Read Me First | Release 4.2

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Welcome to Data ONTAP™ Release 4.2

This *Read Me First* is for Data ONTAP Release 4.2.

Release 4.2 runs on all Network Appliance filer models in the NetApp™ F200, F300, F500, and F600 series. It also runs on older models, which are the FAServer 450 and 1400. When the term “filer” is used in this document, the information applies to these models.

This *Read Me First* provides information about these topics:

- product documentation roadmap
- new features in Release 4.1 and 4.2
- known problems
- documentation changes
- installing a new filer
- software upgrade procedures using diskettes and using downloaded files
- procedure to downgrade from Release 4.2 to earlier releases

Documentation roadmap

Use this *Read Me First* along with other documents that ship with your filer. The contents of each document are described in the following table. Some documents have not been revised for Release 4.2, but the information they contain applies unless specified otherwise in this *Read Me First*.

Table 1. Documents for filers running Data ONTAP Release 4.2

Document	Contents
Quick Start Guide for Release 4.0	Checklist that helps you set up the filer for the first time. The guide also contains quick reference material about filer commands and files.
Hardware Guide for: *the FAServers,* *the NetApp F200 and F300 Series,* *the NetApp F500 Series,* *the NetApp F600 Series*	Detailed procedures for installing the filer and for adding or replacing SCSI devices. The guide also contains information about interpreting LEDs and LCD messages.
Supplemental Hardware Information About the NetApp F210	Hardware information about the NetApp F210 to be used in conjunction with the *Hardware Guide for the NetApp F200 and F300 Series.*
System Administrator's Guide for Release 4.1	Detailed information about features in Release 4.1c and some 4.2 features. The guide also contains procedures for customizing the filer software for your environment once the filer has been installed.
Command Reference Guide for Release 4.1	Man pages that describe filer commands and files. (The information in the on-line man pages supersedes that in the *Command Reference Guide* if there are discrepancies between the two.)
Hardware Guide for the Digital Disk Shelves	Hardware information about the Digital disk shelves.
Hardware Guide for the NetApp StorageShelf 2	Hardware information about the NetApp StorageShelf 2.

New features in Release 4.2

The following are new features in Release 4.2:

- ATM PVC support
- Support for mixed disk shelf configurations
- Support for upgrade of NetApp F220 and NetApp F330 systems to 9-GB drives
- DLT 7000 tape drive support
- Breece Hill Q2.15 Library support

The following sections briefly describe these new features and provide references for more detailed information.

ATM PVC Support

Release 4.2 supports the establishment of PVCs (Permanent Virtual Circuits) to provide interoperability with various vendors' ATM (Asynchronous Transfer Mode) implementations.

For information on using ATM PVCs with your filer, refer to Chapter 5, "Network Administration," in the *System Administrator's Guide*.

Support for mixed disk shelf configurations

A "mixed disk shelf configuration" is one that includes these two types of disk shelves:

StorageShelf 1	This disk shelf (also known as "Digital Disk Shelf") supports 4-GB disks. Installation and configuration information about the StorageShelf 1 disk shelf is included in the *Hardware Guide for the Digital Disk Shelves*.
StorageShelf 2	This disk shelf supports 9-GB disks. Installation and configuration information about the StorageShelf 2 disk shelf is included in the *Hardware Guide for the NetApp StorageShelf 2*.

In a mixed disk shelf configuration, you *must* connect the StorageShelf 2 disk shelf (or pair of disk shelves in differential SCSI configurations) to the *first* SCSI connector (that is, the SCSI connector that is designated the connector for the *first* disk shelf in single-ended SCSI configurations or the first disk shelf pair in differential SCSI configurations).

The following table identifies the SCSI connector, on each filer, to which you *must* connect the first StorageShelf 2 disk shelf.

Filers	SCSI connector for first StorageShelf 2 disk shelf
NetApp F210, F230	9a
NetApp F220, F330	9a (on wide SCSI cards)
NetApp F520, F540, F630	8a

NOTE: When adding a disk to a disk shelf, you should be aware of file system size limitations for your filer model. Information about maximum file system sizes is available in the Configuration Guides available on the NetApp On the Web (NOW) web site at this URL:

http://now.netapp.com Maximum file system size

Support for upgrade of the NetApp F220 and F330 to 9-GB drives

Beginning with Release 4.2, you can connect StorageShelf 2 disk shelves to F220 and F330 systems.

DLT 7000 tape drive support

Release 4.2 adds support for the DLT 7000 high-capacity tape drive on the NetApp F520 and F630. The DLT 7000 tape drive can be installed in a Breece Hill Q2.15 tape library (described below), or as a separate internal or external device.

Breece Hill Q2.15 Tape Library support

The Breece Hill Q2.15 is an automated tape handling system that holds up to 10 tape cartridges in one removable magazine and up to two DLT 4000 or 7000 tape drives inside in the library.

Known problems of Release 4.2

For information about filer bugs, go to the NetApp On the Web (NOW) web site at this URL:

http://now.netapp.com

New features in Release 4.1

The following new features were added in Release 4.1:

- Support for the NetApp F630 (described in *Hardware Guide for the NetApp F600 Series*)
- Support for the 10BaseT/100BaseTX Ethernet card using autonegotiation
- Support for authentication and name resolution through Network Information Service (NIS)
- NDMP Version 2 with remote device support
- Enhancements to quota support:
  - quotas specifiable on a per-quota-tree basis
  - default user and group quotas, which are applicable to users and groups who don't have specific quota entries in */etc/quotas*
  - default user and group quotas on a per-quota-tree basis
  - dynamic modification of quotas
- Enhancements to HTTP support:
  - virtual hosts
  - a virtual HTTP firewall
- Support of */etc/shadow* for CIFS

These software features are described in *System Administrator's Guide* for release 4.1.

Documentation changes

This section contains changes to NetApp documentation. The information in this section supersedes the information in any other NetApp documentation.

Changes to the Hardware Guide for the NetApp F600 Series

Changes to filer labels

The labels for the serial connectors on the NetApp F630 system have changed as follows:

Old	New
COM1	Console
COM2	Diagnostic

Corrections to tables

Table 3-1, “Supported external tape stackers,” should be titled “Supported external tape libraries,” and should include the following item which currently appears in Table 3-2, “Supported external tape drives”:

Manufacturer	Model
Breece Hill Technologies	Q2.15

Changes to the Hardware Guide for the NetApp F500 Series

Corrections to tables

Table 3-1, “Supported external tape stackers,” should be titled “Supported external tape libraries,” and should include the following item which currently appears in Table 3-2, “Supported external tape drives”:

Manufacturer	Model
Breece Hill Technologies	Q2.15

Changes to the Field Service Guide for the NetApp F600 Series

Changes to filer labels

The labels for the serial connectors on the NetApp F630 system have changed as follows:

Old	New
COM1	Console
COM2	Diagnostic

Changes to the Hardware Guide for the NetApp StorageShelf 2

The following changes supplement information in the *Hardware Guide for the NetApp StorageShelf 2:*

If you have a NetApp F630 filer and are attaching NetApp StorageShelf 2 disk shelves to it, use the information for the NetApp F540 in Table 2-1, "EMU IDs for the NetApp F500 series," in the *Hardware Guide for the NetApp StorageShelf 2*.

Whenever you boot a filer to which you have connected one or more NetApp StorageShelf 2 disk shelves, you must have at least one disk drive in each StorageShelf 2 disk shelf. You can remove the disk drives after the boot.

Changes to the System Administrator's Guide

The following changes supersede information in the *System Administrator's Guide*:

- Contrary to what is on page 9-32, you can assign more than one quota to a user or a group.
- On page 9-40, "*group_id* is the user's UID" should be "*group_id* is the group's GID."

- On page 11-14, the beginning of this sentence:

  After the function character (described in Table 11-2), put all of the option characters to the `dump` command ...

  should be replaced by:

  After the function character (described in Table 11-2), put all of the option characters to the `restore` command ...

Installing a new filer

If you purchased a new filer, follow these steps to install and configure it:

1. **Read the license and warranty information that comes with your filer.**
2. **Configure your filer according to the instructions in the *Quick Start Guide*.**
3. **Store in a safe place the diskettes that ship with your filer.**

Your filer will then be ready to deliver to network clients the file services that you have enabled. For more information about software features, refer to the *System Administrator's Guide*.

Upgrading a filer to Data ONTAP Release 4.2

To upgrade the filer's software, you need:

- If your filer is not running or is running a release of Data ONTAP earlier than 4.0, a Data ONTAP 4.2 System Boot diskette from your upgrade kit or a System Boot diskette that you create on a UNIX workstation from files downloaded from NOW (NetApp on the Web) according to the instructions in "Creating a boot diskette" on page 13. The URL for NOW is:

  http://now.netapp.com

- A Data ONTAP 4.2 System Files diskette in UNIX format or a Data ONTAP 4.2 System Files diskette in PC format, also from your upgrade kit, or the files downloaded from NOW according to the instructions in "Using downloaded system files" on page 13. The disks can be used only in the diskette drive of an NFS or CIFS client; the filer's diskette drive *cannot* use these disks.

This section describes the steps that you might need to take before installing Release 4.2 on your filer:

1. **This step applies only if you are upgrading from Release 4.0.1c. If you have clients using NFS over TCP, have them unmount the filer.**

   Starting with Release 4.0.3 (and continuing in Release 4.2), NFS over TCP is disabled by default. In Release 4.0.1c, NFS over TCP was enabled.

2. **Save the core file from a preceding crash (if any).**

   When you boot Release 4.2 and the filer executes `savecore`, it will not recognize a core file if the core file was written by a release earlier than 4.0.3. If you are upgrading from a release earlier than 4.0.3 and your filer contains a core file that has not been saved, *before* you boot Release 4.2, take steps to save it.

   There are several circumstances under which a core file might not have been saved. For example, you might have edited */etc/rc* to remove the call to `savecore` at boot time, or `savecore` might have been unable to write the core files, in which case it would have written a message to that effect.

3. **Before you start the update, shut down the filer with the `halt` command.**

   If the filer is not shut down cleanly, data will be left in the NVRAM. Release 4.2 cannot use an NVRAM log from a release earlier than 4.1.

Upgrade quick summary

The following is an outline of the upgrade procedure. For a detailed step-by-step version, read "Upgrade with files downloaded from NOW" below, "Upgrade step-by-step from a UNIX client" on page 14, or "Upgrade step-by-step from a Windows client" on page 19 as appropriate.

1. **If your filer is not running or is running a release of Data ONTAP earlier than 4.0, boot the filer from the 4.2 boot diskette.**

2. **If you have not done so, at the filer's console, enter the license code for each file protocol.**

3. **If you use a PC running CIFS for upgrade, and have not yet run `cifs setup`:**

   a. Reboot the filer.

   b. Run `cifs setup`.

4. **Extract system files to the filer's root directory.**

5. **Use the filer's `download` command to make the new software bootable from the hard disk.**

6. **Reboot the filer from its hard disk.**

7. **If you have a license for CIFS and have not yet done so, run `cifs setup`.**

8. **If you have not yet done so, create */etc/serialnum*.**

9. **If you have not yet done so, install the NetApp MIB Version 1.0.1.**

Upgrade with files downloaded from NOW

You must create a boot diskette to put into your filer's diskette drive, but you can download the system files to your system and use them from there.

Creating a boot diskette

Using the boot image file that you downloaded, create a Release 4.2 System Boot diskette as follows:

1. **Insert a write-enabled diskette in a UNIX host's diskette drive.**

2. **Copy the boot image to the diskette.**

   Using the `dd` command, specify the input file, output file, and block size with the following command:

   ```
   adminhost# dd if=4.2.boot_image of=/dev/fd0 bs=512
   ```

   For *4.2.boot_image*, substitute the name you gave the file when you received it.

   Replace /dev/fd0 with the device name of your diskette drive if it is not /dev/fd0.

3. **Remove, write-protect, and label the diskette.**

   Write "System Boot for Release 4.2" and the filer model (for example, "NetApp F330") on the diskette label.

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 images.

Using downloaded system files

To download, extract, and install the system files, follow these steps on the client (the administration host) from which you plan to administer the filer:

1. **Follow the instruction on NOW to find the appropriate system file and download it.**

2. **Depending on the kind of client you are using, follow one of the following sets of instructions:**

   If you are using a UNIX client, record what you named the file that you downloaded, then follow the instructions in the section "Upgrade step-by-step from a UNIX client" on page 14, but *do not do* step 3c on page 15 (which describes how to load the system files from diskette).

If you are using a PC client, rename the file *setup.exe*, then follow the instructions in the section "Upgrade step-by-step from a Windows client" on page 19, but *do not do* step 5b on page 21 (which describes how to load the system files from diskette).

Upgrade step-by-step from a UNIX client

Follow the instructions in this section only if you use a UNIX workstation to extract the System Files. If you are using a Windows PC, go to "Upgrade step-by-step from a Windows client" on page 19.

To carry out the installation, you need access to both the filer's system console and to a client system. Unless you are downloading the system files from NOW, the client system must be a workstation equipped with a diskette drive. It should have write permission to the filer's root directory. In this section, the client system is shown with the name *adminhost*, and is shown running SunOS 4.1.x. If you use a client running another operating system, the syntax of UNIX commands might differ.

Follow these steps to upgrade your filer using a UNIX client:

1. **If your filer is not running, or is running a release of Data ONTAP earlier than 4.0, boot the filer from the Release 4.2 System Boot Diskette. If it is running 4.0 or later, go to step 2.**

   a. Insert the Release 4.2 System Boot diskette in the filer's diskette drive.

NOTE: The Release 4.2 diskette is specific to the model of filer that you are updating. You should have received a diskette appropriate to the model you are updating. If you have different models, be sure to check the diskette labels to make sure you're using the correct diskette for the filer.

   b. At the system console, enter the `reboot` command.

   c. When the filer displays a list of options, select option 1, "Normal boot."

2. **Enter licenses for the protocols that you have purchased.**

   If you have already entered the licenses (for an earlier Data ONTAP release), you do not need to do so again; skip to step 3.

At the system console, use the `license` command to enter your licenses as shown in the following example:

```
toaster> license nfs=XXXXXXX cifs=YYYYYYY http=ZZZZZZZ
```

In the command you type, use the license keys included in your upgrade kit instead of the ones used in the example. An = sign is required between the type of license and the license code; don't insert a blank before or after the = sign.

The filer acknowledges each license:

```
nfs site license enabled.
        nfs enabled.
cifs site license enabled.
        Run cifs setup after rebooting to enable cifs.
http site license enabled.
        Use “options httpd.enable" to enable http.
```

3. **Read and install the system files.**

   At the client system:

   a. Mount the filer's root file system to the client's */mnt* directory:

      ```
      adminhost# mount toaster:/ /mnt
      ```

      where */mnt* is the directory on the client where you want to mount the filer's root file system.

   b. Change directory to */mnt*.

      ```
      adminhost# cd /mnt
      ```

   c. If you are using a diskette, read in the System Files by following these steps:

      Insert the diskette labeled “Data ONTAP 4.2 System Files (UNIX format)” into your diskette drive.

NOTE: Network Appliance distributes the System Files disks in two versions, one formatted for UNIX systems and the other for PCs. Check the diskette label to be sure that you insert the appropriate diskette.

From the client system, enter the following command:

```
adminhost# tar xvf /dev/fd0
```

Replace /dev/fd0 with the device name of your diskette drive if it is not /dev/fd0.

The `tar` command reports the names of files it has copied from the disk; they are *tar_image.Z* and *install_netapp*.

Go to step e.

d. If you are using a downloaded file, enter:

```
adminhost# tar xvf pathname
```

where *pathname* is the pathname of the downloaded file.

The `tar` command reports the names of the files it has copied; they are *tar_image.Z* and *install_netapp*.

Then remove the downloaded file by entering the following command:

```
adminhost# rm pathname
```

where *pathname* is the pathname of the downloaded file.

e. Run the script `install_netapp` with an argument that tells the script where to install the files; this is the mount point for the filer's root directory:

```
adminhost# ./install_netapp /mnt
```

The install script reports its steps as it goes:

```
install_netapp: uncompress tar_image.Z
install_netapp: cd "/mnt"; tar xvf "/mnt/tar_image"
```

The script invokes `tar`, which reports the files it extracts, like this:

```
x etc/boot/netapp-x86 symbolic link to netapp_4.2-x86
x etc/boot/0-x86, 1804 bytes, 4 tape blocks
```

The last few messages are similar to the following:

```
x etc/firmware/pca200em.bin, 41288 bytes, 81 tape blocks
x etc/syslog.conf.sample, 542 bytes, 2 tape blocks
x etc/httpd.mimetypes.sample, 3163 bytes, 7 tape blocks
install_netapp: cd "/"; rm -rf tar_image install_netapp
```

4. **Unmount the filer's root directory.**

   a. From the client system, unmount the filer's root file system (/) by entering the following commands:

   ```
   adminhost# cd /
   adminhost# umount /mnt
   ```

   where */mnt* is the directory on the client where you mounted the filer's root file system.

   b. At the filer, eject the boot diskette (by pressing the eject button at the side of the diskette drive).

NOTE: It is essential to remove the boot diskette before you issue the `reboot` command, or the filer will once again boot from the diskette rather than from its hard drive.

5. **Set the filer's boot blocks.**

   At the system console, enter `download` to copy the executables to the boot blocks of the filer's hard disks:

   ```
   toaster> download
   toaster>
   ```

   The `download` command doesn't provide an acknowledgment; when copying has finished, the filer prompt appears again.

6. **Reboot from the filer's diskette.**

   At the system console, reboot the filer:

   ```
   toaster> reboot
   ```

The copyright notice followed by “NetApp Release 4.2” appears.

7. **Set up CIFS.**

   Follow this step only if you have a license for CIFS but have not previously enabled CIFS access to the filer.

   From the filer console, run the setup program for CIFS by entering the following command:

   ```
   toaster> cifs setup
   ```

   The `cifs setup` program prompts you for information necessary to enable CIFS access to the filer. For more information about the `cifs setup` program, refer to the *System Administrator's Guide*.

8. **Record the filer's serial number. This step is relevant only if the file */etc/serialnum* does not exist on your filer.**

   Create */etc/serialnum*, and put the filer's serial number in it. The file makes it easier for Network Appliance Technical Support to assist you after receiving an autosupport e-mail from your filer.

9. **Install the NetApp MIB Version 1.0.1 if you haven't yet done so.**

   Copy the MIB file from the diskette provided to a UNIX system as follows:

   ```
   adminhost# tar xvf /dev/fd0
   adminhost# uncompress netapp.mib.Z
   ```

   Replace /dev/fd0 with the device name of your diskette drive if it is not /dev/fd0.

   The MIB file is now saved in a file named *netapp.mib* on *adminhost*.

10. **Store the disks.**

    In a safe place, store the System Boot diskette and System Files (UNIX format) diskette.

11. **Enable HTTP according to the instructions in the *System Administrator's Guide* if your filer is licensed to run HTTP.**

Upgrade step-by-step from a Windows client

Follow the steps in this section only if you are using a Windows PC for administrating the filer. If you are using a UNIX workstation, go to "Upgrade step-by-step from a UNIX client" on page 14.

To carry out the installation, you must log in as Administrator. You need both access to the filer's system console and to a client system. The client system must be an IBM-compatible PC equipped with a diskette drive, running Windows 95, Windows NT 3.51, or Windows NT 4.0. Windows for Workgroups cannot be used to do the installing because the installation uses long file names, not supported in Windows for Workgroups. In this section, the examples show a client system running Windows NT 4.0.

Follow these steps to upgrade your filer using a Windows client:

1. **If your filer is not running, or is running a release of Data ONTAP earlier than 4.0, boot the filer from the Release 4.2 System Boot Diskette.**

   a. Insert the Release 4.2 System Boot diskette in the filer's diskette drive.

NOTE: The Release 4.2 disks are specific to the model of filer that you are updating. You should have received disks appropriate to the model you are updating. If you have different models, be sure to check the diskette labels to make sure that you are using the correct diskette for the filer.

   b. At the system console, enter the `reboot` command.

   c. When the filer displays a list of options, select option 1, "Normal boot," to boot the system from the Release 4.2 files on the diskette.

2. **Enter licenses for the protocols that you have purchased.**

   If you have already entered the licenses (for Release 4.0), you do not need to do so again; skip to step 3.

   At the system console, use the `license` command to enter your licenses as shown in the following example:

```
toaster> license nfs=XXXXXXX cifs=YYYYYYY http=ZZZZZZZ
```

In the command you type, use the license keys included in your upgrade kit instead of the ones used in the example. An = sign is required between the type of license and the license code; do not insert a blank before or after the = sign.

The filer acknowledges each license:

```
nfs site license enabled.
        nfs enabled.
cifs site license enabled.
        Run cifs setup after rebooting to enable cifs.
http site license enabled.
        Use "options httpd.enable" to enable http.
```

3. **Reboot the filer so you can set up CIFS.**

   Steps 3 and 4 are relevant only if you have not previously enabled CIFS access to the filer. Otherwise, skip to step 5.

   a. At the system console, enter the `reboot` command.

   b. When the filer displays a list of options, select option 1, “Normal boot,” to boot the system from the Release 4.2 files on the diskette.

4. **Set up CIFS.**

   Follow this step only if you have not previously run `cifs setup`. Otherwise, skip to step 5.

   From the system console, run the `setup` program for CIFS by entering the following command:

   ```
   toaster> cifs setup
   ```

   The `cifs setup` program prompts you for information necessary to enable CIFS access to the filer. For more information about the `cifs setup` program, refer to Chapter 2 of the *System Administrator's Guide.*

5. **Read in and install the system files.**

   a. At the client system, map the filer's root directory to a drive on the client:

      Right-click My Computer and select Map Network Drive.

      In the dialog box, select a drive letter. For example:

      `N:`

      Write the name of the filer and the name assigned to the hidden share of its root directory, `C$`. For example:

      `\\toaster\c$`

      Leave unchanged the "Connect As" field.

   b. Insert the diskette labeled "Data ONTAP 4.2 System Files (PC format)" into your diskette drive. It contains the file *setup.exe*.

NOTE: Network Appliance distributes the System Files diskette in two versions, one formatted for UNIX systems and the other for PCs. Check the diskette label to be sure that you insert the appropriate diskette.

   c. On the disk with the system files, run `setup.exe` to extract files and write them to the filer as follows:

      From the Start menu, select Run, and supply the disk (if necessary) and program name, for example:

      `a:setup.exe`

      The `setup.exe` program displays the WinZip dialog box. Press OK.

   d. In the WinZip dialog box, insert the drive letter. For example, if you chose drive N in step a, replace `<DRIVE>:\ETC` with the following:

      `N:\ETC`

      Leave the other options as they are. Make sure that both "Overwrite Files Without Prompting" and "When Done Unzipping Run" are checked.

e. Press the Unzip button.

In the dialog box's lower panel, confirming messages are displayed as files are uncompressed.

6. **Eject disks.**

a. If you were using the System Files diskette on the client system, eject it from the diskette drive.

b. At the filer, eject the boot diskette.

NOTE: It is essential to remove the boot diskette before you issue the `reboot` command, or the filer will once again boot from the diskette rather than from its hard drive.

7. **Set the filer's boot blocks.**

At the system console, enter `download` to copy the executables to the boot blocks of the filer's hard disks:

```
toaster> download
toaster>
```

The `download` command does not provide an acknowledgment; when copying has finished, the filer prompt appears again.

8. **Reboot from the filer's hard disk.**

At the system console, reboot the filer:

```
toaster> reboot
```

The copyright notice followed by "NetApp Release 4.2" appears.

9. **Record the filer's serial number. This step is applicable only if the file */etc/serialnum* does not exist on your filer.**

Create */etc/serialnum*, and put the filer's serial number in it. The file makes it easier for Network Appliance Technical Support to assist you after receiving an autosupport e-mail from your filer.

10. **Install the NetApp MIB Version 1.0.1 if you have not yet done so.**

    Copy the MIB file from the diskette provided (the diskette is in UNIX format) to a UNIX system as follows:

    ```
    adminhost# tar xvf /dev/fd0
    adminhost# uncompress netapp.mib.Z
    ```

    Replace /dev/fd0 with the device name of your diskette drive if it is not /dev/fd0.

    The MIB file is now saved in a file named *netapp.mib* on *adminhost*.

11. **Store the diskettes.**

    In a safe place, store the System Boot diskette and System Files (PC format) **diskette**.

12. **Enable HTTP according to the *System Administrator's Guide* if your filer is licensed to run HTTP.**

Downgrading your filer to a release earlier than 4.0

The instructions in this section tell you how to make a filer that is now running Release 4.2 revert to Release 3.x or later.

CAUTION: If you downgrade to a previous release following a dirty shutdown (for example, if your filer crashed or you power-cycled a running filer), there is a risk of losing data.

Restrictions for software downgrading

The following are restrictions for downgrading:

- The release to which you downgrade must support the hardware configuration of your filer.
- You cannot run the downgrade on a filer that has snapshots that include CIFS files. You must first delete any snapshots made after the filer first ran CIFS. If you attempt to run the downgrade while CIFS snapshots still exist, the downgrade procedure will terminate and list the snapshots concerned.

NOTE: If your filer is now running any 4.x release, you *cannot* revert to a release earlier than 4.0 by simply rebooting from the prior release boot diskette. The prior release will not be able to recognize the post-Release 4.0 directories, and will terminate after printing a warning message such as the following. You must follow the instructions in this section.

```
Filesystem is scrambled.
Please contact Network Appliance.
(You must boot from floppy to take any further action)
Program terminated
```

Here, the term “floppy” means “boot diskette.”

Before you start the downgrade, save core files (if any)

Since Release 4.0.3, the filer uses a changed procedure for capturing a core dump. When you boot from any release earlier than 4.0.3, the `savecore` command will not recognize a core file written by a release numbered 4.0.3 or later, and will not be able to save it. If your filer contains a core file that has not been saved, *before* you downgrade you should use the `savecore` command to save it.

Downgrade step-by-step

To revert to an earlier system, get out the boot diskette and the system files diskette for the earlier system to which you will revert. For this description, we'll refer to them as:

- Prior-level boot diskette
- Prior-level system files diskette

To carry out the installation, you need both access to the filer's system console and to a client system. The client system is a workstation equipped with a diskette drive. It should have write permission to the filer's root directory. In this section, the client system is shown with the name *adminhost*, and is shown running SunOS 4.1.x. If you use a client running another operating system, the syntax of UNIX commands might differ.

1. **Turn off NFS and CIFS services.**

   At the system console, enter the following commands:

   ```
   toaster> nfs off
   toaster> cifs terminate
   ```

   The `cifs terminate` command prompts you for the number of minutes it should delay before turning off CIFS service. The default is 5 minutes. During the delay period, you can type Ctrl-C to abort the command if necessary.

2. **Convert directories from the format introduced in Release 4.0.**

   Allow time for this step. The time required is roughly proportional to the total number of i-nodes in the snapshots and the active file system. As a very rough rule-of-thumb, estimate about 1 hour per 10 GB.

   At the system console, enter the following command:

   ```
   toaster> revert_to 3.x
   ```

NOTE: The argument of `revert_to` is always the characters "`3.x`", regardless of the version to which you're reverting.

The `revert_to 3.x` command cannot convert snapshot directories that were created while the filer was running CIFS. The `revert_to 3.x` command first scans for such directories. If it finds any, it displays a list of them and exits, leaving the filer unchanged. In that case, you can either abandon the downgrade process, or you can delete the CIFS snapshots and restart `revert_to 3.x`.

a. If you decide to delete and proceed, use the following command:

```
toaster> snap delete dirname ...
```

In the actual command, substitute the names of the snapshots for *dirname* .... After deleting the snapshots listed, execute the `revert_to 3.x` command.

b. If you decide to abandon the downgrade, eject the boot diskette from the filer, and issue a reboot command in the usual way:

```
toaster> reboot
```

Then re-enable file services as appropriate.

3. Unmount the filer from certain clients.

This step is relevant only if you are downgrading to Release 3.0.1 or earlier. Otherwise, skip to step 4.

If you have been using NFS over TCP, or NFS Version 3, and you are now downgrading to a release that does not support them—that is, to Release 3.0.1 or earlier—unmount the filer from clients that are using those features. (Otherwise, clients that use NFS over TCP will hang, and clients that use NFS Version 3 will receive many error messages.)

4. Reboot the filer from the prior-level boot diskette.

a. At the filer's diskette drive, insert the prior-level system boot diskette.

b. At the system console, enter the `reboot` command.

c. When the filer displays a list of options, select option 1, "Normal boot," to boot the system from the prior-level diskette.

5. **Install the system files according to the *Read Me First* for the release to which you are downgrading.**

6. **Eject disks and unmount the filer's root directory.**

   a. At the client system, eject the prior-level system files diskette.

   b. From the client system, unmount the filer's root file system (/) by entering the following commands:

   ```
   adminhost# cd /
   adminhost# umount /mnt
   ```

   where */mnt* is the directory on the client where you mounted the filer's root file system.

   c. At the filer, eject the boot diskette (by pressing the eject button at the side of the diskette drive).

NOTE: It is essential to remove the boot diskette before issuing the `reboot` command, or the filer will once again boot from the diskette rather than from its hard drive.

7. **Set the filer's boot blocks.**

   At the system console, enter `download` to copy the executables to the boot blocks of the filer's hard disks:

   ```
   toaster> download
   toaster>
   ```

   There's no acknowledgment; when copying has finished, the filer prompt appears again.

8. **Reboot the filer from its hard disk.**

   At the system console, enter `reboot` to reboot the filer:

   ```
   toaster> reboot
   ```

   You'll see the copyright notice followed by the release number for the prior-level system that you have now restored.

9. **Store the disks.**

   Store in a safe place the prior-level system boot diskette and system files diskette.

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