IRIX™NetWorker® User's Guide

IRIX™NetWorker® User's Guide
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About This Guide

The *IRIX NetWorker User's Guide* documents the Silicon Graphics® implementation of Legato NetWorker® from Legato Systems, Inc. IRIX NetWorker is adapted from the Legato™ 4.1.1 release of NetWorker. This guide was prepared in conjunction with Release 4.1.1 of IRIX NetWorker™ Release 5.3 and 6.x.

The *IRIX NetWorker User's Guide* contains instructions on using NetWorker's backup and recover software from a client workstation. It shows you how to back up files and directories to the NetWorker server as needed using the Backup window, and how to browse the online index to recover files using the Recover window. It also explains how to use NetWorker archiving and retrieval, if these optional features are available at your site.

Audience

Those who will benefit most from this manual are users and system administrators who use NetWorker to back up and recover data from a client workstation.

Contents of This Guide

The *IRIX NetWorker User's Guide* contains information on day-to-day NetWorker tasks such as backup and recovery.

Chapter 1, "Introduction to NetWorker," introduces NetWorker basics and gives instructions for installing NetWorker on clients.

Chapter 2, "Getting Started," explains the procedures for starting the NetWorker backup and recover programs, using the Help feature, and using menus and windows in NetWorker.

Chapter 3, "Browsing Filesystems," explains how to view directories and file details in NetWorker, and how to mark and unmark files for backup and recovery.

Chapter 4, "Backing Up and Recovering Data," gives detailed instructions for backing up and recovering data.

Chapter 5, "Archiving and Retrieving," explains how to use NetWorker's optional archiving feature and how to retrieve archived data.

Appendix A, "Error Messages," lists NetWorker error messages and suggests solutions for the problems they address.

Appendix B, "Commands for Backup and Recovery," summarizes NetWorker commands you can use in an IRIX shell.

Appendix C, "Requirements for NetWorker Clients," lists requirements for Silicon Graphics NetWorker clients to use the NetWorker server to back up and recover files.

This guide concludes with a glossary of terms and an index.

Conventions

This manual uses conventions to make information easy to access and understand. The following list describes the conventions.

- Command names are displayed in italics. For example:

  To start the NetWorker recover program, use the *nwrecover* command.

- Examples of what you type are displayed in bold, fixed-width typeface. For example:

  atlas% **/usr/etc/networker &**

- Names of buttons are displayed in italics. For example:

  Press the *Cancel* button to close the Help window.

- Important pieces of information and cautionary notes that prevent you from making a mistake are marked with the tag "Note." For example:

Note: Remember that if you select a server other than the server that performs your scheduled backups, you must recover your files from that server.

•   Tips or suggestions that you do not have to follow but are hints for using NetWorker are marked with the tag "Tip." For example:

Tip: Keep the Main window open during every backup or recovery to monitor the progress of the session.

•   Directory pathnames, machine names, and new terms are displayed in *italic* typeface. For example:

To back up programs in the directory *⁄usr⁄etc*, follow these steps.

When you use NetWorker to back up your files, you are saving them to *backup volumes* on the NetWorker server.

Other Documentation

For information on server configuration and administration, refer to the *IRIX NetWorker Administrator's Guide.*

To get information about a specific release of IRIX NetWorker, see the *IRIX NetWorker Release Notes.*

If you would like more technical information about the NetWorker commands, see the online reference pages after you have installed NetWorker.

Both the *IRIX NetWorker User's Guide* and *IRIX NetWorker Administrator's Guide* are available online, as InSight manuals. Install the subsystems *networker4.books.NetWorker_UG* and *networker4.books.NetWorker_AG*; use *insight*(1) to view the manuals.

Product Support

Silicon Graphics offers a comprehensive product support and maintenance program for its products. For information about using support services for this product, refer to the *Release Notes* that accompany it.

Introduction to NetWorker

IRIX NetWorker is an easy-to-use network backup and recover product. Every user knows about accidental file loss and hard disk crashes. With NetWorker, you can easily protect your valuable files from loss by performing backups as your needs dictate, in addition to the automatic backups scheduled by your system administrator. NetWorker allows straightforward recovery, which lets you find and retrieve lost files easily and quickly.

NetWorker allows fast file recovery, which means you do not have to waste time recreating lost files. Just scroll through the window of previously backed-up files to find the ones that were lost. NetWorker can list multiple versions of a file that were backed up over time and lets you select the ones you want to recover. NetWorker provides access to these powerful features through an intuitive graphical user interface.

NetWorker Basics

The NetWorker *server* is a machine with a *backup device* that automatically backs up systems on a network. Once your system administrator installs NetWorker and configures the NetWorker server to recognize your system as a *NetWorker client*, your files will automatically be backed up to the NetWorker server. However, you can request NetWorker to back up important files at any time.

When you use NetWorker to back up your files, you are saving them to a *backup volume* on the NetWorker server. The NetWorker server keeps an online *index* of the backed-up files for you to browse when you want to recover a single file or a complete directory.

After the NetWorker client software is installed and enabled on your system, as described in the next section, the system administrator will configure the NetWorker server so that you can use the backup and recover services.

Installing NetWorker Software on Clients

Follow the procedure in this section to install Networker client software. Because licenses for NetWorker clients are not installed on the clients, no enabling of the client software is required.

1. On the client, become root and give the *inst*(1M) command:

```
% /bin/su -
Password:
# inst
```

2. Specify the location of the NetWorker software distribution and get a list of the subsystems, for example:

```
Inst> from /CDROM/dist
Inst> list
```

For additional information on *inst*, see the *IRIS Software Installation Administrator's Guide.*

3. Make subsystem selections in *inst.* Use Table 1-1 to guide you in selecting subsystems. Subsystems not listed in Table 1-1 should not be installed on clients. For example, to install the required software, references pages, release notes, and InSight versions of the NetWorker manuals on an IRIX 5.3 client, give these commands:

```
Inst> keep *
Inst> install networker4.*.client_5
Inst> install networker4.man.relnotes
Inst> install networker4.books.*
```

For additional information on these subsystems, see the *IRIX NetWorker Release Notes.*

Table 1-1   Subsystems for NetWorker Clients

Subsystem	Description	Required/Optional
networker4.sw.client_4	NetWorker client software	Required (install on systems running IRIX 4.0.*x* only)
networker4.sw.client_5	NetWorker client software	Required (install on systems running IRIX 5.*x* only)
networker4.man.client_4	Reference pages for NetWorker client software	Optional (install on systems running IRIX 4.0.x only)
networker4.man.client_5	Reference pages for NetWorker client software	Optional (install on systems running IRIX 5.*x* only)
networker4.books.NetWorker_UG	The InSight version of this guide, viewable with *insight*(1)	Optional on systems running IRIX 5.*x*; cannot be installed on systems running IRIX 4.0.*x*
networker4.books.NetWorker_AG	The InSight version of the *IRIX NetWorker Administrator's Guide*	Optional on systems running IRIX 5.*x*; cannot be installed on systems running IRIX 4.0.*x*
networker4.sw.archive.client_5	Optional archive and retrieve client software	Requires purchase of TurboPak option

4. Perform the installation and exit *inst*:

```
Inst> go
Inst> quit
```

5. Check to see if the hostname alias *nsrhost* has been set to your NetWorker server:

```
jupiter% /usr/etc/ping -c1 nsrhost
PING mars.engr.xyz.com (192.48.155.20): 56 data bytes
...
```

In the command, the **-c** is followed by a 1. The first line of output should contain the name of the NetWorker server.

If the output doesn't contain the name of the NetWorker server, the *networker* command won't automatically connect you to your server; you'll have to use the "Change Server" command on the File pulldown menu to specify your server.

To set the hostname alias *nsrhost* to your NetWorker server, follow the directions in the section "Configuring Clients to Recognize the Server" in Chapter 2 of the *IRIX NetWorker Administrator's Guide* or ask your system administrator to help you.

Getting Started

This chapter introduces you to backing up and recovering files using IRIX NetWorker. This chapter assumes that NetWorker client software has been installed and enabled on your system (see the section "Installing NetWorker Software on Clients" in Chapter 1) and that your system administrator has configured the NetWorker server to recognize your system as a client (see "Configuring a Server's Clients" in Chapter 6 of the *IRIX NetWorker Administrator's Guide*).

If NetWorker has been installed on your system, you will see the icons, as shown in Figure 2-1, or you will see the Networker Backup and Recover windows on your screen.

Figure 2-1   Networker Backup and Recover Icons

This chapter explains

- starting the NetWorker backup and recover programs
- using NetWorker menus
- using NetWorker windows
- using Help

The chapter concludes with a Quick Tour, in which you back up your current directory and recover a file using NetWorker.

Starting the NetWorker Backup and Recover Programs

If the NetWorker backup and recover icons are available, click on them to open the programs. Otherwise, to invoke NetWorker, change to your home directory or a local filesystem:

```
% cd your_home_directory
```

Then enter the *nwbackup* or *nwrecover* command at a shell prompt, followedby an ampersand (&) to run NetWorker in the background:

```
% nwbackup &
% nwrecover &
```

If you want to specify a server, invoke the programs as follows:

```
% nwbackup -s server_name &
% nwrecover -s server_name &
```

Tip: You can invoke NetWorker from any directory. The files in the directory you invoke NetWorker from are immediately available for backup.

Using NetWorker Menus

NetWorker uses windows, pulldown menus, and dialog boxes to guide you in backing up and recovering files. To use NetWorker menus, you can point and select with a mouse, or use keyboard shortcuts.

• To pull down a menu with the mouse, move the mouse so its arrow points to your menu choice. Hold down the left mouse button; the menu appears. With the mouse button still held down, move the mouse arrow to the desired command in the menu, and then release the button to make your choice.

• To pull down a menu using the keyboard shortcuts, hold down the `[Alt]` key and press the key that corresponds to the underlined letter of the selected menu; the menu appears. After releasing both keys, press the key that corresponds to the underlined letter in the command name.

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Using NetWorker Windows

NetWorker displays your files and directories using icons and windows.
NetWorker windows provide an easy-to-use X Window System graphical
user interface. This section shows you how to use NetWorker windows.
Figure 2-2 shows the Backup window and its components.
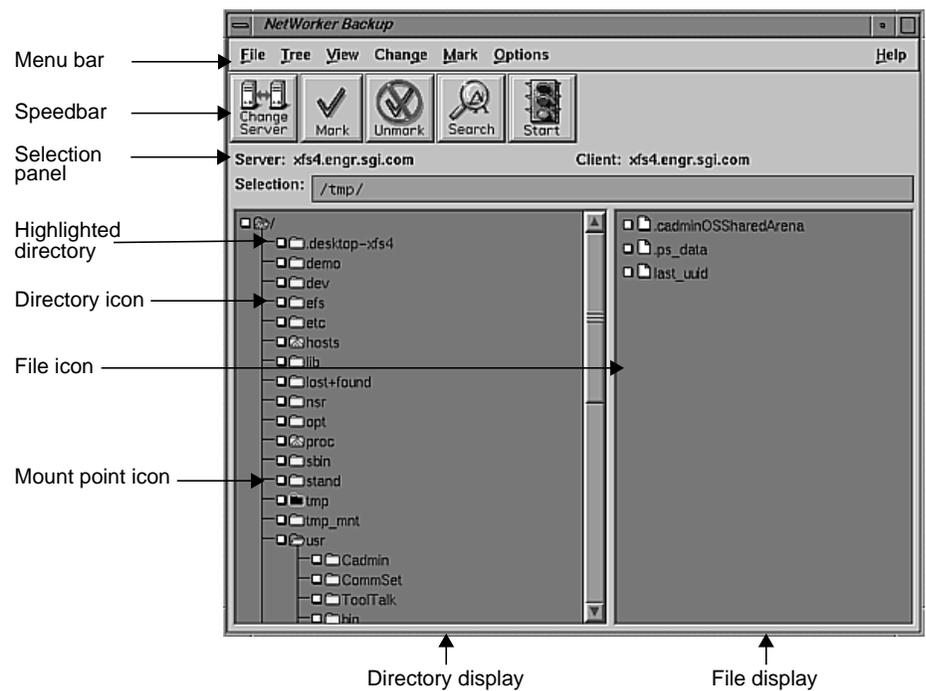
Figure 2-2   Backup Window

The next sections describe the components of the Backup window.

Menu Bar

The menu bar contains the File, Tree, View, Change, Mark, Options, and
Help pulldown menus.

To use these menus, position the cursor over the desired menu and hold down the left mouse button to display the pulldown menus. By X Window System convention, the first command in the menu is always selected by default.

Tip: The left and right mouse button actions used in this manual are the X Window System defaults. If you have problems using the mouse, your mouse buttons may have been reprogrammed. See your system administrator for help.

Speedbar

The speedbar is identical in both the Backup and Recover windows. Clicking a speedbar button is the same as choosing the command from the menu. Figure 2-3 shows the speedbar.

Figure 2-3   Speedbar

The five graphical buttons on the speedbar are shortcuts for the following actions:

- *Change Server* allows you to switch to a different NetWorker server.

- *Mark* marks directories or files.

- *Unmark* unmarks directories or files.

- *Find* allows you to search for directories or files.

- *Start* starts the backup or recover operation.

Online Help

To use online help, select the Help pulldown menu of the window in question to read the online help message. You can obtain help on the current window, menu item, or dialog box. See "Using Help" later in this chapter for details.

Selection Panel

The selection panel in the Backup and Recover windows indicates the current server and client. The Recover window also displays the browse Time.

The Selection field displays the full pathname of the current file or directory and allows you to enter text to select any pathname you choose.

Directory and File Display Areas

The window is divided into two display areas: a directory display on the left-hand side and a file display on the right-hand side. The size of the file display can be adjusted horizontally to make it easier to see your files. The entire window can be adjusted vertically. The display areas contain icons that represent the files and directories in your filesystem.

Icons

Use the checkbox next to each icon to mark and unmark files and directories for backup or recovery.

A folder icon, shown in Figure 2-4, represents a directory.

Figure 2-4   Directory Icon

An open folder, shown in Figure 2-5, indicates that the tree structure of the directory, if one exists, appears in the directory display.

Figure 2-5   Open Directory Icon

A highlighted open folder, shown in Figure 2-6, indicates that the tree structure of the directory, if one exists, appears in the directory display. It is the current selection.
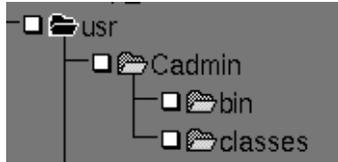
Figure 2-6   Directory Structure Icons for a Selected Directory

A gray checkbox for a directory indicates that a subdirectory has been marked for backup or recovery.

A highlighted folder, shown in Figure 2-7, indicates the current selection. The folder contents appear in the file display. A highlighted folder is selected for menu actions.

Figure 2-7   Current Selection Icon

The icon in Figure 2-8 represents mount points.

Figure 2-8   Mount Point Icon

A sheet icon, shown in Figure 2-9, represents a file.

Figure 2-9   File Icon

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A highlighted file, shown in Figure 2-10, is selected for menu actions.
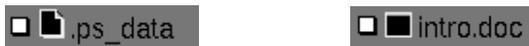
Figure 2-10   Highlighted File Icon

A chain icon, shown in Figure 2-11, represents a symbolic link.
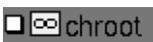
Figure 2-11   Symbolic Link Icon

A brick icon, as shown in Figure 2-12, represents a block device.

Figure 2-12   Block Device Icon

The icon shown in Figure 2-13 represents a character device.

Figure 2-13   Character Device Icon

The cursor changes to a clock, shown in Figure 2-14, when NetWorker is performing a task.

Figure 2-14   Clock Cursor Icon

Window Controls

Select the scroll bar or the triangular endpoints of a scroll bar, or drag the slide, to navigate vertically or horizontally in the directory and file displays.

Using Help

You can learn about NetWorker by using the Help windows. You can also get online help on any menu item or window component. To display online help, select the Help menu of the window in question by clicking the word Help at the far right of the menu bar. You can obtain help on the current window, menu item, or dialog box.

In each window, the Help pulldown menu (see Figure 2-15) provides you with help on the window, a list of help topics to browse, directions on using help, and information on the version of NetWorker you are using.

Figure 2-15 Help Pulldown Menu

Select the Topic command in the Help pulldown menu to open the Topics Help window, as shown in Figure 2-16.
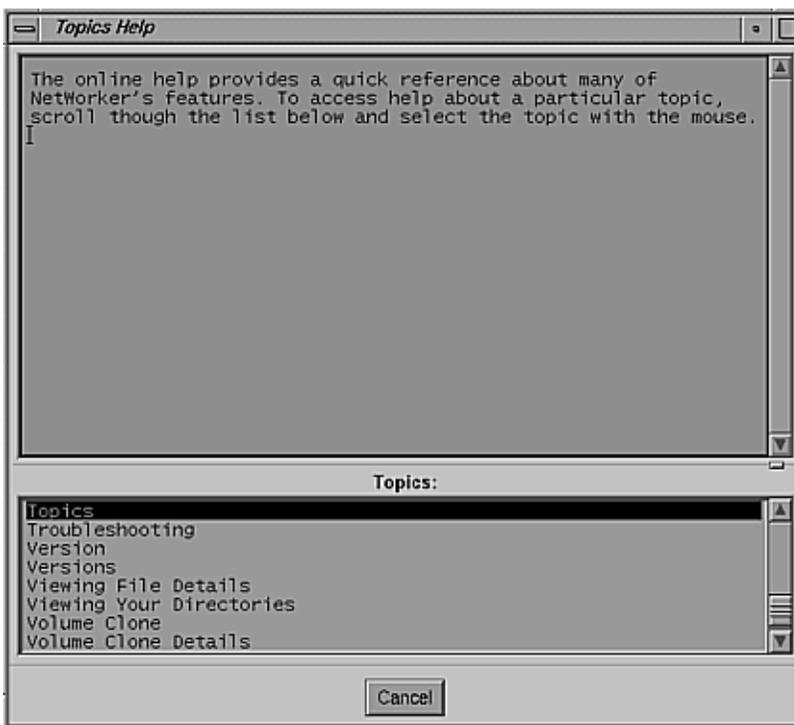
Figure 2-16 Topics Help Window

To see more information about a topic, select the title from the Topics
scrolling list. The help text for the selected topic appears in the top window.
The Topics scrolling list remains available in the bottom window for
selecting other topics.

For example, selecting the topic "Backup" produces the window shown in
Figure 2-17.
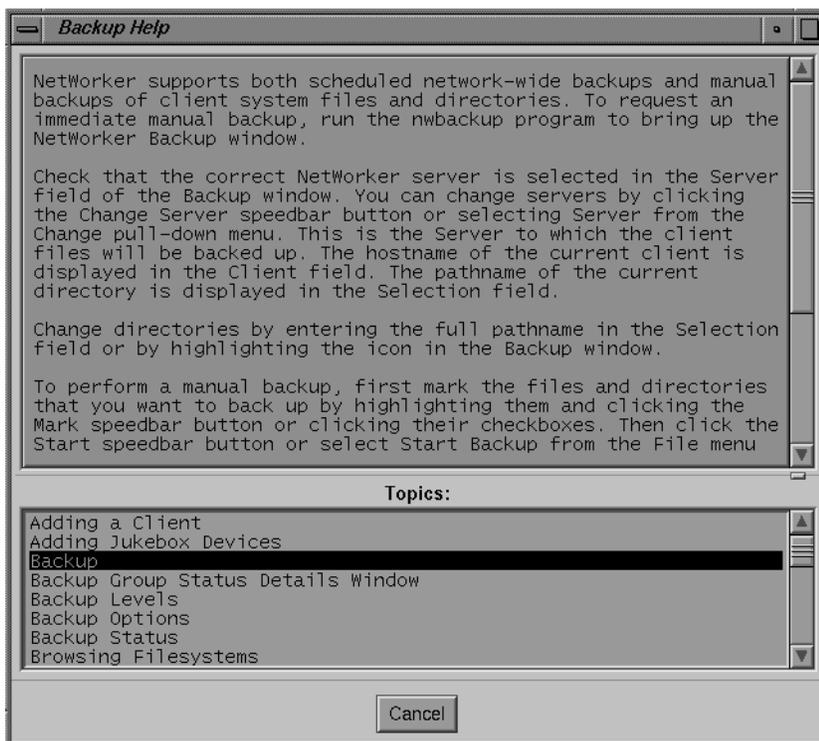
Figure 2-17   Backup Help Window

To return to the Backup window, click the *Cancel* button.

Quick Tour

This Quick Tour shows you how to back up your current directory and how to recover a file using NetWorker. Follow the instructions in this section to become familiar with the product. Chapter 3 and Chapter 4 have more detailed information on how to use it.

Backing Up Your Directory

To demonstrate NetWorker functionality, first back up a directory to the NetWorker server. The Backup window lets you browse the filesystem to examine your directories. Then you can mark files for backup.

To learn about NetWorker, you will mark an entire directory for backup. Then you will unmark a file within that directory. Finally, you will start the backup.

If the NetWorker Backup window, is not open on your screen, select the NW Backup icon to open the window. The Backup Window is shown in Figure 2-18.
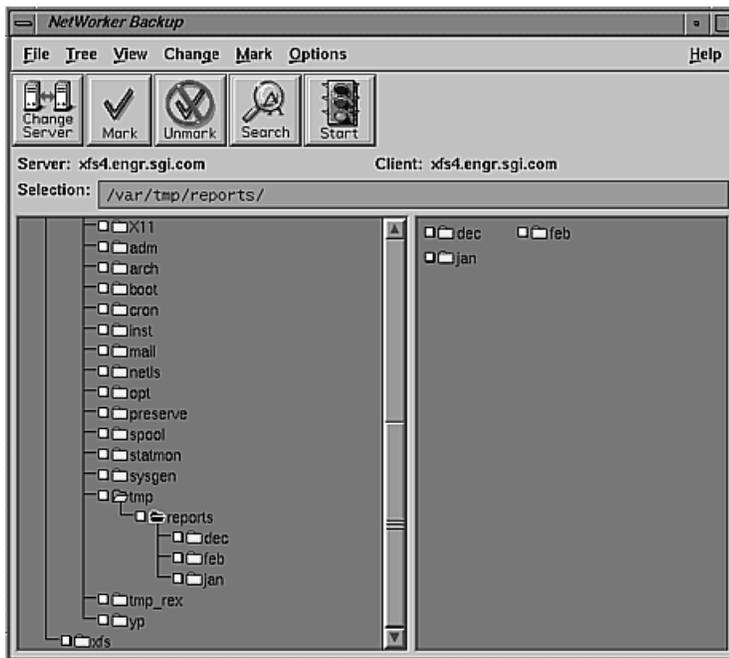
Figure 2-18   Backup Window

The Selection field displays the pathname of the directory from which you invoked NetWorker. The directory display shows you a graphical representation of the path, with the current directory highlighted. The file display shows you the contents of the current directory.

The backup procedure consists of

• expanding the current directory

• marking a directory

• unmarking a file

• starting the backup

• closing the Backup window

Expanding the Current Directory

To find a lower-level directory to mark for backup, expand the current directory one level. Select "Expand One Level" from the Tree pulldown menu, as shown in Figure 2-19.
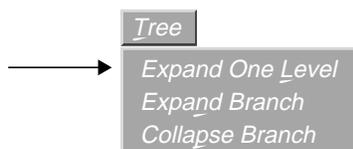
Figure 2-19   "Expand One Level" on the Tree Menu, Backup Window

The directory display shows the expanded directory, as shown in Figure 2-20.
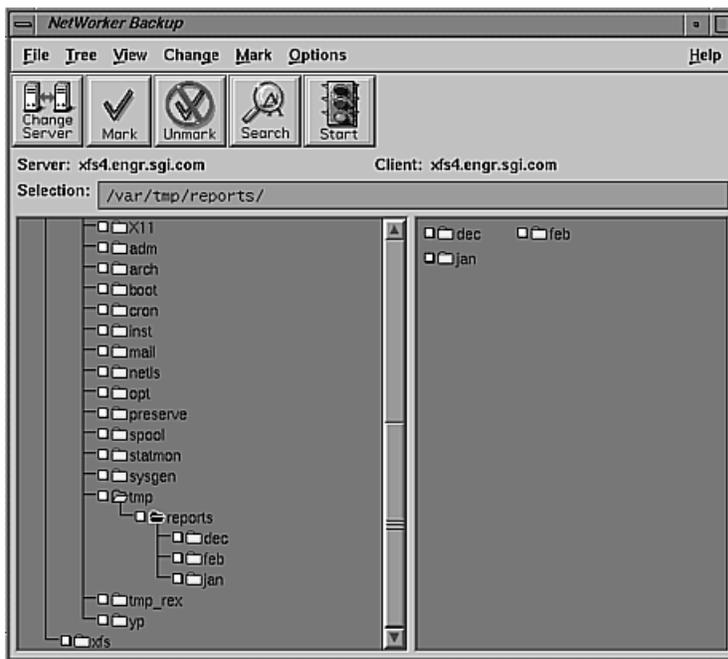
Figure 2-20   Directory Display in the Backup Window

Marking a Directory

To mark a directory for backup, use the mouse to select the checkbox next to the folder that represents the directory that you want to back up, as shown in Figure 2-21.

Figure 2-21   Directory Marked for Backup

Notice that a checkmark (✓) appears in the checkbox. Highlight the folder to display its files. In the file display, notice that the files contained in the marked directory are also marked, as shown in Figure 2-22.
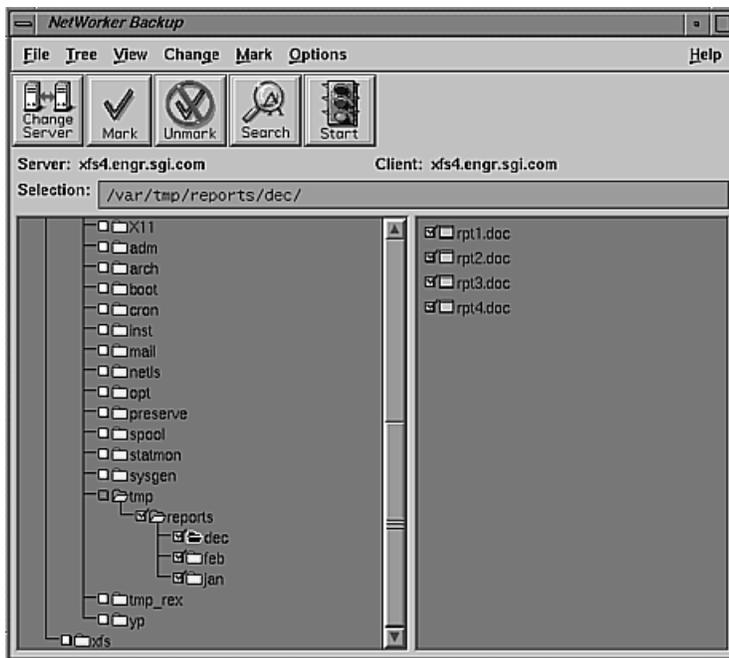
Figure 2-22   File Display in the Backup Window

Tip: You can also mark a directory by highlighting it and selecting the *Mark* speedbar button. The effect is the same as selecting the checkbox.

When you mark a directory, its nested files and subdirectories are marked as well. The checkboxes of the parent directories turn gray to indicate that a subdirectory has been marked. Mount points within a marked directory are not marked, since you can only mark files within one filesystem at a time.

Unmarking a File

You can exclude a file from the backup by unmarking it. In the file display, select the checkmark next to a file to unmark it. The checkmark disappears and the file is excluded from the backup. In Figure 2-23, the last file is excluded from the backup.
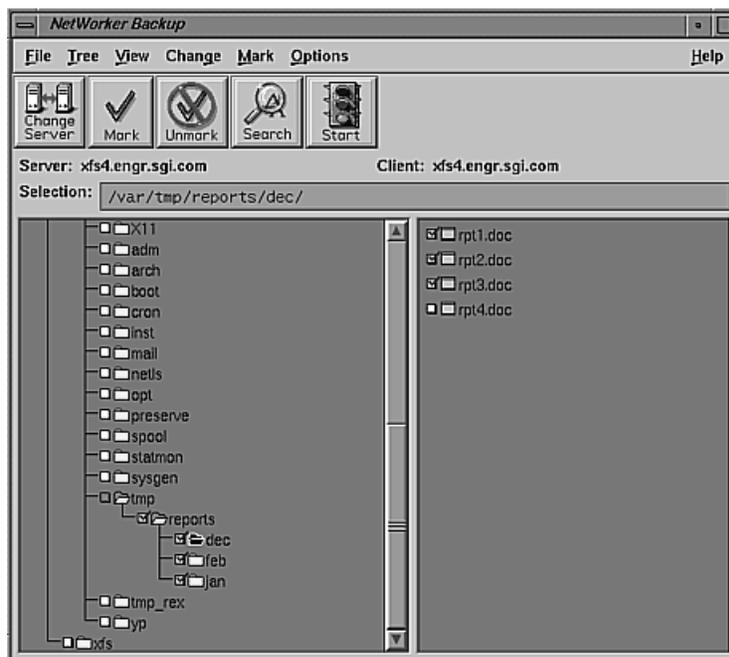
Figure 2-23   Included and Excluded Files in the File Display of the Backup Window

Tip: You can also unmark a file by highlighting it and selecting the *Unmark* speedbar button The effect is the same as selecting the checkmark.

Starting the Backup

After you have finished marking files, you are ready to start the backup. Click the *Start* speedbar button to start the backup.

Before the backup starts, the Backup Options dialog box appears, as shown in Figure 2-24.
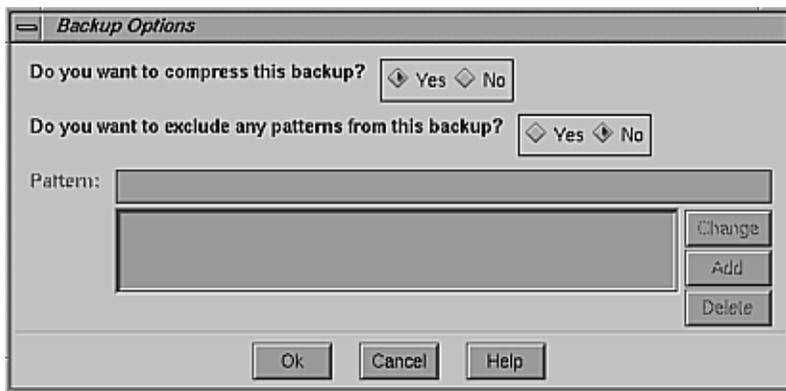
Figure 2-24 Backup Options Dialog Box

In the Backup Options dialog box, you tell NetWorker whether or not you want your files compressed during the backup. For this example backup, compress the files.

Notice that "Yes" is highlighted after the question "Do you want to compress this backup?" This means it is the default choice, so click the *Ok* button to continue the backup with file compression.

Note: You can also exclude patterns in the Backup Options dialog box. For information on excluding patterns, see Chapter 4, "Backing Up and Recovering Data."

The Backup Status window appears, as shown in Figure 2-25, where you can monitor the progress of your backup.

```
┌─────────────────────────────────────────────┐
│ ⊟  Backup Status                             │
├─────────────────────────────────────────────┤
│ Backup start time: Tue Mar 14 11:18:18 1995 ▲│
│ /var/tmp/reports/jan/rpt1.doc                │
│ /var/tmp/reports/jan/rpt2.doc                │
│ /var/tmp/reports/jan/rpt3.doc                │
│ /var/tmp/reports/jan/rpt4.doc                │
│ /var/tmp/reports/jan/rpt5.doc                │
│ /var/tmp/reports/jan/                        │
│ /var/tmp/reports/                            │
│ /var/tmp/                                    │
│ /var/                                        │
│ /                                            │
│                                              │
│ save: /var/tmp/reports/jan  87 KB 00:03:44  10│
│ files                                        │
│ Backup completion time: Tue Mar 14 11:22:02 1995│
│                                             ▼│
├─────────────────────────────────────────────┤
│         [ Cancel ]    [ Help ]               │
└─────────────────────────────────────────────┘
```
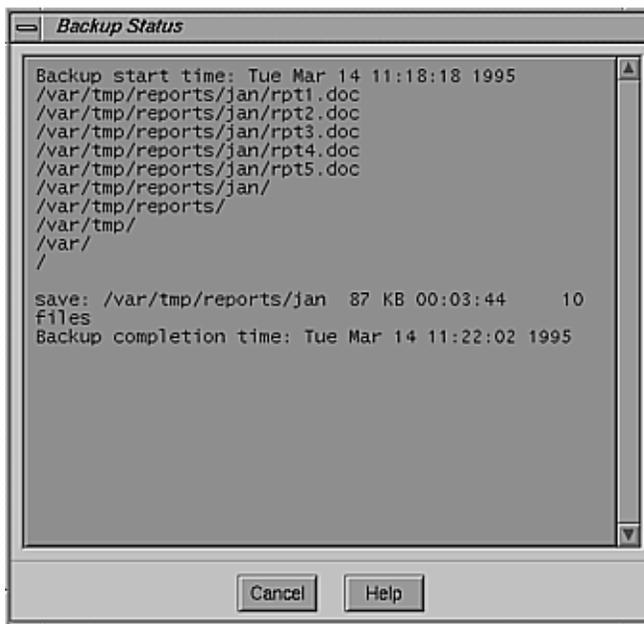
Figure 2-25   Backup Status Window

Tip: If you do not see any files scrolling in the display, or if you see an error message, contact your system administrator. The server may be busy recovering, or it may have a configuration problem. Or, the backup volume may not be mounted in the device. You can check the main window as described in the next section to see if the backup volume is mounted.

When your backup is complete, you will see a message similar to this in the Backup Status window:

```
Backup Completion Time: Wed Jun 21 11:20:03 1995
```

NetWorker backed up the files you marked to the volume mounted in the server device. It also created an index on the NetWorker server for your client machine. Any file that you back up in the future will have an entry in this index, so that you can find it quickly.

Select the *Cancel* button to close the Backup Status window.

Closing the Backup Window

Close the Backup window by clicking the minimize button in the window header.

If you want to exit Networker (and thus stop the program), select "Exit" from the File menu, as shown in Figure 2-26.

Figure 2-26   "Exit" on the File Menu of the Backup Window

Recovering a File

The index that is created on the NetWorker server when you back up files is displayed in the Recover window. The index looks similar to the filesystem that is pictured in the Backup window.

To recover a file, you browse the index for a directory and mark a file within that directory. Then you start the recovery.

If the Recover window is not already open, select the NW Recover icon on your screen to open it. Figure 2-27 shows the Recover window.
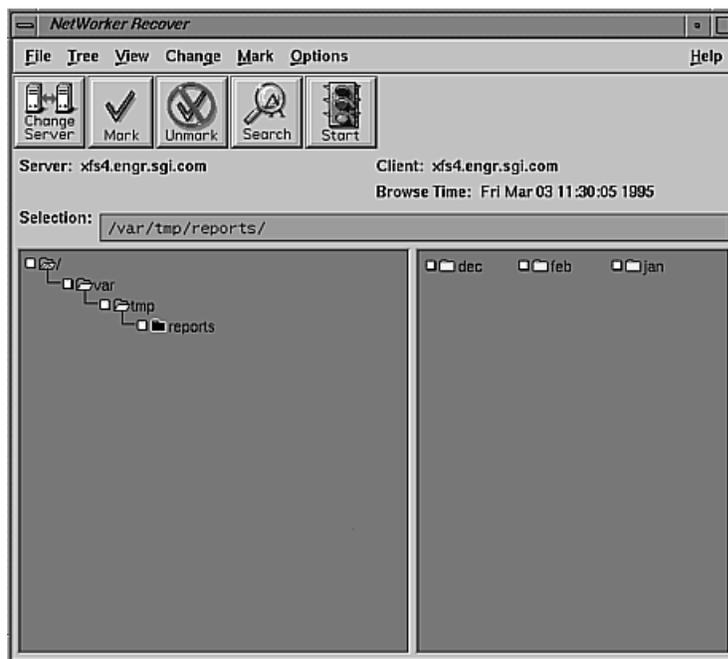
Figure 2-27 Recover Window

Tip: In the Recover window you are looking at the index for your files on the NetWorker server, not the filesystem on your system that the Backup window shows. The Recover window shows the entries for those files that have been backed up and are available for recovery. The entries are organized exactly like the actual filesystem, so it is easy for you to navigate around the directories.

The recover procedure consists of

- browsing the index
- starting the recovery
- closing the Recover window

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Browsing the Index

You can browse the index to locate a file that you want to recover. Follow these steps:

1. Notice that the current directory is highlighted.

2. Select "Expand One Level" from the Tree pulldown menu. The subdirectories are displayed in a tree structure in the directory display, as shown in Figure 2-28.
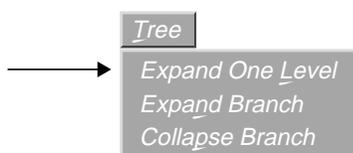
Figure 2-28 "Expand One Level" on the Tree Menu of the Recover Window

> **Tip:** Selecting a closed directory folder twice (double-clicking) also expands it one level, as shown in Figure 2-29.
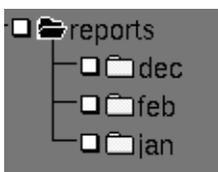
Figure 2-29 Expanding a Directory One Level

3. Highlight the directory folder that contains the desired file by selecting it. The file display shows the most recently backed-up version of the files contained in the directory.

4. Mark the files you wish to recover by selecting their checkboxes in the file display, as shown in Figure 2-30.
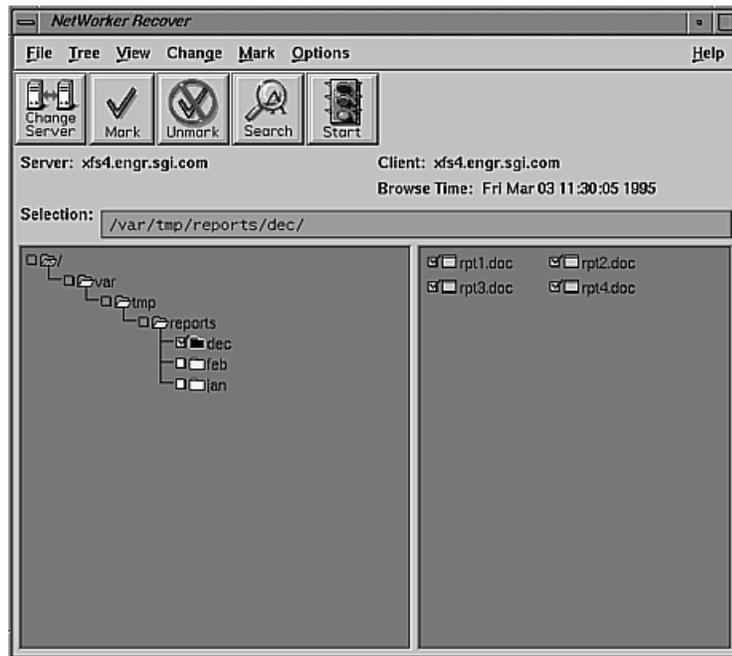
Figure 2-30 Marking Files to Recover in the Recover Window

Starting the Recovery

So far you have browsed the index and marked files for recovery. You are now ready to start the recovery. Follow these steps:

1. Click the *Start* speedbar button to start the recovery. The Conflict Resolution dialog box appears, as shown in Figure 2-31, before the recovery starts.
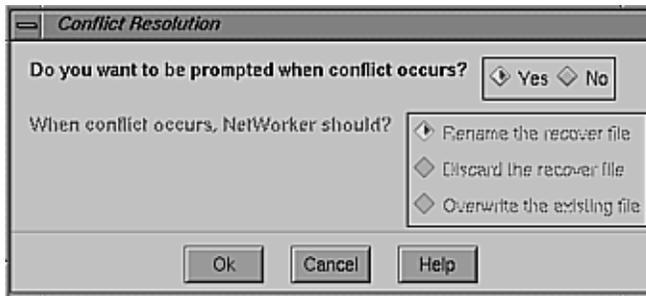
Figure 2-31   Conflict Resolution Dialog Box

In the Conflict Resolution dialog box, you tell NetWorker what to do if a naming conflict is encountered during recovery. A naming conflict occurs when the file you are recovering has the same name as a file that already exists in one of the directories you are trying to recover.

2. For this example, select "No" so that NetWorker does not prompt you for each naming conflict.

"Rename the recover file" is now highlighted as the default selection. This command places a .R extension after the name of the recovered file when a naming conflict occurs with an existing file.

Tip: You can rename a file during recovery so that if a file with the same name exists, it will not be overwritten.

3. Click *Ok* to close the Conflict Resolution dialog box and continue the recovery.

The Recover Status window appears, as shown in Figure 2-32. You can monitor the progress of the recovery in the Recover Status window.
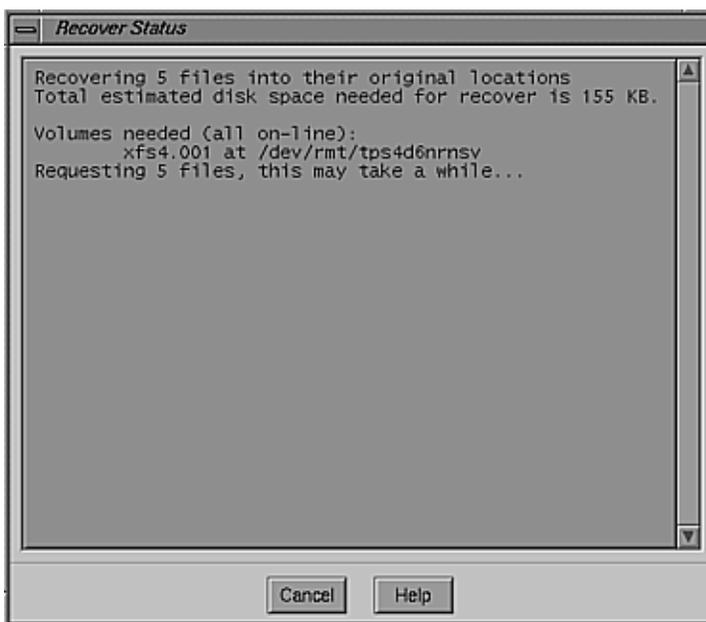
Figure 2-32   Recover Status Window

The Recover Status window provides information about your recovery,
including the name(s) of the backup volumes needed and their location. The
Recover Status window also displays the number and names of the files
being recovered, and their new names if they are being renamed.

You can cancel the recovery by clicking the *Cancel* button in the Recover
Status window.

The following message appears when the recovery is complete:

```
Received 5 files from NSR server `atlas`
```

To confirm its recovery, you can look for your file in the filesystem by listing
the contents of the directory in an IRIX shell. The recovered file has a .R file
extension because you told NetWorker to rename the file in the Conflict
Resolution dialog box.

Quick Tour Review

During the Quick Tour of NetWorker, you learned how to:

- use the NetWorker graphical user interface
- use the Backup window to back up your directory to the NetWorker server
- monitor the status of your backup
- use the Recover window to browse the index for your backed-up files
- mark a file for a recovery in the Recover window
- recover a file
- resolve a naming conflict during recovery
- monitor the status of the recovery

The Quick tour is meant to familiarize you with the NetWorker Backup and Recover windows. Chapter 3 and Chapter 4 provide detailed information on performing backups and recovers.

Browsing Filesystems

The NetWorker graphical user interface allows you to browse your filesystems, including directories, subdirectories, and nested files. Since the filesystem is represented by icons on the screen, it is easy to select files and directories for backup. For recovering files, the index of saved files is displayed graphically like the filesystem, making it convenient to select files for recovery.

This chapter explains

- viewing your directories
- marking and unmarking files
- viewing file details
- searching for files
- changing a selection
- exiting from a window

Note: This chapter describes the features common to both the backup and recover windows that are used for viewing directories. The features specific to a window are described in Chapter 4, "Backing Up and Recovering Data."

Viewing Your Directories

You can expand a directory to one level to view its subdirectories, or you can view all levels of a directory by expanding a branch. Thus it is easy to find files that are deeply embedded in your filesystem.

Use the Tree menu to select the level at which you wish to browse the directories in the filesystem.

Expanding to One Level

Choosing the "Expand One Level" command, as shown in Figure 3-1, opens a directory to display the subdirectories one level below. The subdirectories are graphically displayed as a tree structure in the directory display. You can scroll in the directory display to find the subdirectory that contains the desired file. Large directories might take a few minutes to expand.
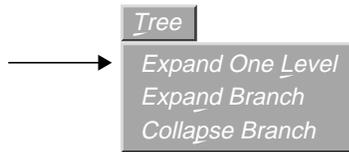
Figure 3-1   "Expand One Level" in the Tree Menu of the Backup Window

To expand a directory to one level, follow these steps:

1. Highlight a directory folder in the directory display.

2. Select "Expand One Level" from the Tree pulldown menu, or double-click the directory folder.

Expanding a Branch

The "Expand Branch" command lets you view all the levels of subdirectories in a directory. Large branches may take a while to expand.

To expand a directory to view the branch, follow these steps:

1. Highlight a directory in the directory display.

2. Select "Expand Branch" from the Tree pulldown menu.

Collapsing a Branch

The "Collapse Branch" command closes all subdirectories and returns you to the level of the highlighted directory.

To collapse a branch, follow these steps:

1. Highlight an expanded directory in the directory display.

2. Select "Collapse Branch" from the Tree pulldown menu, or double-click the directory folder.

Marking and Unmarking Files

You choose files and directories for backup and recovery by marking them. The icons have a checkbox beside them that displays a checkmark when the file is marked. You can mark or unmark files and directories by using either the File pulldown menu or the checkbox.

To mark a file or directory using the File menu, follow these steps:

1. Highlight a file or directory icon by selecting it with the mouse.

2. Click the *Mark* speedbar button, as shown in Figure 3-2.

Figure 3-2   Mark Speedbar Button

This action places a checkmark in the checkbox beside the highlighted icon (see Figure 3-3) to mark it for backup or recovery.

Figure 3-3   Icon Marked for Backup or Recovery

3. If you decide that a file should not be included in the backup or recovery, highlight the icon and select the *Unmark* speedbar button to remove the checkmark. Figure 3-4 shows this button.

Figure 3-4   Unmark Speedbar Button

To mark a file using the checkbox, follow these steps:

1. Use the mouse to select the checkbox next to the file. This action places a checkmark in the checkbox.

2. Select the checkmark to unmark the file, as shown in Figure 3-5.

Figure 3-5   Unmarking a File

Tip: When you mark a directory, all its subdirectories and nested files are also marked. The checkboxes of the parent directories turn gray to indicate that some or all of the directory contents are marked for backup or recovery.

Viewing File Details

The View pulldown menu contains the File Names and File Details command, where you can choose to view the file details or only the file names in the file display. This command toggles between the two choices.

Figure 3-6 shows the View menu.
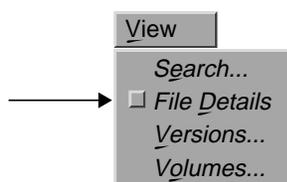
Figure 3-6   "File Details" on the View Menu of the Recover Window

Use the "Versions" command to display a list of backup versions of your files that are available for recovery. Use the "Volumes" command to determine if the file you want to recover is immediately available for a recovery.

By default, NetWorker lists the files in alphabetical order, with only the filenames displayed. File Details displays the filename, number of blocks, permissions, number of links and where they point (symbolic links only), owner, group, size, and date each file was last modified.

In the NetWorker Recover window, the File Details command also displays the backup time for each file. You can use this data to identify different backup versions of a file.

To display filenames or file details, follow these steps:

1. Select "File Details" (or "File Names") from the View pulldown menu, as shown in Figure 3-6.

2. If necessary, adjust the size of the window to display the full File Details.

    Figure 3-7 shows the File Details display in the NW Recover window. Notice the backup time listed beside each icon.
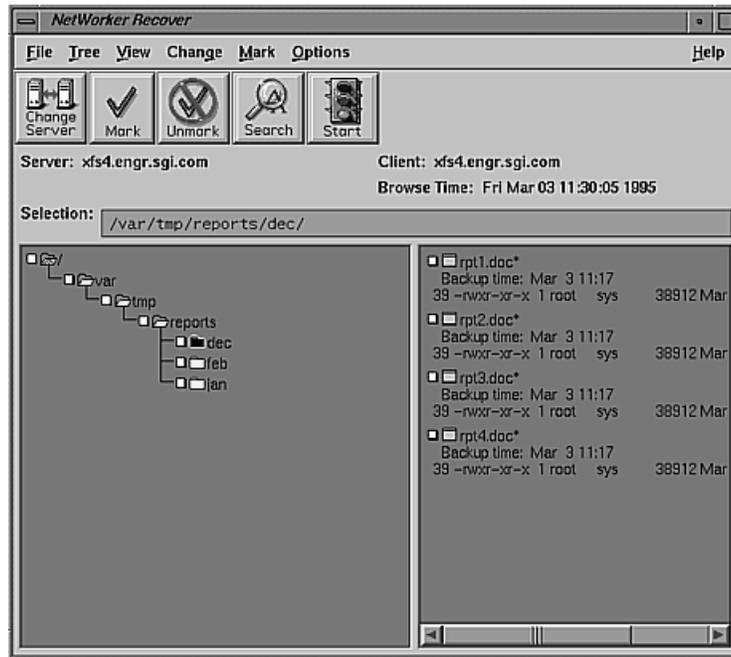
Figure 3-7   File Details Display on the Recover Window

Searching for Files

If you know the name or partial name of a file or directory, you can use the Search window to locate it in the filesystem or index. Use the *Search* speedbar button to bring up the Search window, or choose Search from the View pulldown menu.

To search for files, you specify the filename or partial filename you are looking for and the directory name where you wish to begin the search. NetWorker begins searching in that directory and then searches through its subdirectories and nested files.

To search for files or directories by name, follow these steps:

1. Click the *Search* speedbar button in the speedbar to open the Search window, or select the Search command from the View pulldown menu.

    The Search dialog box appears, as shown in Figure 3-8.
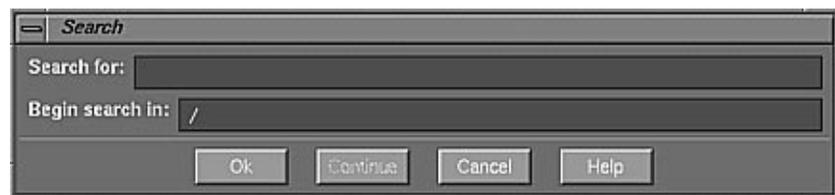
Figure 3-8   Search Dialog Box

2. Enter the name of the file or directory in the Search for field. You can use standard IRIX shell pattern characters when specifying partial filenames.

3. Enter a valid pathname for the directory where you wish to begin the search in the "Begin search in" field. NetWorker searches through that directory and all nested subdirectories.

4. Click the *Ok* button. The pathname of the first match appears in the Selection field and is also highlighted in the file display.

5. Click the *Continue* button to highlight the next match. You can continue the search until the last match is found.

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Changing a Selection

The NetWorker windows display the full pathname of the current directory in the Selection field. If you know the path of a directory or file, you can go directly to it by entering the full pathname in the Selection field, as shown in Figure 3-9.

Selection: /var/tmp/reports/dec/

Figure 3-9   Selection Field

To change the current selection, follow these steps:

1.   Enter the full pathname in the Selection field.

2.   Press the `<Enter>` key.

Both the directory and file displays change to show the new selection.

Exiting From a Window

The "Exit" command is in the File menu of the NW Backup and NW Recover windows. This command closes the current window without backing up or recovering files and exits the program.

Figure 3-10 shows this command.

File
Exit

Figure 3-10   "Exit" on the File Menu

The File menus of various windows in NW Backup and NW Recover also have a "Close" command. This command closes the window without exiting the program.

Backing Up and Recovering Data

This chapter describes the NetWorker Backup and Recover windows and the backup and recover functions that are unique to each of the windows.

Note: For information on using the functions that are common to both windows, such as viewing and marking files, see Chapter 3, "Browsing Filesystems." For a quick tour of the NetWorker backup and recover programs, see "Quick Tour" in Chapter 2.

Shortcuts

If you are already familiar with the NetWorker backup and recover programs, use these shortcut procedures.

Shortcut: Backup

Follow these steps to back up your directories or files:

1. If necessary, click the NW Backup icon to open the NetWorker Backup window.

2. Select the check boxes, or highlight the directory or file you want to back up, and click the *Mark* speedbar button.

3. Click the *Start* speedbar button.

4. Click the *Ok* button in the Backup Options dialog box.

5. Check the backup completion message to make sure the backup is complete.

6. Click the *Cancel* button in the Backup Status window to close the window.

Shortcut: Recover

Follow these steps to recover your directories or files

1. Select the NW Recover icon to open the NetWorker Recover window.

2. If necessary, choose a server by clicking the *Change Server* speedbar button. If applicable, choose a client by choosing "Client" from the Change menu.

3. Using the mouse, highlight the icons for files or directories you wish to recover, and click the *Mark* speedbar button for these.

4. Choose "Volumes" from the View pulldown menu to see if the backup volumes are available for your recovery.

5. Click the *Start* speedbar button to begin the recovery.

6. Click the *Ok* button in the Conflict Resolution dialog box.

7. When you see the recover completion time message in the Recover Status window, click the *Cancel* button to close the window.

Backing Up Data

This section assumes that you have already marked your files for backup. If you need to know how to view directories, mark files, search for files, or view file details, see Chapter 3, "Browsing Filesystems."

This section explains

- changing the NetWorker server, if necessary

- starting the backup

- choosing the backup options

- monitoring the backup status

Changing the NetWorker Server

NetWorker backs up your data according to a schedule determined by your system administrator. Usually, a single NetWorker server backs up all the systems on a network. You may need to change servers if your NetWorker server is down or you are experiencing network difficulties.

If you have more than one NetWorker server available on the network, you might have a choice of servers for your backups. However, in order to switch to a different NetWorker server, your system must be listed as a client of that server. Check with your system administrator before you switch to a server other than the one that normally backs up your system.

To change the NetWorker server, follow these steps:

1. Click the *Change Server* speedbar button, or select Server from the Change pulldown menu. Figure 4-1 shows these options.
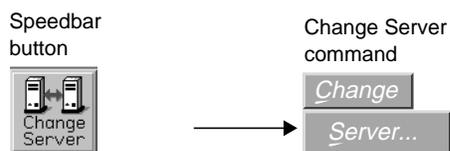

Figure 4-1   Changing the NetWorker Server

The Change Server dialog box appears, as shown in Figure 4-2.

Figure 4-2   Change Server Dialog Box

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2. If you know the hostname of the server, enter it in the Server field and click *Ok*.

   Alternatively, click the *Update Server List* button to update the list of NetWorker servers on the network.

3. Highlight the hostname of a server in the list and click *Ok* to choose the new server. You can also double-click a hostname to select it.

4. Click *Ok* to choose the new server.

   Note: If you choose a NetWorker server that does not have your system listed as a client, the message shown in Figure 4-3 appears.

Figure 4-3   Client Not Registered Message

Starting a Backup

To start a backup, follow these steps:

1. Mark the files that need to be backed up.

2. Choose the NetWorker server (if necessary).

3. Click the *Start* speedbar button, or choose "Start Backup" from the File pulldown menu. These options are shown in Figure 4-4.
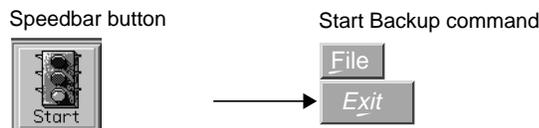

Figure 4-4   Starting a Backup

NetWorker displays the Backup Options dialog box, which is explained in the next section.

Choosing the Backup Options

In the Backup Options dialog box, you can compress files and exclude patterns before the backup starts. Compressing data reduces network traffic and can conserve space on the backup media, Excluding patterns is convenient if you have data you do not want to back up at all.

Caution: Compressing your data during backup can save space on the backup media and reduces network traffic, but may slow down the backup operation. Also, if you back up to a device that compresses data, do not use NetWorker's file compression feature. Check with your system administrator to find out if you should compress your data during a backup.

Compressing Files

To choose whether or not to compress the files you back up, answer the question "Do you want to compress this backup?" in the Backup Options dialog box, as shown in Figure 4-5. Notice that "Yes" is already highlighted as the default selection.
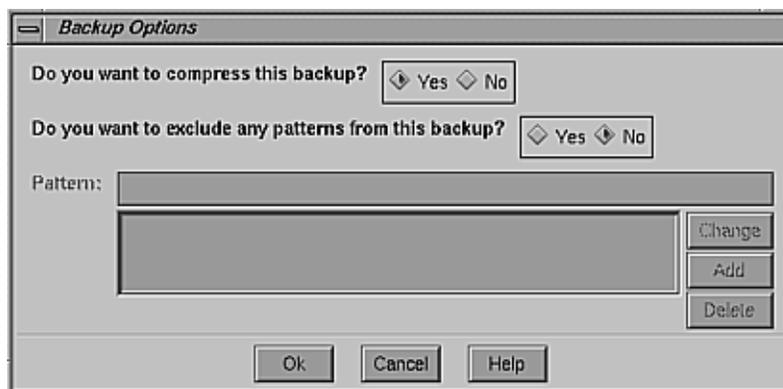

Figure 4-5   Backup Options Dialog Box

- To continue the backup with file compression, you do not have to make a selection, since Yes is the default selection.
- To continue the backup without file compression, select "No."

  Note: If you back up to a device that compresses data, select "No."

If you do not need to exclude patterns from your backup, click *Ok* to continue the backup with your file compression choice.

Excluding Patterns

Before starting a backup, you can exclude patterns in the Backup Options dialog box. This feature is useful, for example, if you are backing up an entire directory and do not need to back up certain files or subdirectories in that directory. Excluding data from the backup also reduces network traffic and saves space on backup media.

To exclude patterns, specify alphanumeric patterns that occur in the names of the files that you want to exclude from the backup. Use IRIX shell pattern characters to specify any number of patterns you wish to exclude.

Notice that "No" is highlighted as the default answer to the question "Do you want to exclude any patterns from this backup?" If you do not wish to exclude any patterns of filenames from the backup, select *Ok* to continue the backup with only your file compression choice.

To exclude patterns from the backup, follow these steps:

1. Select "Yes" to answer the question "Do you want to exclude any patterns from this backup?" This choice activates the lower half of the Backup Options dialog box.

2. Enter the first pattern to be excluded in the Pattern field.

3. Click *Add* to add the pattern to the pattern list, as shown in Figure 4-6.
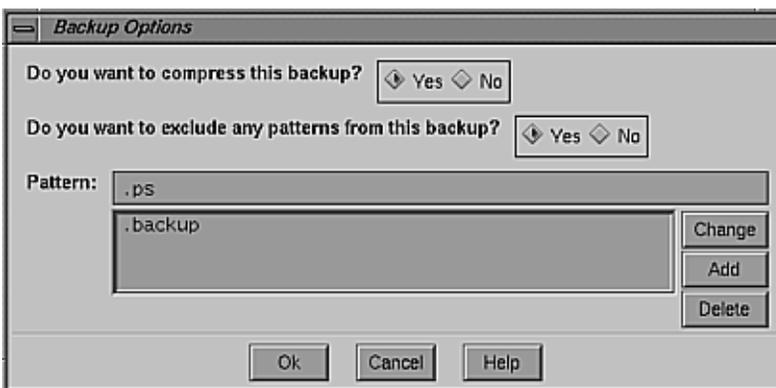
Figure 4-6   Excluding a Pattern

Enter any number of patterns and add them to the pattern list.

To change a pattern, select it in the pattern list. The selected pattern appears in the Pattern field. Enter the new pattern and click *Change*. The new pattern replaces the old pattern in the pattern list.

4. To delete a pattern, select it in the pattern list and click *Delete*.

5. Click *Ok* to continue the backup with the excluded patterns.

Monitoring the Backup Status

After you complete your selections in the Backup Options dialog box, the Backup Status window appears, as shown in Figure 4-7. Use the Backup Status window to monitor the progress of the backup.
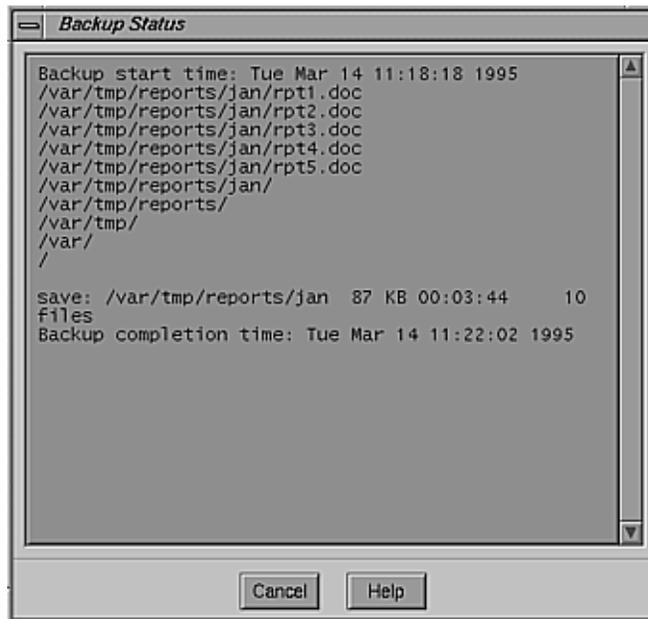


```
Backup Status

Backup start time: Tue Mar 14 11:18:18 1995
/var/tmp/reports/jan/rpt1.doc
/var/tmp/reports/jan/rpt2.doc
/var/tmp/reports/jan/rpt3.doc
/var/tmp/reports/jan/rpt4.doc
/var/tmp/reports/jan/rpt5.doc
/var/tmp/reports/jan/
/var/tmp/reports/
/var/tmp/
/var/
/

save: /var/tmp/reports/jan  87 KB 00:03:44    10
files
Backup completion time: Tue Mar 14 11:22:02 1995
```

Cancel   Help

Figure 4-7   Backup Status Window

The Backup Status window provides the backup start time and the backup completion time. The names of the files and directories scroll across the Backup Status window as the backup proceeds. The `save` message at the bottom of the window gives you information about the backup including the full pathname of the directory and the number of kilobytes and files being saved.

Note: If after several minutes you do not see any progress messages (after the "Backup Start" message) in the Backup Status window, the NetWorker server probably needs attention from the system administrator.

You can cancel the backup by pressing the *Cancel* button.

The following message appears in the Backup Status window when the backup is complete:

```
Backup completion time: Wed Jun 23 11:20:03 1993
```

Recovering Data

This section assumes that you have already marked your files for recovery in the Recover window. If you need to know how to view directories, mark files, search for files, or view file details, see Chapter 3, "Browsing Filesystems."

NetWorker displays entries in the NetWorker Recover window for the files it saved during a backup. Select the files you wish to recover from this list of entries. NetWorker's recover functions allow you to browse the index for previous backups, select various versions of the file to recover, view your marked files, relocate files upon recovery, and recover files from another authorized system.

Note: An *authorized system* is a client from which you have permission to recover data.

This section explains

- choosing the Recover server
- choosing the Recover client
- selecting file versions
- changing the browse time
- listing marked files
- listing the backup volumes for a recover
- relocating files
- starting the recovery
- monitoring the recover status

Choosing the Recover Server

Normally you recover files from the NetWorker backup server chosen for you by your system administrator. If you have backed up files to a different server, you must also recover those files from that server. If you changed servers in the Backup window, select the same server in the NetWorker Recover window.

Note: The Change Server dialog box lists all the NetWorker servers on the network. You can recover files only from a server that lists your system as a client.

To choose a recover server, follow these steps:

1. Click the NW Recover icon to open the NetWorker Recover window if it is not already open.

2. Click the *Change Server* speedbar button, or select "Server" from the Change pulldown menu. Figure 4-8 shows the Change Server dialog box.

Figure 4-8   Change Server Dialog Box

3. Click the *Update Server List* button or double-click on the server name to update the list of NetWorker servers on the network. Choose the server that has the files you need to recover.

    The Server field changes to reflect the current selection. The directory and file displays are refreshed to show the index for the current server.

4. Click the *Ok* button after you have selected a server.

Choosing the Recover Client

If you need to recover files from a client other than the system you are currently using (for example, because the client's disk was damaged and files are being restored onto a different system), use the "Change Client" command in the Change pulldown menu. The "Change Client" command opens a dialog box that lists all of the NetWorker clients.

Note: Check with your system administrator if you wish to recover files other than your own. You might not be authorized to recover files for other client systems.

To choose a recover client, follow these steps:

1. Choose "Client" from the Change pulldown menu in the Recover window.

    The Change Client dialog box appears, as shown in Figure 4-9.

Figure 4-9   Change Client Dialog Box

2. To update the list of NetWorker clients, click the *Update Client List* button.

3. Choose a client from which you are authorized to recover files. The Client field changes to reflect the current selection.

    When you recover this client's files, they are restored onto the system you are currently using.

Selecting File Versions

The Versions window lists all the versions of a file or directory that have been backed up by the backup server. It also lists the locations of the versions. The information in the Versions window is retrieved from the index that is created by NetWorker when you perform a backup. Use the Versions window to view the backup history of a file and to mark a version for recovery.

Note: NetWorker displays versions of the directories and files in the Versions window. However, in the Versions window, you can mark only files for recovery, not directories.

For each version, the Versions window lists

• number of blocks

• mode

• permissions

• number of links

• owner

• group

• size in bytes

• last modified time

• filename

• backup time (used to identify different versions of a file)

• location, including

– name of the backup volume

– device where the volume is mounted, if any, or the location of the backup volume (for example, an off-site storage place)

If no device is listed, the backup volume must be mounted before recovery of the file is possible.

To view the backup history of a file or directory, follow these steps:

1. Open the Recover window and highlight a file or directory in the file display.

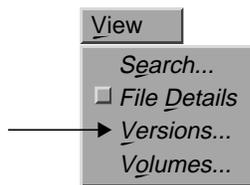2. Select "Versions" from the View pulldown menu, as shown in Figure 4-10.

Figure 4-10   "Versions" on the View Menu of the Recover Window

NetWorker retrieves several versions of the highlighted file or directory from the index and lists them by backup time, beginning with the most recent. If necessayr, use the scrollbar to view the backup history.
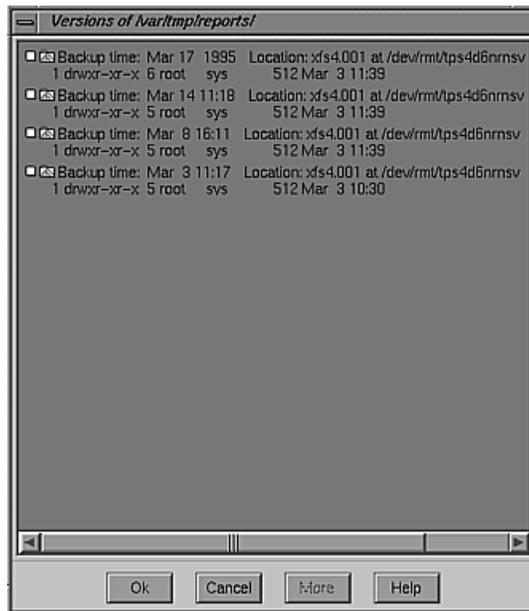
Figure 4-11   Backup History in the Versions Window

3.   Click *More* to retrieve ten more versions from the index. The *More* button turns gray when all versions have been retrieved.

Note: Remember, you cannot mark directories for recovery in the Versions window. To mark a past version of a directory and its contents for recovery, use the "Change browse time" command.

To select a version of a file for recovery, follow these steps:

1.   Select the checkbox of the version that you want to recover.

2.   Click *Ok* to place the checkmarked versions in the file display.

Tip: When you mark a past version of a file in the Versions window, this version appears in the NetWorker Recover window file display with the same name as the recent version. You then have more than one version of a file in the file display. If you are confused as to which version to mark, use "File Details" to display their backup times.

Changing the Browse Time

The Browse Time field displays the date you initiated the browse, unless you change it to a date in the past. NetWorker displays the currently selected browse time in the Browse Time field in the Recover window, as shown in Figure 4-12.
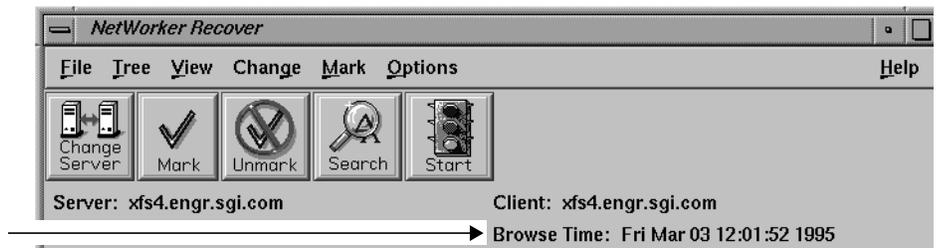

Figure 4-12   Browse Time in the Recover Window

The NetWorker Recover window displays the index entries for previously backed-up files. Changing the browse time displays the index entries for files backed up at that time.

Note: If NetWorker has no entries for files backed up for the time selected in the Browse Time field, NetWorker displays files that were backed up closest to that time, but not immediately after. For example, if you change the browse time to 10 a.m. on May 15, and the backup took place at 11 a.m. on May 15, NetWorker will not display the entries for the files backed up at 11:00 a.m.

Changing the browse time lets you view your files as of some time in the past. This feature is useful if you do not remember the name or location of the files you want to recover, but you remember that they existed at a particular time in the past. The Change browse time command also helps you find files that have been deleted and thus do not appear in the Versions window. You can recover deleted files by changing the browse time to locate past versions of the files in the index.

Tip: Use the "Change browse time" command to browse and mark past versions of directories. If you mark a directory, all its nested files and subdirectories are also marked.

To change the browse time to recover a past version of a file, follow these steps:

1. Open the NetWorker Recover window and select "Browse time" from the Change menu, as shown in Figure 4-13.
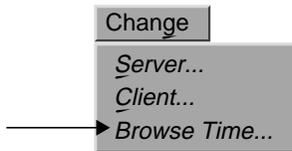

Figure 4-13 "Change Browse Time" on the Change Menu of the Recover Window

The Change Browse Time dialog box appears, as shown in Figure 4-14.

Figure 4-14 Change Browse Time Dialog Box

2. Use the *Previous*, *Today*, and *Next* buttons to control the month shown in the calendar.

3. When the month you want is displayed, click the desired day in the calendar.

You can also change the browse time by entering a date and time in the Browse Time field and pressing `<Enter>` or clicking *Ok*. The following formats are valid for browse time:

- hh:mm:ss (24-hour clock); for example, 15:30:00

- hh:mm (am, pm) (PDT) mm/dd/(yy); for example, 5:30 pm PST 7/4/95

- monthname dd (yy); for example, October 31

- last Friday, next Friday, third Friday

- + or - 3 seconds, minutes, hours, weeks, months, years

- now

4. Click *Ok* when you are finished choosing a browse time.

   The Browse Time field in the NetWorker Recover window changes to reflect the new browse time. Both the file display and the directory display show the files that were backed up at that time.

   You can now mark past versions of files for recovery.

Note: Any files or directories that you have marked for recovery prior to changing the browse time remain marked.

Listing Marked Files

You can list the files you have marked for recovery by selecting "Show Marked" in the Mark menu. Use "Show Marked" to check the files you have marked for recovery before performing the recover operation. The Files Marked for Recovery window lists the pathnames and backup time of files that you have marked for recovery.

To show the files that you have marked for recovery, follow these steps:

1. Select "Show Marked" from the Mark menu of the NetWorker Recover window, as shown in Figure 4-15.
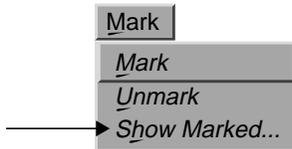

Figure 4-15 "Show Marked" on the Mark Menu of the Recover Window

The Files Marked for Recovery window appears, as shown in Figure 4-16, listing the pathnames and backup time of all marked files.
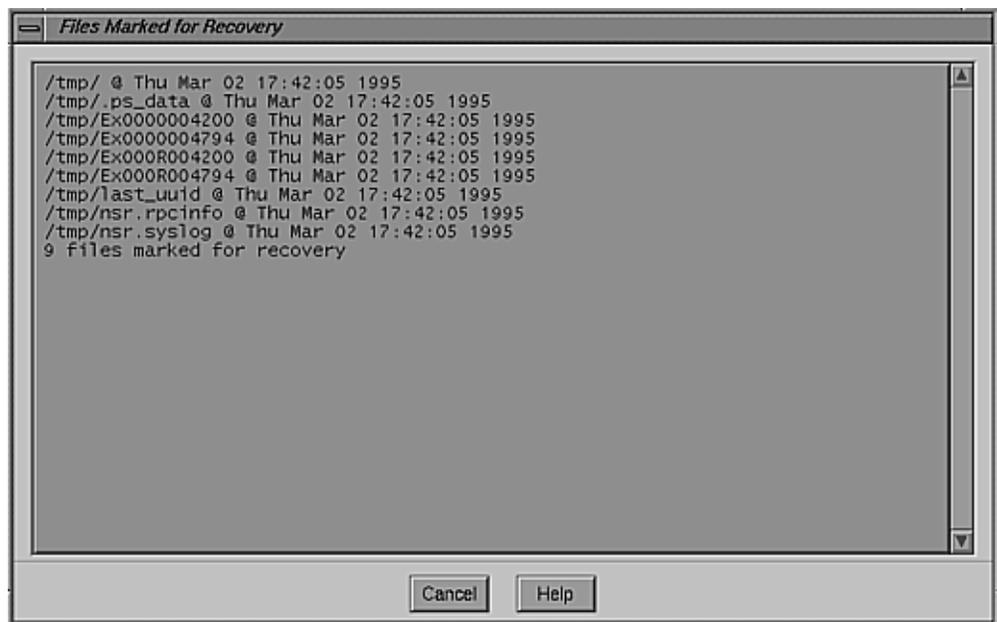

Figure 4-16 Files Marked for Recovery Window

2. Click *Cancel* to close the window.

Listing the Backup Volumes for a Recover

After you mark your files for a recovery, you can use the Volumes command in the View pulldown menu to find out if the backup volumes that NetWorker needs are available; that is, if the volume is mounted or in a jukebox. If you start a recover operation, and NetWorker cannot access the backup volume that has your file, it will send a message to the system administrator to load the volume. This process can take some time, and you may not want to begin the recover operation unless you can get your data back right away.

To determine if the file you want to recover is immediately available for a recovery, follow these steps:

1. Mark the files or directories you wish to recover in the NetWorker Recover window.

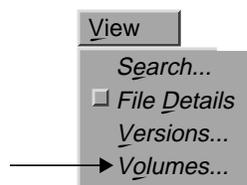2. Select the "Volumes" command from the View menu, as shown in Figure 4-17.

Figure 4-17   Volumes Command

NetWorker displays a notice window, as shown in Figure 4-18.

Figure 4-18   Volumes Needed Notice

If the backup volume is available, that is, the volume is mounted or in a jukebox, the message `all online` appears in the notice window. The window displays the name(s) of the backup volume(s) and, if applicable, the location of the volumes. In the example in Figure 4-18, the volume is named LOC5G234 and is located in a jukebox belonging to the engineering department.

Relocating Files

Before you start a recovery, use the optional "Relocate" command to place your files in a directory other than the one in which they were located when they were backed up. "Relocate" creates the directory, if it does not already exist. You can also relocate files to an existing directory by entering the complete pathname.

To relocate recovered files into a new or existing directory, follow these steps:

1. Open the NetWorker Recover window and select "Relocate" from the Options menu, as shown in Figure 4-19.
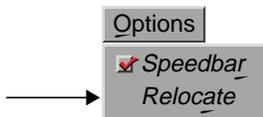

Figure 4-19   "Relocate" on the File Menu of the Recover Window

The Relocate dialog box appears, as shown in Figure 4-20.

Figure 4-20   Relocate Dialog Box

2. In the "Relocate to" field, enter the name of the directory where the recovered files will be stored. Be sure to include the complete pathname of the directory.

3. Click *Ok* to relocate the files into the new directory.

Renaming or Overwriting Recovered Files

When you start a recover, NetWorker displays the Conflict Resolution dialog box. Use this box to rename recovered files or overwrite existing files when a *naming conflict* occurs. A naming conflict occurs when a file you are recovering already exists or has the same name as a file in the current directory. NetWorker does not overwrite existing files unless you request it to do so.

The Conflict Resolution dialog box, shown in Figure 4-21, asks two questions about resolving naming conflicts.
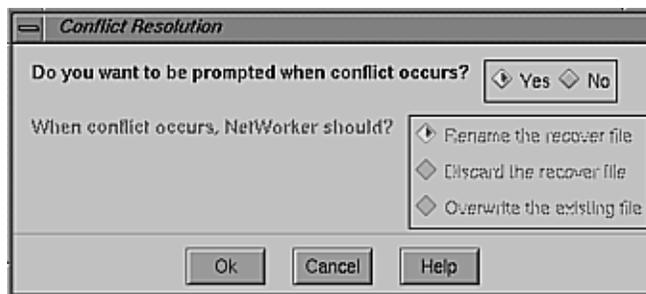

Figure 4-21   Conflict Resolution Dialog Box

To use the Conflict Resolution dialog box, follow these steps:

1. Answer the question, "Do you want to be prompted when conflict occurs?"

   • If you select "No," you must make a choice for the next question in the box, "When conflict occurs, NetWorker should?"

     Answering this question allows you to resolve conflicts for the entire recover session without being prompted about each individual file.

   • If you select "Yes," the default selection, NetWorker prompts you for instructions in the Filename Conflict dialog box every time it encounters a conflict between a recovered file and an existing file.

This choice allows you to resolve conflicts on a file-by-file basis. For each recovered file that has the same name as an existing file, choose whether to rename the recovered file, discard the recovered file, or overwrite the existing file. Figure 4-22 shows the Filename conflict dialog box.

Figure 4-22   Filename Conflict Dialog Box

2. In either case, select one of the following choices to solve naming conflicts:

    •   `Rename the recover file`: NetWorker renames the recover file with a .R extension. If the .R file already exists, NetWorker adds another .R.

    •   `Discard the recover file`: NetWorker discards the recover file. The existing file remains current.

    •   `Overwrite the existing file`: NetWorker replaces the existing file with the recovered file. The existing file is lost and the recovered file becomes current.

3. After completing the Conflict Resolution dialog box, click *Ok* to continue the recovery.

Monitoring the Recover Status

After the Conflict Resolution dialog box closes, the Recover Status window, shown in Figure 4-23, reappears as the recovery continues.
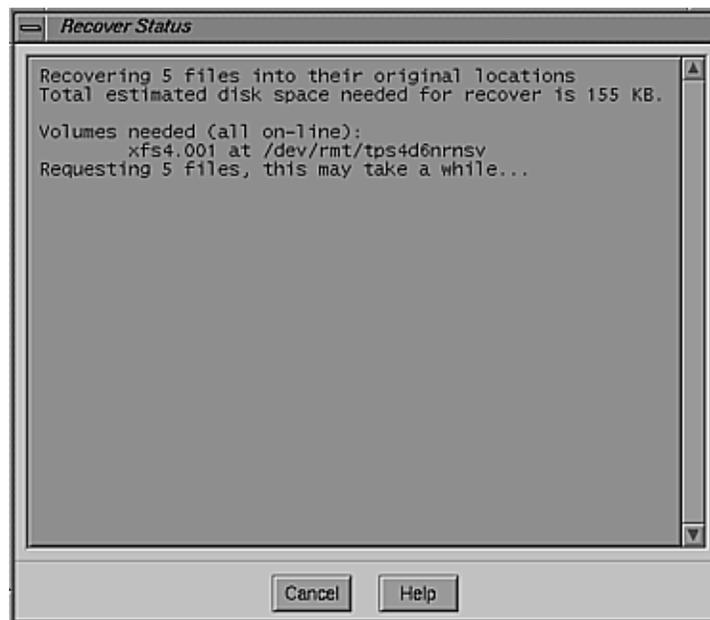

Figure 4-23   Recover Status Window

The Recover Status window lists the following information about your recover session:

- the number of files to be recovered and where they will be relocated; for example:

  ```
  Recovering 1 file into its original location
  Total estimated disk space needed for recover is 45 KB.
  ```

  If you specified a directory in the relocate dialog box, it is listed.

- the estimated disk space required for the recovery; for example:

```
Total estimated disk space needed for recover is 45 KB.
```

- the name of the required backup volume and its location; for example:

```
Volumes needed (all on-line):
man.001 at /dev/nrst8
```

- the amount of time needed to recover the file and the name of the file or directory being recovered; for example:

```
VRequesting 1 file, this may take a while . . .
./TechPubs
```

NetWorker lists the new filenames if you chose to rename the recovered files.

To cancel the recovery, click *Cancel.*

When the recovery is complete, the following message appears:

```
Recover completion time:...
```

Click *Cancel* to close the Recover Status window.

Archiving and Retrieving

NetWorker includes an optional Archive product for storage of data. Data archiving is the process of taking a snapshot of files or directories as they reside on primary media (usually disk) at a given point in time for long-term storage on media called *archive volumes.* Archive volumes are similar to backup volumes, except that their retention policy is "retain forever." Archive volumes never expire.

Archiving is normally performed on data associated with specific projects, rather than on an entire system. Unlike data backup, users typically initiate data archiving whenever they need, so a network-wide archiving policy is usually impractical.

Note: If you are not sure if your site or your system has Networker Archive, ask your system administrator.

The principal goals of performing a backup and archiving differ:

- The goal of backing up data is to protect data against accidental loss or damage. Backups should be reliable and efficient.

- The goal of archiving is to maintain a snapshot of data in perpetuity (or for as long as desired), and to conserve online storage space. Storage media must be durable, safe, and reliable. These media are usually removable, such as tape or optical disk.

Furthermore, backups are always associated with a level—full, differential, or incremental—whereas archives are not.

After archiving is complete, NetWorker allows you to delete archived files and directories to free disk space, or leave them in place. This option is called *grooming.* However, if you need to retrieve the files someday, you should be prepared for a wait. Your site's policy may be to move archives offsite, so getting them back could take a day or more. Check with your administrator for details.

Because archived data might be deleted from the system immediately or eventually, NetWorker provides an extra measure of security to make sure that archived data is correct. NetWorker verifies data in two ways:

*   media verification: NetWorker reads the archive volume and ensures that it is writable and contains no bad spots

*   data verification: NetWorker reads data from the archive volume as if doing a retrieve, but does not actually write any archived data back to disk.

Like the basic NetWorker program, the Archive product consists of two programs, an archive program for storing data on archive volumes and a retrieval program for bring the data back to your system. If NetWorker has been installed on your system, you will see the icons, as shown in Figure 5-1.

Figure 5-1   Networker Archive and Retrieve Icons

This chapter explains archiving data and retrieving data, in separate sections.

Archiving Data

This section explains

*   starting the Archive program

*   starting and monitoring an archive

*   grooming your filesystem

Starting the Archive Program

To start archiving, click on the Archive icon or type this command at the system prompt:

```
% nwarchive&
```

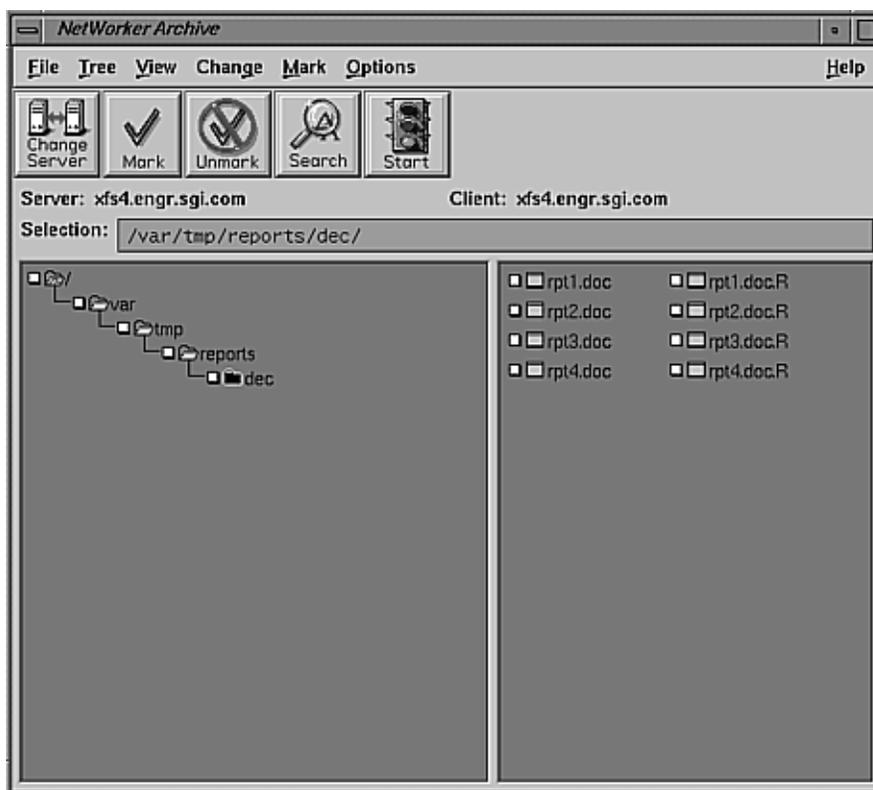The NetWorker Archive window appears, as shown in Figure 5-2.

Figure 5-2   NetWorker Archive Window

This window resembles the NetWorker Backup window. See Figure 2-2 in "Using NetWorker Windows" in Chapter 2. For details on that program, refer to "Backing Up Data" in Chapter 4.

Most menu choices have shortcuts elsewhere in the window. The exceptions are "File Details" in the View menu, which produces a long listing of files in the right-hand panel, and "Speedbar" in the Options menu, which alternately hides and enables the speedbar buttons.

Use features of this window as follows:

speedbar   These buttons perform the following functions:

- *Change Server*: switches to a different NetWorker server

- *Mark*: designates a file or directory hierarchy for archiving

- *Unmark*: turns off the designation for archiving

- *Search*: brings up a dialog box to help you find a named file

- *Start*: begins the archive, if you have marked files

Selection field Shows the hostname of the chosen server and client and the currently selected (working) directory in the panels below. You can type a new pathname into the Selection field if desired.

left panel   Displays the currently selected path on the client machine, all the way up to root. To display all directories and files in the currently selected directory, double-click the directory folder, or choose "Expand One Level" from the Tree menu.

To display all levels of subdirectories, choose "Expand Branch" from the Tree menu. To hide all the expanded subdirectories, double-click again on the directory folder, or choose "Collapse Branch" from the Tree menu.

right panel   Displays all files in the currently selected directory, often as a scrolling list. Files appear as pages with the corner bent over, and directories appear as manila folders. To mark a file or directory for archiving, click on its check box to the left. A check mark appears in the box, as shown for the *NSRman* directory in Figure 5-2. To unmark a file or directory, click again on its check box.

Tip: Marking a directory also marks all the files it contains, as well as all subdirectories and everything they contain. To archive most (but not all) files in a directory, first mark the directory, and then unmark what you do not want to archive.

Starting and Monitoring an Archive

To begin the archive, click the *Start* button on the speedbar, or choose "Start Archive" from the File menu. The Archive Options window appears, as shown in Figure 5-3.
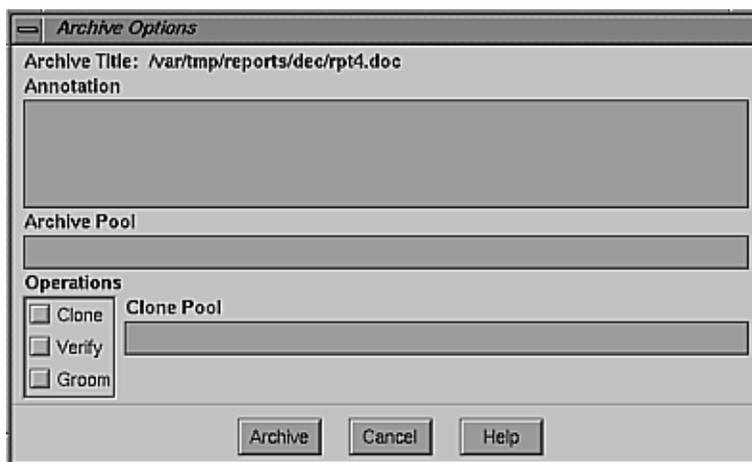

Figure 5-3   Archive Options Window

Use features of this window as follows:

Archive Title   View the pathname of the currently selected directory.

Annotation field

Type a comment that might help somebody remember or understand what this archive contains.

Tip: Because archives theoretically last forever, NetWorker does not track them in the online index. Consequently, when you retrieve archived data, the retrieve program shows only the archives that a server has made during a

selected period, or for a certain user. Thus the best way to remember your archives is to create an annotation that remains meaningful over the years or to keep a record of the date.

Archive Pool field

Specify a volume pool for your archive. If you leave this field blank, the volume pool defaults to Archive.

Operations list   Click one of these buttons:

- *Clone*: Click to clone your archive data (that is, make an exact duplicate) on a volume other than the regular archive volume. This action depends on the availability of two devices, each with the proper volume mounted. Verify their availability with your system administrator, if necessary.

- *Verify*: Click to verify that the data on archive media matches the data on local disk.

- *Groom*: Click to remove files and directories from local disk after archiving is complete.

Clone Pool field

Enter the clone pool you wish to use, if you are cloning your archive data (click the *Clone* button, as explained above). Make sure that this volume is mounted and available. If you specify a Clone Pool, the clone is sorted to a volume associated with the pool you specified. If you leave this field blank, the clone pool defaults to Archive Clone.

Archive button   Click to continue the archiving process. The Archive Status window appears to inform you of progress, as shown in Figure 5-4.
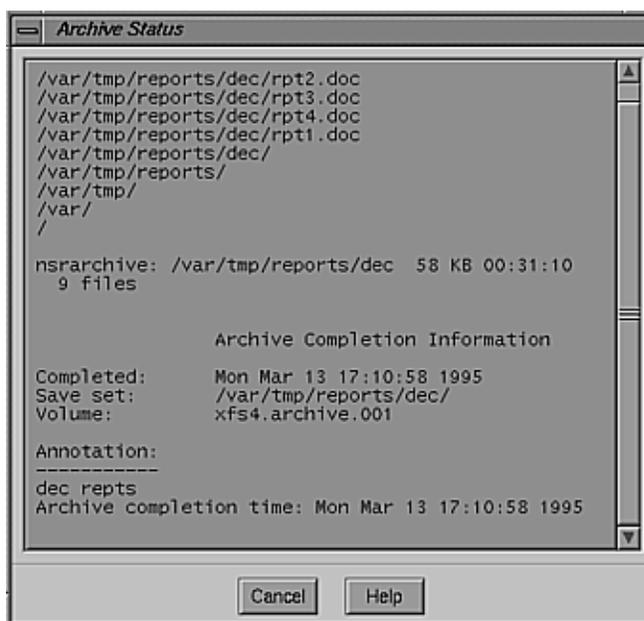
Figure 5-4   Archive Status Window

If you selected "Verify" in the Archive Options window, NetWorker checks
the data written on the archive volume. The archive completion report in the
Archive Status window indicates whether or not data could be verified as
correct.

Grooming Your Filesystem

If you selected "Groom" in the Archive Options window, NetWorker deletes
marked files after archiving is complete.

Note: Before you select the Groom option, return to the Archive window to
see which directories and files are marked. Make sure that you have not
marked directories or files that you wish to retain on disk.

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Retrieving Data

Retrieval is the copying of files back to local disk from the long-term storage media called archive volumes. When you run the NetWorker retrieve program, NetWorker displays the names of the archive save sets on that server, listed by client name. You can retrieve a particular save set only if you have administrator or archive user privileges for that server. You can search for specific archives or alter the sort order of archive save sets in the viewing list.

When you choose an archive save set to retrieve, and your administrator ensures that the relevant archive volume (or a clone of that volume) is mounted on the NetWorker server, retrieval can begin.

Retrieved save sets can be relocated, renamed, or allowed to overwrite existing files of the same name, as with the NetWorker recover program.

This section explains

- tracking archived data
- starting the NetWorker retrieve program
- viewing archive save set details
- retrieving a save set

Tracking Archived Data

Archiving and backing up have different purposes. Archiving is a long-term strategy for preserving data and conserving disk space. Backup is short-term insurance against the disaster of data loss. To make it easy to recover lost or corrupted files, NetWorker keeps track of backups in the online file index. Maintaining this index requires considerable disk space. Because archives theoretically last forever, NetWorker does not track archived files in the online index.

Consequently, when you retrieve archived data, the windows do not show the structure of your files and directories. It shows only the archives that a server has made during a selected period, or for a certain user. Thus the best way to remember your archives is to keep a record of the date, or create an annotation that remains meaningful over the years.

Starting the NetWorker Retrieve Program

To retrieve archived files and directories, click on the Retrieve icon or type the following command at the system prompt:

```
% nwretrieve&
```

The NetWorker Archive Retrieve window appears, initially with no save sets listed. To see a list of archive save sets, click the *Query* button.

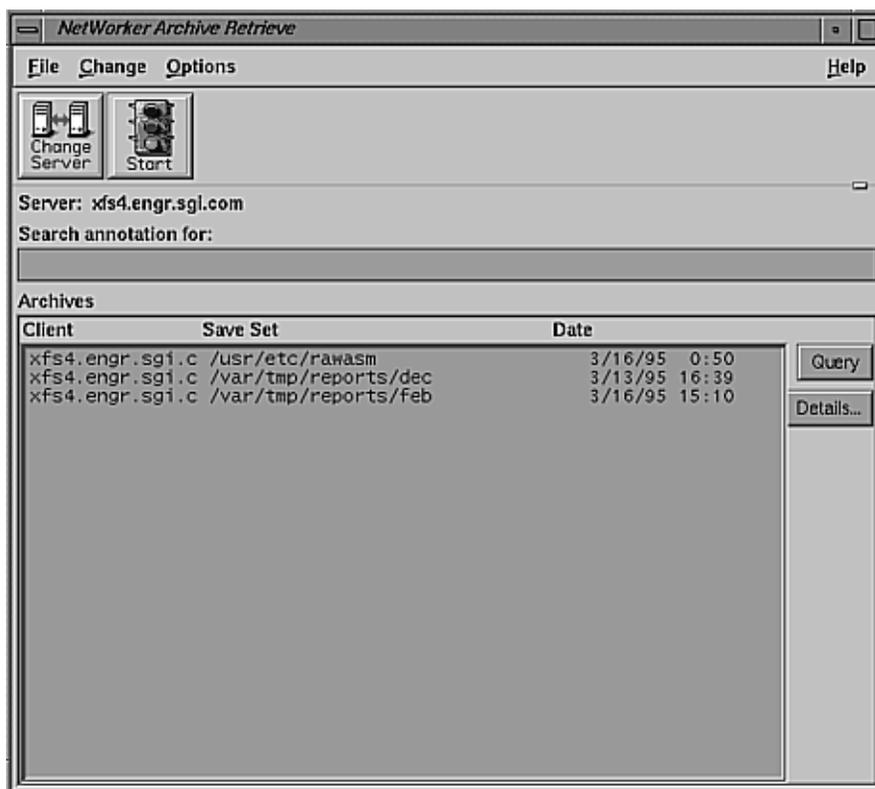The window fills up with data, as shown in Figure 5-5.

Figure 5-5 NetWorker Archive Retrieve Window

Use features of this window as follows:

Search annotation for field
> Type a search string (an annotation text or a portion of one) and click the *Query* button, as explained below. You can use regular expressions in the search string. All archive save sets with matching annotations appear highlighted in the Archives list.

Archives scrolling list
> View a list of archive save sets available from the server.

Query button   Click to display a list of archive save sets. If you have specified a search string in the "Search annotation for" field, the save sets with matching annotations appear highlighted in the Archives list.

Details button   Click to view details about the most recently highlighted archive save set, as explained in the next section, "Viewing Archive Save Set Details."

Viewing Archive Save Set Details

To see details about the most recently highlighted archive save set, click the *Details* button. The Retrieve Details window appears, as shown in Figure 5-6.

Figure 5-6   Retrieve Details Window

In this window, "name" represents the save set, "files" the number of files in the save set, "ssid" the save set ID, and "size" the number of bytes.

This window also shows the archive annotation, which you can search for in the NetWorker Archive Retrieve window.

Note: There is no point in selecting multiple save sets for viewing details; the most recently highlighted archive save set is the only one NetWorker reports on.

Retrieving a Save Set

To select a save set for retrieval, highlight it in the Archives list, and choose "Start Retrieve" from the File menu.

Tip: You can select multiple save sets for retrieval. NetWorker retrieves them in the order in which they were archived, so as not to overwrite later copies of files if you have *Overwrite existing files* selected.

The Retrieve Status window appears, as shown in Figure 5-7.
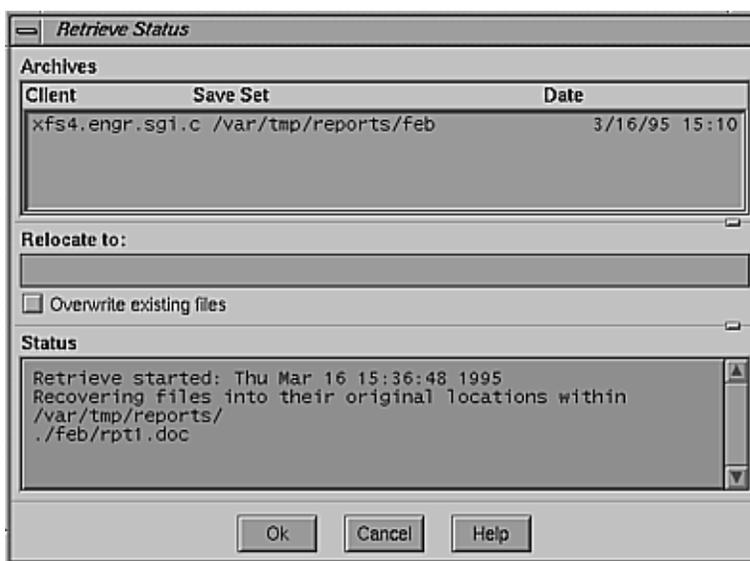
Figure 5-7 Retrieve Status Window

Use features of the Retrieve Status window as follows:

Archives list   View all archive save sets selected for retrieval in the NetWorker Archive Retrieve window.

Relocate to field

> Specify a new or existing directory where retrieved files can be copied.

Overwrite existing files

> Select to cause NetWorker Retrieve to replace any files on local disk with the same pathname as files retrieved from the archive volume.

Ok button

> Click when you are ready to start the retrieve. The appropriate archive volume(s) must be mounted beforehand.

Cancel button

> Click to stop a retrieve in progress, or to dismiss the Retrieve Status window before retrieval has begun.

Status field

> View informational messages that inform you of progress of the retrieve.

Error Messages

NetWorker provides user-friendly error messages that have easy-to-understand explanations. This appendix provides you with further information and solutions to assist you with your backups and recoveries.

Error Messages for Backup

NetWorker displays an error message if a backup cannot be successfully completed. Backup error messages are as follows:

```
Nothing marked for backup
```

Problem: Starting backup without marking any files.

Solution: Mark at least one file before starting the backup.

```
Unable to start backup
```

Problem: Error starting the backup (NetWorker could not execute the *save* command).

Solution: Contact the system administrator. There is a problem either with the NetWorker software or with your client configuration (for example, an incorrect pathname).

```
Your system is not a registered client.
```

Problem: The server you have chosen for your backups does not have your system configured as a NetWorker client.

Solution: Contact the system administrator. Your system needs to be added to the server's list of recognized clients.

Error Messages for Recover

An error message is displayed when NetWorker is unable to recover a file. Recover error messages are as follows:

```
These are files marked for recovery.
Continue to ignore the marked files, or cancel to stay with
this client.
```

Problem: Changing clients or changing filesystems when files are marked.

Solution: You have the option to continue changing clients. In this case, the marked files will not be recovered. Alternatively, you can cancel to stay with the current client and retain your marked files.

(For root user) `Only 10 KBytes available (15 KBytes free) in /directory.  Filesystem will be greater than 100% full after recover is complete.  Proceed with recover command at this time? [n]`

(For non-root user) `No disk space available (15 KBytes free) in /directory.  The estimated recover size of 10 KBytes will not fit on this filesystem.  Proceed with recover command at this time? [n]`

Problem: There is not enough free space in the filesystem to recover the requested files.

Solution: Reduce the number of kilobytes in the recovery by reducing the number of marked files. Relocate the recovery into another directory with more space. If you are recovering over existing directories, you may be able to proceed with the recovery, since files might be overwritten.

```
Invalid time format
```

Problem: The time specified in the Browse Time field was invalid.

Solution: Enter the browse time using a valid format. Valid formats are

- hh:mm:ss (24-hour clock); for example, 15:30:00

- hh:mm (am, pm) (PDT) mm/dd/(yy); for example, 5:30 pm PST 7/4/95

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- monthname dd (yy); for example, October 31
- last Friday, next Friday, third Friday
- + or - 3 seconds, minutes, hours, weeks, months, years
- now

`Nothing in index at this time`

Problem: There are no entries in the index for the browse time that was specified, or no backups were performed at that time.

Solution: Enter another browse time close to this one until you find the index entries you are looking for.

`Unable to relocate to /`*directory*

Problem: NetWorker was unable to relocate the recovered data to the specified path.

Solution: Enter a valid pathname in the Relocate dialog box and start the recovery again. You must have write permission for the directory you wish to use.

Error Messages for Both Backup and Recover

Some of NetWorker's error messages are the same for both a backup or recover that is unsuccessful. The error messages used for both backups and recovers are as follows:

`There are files marked for backup or recovery. Continue to`
`ignore the marked files or cancel to stay with server.`

Problem: You cannot change servers after you have marked files.

Solution: You have the option of continuing changing servers. If you change servers, the marked files are not backed up or recovered. You can cancel to stay with the current server and retain your marked files.

`Bad start path`

Problem: Specifying an invalid starting path for a search.

Solution: Enter a valid pathname as a starting point in the search dialog box.

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`No match`

Problem: Nothing matched on this search command.

Solution: Enter a different pattern or a different starting path.

`Bad search pattern`

Problem: The search pattern specified is not valid.

Solution: You can use the IRIX shell pattern characters to specify a search pattern.

`Unable to expand path`

Problem: The path specified in the selection field does not correspond to anything in the index or filesystem.

Solution: Enter a valid pathname in the selection field.

Commands for Backup and Recovery

In addition to a graphical user interface, NetWorker has backup and recover commands similar to IRIX commands. These commands are entered from an IRIX shell. To use the NetWorker commands from an IRIX shell, the NetWorker software must be installed on the NetWorker server, and your system must be configured as a NetWorker client by the system administrator.

Use the *save* command to back up data:

```
# save -s server pathname
```

Use the *recover* command to recover data:

```
# recover -s server -c client pathname
```

In addition, the Recover program provides an interface that allows you to browse files and control your recoveries. When you enter the *recover* command, the NetWorker prompt appears. You can use the commands listed in Table B-1.

Table B-1   *recover* Commands

Command	Description
?	Displays list of Recover program commands.
add filename	Adds *filename* to the recover list.
cd dir	Changes directory to *dir*.
changetime	Changes the browse time of online index.
delete filename	Deletes *filename* from the recover list.
dest	Verifies destination directory for recovered files.
force	Overwrites existing files.

Table B-1 (continued)   *recover* Commands

Command	Description
help	Displays list of Recover program commands.
list	Lists the files in the recover list.
ls -f filename *ls -lf filename*	Lists *filename* with file type information.
ls -l filename *ls -ll filename*	Lists *filename* using long format.
ls filename	Lists *filename*.
noforce	Does not overwrite existing files.
nsrwatch	Monitors NetWorker server activity.
pwd	Displays name of current directory.
quit	Exits the Recover program.
recover	When entered at the system prompt, starts the Recover program; when entered at the `recover>` prompt, starts the recovery.
relocate dir	Specifies new directory location for recovered files.
verbose	Toggles verbose or quiet mode for Recover status messages.
versions filename	Displays backup history of file *filename*. *filename* can be either a file or a directory.
volumes filename	Lists volumes needed to recover marked files. *filename* can be either a file or a directory.

Requirements for NetWorker Clients

For Silicon Graphics NetWorker clients to use the NetWorker server to back up and recover files, clients must

- be running IRIX 5.*3* or 6.x

- have NetWorker client software installed (see "Installing NetWorker Software on Clients" in Chapter 1)

- be running the *nsrexecd*(1M) daemon (it is started automatically by *inst* at installation time)

- recognize the NetWorker server (see "Installing NetWorker Software on Clients" in Chapter 1)

- be recognized by the NetWorker server (the Clients window of the *networker*(1M) command running on the server must list the client)

Individual licenses for NetWorker clients are not installed on the clients; only the NetWorker server requires licenses.

For the optional Archive and Retrieve programs, a NetLS license must be installed on the server and loaded into the NWServer program with *nsrcap*. This procedure is explained in the *IRIX NetWorker System Administrator's Guide.*

Glossary

back up (v.)

To store the directories and files on your workstation on tape or another storage medium.

backup (n.)

A copy of the directories and files on your workstation on a tape or another storage medium.

backup volume

Any type of storage media that your server can back up to: magnetic tape, floppy disk, or optical disk.

collapse

To change the view to display only the top level of a highlighted directory in a window.

index

A database on the NetWorker server that contains an entry for every file backed up.

expand

To change the view to display all the levels of a directory in a window.

media device

The device that is attached to the NetWorker server for transferring and recovering data that has been saved.

NetWorker client

A system on a network that backs up and recovers data using NetWorker.

NetWorker server

The system that backs up all the other systems on a network according to a schedule and maintains an online index of everything it backs up.

recover (v.)

To replace a lost file with a copy from the NetWorker server.

selection

The name of the volume, directory, or file highlighted in any window.

tree structure

A view that displays the contents in a window in a hierarchical form.

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