

Data ONTAP™ 6.4

Upgrade Guide

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Preface

Introduction

This guide describes how to upgrade Network Appliance™ filers to the latest release of Data ONTAP™ firmware and software. It covers all filer models.

Audience

This guide is for system administrators who are familiar with operating systems that run on the filer's clients, such as UNIX®, Windows 95™, Windows NT®, and Windows® 2000. It assumes that you know how to use a Web browser.

Terminology

When the term “filer” is used, the information applies to all Network Appliance filer models, including the FAS900 and R100 series of storage appliances.

This guide uses the term “type” to mean pressing one or more keys on the keyboard. It uses the term “enter” to mean pressing one or more keys and then pressing the Enter key.

Where you enter commands

You can enter filer commands either on the system console or from any client computer that can access the filer through a Telnet session.

Command conventions

In examples that illustrate commands executed on a UNIX workstation, this guide uses the command syntax of SunOS 4.1.x. The command syntax and output might differ, depending on your version of UNIX.

Keyboard conventions

When describing key combinations, this guide uses the hyphen (-) to separate individual keys. For example, “Ctrl-D” means pressing the “Control” and “D” keys simultaneously. Also, this guide uses the term “Enter” to refer to the key that generates a carriage return, although the key is named “Return” on some keyboards.

Typographic conventions

The following table describes typographic conventions used in this guide.

Convention	Type of information
<i>Italic font</i>	Words or characters that require special attention. Placeholders for information you must supply. For example, if the guide says to enter the <code>arp -d hostname</code> command, you enter the characters “arp -d” followed by the actual name of the host. Book titles in cross-references.
<code>Monospaced font</code>	Command and daemon names. Information displayed on the system console or other computer monitors. The contents of files.
<code>Bold monospaced font</code>	Words or characters you type. What you type is always shown in lowercase letters, unless you must type it in uppercase letters.

Special messages

This guide might contain 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.

Before upgrading

Before upgrading your filer to Data ONTAP 6.4, you should read about the requirements for upgrading and about the upgrade issues you might encounter, described in “[Information for Data ONTAP Upgrades](#)” on page 3.

The upgrade process

The upgrade process requires three main steps.

Step	For details, see...
1	“ Upgrading filer firmware ” on page 20
2	“ Upgrading disk firmware ” on page 23
3	Chapter 4, “ Upgrading Filer Software ,” on page 25

Upgrade sources

The following are sources for upgrading firmware and system software:

- ◆ The NetApp® on the Web (NOW) site at <http://now.netapp.com>. NOW login information is on the protocol license sheet sent with the filer.
- ◆ The CD-ROM supplied in the media package

About this chapter This chapter contains information for users who are upgrading existing filers to a new version of Data ONTAP.

Topics in this chapter This chapter describes the following topics:

- ◆ [“Filers supported”](#) on page 4
- ◆ [“Client requirements”](#) on page 5
- ◆ [“System requirements for this release”](#) on page 6
- ◆ [“Possible upgrade issues”](#) on page 8
- ◆ [“Bugs fixed”](#) on page 17

Filers supported

Listing Data ONTAP versions supported by a filer

To determine whether your filer supports Data ONTAP 6.4, complete the following steps.

Step	Action
1	Use a Web browser to go to http://now.netapp.com .
2	Click Service & Support.
3	Click Download Software.
4	In the Select Platform list box in the Data ONTAP product row, select your filer type.
5	Click Go. Result: You see a list of the versions of Data ONTAP supported by your platform. If Data ONTAP 6.4 is listed as a release for your filer, you can upgrade.

Client requirements

Requirements for the client

The client from which you upgrade must have access to either the NOW site or a CD-ROM drive. You must be able to administer the filer from the client.

You can upgrade from either a Windows client or a UNIX client. The following table lists the requirements for each type of client.

Client	Requirement
UNIX	Any available version of UNIX
Windows	Any version of Windows (Windows NT must be version 3.51 or later)

System requirements for this release

Filer firmware requirements

You can find the minimum firmware requirements for filers at the NOW site. To view the minimum firmware requirements for filers, complete the following steps.

Note

The F85 and F87 filers use firmware that does not need to be upgraded.

Step	Action	
1	Use a Web browser to go to http://now.netapp.com .	
2	Click Service & Support.	
3	Click Download Software.	
4	If...	Then...
	You are upgrading a CompactFlash®-based filer.	Click “System Firmware/Diagnostics for CompactFlash®-based Filers & NearStores.”
	You are upgrading a filer that does not use CompactFlash.	Click “System Firmware for Filers & NetCache.”

For detailed instructions, see “[Upgrading filer firmware](#)” on page 20.

Fibre Channel disk firmware requirement

To view the latest required firmware revisions for Fibre Channel disk drives, complete the following steps.

Step	Action
1	Use a Web browser to go to http://now.netapp.com .
2	Click Service & Support.

Step	Action
3	Click Disk Drive & Firmware Matrix.

For instructions about upgrading your disk firmware, see the `na_disk_fw_update` man page.

Disks required to store a core dump

When the filer creates a core dump, it saves the contents of memory and nonvolatile RAM (NVRAM) to a set of fixed-sized areas at the beginning of all the disks. Therefore, you must make sure that the filer has enough disks to create a complete core dump for the amount of memory and NVRAM it has.

The minimum number of disks needed for a successful core dump is shown in the following table.

Memory	NVRAM	4-GB disks	9-GB disks	18-GB disks	36-GB disks	72-GB disks
512 MB	32 MB	6	3	2	2	1
1 GB	32 MB	12	6	3	3	1
3 GB	128 MB	n/a	18	9	7	2

Possible upgrade issues

Why there might be issues

Because new features are introduced in each release of Data ONTAP, it is possible that you could encounter issues when upgrading. This is especially true if you are not upgrading from the immediately previous version of Data ONTAP.

For detailed information

The following sections discuss upgrade issues that you should be aware of before you decide whether to upgrade:

- ◆ [“General issues”](#) on page 9
- ◆ [“Reversion issues”](#) on page 13
- ◆ [“Pre-Data ONTAP 5.3 compatibility issues”](#) on page 15

General issues

Space reservation settings

If you are using space reservations with Data ONTAP 6.3 when you upgrade to Data ONTAP 6.4, space reservations on volumes will be ignored. Space reservations will be turned on for all logical unit numbers (LUNs) and virtual local disks (VLDs) and space reservations will be left off for all other files.

Change in vif behavior

Load-balancing algorithms for vifs were introduced in Data ONTAP 6.2. If you are using vifs, and you upgrade to Data ONTAP 6.2 or later from a pre-6.2 release, the network traffic flow out of the system may change. This could be because the vifs follow the default IP-based load-balancing policy. However, since the default load-balancing policy for most of the switches is IP-based, traffic flow is usually not disturbed. If the outbound flow of the network is not sufficiently balanced, you can change the load-balancing policy on the vif.

Disabling clusters before an upgrade

If you are upgrading Data ONTAP on clustered filers, you might have to disable the cluster before performing the upgrade. For information about when to disable the cluster, see [“Downloading Data ONTAP to clustered filers and rebooting”](#) on page 41.

New options and settings for raid.reconstruct_speed

If you are upgrading from a release that has the `raid.reconstruct_speed` knob, you should be aware that the options and settings for this feature changed in Data ONTAP 6.2. The `raid.reconstruct_speed` option can still be set but only affects the value of `raid.reconstruct.perf_impact`, which is one of four new options. The ten settings previously used for the `raid.reconstruct_speed` knob translate to three settings for the new options, as follows:

- ◆ 7-10 = high
- ◆ 5-6 = medium
- ◆ 1-4 = low

For more information about the new options for the `raid.reconstruct_speed` knob, see the *Storage Management Guide*.

Applying the same quota to a user's UNIX and Windows IDs

In Data ONTAP 6.1 or later, both UNIX and Windows IDs can be specified in the `etc/quotas` file to track user quotas. If you previously specified a quota based on a user's UNIX IDs, and then after upgrading you specify a quota for the same user based on the Windows ID, these will be treated as separate quotas for the user. To apply the same quota whether the user logs in with the UNIX ID or Windows ID, add the following line to the `etc/quotas` file:

```
QUOTA _PERFORM_USER_MAPPING on
```

For more details, see the *Storage Management Guide*.

Restarting quotas

Because of the addition of Security ID (SID)-based quotas in Data ONTAP 6.1, there are some instances when you might see a warning message about correcting quotas if you upgrade from a pre-6.1 version to Data ONTAP 6.1 or later.

If you see a warning message, restart quotas by completing the following steps.

Step	Action
1	Turn quotas off using the following command: quota off volume
2	Turn quotas back on using the following command: quota on volume

Pre-6.1 snapshots might need to be deleted

If you are upgrading to Data ONTAP 6.1 or later, you should delete any pre-6.1 snapshots due to changes made to `snapmirror` in Data ONTAP 6.1.

D or P patches might not be included

This release might not contain all the bug fixes in a preceding D or P patch release.

Caution

If your filer is running a patch release, compare the bug fixes for this release to the bug fixes for your patch release to determine whether you should upgrade. For information about these bug fixes, see Bugs Online at <http://now.netapp.com/cgi-bin/bol>.

**Local administrator
account
nonexistent**

After you upgrade to Data ONTAP 6.1.1 or later, you may see a message that the builtin\administrator account does not exist when you reboot with CIFS enabled. Add a local user named “administrator” to resolve this issue. See the *File Access Management Guide* for information about adding a local user.

**SecureAdmin
upgrade required**

SecureAdmin™ 1.0 software is incompatible with Data ONTAP 6.0 or later. If your filer is licensed for SecureAdmin, you must obtain the SecureAdmin 2.1.1 upgrade and be prepared to install it when you install the Data ONTAP 6.1 or later upgrade.

Caution

Failure to upgrade to SecureAdmin 2.1.1 when you upgrade to Data ONTAP 6.1 or later causes your filer to lose its SecureAdmin capabilities.

**ApplianceWatch
upgrade**

Data ONTAP 6.1.1 or later is compatible with Appliance Watch™ 1.1 software for HP® OpenView®, and ApplianceWatch 1.0 for Tivoli® Enterprise™.

If you purchased ApplianceWatch 1.0 for HP OpenView, you need to obtain and install ApplianceWatch 1.1.

**Macintosh
resource.frk files
affected**

If your filer is accessed by Macintosh computers using the DAVE™ client from Thursby Systems, the DAVE client starts using the new streams feature when Data ONTAP 6.4 is installed. Information that was stored in special resource.frk files is lost. To solve this problem, you should run the na_macstream conversion utility from a Windows client after the upgrade to Data ONTAP 6.4 is completed and before DAVE clients access any files. For instructions about obtaining, installing, and running the na_macstream utility, see Appendix B, “[DAVE Macintosh Client resource.frk Conversion](#),” on page 61.

**Clustered F700
series filers must be
running firmware
2.3_a2**

You must upgrade the filer system firmware to version 2.3_a2 before upgrading the filers in your cluster configuration to Data ONTAP 5.3.5 or later releases. Data ONTAP 5.3.5 and later releases check the filers to ensure that filer system firmware 2.3_a2 is running. If earlier versions of filer system firmware are running, Data ONTAP forces the filers in the cluster configuration to halt.

You can find filer system firmware 2.3_a2 on the NOW site at <http://now.netapp.com>. Follow the instructions given there to download and install filer system firmware 2.3_a2.

**Clustered filer disk
firmware upgrade
procedure changed**

Data ONTAP 6.1.1 or later changes the procedure for updating the disk firmware for a cluster. To update the disk firmware on clustered filers, follow the disk firmware updating procedure in the *Cluster Guide* for your filer model.

Reversion issues

Why there might be issues

You might encounter issues if you upgrade and then decide to revert to a previous version of Data ONTAP, because new features introduced in a release might not allow reversion to a previous release. If you need to revert to a previous release of Data ONTAP, call Network Appliance Technical Support for assistance.

Qtree information might be lost

If you revert to a pre-5.1 release, you might lose qtree information.

Caution

To preserve qtree information, make a backup of your data before you upgrade.

NVRAM data might be lost

Starting with version 5.3.4, Data ONTAP supports a new NVRAM format to offer better protection to data logged to the NVRAM.

Because of the new NVRAM format, if you want to revert to a version of Data ONTAP earlier than 5.3.4, you must perform an orderly shutdown of the filer first. A dirty shutdown before booting the filer with a version prior to 5.3.4 causes data stored in the NVRAM to be lost.

Reversion with 520-bps disks

If you upgrade and you have 520-bps disks attached to the filer, the earliest version of Data ONTAP that you can revert to is Data ONTAP 6.1.1.

File security might be lost in a reversion

Because Data ONTAP 6.1.1 or later uses Windows 2000 access control list (ACL) inheritance, if you upgrade and then revert to a pre-6.1 release, you might lose some security information on files.

Reversion with expanded RAID group

If you upgrade and expand the size of any redundant array of independent disks (RAID) group other than the last RAID group you created, you cannot revert to a version earlier than Data ONTAP 6.2.

Reversion with mirrored volumes

If you upgrade and create mirrored volumes, you cannot revert to a version earlier than Data ONTAP 6.2, unless you first unmirror the mirrored volumes.

Users might not be able to log in after reversion

Data ONTAP 6.2 allows longer passwords than previous versions. If you upgrade and create any non-root user passwords, and then revert to a version earlier than 6.2, those users will not be able to log in. To enable those users to log in, you must delete their accounts and then add them back in to the reverted system.

Reversion with home directory paths in the `cifs_homedir.cfg` file

If you upgrade to Data ONTAP 6.3 and convert home directory path entries from the `cifs.home_dir` option to the `cifs_homedir.cfg` file, when you revert to a pre-6.3 release, the filer will attempt to write as many of the paths as possible back to the registry for the `cifs.home_dir` option. If some of the paths fail to be written to the registry, you might need to manually transfer the paths from the `cifs_homedir.cfg` file to the `cifs.home_dir` option. The `cifs_homedir.cfg` file remains intact during reversion.

Stale file handles on vfilers

Data ONTAP 6.4 includes a change in the Network File System (NFS) file handle format that is not backward compatible. If you have defined vfilers on your system, and you upgrade to 6.4 and then revert to 6.2x or 6.3x, NFS clients might report stale file handles on the vfilers. To prevent this problem, unmount any NFS clients that are mounted on vfilers. You can remount them after reverting.

Pre–Data ONTAP 5.3 compatibility issues

Forcing Unicode conversion

Unicode support was introduced in Data ONTAP 5.3. When existing directories and the files that they contain are accessed from Windows clients, their names are converted to Unicode. Unicode conversion can take a significant amount of time, and while conversion is in progress, error messages might be returned when users attempt to delete files.

To force Unicode conversion, complete the following steps.

Step	Action
1	At a Windows workstation, use Network Neighborhood to locate the filer.
2	Open a share.
3	Right-click each top-level folder, then select Properties from the menu.
4	Wait for the folder size calculation to finish. Result: The directory and file names for everything contained in the folder are converted to Unicode.
5	Repeat Step 2 through Step 4 for each additional share on the filer.

Only SCSI-2 compliant tape media changers supported

Starting with Data ONTAP 5.3, the filer only supports tape media changers that are SCSI-2 compliant. If you plan to upgrade from a pre-5.3 release, make sure that any tape media changers attached to your filer are SCSI-2 compliant. A noncompliant media changer prevents the filer from booting.

Pre-5.3 snapshot access lost from CIFS

Upgrading from a pre-5.3 release to Data ONTAP 5.3 or later results in a loss of CIFS access to any snapshots that you previously made.

**Default SPANS
device name
changed**

Data ONTAP 5.3 included an updated version of Simple Protocol for ATM Network Signaling (SPANS). SPANS now uses the default device name *fa0*; previous releases used the default device name *a0*. If your filer is running a pre-5.3 version, before you follow the upgrade procedure, edit the filer `/etc/rc` file to reflect the ATM interface name change. Otherwise, the ATM interface does not come up after the software upgrade.

Bugs fixed

**Information about
bug fixes**

For a list of bugs fixed in this release, access Bugs Online by completing the following steps.

Step	Action
1	Use a Web browser to go to http://now.netapp.com .
2	Click Service & Support.
3	Click Access Software Bug Tools.

About this chapter This chapter explains how you upgrade the firmware on the filer and on the filer's disk array.

Topics in this chapter This chapter discusses the following topics:

- ◆ “[Upgrading filer firmware](#)” on page 20
- ◆ “[Upgrading disk firmware](#)” on page 23

Upgrading filer firmware

Platforms supported

All Network Appliance filer models have firmware that can be upgraded, except the following:

- ◆ F85
- ◆ F87

Upgrade requirements

To perform the upgrade, you must

- ◆ Have access to the filer’s console (for example, from a Telnet session).
- ◆ Have a firmware upgrade diskette for all filers except the F825, F880, FAS900, and R100 series. Instructions for creating a firmware diskette are in Appendix A, “[Creating Diskettes](#),” on page 53.

Note

The F825, F880, FAS900 and R100 series filers use a PC card for filer firmware and software download, and the upgrade procedure differs from that of other filers.

Upgrading filer firmware

To upgrade the firmware on your filer, complete the following steps.

Step	Action	
1	If the filer is...	Then...
	An F825, F880, FAS900, or R100 series	The filer firmware upgrade and the system software upgrade are performed together in a single procedure. For instructions on upgrading, go to “ Upgrading Filer Software ” on page 25.
	Any other filer	Go to Step 2 .

Step	Action	
2	If the system is...	Then...
	Running	1. At the filer console, enter the following command to stop the filer: halt 2. When the ok prompt appears, enter the following command: bye
	Not running	Power on the filer.
3	During the memory test, press Del to interrupt the boot process. Note—— If your terminal emulation package does not support Del, use Ctrl-Bksp instead. Result: The console displays the following messages: Skipping auto-boot Complete Startup aborted Then the console displays the ok prompt.	
4	Insert the firmware upgrade diskette into the filer's diskette drive.	
5	At the filer console, enter the following command: update-flash Result: The system prompts you for either a y (yes) or n (no) response.	
6	At the filer console, enter y to continue. Result: The system updates the firmware, displays several status messages, and displays the ok prompt.	
7	Remove the diskette from the diskette drive and store it in a safe place.	

Step	Action
8	At the filer console, enter the following command to reboot the system using the new firmware: bye

Upgrading disk firmware

About disk firmware upgrades

When you add new disks or a disk shelf, you might need to verify the compatibility of the disk firmware versions on the filer disks. In most cases, if they are compatible, Data ONTAP upgrades the disk firmware automatically. However, for some disks, you might receive error messages about the firmware compatibility. If this happens, you must manually upgrade the disk firmware.

Command for upgrading disk firmware

You use the `disk_fw_update` command from the filer console on a running system to update out-of-date firmware on all disks or a specified disk on a filer. Each filer is shipped with a `/etc/disk_fw` directory that contains the latest firmware revisions. The disk firmware is part of the Data ONTAP software.

The `disk_fw_update` command is applicable to both SCSI disks and Fibre Channel disks.

Note _____
This command makes disks inaccessible for up to two minutes, so network sessions using the filer should be terminated before running the command. This is particularly true for CIFS sessions, which typically are terminated while this command executes.

Updating disk firmware manually

To update the disk firmware for all disks on the filer, complete the following steps.

Step	Action	
1	If...	Then...
	You are updating disks in a cluster	Follow the procedure in the <i>Cluster Guide</i> for your filer model.
	You are not updating disks in a cluster	Go to Step 2 .

Step	Action
2	From the filer console, terminate any CIFS sessions by entering the following command: cifs terminate
3	From the filer console, terminate any NFS sessions by entering the following command: nfs off
4	From the filer console, enter the following command: disk_fw_update Note_____ The <code>disk_fw_update</code> command only upgrades disks for which firmware files are present in the <code>/etc/disk_fw</code> directory. It does not upgrade other disks. Caution_____ Do not upgrade disk firmware on an active filer because it can take several minutes to complete the update.
5	If you terminated CIFS sessions in Step 2 , restart CIFS by entering the following command: cifs restart
6	If you terminated NFS sessions in Step 3 , restart NFS by entering the following command: nfs on

Updating disk firmware in a cluster

To update your disk firmware in a cluster, follow the disk firmware updating procedure in the *Cluster Guide* for your filer model.

About this chapter

This chapter provides you with the information you need to upgrade Data ONTAP software to the latest release.

Topics in this chapter

This chapter discusses the following topics:

- ◆ [“Required items”](#) on page 26
- ◆ [“Preliminary procedures”](#) on page 27
- ◆ [“UNIX client steps”](#) on page 30
- ◆ [“Windows client steps”](#) on page 34
- ◆ [“Downloading Data ONTAP and rebooting”](#) on page 38
- ◆ [“Downloading Data ONTAP to clustered filers and rebooting”](#) on page 41
- ◆ [“Concluding the upgrade”](#) on page 48
- ◆ [“Reverting to a previous release”](#) on page 50
- ◆ [“Where to go from here”](#) on page 51

Required items

What you need for the upgrade

To upgrade the filer software to the latest release of Data ONTAP, you need the following items:

- ◆ The latest version of the firmware for your model of filer. See the NOW site at <http://now.netapp.com/NOW/tools/releasetable.shtml>.

Note

The F85 and F87 filers use firmware that does not need to be upgraded.

- ◆ System files. You can get these from the following locations:
 - ❖ On NOW at <http://now.netapp.com>
 - ❖ On the CD-ROM that is supplied in your media package
- ◆ Data ONTAP system boot diskettes. These are needed only if your filer is
 - ❖ Running a release of Data ONTAP earlier than 4.0
 - ❖ Not running at all

Note

You do not need system boot diskettes if your filer is running and you are upgrading from Data ONTAP 4.0 or later.

Preliminary procedures

About the preliminary procedures

Before installing the latest Data ONTAP release on your filer, you might need to perform one or more of the procedures described in the following table.

Procedure	Complete the procedure if...
Saving core files	Your situation meets both of the following criteria: ◆ You are upgrading from a release of Data ONTAP earlier than 4.0.3. ◆ Your filer contains core files that have not been saved. Caution— When you boot the latest release of Data ONTAP and the filer then executes <code>savecore</code>, it does not recognize a core file written by a release earlier than 4.0.3.
Verifying that the filer has a domain account	You are running CIFS on the filer and are using a Windows NT 4.0 domain controller for authentication. In this case, the filer must have a domain account.
Enabling DNS with Windows 2000 name server addresses	You are running CIFS on the filer and are using a Windows 2000 domain controller for authentication.
Removing <code>snap reserve</code> and <code>snap sched</code> commands	You will create additional volumes after the upgrade and are upgrading from Data ONTAP 5.0 or earlier. The lack of a volume name in the <code>snap sched</code> command in a release earlier than Data ONTAP 5.0 prevents the command from working properly on a multivolume system. In Data ONTAP, the <code>snap reserve</code> and <code>snap sched</code> commands are persistent across reboots.

Procedure	Complete the procedure if...
Clients unmounting the filer	You are upgrading from Data ONTAP 4.0.1c or earlier and have clients using NFS over TCP. Starting with Data ONTAP 4.0.3 and continuing in the latest release of Data ONTAP, NFS over TCP is disabled by default, so clients do not have to unmount the filer. In Data ONTAP 4.0.1c, NFS over TCP is enabled.

Saving core files

To save core files, complete the following step.

Step	Action
1	From the filer, enter the following command: savecore

Verifying that the filer has a domain account

To verify that the filer has a domain account, complete the following step.

Step	Action
1	From the filer, enter the following command: cifs lookup

Enabling DNS with Windows 2000 name server addresses

To enable DNS with Windows 2000 name server addresses, complete the following steps.

Step	Action
1	Using a text editor, create or open the <code>/etc/resolv.conf</code> file in the root volume. Include up to three lines, each specifying a Windows 2000 name server host in the following format: <code>nameserver ip_address</code> Example: <code>nameserver 192.9.200.10</code>
2	Enter the following command to enable DNS: <code>options dns.enable on</code>

Removing snap reserve and snap sched commands

To remove `snap reserve` and `snap sched` commands, complete the following step.

Step	Action
1	Use a text editor on your client system to remove any <code>snap reserve</code> and <code>snap sched</code> commands from the <code>/etc/rc</code> or <code>C:\etc\rc</code> file in the root volume.

Clients unmounting the filer

Complete the following step.

Step	Action
1	Have clients unmount the filer.

UNIX client steps

When to perform UNIX client steps

Perform the steps described in this section only if you are using a UNIX workstation to install the upgrade.

Procedure overview

This part of the upgrade involves performing the following procedures in order:

1. Mounting the filer on your client
2. Downloading the system files to your client from NOW or copying them from the CD-ROM
3. Installing the system files

Note

To perform the upgrade, you need access to both the filer’s system console and a client system.

Mounting the filer on your client

To mount the filer on your UNIX client, complete the following steps.

Step	Action
1	Mount the filer’s root file system to the client’s /mnt directory: <pre>mount <i>filer</i>:/ /mnt</pre> <i>filer</i> is the name of the filer. /mnt is the directory on the client where you want to mount the filer’s root file system.
2	Change the directory to /mnt: <pre>cd /mnt</pre> /mnt is the directory on the client where you mounted the filer’s root file system.

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UNIX client steps

Step	Action	
3	If...	Then...
	You are downloading system files from NOW	Complete the procedure described in “ Downloading the system files from NOW ” on page 31.
	You are copying system files from the CD-ROM	Complete the procedure described in “ Copying the system files from the CD-ROM ” on page 32.

Downloading the system files from NOW

To download the system files from the NOW site to your client, complete the following steps.

Step	Action
1	Use a Web browser to log in to NOW.
2	Click Service & Support.
3	Click Download Software.
4	In the Software Download table, click the Select Platform list box in the Data ONTAP product row.
5	Select your filer type from the list and click Go.
6	Follow the prompts to reach the software download page.
7	Choose the desired UNIX system files software and download it to the mount point that you chose in the previous procedure.
8	From the client, extract the files with the following command: <pre>tar xvf /mnt/filename</pre> <i>filename</i> is the name you used for the software you downloaded from NOW. Result: The <code>tar</code> command extracts files and reports the names; they are <code>tar_image.Z</code> and <code>install_netapp</code>.

Step	Action
9	Complete the procedure described in “ Installing the system files ” on page 33.

Copying the system files from the CD-ROM

To access the system files from the CD-ROM and copy them to your client, complete the following steps.

Step	Action
1	Mount the Data ONTAP CD-ROM onto your client.
2	From the client, extract the files by entering the following command: <pre>tar xvf /CD-ROM_MNT_PT/ONTAP/release/type/SYSFILES.TAR</pre> <i>/CD-ROM_MNT_PT</i> is the name of your CD-ROM mount point. <i>release</i> is the release number on the CD-ROM. <i>type</i> is one of the following values: ◆ ALPHA for an F700 series filer ◆ X86 for F85 or F87 filer, and for F800, FAS900, or R100 series filers Result: The <code>tar</code> command extracts the files and reports the names; they are <code>tar_image.Z</code> and <code>install_netapp</code>.
3	Complete the procedure described in “ Installing the system files ” on page 33.

Installing the system files

To install the system files, complete the following steps.

Step	Action	
1	If you want to...	Then...
	Delete the <code>tar</code> files after the files are extracted	From the client, enter the following command: <code>./install_netapp /mnt</code> <i>/mnt</i> is the directory on the client where you mounted the filer's root file system.
	Keep the <code>tar</code> files after the files are extracted	From the client, enter the following command: <code>./install_netapp -k /mnt</code> <i>/mnt</i> is the directory on the client where you mounted the filer's root file system.
	Result: The install script decompresses and extracts the files.	
2	From the client, unmount the filer's root file system (/) by entering the following commands: <code>cd /</code> <code>umount /mnt</code> <i>/mnt</i> is the directory on the client where you mounted the filer's root file system.	
3	Complete the appropriate procedure to download Data ONTAP: ◆ For single filers, go to “Downloading Data ONTAP and rebooting” on page 38. ◆ For clustered filers, go to “Downloading Data ONTAP to clustered filers and rebooting” on page 41.	

Windows client steps

When to perform Windows client steps

Perform the steps described in this section only if you are using a Windows PC to install the upgrade.

Procedure overview

This part of the upgrade involves performing the following procedures in order:

1. Mapping the filer to a drive on your client
2. Downloading system files to your client from NOW or copying them from the CD-ROM and installing them

Mapping the filer to a drive

To map the root directory of your filer to a drive on your client, complete the following steps.

Step	Action	
1	Log in to your client as Administrator or log in using an account that has full control on the filer C\$ share.	
2	Map a drive to the C\$ directory of your filer according to the procedure for your version of Windows.	
3	If...	Then...
	You are downloading system files from NOW	Complete the procedure described in “ Downloading and installing the system files from NOW ” on page 35.
	You are copying system files from the CD-ROM	Complete the procedure described in “ Copying and installing the system files from the CD-ROM ” on page 36.

Downloading and installing the system files from NOW

To download the system files from the NOW site and install them onto your client, complete the following steps.

Step	Action
1	Use a Web browser to log in to NOW.
2	Click Service & Support.
3	Click Download Software.
4	In the Software Download table, click the Select Platform list box in the Data ONTAP product row.
5	Select your filer type from the list and click Go.
6	Follow the prompts to reach the software download page.
7	Choose the desired Windows system files software for your filer and download it to the drive to which you mapped the filer in the previous procedure.
8	Go to the drive to which you downloaded the software.
9	Double-click the file that you downloaded. Result: A dialog box appears.
10	In the WinZip dialog box, enter the letter of the drive to which you mapped the filer. For example, if you chose drive N, replace <DRIVE>:\ETC with the following path: N:\ETC
11	Ensure that the following check boxes are selected: ◆ Overwrite Files Without Prompting ◆ When Done Unzipping Run... Leave the other options as they are.
12	Click the Unzip button. Result: In the dialog box's lower panel, confirmation messages are displayed as files are decompressed.

Step	Action
13	Complete the appropriate procedure to download Data ONTAP: ◆ For single filers, go to “Downloading Data ONTAP and rebooting” on page 38. ◆ For clustered filers, go to “Downloading Data ONTAP to clustered filers and rebooting” on page 41.

Copying and installing the system files from the CD-ROM

To access the system files from the CD-ROM and copy them to your client, complete the following steps.

Step	Action
1	Insert the Data ONTAP CD-ROM into your CD-ROM drive.
2	Go to one of the following folders on the Data ONTAP CD-ROM: ◆ ONTAP\release\ALPHA for an F700 series filer ◆ ONTAP\release\X86 for an F85 or F87 filer, and for F800, FAS900, or R100 series filers <i>release</i> is the release number on the CD-ROM.
3	Double-click setup.exe. Result: The setup program displays a dialog box.
4	Make sure that you followed the steps described in the dialog box, then click OK. Result: The WinZip dialog box appears.

Step	Action
5	Follow the WinZip prompts to unzip the file that you downloaded onto the drive to which you mapped the filer. When appropriate, ensure that the following check boxes are selected: ◆ Overwrite Files Without Prompting ◆ When Done Unzipping Run... Leave the other options as they are. Result: In the dialog box's lower panel, confirmation messages are displayed as files are decompressed.
6	Complete the appropriate procedure to download Data ONTAP: ◆ For single filers, go to “Downloading Data ONTAP and rebooting” on page 38. ◆ For clustered filers, go to “Downloading Data ONTAP to clustered filers and rebooting” on page 41.

Downloading Data ONTAP and rebooting

Downloading Data ONTAP on a filer other than an F825, F880, FAS900, or R100 series filer

To download Data ONTAP to the disks and reboot a filer that is not an F825, F880, FAS900, or R100 series filer, complete the following steps.

Step	Action	
1	At the filer console, enter the following command to copy the executables to the boot blocks of the filer’s hard disks: download Result: The <code>download</code> command provides an acknowledgment similar to the following: <pre>Tue Jun 19 10:03:22 GMT [download.request:notice]: Operator requested download initiated download: Downloading disks: opening Data ONTAP 6.4 done download: boot blocks successfully copied to disk(s)</pre> Then the following filer prompt appears: <pre>Tues Jun 19 10:11:51 GMT [download.requestDone:notice]: Operator requested download completed</pre>	
2	If you are upgrading from...	Then...
	Data ONTAP 3.1.7 or earlier	Boot from the system boot diskettes as described in the <i>Storage Management Guide</i> .
	Data ONTAP 4.0 or later	At the filer console, reboot the filer with the following command: reboot
3	As needed, perform the procedures described in “ Concluding the upgrade ” on page 48.	

Downloading Data ONTAP and filer firmware on an F825 or F880 filer, or FAS900 or R100 series filer

The F825 and F880 filers, and FAS900 and R100 series filers, use a PC card for firmware and system software downloads. To upgrade the firmware on one of these filers and download the Data ONTAP software, complete the following steps. To determine whether you need to upgrade your filer firmware, see [“What you need for the upgrade”](#) on page 26.

Step	Action
1	At the filer console, enter the following command to copy the executables to the boot blocks of the filer’s hard disks: download Result: The <code>download</code> command provides an acknowledgment similar to the following: <pre>Tue Jun 19 10:03:22 GMT [download.request:notice]: Operator requested download initiated download: Downloading boot device..... download: Downloading disks: opening Data ONTAP 6.4 done download: boot blocks successfully copied to disk(s)</pre> Then the following filer prompt appears: <pre>Tues Jun 19 10:11:51 GMT [download.requestDone:notice]: Operator requested download completed</pre>
2	At the filer console, enter the following command to shut down the filer: halt Result: After the filer shuts down, the <code>ok</code> prompt appears.
3	At the filer console, enter the following command to reboot the system: bye

Step	Action	
4	If firmware upgrade...	Then...
	Is needed on your filer	During the memory test, press Del to interrupt the boot process. Note _____ If your terminal emulation package does not support Del use Ctrl-Bksp, instead. Result: The console displays the following messages: <pre> Skipping auto-boot Complete Startup aborted </pre> Then the console displays the ok prompt. Continue to Step 5.
	Is not needed on your filer	You are done.
5	At the filer console, enter the following command: update-flash Result: The system prompts you to continue.	
6	At the filer console, enter y to continue. Result: The system updates the firmware, displays several status messages, and displays the ok prompt.	
7	At the filer console, enter the following command to reboot the system using the new firmware and software: bye	

Downloading Data ONTAP to clustered filers and rebooting

Which procedure to use for clusters

The procedure you use to download Data ONTAP to clustered filers depends on the filer type and the version of Data ONTAP currently running on the cluster.

Use one of the procedures in this section if you are upgrading to Data ONTAP 6.4 from one of the following versions of Data ONTAP:

- ◆ A version earlier than 6.0.3
- ◆ Version 6.1
- ◆ Version 6.1R1

If you are upgrading from any of these versions, go to one of the following procedures:

- ◆ For a non-F825, F880, or FAS900 series cluster, go to “[Downloading Data ONTAP to clustered filers other than F825, F880, and FAS900 series](#)” on page 41.
- ◆ For an F825, F880, or FAS900 series cluster, go to “[Downloading Data ONTAP to clustered F825, F880, and FAS900 series filers](#)” on page 43.

If your upgrade scenario is not described above, download Data ONTAP to the clustered filers using the steps in “[Procedure for clustered F825, F880, and FAS900 series filers not needing system firmware update](#)” on page 44.

Caution

Do not download Data ONTAP to a clustered filer while in takeover mode.

Downloading Data ONTAP to clustered filers other than F825, F880, and FAS900 series

To download Data ONTAP to clustered filers other than F825, F880, or FAS900 series, complete the following steps.

Step	Action
1	Disable the cluster by entering the following command at the console of one of the filers in the cluster: cf disable

Step	Action	
2	At the filer console, enter the following command to copy the executables to the boot blocks of the filer's hard disks: download Result: The download command provides an acknowledgment similar to the following: <pre>Tue Jun 19 10:03:22 GMT [download.request:notice]: Operator requested download initiated download: Downloading disks: opening Data ONTAP 6.4 done download: boot blocks successfully copied to disk(s)</pre> Then a message similar to the following appears: <pre>Tues Jun 19 10:11:51 GMT [download.requestDone:notice]: Operator requested download completed</pre>	
3	If you are upgrading from...	Then...
	Data ONTAP 3.1.7 or earlier	Boot from the system boot diskettes as described in the <i>Storage Management Guide</i> .
	Data ONTAP 4.0 or later	At the filer console, reboot the filer with the following command: reboot
4	While the cluster is disabled, repeat Step 2 and Step 3 on the partner filer. Caution— Do not proceed to Step 5 until both filers in the cluster have been rebooted with the new version of Data ONTAP. Data loss or corruption might result.	

Step	Action	
5	If Troika...	Then...
	Is not used as the cluster interconnect	Reenable the cluster by entering the following command on one of the filers: cf enable
	Is used as the cluster interconnect	Wait for the console to display the “Troika firmware download complete” and “Resetting Troika NIC” messages. Then reenabling the cluster by entering the following command on one of the filers: cf enable
6	a. Update the disk firmware by entering the following command at the console of one of the clustered filers: disk_fw_update b. Repeat Step 6a on the partner filer.	
7	As needed, perform the procedures described in “ Concluding the upgrade ” on page 48.	

Downloading Data ONTAP to clustered F825, F880, and FAS900 series filers

The F825, F880, and FAS900 series filers use a PC card for firmware and system software downloads. If you are upgrading these filers from a version listed at the beginning of this section, use one of the following procedures:

- ◆ “[Procedure for clustered F825, F880, and FAS900 series filers not needing system firmware update](#)” on page 44
- ◆ “[Procedure for clustered F825, F880, and FAS900 series filers needing system firmware update](#)” on page 45

Procedure for clustered F825, F880, and FAS900 series filers not needing system firmware update: To upgrade Data ONTAP on an F825, F880, or an FAS900 series cluster that does not need a system firmware update, complete the following steps.

Step	Action
1	At the filer console, enter the following command to copy the executables to the boot blocks of the filer's hard disks: download Result: The download command provides an acknowledgment similar to the following: <pre>Tue Jun 19 10:03:22 GMT [download.request:notice]: Operator requested download initiated download: Downloading boot device..... download: Downloading disks: opening Data ONTAP 6.4 done download: boot blocks successfully copied to disk(s)</pre> Then a message similar to the following appears: <pre>Tues Jun 19 10:11:51 GMT [download.requestDone:notice]: Operator requested download completed</pre>
2	At the filer console, enter the following command: reboot
3	Repeat Step 1 and Step 2 on the partner filer. Caution————— Do not proceed to Step 4 until both filers in the cluster have been rebooted with the new version of Data ONTAP. Data loss or corruption might result. —————
4	a. Update the disk firmware by entering the following command at the console of one of the clustered filers: disk_fw_update b. Repeat Step 4a on the partner filer.
5	As needed, perform the procedures described in “Concluding the upgrade” on page 48.

Procedure for clustered F825, F880, and FAS900 series filers needing system firmware update: To upgrade Data ONTAP on an F825, F880, or an FAS900 series cluster that needs system firmware update, complete the following steps.

Step	Action
1	Disable the cluster by entering the following command at the console of one of the filers: cf disable
2	At the filer console, enter the following command to copy the executables to the boot blocks of the filer's hard disks: download Result: The download command provides an acknowledgment similar to the following: <pre>Tue Jun 19 10:03:22 GMT [download.request:notice]: Operator requested download initiated download: Downloading boot device..... download: Downloading disks: opening Data ONTAP 6.4 done download: boot blocks successfully copied to disk(s)</pre> Then a message similar to the following appears: <pre>Tues Jun 19 10:11:51 GMT [download.requestDone:notice]: Operator requested download completed</pre>
3	At the filer console, enter the following command to shut down the filer: halt Result: After the filer shuts down, the ok prompt appears.
4	At the filer console, enter the following command: bye

Step	Action
5	During the memory test, press Del to interrupt the boot process. Result: The console displays the following messages: <pre> Skipping auto-boot Complete Startup aborted </pre> Then the console displays the ok prompt.
6	At the filer console, enter the following command: update-flash Result: The system prompts you to continue.
7	At the filer console, enter y to continue. Result: The system updates the firmware, displays several status messages, and displays the ok prompt.
8	At the filer console, enter the following command to reboot the system using the new firmware and software: bye
9	While the cluster is disabled, repeat Step 2 through Step 8 on the partner filer. Caution_____ Do not proceed to Step 10 until both filers in the cluster have been rebooted with the new version of Data ONTAP. Data loss or corruption might result. _____

Step	Action	
10	If Troika...	Then...
	Is not used as the cluster interconnect	Reenable the cluster by entering the following command on one of the filers: cf enable
	Is used as the cluster interconnect	Wait for the console to display the “Troika firmware download complete” and “Resetting Troika NIC” messages. Then reenable the cluster by entering the following command on one of the filers: cf enable
11	a. Update the disk firmware by entering the following command at the console of one of the clustered filers: disk_fw_update b. Repeat Step 11a on the partner filer.	
12	As needed, perform the procedures described in “ Concluding the upgrade ” on page 48.	

Concluding the upgrade

About concluding the upgrade

You conclude the upgrade from either a UNIX or a Windows client by performing the procedures described in the following table as needed.

Procedure	Complete the procedure if...
Changing to CIFS-compatible security styles	You upgraded from Data ONTAP 5.0 or earlier and want to use a security style that is compatible with CIFS.
Entering codes for new licenses	You purchased any new service or protocol that you are starting to use with the upgrade.
Creating a serial number file	You want to have a serial number file. A serial number file makes it easier for Network Appliance Technical Support to assist you after receiving an autosupport email message from your filer.

Changing to CIFS-compatible security styles

You change the security style of a filer by changing the qtree security style of its root volume. The new security style applies to the root volume and is the default security style for subsequently created volumes and qtrees.

To change the security style of the root volume to mixed or NT file system (NTFS) to make it compatible with CIFS, complete the following step.

Step	Action
1	Enter the following command: <pre>qtree security /vol/vol10/ security_style</pre> <i>security_style</i> is either <i>mixed</i> or <i>ntfs</i>. ◆ <i>mixed</i> allows both UNIX-style and Windows NT-style permissions. ◆ <i>ntfs</i> allows only Windows NT-style permissions.

Entering codes for new licenses

To enter new license codes, complete the following step.

Step	Action
1	Enter the following command: <pre>license add code ...</pre> <i>code</i> is the license code that you were given when you purchased the license for a service or protocol. Example: In this example, the license code for CIFS is ABCDEFG and the license code for DAFS is TUVWXYZ. <pre>license add ABCDEFG TUVWXYZ</pre> Result: The filer acknowledges each license, as shown in the following example: <pre>A cifs site license has been installed. Use "cifs setup" to configure cifs. Run cifs setup to enable cifs. A dafs site license has been installed. Use "dafs setup" to configure dafs.</pre>

Creating a serial number file

If the `/vol/vol0/etc/serialnum` file does not exist on your filer, complete the following steps.

Step	Action
1	Record your filer's serial number. You can determine the serial number by entering the <code>sysconfig</code> command at the filer console.
2	From a client, create the <code>/vol/vol0/etc/serialnum</code> file and put the filer's serial number in it.

Reverting to a previous release

About reverting to a previous release

If you need to revert to a previous release of Data ONTAP, contact Network Appliance Technical Support.

Telephone	FAX	Email
For U.S. customers: +1 (888) 463-8277 For international customers: +1 (408) 822-6000 (ask for Technical Support)	+1 (408) 822-4501	support@netapp.com

Where to go from here

Other resource documents

Your filer is now available and running Data ONTAP. You should now perform at least one of the following actions:

- ◆ Set up CIFS, NFS, Direct Access File System (DAFS), Fibre Channel Protocol (FCP), Internet SCSI (iSCSI), or HTTP by following the instructions in the *Software Setup Guide*.
- ◆ Learn about the features of Data ONTAP by reading the following manuals:
 - ❖ *Storage Management Guide*
 - ❖ *File Access Management Guide*
 - ❖ *Block Access Management Guide*
 - ❖ *Data Protection Guide*
 - ❖ *Network Management Guide*
 - ❖ *MultiStore™ Management Guide*

About this appendix This appendix describes how to create the following diskettes from a UNIX or Windows client:

- ◆ System boot diskettes
- ◆ Firmware diskette

When to create diskettes

You do not need to create diskettes for F825, F880, FAS900 and R100 series filers, which use a PC card for firmware, diagnostics, and system software downloads.

For all other filers:

- ◆ You need to create a set of system boot diskettes if you do not have boot diskettes for the release that you are running.
- ◆ You need to create a firmware upgrade diskette whenever you need to upgrade firmware.

Note

The F85 and F87 filers use firmware that does not need to be upgraded.

Diskette requirements

For each diskette that you want to create, you must have a write-enabled, 1.44-MB, PC-formatted diskette.

The number of diskettes you need for each item of software is shown in the following table.

Software	Number of diskettes required
System boot	7
Firmware	1

Topics in this appendix

This appendix discusses the following topics:

- ◆ [“Creating diskettes from NOW”](#) on page 54
- ◆ [“Creating diskettes from the CD-ROM”](#) on page 57

Creating diskettes from NOW

About creating diskettes from NOW

You can create diskettes from either a UNIX client or a Windows client. You use different procedures to create boot diskettes and a firmware diskette.

Creating a system boot diskette set from a UNIX client

From a UNIX client, to create a system boot diskette set from the NOW site, complete the following steps.

Step	Action
1	Use a Web browser to log in to NOW.
2	Go to the NOW software download page for this release.
3	Copy the UNIX boot diskette files to your client.
4	Copy each boot diskette file to a separate diskette using the following command: <pre>dd if=file of=drivedev bs=512</pre> <i>file</i> is the name of the file. <i>drivedev</i> is the device name of the diskette drive. Result: A message listing file counts similar to the following example appears, confirming that the diskette is written. <pre>2880+0 records in 2880+0 records out</pre>
5	Remove, write-protect, and label each diskette after creating it. Include the release number, diskette number, and filer model. Example: Release 6.4, Disk 1 of 7, NetApp F840 Note_____ It is important to record the filer model on the diskette label, especially if you have different models on site. Filers in different NetApp filer series use different boot files. _____

Creating a system boot diskette set from a Windows client

From a Windows client, to create a system boot diskette set from the NOW site, complete the following steps.

Step	Action	
1	If...	Then...
	You do not have RaWrite on your Windows client	Complete the procedure described in “ Downloading the RaWrite utility to a Windows client ” on page 55, then go to Step 2 of this procedure.
	You have RaWrite on your Windows client	Go to Step 2 of this procedure.
2	Log in to NOW.	
3	Go to the NOW software download page for this release.	
4	Copy the boot diskette files to your client.	
5	Run RaWrite.	
6	For each diskette file in the system boot diskette set, follow the RaWrite prompts. As appropriate, enter the path name of one of the boot files that you downloaded and the drive letter for the diskette. Result: RaWrite displays confirmation messages and writes the diskette.	
7	Remove, write-protect, and label each diskette after creating it. Include the release number, diskette number, and filer model. Example: Release 6.4, Disk 1 of 7, NetApp F840 Note_____ It is important to record the filer model on the diskette label, especially if you have different models on site. Filers in different NetApp filer series use different boot files. _____	

Downloading the RaWrite utility to a Windows client

You need the RaWrite utility on your Windows client to extract the system boot diskette software and write it to the diskette. To download the RaWrite utility to your Windows client, complete the following steps.

Step	Action
1	Log in to NOW.
2	Click Service & Support.
3	Click Download Software.
4	Click Tools & Utilities.
5	Find either the DOS or Windows RaWrite utility.
6	Copy the RaWrite utility file to your client.
7	If the file ends in .zip, unzip the file by double-clicking it.

Creating a firmware diskette from either a UNIX or Windows client

To create a firmware diskette from the NOW site, complete the following steps.

Step	Action
1	Log in to NOW.
2	Go to the NOW software download page for this release.
3	Click firmware-related links until you see a page that displays firmware versions.
4	Select the filer system firmware that you want.
5	Follow the directions on the download page for your firmware.
6	Remove, write-protect, and label the diskette after creating it. Include the firmware revision, diskette number, and filer model. Example: Firmware 4.0_i1, Disk 1 of 1, NetApp F840 Note_____ It is important to record the filer model on the diskette label, especially if you have different models on site. Filers in different NetApp filer series use different files. _____

Creating diskettes from the CD-ROM

About creating diskettes from the CD-ROM

You can create diskettes from either a UNIX client or a Windows client. From a Windows client, you use different procedures to create boot diskettes and a firmware diskette.

Creating boot or firmware diskettes from a UNIX client

From a UNIX client, to create boot or firmware diskettes from a file on the Data ONTAP CD-ROM, complete the following steps.

Step	Action
1	Mount the Data ONTAP CD-ROM on your client.
2	Use the /files.htm file to locate the desired firmware or system boot software files.
3	Copy each desired firmware or boot file to a diskette using the following command: <pre>dd if=file of=drivedev bs=512</pre> <i>file</i> is the name of the file. <i>drivedev</i> is the device name of the diskette drive. Result: A message listing file counts similar to the following appears, confirming that the diskette is written. <pre>2880+0 records in 2880+0 records out</pre>
4	Remove, write-protect, and label each diskette after creating it. Include the firmware revision or Data ONTAP release number, diskette number, and filer model. Example: Release 6.4, Disk 1 of 7, NetApp F840 Note _____ It is important to record the filer model on the diskette label, especially if you have different models on site. Filers in different NetApp filer series use different files. _____

Creating a boot diskette set from a Windows client

From a Windows client, to create a boot diskette set from files on the Data ONTAP CD-ROM, complete the following steps.

Step	Action
1	Insert the Data ONTAP CD-ROM into your CD-ROM drive.
2	Open the Utils folder.
3	Open the RaWrite folder.
4	Double-click Rawrite.exe. For each diskette file in the system boot diskette set, follow the RaWrite prompts, supplying an image source and the drive letter for the formatted diskette that will be one of the system boot diskettes. For the image source, enter the following the path name: X:\ontap\Release\Type\bootN X is your CD-ROM drive letter. Release is the release number on the front of your CD-ROM. Type is one of the following: ◆ ALPHA for an F700 series filer ◆ X86 for an F800, FAS900, R100 series or F85 or F87 filer N is the number of the diskette you are creating. Result: RaWrite displays confirmation messages and writes the diskette.
5	Remove, write-protect, and label each diskette after creating it. Include the release number, diskette number, and filer model. Example: Release 6.4, Disk 1 of 7, NetApp F840 Note_____ It is important to record the filer model on the diskette label, especially if you have different models on site. Filers in different NetApp filer series use different boot files. _____

Creating a firmware diskette from a Windows client

From a Windows client, to create a firmware diskette from a file on the Data ONTAP CD-ROM, complete the following steps.

Step	Action
1	Insert the Data ONTAP CD-ROM into your CD-ROM drive.
2	Open the CD-ROM and use the files.htm file to locate the desired firmware.
3	Copy the desired file to the diskette.
4	Remove, write-protect, and label each diskette after creating it. Include the firmware revision, diskette number, and filer model. Example: Firmware 4.0_i1, Disk 1 of 1, NetApp F840 Note_____ It is important to record the filer model on the diskette label, especially if you have different models on site. Filers in different NetApp filer series use different files. _____

Why you should convert resource.frk files

When you upgrade a filer to Data ONTAP 6.4 from a version of Data ONTAP prior to 6.0, any Macintosh client using Thursby Software Systems DAVE software starts to use the new Windows streams feature. This means that the information that was formerly stored in special resource.frk files, such as desktop icons for programs and files, is lost.

You can avoid losing this information by using a Windows conversion utility called `na_macstream` to make resource.frk files use the Windows streams feature.

When you use na_macstream

Use `na_macstream` after you install Data ONTAP 6.4, but before Macintosh clients running DAVE software start to access their files.

Caution

This is a one-way conversion. After completing the conversion, you cannot go back to the original resource.frk file method.

Where na_macstream is located

The `na_macstream` conversion utility is in the `utils\na_macstream` directory on the Data ONTAP CD-ROM for this release.

The `na_macstream` utility is also on the NOW site on the Tools & Utilities page.

Copying na_macstream

To use `na_macstream`, you must copy `na_macstream` from the CD-ROM or the NOW site to a Windows host that is attached to the upgraded filer.

Copying na_macstream from the CD-ROM: To copy `na_macstream` from the CD-ROM, complete the following steps.

Step	Action
1	Insert the CD-ROM into the Windows NT host's CD-ROM drive.

Step	Action
2	Copy the <code>na_macstream</code> utility from the <code>utils\na_macstream</code> directory. Note _____ Also included in the directory is a <code>readme.txt</code> file. Check this file for last-minute information about <code>na_macstream</code> . _____

Copying the utility from NOW: To copy the `na_macstream` utility from NOW, complete the following steps.

Step	Action
1	Use a browser on a Windows NT client to go to http://now.netapp.com .
2	Click Service & Support.
3	Click Download Software.
4	Click Tools & Utilities.
5	Locate the <code>na_macstream</code> utility and click the link to download the software to a directory on the Windows NT client.

Guidelines for using `na_macstream`

Follow these guidelines when using `na_macstream`:

- ◆ You must specify at least one path (file or directory) and only one action (`/list` or `/upgrade`).
- ◆ You can use the root of the share that maintains Macintosh users' files to convert all files. If a directory is given, all files and directories in it are converted.
- ◆ You can abbreviate all options.
- ◆ You can use options in any order.

Converting `resource.frk` files using `na_macstream`

To convert `resource.frk` files to use streams, complete the following step.

Step	Action
1	From a Windows NT host connected to the filer that has been upgraded to Data ONTAP 6.4, enter the following command from the MS-DOS Prompt window: <pre>na_macstream path [path...] {/list /upgrade} [/verbose] [/overwrite] [/stop-on-err]</pre> <i>path</i> is the UNC path to the filer and file or directory that is to be converted. /list lists the names of resource.frk files to be converted to streams. /upgrade upgrades or converts resource.frk files to use streams. /verbose displays the name of each file as it is processed. /overwrite allows any existing streams to be overwritten with the data in the resource.frk files. This option is useful if you didn't run na_macstream before users created default (incorrect) streams by accessing files before they were converted. /stop-on-err stops the program when it encounters an error. If you do not use this option, na_macstream attempts to continue even if errors are encountered.

Example of the na_macstream conversion

The following command converts all resource.frk files in the share mshare on the filer engmix and displays each file as it is processed:

```
na_macstream \\engmix\mshare /upgrade /verbose
```

