. If the auto-discovery mechanism, as described in "Definition of Terms" on page 15, is failing, try implementing a fixed-target rule. You can define fixed-target rules using the Management Console or the CLI.
	For information about configuring fixed-target rules the Management Console, see the *HP Enterprise File Services WAN Accelerator Management Console User Guide*.
	For information about configuring fixed-target rules the CLI, see the *HP Enterprise File Services WAN Accelerator Command-Line Interface reference manual*.
	Auto-discovery can fail due to devices dropping TCP options. which sometimes occurs with certain satellite links and firewalls. To fix this problem, create fixed-target rules that point to the remote HP EFS WAN Accelerator's port **7800**.
	LAN/WAN bandwidth and reliability. Check client and server duplex issues or voice over IP (VoIP) traffic clogging T1 lines.
	Protocol optimization. Are all protocols that you expect to optimize actually optimized in both directions? If no protocols are optimized, only some of the expected protocols are optimized, or expected protocols are not optimized in both directions, check:
	• That connections have been successfully established.
	• That HP EFS WAN Accelerators on the other side of a connection are turned on.
	• For secure or interactive ports that are preventing protocol optimization.
	• For any pass-through rules that could be causing some protocols to pass-through HP EFS WAN Accelerators unoptimized.
	• That the LAN and WAN cables are not inadvertently swapped.
	Broken or slow connections. For help in troubleshooting broken or slow connections, see the *HP EFS WAN Accelerator deployment guide*.

<p style="text-align:right">(2 of 2)</p>

Problem: Number of Errors on an Interface is 4294967295

Description of Problem

The **show interfaces** CLI command displays **4294967295** as the number of errors on an interface.

Solution

The bypass card is not properly installed; reinstall it. For information, see the *HP StorageWorks Enterprise File Services N4c WAN Accelerator 4-port NIC Installation Guide*.

Similar Problems

See also

Problem: HP EFS WAN Accelerator Blocks Traffic When Switching To Bypass Mode

Description of Problem

The HP EFS WAN Accelerator blocks traffic when going into bypass mode.

Solution

If an HP EFS WAN Accelerator blocks traffic when going into bypass mode, verify that connections to its neighboring devices are correctly configured. Ensure that the cable from the HP EFS WAN Accelerator to the switch is a straight-through cable and the cable from the HP EFS WAN Accelerator to the router is a crossover cable. Also ensure that there are no network speed or duplex mismatches.

Similar Problems

See also .

Problem: HP EFS WAN Accelerator Boots Briefly, and Then Reboots

Description of Problem

The HP EFS WAN Accelerator boots, stays on for approximately one minute, and then reboots.

Solution

Open the HP EFS WAN Accelerator and check that the central processing unit (CPU) heat-sink and fan are attached and that the fan spins when the HP EFS WAN Accelerator is powered on. If the CPU heat-sink or fan is not properly attached, reattach it. Otherwise, contact HP Technical Support at **www.hp.com/support**.

Similar Problems

See also the following sections which describe similar problems:

◆

◆

Problem: HP EFS WAN Accelerator Boots, Displays the Login Prompt, and Then Reboots

Description of Problem

The HP EFS WAN Accelerator boots, displays the login prompt, and then reboots.

Solution

Switch to single user mode and see if the problem still occurs.

To switch to single user mode

1. Reboot the HP EFS WAN Accelerator.

2. While the HP EFS WAN Accelerator is rebooting, watch for the message **Grub Loading stage 2...Press any key to continue** and press any key when the message is displayed.

   The GRUB menu is displayed.

3. At the GRUB menu, use the arrow keys on your keyboard to select the desired HP EFS WAN Accelerator image.

4. Enter **E** to enter edit mode.

5. Enter **1** to select the boot parameters, and then enter **E** to enter edit mode.

   A partial line of text is displayed.

6. Append **single** to the end of the partial line of text that is displayed.

IMPORTANT: Be sure to include a space before the word **single**.

---

7. In the same partial line of text, look for two **console= entries** and delete one as follows:

   ◆ If you are using a serial connection, delete the **console=tty0** entry.

   ◆ If you are using a monitor, delete the **console=ttyS0** entry.

8. Press ENTER.

9. Enter **B** to continue booting.

   When the command prompt displays, you are in single user mode.

If the problem does not occur in single user mode, upgrade the HP EFS WAN Accelerator software to v2.1 or higher. If the problem occurs in single user mode, contact HP Technical Support at **www.hp.com/support**.

Similar Problems

See also the following sections which describe similar problems:

◆

◆

Problem: HP EFS WAN Accelerator Does Not Boot

Description of Problem

The HP EFS WAN Accelerator fails to boot.

Solution

Ensure that:

◆ The HP EFS WAN Accelerator is properly plugged in.

◆ The power strip or that the uninterruptable power supply (UPS) the HP EFS WAN Accelerator is plugged in to is turned on and is functioning properly.

Similar Problems

See also the following sections which describe similar problems:

◆

◆

Problem: HP EFS WAN Accelerator Does Not Come Out of Bypass Mode

Description of Problem

The HP EFS WAN Accelerator does not come out of bypass mode when the connection is restored.

Solution

If a HP EFS WAN Accelerator does not come out of bypass mode, verify:

◆ That the in-path interface has an IP address. For example, at the system prompt, enter the **show interfaces** CLI command.

◆ That in-path interception in enabled. For example, at the system prompt, enter the **show in-path** CLI command. Expected results are:

```
Enabled: yes
Optimizations Enabled On: inpath0_0
```

◆ That the bypass service is enabled. For example, at the system prompt, enter the **show service** CLI command. To enable the service if it is not running, use the CLI command **service enable**.

◆ That the bypass card is visible to the hardware. For example, at the system prompt, enter the **show hardware** CLI command.

Similar Problems

See also the following sections which describe similar problems:

◆

◆

Recovering from a Disaster

In This Chapter

If the HP EFS WAN Accelerator sustains hardware failures, you can use the Quick Restore CD you received with your product to restore your appliance storage configuration and disk image to the original factory settings. This chapter explains the recovery procedure.

NOTE: Cached data and configuration changes you made to the system are not recovered.

Recovery Procedure

1. Insert the Quick Restore DVD in the HP EFS WAN Accelerator or HP EFS WAN Accelerator Manager DVD-ROM drive.

2. Reboot the server by turning off and then turning on the power.
   The system boots and the CD loads.

3. When prompted by the system, select **R** to restore your appliance storage configuration and disk image to the factory settings.

CHAPTER 5 # Replacing HP EFS WAN Accelerator Components

In This Chapter

The HP ProLiant DL320-520, DL320-1020, DL320-2020, DL380-3010, and DL380-5010 contain replaceable fans, disk drives, and power supply units. For replacement procedures, refer to either the *HP ProLiant DL320 Generation 4 Server Maintenance and Service Guide* or the *HP ProLiant DL380 Generation 4 Maintenance and Service Guide* available on the web from the link on the documentation CD-ROM that came with your product.

APPENDIX A — # Status Lights, Technical Specifications, and Regulatory Information

In This Appendix   This appendix explains the HP EFS WAN Accelerator and Bypass Card status lights. Technical specifications and regulatory information are contained in the documentation for your product. Refer to either the *HP ProLiant DL320 Generation 4 Server User Guide* or the *HP ProLiant DL380 Generation 4 Server Reference and Troubleshooting Guide* available on the documentation set CD-ROM that came with your product for specific information.

HP ProLiant DL320-520, DL320-1020, and DL320-2020 LEDs and Buttons

Figure 5-1. HP ProLiant DL320-520, DL320-1020, and DL320-2020: Front Panel LEDs and Buttons
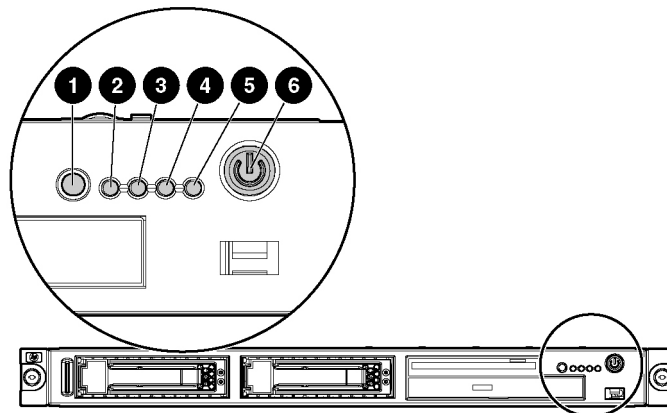
Table 1-1. HP ProLiant DL320-520, DL320-1020, and DL320-2020: Front Panel LEDs and Buttons Explanation

Item	Description	Status
1	UID button/LED	Blue = Identification is activated.
		Flashing blue = System is being remotely managed.
		Off = Identification is

Item	Description	Status
2	Internal health LED	Green = System health is normal.
		Amber = System is degraded. To identify the component in a degraded state, refer to system board LEDs (on page 14).
		Red = System critical. To identify the component in a critical state, refer to system board LEDs (on page 14).
		Off = System health is normal (when in standby mode).
3	NIC 1 link/activity LED	Green = Network link exists.
		Flashing green = Network link and activity exist.
		Off = No link to network exists.
4	NIC 2 link/activity LED	Green = Network link exists.
		Flashing green = Network link and activity exist.
		Off = No link to network exists.
5	Drive activity LED	Green = Drive activity is normal.
		Amber = Drive failure occurred.
		Off = No drive activity.
6	Power On/Standby button and system power LED	Green = System is on.
		Amber = System is shut down, but power is still applied.
		Off = Power cord is not attached, power supply failure has occurred, no power supplies are installed, facility power is not available, or the DC-to-DC converter is not installed.

HP ProLiant DL380-3010 and DL380-5010 Hardware LEDs and Buttons

Figure 5-2. HP ProLiant DL380-3010 and DL380-5010 Front Panel LEDs and Buttons
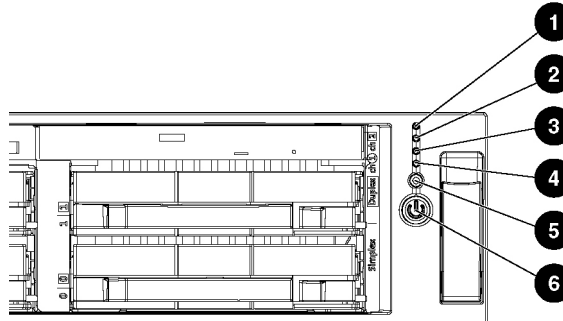
Table 1-2. HP ProLiant DL380-3010 and DL380-5010: Front Panel LEDs and Buttons Explanation

Item	Description	Status
1	Internal health LED	Green = Normal
		Amber = System degraded. Refer to system board LEDs to identify component in degraded state.
		Red = System critical. Refer to system board LEDs to identify component in critical
2	External health LED (power	Green = Normal
		Amber = Power redundancy failure
		Red = Critical power supply failure 3
3	NIC 1 link/activity LED	Green = Network link
		Flashing = Network link and activity
		Off = No link to network. If power is off, view the rear panel RJ-45 LEDs for status
4	NIC 2 link/activity LED	Green = Network link
		Flashing = Network link and activity
		Off = No link to network. If power is off, view the rear panel RJ-45 LEDs for status.
5	UID LED button	Blue = Activated
		Flashing = System being remotely managed
		Off = Deactivated
6	Power On/Standby button/ system power LED	Green = System on
		Amber = System shut down, but power still applied
		Off = Power cord not attached or power supply failure

Bypass Card Status Lights

The HP EFS WAN Accelerator is equipped with one of the following types of bypass interfaces (depending on your order):

◆ HP EFS N2c WAN Accelerator 2-port NIC Card

◆ HP EFS N2f WAN Accelerator 2-port NIC Card

◆ HP EFS N4c WAN Accelerator 4-port NIC Card

HP EFS N2c WAN Accelerator 2-port NIC Card

The following section describes the HP EFS N2c WAN Accelerator 2-port NIC Card status lights.

Figure 5-3. HP EFS N2c WAN Accelerator 2-port NIC Card
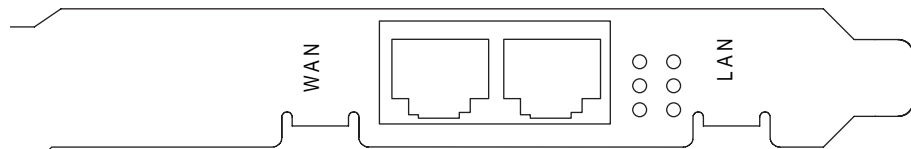
The following table describes the HP EFS N2c WAN Accelerator 2-port NIC Card Light-Emitting Diode (LED) lights. The left column of LED lights corresponds to the left port and the right column of LED lights corresponds to the right port.

Status	Top LED (Green)	Middle LED (Green)	Bottom LED (Green)
Network Link Not Established	Off	Off	Off
Network Link Established	On	n/a	n/a
Network Link Active	Flashing	n/a	n/a
100 Mbps (100 Base T) Link	On	On	Off
1000 Mbps (1000 Base T) Link	On	Off	On
Bypass Mode	Off	On	On

HP EFS N2f WAN Accelerator 2-port NIC Card

The following section describes the HP EFS N2f WAN Accelerator 2-port NIC Card status lights.

Figure 5-4. HP EFS N2f WAN Accelerator 2-port NIC Card
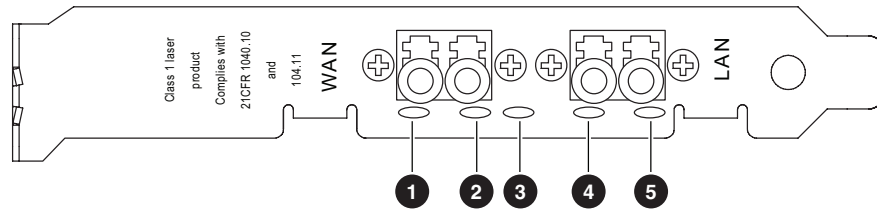
The status lights for the HP EFS N2f WAN Accelerator 2-port NIC Card are explained below:

Item	Light	Description
1	WAN link	Solid yellow indicates WAN link is established.
2	WAN activity	Flashing green indicates data transfer is occurring.
3	Bypass light	Solid green indicates card is in bypass mode.
4	LAN link	Solid yellow indicates LAN link is established.
5	LAN activity	Flashing green indicates data transfer is occurring.

EFS N4c WAN Accelerator 4-port NIC

The following section describes the EFS N4c WAN Accelerator 4-port NIC status lights.

Figure 5-5. HP EFS N4c WAN Accelerator 4-port NIC
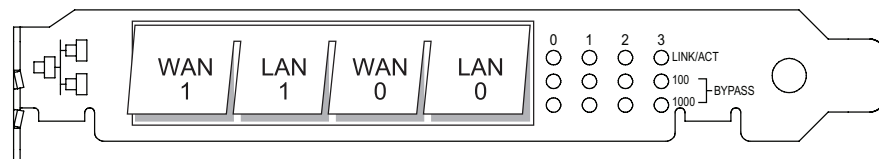
The four columns of lights on the EFS N4c WAN Accelerator 4-port NIC card represent the following interfaces:

◆ Column 0 — WAN 1

◆ Column 1 — LAN 1

◆ Column 2 — WAN 0

◆ Column 3 — LAN 0

The status lights for each column are explained below:

Light	Description
Linkact (Link and Activity)	Solid green indicates a physical Ethernet link is established. Flashing green indicates data transfer is occurring.
100	Solid green indicates the link is connected at 100 Mbps speed.
1000	Solid green indicates the link is connected at 1000 Mbps speed.
100 and 1000	When both lights are solid green, the card is in bypass mode.

APPENDIX B   # HP EFS WAN Accelerator Ports

In This Appendix   This appendix describes the HP EFS WAN Accelerator default, secure, and interactive ports. It contains the following sections:

Default Ports

The HP EFS WAN Accelerator uses the following default ports.

◆   In-Path Listening Port: 7800

◆   Out-of-Path Server Port: 7810

◆   Failover Port: 7820

◆   Exchange Port: 7830

Commonly Optimized Ports

The HP EFS WAN Accelerator by default optimizes all ports. If you do not want the HP EFS WAN Accelerator to optimize all ports for an in-path or out-of path configuration, you can specify specific ports for optimization.

Although these ports can vary according to your requirements, the following ports are commonly specified for in-path and out-of-path configurations:

◆ 80

◆ 135

◆ 139

◆ 445

◆ 7830

Interactive Ports Automatically Forwarded by the HP EFS WAN Accelerator

A default in-path rule with the port label **Interactive** is automatically created in your system. This in-path rule automatically passes through traffic on interactive ports (for example, Telnet, TCP ECHO, remote logging, and shell).

For detailed information about how to disable this in-path rule in the Management Console, see the *HP Enterprise File Services WAN Accelerator Management Console User Guide*.

The following table lists the interactive ports that are automatically forwarded by the HP EFS WAN Accelerator.

Port	Description
7	TCP ECHO
23	Telnet
37	UDP/Time
107	Remote Telnet Service
513	Remote Login
514	Shell
1494	Cytrix
2598	Cytrix
3389	MS WBT Server, TS/Remote Desktop
5631	PC Anywhere
5900-5903	VNC
6000	X11

Secure Ports Automatically Forwarded by the HP EFS WAN Accelerator

A default in-path rule with the port label **Secure** is automatically created in your system. This in-path rule automatically passes through traffic on commonly secure ports (for example, **ssh**, **https**, and **smtps**).

For detailed information about how to disable this in-path rule in the Management Console, see the *HP Enterprise File Services WAN Accelerator Management Console User Guide*.

The following table lists the common secure ports that are automatically forwarded by the HP EFS WAN Accelerator.

Type	Port	Description
ssh	22/tcp	SSH Remote Login Protocol
https	443/tcp	http protocol over TLS/SSL
smtps	465/tcp	SMTP over SSL (TLS)
nntps	563/tcp	nntp protocol over TLS/SSL (was snntp)
imap4-ssl	585/tcp	IMAP4+SSL (use 993 instead)
sshell	614/tcp	SSLshell
ldaps	636/tcp	ldap protocol over TLS/SSL (was sldap)
ftps-data	989/tcp	ftp protocol data over TLS/SSL
ftps	990/tcp	ftp protocol control over TLS/SSL
telnets	992/tcp	telnet protocol over TLS/SSL
imaps	993/tcp	imap4 protocol over TLS/SSL
pop3s	995/tcp	pop3 protocol over TLS/SSL (was spop3)
l2tp	1701/tcp	l2tp
pptp	1723/tcp	pptp
tftps	3713/tcp	TFTP over TLS

The following table contains the uncommon ports automatically forwarded by the HP EFS WAN Accelerator.

Type	Port	Description
nsiiops	261/tcp	IIOP Name Service over TLS/SSL
ddm-ssl	448/tcp	DDM-Remote DB Access Using Secure Sockets
corba-iiop-ssl	684/tcp	CORBA IIOP SSL
ieee-mms-ssl	695/tcp	IEEE-MMS-SSL
ircs	994/tcp	irc protocol over TLS/SSL
njenet-ssl	2252/tcp	NJENET using SSL
ssm-cssps	2478/tcp	SecurSight Authentication Server (SSL)
ssm-els	2479/tcp	SecurSight Event Logging Server (SSL)
giop-ssl	2482/tcp	Oracle GIOP SSL
ttc-ssl	2484/tcp	Oracle TTC SSL
syncserverssl	2679/tcp	Sync Server SSL
dicom-tls	2762/tcp	DICOM TLS
realsecure	2998/tcp	Real Secure
orbix-loc-ssl	3077/tcp	Orbix 2000 Locator SSL
orbix-cfg-ssl	3078/tcp	Orbix 2000 Locator SSL
cops-tls	3183/tcp	COPS/TLS
csvr-sslproxy	3191/tcp	ConServR SSL Proxy
xnm-ssl	3220/tcp	XML NM over SSL
msft-gc-ssl	3269/tcp	Microsoft Global Catalog with LDAP/SSL
networklenss	3410/tcp	NetworkLens SSL Event
xtrms	3424/tcp	xTrade over TLS/SSL
jt400-ssl	3471/tcp	jt400-ssl
seclayer-tls	3496/tcp	securitylayer over tls
vt-ssl	3509/tcp	Virtual Token SSL Port
jboss-iiop-ssl	3529/tcp	JBoss IIOP/SSL
ibm-diradm-ssl	3539/tcp	IBM Directory Server SSL
can-nds-ssl	3660/tcp	Candle Directory Services using SSL
can-ferret-ssl	3661/tcp	Candle Directory Services using SSL
linktest-s	3747/tcp	LXPRO.COM LinkTest SSL
asap-tcp-tls	3864/tcp	asap/tls tcp port
topflow-ssl	3885/tcp	TopFlow SSL
sdo-tls	3896/tcp	Simple Distributed Objects over TLS

Type	Port	Description
sdo-ssh	3897/tcp	Simple Distributed Objects over SSH
iss-mgmt-ssl	3995/tcp	ISS Management Svcs SSL
suucp	4031/tcp	UUCP over SSL
wsm-server-ssl	5007/tcp	wsm server ssl
sip-tls	5061/tcp	SIP-TLS
imqtunnels	7674/tcp	iMQ SSL tunnel
davsrcs	9802/tcp	WebDAV Source TLS/SSL
intrepid-ssl	11751/tcp	Intrepid SSL
rets-ssl	12109/tcp	RETS over SSL

B - HP EFS WAN Accelerator Ports

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Glossary

ARP. Address Resolution Protocol. An IP protocol used to obtain a node's physical address.

Bandwidth. The upper limit on the amount of data, typically in kilobits per second (kbps), that can pass through a network connection. Greater bandwidth indicates faster data transfer capability.

Bit. A Binary digit. The smallest unit of information handled by a computer; either 1 or 0 in the binary number system.

CIFS. Common Internet File System. CIFS is the remote file system access protocol used by Windows servers and clients to share files across the network.

Database Cursor. A record pointer in a database. When a database file is selected and the cursor is opened, the cursor points to the first record in the file. Using various commands, the cursor can be moved forward, backward, to top of file, bottom of file and so forth.

Default gateway. The default address of a network or Web site. It provides a single domain name and point of entry to the network or site.

DHCP. Dynamic Host Configuration Protocol. Software that automatically assigns IP addresses to client stations logging onto a TCP/IP network.

Domain. In the Internet, a portion of the Domain Name Service (DNS) that refers to groupings of networks based on the type of organization or geography.

DNS. Domain Name Service. System used in the Internet for translating names of network nodes into IP addresses. A Domain Name Server notifies hosts of other host IP addresses, associating host names with IP addresses.

Ethernet. The most widely used Local Area Network (LAN) access method.

FDDI. Fiber Distributed Data Interface. A set of American National Standards Institute (ANSI) protocols for sending digital data over fiber optic cable. FDDI networks are token-passing networks, and support data rates of up to 100 Mbps (100 million bits) per second. FDDI networks are typically used as backbones for Wide-Area Networks (WANs).

Filer. An appliance that attaches to a computer network and is used for data storage.

Gateway. A computer that acts as an intermediate device for two or more networks that use the same protocols. The gateway functions as an entry and exit point to the network. Transport protocol conversion might not be required, but some form of processing is typically performed.

Gigabit Ethernet. An Ethernet technology that raises transmission speed to 1 Gbps (1000 Mbps).

Hashing. Producing hash values for accessing data or for security. A hash value, is a number generated from a string of text. The hash is substantially smaller than the text itself and it is generated by a formula in such a way that it is extremely unlikely that some other text will produce the same hash value.

Heartbeat. A repeating signal transmitted from one appliance to another that indicates that the appliance is operating.

Heuristic. A method of problem solving using exploration and trial and error methods. Heuristic program design provides a framework for solving the problem in contrast with a fixed set of rules (algorithmic) that cannot vary.

Host. A computer or other computing device that resides on a network.

Host address. The IP address assigned to each computer attached to the network.

Host name. Name given to a computer, usually by DNS.

HSRP. Hot Standby Routing Protocol. HSRP is a routing protocol from Cisco that provides backup to a router in the event of failure. Using HSRP, several routers are connected to the same segment of an Ethernet, FDDI or token-ring network and work together to present the appearance of a single virtual router on the LAN. The routers share the same IP and MAC addresses, therefore in the event of failure of one router, the hosts on the LAN are able to continue forwarding packets to a consistent IP and MAC address. The process of transferring the routing responsibilities from one device to another is transparent to the user.

HTTP. Hypertext Transport Protocol. The protocol used by Web browsers to communicate with Web servers.

HTTPS. Hypertext Transport Protocol Secure. The protocol for accessing a secure Web server. Using HTTPS directs the message to a secure port number to be managed by a security protocol.

Interface. The point at which a connection is made between two elements, systems, or devices so that they can communicate with one another.

Internet. The collection of networks tied together to provide a global network that use the TCP/IP suite of protocols.

IP. Internet protocol. Network layer protocol in the TCP/IP stack that enables a connectionless internetwork service.

IP address. In IP version 4 (IPv4), a 32-bit address assigned to hosts using the IP protocol. Also called an Internet address.

IPsec. Internet Protocol Security Protocol. A set of protocols to support secure exchange of packets at the IP layer. IPsec has been deployed widely to implement Virtual Private Networks (VPNs). IPsec supports two encryption modes: Transport and Tunnel. For IPsec to work, the sending and receiving devices must share a public key.

Latency. Delay between a request being issued and its response being received.

Layer-4. A communications protocol (called the transport layer) responsible for establishing a connection and ensuring that all data has arrived safely. The application delivers its data to the communications system by passing a stream of data bytes to the transport layer along with the socket (the IP address of the station and a port number) of the destination machine.

MAPI. Messaging API. A programming interface from Microsoft that enables a client application to send and receive mail from Exchange Server or a Microsoft Mail (MS Mail) messaging system. Microsoft applications such as Outlook, the Exchange client, and Microsoft Schedule use MAPI.

Microsoft Exchange. Messaging and groupware software for Windows from Microsoft. The Exchange server is an Internet-compliant messaging system that runs under Windows systems and can be accessed by Web browsers, the Windows In-box, Exchange client or Outlook. The Exchange server is also a storage system that can hold anything that needs to be shared.

Netmask. A 32-bit mask which shows how an Internet address is divided into network, subnet, and host parts. The netmask has ones in the bit positions in the 32-bit address which are used for the network and subnet parts, and zeros for the host part. The mask must contain at least the standard network portion (as determined by the class of the address), and the subnet field should be contiguous with the network portion.

Neural Network. A modeling technique based on the observed behavior of biological neurons and used to mimic the performance of a system. It consists of a set of elements that start out connected in a random pattern, and, based upon operational feedback, are molded into the pattern required to generate the required results. It is used in applications such as robotics, diagnosing, forecasting, image processing and pattern recognition.

NFS. Network File System. The file sharing protocol in a UNIX network.

NIS. Network Information Services. A naming service from that allows resources to be easily added, deleted or relocated.

OSPF. Open Shortest Path First. An interior gateway routing protocol developed for IP networks based on the shortest path first or link-state algorithm. Routers use link-state algorithms to send routing information to all nodes in an internetwork by calculating the shortest path to each node based on a topography of the Internet constructed by each node. Each router sends that portion of the routing table (keeps track of routes to particular network destinations) that describes the state of its own links. It also sends the complete routing structure (topography).

Packet. A unit of information transmitted, as a whole, from one device to another on a network.

Probe. A small utility program that is used to investigate, or test, the status of a system, network or Web site.

Policy. Routing and Quality of Service (QoS) scheme that forwards data packets to network interfaces based on user-configured parameters.

Port. A pathway into and out of the computer or a network device such as a hub, switch, or router. On network devices, the ports are for communications, typically connecting Ethernet cables or other network devices.

Router. A device that forwards data packets from one LAN or WAN to another. Based on routing tables and routing protocols, routers read the network address in each transmitted frame and make a decision on how to send it based on the most expedient route (traffic load, line costs, speed, bad lines, etc.). Routers work at Layer-3 in the protocol stack, whereas bridges and switches work at the Layer-2.

SMB. Server Message Block. A message format used by DOS and Windows to share files, directories and devices. There are also a number of products that use SMB to enable file sharing among different operating system platforms. A product called Samba, for example, enables UNIX and Windows machines to share directories and files.

SNMP. Simple Network Management Protocol. A network protocol that provides a way to monitor network devices, performance, and security and to manage configurations and collect statistics.

Switch. A network device that filters and forwards frames based on the destination address of each frame. The switch operates at Layer-2 (data link layer) of the Open System Interconnection (OSI) model.

TCP. Transmission Control Protocol. The error correcting Transport layer (Layer-4) in the TCP/IP protocol suite.

TCP/IP. Transmission Control Protocol/Internet Protocol. The protocol suite used in the Internet, intranets, and extranets. TCP provides transport functions, which ensures that the total amount of bytes sent is received correctly at the other end. TCP/IP is a routable protocol, and the IP part of TCP/IP provides this capability.

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