

F85 Filer Hardware Guide

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Preface

- About this guide

This guide describes how to install an F85 filer, connect it to the network, and start up the system.
- Audience

This guide is for qualified system administrators and service personnel who are familiar with Network Appliance™ filers and how the Network File System (NFS), Common Internet File System (CIFS), and Hypertext Transfer Protocol (HTTP) protocols are used to share and transfer files.
- Terminology

This guide uses the following terms:

 - ◆ *Filer* refers to the F85 filer.
 - ◆ *F85 system* refers to an F85 filer and a connected SCSI SDS12 disk shelf.
 - ◆ *Disk shelf* refers to any SCSI SDS12 disk shelf.
- Formatting conventions

The following table lists the kinds of formatting this guide uses to identify special information.

Formatting convention	Type of information
<i>Italic type</i>	◆ Words or characters that require special attention. ◆ File names and path names. ◆ Placeholders for information you must supply. For example, if the guide says to enter the arp -d hostname command, you enter the characters “arp -d” followed by the actual name of the host. ◆ Man page names. ◆ Book titles in cross-references.
Monospaced font	◆ Command and daemon names. ◆ Information displayed on the system console or other computer monitors. ◆ The contents of files.

Formatting convention	Type of information
Bold monospace font	Words or characters you type. What you type is always shown in lowercase letters, unless you must type it in uppercase letters for it to work properly.

Special messages

This guide contains special messages that are described as follows:

Note

A note contains important information that helps you install or operate the system efficiently.

Caution

A caution contains instructions that you must follow to avoid damage to the equipment, a system crash, or loss of data.

WARNING

A warning contains instructions that you must follow to avoid personal injury.

Safety Information (Sicherheitshinweise)

Safety rules

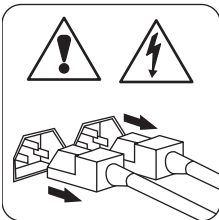
All products are Class 1 laser devices. You must follow these safety rules when working with this equipment:

WARNING

Failure to follow these directions could result in bodily harm or loss of life.

- ◆ When installing disk shelves and a storage appliance into a movable cabinet or rack, install from the bottom up for best stability.
- ◆ DC-based systems must be installed in a restricted access location and the two input power terminals for the DC power supply must be connected to separate isolated branch circuits.
- ◆ To reduce the risk of personal injury or equipment damage, allow internal components time to cool before touching them and ensure that the equipment is properly supported or braced when installing options.
- ◆ This equipment is designed for connection to a grounded outlet. The grounding type plug is an important safety feature. To avoid the risk of electrical shock or damage to the equipment, do not disable this feature.
- ◆ This equipment is furnished with one or more replaceable batteries. There is danger of explosion if the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Warning for units with multiple power cords



If your storage appliance or disk shelf has multiple power cords and you need to turn the unit off, heed the following warning:

WARNING

This unit has more than one power supply cord. To reduce the risk of electrical shock, disconnect all power supply cords before servicing.

Sicherheitsvorgaben

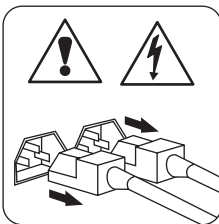
Alle Produkte sind Lasergeräte der Klasse 1. Die folgenden Sicherheitshinweise sind beim Betreiben des Geräts unbedingt zu beachten:

Vorsicht

Nichtbeachtung dieser Anweisungen kann zu schweren Körperschäden führen oder tödlich sein.

- ◆ Bei der Montage der Diskettenregale und Archivierungsgeräte, des NetCache™ -Geräts oder des NearStore™ -Systems in bewegliche Schränke oder Regale sind die Geräte von unten nach oben einzubauen, um optimale Stabilität zu gewährleisten.
- ◆ Gleichstrom-Systeme müssen an Betriebsstätte mit beschränktem Zutritt installiert sein und die beiden Eingangsstromklemmen für das Gleichstrom-Netzteil müssen an separate und isolierte Abzweigungen angeschlossen sein.
- ◆ Zum Schutz vor Körperverletzung oder Sachschäden am Gerät lassen Sie die inneren Bauteile stets vor dem Berühren abkühlen. Sorgen Sie dafür, dass das Gerät richtig abgestützt ist oder fest aufrecht steht, bevor Sie neues Zubehör einbauen.
- ◆ Dieses Gerät ist für die Einspeisung aus einer geerdeten Netzverbindung ausgelegt. Der Netzstecker mit Erdungsvorrichtung ist ein wichtiger Sicherheitsschutz. Zum Schutz vor elektrischem Schlag oder Sachschäden am Gerät die Erdung nicht abschalten.
- ◆ Das Gerät ist mit einer oder mehreren auswechselbaren Batterien ausgestattet. Bei unsachgemäßem Auswechseln der Batterie besteht Explosionsgefahr. Batterien nur mit dem vom Hersteller empfohlenen Typ oder entsprechenden Typen ersetzen. Gebrauchte Batterien sind gemäß den Anweisungen des Herstellers zu entsorgen.

Warnhinweis für Geräte mit mehrfachen Netzanschlussleitungen



Sollte Ihr Archiviergerät, NetCache-Gerät, NearStore-System oder Diskettenregal mehrfache Netzanschlussleitungen aufweisen und Sie wollen das Gerät abschalten, bitte folgenden Warnhinweis beachten.

ACHTUNG

Gerät besitzt zwei Netzanschlussleitungen. Vor Wartung alle Anschlüsse vom Netz trennen.

About this chapter

This chapter specifies the preparation requirements for the first-time installation of an F85 NetApp® filer system as either a freestanding tower or as a system in a 19-inch, square-hole four-post equipment rack.

The preparation requirements include tabulated descriptions of site requirements, lists of required tools and equipment, and an installation plan for the filer system. This guide also provides a list of the hardware and equipment you need to configure your filer.

Topics in this chapter

This chapter discusses the following topics:

- ◆ [“Required tools and equipment”](#) on page 2
- ◆ [“Preparing your site”](#) on page 4
- ◆ [“Planning and organizing your installation”](#) on page 7

Required tools and equipment

Required installation tools and equipment

To install the filer components in a square-hole four-post rack or as a freestanding tower, you need the following tools and equipment:

- ◆ #2 Phillips screwdriver
- ◆ Marker
- ◆ Antistatic wrist strap and grounding leash

Note

The F85 is designed to be installed in a 19-inch, four-post equipment rack, or as a freestanding tower. Contact Network Appliance Customer Support if your rack is different, or if you have questions about your rack.

Caution

The filer uses electronic components that are sensitive to static electricity. Static discharge from your clothing or other fixtures around you can damage these components. Wear an antistatic wrist strap and grounding leash to free yourself of static electricity before touching any electronic components.

Required documentation

The following table lists additional documentation you might need to help to manage your F85.

Document name	When to use
<i>F85 Field Service Guide</i>	Use this guide if you have problems with internal cards or adapters and need to open the filer to replace them.
<i>SCSI DiskShelf12 Hardware Guide</i>	Use this guide if you have disk or disk shelf problems and need to replace disks or the disk shelf.
<i>Data ONTAP System Administrator's Guide</i>	Use this guide when you encounter software configuration problems.

Required equipment for configuration

To configure your system, you need the following equipment:

- ◆ Network Appliance supports the following console/terminal devices:
 - ❖ ASCII terminal (also referred to as an *ANSI terminal*)
 - ❖ Serial concentrator
 - ❖ Communications server

Note

See the documentation for your serial concentrator or communications server for configuration information.

- ◆ Null modem cable (optional)

Note

You might need a null modem cable if the DB-9 to DB-9 serial cable for an ASCII terminal connection is not compatible with your terminal connector.

Preparing your site

About preparing your site

This section summarizes the following information:

- ◆ Filer dimensions
- ◆ Filer weight
- ◆ Environmental requirements for operating or storing your filer system
- ◆ Space requirements for installing your filer system
- ◆ Electrical requirements for your filer system

Filer dimensions

The following table lists the dimensions of the filer.

Dimensions	U.S.	Metric
Height	17.5 in. or 10U, where 1U = 1.75 in.	44.45 cm
Width	10.5 in.	26.67 cm
Depth	23.5 in.	59.69 cm

Filer weight

The filer weighs 55 lbs (24.95 kg).

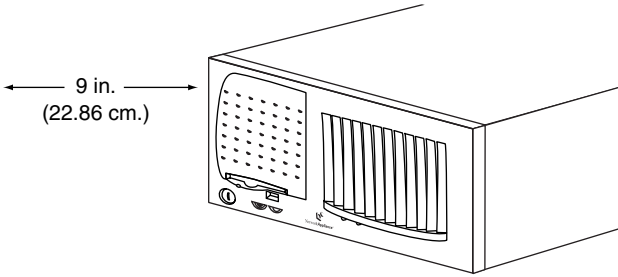
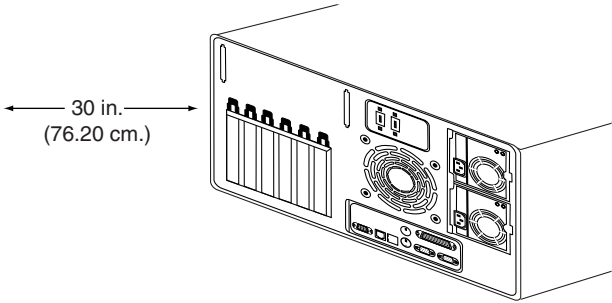
Environmental conditions

The following table lists the environmental conditions that your site must meet to properly run or store your filer.

Environmental condition	Operating condition	Storage condition
Temperature range	50° F to 95° F (10° C to 35° C)	-40° F to 149° F (-40° C to 65° C)
Relative humidity (noncondensing)	10% to 80%	5% to 95%

Space requirements

The following table describes the recommended minimum clearance for the filer.

Recommended minimum clearance	U.S.	Metric
Front clearance	9 in.	22.86 cm
 A perspective view of a server unit. A horizontal double-headed arrow points from the front face of the unit to the left, indicating the required clearance. The arrow is labeled '9 in. (22.86 cm.)'.		
Rear clearance	30 in.	76.20 cm
 A perspective view of the rear of a server unit. A horizontal double-headed arrow points from the rear face of the unit to the left, indicating the required clearance. The arrow is labeled '30 in. (76.20 cm.)'.		
Additional work space in rear	24 in.	60.96 cm
Clearance in vertical rack space above filer	1.5 in.	3.81 cm

Electrical requirements

The following table lists the AC electrical requirements.

Condition	Requirement
-----------	-------------

Voltage	115V at 60 Hz 230V at 50 Hz
Frequency	50/60 Hz

Power	Rating
Watts	330 maximum (with Power Factor correction)
BTU/hr	1,126 maximum

Rack requirements

If you are installing your F85 into a square-hole four-post rack, the rack must meet the following dimensions.

Parameter	Requirement
Width	19 in. (48.26 cm)
Depth	30 in. (76.20 cm)
Overhead clearance minimum between components	1.5 in. (4 cm)

Planning and organizing your installation

About planning and organizing the installation

This section identifies the components you require for your filer system and the rules and regulations you need to observe for the proper installation of your filer system. It also provides an overview of the entire system installation process and the appropriate documentation references for the procedures.

For detailed information

This section discusses the following topics:

- ◆ [“Gathering the system components”](#) on page 8
- ◆ [“Rules and restrictions”](#) on page 9
- ◆ [“Installation process summary”](#) on page 10

Gathering the system components

Preparing for your installation

The F85 filer can be rack mounted or it can be a freestanding tower. In a rack-mounted system, the F85 filer can also have a single SDS12 disk shelf attached to it.

To prepare your filer for installation, complete the following steps.

Step	Action
1	Check the contents of the shipment against the system packing list.
2	Collect the system components into the immediate installation area.

Shipment package contents

In addition to this guide, your shipment might have the following components:

- ◆ One F85 ordered to your network and storage specifications
- ◆ A DB-9 to DB-9 straight-through serial cable for an ASCII terminal connection
- ◆ Cables for connecting the filer to the SDS12 disk shelf, if you ordered the SDS12 disk shelf
- ◆ A disposable antistatic wrist strap and grounding leash
- ◆ SDS12 disk shelf for rack-mounted F85 systems, if you ordered the SDS12 disk shelf

Other components

You can attach a tape backup device to your F85 filer. The *System Configuration Guide* at <http://now.netapp.com> lists the tape backup devices supported by the F85.

Rules and restrictions

Rules and restrictions

You must observe the following rules and restrictions when installing a NetApp filer system:

- ◆ You must wear an antistatic wrist strap when you handle electronic equipment.
- ◆ You must work with another person.

WARNING

The filer is extremely heavy. To avoid injuring yourself or damaging the filer, you must work with at least one other person when you install the filer in the rack.

- ◆ Only install the number of SDS12 disk shelves supported by your filer model. The F85 supports one SDS12 disk shelf.
- ◆ The F85 has several unused ports which are disabled. The disabled ports are: VGA, USB, keyboard, mouse, and parallel port.

Rules for arranging the components in the racks

In a rack, install the filer at the bottom of the rack. Installing the filer at the bottom of the rack adds stability to the rack prior to installing the disk shelf.

Planning and organizing your installation

Installation process summary

Installation overview

The following table summarizes a typical F85 system installation in the equipment rack. It lists the major procedures you must complete and indicates documentation sources that describe the procedure.

Process	Procedure	For instructions, go to...
1	If you have a...	
	Rack-mount F85 system	“Installing the Filer in a Rack” on page 11
	Freestanding tower F85 system	Chapter 3, “Connecting to a Third-Party Tape Backup Device,” on page 19, or Chapter 4, “Connecting the Filer to an Ethernet Network,” on page 23.
2	Install the SDS12 disk shelf in the rack.	Hardware guide for your SDS12 disk shelf
3	Connect the filer to the disk shelf.	Hardware guide for your SDS12 disk shelf
4	Connect the optional tape backup device to the filer.	“Connecting to a Third-Party Tape Backup Device” on page 19
5	Connect the filer to the network.	“Connecting the Filer to an Ethernet Network” on page 23
6	Connect the filer, then the disk shelf to power sources.	“Powering On the System” on page 27
7	Apply power to the disk shelf, then the filer.	“Powering On the System” on page 27
8	Configure the system.	<i>Getting Started Guide</i>

About this chapter

This chapter describes how to install the F85 filer in a rack. If you have a freestanding tower F85 system, skip this chapter and proceed to Chapter 3, “[Connecting to a Third-Party Tape Backup Device](#),” on page 19, or to Chapter 4, “[Connecting the Filer to an Ethernet Network](#),” on page 23.

Topics in this chapter

This chapter discusses the following topic:

- ◆ “[Preparing for installation](#)” on page 12
- ◆ “[Installing the slide assemblies](#)” on page 13
- ◆ “[Sliding the filer into the slide assembly](#)” on page 14
- ◆ “[Installing the cable management arm](#)” on page 16

Preparing for installation

About your rack-mounted filer

If you ordered an F85 system with an SDS12 disk shelf, your system arrives with a rack kit. The rack kit contains the necessary hardware you need to install the F85 in this rack.

Note

If you do not have the appropriate rack, contact your NetApp sales person.

Assembling the installation components

The rack mounted F85 system arrives with a rack installation kit. The kit contains the following components:

- ◆ One pair of slide assemblies with mounting brackets
- ◆ One cable manager arm assembly
- ◆ Three 10-32 by .25 inch pan-head Phillips screws
- ◆ Two 8-32 by .313 inch pan-head Phillips screws
- ◆ One 10-32 by .5 inch pan-head Phillips screw

If you ordered additional storage, you also receive a disk shelf mounting kit. See the *SCSI DiskShelf12 Hardware Guide* for disk shelf installation instructions.

Installing the slide assemblies

Installing the slide assemblies in the rack

To install the slide assemblies in the rack, complete the following steps.

Step	Action
1	Align the mounting tab on the front of the slide assembly with the bracket notches in the rack and push the assembly forward, then down until the blue latch locks into place. WARNING _____ Network Appliance recommends that you install the equipment from the bottom up to ensure the greatest stability. Note _____ Mount the brackets at least 13 holes above the bottom notch to allow room for the filer to clear the bottom of the rack.
2	Push the back of the slide assembly into the notches on the back of the rack, then push down until the blue latch locks into place.
3	Repeat Steps 1 and 2 for the other slide assembly.
4	Go to “Sliding the filer into the slide assembly” on page 14 to mount the filer in the rack.

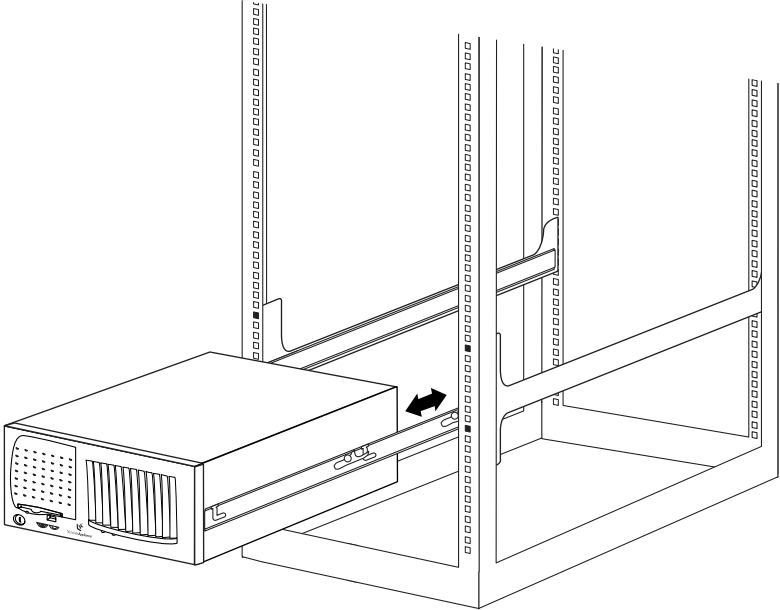
Sliding the filer into the slide assembly

Sliding the filer into the slide assembly

To slide the filer into the slide assembly, then into the rack, complete the following steps.

WARNING —
The filer is heavy. Always work with an assistant when installing the filer into the equipment rack.

Step	Action
1	Pull the left and right interior slide assemblies out of the rack until they lock.
2	With two people, place one hand on the front-bottom and one hand on the back-bottom of the filer and lift the F85. Tilt the F85 slightly to the back, aligning the back-most shoulder screws with the slots in the back of the slide assembly.
3	Slide the F85 into the back-most slot on each rail.

Step	Action
4	Align the middle shoulder screws and insert them into the middle slide assembly slots, then do the same for the forward set of shoulder screws. The following illustration shows how the filer looks seated in the slides. 
5	Gently push the filer forward until it sits completely in all three rail slots.
6	Push the filer as far forward on the slides as it can go. Push up the green latches on the outside of each slide, then push the filer all the way back into the rack.
7	Secure the front of the filer to the rack by tightening the thumbscrews on the front of the filer.
8	Go to “Installing the cable management arm” on page 16.

Installing the cable management arm

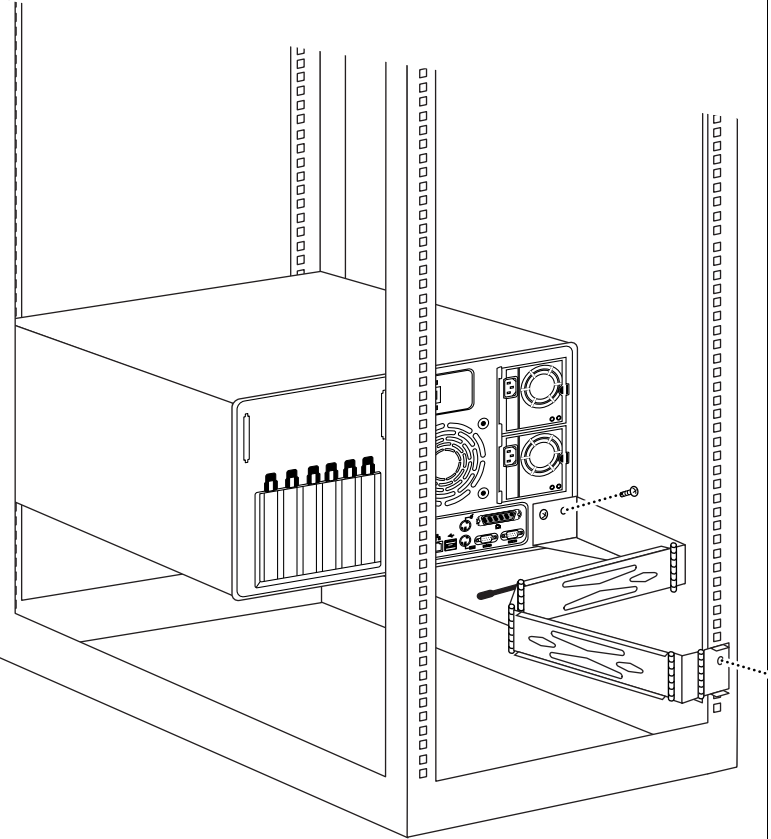
About the cable management arm

The cable management arm helps keep the system cables untangled and orderly. This hinged metal arm attaches to the back of the filer and to the back of the equipment rack.

Connecting the cable management arm

To connect the cable management arm to the F85, then to the system rack, complete the following steps.

Step	Action
1	Put on the antistatic wrist strap and grounding leash.

Step	Action
2	Using the #2 Phillips screwdriver, attach the hinge of the cable management arm to the filer chassis with two 8-32 Phillips self-threading screws. Attach the other end of the cable management arm to the left rear rack post, using two 10-32 Phillips screws and two #10 flat washers, shown in the following illustration. 

Where to go next

After installing the filer, install the disk shelf as described in the appropriate disk shelf guide. Next, connect any tape backup devices to your system, as described in Chapter 3, “[Connecting to a Third-Party Tape Backup Device](#),” on page 19.

About this chapter

This chapter discusses how to connect the F85 to a third-party SCSI tape backup device.

Topics in this chapter

This chapter discusses the following topic:

- ◆ [“Preparing a third-party tape backup device”](#) on page 20
- ◆ [“Connecting a third-party tape backup device”](#) on page 21

Preparing a third-party tape backup device

Preparing a tape backup device

To prepare a third-party SCSI tape backup device, complete the following steps.

Step	Action
1	Set the SCSI ID on the tape backup device. See the device documentation for instructions about how to set the tape backup ID. Note_____ Do not use SCSI ID 7 for the device, because it is reserved for the SCSI host adapter. _____
2	Set the ID of your robotic loader for the tape backup device. If you do not have a robotic loader, go to Step 3.
3	Turn off all tape backup devices and go to “Connecting a third-party tape backup device” on page 21.

Connecting a third-party tape backup device

Guidelines for connecting tape backup devices

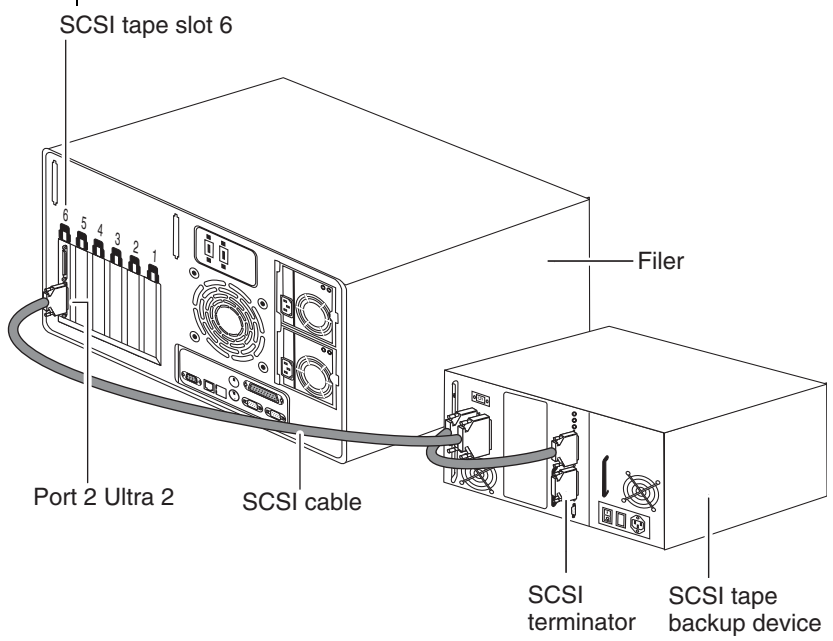
The following list specifies guidelines for successfully connecting third-party tape backup devices to your filer:

- ◆ Check the System Configuration Guide at <http://now.netapp.com> to verify that your tape backup device is supported. Connecting an unsupported tape backup device can cause your filer to halt.
- ◆ Use the appropriate type and length cable for the tape backup device. The maximum cable length supported by the SCSI adapter is 2 meters.

Connecting a SCSI tape backup device

To connect a third-party SCSI tape backup device to the filer, complete the following steps.

Step	Action
1	Shut down the filer using the following command: halt
2	Turn off the power to your filer and unplug it from the power source.
3	Connect one end of the SCSI cable to the lower SCSI adapter port, labeled Port 2 Ultra 2, in slot 6 of the filer, then connect the other end of the cable to the input port on the tape backup device. Caution ————— Make sure that you connect your third-party tape backup device to Port 2 Ultra 2. Cabling to Port 1 Ultra 2 can cause the system to panic,—————
4	Tighten the thumbscrews on the cable ends.

Step	Action
5	Terminate any open ports on the tape backup device with an active SCSI terminator, as shown in the following illustration.  The diagram illustrates the connection of a SCSI tape backup device to a Filer. On the left, a Filer unit is shown with a row of SCSI ports labeled 1 through 6. A SCSI cable is connected to Port 2 Ultra 2. The cable runs to the right, where it connects to a SCSI tape backup device. On the SCSI tape backup device, the cable is connected to a port that has a SCSI terminator attached to it. Labels with leader lines identify the following components: SCSI tape slot 6, Filer, Port 2 Ultra 2, SCSI cable, SCSI terminator, and SCSI tape backup device.

Where to go next

After you connect the tape backup devices to your system, connect your system to your network, as described in Chapter 4, “[Connecting the Filer to an Ethernet Network](#),” on page 23.

About this chapter This chapter discusses how to connect the F85 filer to an Ethernet network.

Topics in this chapter This chapter discusses the following topics:

- ◆ “[About connecting to an Ethernet network](#)” on page 24
- ◆ “[Connecting to a 10Base-T/100Base-TX network](#)” on page 25
- ◆ “[Connecting to a GbE network](#)” on page 26

About connecting to an Ethernet network

Supported Ethernet connections

The F85 has an onboard 10Base-T/100Base-TX Ethernet port. The F85 also supports the following Ethernet network interface cards (NICs):

- ◆ Single-port 10Base-T/100Base-TX NIC
- ◆ Gigabit Ethernet (GbE) NIC

The NICs are assigned to the following slots in the F85.

NIC type	Slot
Single-port 10Base-T/100Base-TX	2
GbE	3

Note

See the *System Configuration Guide* at <http://now.netapp.com> for more information about supported NICs.

Cabling requirements

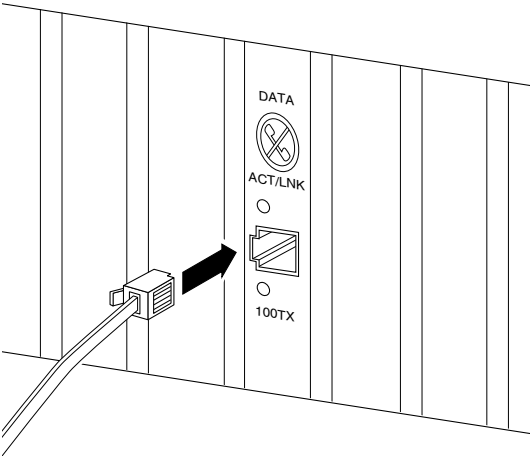
The following table lists the cabling requirements for Ethernet connections.

Ethernet port	Cabling requirements	
10 Base-T/ 100Base-TX	Category 3 (10Base-T only) or 5 (10Base-T/100Base-TX) unshielded twisted-pair (UTP) cable with RJ-45 connectors	
GbE	Type of cable	Max. distance
	50 micron multimode fiber optic cable with SC connector	550m
	62.5 micron multimode fiber optic cable with SC connector	220m

Connecting to a 10Base-T/100Base-TX network

Connecting to a 10Base-T/100Base-TX network

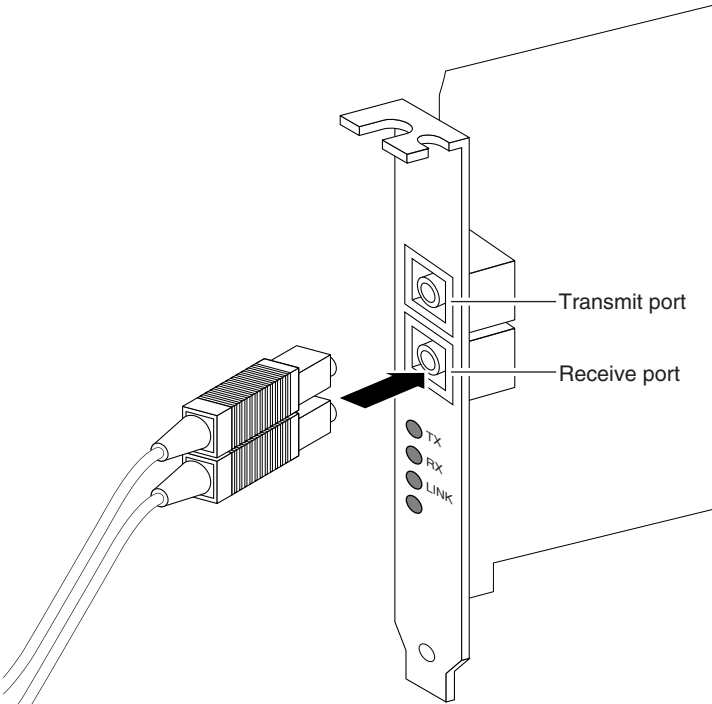
To connect the filer to a 10Base-T/100Base-TX Ethernet network, complete the following step.

Step	Action	
1	If your Ethernet port is...	Then...
	The filer's onboard Ethernet port	Push the cable with the RJ-45 connector into the onboard Ethernet port on the filer, until it clicks and locks into place.
	A single-port 10Base-T/100Base-TX NIC	Push the cable with the RJ-45 connector into the RJ-45 port on the NIC, until it clicks and locks into place.
The following illustration shows a UTP cable with an RJ-45 connector connecting to a single-port 10Base-T/100Base-TX NIC. 		

Connecting to a GbE network

Connecting to a GbE network

To connect the filer to a GbE network, complete the following step.

Step	Action
1	Push the cable with the SC connector into the ports on the GbE NIC, until it clicks and locks into place. 

About this chapter

This chapter describes how you prepare your F85 for initial power on and what to expect when you apply power to your filer.

Topics in this chapter

This chapter discusses the following topics:

- ◆ [“Connecting the filer to an ASCII terminal console”](#) on page 28
- ◆ [“Connecting the system to a power source”](#) on page 30
- ◆ [“Startup responses”](#) on page 32

Connecting the filer to an ASCII terminal console

About the ASCII terminal console

The ASCII terminal console enables you to monitor the boot process and helps you configure the filer after it boots. You must use an attached ASCII terminal for local system administration and not the onboard VGA adapter. The onboard VGA adapter is an unused port on the F85.

This section describes how to attach an ASCII terminal console to the COM1 port of your F85.

ASCII terminal console cable wiring

The ASCII terminal console is connected to the filer through the serial port labeled COM1, on the back of the filer. The following table lists how the DB-9 serial cable is wired to handle data. Input indicates data flow from the ASCII terminal to the filer and output indicates data flow from the filer to the ASCII terminal.

Pin number	Signal	Data flow direction (Input/output)	Description
1	DCD	Input	Data carrier detect
2	SIN	Input	Serial input
3	SOUT	Output	Serial output
4	DTR	Output	Data terminal ready
5	GND	NA	Signal ground
6	DSR	Input	Data set ready
7	RTS	Output	Request to send
8	CTS	Input	Clear to send
9	RI	Input	Ring indicator

**Connecting the
ASCII terminal
console**

To connect your ASCII terminal console to the F85, complete the following steps.

Step	Action	
1	Set the following communications parameters to the same values for both the filer and ASCII terminal.	
	Parameter	Setting
	Baud	9600
	Data bit	8
	Flow control	None
	Parity	None
	Stop bits	1
	Note See your terminal documentation for information about changing your ASCII console terminal settings.	
2	Connect the DB-9 serial cable to the console port on the F85 and to the ASCII terminal.	

Connecting the system to a power source

Power-on sequence for an F85 with a disk shelf

The F85 with a disk shelf has a specific power-on sequence that you must follow for the system to boot properly.

Phase	Action	
1	If...	Then...
	You have a third-party tape backup device	Apply power to the device.
	You do not have a third-party tape backup device	Go to Step 2.
2	Apply power to the F85.	
3	Apply power to the disk shelf, as described in the appropriate disk shelf guide.	

After you apply power to the disk shelf, third-party tape backup device, and F85, the boot process checks all connections from external devices to the filer and also runs the `setup` command at first boot. See the *Getting Started Guide* for more information about configuring your filer after system boot.

Power-on sequence for a freestanding tower F85

The F85 freestanding tower has no power-on sequence requirements. It is powered on simply by pressing the power switch. As with the F85 with a disk shelf, the boot process checks all connections from external devices to the filer and also runs the `setup` command at first boot. See the *Getting Started Guide* for more information about configuring your filer after system boot.

Note_____

If your F85 has a third-party tape backup device attached, you should apply power to this device, then apply power to your F85.

Connecting the filer to power

To connect the F85 to a power source, complete the following steps.

Step	Action
1	Plug in the power supply cords to each power supply, then the other end to grounded electrical outlets on separate AC circuits.
2	Press the power button on the front of the filer. Result: The system verifies the filer hardware and peripherals, then loads the operating system.
3	Check that the following LEDs on the filer are lit and green: ◆ Power button LED on the front of the filer ◆ Drive indicator LEDs under the filer bezel ◆ NIC LEDs on the back of the filer LED responses are described in “Startup responses” on page 32. Note_____ If the LEDs are not lit or are not green, contact Network Appliance Technical Support.
4	Observe the startup messages on the console during system boot. Note_____ If no startup messages appear on your console, contact Network Appliance Technical Support. Result: After boot, you see the following default host name prompt: <pre>toaster></pre> Note_____ You might want to run diagnostics at first boot, to ensure the entire system is running properly. See the <i>Diagnostics Guide</i> for more information about running diagnostics.
5	Go to the <i>Getting Started Guide</i> to configure the operating system software for your filer.

Startup responses

About this section

This section describes the startup messages you see on the console, along with the various status LEDs you see on the front and back of the filer.

For detailed information

This section describes the following:

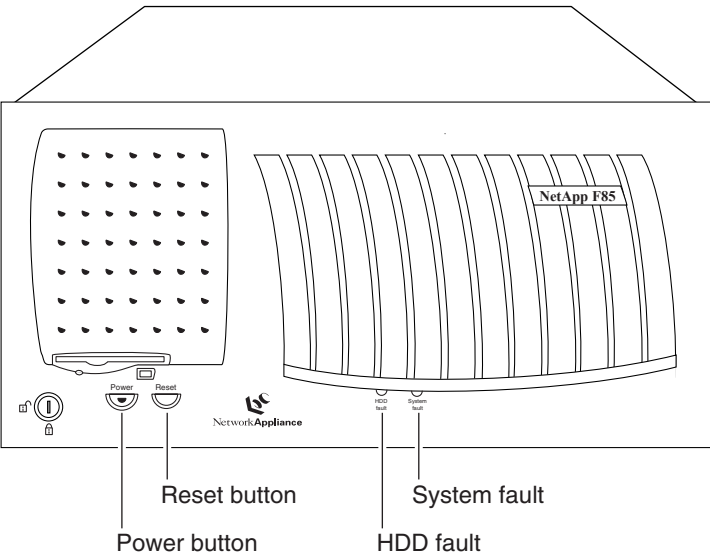
- ◆ [“Front panel LED and status indicators”](#) on page 33
- ◆ [“Power supply LEDs”](#) on page 35
- ◆ [“Disk drive status indicators”](#) on page 37
- ◆ [“Network connection LEDs”](#) on page 39
- ◆ [“System startup messages”](#) on page 43

Startup responses

Front panel LED and status indicators

Location of the front panel LEDs

The following illustration shows the LED locations, along with fault status indicators.



LED and status indicator description

The following table describes the LEDs and status indicators on the front of the filer.

LED	LED status indicator	Description
System fault	Amber	Indicates one of the following: ◆ Fan failure. ◆ High temperature sensor reading for CPU or system. ◆ Other system problems.
	Off	System operating normally.

LED	LED status indicator	Description
HDD fault	Amber	Indicates a hard disk drive failure.
	Off	Hard disks functioning normally.
Power indicator	Green	Filer has power.
	Off	Filer is off or has no power.

Note

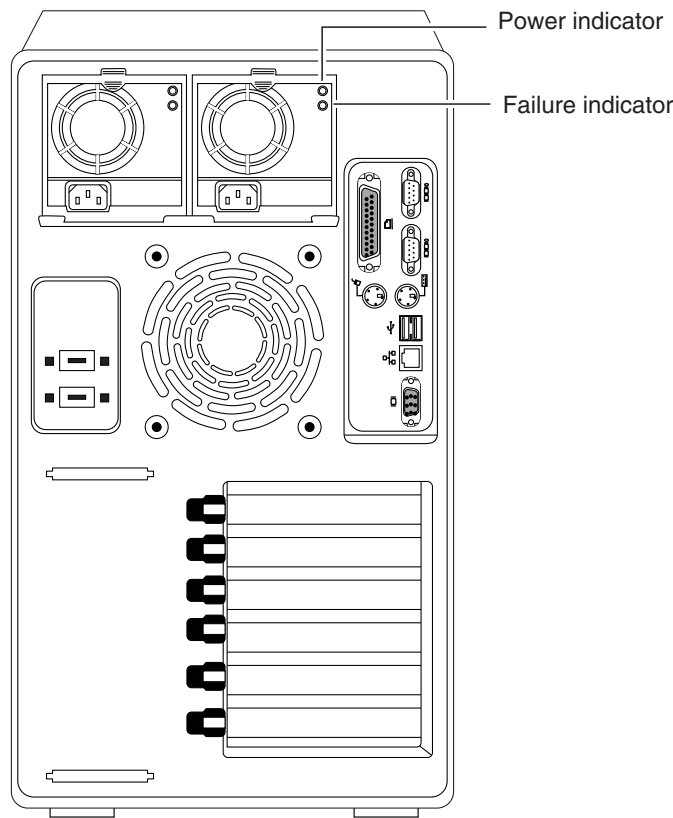
You must remove the bezel to view the status LEDs for the individual disk drives. See [“Disk drive status indicators”](#) on page 37 for more information.

Startup responses

Power supply LEDs

Location of the power supply LEDs

The following illustration shows the LED locations on the power supplies.



LED description

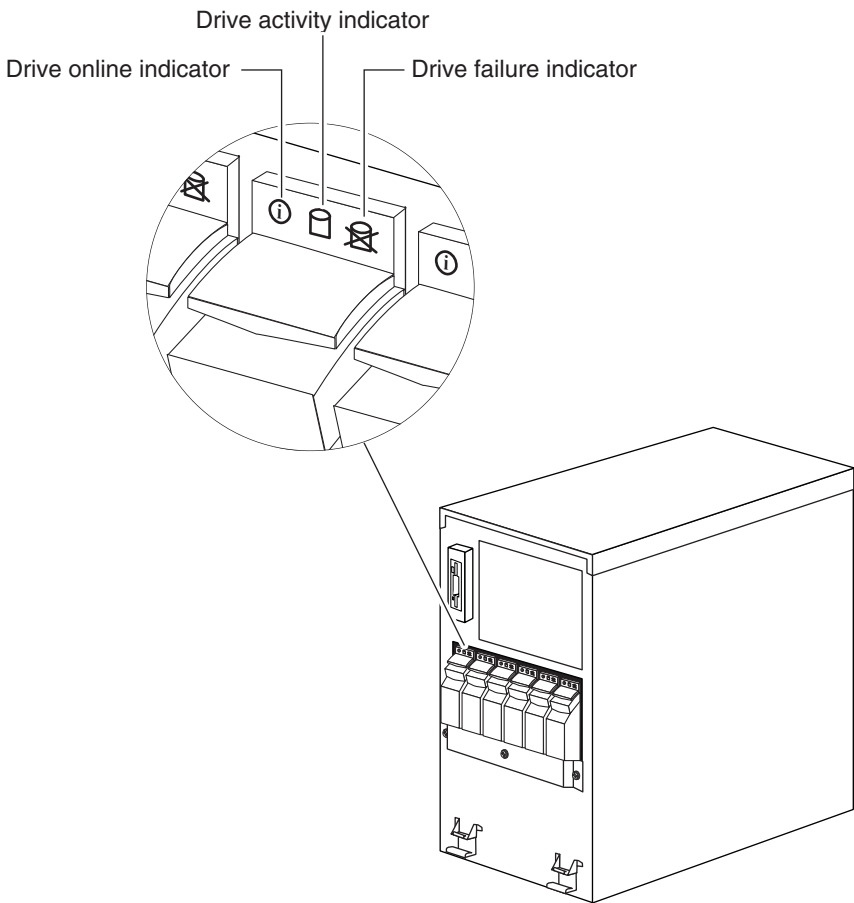
The following table describes the power supply LEDs.

LED	LED status indicator	Description
Power indicator	Green	Power supply is receiving AC power.
	Off	Power supply is receiving no AC power.
Failure indicator	Amber	Indicates a power supply failure.
	Off	Indicates no power supply failure detected.

Disk drive status indicators

Location of the disk drive status indicators

The following illustration shows the location of the disk drive status indicators. You must remove the bezel to look at these indicators.



Status indicator description

The following table describes the disk drive status indicator lights.

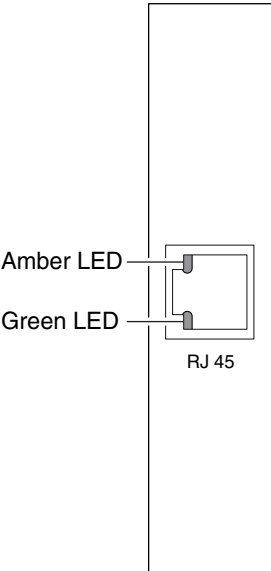
Indicator type	Status indicator	Description
On-line indicator	Green	Round icon lit, indicating that the drive has power and is on-line.
	Off	Drive is off-line or has no power.
Drive activity	Flashing green	Indicates drive activity.
	Off	No drive activity.
Drive failure indicator	Amber	Indicates that the drive has failed.
	Off	Indicates that the drive is functioning properly.

Network connection LEDs

About this section This section describes the LED responses for the network connections supported by the F85. The location and functionality of the LEDs is described in the following sections:

- ◆ “Onboard 10Base-T/100Base-TX Ethernet port” on page 39
- ◆ “Single-port 10Base-T/100Base-TX NIC LEDs” on page 40
- ◆ “GbE NIC LEDs” on page 41

Onboard 10Base-T/100Base-TX Ethernet port **Location of LEDs:** The onboard 10Base-T/100Base-TX Ethernet port has two LEDs, as shown in the following illustration.

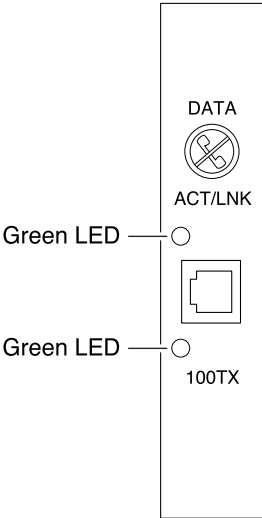


Description of LEDs: The following table describes the LEDs for the onboard 10Base-T/100Base-TX Ethernet port.

LEDs	State of illumination	Indicates...
Green	On	Valid network connection.
	Off	No Ethernet connection is present.
Amber	On	Transmitting and receiving data.
	Off	Idle.

Single-port 10Base-T/100Base-TX NIC LEDs

Location of LEDs: The single-port 10Base-T/100Base-TX Ethernet NIC has one port and two LEDs, as shown in the following illustration.

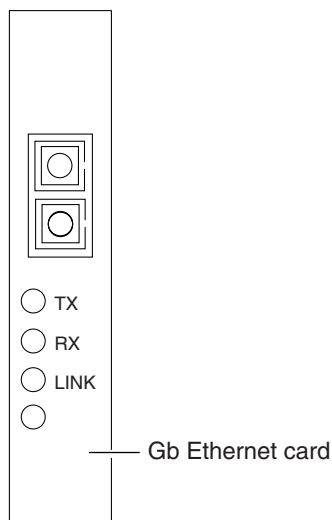


Description of LEDs: The following table describes the LEDs on the single-port 10Base-T/100Base-TX Ethernet NIC.

LEDs	State of illumination	Indicates...
ACT/LNK	On	Valid network connection.
	Off	One of three scenarios: ◆ Idle. ◆ There is no power. ◆ Faulty cable connection.
	Flashing	Transmitting and receiving data.
100TX	On	Operating at 100 Mbps.
	Off	Operating at 10 Mbps.

GbE NIC LEDs

Location of LEDs: The GbE NIC has one port and four LEDs, as shown in the following illustration.



Description of LEDs: The following table describes the LEDs on the GbE NIC.

LEDs	State	Indicates...
TX	On	Transmitting data.
	Off	Idle.
RX	On	Receiving data.
	Off	Idle.
LINK	On	Valid network connection.
	Off	One of two scenarios: ◆ Invalid configuration. ◆ Connections need to be checked.
Unlabeled LED	N/A	Not used.

System startup messages

About startup messages

When you apply power to the F85, the filer verifies which hardware is attached to the system, loads the operating system, and displays two types of startup messages on the console:

- ◆ Power-On Self-Test (POST) messages
- ◆ Boot messages

POST messages

POST is a series of tests run from the motherboard PROM. These tests check the hardware on the motherboard and differ depending on your system configuration.

The following series of messages are examples of POST messages displayed on the console.

Header:

```
Phoenix ROM BIOS PLUS Version 1.10 C07
Copyright 1985-1988 Phoenix Technologies Ltd.
Copyright 2000 Network Appliance, Inc.
All Rights Reserved
```

```
Network Appliance, Inc.
www.netapp.com
```

POST messages:

```
Memory Test..... Please wait.
```

```
Press <F2>  for System Setup
Press <F10> for Utility
Please wait.....
```

```
Embedded server management firmware revision 5.22
System backplane firmware revision 5.35
```

```
One 866 MHz Processor, Processor Bus: 133 MHz, L2 cache: 256 KB
Advanced
```

```
QLogic Corporation
QLA128x PCI SCSI ROM BIOS Version 1.09
Copyright (C) QLogic Corporation 1993-1999. All rights reserved.
```

www.qlc.com

Press <Alt-Q> for Fast!UTIL

Number	Type	Number	BUS	ID	LUN	ID	ID	Revision
Disk		0	0	0	0	NETAPP	X225_DDYS-T36950	NA00
Disk		0	0	1	0	NETAPP	X225_DDYS-T36950	NA00
Disk		0	0	2	0	NETAPP	X225_DDYS-T36950	NA00
Disk		0	0	3	0	NETAPP	X225_DDYS-T36950	NA00
Disk		0	0	4	0	NETAPP	X225_DDYS-T36950	NA00
Disk		0	0	5	0	NETAPP	X225_DDYS-T36950	NA00
Micro		0	0	6	0	NETAPP	X225_DDYS-T36950	NA00
Tape		0	1	3	0	QUANTUM	DLT8000	0119

ROM BIOS Installed

Number	Type	Number	BUS	ID	LUN	ID	ID	Revision
Disk		1	0	0	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	1	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	2	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	3	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	4	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	5	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	8	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	9	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	10	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	11	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	12	0	NETAPP	X225_DDYS-T36950	NA00
Disk		1	0	13	0	NETAPP	X225_DDYS-T36950	NA00
Micro		1	0	15	0	NETAPP	X225_DDYS-T36950	NA00

ROM BIOS Installed

Boot messages

After POST is successfully completed, the filer loads the operating system.

The following message is an example of the boot message that appears on the system console at first system boot. The exact boot messages that appear on your system console depend on your system configuration.

Boot messages

```
Copyright (c) 1992-2000 Network Appliance, Inc.
Loading NetApp software:
.....

NetApp software loaded
Starting
.....
.....
Press <control-C> for special boots

NetApp Release /rlse/rlse4/RguinnessN_000921_0010: Thu Sep 21
00:18:10 PDT
2000M

Copyright (c) 1992-2000 Network Appliance, Inc.
Starting boot on Mon Sep 25 20:08:14 GMT 2000
Scanning for disk drives: .....
Configuring disk drives: 5a.5 5a.3 5a.1 4.3 4.1 4.5 4.0 4.4 4.2
5a.0 5a.2
5a.4 .12 4.11 4.10 4.8 4.9 4.13
Disk 4.0 is reserved for "hot spare"
Disk 4.1 is reserved for "hot spare"
.
.
.
.
.
.
.
```


About this chapter

This chapter provides information about how to troubleshoot the F85 hardware through system error messages displayed through the ASCII terminal console.

This section lists and describes error messages you might encounter during filer operation. This section also contains corrective action for each listed error.

Topics in this chapter

This chapter discusses error messages you might encounter during boot, and also how to address these errors:

- ◆ “[BIOS error messages](#)” on page 48
- ◆ “[System messages](#)” on page 51
- ◆ “[System beep codes](#)” on page 58
- ◆ “[Boot error messages](#)” on page 61
- ◆ “[Other error messages](#)” on page 66

BIOS error messages

About BIOS messages

The following table lists the BIOS error messages that might appear when the filer checks the hardware on the motherboard at initial power on.

Boot error message	Explanation	Fatal?	Corrective action
<i>ERROR! PCI CONFIGURATION ERROR</i>	The PCI configuration information for ISP 1280 is incorrect.	No	Contact Network Appliance Technical Support for information.
<i>ERROR! RISC CODE LOAD FAILURE</i>	An error occurred when the SCSI adapter code was loaded.	No	Shut down the system and reboot. If the error appears during boot, contact Network Appliance Technical Support for instructions.
<i>ERROR! RISC CODE CHECKSUM ERROR</i>	An error occurred in the SCSI adapter RISC code checksum.	No	Contact Network Appliance Technical Support for information.
<i>ERROR! RISC CODE START EXECUTION ERROR</i>	An error occurred when the SCSI adapter RISC code tried to start.	No	Contact Network Appliance Technical Support for information.
<i>ERROR! BIOS ON ADAPTER IN PCI SLOT decimal_value IS CORRUPTED.</i>	The BIOS extension for the indicated PCI slot is corrupted.	No	Contact Network Appliance Technical Support for information.
<i>ERROR! IRQ FAILURE</i>	An error occurred during the interrupt test.	No	Contact Network Appliance Technical Support for information.

Boot error message	Explanation	Fatal?	Corrective action
<i>ERROR! Cannot configure SCSI device. Check SCSI bus termination and check adapter termination settings by pressing ALT-Q to enter Fast!UTIL.</i>	The indicated SCSI terminator is not set correctly.	No	1. Check the cabling and terminators. 2. If the error persists, contact Network Appliance Technical Support for instructions.

Boot error message	Explanation	Fatal?	Corrective action
<i>WARNING! The SCSI host adapter is being configured with NVRAM parameters that are incorrect for this device.</i> <i>Your system may hang when accessing this device with these parameters. If this occurs, you should restart your system, press <Alt-Q> for Fast!UTIL, run Autoconfigure SCSI Devices to get the correct setting.</i> <i>You may also set the Adapter Configuration Mode option to AUTO in the Host Adapter Settings to let the adapter BIOS determine the correct settings for you.</i> <i>SCSI Bus decimal_value reset failed! Check SCSI termination and cabling!</i>	The SCSI host adapter is set to a mode that is unsupported.		1. Check the cabling and terminators. 2. If the error persists, contact Network Appliance Technical Support for instructions.

System messages

About system messages

The following table lists the system error messages that might appear during initial power on of your filer.

Message	Explanation	Fatal?	Corrective action
<i>Address mark not found</i>	Faulty diskette or tape drive subsystem or hard disk drive subsystem.	Yes	Replace the system board.
<i>Alert! Maximum memory size exceeded. Limiting memory size to 2 GB</i>	The system supports up to 2 GB of memory.	Yes	Remove one or more DIMMs so total memory is 2 GB or less.
<i>Alert! Uncorrectable memory error previously detected in ASCII_value</i>	Improperly seated or faulty DIMM.	Yes	Remove and reseal the DIMMs. If the problem persists, replace the DIMMs.
Alert! Unsupported memory in DIMM slot(s) decimal_value	Unsupported DIMMs installed.	Yes	Replace one or more DIMMs so that all DIMMs are of the same type.
Alert! Single-bit memory error previously detected in ASCII_value	Improperly seated or faulty DIMM.	Yes	Remove and reseal the DIMMs. If the problem persists, replace the DIMMs.
Amount of memory has changed	Missing or faulty DIMMs.	Yes	Check the DIMMs. If all are there, remove and reseal the DIMMs. If the problem persists, replace the DIMMs.
Attachment failed to respond	Diskette or hard disk drive controller cannot send data to associated drive.	Yes	Replace the drive's interface cable.

Message	Explanation	Fatal?	Corrective action
Auxiliary device failure	Mouse plugged into the unsupported mouse port.	No	Remove any attached mice. If the problem persists, replace the system board.
CPUs with different level 2 cache sizes detected	Two different types of microprocessors are installed.	Yes	Remove one of the processors. This configuration is not supported.
Data error	Faulty diskette or diskette drive or hard disk drive.	No	Replace the diskette or diskette drive or hard disk drive.
Decreasing available memory	One or more DIMMs is improperly seated or faulty.	Yes	Remove and reseal the DIMMs. If the problem persists, replace the DIMMs.
Diskette drive failure 0 seek failure Diskette drive 1 seek failure	Faulty or improperly inserted diskette, loose diskette or tape drive interface cable, or loose power cable.	Yes	1. Replace the diskette. 2. Check the drive interface and power cables. 3. Run the system setup program to correct the diskette drive type.
Diskette read failure	Faulty diskette, faulty or improperly connected diskette or tape drive interface cable, or loose power cable.	No	1. Replace the diskette. 2. Run the system setup program to correct the diskette drive type. 3. Check the drive interface and power cables.
Diskette subsystem reset failed	Faulty diskette/tape drive controller; defective system board.	Yes	Replace the system board.
Gate A20 failure	Faulty keyboard controller; defective system board.	Yes	Replace the system board.

Message	Explanation	Fatal?	Corrective action
Hard disk controller failure	Incorrect configuration settings in System Setup program, improperly connected hard disk drive, faulty hard disk drive controller subsystem, defective system board, or loose power cable.	Yes	1. Reinstall the hard drive. 2. Check the interface cable and power cable connections to the backplane. 3. Check the hard disk drive configuration settings in the system setup program. 4. Replace the hard disk controller subsystem.
Invalid configuration information - please run SETUP program	Incorrect ISA-CLR jumper configuration, incorrect configuration settings in the System Setup program, or faulty battery.	No	1. Check the system setup configuration settings. 2. Replace the CMOS lithium battery.
Invalid CPU speed detected	Microprocessor not supported by the system.	Yes	Install the correct version of the microprocessor in the specified connector.
I/O parity interrupt at address	Expansion card improperly installed or faulty.	Yes	Reinstall the expansion card. If the problem persists, replace the system board.
Keyboard controller failure	Defective keyboard or mouse controller; defective system board.	No	Remove the keyboard or mouse; they are not supported. If the problem persists, replace the system board.
Keyboard failure	Keyboard cable connector loose or improperly connected, defective keyboard, or defective keyboard or mouse controller; defective system board.	No	Remove the keyboard or mouse; they are not supported. If the problem persists, replace the system board.

Message	Explanation	Fatal?	Corrective action
Keyboard data line failure Keyboard stuck key failure	Keyboard cable connector loose or improperly connected, defective keyboard, or defective keyboard or mouse controller; defective system board.	No	Remove the keyboard or mouse. If the problem persists, replace the system board.
Memory address line failure at Hex_value, read Hex_value expecting Hex_value Memory double word logic failure at Hex_value, read Hex_value expecting Hex_value Memory odd/even logic failure at Hex_value, read Hex_value expecting Hex_value Memory write/read failure at Hex_value, read Hex_value expecting Hex_value	Faulty or improperly seated DIMMs or defective system board	Yes	Remove and reseal the DIMMs. If the problem persists, replace the DIMMs. If the problem still persists, replace the system board.
Memory parity interrupt at Hex_value	Improperly seated or faulty DIMMs	Yes	Remove and reseal the DIMMs. If the problem persists, replace the DIMMs.
Memory tests terminated by keystroke	POST memory test terminated by pressing the spacebar	No	Do not terminate the POST test.

Message	Explanation	Fatal?	Corrective action
No boot device available	Faulty diskette, diskette/tape drive subsystem, hard disk drive, hard disk drive subsystem, or no boot disk in drive A.	Yes	1. If booting from a diskette, ensure that the diskette is bootable. 2. If booting from a hard disk drive, replace the hard disk drive. 3. Check cabling. 4. Check the SCSI adapter and terminators. 5. If the problem persists, replace the SCSI adapter or the system board.
No timer tick interrupt	Defective system board.	Yes	Replace the system board.
Non-system disk or disk error	Faulty diskette, diskette/tape drive subsystem, or hard disk drive subsystem.	Yes	1. Ensure that the diskette is bootable. 2. Check cabling. 3. Check the SCSI adapter. 4. If the problem persists, replace the SCSI adapter or the system board.
Not a boot diskette	No operating system on the diskette.	No	Use a bootable disk.
Processor or terminator card not installed	No microprocessor or terminator card installed in secondary microprocessor connector.	Yes	Install a terminator card or microprocessor in the secondary microprocessor connector.
<i>Read fault</i> <i>Requested sector not found</i>	Faulty diskette, diskette or tape drive subsystem, or hard disk drive subsystem; defective system board.	Yes	Replace the diskette or hard disk drive. If the problem persists, replace the system board.

Message	Explanation	Fatal?	Corrective action
Reset failed	Improperly connected diskette/tape drive, hard disk drive, or power cable.	No	1. Check the diskette/tape drive interface cable and power cable connections to the diskette drive. 2. Replace the diskette/tape drive interface cable. 3. Reinstall the hard disk drive. 4. Check the interface cable and power cable connections to the backplane.
<i>ROM bad checksum = address</i>	Expansion card improperly installed or faulty.	Yes	Reinstall the expansion cards. If the problem persists, replace the expansion card.
<i>Sector not found</i>	Defective sectors on diskette or hard disk drive.	Yes	Replace the diskette or hard disk drive.
<i>Seek error</i>	Defective sectors on diskette or hard disk drive.	Yes	Replace the diskette or hard disk drive.
<i>Seek operation failed</i>	Faulty diskette or hard disk drive.	Yes	Replace the diskette or hard disk drive.
<i>Shutdown failure</i>	Defective system board.	Yes	Defective system board. Replace the system board.
<i>Time-of-day clock stopped</i>	Defective battery or faulty chip; defective system board.	Yes	Replace the CMOS lithium battery. If the problem persists, replace the system board.
<i>Time-of-day not set - please run SETUP program</i>	Incorrect Time or Date settings or defective system battery.	No	Check the Time and Date settings. If the problem persists, replace the CMOS lithium battery. If the problem still persists, replace the system board.
Timer chip counter 2 failed	Defective system board.	Yes	Replace the system board.

Message	Explanation	Fatal?	Corrective action
Unexpected interrupt in protected mode	Improperly seated DIMMs or faulty keyboard/mouse controller chip; defective system board.	Yes	Remove and reseal the DIMMs. If the problem persists, replace the DIMMs. If the problem still persists, replace the system board.
Unsupported CPU detected in SLOT Decimal_value Unsupported CPU speed detected!	Microprocessor not supported by system.	Yes	Install a correct version of the microprocessor in the specified microprocessor connector.
Unsupported CPU combination detected. System halted!	Not supported.	No	Not supported.
Unsupported CPU speed in CMOS	Microprocessor not supported by BIOS	Yes	Replace the microprocessor.
Utility partition not available	Not supported.	No	Not supported.
Backplane firmware out of date	The backplane firmware is not current.	No	1. Check the cabling to the backplane. 2. Use the Field Utilities. See the NOW Web page at http://now.netapp.com to update the firmware. 3. Replace the CMOS lithium battery if the problem persists.

System beep codes

About system beep codes

System beep codes refer to the types of errors encountered by the system that cannot be reported on the ASCII system console during regular booting. The beep codes are a series of audible tones that helps you identify the encountered error.

The following table lists the beep codes you might encounter.

Code	Explanation	Fatal?	Corrective action
1-1-3	CMOS write/read failure.	Yes	Replace the system board.
1-1-4	BIOS checksum failure.	Yes	Replace the system board.
1-2-1	Programmable interval-timer failure.	Yes	Replace the system board.
1-2-2	DMA initialization failure.		
1-2-3	DMA page register write/read failure.		
1-3-1	Main-memory refresh verification failure.	Yes	Remove and reseat the DIMMs. If the problem persists, replace one or more DIMMs. If the problem still persists, replace the system board.
1-3-2	No memory installed.	Yes	Remove and reseat the DIMMs. If the problem persists, replace one or more DIMMs. If the problem still persists, replace the system board.

Code	Explanation	Fatal?	Corrective action
1-3-3	Chip or data line failure in the first 64 KB of main memory.	Yes	Remove and reseal the DIMMs. If the problem persists, replace the DIMMs. If the problem still persists, replace the system board.
1-3-4	Odd/even logic failure in the first 64 KB of main memory.		
1-4-1	Address line failure in the first 64 KB of main memory.		
1-4-2	Parity failure in the first 64 KB of main memory.		
2-1-1 through 2-4-4	Bit failure in the first 64 KB of main memory.		
3-1-1	Slave DMA-register failure.	Yes	Replace the system board.
3-1-2	Master DMA-register failure.		
3-1-3	Master interrupt-mask register failure.		
3-1-4	Slave interrupt-mask register failure.		
3-2-4	Keyboard-controller test failure.	Yes	Remove any keyboards. If the error persists, replace the system board.
3-3-1	CMOS failure.	Yes	Replace the CMOS lithium battery. If the problem persists, run the system board test in the diagnostics.

Code	Explanation	Fatal?	Corrective action
3-3-2	System configuration check failure.	Yes	Replace the system board.
3-3-3	Keyboard controller not detected.		
3-3-4	Screen initialization failure.		
3-4-2	Screen-retrace test failure.		
3-4-3	Search for video ROM failure		
4-2-1	No timer tick.		
4-2-2	Shutdown failure.		
4-2-3	Gate A20 failure.		
4-2-4	Unexpected interrupt in protected mode.	Yes	Ensure that all expansion cards are properly seated, and then reboot the system.
4-3-1	Improperly seated or faulty DIMMs.	Yes	Remove and reseal the DIMMs. If the problem persists, replace the DIMMs. If the problem still persists, replace the system board.
4-3-3	Defective system board.	Yes	Replace the system board.
4-3-4	Time-of-day clock stopped.	Yes	Replace the CMOS lithium battery. If the problem persists, replace the system board.
4-4-1	Super I/O chip failure; defective system board.	Yes	Replace the system board.
4-4-2	Parallel-port test failure; defective system board.		
4-4-4	Cache test failure; defective microprocessor.	Yes	Remove and reseal the microprocessor. If the problem still persists, replace the microprocessor.

Boot error messages

About boot error messages

The following table lists the boot error messages that might appear after the filer has completed the BIOS and system tests and begins to load the operating system.

Boot error message	Explanation	Fatal?	Corrective action
<i>No /etc/rc</i>	The <i>/etc/rc</i> file is corrupted.	No	1. At the <code>hostname></code> prompt, enter the following command: setup 2. At the system prompts for system configuration information, use the information you recorded in the filer configuration information worksheet in the <i>Getting Started Guide</i>. For more information about the filer <code>setup</code> program, see the <i>Data ONTAP System Administrator's Guide</i>.
<i>No /etc/rc, running setup</i>	The system cannot find the <i>/etc/rc</i> file and automatically starts <code>setup</code> .	No	At the system prompts for system configuration information, use the information you recorded in the filer configuration information worksheet in the <i>Getting Started Guide</i> . For more information about the filer <code>setup</code> program, see the <i>Data ONTAP System Administrator's Guide</i> .

Boot error message	Explanation	Fatal?	Corrective action
<i>Cannot initialize labels</i>	When the system tries to create a new file system, it cannot initialize the disk labels.	Yes	Usually, you do not need to create and initialize a file system; do so only after consulting Network Appliance Technical Support.
<i>Cannot read labels</i>	When the filer tries to initialize a new file system, it has a problem reading the disk labels it wrote to the disks. This problem might be because ◆ The system failed to read the disk size ◆ The written disk labels were invalid	Yes	Usually, you do not need to create and initialize a file system; do so only after consulting Network Appliance Technical Support.
<i>Disk label processing failed</i>	The filer detects that the disk is not in the correct drive bay.	Yes	Make sure that the disk is in the correct bay. Move it if it is not in the correct bay.
<i>Dirty shutdown in degraded mode</i>	The file system is inconsistent because you did not shut down the system cleanly when it was in degraded mode.	Yes	Contact Network Appliance Technical Support for instructions about repairing the file system.
<i>No disk controllers!</i>	The system cannot detect any SCSI disk controllers.	Yes	Turn off the filer power and verify that all SCSI adapters are properly seated in the appropriate expansion slots.
<i>No disks!</i>	The system cannot detect any SCSI disks.	Yes	1. Verify that all disks are properly seated in the drive bays. 2. Check the cabling.

Boot error message	Explanation	Fatal?	Corrective action
<i>Drive decimal_value.decimal_value not supported</i>	<i>decimal_value</i> —The SCSI disk number; <i>decimal_value</i> —The disk ID number. The system detects an unsupported disk drive.	Yes	1. Remove the drive immediately or the system drops down to the PROM monitor within 30 seconds. 2. Check the <i>System Configuration Guide</i> at http://now.netapp.com to verify support for your disk drive.
<i>File system may be scrambled</i>	One of the following errors causes the file system to be inconsistent: ◆ An unclean shutdown when the filer is in degraded mode and when NVRAM is not working. ◆ The number of disks detected in the disk array is different from the number of disks recorded in the disk labels. The system cannot start when more than one disk is missing. ◆ The system encounters a read error while reconstructing parity. ◆ A disk failed at the same time the system crashed.	Yes Yes Yes Yes	Contact Network Appliance Technical Support to learn how to start the system from a system boot diskette and repair the file system. Make sure that all disks on the system are properly installed in the disk shelf. Contact Network Appliance Technical Support. Contact Network Appliance Technical Support to learn how to repair the file system.

Boot error message	Explanation	Fatal?	Corrective action
<i>Invalid PCI card slot decimal_value</i>	<i>decimal_value</i> —The expansion slot number. The system detects an adapter that is not supported by Network Appliance.	Yes	Replace the unsupported adapter with an adapter that is included in the <i>System Configuration Guide</i> at http://now.netapp.com .
<i>Configuration exceeds max PCI space</i>	The memory space for mapping PCI adapters has been exhausted, because either ◆ There are too many PCI adapters in the system ◆ An adapter is demanding too many resources	Yes	Verify that all expansion adapters in the filer are supported. Contact Network Appliance Technical Support. Have a list ready of all expansion adapters installed in the filer.
<i>No network interfaces!</i>	The system cannot detect any network interfaces.	Yes	Turn off the system and verify that all NICs are seated properly in the appropriate expansion slots. If the problem persists, contact Network Appliance Technical Support.
<i>ServerNet: wrong pci slot</i>	The system detects that the cluster interconnect adapter is in the wrong expansion slot.	Yes	Remove the cluster interconnect adapter; it is not supported.
<i>No NVRAM present</i>	The system cannot detect the NVRAM adapter.	Yes	Turn off the power and make sure that the NVRAM adapter is securely installed in expansion slot 1.
<i>Replace NVRAM battery</i>	The NVRAM battery is low. The system shuts down immediately.	Yes	Replace the battery.
<i>NVRAM #n downrev!</i>	<i>n</i> —The serial number of the NVRAM adapter. The NVRAM adapter is an early revision that cannot be used with the system.	Yes	Check the console for information about which revision of the NVRAM adapter is required. Replace the NVRAM adapter.

Boot error message	Explanation	Fatal?	Corrective action
<i>NVRAM test failed</i>	The system NVRAM produces an error when the system is starting.	Yes	Contact Network Appliance Technical Support.
<i>Unsupported NVRAM size decimal_value MB</i>	<i>decimal_value</i> —The amount of memory on the NVRAM adapter. The specified size is not supported.	Yes	Verify that the system has 64 MB of NVRAM.

Other error messages

About all other error messages

These error messages might appear when the system is running, when it has halted, or when it is restarting because of system problems.

Error message	Explanation	Fatal?	Corrective action
<i>Disk n is broken</i>	<i>n</i> —The RAID group disk number. The solution depends on whether you have a hot spare in the system.	No	See the <i>Data ONTAP System Administrator's Guide</i> for information about how to locate a disk based on the RAID group disk number and how to replace a faulty disk.
<i>Fans stopped; replace them!</i>	The fan in the filer failed.	Yes	Replace the fan immediately.
<i>Power supply</i> - is missing - has bad fan - is removed	One of the power supply units is missing or has failed.	No	Check the messages on the console to identify which power supply unit (1 or 2) failed and replace the unit.
<i>Dumping core</i>	The system is dumping core after a system crash.	Yes	Write down the system crash message on the system console and report the problem to Network Appliance Technical Support.
<i>Disk hung during swap!</i>	A disk error occurred as you were hot swapping a disk.	Yes	1. Turn off the filer and wait 15 seconds to allow all disks to spin down. 2. Reconnect the power source to the disk shelf. 3. Restart the system by entering the following command: boot

Error message	Explanation	Fatal?	Corrective action
<i>Error dumping core</i>	The system cannot dump core during a system crash and restarts without dumping core.	Yes	Report the problem to Network Appliance Technical Support.
<i>Panicking</i>	The system is crashing. If the system does not hang while crashing, the message <code>Dumping core</code> appears.	Yes	Report the problem to Network Appliance Technical Support.
<i>System too hot</i>	The temperature sensor indicates that the system temperature is too high.	Yes	Verify that the ventilation holes are not blocked. If the ventilation holes are not blocked and the problem persists, contact Network Appliance Technical Support.

About this appendix This appendix discusses how to determine the power line requirements.

Recommended AC power line sizes

About AC power feeds

Longer AC power feeds must be properly designed to preserve voltage levels to the equipment. The wiring from the breaker panel to the power strip, which supplies power to the filer and disk shelf, can often exceed 50 feet.

Note

Total AC wire length = breaker to wall or ceiling outlet + extension cable or ceiling drop.

Recommended conductor size

The following table lists the recommended conductor size for a 2% voltage drop for a particular distance in feet (taken from the *Radio Engineer's Handbook*).

110V, single-phase	20A circuit	30A circuit	40A circuit	50A circuit
25 ft	12 AWG	10 AWG	8 AWG	8 AWG
50 ft	8 AWG	6 AWG	6 AWG	4 AWG
75 ft	6 AWG	4 AWG	4 AWG	2 AWG

220V, single-phase	20A circuit	30A circuit	40A circuit	50A circuit
25 ft	14 AWG	12 AWG	12 AWG	10 AWG
50 ft	12 AWG	10 AWG	8 AWG	8 AWG
75 ft	10 AWG	8 AWG	6 AWG	6 AWG

Wire gauge approximates

The following table lists the approximate equivalent of American Wire Gauge (AWG) to Harmonized Cordage.

AWG	8	10	12
Harmonized, mm-mm	4.0	2.5	1.5

About this appendix This appendix lists the regulatory notices you need to be aware of when installing and operating your Network Appliance equipment.

Regulatory notices

FCC notices (U.S. only)

Network Appliance devices are designed for a CFR 47 (Code Federal Regulations) Part 15 Class A environment.

The FCC and Network Appliance guarantee the user's rights to operate this equipment only if the user complies with the following rules and regulations:

- ◆ Install and operate this equipment in accordance with the specifications and instructions in this guide.
- ◆ Modify this equipment only in the ways specified by Network Appliance.
- ◆ Use shielded cables with metallic RFI/EMI connector hoods to maintain compliance with applicable emissions standards.
- ◆ If the system has nine or more fibre channel disk shelves, install the system in two or three NetApp System Cabinets to maintain performance within Part 15 of CFR 47 regulations.

Compliance with Part 15 of CFR 47

This equipment has been tested and found compliant with Part 15 of the CFR 47 rules for Class A digital devices. These rules are designed to provide reasonable protection from interference to electronics equipment operated in a commercial environment.

Operation of this device is subject to the following two conditions:

- ◆ This device cannot cause harmful interference.
- ◆ This device must accept any interference received, including interference that may cause undesired operation.

Compliance with ICES-003

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A conforme à la norme NMB-003 du Canada.

Compliance with EN regulations

Marking by the symbol **CE** indicates compliance of this Network Appliance device to the EMC Directive and the Low Voltage Directive of the European Union. Such marking is indicative that this Network Appliance device meets the technical standards listed in “Declaration of Conformity,” later in this appendix.

Caution

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Bureau of Standards, Metrology, and Inspections notice (BSMI, Taiwan only)

警告使用者:

這是甲類的資訊產品, 在居住的環境中使用時, 可能會造成射頻干擾, 在這種情況下, 使用者會被要求採取某些適當的對策。

Translation of the BSMI notice:

Warning: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Voluntary Control Council for Interference by Information Technology Equipment (VCCI, Japan)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Translation of the VCCI-A notice:

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. If such trouble occurs, the user may be required to take corrective actions.

Declaration of Conformity

**Network Appliance, Inc.,
495 East Java Drive
Sunnyvale, California, 94089, U.S.A.,**

declare under our sole responsibility that the products

Type of equipment	Description	Model number	Year of manufacture
Network file server	NetApp® F85 filer and SDS12 disk shelf	SMM, AMP	2000

to which this declaration relates conform to the following standards:

EN 60950:1992, Information Technology Equipment (Safety)

EN 55022:1987, Emissions Requirements for Information Technology
Equipment

EN 55024:1998, Immunity Requirements for Information Technology
Equipment

EN 60825-1, Safety of Laser/LED Equipment

following the provisions of the directives listed below:

73/23/EEC, 'Low Voltage Directive' (Product Safety)

89/336/EEC, Electromagnetic Compatibility Directive

Part number: 210-02638

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