IRIX NetWorker™ User's Guide

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IRIX NetWorker™ User's Guide
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About This Guide

The *IRIX NetWorker User's Guide* contains instructions on how to use NetWorker's backup, archive, and recover software from a client workstation. It also shows how to back up files and directories to the NetWorker server as needed, using the NetWorker Backup window, and how to browse the online file index to recover files using the NetWorker Recover window. Instructions for using the optional NetWorker Archive Application are also included in this guide.

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

Audience

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

Conventions

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

- Shell command names and command-line options are displayed in **bold** typeface. For example:

    To start the NetWorker backup program, use the **nwbackup** command.

- Displays of text that *you* need to type are displayed in bold fixed-width typeface. For example:

    # **nwbackup &**

- Displays of text where you must substitute a variable are shown in italic typeface. For example:

    # **nwbackup -s** *serverName*

- Names of NetWorker buttons, displays, menus, menu items, scrolling lists, and windows are displayed in Helvetica typeface. For example:

  Click the Cancel button to close the Help window.

- Printing and nonprinting keyboard keys are displayed in Helvetica typeface and enclosed in square brackets. For example:

  Hold down the [Alt] key and press the shortcut key.

- Directory *pathnames*, machine names, and new terms defined in the glossary are displayed in *italic* typeface. For example:

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

- The following symbols indicate various levels of additional information to help you when using NetWorker:

  Caution: Important pieces of information and cautionary notes that prevent you from making a mistake are marked "Caution."

  Note: Helpful information that you should probably know about is marked "Note."

  Tip: Tips or suggestions that you do not necessarily have to follow, but may give you hints as to how to set up NetWorker at your site, are marked "Tip."

  Shortcut: Step-by-step procedures that help you save time because they provide the minimum information you need to complete a task are marked as "Shortcut."

Introduction to IRIX NetWorker

IRIX NetWorker is an easy-to-use network storage management software product. NetWorker performs automatic backups of your files, scheduled by your system administrator, to protect against the loss of valuable data. You can also perform backups on an as-needed basis and archive project-related data for additional protection.

With NetWorker, recovery is fast and convenient, so you do not waste time re-creating lost files. Simply scroll through NetWorker's list of backed-up files and recover the files to your disk. NetWorker even shows multiple versions of a file, backed up over time, allowing you to select the version you want to recover. NetWorker provides access to these powerful features through an intuitive graphical user interface (GUI).

The optional NetWorker Archive Application provides the ability to take a snapshot of finished project files or directories residing on primary media (usually disk). You can choose to have archived files automatically removed from disk, after NetWorker verifies the snapshot is safely stored on removable media, to conserve disk space.

Unlike backed-up data, the media used for storing archived data is never recycled. Archived data is preserved for as long as you need it. Archiving data associated with a finished project frees up space for current projects, while assuring future access to mission-critical data.

To use the Archive Application, your system administrator simply enables the software on the NetWorker server and clicks a choice to revise your client setup. No additional installation procedures are required.

Overview of IRIX NetWorker

The NetWorker *server* is a machine with a *backup device* that automatically backs up *all* the systems on a network. Once your system administrator installs NetWorker and configures the server to recognize your system as a *client,* NetWorker

- automatically backs up your files on a set schedule

- backs up selected files at any time as needed

- provides long-term storage of project data with the optional Archive Application

NetWorker backs up
your data over the
network.

The NetWorker
server sends
the data to

a tape drive

or
autochanger.

NetWorker Archive
stores project data on
archive volumes. You
can remove files from
your system after
archiving to conserve
disk space. Mission-
critical data remains
safely preserved for as
long as you need it.

Your system is a
NetWorker client.

NetWorker
regularly stores and
tracks your data on backup
volumes. If you lose a file,
you can get it back
easily and quickly.

Figure 1-1   Flowchart of NetWorker Backup and Archive

When you use NetWorker to back up your files, the files are saved to *backup volumes* on the NetWorker backup device. The NetWorker server keeps an online *index* of the backed-up files. You browse this online index to recover a single file or a complete directory.

Archiving involves long-term storage of data on media called *archive volumes*. Archive volumes are similar to backup volumes, but are stored for very long periods of time and are not automatically recycled.

About This Guide

This guide contains information on backing up and recovering your data using the NetWorker Backup and NetWorker Recover windows. Instructions for using the NetWorker Archive and NetWorker Retrieve windows (the Archive Application) are also included.

This guide is organized into sections to help you locate the kind of information you need, including shortcuts, examples, and step procedures.

Using the NetWorker Programs

After the NetWorker server is set up, your system administrator will install two programs: **nwbackup** and **nwrecover**. The system administrator will install the software on your system or configure your system to access NetWorker remotely.

If the optional Archive Application is enabled for your site, two additional programs are available for use: **nwarchive** and **nwretrieve**. The system administrator changes your client configuration to allow your system to use the Archive Application.

Requirements for NetWorker Clients

Your system administrator is responsible for setting up your system to meet the requirements for NetWorker clients.

The following conditions must be met for a workstation to qualify as a NetWorker client:

- The NetWorker software is installed. For installation instructions, see the *IRIX NetWorker Installation and Maintenance Guide*.

- The daemon **nsrexecd** is running on a NetWorker client. The daemon **nsrexecd** is used by **savegrp** to start saves on NetWorker client machines. To enable **nsrexecd**, the install script **nsr_ize** must be run on the client.

- The NetWorker server is configured to recognize the client. For directions on how to set up a client, see the *IRIX NetWorker Administrator's Guide*.

If any one of the above conditions are not met, you will be unable to use NetWorker. Contact your system administrator before proceeding.

Quick Tour Review

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

*   Use the NetWorker GUI.
*   Use the NetWorker Backup window to back up a subdirectory to the NetWorker server.
*   Exclude a file from the backup.
*   Monitor the status of the backup.
*   Use the NetWorker Recover window to browse the index for your backed-up files.
*   Mark a file for recover in the Recover window.
*   Recover a file.
*   Use the Conflict Resolution dialog box to resolve naming conflicts during recover.
*   Monitor the status of the recover.

The Quick Tour is meant to familiarize you with the NetWorker Backup and NetWorker Recover windows. Chapter 3 shows how to view and mark your files and directories. Chapter 4 provides detailed information on performing backups and recovers.

If you have the optional NetWorker Archive Application, see Chapter 5, "Archiving and Retrieving Files" for information specific to the NetWorker Archive and NetWorker Retrieve windows.

```
Recover Status

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

Volumes needed (all on-line):
        midas.apr96.008 at /dev/rmt/tps6d6nrnsv
Requesting 1 file, this may take a while...
./.insightrc
renaming ./.insightrc to ./.insightrc.R
Received 1 file from NSR server 'midas'
Recover completion time: Wed Apr 17 15:21:17 1996

                    Cancel      Help
```
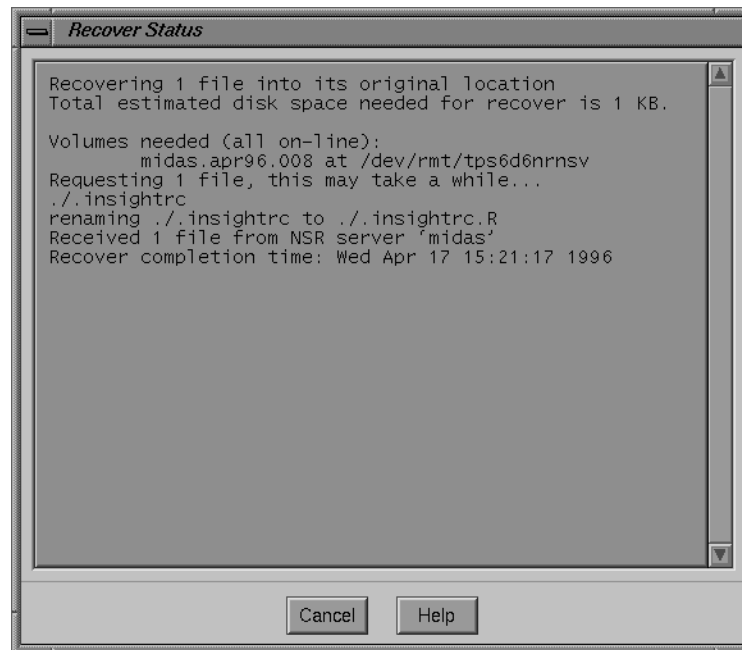
Figure 2-29   Recover Status Window

The Recover Status dialog box provides the following information:

• number of files to recover and their recover location

• estimated disk space needed

• name(s) of the backup volumes needed

• device location of the required backup volume(s)

• number of files being recovered and their names

• new filenames, if you selected Rename the recover file

Click the Cancel button to cancel the recover or close the Recover Status dialog box when the recover is finished.

A message similar to the following appears when the file recover completes:

```
Recover completion time: Wed Apr 17 15:21:17 1996
```

1. Click the Start speedbar button to start the recover. The Conflict Resolution dialog box appears, as shown in Figure 2-28.
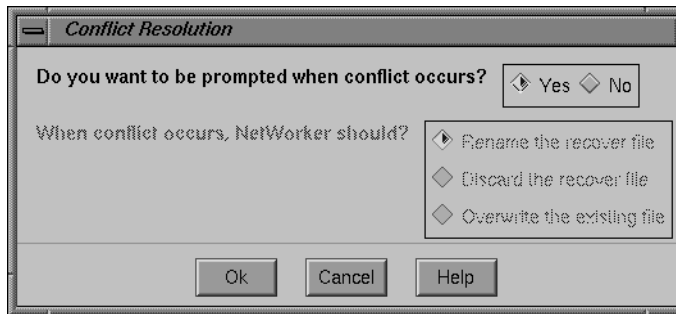
Figure 2-28   Conflict Resolution Dialog Box

Use the Conflict Resolution dialog box to resolve naming conflicts that might occur during recovery. Naming conflicts occur when the requested recover file has the same name as an existing file.

2. Click No for Do you want to be prompted when conflict occurs?, so that NetWorker does not prompt you for each naming conflict.

3. Click one of the When conflict occurs, NetWorker should? choices. The default choice, Rename the recover file, is already selected. This option adds a *.R* extension after the name of the recovered file when a naming conflict occurs.

   Tip: We recommend you select the default choice, Rename the recover file, to ensure that existing files are not accidentally overwritten.

4. Click Ok to close the Conflict Resolution dialog box and continue the recover.

   The Recover Status window appears, as shown in Figure 2-29, so you can monitor the recover process.

5. Confirm your file recover by listing the contents of the directory from a UNIX® command prompt. Since Rename the recover file was selected in the Conflict Resolution dialog box, the recovered file shown in the example has a *.R* file extension.

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 2-26.
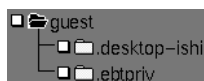
Figure 2-26   Recover Directory After Expanding One Level

Tip: Double-clicking a closed directory folder expands it one level. Double-clicking an open directory folder collapses it.

Marking a File

To mark a file or directory for a recover:

1. Click the directory folder that contains the file you want to recover. The file display shows the most recently backed-up version of the files contained in the directory.

2. Click the checkbox in the file display next to the file you want to recover, as shown in Figure 2-27. If you want to recover an entire directory, mark its checkbox in the directory display.

Figure 2-27   File Marked for Recovery With Check Mark

Starting the Recover

So far, you have browsed the index and marked files for recovery. The next step is to start the recover.
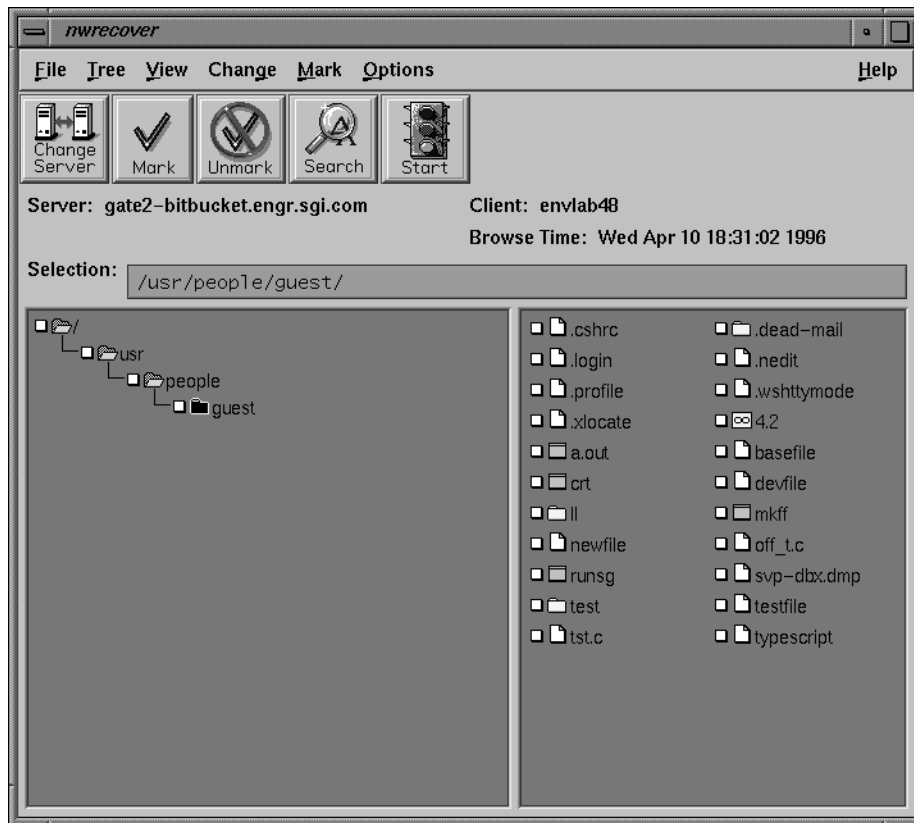
Figure 2-25   NetWorker Recover Window

Note: The NetWorker Recover window displays index entries for the files on the NetWorker server. By contrast, the NetWorker Backup window displays the actual files in your filesystem. The NetWorker Recover window shows entries for files that have been backed up and are available for recovery. The entries are organized exactly like an actual filesystem, so it is easy for you to navigate the directories.

Browsing the Index

You can browse the index to locate a file you want to recover.

Recovering a File

The NetWorker Recover window displays the index entries NetWorker creates when it backs up the data on your system. Index entries are organized exactly like the filesystem displayed in the NetWorker Backup window, so you can easily navigate through your directories and files.

The Quick Tour takes you through the following steps to practice recovering a file:

- opening the NetWorker Recover window

- browsing the files contained in an index

- marking the files you want to recover

- starting the recover

Opening the NetWorker Recover Window

Click the nwrecover icon (shown in Figure 2-24) to open the NetWorker Recover window, or type the **nwrecover** command at the system prompt.

Figure 2-24   NetWorker Recover Icon

The NetWorker Recover window appears, as shown in Figure 2-25.

```
Backup Status

Backup start time: Wed Apr 17 13:20:50 1996
/usr/people/guest/.cshrc
/usr/people/guest/.login
/usr/people/guest/.profile
/usr/people/guest/.wshttymode
/usr/people/guest/.ebtpriv/
/usr/people/guest/.expertInsight
/usr/people/guest/.insightrc
/usr/people/guest/.capturesettings
/usr/people/guest/.desktop-ishi/log
/usr/people/guest/.desktop-ishi/
/usr/people/guest/
/usr/people/
/usr/
/

save: /usr/people/guest  6 KB 00:00:41      14
files
Backup completion time: Wed Apr 17 13:21:31 1996

                    Cancel      Help
```

Figure 2-23   Backup Status Window

Tip: If you do not see files scrolling in the display, or if an error message appears, contact your system administrator. The server may be busy, or could have a configuration problem, or a backup volume might not be mounted in the device.

When your backup is complete, you see a message similar to the following in the Backup Status dialog box:

```
Backup Completion Time: Fri Nov 3 14:20:42 1995
```

NetWorker backs up marked files to the volume mounted in the server backup device. NetWorker also creates an entry in the index for each file it backs up, so you can find them for quick recovery.

Click the Cancel button to close the Backup Status window. Click the minimize button in the window header to reduce the NetWorker Backup window and display the nwbackup icon. If you want to exit NetWorker (stop the program), select Exit from the File menu.

Starting the Backup

After you finish 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 2-22.
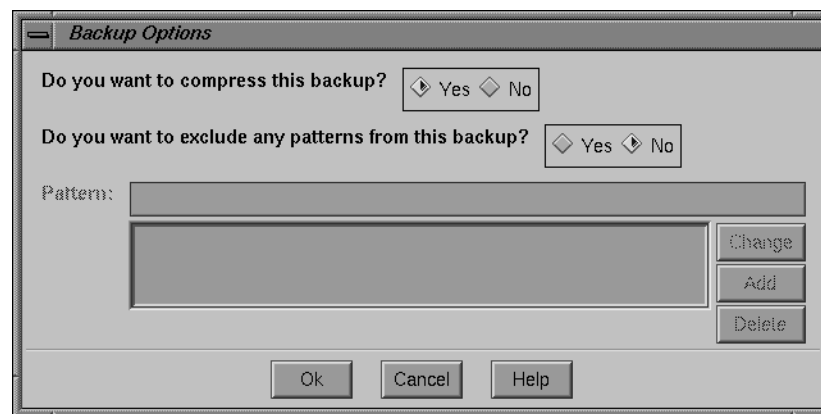
Figure 2-22   Backup Options Dialog Box

Tip: You can exclude groups of files by entering UNIX shell pattern matching characters in the Backup Options dialog box. For information on excluding patterns, see Chapter 4, "Backing Up and Recovering Files."

Use the Backup Options dialog box to tell NetWorker whether or not to compress the files during backup. The default choice for Do you want to compress this backup? is already highlighted, as shown. Click the Ok button to continue the backup with file compression.

Note: Compressing your data during backup saves space on the backup media and reduces network traffic, but may slow down the backup operation. Check with your system administrator to find out if you should compress your data during a backup.

The Backup Status window appears, as shown in Figure 2-23, so you can monitor the backup process.

Tip: You can also mark a directory by clicking its folder in the directory display and clicking the Mark speedbar button. The effect is the same as clicking the checkbox next to its folder.

Excluding a File From the Backup

You can exclude a file from backup by unmarking it. Click the checkbox next to a file to unmark it in the file display. The check mark disappears, excluding the file from backup, as shown in Figure 2-21.
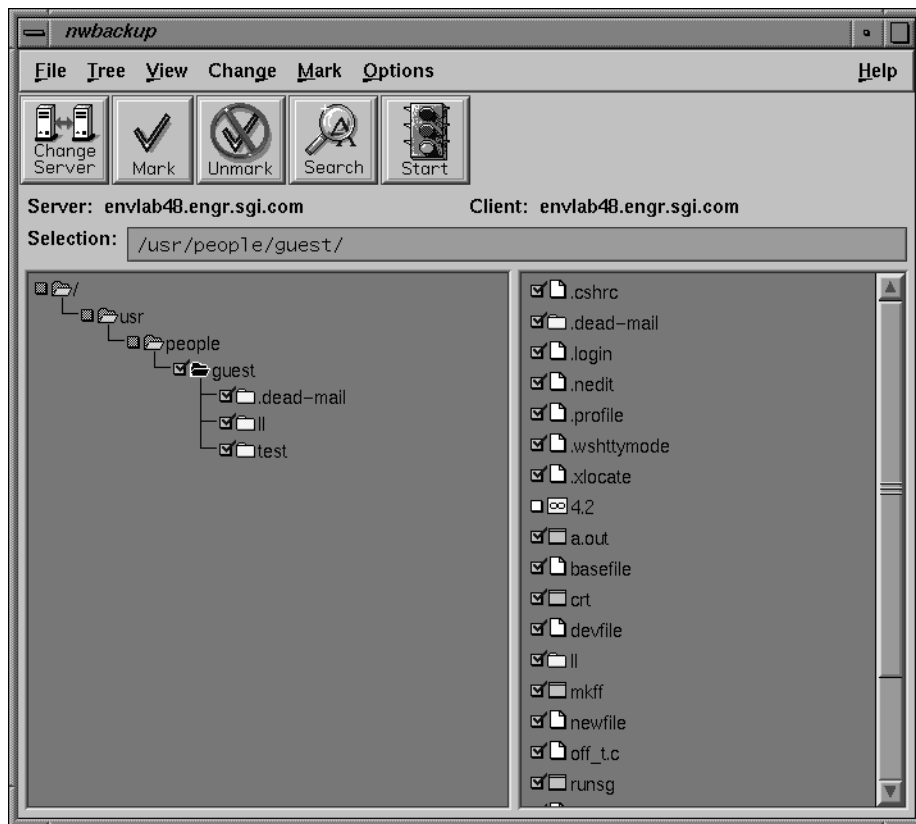
Figure 2-21 Backup Window After Mark and Unmark

Tip: You can also unmark a file by clicking its folder in the file display and clicking the Unmark speedbar button. The effect is the same as clicking the checkbox next to its folder.

Marking a Subdirectory

To mark a subdirectory, click the checkbox next to the folder representing the subdirectory you want to back up. A check mark (✓) appears in the checkboxes, as shown in Figure 2-20.

Click the folder to display its files. In the file display, the files and subdirectories contained in the marked subdirectory also appear marked, as shown.
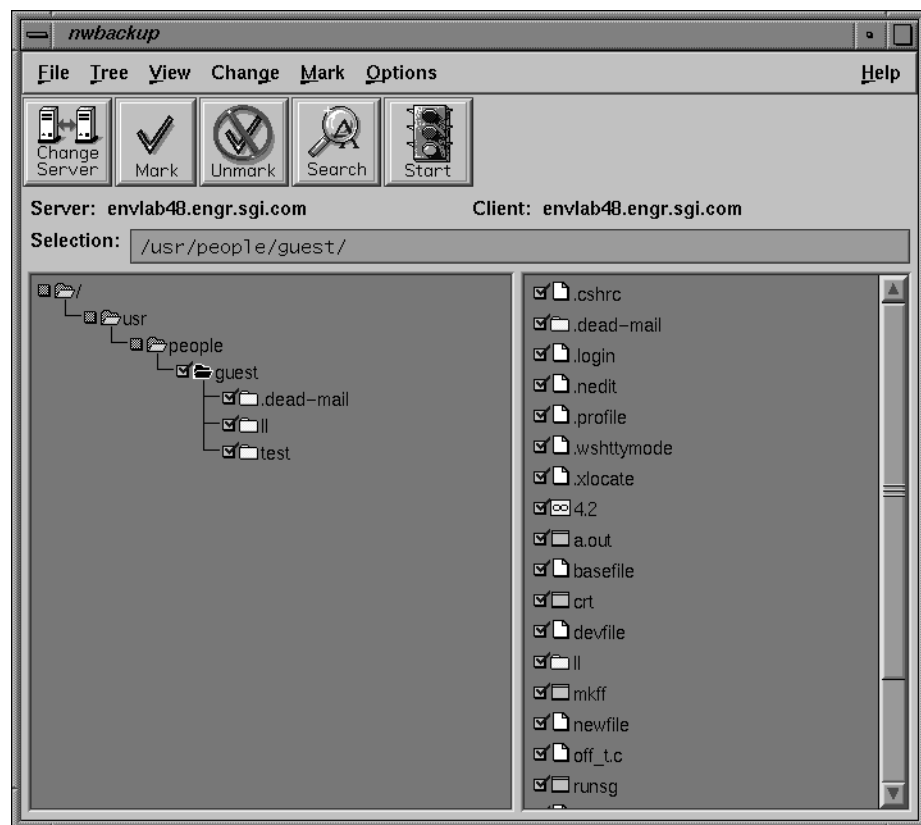
Figure 2-20   Backup Window Checked after Mark

When you mark a directory, its nested files and subdirectories are marked as well. The checkboxes of the parent directories are shaded to indicate that a subdirectory has been marked.
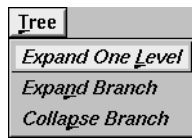
Figure 2-18   Tree Menu, Expand One Level Option

The directory display changes to show the expanded directory, one level below, as shown in Figure 2-19.
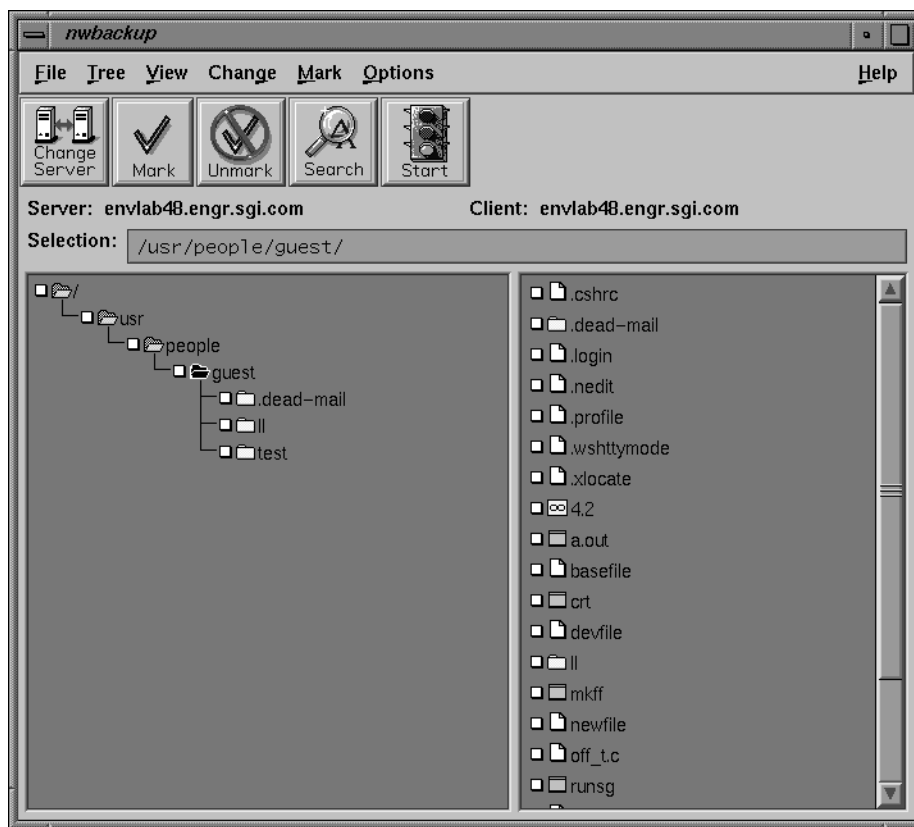
Figure 2-19   Backup Window, Expanded One Level
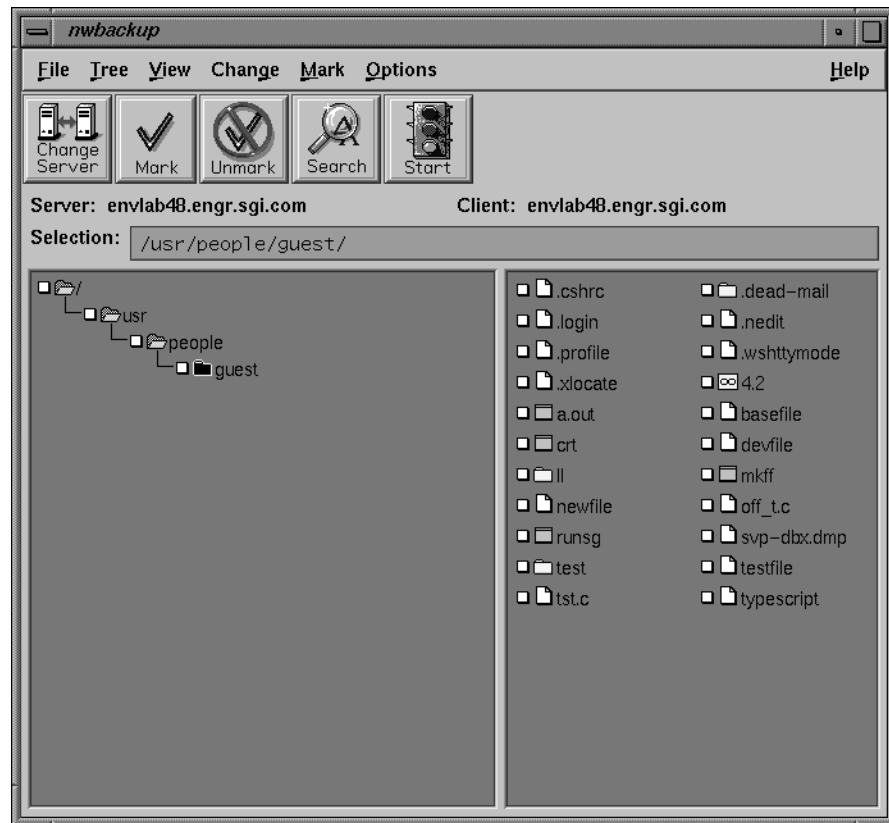
Figure 2-17   NetWorker Backup Window

The Selection field displays the *pathname* of the directory where you originally started
NetWorker. The directory display shows a graphical representation of the path with the
current directory highlighted. A highlighted directory is represented as a shaded folder
icon in the display. The file display shows the contents of the current directory. A
highlighted file is displayed as a shaded sheet icon.

Expanding the Current Directory

Expand the current directory one level to find a subdirectory to mark for backup. Select
Expand One Level from the Tree menu (see Figure 2-18).

Quick Tour of NetWorker

Follow the instructions in this section to become familiar with how NetWorker functions. The "Quick Tour" shows how to back up your current directory and recover a file using NetWorker. Chapters 3 and 4 provide detailed information about using NetWorker. Chapter 5 provides detailed information about using the optional NetWorker Archive Application.

Backing Up Your Directory

The NetWorker Backup window displays a graphical representation of the path with the current directory highlighted. The NetWorker Backup window lets you browse the filesystem to examine your directories and decide which files to mark for backup.

The Quick Tour takes you through the following steps to practice backing up a file:

- opening the NetWorker Backup window

- expanding the current directory

- marking an entire subdirectory for backup

- excluding a file from the backup

- starting the backup

Opening the NetWorker Backup Window

Click the nwbackup icon (shown in Figure 2-16) to open the NetWorker Backup window, or type the **nwbackup** command at the system prompt.

Figure 2-16 NetWorker Backup Icon

The NetWorker Backup window appears, as shown in Figure 2-17.

In the file display, sheet icons represent files, while folder icons represent directories (see Figure 2-12).
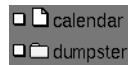
Figure 2-12   Sheet Icon Representing a File

Shaded sheets indicate selected files, and chain icons represent symbolic links (see Figure 2-13).

Figure 2-13   Chain Icon Representing Symbolic Link

Brick icons represent block devices, while three-box icons represent character devices (see Figure 2-14).
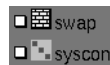
Figure 2-14   Brick and Three-Box Icons for Devices

The clock or watch icon replaces the cursor when NetWorker is busy performing a task.

Exiting From a Window

The Exit menu item is in the File menu of all NetWorker windows (see Figure 2-15). Selecting the Exit item closes the current window, without backing up or recovering files, and quits the current window.
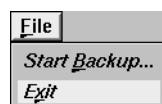
Figure 2-15   File Exit Menu

Icons

Use the checkbox next to an icon to mark and unmark files and directories for backup or recover. The icons you see in the window are described below. (Some of the icons represent terms common to UNIX.)

Folder icons represent directories (see Figure 2-7).

Figure 2-7   Folder Icon for Directory

Open folder icons indicate that the tree structure of the directory, if any exists, appears in the directory display (see Figure 2-8).

Figure 2-8   Open Folder Icon for Directory Tree

A check mark in the checkbox next to a folder icon for a subdirectory indicates that it is marked for backup or recover (see Figure 2-9).

Figure 2-9   Check Icon for Directory Tree Mark

Shaded folder icons indicate a directory selected for menu actions. The folder contents appear in the file display (see Figure 2-10).

Figure 2-10   Shaded Icon for Selected Directory

Folder icons with the red root-system represent mount points (see Figure 2-11).

Figure 2-11   Root-System Icon for Mount Points

- Search—searches for specific directories or files

- Start—starts the backup or recover operation

Figure 2-6   NetWorker Speedbar Buttons

The speedbar is identical in the NetWorker Backup, NetWorker Recover, and NetWorker Archive windows. Clicking a speedbar button produces the same result as selecting the menu item from a pulldown menu.

Selection Panel

The selection panels in the NetWorker Backup, NetWorker Recover, and NetWorker Archive windows show the current server and client selected. The selection panel in the NetWorker Recover window also displays the current Browse Time.

The Selection field shows the full *pathname* of the currently selected file or directory. Enter text in the Selection field or click a directory or file icon to select a different *pathname*.

Directory and File Display Areas

The window is divided into two display areas: a directory display on the left side and a file display on the right side. Both display areas contain vertical and horizontal scrollbars that allow you to view complete directory and file information. You can adjust the window to fit more information in the display areas. The display areas contain icons that represent the files and directories in the path you select.

Window Controls

Navigate vertically or horizontally in the directory and file displays by clicking the triangular endpoints on the scrollbars, or by dragging the slider.
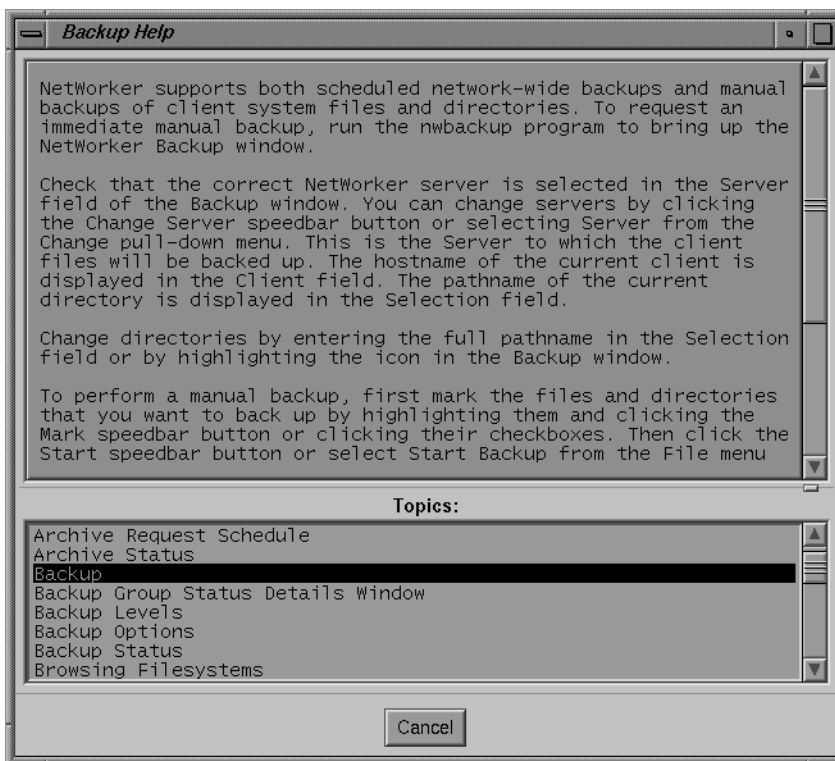
Figure 2-5   Backup Help Window

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

Speedbar

The five graphical buttons that appear on the speedbar (see Figure 2-6) serve as shortcuts for the following menu items:

- Change Server—switches to a different NetWorker server

- Mark—marks directories or files

- Unmark—unmarks directories or files
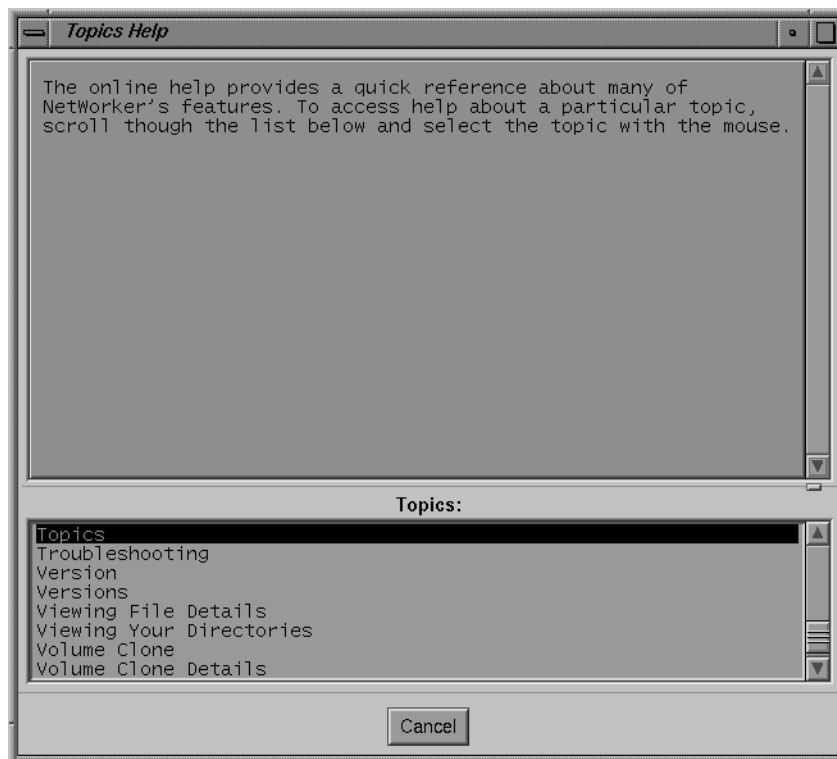
Figure 2-4   Topics Help Window

To see more information about a topic, click its title in the Topics scrolling list. Help text for the selected topic appears at the top of the dialog box. The Topics scrolling list remains available in the bottom panel for selecting other topics.

For example, clicking the topic Backup produces the dialog box shown in Figure 2-5.

- To pull down a menu using keyboard shortcuts:

  1. Hold down the [Alt] key.

  2. Press the key that matches the underlined letter of the menu name.

  3. Release both keys, then press the key that matches the underlined letter in the menu item name.

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

Online Help

Select the online Help menu, available in any NetWorker main window, for help on using NetWorker. Online help is available for components of the selected window, menu items, and dialog boxes.

The Help pulldown menu (see Figure 2-3) provides choices that provide help on the current window, a list of help topics to browse, directions for using Help, and information about the version of NetWorker you are using.
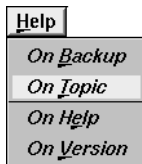
Figure 2-3   Help On Topic Menu Choice

Select the On Topic menu item in the Help pulldown menu to open the Topics Help dialog box, as shown in Figure 2-4.
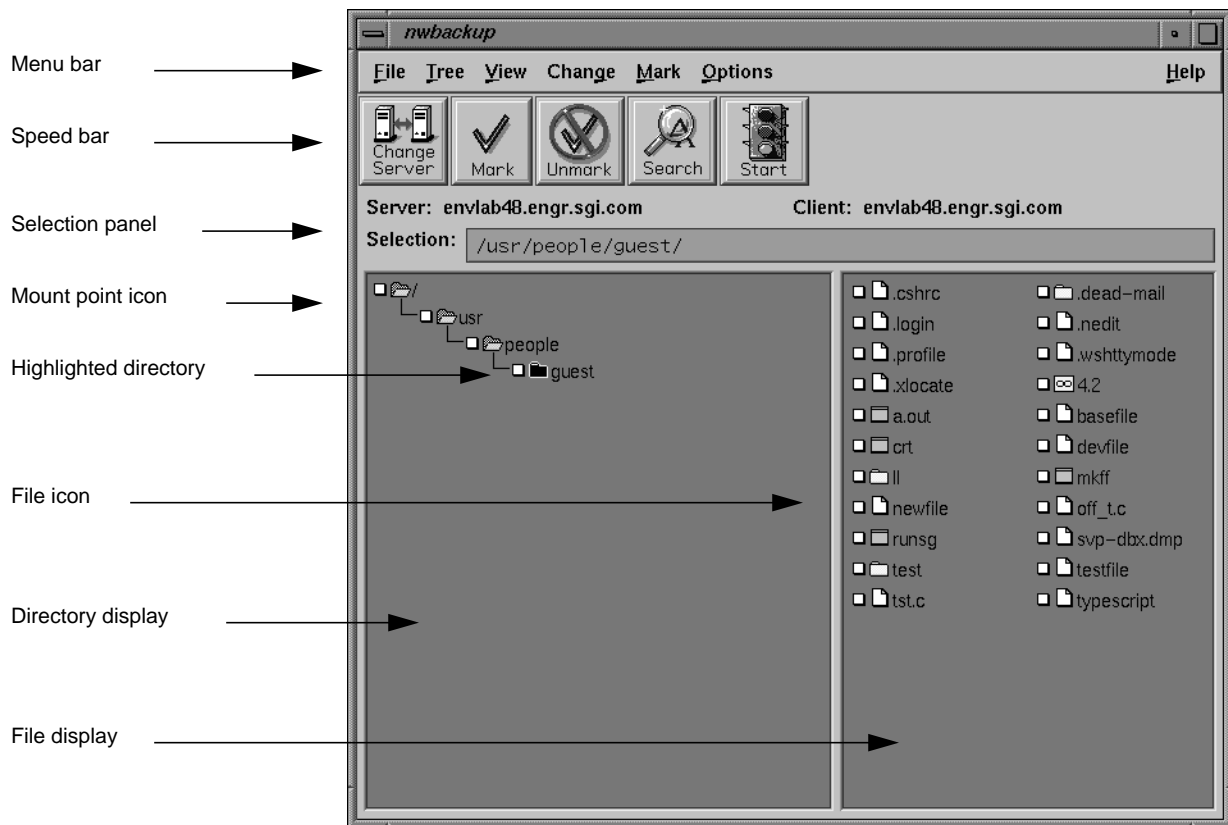
Figure 2-2   NetWorker Backup Window Vocabulary

Menu Bar

The menu bars in the NetWorker Backup and NetWorker Recover windows contain the File, Tree, View, Change, Mark, Options, and Help pulldown menus. There are two choices for navigating NetWorker menus. You can use the point-and-drag method with a mouse, or you can use the keyboard shortcuts.

• To pull down a menu using a mouse, move the mouse so its arrow points to your menu choice. Hold down the primary mouse button (usually on the left); the menu appears. With the mouse button still held down, drag the mouse arrow to the item in the menu, then release the button to make your choice.

If you have a multi-server network and do not specify a server name, NetWorker chooses a backup server for you.

Tip: You can start NetWorker from any directory. The directory where NetWorker starts is the location shown in the NetWorker Backup or NetWorker Recover directory display.

If you receive an error message while starting NetWorker, there may be problems with your network configuration. Refer to "Requirements for NetWorker Clients" on page 3 to confirm that your system is configured correctly as a NetWorker client. If you need further help, contact your system administrator.

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 (GUI). This section shows you how to use NetWorker windows.

Window Components

Figure 2-2 shows the NetWorker Backup window and its components.

Getting Started

This chapter describes how to start the NetWorker programs and navigate their windows. It provides a Quick Tour using NetWorker to back up and recover files from a client system. To use NetWorker, your system must be configured as a NetWorker client. See "Requirements for NetWorker Clients" on page 3, for details on the requirements for NetWorker clients.

If your site has the optional NetWorker Archive Application, be sure to read Chapter 5, "Archiving and Retrieving Files," for information on using the program windows.

When NetWorker is running on your system, you can see the NetWorker icons or the NetWorker Backup and NetWorker Recover windows on your screen (see Figure 2-1). The program icons include the "NetWorker knight" and a caption. If you see these, click an icon to open the program window.

Figure 2-1   NetWorker Icons for Backup and Recover

If you do not see the NetWorker icons or the windows on your screen, start NetWorker from the command line on your system.

Starting NetWorker

To start NetWorker from the command line, enter either the **nwbackup** or **nwrecover** command, specifying a NetWorker server name after the **-s** option. Use an ampersand (**&**) to run NetWorker in the background:

```
# nwbackup -s server_name &
# nwrecover -s server_name &
```

Browsing Filesystems

This chapter shows how to browse filesystems in the NetWorker Backup, NetWorker Recover, and NetWorker Archive windows. NetWorker filesystem displays allow you to view directories, mark and unmark files, search for files, view file details, and change the current directory displayed. When recovering files, the index of saved files is displayed exactly like your filesystem, making it convenient to select files for recover.

Note: This chapter describes browsing features common to all three windows. Features specific to the NetWorker Backup and NetWorker Recover windows are described in Chapter 4, "Backing Up and Recovering Files." See Chapter 5, "Archiving and Retrieving Files," for features specific to the NetWorker Archive and NetWorker Retrieve windows.

Viewing Your Directories

The Tree menu (Figure 3-1) contains three choices for changing the level at which you view directories in a filesystem: Expand One Level, Expand Branch, and Collapse Branch. You can expand a directory one level to view its subdirectories, or expand a branch to view all levels of a directory. This makes it easy to find files deeply embedded in your filesystem.
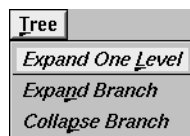
Figure 3-1   Tree Menu

Expanding One Level

The Expand One Level menu choice displays the subdirectories one level below the selected directory. Subdirectories are graphically displayed as a tree structure. You can scroll the directory display to find the subdirectory containing the file you want.

To expand a directory one level:

1. Click a directory folder in the directory display.

2. Choose Expand One Level from the Tree menu or double-click the directory folder.

Expanding a Branch

The Expand Branch menu choice displays all levels of subdirectories contained in a directory.

To expand a directory to view its branch:

1. Click a directory folder in the directory display.

2. Choose Expand Branch from the Tree menu.

    Note: Large directories and branches might take longer to expand.

Collapsing a Branch

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

To collapse a branch (close all subdirectories):

1. Click an expanded directory in the directory display.

2. Choose Collapse Branch from the Tree menu, or double-click the directory folder.

Marking and Unmarking Files

You choose files and directories for backup and recover by marking them. The icons have a checkbox beside them that displays a check mark when the file is marked. To mark or unmark files and directories, use the Mark and Unmark speedbar buttons or click the checkbox next to the file or directory (see Figure 3-2).

Figure 3-2   Mark and Unmark Buttons, Marked Folder

To mark (or unmark) a file or directory using the speedbar buttons:

1. Click a file or directory icon.

2. Click the Mark speedbar button. This places a check mark in the checkbox beside the highlighted icon, marking it for backup or recover.

3. Click the Unmark speedbar button to remove the check mark. This removes the check mark and excludes the file from the backup or recover.

    Note: If you click the Mark or Unmark button without first selecting a directory or file icon, the directory displayed in the Selection field is the one marked or unmarked.

To mark (or unmark) a file using the checkbox next to the file icon:

1. Click the checkbox next to the file. This places a check mark in the checkbox.

2. Click the checkbox to unmark a marked file.

    Tip: Marking a directory also marks its subdirectories and nested files. The checkboxes of parent directories are shaded to show that some or all of the directory contents are marked for backup or recover.

Viewing Your Files

The View pulldown menu contains commands for searching directories for specific files and for changing the level of detail displayed for the directories and files.

Searching for Files

If you know the name or partial name of a file or directory, you can use the Search command to locate it in the filesystem or index. Use the Search speedbar button to bring up the Search dialog box, or choose Search from the View menu, as shown in Figure 3-3.

Figure 3-3   View Menu and Search Button

To search for a file, specify the filename or partial filename and the *pathname* where you want to begin the search. NetWorker begins searching in that directory, then searches through the subdirectories and nested files within the *path*. To search for directories or files by name:

1. Click the Search button in the speedbar to open the Search dialog box or choose Search from the View menu. The Search dialog box appears, as shown in Figure 3-4.
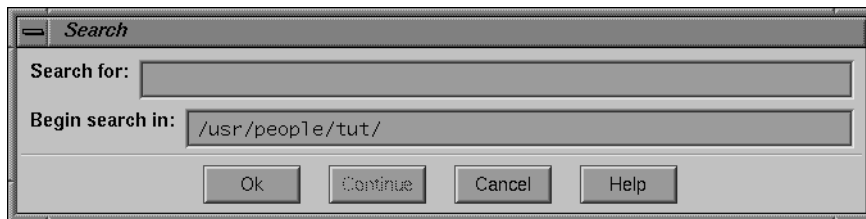
Figure 3-4   Search Dialog Box

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

3. Enter a valid *pathname* for the desired directory 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 and display it in the Selection field. You can continue the search until NetWorker finds the last match.

   If NetWorker cannot find a match for the selection, a dialog box message appears, as shown in Figure 3-5. Click OK to close the dialog box.

Figure 3-5   Search No Match Notice

6. Click the Cancel button to close the Search dialog box.

Viewing File Details

You can choose to view filenames only or complete file details in the file display by choosing the File Details item in the View menu, as shown in Figure 3-6. Clicking the button for this command toggles between the two choices.

Figure 3-6   View File Details Menu

The default viewing selection displays filenames only, listed in alphanumeric order. The File Details choice changes the view to display the filename, number of blocks, permissions, number of symbolic links and where they point, owner, group, size, date, and time each file was last modified.

In the NetWorker Recover window, the File Details choice also displays the backup time for each file. Use this information to identify different backup versions of a file.

To display file details:

1.   Choose File Details from the View menu. The file display in the NetWorker Recover window changes to show file details. In Figure 3-7, notice the Backup time listed for each file.

Figure 3-7   File Details Listed in File Display

2. Adjust the size of the window or use the horizontal scrollbar at the bottom of the file display, if necessary, to display the contents of the window.

   To return the file display back to filenames only, click the File Details choice once more.

Changing a Selection

The NetWorker Backup, NetWorker Recover, and NetWorker Archive 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.

To change the current selection:

1. Enter the full *pathname* for the new selection into the Selection field, as shown in Figure 3-8.

Selection: /usr/people/tut/

Figure 3-8   Selection Field in NetWorker Window

2. Press the [Enter] key.

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

Backing Up and Recovering Files

This chapter describes the NetWorker Backup and NetWorker Recover windows. It includes the backup and recover functions unique to each window.

For information on using functions common to both windows, see Chapter 3, "Browsing Filesystems." For a quick tour of the backup and recover programs, see Chapter 2, "Getting Started." If your site has the optional NetWorker Archive Application, be sure to read Chapter 5, "Archiving and Retrieving Files."

Backing Up Files

This section assumes that you already know how to mark files for a backup. For detailed instructions on viewing directories, marking and unmarking files, searching for files, or viewing file details, see Chapter 3, "Browsing Filesystems."

If you are already familiar with the NetWorker Backup window, see the shortcut instructions on page 39.

Changing the NetWorker Server

NetWorker backs up your data according to a backup 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 may have a choice of servers for backups. 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 NetWorker servers:

1. Click the Change Server speedbar button, or choose Server from the Change menu in the NetWorker Backup window, as shown in Figure 4-1.
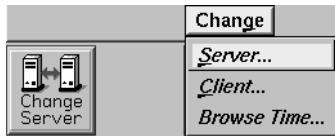
Figure 4-1   Change Server Button and Menu

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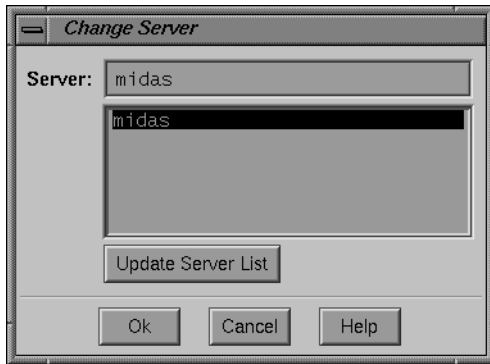
Figure 4-2   Change Server Dialog Box

2. Enter the *hostname* of the server in the Server field or click a name in the list of servers displayed.

   If you do not see the hostname of the server you need, click the Update Server List button to update the list of NetWorker servers available on your network.

   Caution: When you click the Update Server List button, NetWorker searches for every server available to your machine. If you have a large network, this search could take awhile.

3. Double-click the hostname to choose the new server or click Ok to choose the server shown in the Server field.

   Note: If you choose a NetWorker server that does not have your system listed as a client, you receive a notice similar to that shown in Figure 4-3. If this occurs, locate another server, or contact your system administrator.

Figure 4-3   Notice for Client Not Registered

Starting a Backup

Use the Start speedbar button to start a backup on marked files or choose Start Backup from the File menu, as shown in Figure 4-4.
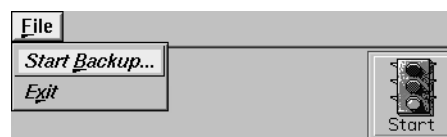
Figure 4-4   Start Backup Menu and Button

To start a backup:

1.   Mark the files you want to back up.

2.   Choose the NetWorker server (if necessary).

3.   Click the Start speedbar button.

     The Backup Options dialog box appears, with choices for the options NetWorker applies to your backup.

Choosing the Backup Options

NetWorker displays the Backup Options dialog box before starting the backup. This gives you the opportunity to compress files and exclude patterns before the backup starts. Compressing data reduces network traffic and saves space on the backup media. Excluding patterns is convenient for specifying data you do not want to back up at all.

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Compressing Files

To choose whether to compress the files you back up, select a choice for Do you want to compress this backup? in the Backup Options dialog box. Notice that Yes is already highlighted as the default selection, as shown in Figure 4-5.
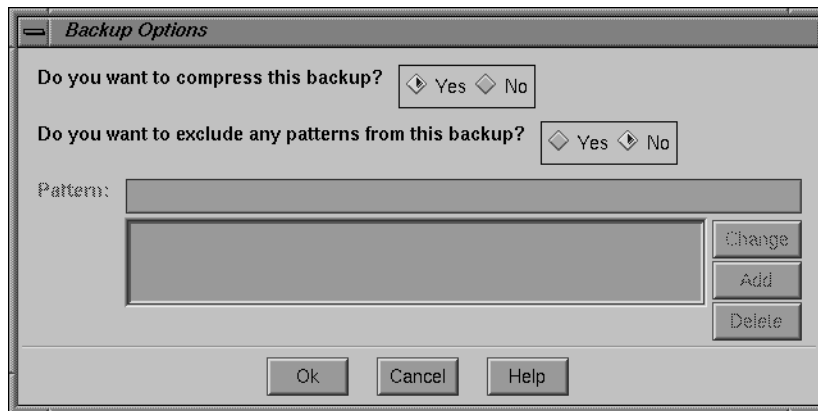
Figure 4-5   Backup Optione Dialog Box

If you want NetWorker to compress your files during backup, you do not have to make a selection for the compression option, since Yes is the default selection.

If you back up to a device that compresses data, do not use the NetWorker file compression feature. Click No to continue the backup without file compression.

Tip: Compressing data during backup saves space on the backup media and reduces network traffic, but may slow down the backup operation. Check with your system administrator to find out if you should compress backup data.

Notice that No is highlighted as the default selection for the Do you want to exclude any patterns from this backup? choice. If you do not want to exclude patterns of filenames from the backup, click Ok to continue the backup.

Excluding Patterns

You can exclude files from a backup using the Pattern options provided 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 files from the backup also reduces network traffic and saves space on backup media.

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

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

2. Enter the first pattern in the Pattern field.

3. Click Add to add the pattern to the list. The pattern appears in the pattern list display, as shown in Figure 4-6.
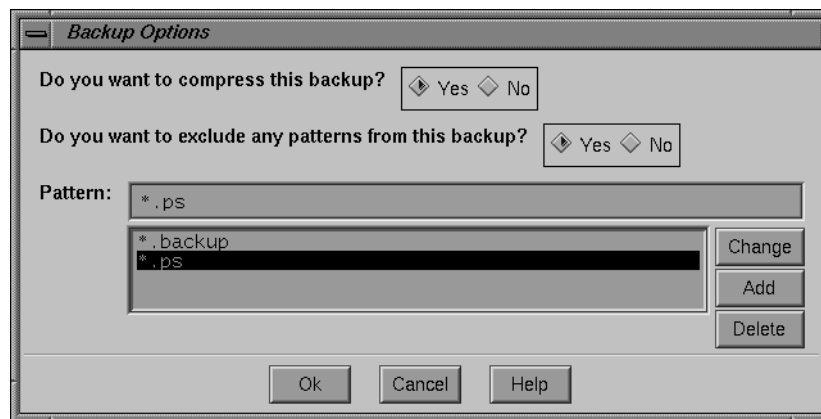
Figure 4-6   Backup Options, Excluding Patterns

   If you want 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.

   If you want to delete a pattern, select it in the pattern list and click Delete.

4. Enter any remaining patterns and add them to the pattern list.

5. Click Ok to continue the backup with the excluded file patterns and the compression choice.

Monitoring the Backup Status

The Backup Status dialog box appears after you complete your selections in the Backup Options dialog box and click Ok. Use the Backup Status window to monitor the backup process.
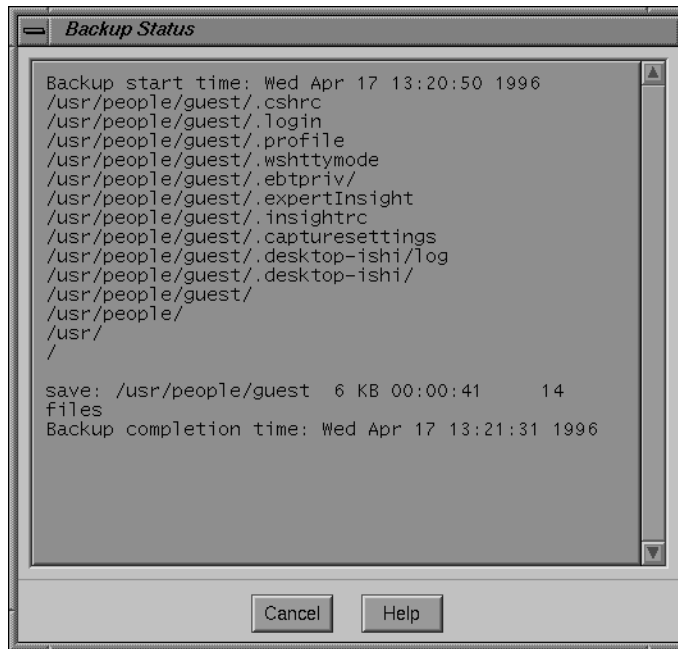
Figure 4-7   Backup Status Window

The Backup Status dialog box provides the backup start time and the backup completion time. The names of the files and directories scroll across the Backup Status dialog box as the backup proceeds.

The message at the bottom of the dialog box gives you information about the backup, including the full pathname of the directory, the amount of data, the amount of time it took, and the number of files saved.

If you do not see any progress messages in the Backup Status dialog box after a few minutes, the NetWorker server probably needs attention from the system administrator. Click the Cancel button to cancel the backup.

A message similar to the following appears in the Backup Status dialog box when the backup completes:

```
Backup completion time: Fri Nov 3 14:20:42 1995
```

Click the Cancel button to close the Backup Status dialog box.

Backup Shortcut

Read this section if you are already familiar with the NetWorker Backup window.

To back up your directories or files:

1. Click the nwbackup icon to open the NetWorker Backup window.

2. Click the checkboxes, 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. Click the Cancel button in the Backup Status dialog box to close it after you check the backup completion message to make sure the backup is finished.

Recovering Files

This section assumes that you have already marked recovery files in the NetWorker Recover window. For detailed instructions on viewing directories, marking files, searching for files, or viewing file details, see Chapter 3, "Browsing Filesystems." If you are already familiar with the NetWorker Recover window, see the shortcut instructions on page 53.

NetWorker displays entries in the NetWorker Recover window for the files it saved during a backup. Select the files you want to recover from this list of entries. NetWorker 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 for which you have permission to recover data.

Starting a Recover

Use the Start speedbar button to start a recover on marked files or choose Start Recover from the File menu, as shown in Figure 4-8.

Figure 4-8   Start Recover Menu and Button

Before starting a recover, read the following sections explaining the treatment of naming conflicts during NetWorker recovery:

• "Relocating Files" on page 50

• "Renaming or Overwriting Recovered Files" on page 50

Choosing the Recover Server

Normally you recover files from the NetWorker backup server designated by your system administrator. If you changed backup servers in the NetWorker Backup window, you must select the same server in the NetWorker Recover window to recover files backed up to that server. xx

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

To choose a recover server in the NetWorker Recover window:

1.   Click the Change Server speedbar button, or choose Server from the Change menu.

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

Figure 4-9   Change Server Dialog Box, Updated

2. Click the Update Server List button to update the list of NetWorker servers on the
    network, if needed. Double-click the server name to choose the server that has the
    files you need to recover. The Server field changes to reflect the current selection.

3. Click the Ok button after you select a server.

    NetWorker updates the directory and file displays in the NetWorker Recover window.

    Note: Select the recover server you want before marking the files to recover.

Choosing the Recover Client

If you need to recover files for a client other than the system currently in use, choose
Change Client from the Change menu. The Change Client command opens a dialog box that lists
all of the clients for the currently selected NetWorker server. Check with your system
administrator if you want to recover files other than your own. You may not be
authorized to recover files for other client systems.

To choose a recover client:

1. Choose Client from the Change menu in the NetWorker Recover window.

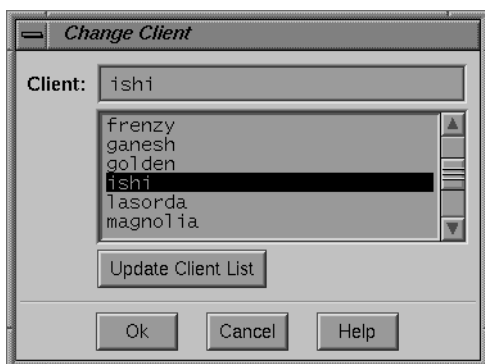   The Change Client dialog box appears, as shown in Figure 4-10.

Figure 4-10   Change Client Dialog Box

2. Click the Update Client List button to update the list of NetWorker clients available on the selected server.

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

4. Click the Ok button after you select a client.

Selecting File Versions

The View pulldown menu in the NetWorker Recover window contains two choices not found in the NetWorker Backup window: Versions and Volumes. Information about the Volumes choice is in "Listing the Backup Volumes for a Recover" on page 48.

The Versions dialog box lists all the versions of a file or directory that have been backed up by the NetWorker server. The dialog box also lists the backup volumes on which the files reside. Use the Versions choice to view the backup history of a file and to mark a particular version of a file for recovery.

Caution: NetWorker displays versions of backed-up files and directories in the Versions dialog box. You can only mark *files* for recovery in the Versions dialog box. If you attempt to mark a directory in the Versions dialog box, you receive a warning similar to that shown in Figure 4-11.
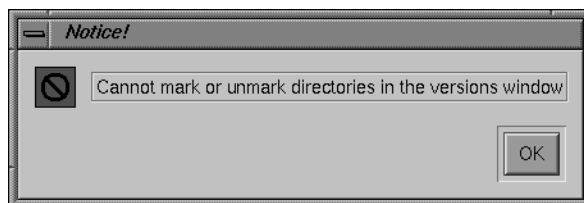
Figure 4-11   Marking Directories in Versions Window

In addition to providing the backup time and location of all backed-up versions of the selected file, the Versions dialog box provides the following information: number of blocks, mode, permissions, number of links, owner, group, size in bytes, and last modified time. The filename, including the complete *path*, is displayed at the top of the dialog box. To identify different versions of a file, compare the Backup time indicated for each version.

The Location field includes the name of the backup volume and the device where the volume is mounted or the location of the backup volume (for example, offsite storage). If no device is listed, it means that the backup volume must be mounted before you can recover the file.

To view the backup history of a file or directory in the NetWorker Recover window:

1. Click a file or directory in the file display.

2. Choose Versions from the View menu, shown in Figure 4-12.

Figure 4-12   View Versions Menu

NetWorker retrieves several versions of the highlighted file or directory from the index and lists them by backup time, beginning with the most recent (as shown in Figure 4-13). Use the scrollbars to view the complete backup history.
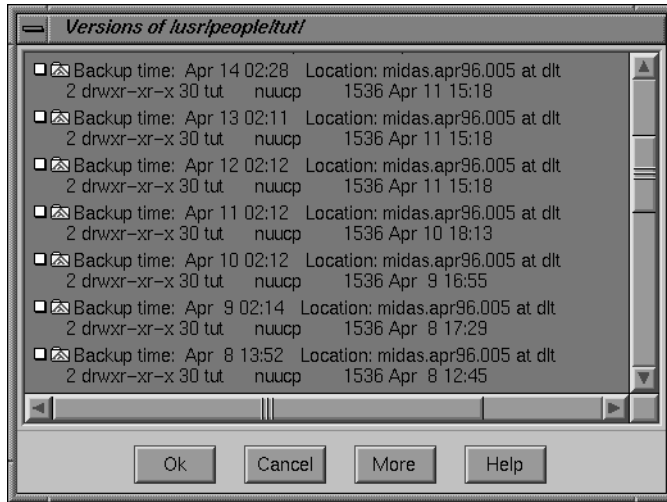
Figure 4-13   Versions Window Showing Backups

3. Click More to retrieve additional versions from the index. The More button becomes inactive after all versions are retrieved.

To mark a version of a file for recovery:

1. Click the checkbox of the file version you want to recover.

2. Click Ok to place the marked versions in the file display.

    Tip: When you mark a past version of a file in the Versions dialog box, it appears in the NetWorker Recover window file display with the same name as the most recent version. Choose File Details from the View menu to display backup times and distinguish the multiple file versions displayed.

Changing the Browse Time

The Browse Time field, shown on the bottom right of Figure 4-14, displays the date and time you started the current NetWorker recover program session.
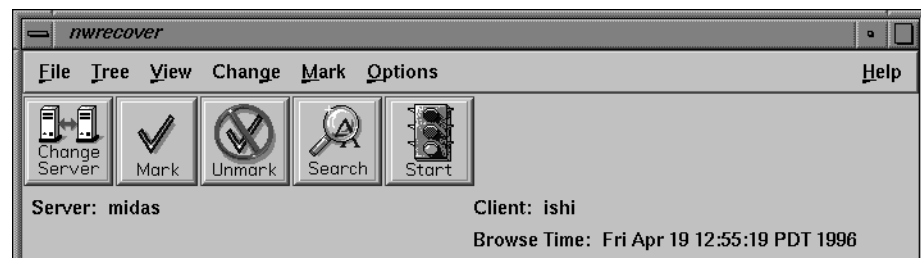

Figure 4-14   Browse Time in NetWorker Window

The NetWorker Recover window displays the index entries for files backed up at the time shown in the Browse Time field. Choose Browse Time from the Change menu to modify the browse time displayed to another date. Changing the browse time displays the entries for files backed up *immediately before* the new browse time.

Note: If there are no entries for files backed up for the selected time 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 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 a.m.

Changing the browse time lets you view past versions of your files. This is useful if you do not remember the name or location of the files you want to recover, but do remember they existed at some time in the past. The Browse Time choice in the Change menu also helps you find deleted files that no longer appear in the Versions dialog box. You can recover deleted files by changing the browse time to locate past versions of the files in the index.

Note: Use the Browse Time choice to browse and mark past versions of directories. Marking a directory causes all its nested files and subdirectories to be marked.

To change the browse time to recover a past version of a file:

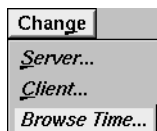1. Choose Browse Time from the Change menu in the NetWorker Recover window, shown in Figure 4-15.

Figure 4-15   Change Browse Time Menu

The Change Browse Time dialog box appears, as shown in Figure 4-16.

Figure 4-16   Change Browse Time Dialog Box

The Previous, Today, and Next buttons control the month displayed. After choosing a month, click a day in the calendar to select the browse time.

Note: You can also change the browse time by entering a valid date and time in the Browse Time field and pressing [Enter] or clicking Ok. The following formats are valid browse time entries:

- last Friday, next Friday, third Friday

- now (the current date and time)

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

- *hh:mm:ss* (24 hour clock) or
  hh:mm:ss (am or pm) *mm/dd/(yy)* or
  month dd (yy)

2. Click Ok after choosing a browse time. The Browse Time field in the NetWorker Recover window changes to reflect the new browse time. The file display and directory display of the NetWorker Recover window show files that were backed up at or before that time. You may now mark past versions of files for recovery.

   Note: Any files or directories you marked for recovery before changing the browse time remain marked.

Showing Marked Files

List the files you marked for recovery by choosing Show Marked from the Mark menu. This command is available only in the NetWorker Recover window. Use the Show Marked command to review files marked for recovery before starting the recover operation.

To show the files marked for recovery:

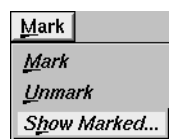1. Choose Show Marked from the Mark menu of the NetWorker Recover window, as shown in Figure 4-17.

Mark
Mark
Unmark
Show Marked...

Figure 4-17   Show Marked Menu Choice

The Files Marked for Recovery window appears, listing the pathnames and backup time of all marked files, as shown in Figure 4-18.
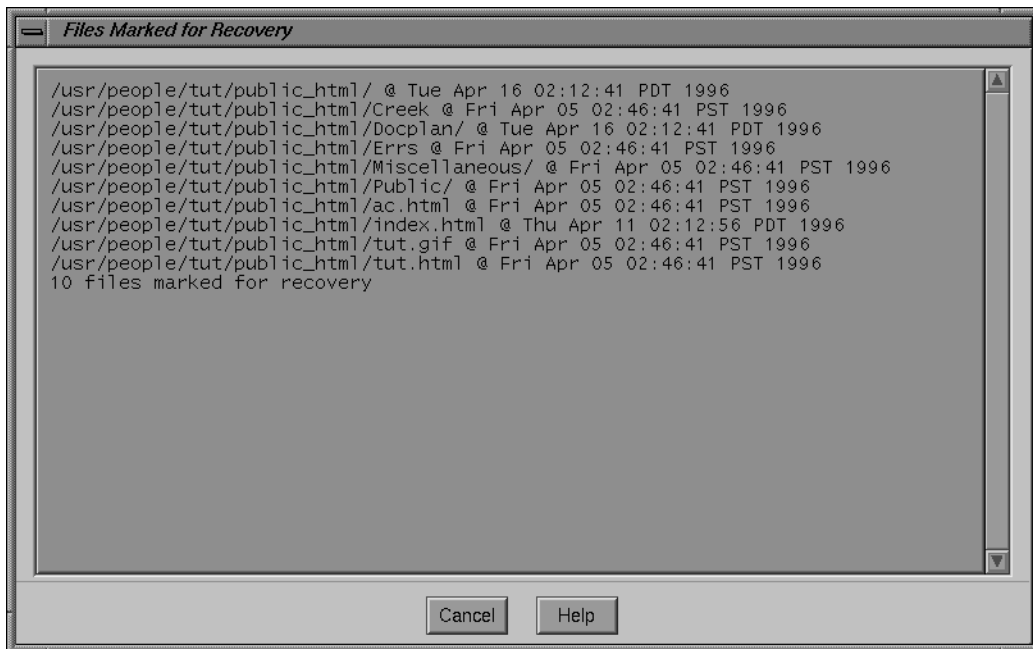
Figure 4-18   Files Marked for Recovery Window

2.   Click Cancel to close the window.

   Tip: The Files Marked for Recovery window lets you verify that all the files you need to recover are marked before starting the recover.

Listing the Backup Volumes for a Recover

After you mark your files for a recover, you can find out if the backup volumes NetWorker needs are available. If NetWorker cannot access the backup volume containing your file, it sends a message to the system administrator to load the volume. This request could take some time to fulfill. You may want to delay the start of the recover until the volume is available.

Choose Volumes from the View menu, as shown in Figure 4-19, to determine if the backup volume needed to recover a file is available.

Figure 4-19   View Volumes Menu Choice

To determine if the file you want to recover is immediately available for recovery:

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

2.   Choose Volumes from the View menu.

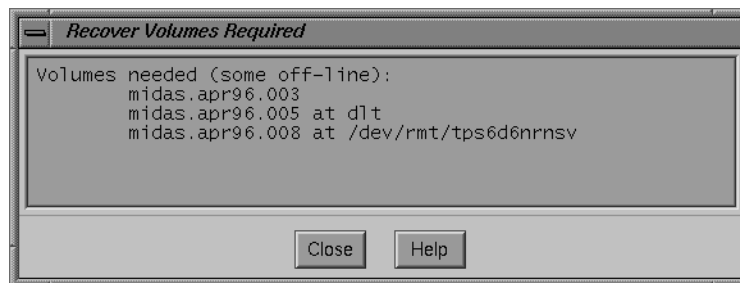   NetWorker displays a new window, similar to that shown in Figure 4-20.


```
Recover Volumes Required
Volumes needed (some off-line):
        midas.apr96.003
        midas.apr96.005 at dlt
        midas.apr96.008 at /dev/rmt/tps6d6nrnsv
```

Close   Help

Figure 4-20   Recover Volumes Required Window

      If the backup volume is available, which means the volume is mounted or in an
      autochanger, "all on-line" message appears in the Recover Volumes Required window.
      The window displays the name(s) of the backup volume(s) and, if applicable, their
      location. In the example shown in Figure 4-20, the volume *midas.apr96.003* is offline,
      the volume *midas.apr96.005* is in the DLT library, and the volume *midas.apr96.008* is
      in the drive named */dev/rmt/tps6d6nrnsv*.

Relocating Files

To recover files to a directory other than the one they were backed up from, use the Relocate menu item before you start the recover. The Relocate operation creates a directory, if it does not already exist, and recovers your file to the new location.

To relocate recovered files into a new or existing directory:

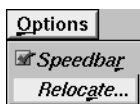1. Choose Relocate from the Options menu in the NetWorker Recover window, shown by Figure 4-21.

Figure 4-21   Options Relocate Menu Choice

2. Enter the complete pathname of a directory where you want to place the recovered files into the Relocate to field, as shown in Figure 4-22.
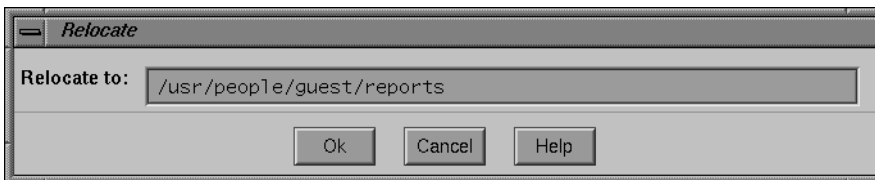

Figure 4-22   Relocate Window

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. You must decide whether 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 will not overwrite existing files unless requested to do so.

The Conflict Resolution dialog box has two sections requiring a selection for resolving naming conflicts, as shown in Figure 4-23.
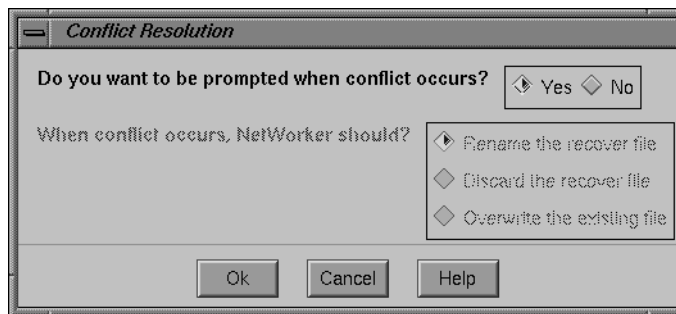

Figure 4-23   Conflict Resolution Dialog Box

1. Choose a response for the Do you want to be prompted when conflict occurs? question. The default choice, Yes, is already highlighted.

    Clicking No allows you to resolve conflicts for the entire recover session without being prompted about individual files. If you choose No, you must also choose a response for the When conflict occurs, NetWorker should? question.

    Clicking Yes allows you to resolve conflicts on for each file. NetWorker prompts for instructions in the Filename Conflict dialog box every time it encounters a naming conflict. Each time this occurs, select a choice for the Do you want to? question in the Filename Conflict dialog box, as shown in Figure 4-24, then click the Ok button.

Figure 4-24   Filename Conflict Resolution Dialog Box

The following are choices for conflict resolution:

Rename the recover file—NetWorker renames the recover file with a *.R* extension. If a *.R* file exists, NetWorker adds another *.R* extension to the recover filename.

Discard the recover file—NetWorker discards the recover file. The existing file remains where it was.

Overwrite the existing file – NetWorker replaces the existing file with the recovered file. The existing file is lost and the recovered file becomes current.

2. Click Ok to continue the recover after completing the Conflict Resolution dialog box or click Cancel to return to the NetWorker Recover window.

Monitoring the Recover Status

After the Conflict Resolution dialog box closes, the Recover Status window re-appears, as shown in Figure 4-25, and the recover continues.
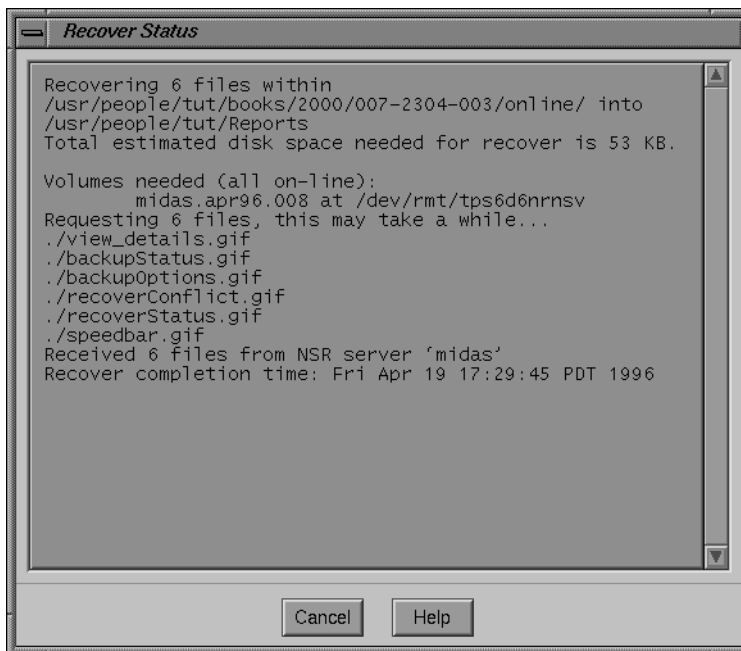


```
Recover Status

Recovering 6 files within
/usr/people/tut/books/2000/007-2304-003/online/ into
/usr/people/tut/Reports
Total estimated disk space needed for recover is 53 KB.

Volumes needed (all on-line):
        midas.apr96.008 at /dev/rmt/tps6d6nrnsv
Requesting 6 files, this may take a while...
./view_details.gif
./backupStatus.gif
./backupOptions.gif
./recoverConflict.gif
./recoverStatus.gif
./speedbar.gif
Received 6 files from NSR server 'midas'
Recover completion time: Fri Apr 19 17:29:45 PDT 1996

              Cancel      Help
```

Figure 4-25   Recover Status Window (Relocate)

The Recover Status dialog box provides you with the following information about your recover session:

- The number of files to be recovered and where they will be relocated. If you specified a directory in the Relocate dialog box, it is listed:

```
Recovering 6 files within
/usr/people/tut/books/2000/007-2304-003/online/ into
/usr/people/tut/Reports
```

- The estimated disk space required for the recover:

```
Total estimated disk space needed for recover is 53 KB.
```

- The name of the required backup volume and its location:

```
Volumes needed (all on-line):
    midas.apr96.008 at /dev/rmt/tps6d6nrnsv
```

- The number and names of files or directories being recovered:

```
Requesting 6 files, this may take a while...
```

- The new filenames, if you chose to rename recovered files, and a summary:

```
Received 6 files from NSR server `midas'
Recover completion time: Fri Apr 19 17:29:45 PDT 1996
```

To cancel the recover or to close the Recover Status dialog box, click the Cancel button. When the recover completes, a message showing the recover completion time appears in the Recover Status dialog box.

Recover Shortcut

Read this section if you are already familiar with the NetWorker Recover window.

To recover your directories or files:

1. Click the nwrecover icon to open the NetWorker Recover window.

2. Change servers, if necessary, by clicking the Change Server speedbar button. If applicable, change clients by choosing Client from the Change menu.

3. Use the mouse to highlight the icons for files or directories you want to recover, then click the Mark speedbar button.

4. Choose Volumes from the View menu to see if the backup volumes are immediately available for your recover.

5. Click the Start speedbar button to begin the recover.

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

7. Click the Cancel button to close the Recover Status dialog box after the recover completion time message appears.

Summary of Backup and Recover

To use NetWorker successfully, you must be able to perform the following tasks:

- back up files

- monitor the backup status

- view the backup volumes needed for a recover

- recover files

- relocate or rename files during a recover

- monitor the recover status

For information about configuring the NetWorker server, refer to the *IRIX NetWorker Administrator's Guide* or ask your system administrator.

The next chapter, "Archiving and Retrieving Files," explains how to use the optional Archive Application.

Archiving and Retrieving Files

This chapter describes how to archive and retrieve files and directories using the optional NetWorker Archive Application.

Archiving Files

Backup and archive serve different purposes. Backup is short-term insurance against data loss. NetWorker keeps track of backups in the online file index to enable users to quickly recover lost or corrupted files. This online file index requires considerable disk space. Because archives theoretically are kept forever, NetWorker does not track them in the online file index—NetWorker only tracks archives in the online media index.

Archive is a long-term strategy for preserving data on media called archive volumes. Archive volumes are similar to backup volumes, except they do not have an expiration date, which simply means that NetWorker will keep track of them forever.

Once files are safely stored on archive volumes, the archived files can be removed from local disk, freeing up space on your system. If you ever need to restore archived files to your system, you may do so at any time using the NetWorker Retrieve window.

To a user, archiving files is like backing up files, except that an Archive application allows you to automatically groom archived files and directories. Grooming means that files and directories are optionally deleted from your filesystems after they have been successfully archived.

To a system administrator, backup has a different purpose than archive. The goal of backing up filesystems is to protect against loss of data due to hardware failure or user error. The goal of archiving is to make more space available on disk while maintaining a snapshot of removed files for quick retrieval in the future.

Since archived files are not tracked in the online file index, the NetWorker Retrieve window does not display archived files and directories in the same manner as other NetWorker

windows. Archives made on the server appear in alphabetical order in the Archives display of the NetWorker Retrieve window.

Tip: The best way to remember what an archive contains is to record the date and create a meaningful annotation. See "Starting an Archive" on page 57 for details.

Starting NetWorker Archive

If the Archive Application is running on your system, you see the nwrchive icon or the NetWorker Archive window on your screen.

Click the icon shown in Figure 5-1 to open the window.

Figure 5-1   NetWorker Archive Icon

If you do not see the nwarchive icon or the NetWorker Archive window, start the application from a command line on your system.

To start the Archive Application from a command line, enter the **nwarchive** command, followed by the server name and an ampersand (&) to run the application in the background:

```
# nwarchive -s server_name &
```

If you have a multi-server network and do not specify a server name, NetWorker chooses an archive server for you.

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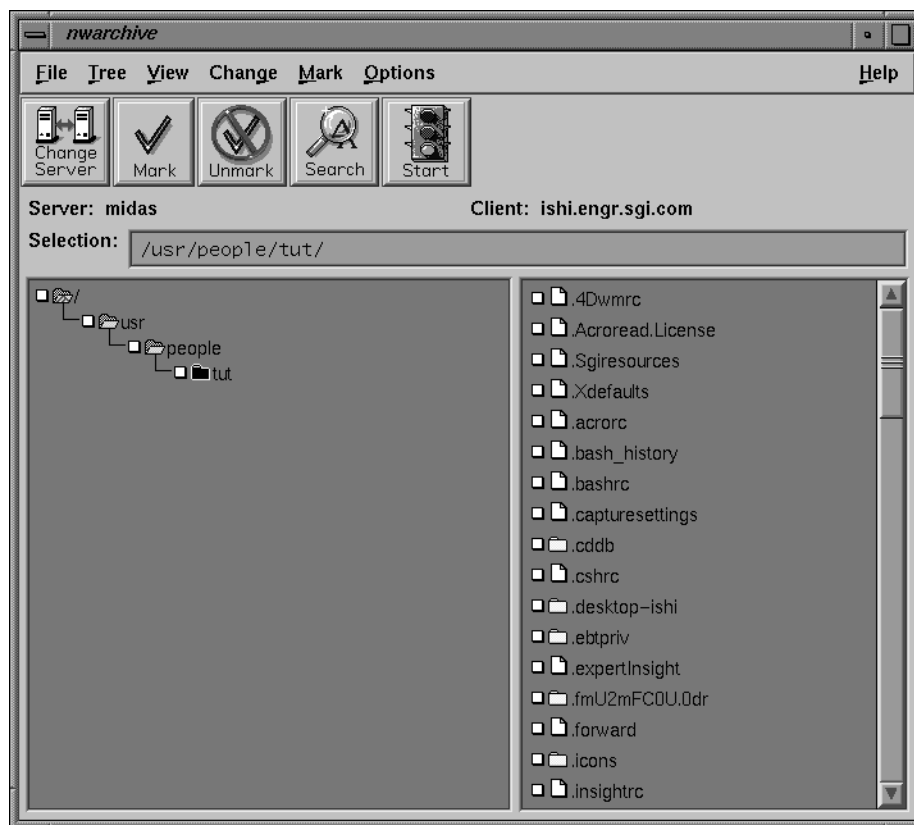
Figure 5-2   NetWorker Archive Window

Starting an Archive

To start an archive:

1. Change archive servers, if needed. The Change Server button is described in Chapter 4, "Backing Up and Recovering Files."

2. Mark the directory or files you want to archive.

   Tip: Marking a directory also marks all the subdirectories and files it contains. If you want to archive most (but not all) files in a directory, first mark the directory, then unmark files you do not want to archive.

3. Click the Start speedbar button, or choose Start Archive from the File pulldown menu. The Archive Options dialog box appears, as shown in Figure 5-3. The Archive Title field shows the pathname of the currently selected directory or file.
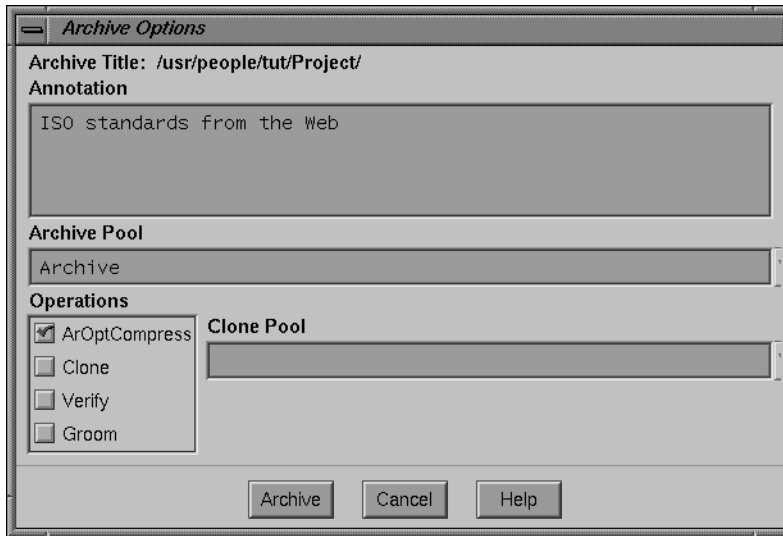
Figure 5-3   Archive Options Dialog Box

4. Type a comment in the Annotation field that will help you remember the contents of the archive for future retrieval. When choosing a meaningful annotation, keep in mind that annotation searches are case-sensitive. The Annotation field accepts up to 1024 characters, including spaces and punctuation.

    Note: If you do not enter an annotation before starting the archive, a dialog box appears, as shown in Figure 5-4, reminding you to enter an annotation.
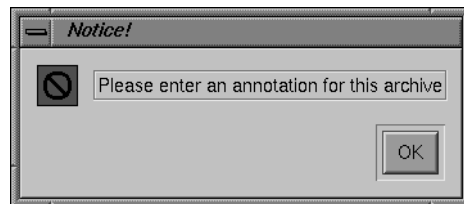
Figure 5-4   Notice to Enter Annotation

5. Specify a *volume pool* for your archive in the Archive Pool field. Click the arrow button next to the Archive Pool field to view a list of the choices available. Click the arrow button again to close the list.

   If an archive pool is not specified, the volume pool defaults to "Archive." If you do not know which pool to choose, contact the system administrator.

6. Click any of the available options in the Operations list. If the box next to an option is highlighted, the option is selected. The following choices are available options:

   • Compress—to compress archive data, click Compress. If you have a compressing tape drive, do not choose the Compress option.

   • Clone—to *clone* archive data on a different archive volume, click Clone. NetWorker makes a copy of your archived data.

   • Verify—to verify that the data on archive media matches the data on local disk, click Verify.

   • Groom—to remove files and directories from local disk after archiving is complete, click Groom.

   See the sections following these instructions for an explanation of the Clone, Verify, and Groom options.

7. Click the Archive button when you are ready to continue. The Archive Status dialog box appears, showing the archive process.

   Click Cancel if you need to stop the archive process. A dialog box appears, as shown in Figure 5-6, asking for confirmation.

Figure 5-5   Notice to Cancel Archive

Click OK to terminate the archive, or Cancel to continue.

Cloning Your Archive

Cloning makes a duplicate copy of your archive. Two backup devices are required to make a clone. Each backup device must have a valid, writable archive volume mounted. Check with your system administrator before making clones of your archives.

When you select Clone in the Archive Options dialog box, NetWorker duplicates your archived data on another archive volume. If you specify a Clone Pool, the archive clone is sorted to a volume associated with that pool. Otherwise, the archive clone goes to "Archive Clone," the default clone pool,

Click the arrow button next to the Clone Pool field to view a list of the choices available. Click the arrow button again to close the list.

Verifying Your Archive

When you select Verify in the Archive Options dialog box, NetWorker checks the data written on the archive volume. If you also select Clone in the Archive Options dialog box, the clone volume is verified. The archive completion report in the Archive Status dialog box alerts you to any problems with the archived or cloned data.

Grooming Your Filesystem

When you select Groom in the Archive Options dialog box, NetWorker deletes all marked files after the archive successfully completes. Select the Verify option when you choose Groom to ensure that files are properly archived before they are groomed from your disk.

Caution: When you select the Groom option, be careful not to mark any files that you must retain on disk. Check with your system administrator before using the Groom option.

Monitoring the Archive Status

Use the Archive Status window, shown in Figure 5-6, to monitor the archive process.
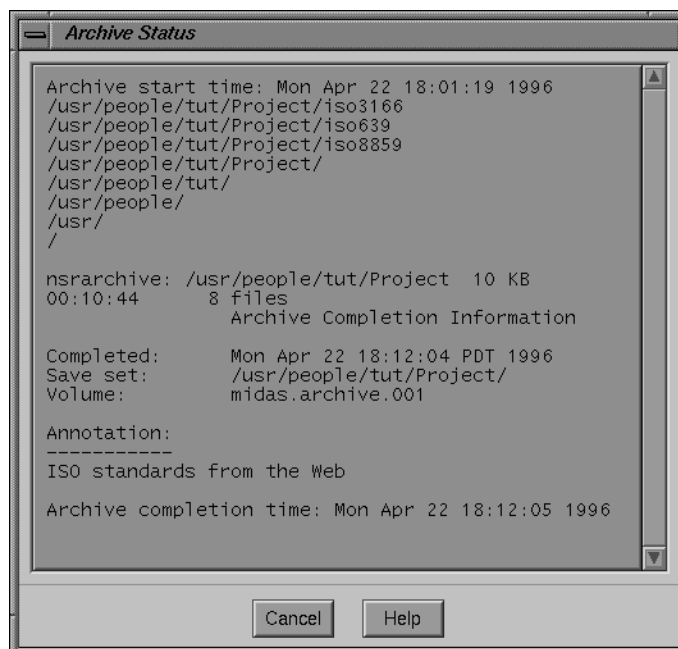
Figure 5-6   Archive Status Window

The Archive Status window provides the archive start time and the archive completion time. The names of the archived files and directories scroll across the Archive Status window as the archive proceeds. When the archive completes, the full pathname of the archived directory, the amount of data, the amount of time it took, and the number of files archived are displayed. The Archive Completion Information field gives you details about the archive, including the volume to which your *save set* was archived, and the annotation you assigned to the archive.

Tip: Write down the annotation and volume information and include it with your project documentation to make it easier to retrieve the data at a later date.

Retrieving Files

Retrieval involves the copying of files back to local disk from archive volumes.

Starting NetWorker Retrieve

If the retrieve utility for the Archive Application is running on your system, you see the nwetrieve icon or the NetWorker Retrieve window on your screen.

Click the icon shown in Figure 5-7 to open the window.

Figure 5-7   NetWorker Retrieve Icon

If you do not see the nwretrieve icon or the NetWorker Retrieve window, start the application from a command line on your system.

To start NetWorker Retrieve from a command line, enter the **nwretrieve** command, followed by the server name and an ampersand (&) to run the application in the background:

nwretrieve -s *server_name* **&**

If you have a multi-server network and do not specify a server name, NetWorker chooses a retrieval server for you.

The NetWorker Retrieve Window

The NetWorker Retrieve window has fewer menus than the other NetWorker windows. Since archived save sets are not maintained in the online file index, the Tree, View, and Mark menus are not present. The File, Change, Options, and Help menus are navigated in the same manner described for the NetWorker Backup, NetWorker Recover, and NetWorker Archive windows.

When you start the **nwretrieve** command, the Archives scrolling list is empty at first. The currently selected server is indicated directly beneath the speedbar.

To display a list of archive save sets available on the currently selected server, click the Query button. The window displays a list of the archived save sets available for retrieval, as shown in Figure 5-8.
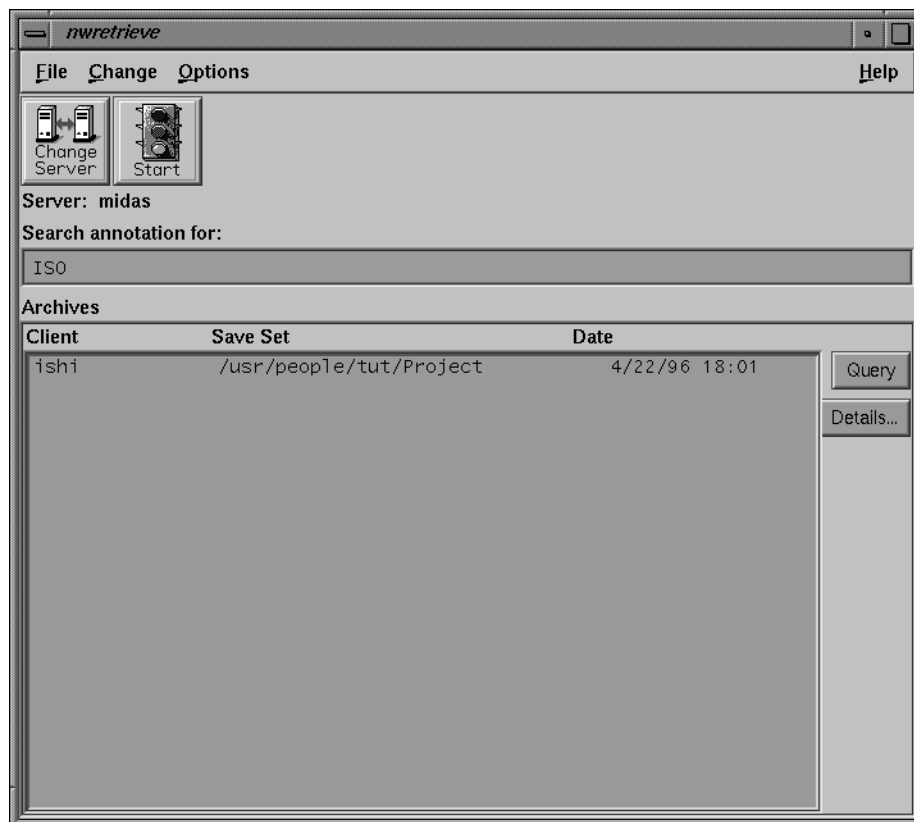
Figure 5-8   NetWorker Retrieve Window

To search for a particular save set using all or part of its annotation, enter all or part of the annotation in the Search annotation for field and click the Query button. All archive save sets with matching annotations appear highlighted in the Archives list.

Tip: Since the search for annotations is case sensitive, use regular expressions like **[Aa]** to search for upper or lower case.

Archive Save Set Details

To see details about the currently highlighted archive save set, click the Details button. The Retrieve Details window appears, as shown in Figure 5-9.
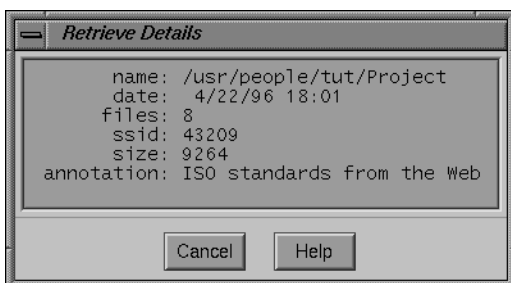
Figure 5-9   Retrieve Details Window

The fields in this window provide the following information:

- name—full name of the save set (including *path*)

- date—date the save set was archived

- files—number of files in the save set

- ssid—save set ID

- size—file size, in bytes

The Retrieve Details window also shows the archive annotation, which can be used in the Search annotation for field in the Networker Retrieve window.

Note: The currently-highlighted save set is the only one whose details are displayed in the Retrieve Details window. To view the details of another save set without exiting the Retrieve Details window, highlight the new save set in the Archives list.

Retrieving a Save Set

To retrieve a save set to your system:

1. Click the line containing the required save set in the Archives list in the NetWorker Retrieve window.

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Tip: You may select multiple save sets for retrieval. To avoid overwriting later copies of files when the Overwrite existing files option is selected, NetWorker retrieves the files in chronological order.

2. Select Start Retrieve from the File menu.

The Retrieve Status dialog box appears, as shown in Figure 5-10. The Archives list displays all the archive save sets you selected for retrieval in the Networker Retrieve window.
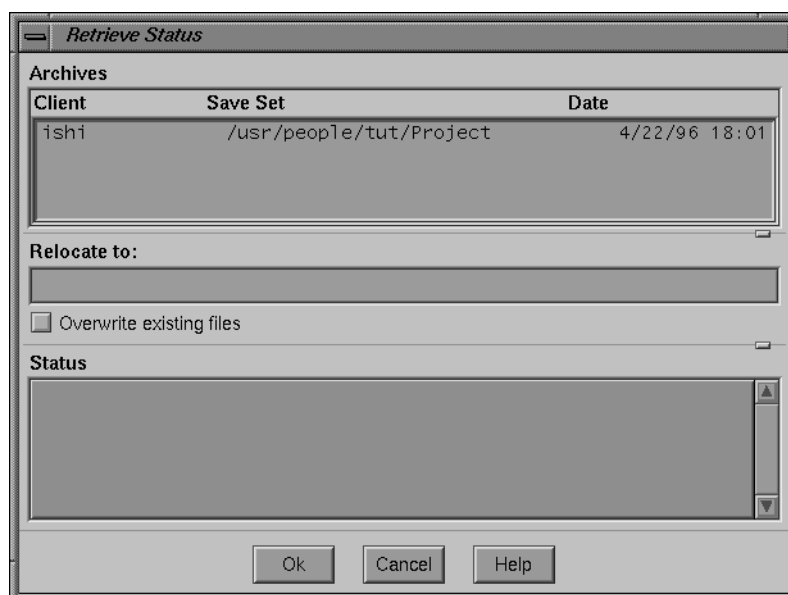
Figure 5-10   Retrieve Status Dialog Box

3. Specify a new or existing directory in the Relocate to field, if needed. By default, retrieved files are copied to their original location.

4. Click Overwrite existing files, if you want NetWorker to replace existing files on the local disk with files retrieved from the archive volume. If you do not select this option, NetWorker prompts you to resolve naming conflicts.

5. Click the Ok button when you are ready to start the retrieve. The appropriate archive volume(s) must be mounted (mounting is automatic in an *autochanger*). During a retrieve operation, messages appear under Status to inform you of progress, as shown in Figure 5-11.
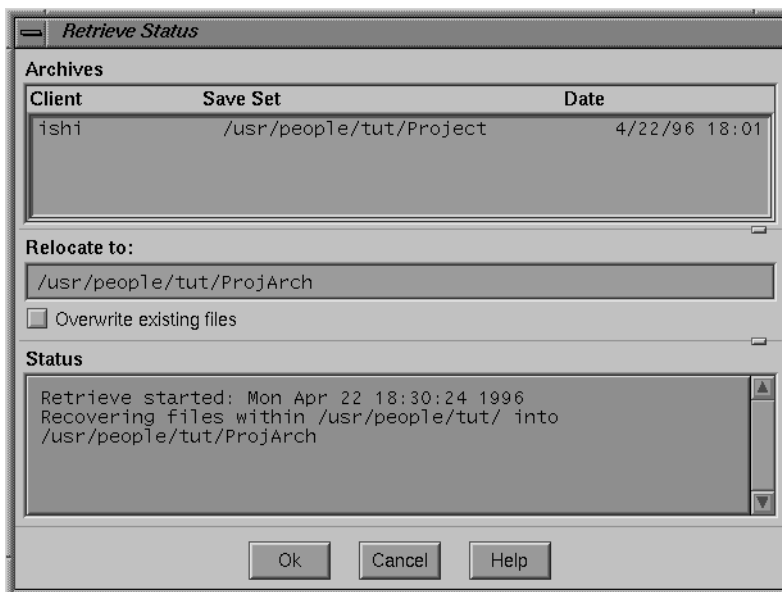
Figure 5-11   Retrieve Status After Success

To stop a retrieve in progress, or to dismiss the Retrieve Status dialog box before retrieval has begun, click the Cancel button.

Summary of Archiving

Archiving files is like placing them into a bank safe deposit box. They are meant to remain safe and last forever. But just as paper in safe deposit boxes can age and yellow, tapes used to archive files do not last forever. Optical discs last longer, but are still vulnerable to fire. Choosing the Clone option, which makes an extra copy of the archive, increases the protection of vital data.

Deleting files from disk, using the Groom option, conserves the space for current projects. However, if your site policy is to move archives offsite for increased protection, retrieving archived files could take awhile. Contact your system administrator to find out whether the archive volume you need is available for immediate retrieval.

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Error Messages

NetWorker provides user-friendly error messages with instructions to help you solve most backup, archive, and recover problems you encounter.

Error Messages for Backup and Archive

NetWorker displays an error message if a backup or archive cannot be completed.

Table A-1   Backup and Archive Error Messages

Message	Cause	Solution
Nothing marked for backup.	You started a backup without marking any files.	Mark at least one file before starting the backup or archive.
Unable to start backup.	NetWorker was unable to execute the **save** command.	Contact the system administrator. There is a problem with the NetWorker software or your client configuration
Your system is not a registered client.	The server you selected does not have your system listed as a NetWorker client.	Contact the system administrator. Your system needs to be added to the list of recognized clients for the selected server.

Error Messages for Recover and Retrieve

NetWorker displays an error message if it cannot recover or retrieve a file.

Table A-2   Recover and Retrieve Error Messages

Message	Cause	Solution
These are files marked for recovery. Continue to ignore the marked files, or cancel to stay with this client.	You tried to change clients or filesystems after marking some files for recover or retrieve.	You have the option to continue changing the client. In this case, the marked files will not be recovered. Or you can cancel to stay with the current client and retain your marked files.
(For *root* users) Only 10 KB available to non-superusers (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* users) No disk space available to non-superusers (15 KB free) in */directory*. The estimated recover size of 10 KB will not fit on this filesystem. Proceed with recover command at this time? [n]	There is not enough free space in the filesystem to recover or retrieve the requested files.	Reduce the size of the recovery by reducing the number of marked files. Relocate the recovered files into another directory with more space. If you are recovering over existing directories, you may be able to proceed with the recovery since files will be overwritten.
Invalid time format.	The time you entered in the Browse Time field was an invalid format.	Enter the browse time using a valid format. Examples of valid browse time formats are shown on page 46 of this guide.

Table A-2 (continued)   Recover and Retrieve Error Messages

Message	Cause	Solution
Nothing in index at this time.	There are no entries in the index for the browse time that you specified, or no backups were done at that time.	Enter another browse time until you find the index entries for which you are looking.
Unable to relocate to */directory.*	NetWorker was unable to relocate the recovered data to the path you specified.	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 All

Some NetWorker error messages are the same for an unsuccessful backup, recover, archive, or retrieve.

Table A-3   General NetWorker Error Messages

Message	Cause	Solution
There are files marked for backup or recovery. Continue to ignore the marked files or cancel to stay with server.	You cannot change servers after you have marked files.	You have the option to continue changing servers. If you change servers, the marked files will not be backed up or recovered. You can cancel to stay with the current server and retain your marked files.
Bad start path.	You specified an invalid starting path for a search.	Enter a valid pathname as a start path in the Search dialog box.
No match.	The Search command did not find any matches.	Enter a different search pattern or starting path.

Table A-3 (continued)   General NetWorker Error Messages

Message	Cause	Solution
Bad search pattern.	The search pattern you specified is not valid.	Use UNIX shell pattern matching characters to specify a search pattern.
Unable to expand path.	The path you specified in the Selection field does not correspond to anything in the index or filesystem.	Enter a valid pathname in the Selection field.

NetWorker UNIX Shell Commands

In addition to a graphical user interface (GUI), NetWorker has UNIX style commands. These commands are entered from a UNIX shell to back up and recover data. You must have access to a NetWorker server and your system must be configured as a NetWorker client in order to use these commands.

Both the **save** and **recover** commands can be run with arguments from the command line. Refer to the save(1M) and recover(1M) reference pages for more information about saving and recovering data from the command line.

Enter the **save** command at the system prompt to back up data:

save -s *server* *pathname*

Enter the **recover** command at the system prompt to recover data:

recover -s *server* **-c** *client* *pathname*

Table of Recover Commands

The **recover** program provides an interface that allows you to browse files and control recovers. When you enter the **recover** command, the NetWorker prompt appears.

Table B-1 shows **recover** program commands to enter at the NetWorker prompt.

Table B-1   NetWorker Recovery Commands

Command	Description
add *filename*	Add *filename* to the recover list.
cd *dir*	Change directory to *dir*.
changetime	Change the browse time of online index.

Table B-1 (continued)   NetWorker Recovery Commands

Command	Description
delete *filename*	Delete *filename* from the recover list.
dest	Verify destination directory for recovered files.
force	Overwrite existing files.
help or **?**	Display list of recover program commands.
list	List the files in the recover list.
ls -f (or **-lf**) *filename*	List *filename* with file type information.
ls -l (or **-ll**) *filename*	List *filename* using long format.
ls *filename*	List *filename*.
noforce	Do not overwrite existing files.
nsrwatch	Monitor NetWorker server activity.
pwd	Display name of current directory.
quit	Exit the recover program.
recover	Start the recover program when entered at the system prompt; start the recovery when entered at the recover> prompt.
relocate *dir*	Specify new directory location for recovered files.
verbose	Toggle verbose or quiet mode for recover status messages.
versions *filename*	Display backup history of *filename* *filename* can be either a file or a directory.
volumes *filename*	List volumes needed to recover marked files *filename* can be either a file or a directory.

Glossary

archive

A snapshot of a file or directory as it currently exists. An unlimited expiration date allows for long-term storage and retrieval.

archive volume

Any type of storage media (tape or optical disc) that can be used for long-term storage.

autochanger

A robotic device with the ability to automatically move, load, and store a collection of volumes. These allow NetWorker to operate without administrative intervention.

backup

A copy of your workstation data stored on tape or optical disc.

backup device

The device attached to the NetWorker server for backing up and recovering data. For example: 8 mm and 4 mm tape drives, optical drives, and autochangers.

backup volume

Any type of storage media (tape or optical disc) that your server can use for backup.

browse time

Viewing specification for files backed up at a specific time. For example, a browse time of 09/13/95 24:00 yields a view of files backed up at midnight on 9/13/95 and before.

collapse

Changing the display to show only the parent of a directory in the NetWorker Backup, NetWorker Recover, and NetWorker Archive windows.

expand

Changing the view to display all levels of a directory in the NetWorker Backup, NetWorker Recover, and NetWorker Archive windows.

file index

A database on the NetWorker server containing an entry for every backed-up file.

media index

A database on the NetWorker server containing entries for all the volumes backed up and archived by the NetWorker server.

NetWorker client

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

NetWorker server

A system with a backup device that backs up systems configured as NetWorker clients across the network. The server backs up the systems according to a schedule set by the system administrator. The server maintains an index of all the backed-up data and the volumes the backed-up data is stored on.

recover

Replace a lost or damaged file from a copy stored on a NetWorker backup volume.

save set

A set of files backed up or archived by NetWorker on a backup or archive volume.

selection

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

tree structure

A display of files in the Backup, Recover, and Archive windows in hierarchical format.

volume

A unit of media used for backup, such as a magnetic tape or an optical disc.

volume pool

A feature that sorts your backup and archive data to selected volumes. A volume pool contains a collection of files sorted during the save process by criteria set by the system administrator.

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