WORKSTATION CLIENT USER'S MANUAL
VERSION 7.5

NetWare®

Backup
Exec

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Preface

About This Manual

This comprehensive user manual provides detailed information and procedures for using the Backup Exec for NetWare® DOS, Windows, and OS/2 clients. Topics covered in this manual require readers to have a working knowledge of their workstation's operating environment.

Conventions

Steps	Numbered steps are listed as 1., 2., …etc.
Text that you type	Text that you are required to type on the keyboard is shown in a lowercase font similar to what you would see on your screen. The text to be typed is preceded by the word *Type* and followed by the key(s) to press: For example, Type: `a:install` and press <Enter>.
Keys	Keys appear in angle brackets (< >). For example, <Enter>, <Esc>, <Del>, etc. When two or more keys need to be pressed simultaneously to perform a function, they appear in angle brackets with a plus sign. For example, <Shift + F1>.

Introduction

This chapter provides information you need to:

- learn about Backup Exec's many features.
- get an overall perspective of how Backup Exec can help you manage data on your Windows or OS/2 workstation.

About the Backup Exec Workstation Client Software

Backup Exec is a high performance data management solution for Novell networks. With the Backup Exec Workstation Client software, you can submit backup and restore jobs from your workstation to a server running the Backup Exec Job Manager and tape hardware (backup server). Because processing takes place on the file server, Backup Exec gives you fast, reliable backups of your workstation.

Restoring files is quick and easy, because Backup Exec's catalog feature keeps track of all of the files you have backed up.

About This Manual

This manual describes the functions you use to work with the Backup Exec Workstation Client modules. Depending on your network rights, there are two user levels for client modules: *Administrator* and *User*.

- An *Administrator* is a user with extended rights to the Backup Exec system. By default, all NetWare supervisor-equivalent users are Backup Exec Administrators, but not all Backup Exec Administrators have NetWare supervisor-equivalence.

  Backup Exec Administrators have access to the following options in the workstation client module:

  - Tape Rotation
  - File Grooming
  - Ability to view job results and catalogs for ALL users
  - Tape overwrite functions
  - Ability to delete catalog information for any tape
  - Ability to edit jobs submitted by ALL users
  - Ability to view the progress of all jobs running on the backup server.

  However, NetWare supervisor equivalence is still required to install Backup Exec onto the server, login to the NetWare client, abort jobs, and to make security logins in the Job Manager when required.

  You can grant Backup Exec Administrator status to users from the Security Options menu in the Job Manager NLM at the server console (see "Job Manager Options" in the Backup Exec Administrator Guide), or by using the NWADMIN Snap-in Tool. Granting this status to users is beneficial because they can perform certain Backup Exec functions without being given NetWare supervisor-equivalence. Backup Exec Administrators are referred to throughout this manual and the software as "Administrators."

Certain Backup Exec functions are available only to Administrators, and only appear in the client application when you are attached to the backup server with a Backup Exec Administrator account.

> **Note** You may be an Administrator on one backup server and a user on another. Therefore, if you change backup servers, some menus and options may change slightly.

- A User is anyone who does not have NetWare supervisor-equivalence and has not been granted Backup Exec Administrator status.

This manual is written from the perspective of someone logged in to the backup server as a user.

Functions that are available only to Administrators in the Windows and OS/2 clients are documented separately in the appropriate chapters of this manual.

The Windows and OS/2 client are virtually identical in features and operation. For this reason, they are documented together in this manual. In the few instances where they differ, notes are provided for OS/2 users.

About Backup Exec for NetWare

Backup Exec is a "client - server" based backup system that allows administrators and users to back up servers and workstations network-wide. This configuration has many advantages:

- Operations are performed right at the server, reducing network traffic and processing times.

- Workstations need only to be attached (not logged in) to the network to be backed up. This helps ensure network security.

- The Administrator controls the tape hardware directly from the server console, ensuring efficient, centralized operations.

Backup Exec consists of the following components:

- **Job Manager** - The module that runs on the file server to which the tape drive is connected. The Job Manager is the main server-based application.

- **Client Software** - The module that users and administrators use to submit jobs to the Job Manager. Client software for Windows and NetWare is included with both Single Server and Enterprise Editions. Backup Exec - Enterprise Edition also includes support for the OS/2 client.

- **Agents** - The module that runs on the workstations that allows them to be backed up by servers running the Backup Exec for NetWare Job Server. Agent software for Windows 95 and Windows 3.1 and 3.11 workstations is included with both Single Server and Enterprise Editions.   Backup Exec - Enterprise Edition also includes agents for Windows NT, OS/2, Macintosh, and UNIX workstations.

How the Backup Exec Modules Work Together

The following diagram illustrates how the Backup Exec modules work together to provide complete, convenient backup and restore functionality for the network.

Backup and restore jobs are submitted to the Backup Server from workstations running the Backup Exec client software (Windows, OS/2, or NetWare client).

Workstations running the Backup Exec Agent software or SMS TSAs and attached to the Backup Server can have jobs submitted for them by an administrator or user running a Windows, OS/2, or NetWare client.

The Job Manager (running on the Backup Server) runs jobs when they are scheduled to be processed.

Once an operation has been completed, the results (Job History) for the job and the catalog information can be emailed to the originator or viewed in the client software by the originator of the job or the administrator.

Backup Exec for NetWare
Client-Server Model

Backup Server running the Job Manager and NetWare client

NetWare 3.1x or 4.x Fileserver w/ tape drives

Remote fileserver
(NetWare 3.1x or 4.x)

OS/2 Client

Windows 3.1 and 95 client

Backup Exec Windows 95

Backup Exec OS/2

Backup Exec DOS

Backup Exec UNIX

Backup Exec MAC

Backup Exec Windows

Backup Exec Windows NT
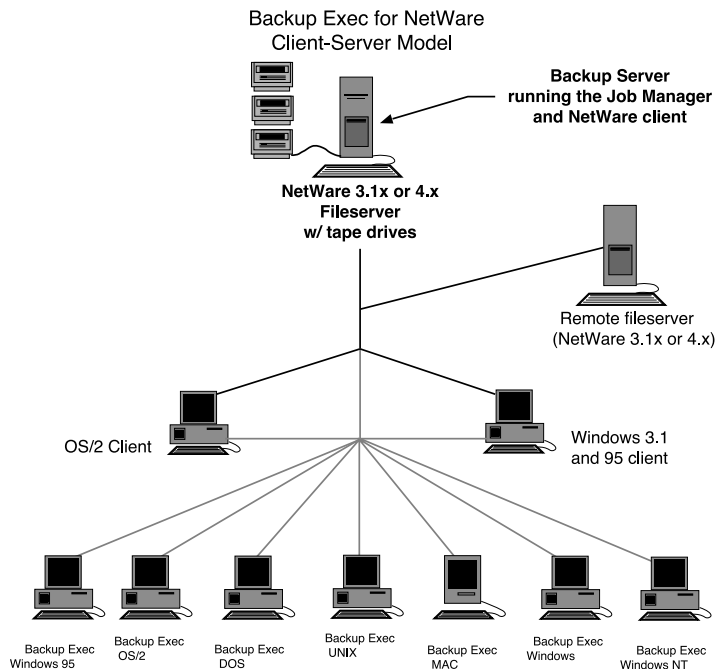
Features and Benefits

Backup - Schedule backup jobs to run at any time to back up any or all available devices on the network.

Scripts - Select devices, directories or files that you want to routinely back up and save them as "Selection Files" (Windows and OS/2 Clients), which can be scheduled to run as often as you want.

Restore - Retrieve data that you have backed up and restore it to your workstation or a Server volume to which you have rights. Backup Exec also includes a Search feature that allows you to quickly find the data you want to restore.

Job Monitoring - Backup Exec's clients allow you to monitor the progress of your jobs that are running on the backup server.

Device-based Catalogs - Backup Exec's catalog keeps a record of the files you have backed up. This makes it easy to find data you want to restore.

Job Schedule and Job History - The Job Schedule allows you to see where your job is in the job queue. The Job History contains information about jobs already processed by the Backup Exec Job Manager.

Notification - You can receive e-mail or a broadcast message when your job finishes.

Context-sensitive Help - Help on your current task is available on all of the clients.   In addition, the Windows and O/S2 clients provide a contents list of all help topics and the ability to search for selected topics.

Windows Flexibility - The Backup Exec Windows Client gives you all of the functionality you expect from a Windows application. Features range from multitasking to customizing window sizes and locations to suit your own Windows workstation preferences.

Windows NWADMIN Snap-in Module - A Windows snap-in module for Novell's NWADMIN utility adds extended flexibility in configuring Backup Exec for NetWare via the NWADMIN utility (see NetWare Snap-in Module in the Backup Exec Administrator Guide). You can install the snap-in module when you install the Windows client, but it is only useful to Administrators who are running the NWADMIN utility.

Workstation Requirements

Windows Workstations

Your Windows workstation should meet the following minimum requirements to effectively run the Backup Exec Windows client:

- 386 microprocessor (or above)

- Windows v3.1 or greater running in Enhanced mode

- Mouse or other pointing device

Note See the Windows Client README.TXT for more information on running the Windows Client under Windows for Workgroups. This file is installed on your workstation when the Windows client is installed.

Before running the Windows Client, please refer to your Windows documentation for recommended files and buffers settings in the CONFIG.SYS file.

We also suggest that you run the DOS program SHARE.EXE (provided with Windows) in conjunction with the Windows client. This program will enable Job Manager to determine if a file is in use when attempting to back it up or restore it, and respond appropriately. If you do not run SHARE.EXE, the Job Manager may back up files in use inadvertently.

The instructions given in this manual are written for users performing the operations using a mouse. If you are familiar with keyboard commands, you can perform the same operations using the keyboard.

If you need more information about using Microsoft Windows, refer to the *Microsoft Windows User Guide*.

OS/2 Workstations

Your OS/2 workstation should have the following minimum requirements to effectively run the Backup Exec OS/2 client:

- 386 or above (client and agent) 286 or above (agent only)
- OS/2 2.0 or later (client and agent)
- Mouse or other pointing device

Getting Started

This chapter provides information you need to:

- install the Backup Exec Windows 3.1, Windows 95, DOS, and OS/2 client and agent software.

- learn about Backup Exec's menu system and on-line help.

Windows 3.1/3.11 Client and Agent Installation

The following instructions explain how to setup the Backup Exec Windows client and agent on your Windows workstation.

	If using the CD, run setup from the CD's \netware\win_ws directory.

1. Map a drive letter to the backup server's SYS: volume.

2. Start Windows.

3. From within the Windows Program Manager, click *Run* from the File menu.

4. In the Command Line box, enter the drive letter mapped to the backup server's SYS: volume, followed by \bkupexec\win_ws\setup.

   For example: f:\bkupexec\win_ws\setup

5. Press <Enter>.

6. Click the type of workstation setup options you desire. *Client* installs only the software needed to submit jobs for other workstations; *Agent* installs the files required for allowing other workstations running the client to submit jobs for your workstation and *Snap-in* installs the Windows Snap-in utility for NWADMIN.

    Follow the on-screen instructions.

⚠️ | **Important** | Please take a moment to view the README document that is displayed at the end of the installation procedure. This file contains information that is not included in the documentation.

Modifying the AUTOEXEC.BAT File

Near the end of the agent installation process, if you chose Agent installation, you are prompted to add the following lines to your AUTOEXEC.BAT file*:*

```
C:\BKUPEXEC\WIN_WS\DOS_SPX.EXE
C:\BKUPEXEC\WIN_WS\DOS_AGNT.EXE
```

DOS_SPX.EXE and DOS_AGNT.EXE are Terminate-and-Stay-Resident (TSR) programs that Backup Exec uses to access the agent workstation:

- DOS_SPX.EXE allows the workstation to recognize other agents on the network.
- DOS_AGNT.EXE allows your workstation to broadcast itself to the network. This TSR will not work without DOS_SPX.EXE being loaded.

These TSRs <u>must</u> be loaded before the workstation can be backed up. Including these lines in the AUTOEXEC.BAT file ensures that the two programs are loaded each time the workstation is powered up.

Choosing Yes causes Setup to append the above two lines to the end of the AUTOEXEC.BAT file.

Choosing No allows you to edit the AUTOEXEC.BAT file yourself. After the installation completes, Setup helps you edit the AUTOEXEC.BAT file by automatically copying the DOS_SPX and DOS_AGNT lines to Windows' Clipboard. It then opens your AUTOEXEC.BAT file using NOTEPAD. Using NOTEPAD's paste feature, you can place the agent statements in the AUTOEXEC.BAT file wherever you want.

⚠	**Important**	When editing the AUTOEXEC.BAT file, make sure Novell's requestors (e.g., IPX.COM\ NETX.COM, ODI or VLM drivers) are loaded prior to the DOS_SPX.EXE and DOS_AGNT.EXE files.
		If the last line of the AUTOEXEC.BAT file loads Windows, then DOS_SPX.EXE and DOS_AGNT.EXE *must* be placed in the AUTOEXEC.BAT file *prior* to that line.

After viewing the README, the next step is to configure the Backup Exec agent to publish the drives on the Windows workstation.

Configuring the Windows Agent

The Windows Agent Publisher dialog box is used to publish the drives on the Windows workstation. After the Backup Exec agent files are installed on your workstation, the Windows Agent Publisher dialog box will automatically appear.

While configuring the agent, you can specify which workstation files and directories can be backed up (or restored).   You can configure up to eight drive/directory entries per workstation.

Note By default, all local hard drives are published as enabled for backup.

Each Agent Publisher field is explained below.

Workstation Name	The workstation name is used to identify the agent workstation to the backup application. Up to 36 alphanumeric characters (including underlines) can be entered and uppercase and lowercase letters may be used.
Password Protect	To prevent unauthorized access, an optional password can be assigned. Anyone trying to perform an operation from the backup application will be required to provide this password before the agent workstation's drives can be accessed. To assign a password, click in the empty box in the Password Protection field. A dialog box will appear in which you can enter a password (up to 32 characters). To change a password, click on this box and enter a new password. The old password will be required before a new password can be entered. Uppercase or lowercase characters may be used. This optional password prevents unauthorized users from backing up or restoring specific Agent Publisher-specified paths.
Publish	Click on this check box if you want to publish this drive.
Path	The path field allows users to choose specific drive/directory combinations on which operations can be performed. For example, a path such as C:\MEMOS could be an entry in one of the path fields. Up to eight drive/directory combinations are available. Network drives/directories can also be entered. The Browse button provides a quick and easy way of selecting paths. When the Browse button is selected, a list appears displaying all local drives and networked drives.
Alias	For easier recognition of the data contained in a path, users must assign aliases which are used by the backup application. For example, the alias for the directory c:\BILL\DOCS\MEMOS could simply be titled MEMOS.
Password Protect	To prevent unauthorized access, an optional password can also be assigned to each published path. A password of up to 32 characters may be entered.
Backup Only	When this option is selected, the published path will only allow read-only operations (such as Backup) to be performed on it. No information can be written (such as Restore) to or deleted from the agent workstation's published path if it is marked Backup only.

Click *Save* to keep your configuration choices.

All configuration options are saved in a file named DOS_AGNT.PUB in the Windows agent directory on your local hard disk.

Example: C:\BKUPEXEC\WIN_WS\DOS_AGNT.PUB

Configuration of the Windows Agent Publisher is now complete.

Future Reconfigurations

To reconfigure the Windows Agent Publisher in the future, simply double-click the Agent Publisher icon found in the Backup Exec Group.

> **Note** Saving new configuration options will overwrite the existing DOS_AGNT.PUB configuration file on your local hard disk.

Rebooting the Workstation

After completing the agent installation and configuration, reboot the workstation. This workstation will be available for backup through any of Backup Exec's client programs.

> **Note** To configure other Windows workstations as Backup Exec agents and/or as clients, login to the backup server from the Windows-based workstation you want to be the agent and/or client and rerun the setup procedure.

Installing the Windows 95 Agent and Client

The following instructions explain how to set up the Backup Exec Windows 95 agent and Windows 95-compatible client on your workstation. The Windows 95 agent supplied with Backup Exec includes several enhancements over the agent supplied with Windows 95, including the option of displaying an agent status window.

1. Map a drive letter to the backup server's SYS: volume.

2. Click the Start button and select *Run*.

3. In the Command Line box, enter the drive letter mapped to the backup server's SYS: volume, followed by \bkupexec\win_ws\setup.

   For example: f:\bkupexec\win_ws\setup

4. Press <Enter>.

> If you are installing from the Backup Exec CD-ROM, insert the Backup Exec Installation CD in the workstation's CD-ROM drive. Click the Start button and select Run. In the command line box, enter the CD-ROM's drive letter followed by \bkupexec\win_ws\setup. Press Enter.

5. Click the type of workstation setup options you desire. *Client* installs only the software needed to submit jobs for other workstations; *Agent* installs the files required for allowing other workstations running the client to submit jobs for your workstation and *Snap-in* installs the Windows Snap-in utility for NWADMIN.

   Follow the on-screen instructions.

> **Important** Please take a moment to view the README document that is displayed at the end of the installation procedure. This file contains information that is not included in the documentation.

6. If you chose to install the agent over an existing agent and the existing agent is running, you will be requested to reboot the workstation.

When you reboot, the new agent will overwrite the previous agent, and will use the previous agent settings.

If you chose to install the agent, and did not have a version of the agent running, a help file will be displayed that will guide you through configuring the agent.

Configuring the Windows 95 Agent

You can configure agent options for the Windows 95 workstation in the Backup Exec Agent Properties dialog box.

When the agent is installed, it defaults to publishing all local drives without password protection.

To change configuration settings:

1. Click the right mouse button on the Network Neighborhood icon on the desktop.

2. Select Properties.

3. Double-click the Backup Exec Agent item in the network components window. You will see the Backup Exec Agent Properties dialog box.
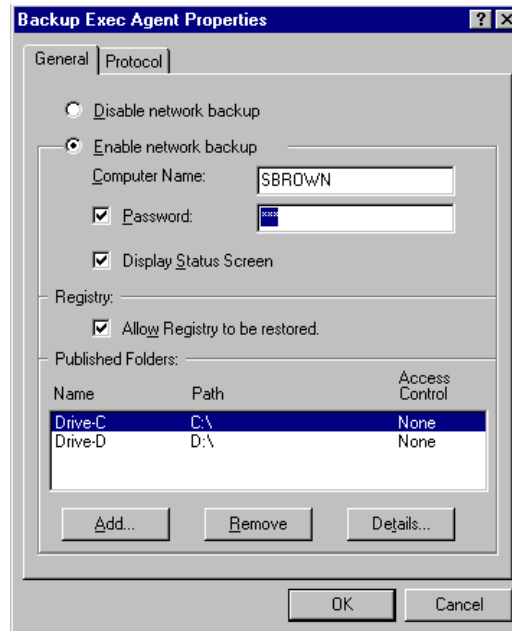
Following are options for the Agent Properties dialog box:

Disable network backup	When Disable network backup is selected, the agent software will not be loaded upon system startup. If the Disable feature is selected while the agent is running, the agent *will be stopped*.
Enable network backup	Click this option to enable the Backup Exec Windows 95 agent to allow Backup Exec operations to be performed on the workstation.
Computer name	The *Computer name* is used to identify the agent workstation through the Backup Exec client modules. Up to 36 alphanumeric characters (including underlines) can be entered.

Password	**To prevent unauthorized access,** an optional password can be assigned. Anyone trying to perform an operation from the backup application will be required to provide this password before the agent workstation's drives can be accessed. To assign a password, click in the empty box in the Password field. A dialog box will appear in which you can enter a password (up to 32 characters). To change a password, click on this box and enter a new password. The old password will be required before a new password can be entered. Uppercase or lowercase characters may be used. This optional password prevents unauthorized users from backing up or restoring specific Agent Publisher-specified paths.
Display Status Screen	Selecting this option causes the agent to display a window which contains the agent status and statistics about the current operation. Normally the Agent Status window is hidden, but it can be viewed by clicking on the Backup Exec Agent icon on the Windows 95 task bar.
Allow the Registry to be restored	Select this option to allow the Windows 95 Registry to be restored.

Published Folders	The Published Folders field lists drives\folders that can be accessed for Backup Exec operations. By default, all local hard disks are published. To add paths, click the Add button. The Select Folder to Publish window will appear.
	Select drives or folders to publish and click Ok. To publish network paths, click Network.
	To modify options for published paths, click the Details button in the Agent Properties dialog box.
	The Folder Details dialog box includes the Path, the Folder Name name and access options for the published path. To password protect the path, click the Requires Password box and enter a password. You can also designate the path as Read only, which allows only backup operations to be performed on the path.
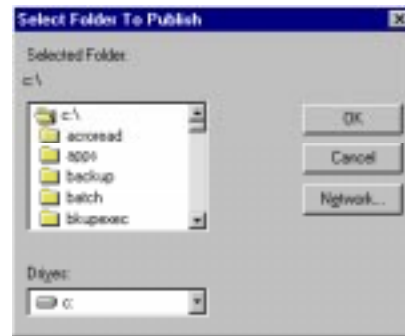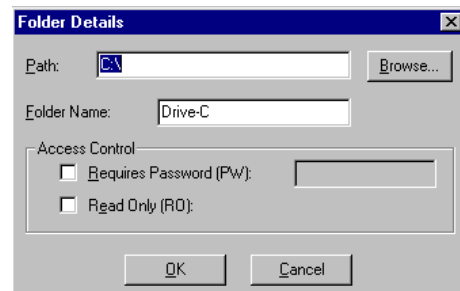
Protocol	This dialog box allows you to configure the network protocol for the Backup Exec Windows 95 agent. Select SPX/IPX or TCP/IP. If you select TCP/IP, a list of Backup Servers configured for that protocol is displayed.

4. When you have completed configuring the Windows 95 agent, click Ok from the Network configuration screen.

You will be notified that the system needs to be rebooted. Allow the system to reboot in order for the Backup Exec agent to be loaded with your updated configuration changes.

Starting the Windows or OS/2 Client

	Note	The illustrations that follow depict those in the Windows client, but are nearly identical in the OS/2 client.

To run the Backup Exec Windows or OS/2 Client software:

1. Double-click the Backup Exec icon within the Backup Exec program group. The icon looks like this:

Backup Exec
Client

	Note	For OS/2 client users: click on the Backup Exec icon that appears on your desktop. The icon will appear after you have added the icons to your desktop (see *Adding OS/2 Client and Agent Icons to Your Desktop* on page 2–25).

2. Select a backup server, unless you are already logged in to the last backup server you were using.

When the client is loaded, it scans all SMS devices and published agents on the network. The *Scanning for Network Agents* window lists each device as it is encountered. Should the startup process halt at a particular device, that device may be the cause of a network problem that requires attention.

> ✍️ **Note** You can create a file that will allow you to see only certain servers (and their SMDRs) in Backup Exec (see *SMDRINCL.DAT File* on page A–2). Creating this file is a good idea if you need to perform operations on a limited number of devices.
>
> Also, if the client fails to load because of a problem with a particular SMDR, you can exclude that device from the SMDRINCL.DAT file so that it is not part of the scan.
>
> The clients search the backup server's \BKUPEXEC directory first. If a SMDRINCL.DAT file is found there, it will be used and the SMDRINCL.DAT file on the workstation will be ignored.

The software also identifies the current Backup Server in the status bar at the bottom of the window.

STATUS
BAR ————

3. Once the user interface is initialized, Backup Exec displays the client desktop. When the Ready message is displayed in the Status Bar, you can begin an operation.

The Windows and OS/2 Client Menu Bar

After starting the Backup Exec Windows or OS/2 Client, a menu bar is displayed across the top of your screen.

To display a menu, click on the menu name or press <F10> to move your cursor to the Menu Bar and then press <Alt> plus the underlined letter in the name of the menu you want to display.

> ***Example:*** To display the File menu, press <F10>, then <Alt + F>.

The Tool Bar

The Tool bar is displayed across the top of the screen under the Menu Bar. The Tool bar contains buttons that allow you to quickly access Backup Exec functions.

The Administrator view of the Selection Bar includes a button for the File Grooming feature.

You can hide the Tool bar by opening the View menu, then clicking on "Tool Bar" to remove the check mark that selects it.

Icons Displayed at the Bottom of Your Screen

When you start the client software, icons appear at the bottom of your screen for Backup and Restore operations. If you are an Administrator, an additional Tapes icon also appears (see *Viewing Tapes (Administrator Only)* on page 3–41). Whether icons appear at the bottom of the screen or open windows are present when you start the client is determined by their status at the time you exit the Windows or OS/2 Client. The client on-line help facility includes a list of icons for your reference.

Messages about Backup Exec are displayed in the Status Bar. You can choose not to display the Status Bar by opening the View menu, then clicking on Status Bar to remove the check mark that selects it.

STATUS BAR
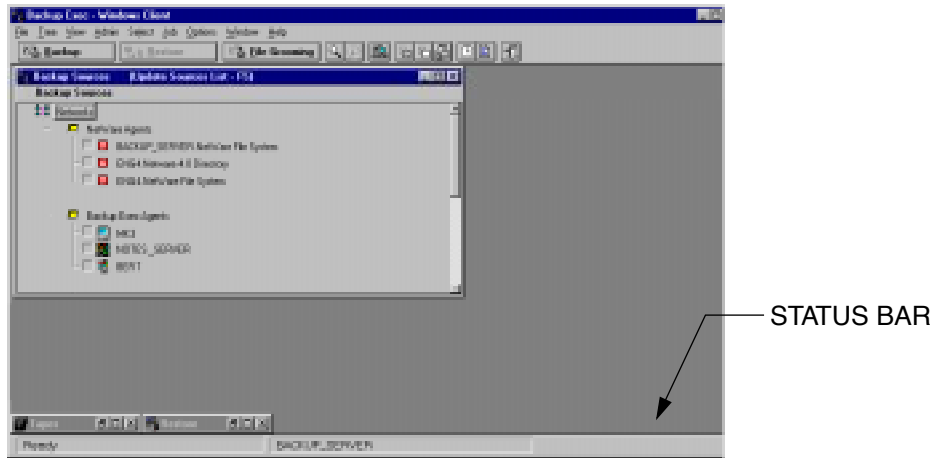
Accessing Help

When you click on the Help menu item, a drop-down menu containing the following options is displayed.

- Contents
- Search for Help on
- How to Use Help
- Technical Support Logs (contains an additional drop-down menu)
- Other products
- Ordering Upgrades
- Customer Support
- About Backup Exec

Help is also available in most windows and all menus. For menu item help, click on the item and press <F1>. For help on a particular dialog box, display the dialog and press <F1>.

Contents

The Contents command displays:

- Backup Exec's Help Table of Contents
- Other Seagate Software, Inc. Products
- Ordering Upgrades
- Support

Search for Help on

The *Search for Help on* command enables you to search for specific help topics based on keywords. For example, suppose you wanted to know more about the Job Schedule. You can choose Search for Help on, and type Job Schedule in the box provided. The system displays all keywords most closely matching what you typed. Select the appropriate keyword and click Go To. The system then displays the available help text for the keyword you selected.

✍ **Note**   This item is not available in the OS/2 client.

How to Use Help

The information contained in this help window is identical to the Using Help information contained in Microsoft Windows.

In addition to information contained in the help windows, certain text in the windows is displayed in green. Clicking on the green text will display additional information. Green text with a solid underline sends you to other areas in help containing additional information related to the topic being referenced. Clicking on green text that has a dotted underline will open a temporary window displaying additional information, such as the definition for a term. The temporary window remains on your screen until you click the mouse again.

	Note	This item is not available in the OS/2 client.

About Backup Exec

Selecting *About Backup Exec* opens a window displaying information about Backup Exec, including the software version number, and copyright information.

Help Windows

Every Help window includes a Help Menu Bar and a Help Selection Bar.

The Help Menu Bar

The Help Menu Bar contains the following selections:

File	
Open	Opens an existing help file.
Print Topic	Print the topic in the Help window. You can only print entire topics.
Print Setup	Set printer options for Help before printing a topic (select a printer or choose Setup and change options for the printer).
Exit	Exit Help.
Edit	
Copy	Copies the entire text of the current Help topic to the Clipboard. From the Clipboard, you can paste the text into another application or document.
Annotate	Adds text to the current Help topic. Annotations are marked with a paper clip icon, which appears above the topic heading.

Bookmark	
Define	Places a bookmark at the current topic or removes a bookmark from any topic. The name you specify for the bookmarked topic appears on the Help Bookmark menu.
(Bookmark Name)	Appears after you have defined a bookmark. You can choose the bookmarked topic you want to display in the Help window.
(More)	Appears when you have defined more than nine bookmarks. Selecting (More) displays the complete list of names given to bookmarked topics.
Help	
How to Use Help	Displays Contents for How to Use Help. Choosing this command is the same as pressing <F1> while you are using Help.
Always on Top	Causes all Help windows to appear on top of other windows. After you choose this command, a shadow appears around the window border to indicate that the Help windows are on top.
About Help	Displays version, mode, and copyright information about Windows.

The Help Selection Bar

The Help Selection Bar contains the following buttons:

Button	Function
Contents	Displays Help Contents for Backup Exec.
Search	Lists all the words you can use to search for topics in Backup Exec's Help. By typing or selecting one of these words, you can search for a go to a specific Help topic.
Back	Goes back to the last Help topic you viewed.
History	Displays the last 40 topics you have viewed in the Backup Exec session. The most recent topic is listed first. To revisit a topic, double-click on it.

Exiting the Windows or OS/2 Client

To exit the Backup Exec Windows or OS/2 client, select Exit from the File Menu or click on the Exit button on the Selection Bar. The button looks like this:

OS/2 Client and Agent Installation

The following instructions explain how to install the Backup Exec OS/2 client and agent on your Windows workstation.

Be sure to log into the backup server from the OS/2 workstation before beginning the installation procedure.

1. Open an OS/2 window.

2. From the OS/2 command line, enter the drive letter mapped to the backup server's SYS: volume.

   Example: `F:` <Enter>

3. Change to the directory that contains the OS/2 agent and client software and press <Enter>.

   Example: `cd \bkupexec\os2_ws` <Enter>

4. Type: `install`

5. Select a language. The rest of the installation procedure is displayed in the language you select, and the appropriate files are installed on your local drive.

6. Select the type of installation you want: *Full*, *Client*, or *Agent*. *Full* copies files for both the OS/2 Client and Agent software; *Client* installs only the software needed to submit jobs for other workstations; *Agent* installs the files required for allowing workstations running the client to submit jobs for your workstation.

7. Press <F2> to continue.

   Follow the on-screen instructions. Help is available by pressing <F1>

	If using the CD, from the CD's \netware\os2_ws directory, run install.

Modifying the STARTUP.CMD File

Towards the end of the installation process, the installation will ask if the following lines are to be added to your STARTUP.CMD file:

```
Rem Load OS2_AGENT
START /N /MIN "Backup Exec Agent" [drive letter]:\bkupexec\OS2_WS\ OS2_AGNT
```

OS2_AGNT.EXE is an OS/2 program that Backup Exec uses to access your OS/2 agent computer; it must be loaded before operations can be performed on an agent workstation. Including these lines in the STARTUP.CMD file ensures the program is loaded each time the OS/2 workstation is powered up.

The installation allows you to select the location for these statements in the STARTUP.CMD file, or they can be automatically appended to the beginning of the STARTUP.CMD file.

If you choose to select the location, the Backup Exec file viewer opens the STARTUP.CMD file for you. By using the <↑> and<↓> keys, you can place the agent statements in the STARTUP.CMD file wherever you want. Backup Exec automatically updates the file when you press <F2>.

⚠	**Important**	Be sure to insert these lines before the last exit command in the STARTUP.CMD file and after the NetWare requestors.

Configuring the OS/2 Agent Publisher

The next installation step requires you to configure the OS/2 agent. A screen titled *OS/2 Agent Publisher* appears. Each field is explained below. This screen allows you to specify which workstation files and directories to back up. Help is available by pressing <F1> in each of the Publisher's fields.

Each field is explained below. This screen allows you to specify which workstation files and directories to back up. *Help* is available by pressing <F1> in each of the Publisher's fields.

Publish	The *Publish* field works in conjunction with the Path field. By activating a Publish field, the published path allows the workstation to be *seen* on the network by Backup Exec's client software. Other workstation clients, no matter what the platform, can submit jobs for these *published* workstation agents to the Job Manager.
	As you add new drive path statements to the Path field, the Publish fields automatically change to Yes. This ensures each path is published and seen by other Backup Exec clients on the network. To change the Publish field from Yes to No, press <Tab> to move to the Publish field you want to change and press <N>.
Path	The path field allows you to choose specific drive/directory combinations on which operations can be performed. Press <Ins> to add a new drive/directory path. For example, a path such as C:\MEMOS could be an entry in one of the path fields. Up to eight drive/directory combinations are available. Network drives/directories can also be entered.
Alias	An *Alias* is a name that users from other workstations (running client software) use to identify the published paths of your agent workstation.

Access Password	You can provide an optional password to prevent unauthorized users from accessing the drive or directory entered in the Path field.
Backup Only	When this option is selected, the agent workstation will only allow read-only operations (e.g., backup) to be performed on it. No information can be written to or deleted from the agent workstation's hard disk.

All configuration choices are saved to a file named OS2_AGNT.PUB. This file resides in a directory on the OS/2 workstation hard disk that contains the OS/2 agent software.

Press <F2> to save the configuration choices. You will be prompted to enter a workstation name and password.

> ✍️ **Note** The workstation password is optional.   Simply press <Enter> if no workstation password is desired.

After completing the installation, run OS/2's Shutdown command and reboot the workstation. The workstation will be available for backup through any of Backup Exec's client programs.

All configuration options are saved in a file named OS2_AGNT.PUB in the OS/2 agent directory on your local hard disk.

C:\BKUPEXEC\OS2_WS\OS2_AGNT.PUB

Future Reconfiguration

To change your OS/2 workstation agent configuration in the future, change to the directory that contains your OS/2 agent software and type OS2_PUB from the command line. This activates the publisher configuration screen, allowing you to change or add to each field as desired.

Rebooting the Workstation

After completing the installation, run OS/2's Shutdown command and reboot the workstation. This workstation should now be available for backup through any of Backup Exec's client programs.

Adding OS/2 Client and Agent Icons to Your Desktop

To set up an icon for the Backup Exec OS/2 client under the Program Manager:

1. Double click on the OS/2 System icon.

2. Double click on the Templates folder.

3. Click the Program template.

4. Click and hold the second mouse button and drag the Program template to the desktop.

5. Fill in the setting dialog with the following information:

   [Backup Exec workstation path]\BEOS2.EXE

   Example: C:\BKUPEXEC\OS2_WS\BEOS2.EXE

   Also enter the path in the Working Directory field.

   Example: C:\BKUPEXEC\OS2_WS

6. Click on the General tab and enter "Backup Exec-OS/2 client" in the Title field.

7. Close the window and the Backup Exec-OS/2 client icon will appear on your desktop. Simply double-click this icon to start the OS/2 client.

   It is recommended that you set up the OS/2 agent and agent publisher icons in the same manner.

   The paths are as follows:

   Agent - [Path]\OS2_AGNT.EXE
   For example, C:\BKUPEXEC\OS2_WS\OS2_AGNT.EXE

   Agent Publisher - [Path]\OS2_PUB.EXE
   For example, C:\BKUPEXEC\OS2_WS\OS2_PUB.EXE

OS/2 Agent Notes

SPX Support for OS/2 Sessions

In order to use the Backup Exec OS/2 agent on a Novell network, you *must* activate *SPX Support for OS/2 Sessions* found within OS/2's NetWare Workstation for OS/2 Installation Utility.

Lotus Notes Database Files

In order to back up Lotus Notes database files, which continuously remains open when Notes is active, make sure Backup Exec is configured to back up files in use (see *Processing of open files* on page 5–4).

Improving OS/2 Agent Performance

You can improve backup performance of your OS/2 agent workstation by specifying a larger network packet size within the OS2_AGNT.CFG file. However, two conditions must be considered before making any changes.

- Your Network Interface Card (NIC) is configured for 1,514 byte packets (see your NIC documentation for information on changing packet sizes).
- Your backup server resides on the local network and does not cross any network bridges.

If your environment meets these two conditions, you can edit your OS2_AGNT.CFG file (located in the OS/2 agent directory) and make the following change:

1. Find the line, *NRL_allow_large_packets = 0*.

2. Change the value from "0" to "1".

3. Save your changes.

4. Reboot the OS/2 agent workstation.

You should see improved backup performance the next time you back up the OS/2 agent workstation.

Windows and OS/2 Client Operations

This chapter provides information you need to:

■ Understand the concepts involved in backing up your workstation.

■ Make file selections and save them as "Selection Files" that you can schedule to run on a routine basis.

■ Make advanced file selections by specifying criteria for files to be backed up (e.g., by filename, extensions, dates, etc.).

■ Restore data to your workstation.

■ Use the Job Schedule to monitor the status of your jobs in the queue and jobs being processed.

■ Use the Job History feature to help you keep track of jobs already processed by Backup Exec.

■ Choose other backup servers on the network.

Rights

Backup Exec abides by the rights assigned to you by the system administrator. If you do not have sufficient rights to a directory on the server, you will not be able to back up or restore files in that directory.

About Backup

Backing up your entire workstation, as illustrated in the following section, is the easiest and most comprehensive backup method. You can also select specific directories and/or files for backup.

Running a Simple Backup

✍🏻   **Note**   Additional Administrator options are listed after these steps.

To create a backup job for your workstation:

1. Double-click the Backup icon in your Windows or OS/2 Client window. The icon looks like this:

This will open the Backup Sources window.
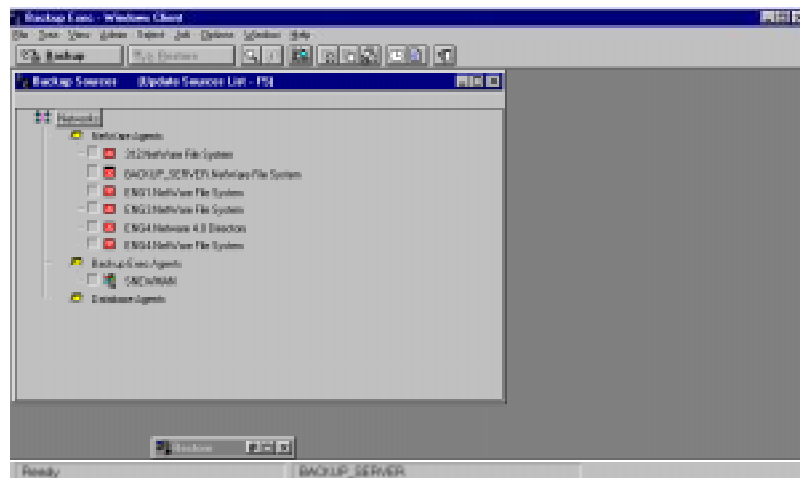
This window lists published agents on your network. These are workstations that are available to be backed up. An agent may be either a NetWare SMS agent or a Backup Exec agent. To refresh the Backup Source screen to show agents that have been published since the session began, press <F5>.

> **Note** If you are logged in with user-equivalent rights, you will see all published NetWare agents in the Backup Sources window and your own published Backup Exec agent workstation. To view other users' Backup Exec agents, you must be logged in as an administrator.

2. A check box appears next to each agent icon listed in the Backup Sources window. When the mouse pointer is over the check box, the pointer changes to a pen. Using this pen, click the check box to select the device you want to back up. An **X** indicates that the workstation has been selected.

   To make selections using the keyboard, use the cursor movement keys to highlight the device, then press <Spacebar> to check the selection. To de-select a device, click the **X** (or press <Spacebar>).

   You can also select the device by highlighting it and clicking the Check button (in the Selection Bar). To de-select the device, click the Unchecked button. You can use the Unchecked All selection (from the Select menu) to de-select all checked devices.

> **Note** You will be required to supply the user name and password for any device you select. Mark "Save in password database" with an x to have Backup Exec automatically provide the user name and password next time you access this device through this client. This option is grayed out if Backup Exec's password database option is disabled (see *Use password database* on page 5–2).

3.   When your selections are complete, click the Backup button or select Submit Backup from the Job Menu. This opens the Submit Backup Job dialog box.
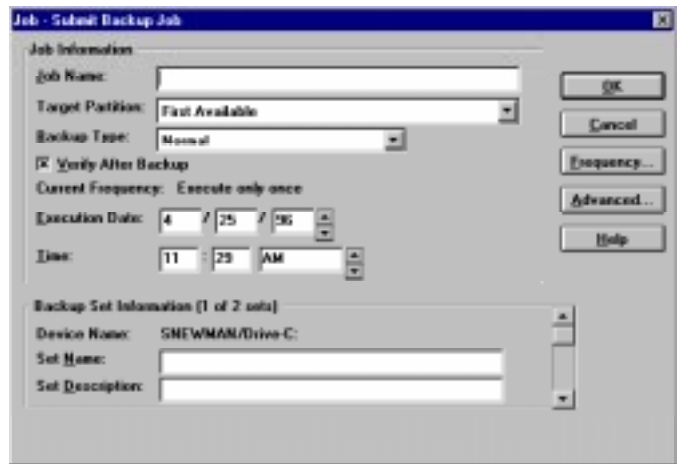
The Submit Backup Job dialog box allows you to provide information for your backup job.

Following are descriptions for fields in the Submit Backup Job dialog box:

Job Name	Enter a name that will differentiate this backup from other jobs in your Job History records. Job names can be a maximum of 24 characters.
Target Partition	The first available partition (that allows the user and the type of operation being performed) is selected as the default partition. Click on the down arrow in the Target Partition field to scroll to other available partitions.

Backup Type	For a first time backup, leave Normal marked. There are four backup types: **Normal** (default)- backs up all selected files and changes the files' status to "backed up". **Incremental** - only backs up selected files that were modified or created since the last *Normal* backup. Selecting Incremental will also change the files' status to "backed up." **Differential** - only backs up selected files that were modified or created since the last *Normal* backup. Selecting Differential does not affect a file's backup status. **Copy** - backs up all selected files, but does not change their backup status. This manual fully describes the different forms of backup (see *Full, Normal, Incremental, Differential and Copy Backups* on page 4–3).
Verify After Backup	Selecting this option has Backup Exec check to make sure the files you wrote to the tape can be read once a backup has been completed. You should leave this item marked.
Current Frequency	This indicates how often the job is to be run.
Execution Date	Enter the date the job is to run initially. You can change this value by clicking on the up and down arrows to the right of the value.
Execution Time	Enter the time the job is to run. You can change this value by clicking on the up and down arrows to the right of the value.
Device Name	This is the name of the device you are backing up. This is the name selected from the Backup Sources window.
Set Name	This is the name that identifies the data being backed up.
Set Description	This describes the data you are backing up.
Frequency	Click this button to change the schedule for the job. To change the frequency for the job, click the Frequency button to the right of the window. This opens the Job Frequency Information window.
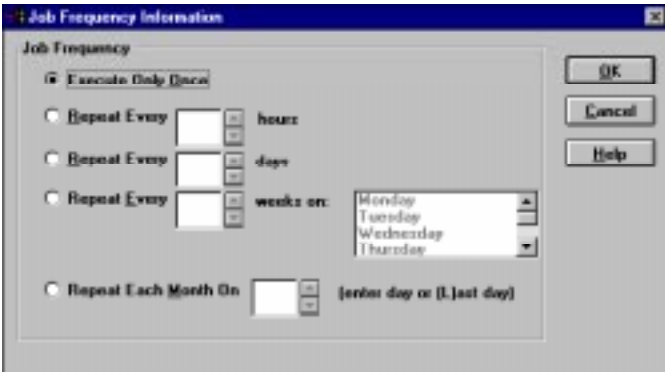
The following are descriptions for items in the Job Frequency Information dialog box:

Execute Once - Select this option to run the job one time.

Repeat Every [ ] hours - Select this option if you want the job to repeat after a given hourly interval. Enter the number of hours to elapse between jobs. For example, you can choose to run a job every 8 hours.

Repeat Every [ ] days - Select this option if you want the job to repeat after a given weekly interval, beginning with the specified execution date. Enter the number of days to elapse between jobs. For example, you can choose to run a job every 14 days.

Repeat Every [ ] weeks - Select this option if you want the job to repeat at a given weekly interval, on the day(s) of the week specified. For example, you can choose to run a job every two weeks on Friday.

Note: This schedule may change the execution date. If so, the date is set to the next date that falls within the date range.

Repeat Each Month On - Select this option if you want the job to repeat on a specified day each month. For example, you can choose to run a job on the 15th of every month. You can also enter "L" to schedule a job for the last day of each month.

Note: This schedule may change the execution date. If so, the date is set to the next month whose nth day has not yet been passed. Click OK to accept your frequency changes and return to the Submit Backup Job dialog box.

Backup Set Information	Provide information for each backup set included in the job. You can enter a backup set name (e.g., Drive C) and a description of the backup set's contents (e.g., This is my hard drive).

A dialog box containing the following items is displayed when the Advanced button is selected:

Field	Description
Scan device to estimate backup size	Select this option to have Backup Exec estimate the number of bytes to be backed up when the backup operation begins. This option may cause the backup to take a little longer, but it allows you to monitor the progress of the operation (by percentage).
Submit on hold	Select this option to submit the job with a hold status. This is useful when you want to submit a job, but you are not ready for the job to run.

4. Click OK when you are finished providing information for the job. Click Cancel if you do not want to proceed.

Backup Exec displays a window confirming that your job has been successfully submitted to the Backup Server.

Performing a Simple Backup - Administrators

The steps Administrators follow in performing a simple backup are the same as those for users. However, Administrators are presented with additional options and information.

The Administrator view of the Backup Sources window includes all published Backup Exec agents as well as all published NetWare agents.

The Administrator view of the Submit Backup Job dialog box contains additional fields.
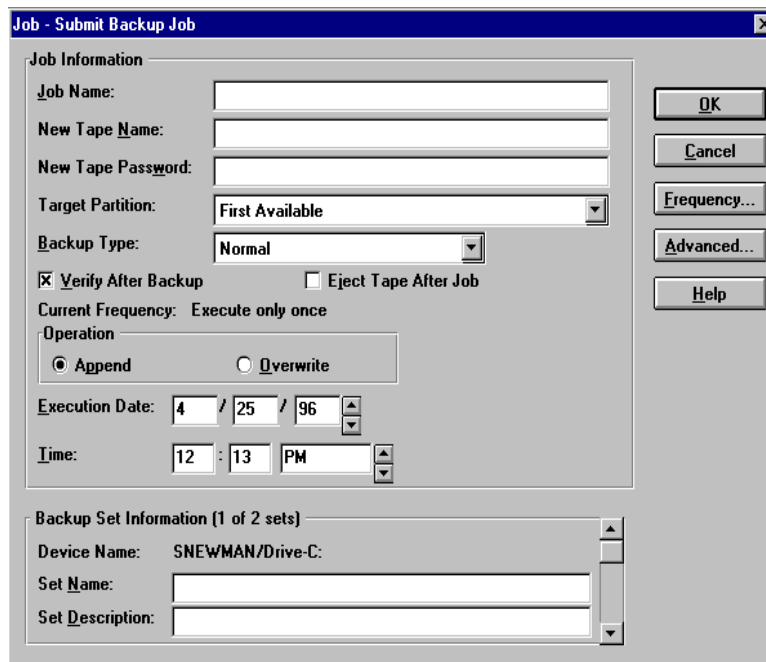
In addition to the fields listed for users in the Submit Backup Job dialog box, Administrators will see the following fields:

Field	Description
New Tape Name	Enter a name to identify the tape. A tape name is required for an overwrite job. If the job is to be appended to a tape and the tape on which the job is to run is blank, this name will be used. If the job is appended to a tape that already has data on it, the name specified here will not be used.
New Tape Password	Enter a password to prevent unauthorized access to the tape. If the job is an overwrite job, the tape password will be used as the new tape password for the tape. If the job is to be appended to a tape and the tape on which the job is to run is blank, this password will be used. If the job is appended to a tape that already has data on it, the password specified here will not be used.
Eject Tape After Job	The Eject Tape feature has Backup Exec automatically eject the tape in the drive when an operation is completed. The Eject Tape feature is particularly useful when you are performing a restore operation and you want to have the tape ejected before the next backup job takes place. However, if you are using a loader, the tape is available for reuse even after it has been ejected.
Operation	This defines the way the data will be placed on the tape. **Append** - The data will be added after the last backup set on the tape. **Overwrite** - The data will be placed at the beginning of the tape; overwriting any data contained on the tape. For example, if an append backup runs, followed by an overwrite backup, the data from the append backup will be overwritten.

Advanced Job Options

The Advanced Job Options dialog box is displayed when the Advanced button is selected:

Following is a description of the fields:

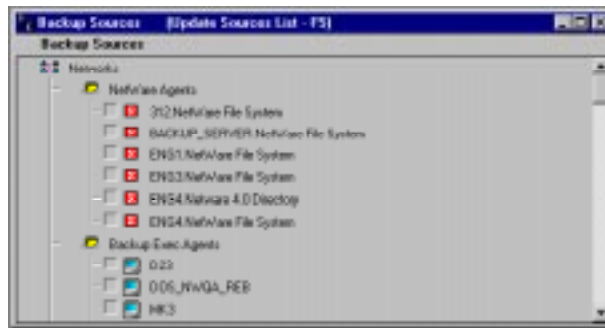| Field	Description
Scan device to estimate backup size	Select this option to have Backup Exec estimate the number of bytes to be backed up when the backup operation begins. This option may cause the backup to take a little longer, but it allows you to monitor the progress of the operation (by percentage).
Submit on hold	Select this option to submit the job with a hold status. This is useful when you want to submit a job, but you are not ready for the job to run.
Before Job Execution Console command (Administrator only)	This option executes a console command on the backup server just before the job starts to run. You can also specify a delay time to occur between the time the command is executed and the start of the job. This option is useful for closing database applications before backing them up.
After Job Execution Console command (Administrator only)	This option can be used to execute a console command on the backup server just after the job runs. You can also specify a delay time to occur between the time the command is executed and the start of the next job.

Selecting Directories or Files for Backup

There are some instances when you may choose to back up a directory or group of files rather than your entire hard drive. Examples are:

- When you have certain directories or files that contain critical data that needs to be backed up frequently

- When you are backing up specific files or directories that will be restored to another workstation

To back up directories or files:

1. From the Backup Sources window, select the agent where the directory/file is located (see *Running a Simple Backup* on page 4–2) and double-click the agent name, or use the cursor movement keys to highlight the agent name and press <Enter>.

   This expands the tree to show the services contained within the agent workstation.

2. Double-click a service name to expand the tree further and show the volumes established within the service.

3. Double-click the selected volume name to expand the tree and display the Directory Tree window.

4. Use the Tree Menu in the Menu Bar for quick expansion of the directory tree.
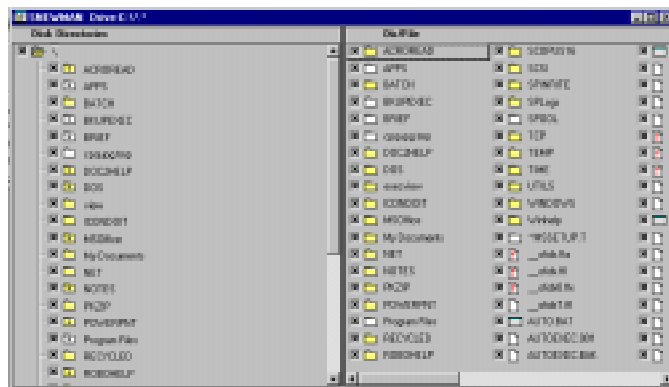
Disk directories are displayed on the left side of the Directory Tree window; subdirectories and files are displayed on the right side of the Directory Tree window.

5. Double-click each subdirectory name until the file you want is listed.

Select Split from the View menu to display a split bar that you can use to adjust the size of each side. You can also hide the label bar that provides column titles for the Directory Tree window; to do so, choose Label Bar from the View menu (ensure that a check mark does not appear beside the Label Bar option if you want to hide the column titles).

6. A check box is on the left side of each directory and file. Click the check box (or highlight the directory or file name and press <Spacebar>) to select the directory or file you want to back up.

If you select a directory, all files contained in that directory are selected. You may select as many directories and files as you want for the backup.

To include all subdirectories in the directories selected for this backup, click Select in the Menu Bar. If there is a check mark (✓) to the left of Include Subdirectories, all subdirectories (in the directories you selected) will be included in the backup. If you do not want to include subdirectories click Include Subdirectories to remove the ✓.

✍	**Note**	Clicking on Include Subdirectories affects only subsequent selections. Selections made before clicking on Include Subdirectories will not include subdirectories.

7. When your selections are complete, click the Backup button in the Selection Bar or select Submit Backup Job from the Job Menu.

This will open the Submit Backup Job dialog box.

8. Submit the job (see *Running a Simple Backup* on page 4–2).

Backing up Open Files without locking

Backup Exec for NetWare now gives you the option of backing up open files **without** locking them.

Typically, Backup Exec backs up open files by first placing a read only lock on them. This lock prevents the file's parent application from writing to the file while the file is being backed up, although it can still be read.

Backup Exec now supports the ability to back up open files without first locking them. This option is useful for those files that remain open at all times but must still be backed up. Large database files, for example, in a 24-hour on-line transaction processing environment

If you choose this option, keep in mind that Backup Exec will not be able to prevent other applications from modifying open files while they are being backed up. Data corruption **on tape** can occur if the parent application writes to an open file while it is being backed up.

To implement this feature, click the button preceding the option, **without a lock**, on the Options - Backup window in either the NetWare or Windows client.
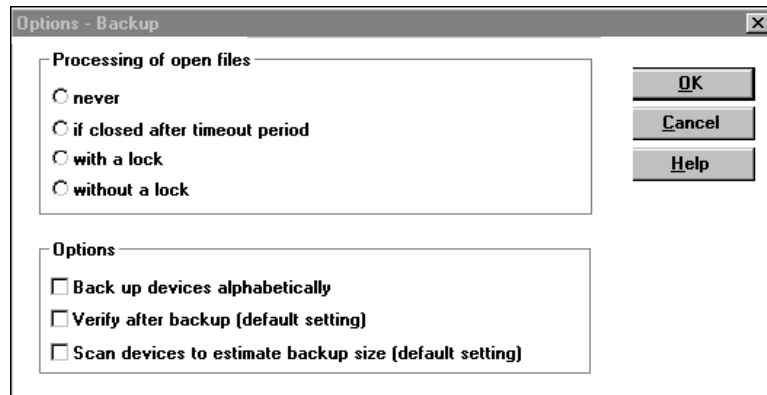
Advanced File Selection - Backup

Advanced file selection enables you to quickly select groups of files to be included in or excluded from your Backup and File Grooming operations.

To make your Advanced File Selections, follow these steps.

1. Select the device(s) you want to back up or groom.

2. Click Select in the Menu Bar and click Advanced or click the Advanced File Selection button in the Selection Bar. The button looks like this:

This opens the Advanced File Selection - Backup dialog box.

The following choices are available in the Advanced File Selection - Backup dialog box:

Choice	Description
Include or Exclude Files	Select whether to Include or Exclude all files that meet your file specifications. The default is Include. Click Exclude if you want to exclude files from the operation.
File Specification	Specify where Backup Exec should look, and what to look for, when selecting files that will be included in or excluded from your Backup or File Grooming operation.
Device	Select the device that contains the files you want to include or exclude. The field contains the name of the device you chose through the Backup Sources window. Click the down arrow located to the right of the device field to scroll to other available devices.
Path	Enter any available directory or subdirectory on the device selected. Enter the full path to the subdirectory (do not include the device identifier). For example, if you have selected drive C:, and the data you want to back up is in the MEMOS subdirectory of the DOCS directory, your full path would be \DOCS\MEMOS.
File	Specify any files to be included or excluded. Wildcard characters are permitted. The asterisk (*) in a file name or extension is a wildcard character that represents all characters occupying any remaining position in the file name or extension. The question mark (?), the wildcard for a single character, is also supported.
	For example, to include all files with the.EXE extension, type the following:
	*.EXE
	The default for File is *.*, which means every file name with every extension will be selected.

Choice	Description
Include Subdirectories	Choose Include Subdirectories to include all subdirectories contained within all directories that are part of your selections. If the operation is beginning at the root level of a disk (e.g., drive C:), all directories and subdirectories on that disk will be included. If you entered a specific path (directory), all files and directories that match the file selection criteria will be included. By default, this is all files and all directories (*.*).
Selection Criteria	This specifies the files to be included in the backup operation: **All Files** - This will include all files matching the file selection criteria in the backup or file grooming operation. All Files is the default. **Files dated within this rang**e - This will include or exclude all files that were changed or created within the specified range of dates. Specify a beginning (From) and an ending (To) date. **Files changed within the last *n* days** - This will include files modified within the last *n* days.

Note   For a file to be included in or excluded from the operation, it must match all of the criteria specified.

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3.   After making your file selections, click OK.

4.   If you are going to use these selections only for this backup or file grooming operation, you can now begin the operation. If you want to save these selections for future use, click Select and click Save Selections to create a selection file.

5.   You can now continue with the job as with any other backup job (see *Running a Simple Backup* on page 4–2).

Selection Files

Selection files are files you can create that contain information about the specific devices, directories, and/or files you want to back up. Once created, selection files are available for reuse as necessary, saving you time when making backup selections.

Saving Selection Files

Follow these steps to save your selections in a selection file.

1. Select the devices, directories, and/or files you want to back up.

2. Click Select in the Menu Bar.

3. Click Save Selections.

   This opens the Select - Save Selection File dialog box.
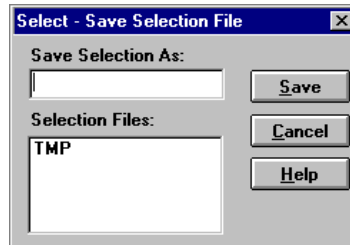
4. Enter a name for the new selection file.

   The name used for the selection file must conform to the DOS file naming rules (maximum of eight characters). The file extension.BKS will automatically be added to the name you enter. If a selection file already exists with the name you enter, the program will ask if you want to replace that file.

5. Click Save to save the new selection file.

Using Selection Files

Follow these steps to use a selection file:

1. Click Select in the Menu Bar.

2. Click Use Selections.

   This opens the Select - Use Selections dialog box.

   This dialog box displays a list of selection files that can be used in a tape rotation, backup, or file grooming job.

3. To use a set of selections from the list, double-click an entry, or click an entry, then click OK. If any selections are currently active, Backup Exec asks if you want to clear these selections before proceeding. When you clear the selections, Backup Exec loads the new selections that you have chosen. If you choose not to clear the selections, Backup Exec adds the new selections to the current selections for this operation.

> **Note** If Backup Exec cannot locate a device included in the selections (e.g., if a device is turned off), an error message is displayed and selections for those devices are not made.

Selection Type (Administrator Only):

Type	Description
Backup	These are selections that are used for backup and file grooming jobs. They are stored in the Backup Exec subdirectory on the workstation.
Tape Rotation	These are selections used for tape rotation jobs. They are stored in the tape rotation path on the current backup server.

Selection Files:

Displays a list of existing selections. Click the selections to be used for the operation. Users do not have rights to view the tape rotation selection files.

4. Click the selection file you want to use.

5. Click Use or double-click the file you want to use.

   The selections in the Backup Sources window are updated to reflect those described in the selection file you chose.

6. Click the Backup button or choose Submit Backup from the Job Menu. This will open the Submit Backup Job dialog box. The Backup window has the backup defaults selected. At this point, you can override the settings (making changes here does not affect your default settings). You can also provide a label for the backup set(s).

7. Click OK when you are ready to begin the backup. The program displays a window informing you that the job has been successfully submitted to the backup server.

Deleting Selection Files

Follow these steps to delete a selection file you are no longer using:

1. Click Select in the Menu Bar.

2. Click Delete Selections.

   This opens the Select - Delete Selection File dialog box.
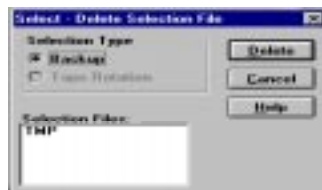
This dialog box lists each of the selection files available to you.

Selection Type (Administrator Only):

Type	Description
Backup	These are selections that are used for backup and file grooming jobs. They are stored in the Backup Exec subdirectory on the workstation.
Tape Rotation	These are selections used for tape rotation jobs. They are stored in the tape rotation path on the current backup server.

Selection Files:

Displays a list of existing selections. Users do not have rights to view the backup or tape rotation selection files.

3. Click the selection file you want to delete, then click Delete or double-click the file you want to delete.

The program displays the confirmation dialog.
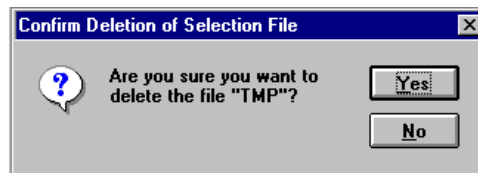
4. Click Yes to delete the selection file. Click No to cancel the delete operation and keep the selection file.

Viewing Selection Files

Follow these steps to view the contents of a selection file:

1. Click Select in the Menu Bar.
2. Click View Selections.

This opens the Select - View Selection File dialog box.

Selection Type (Administrator Only):

Type	Description
Backup	These are selections that are used for backup and file grooming jobs. They are stored in the Backup Exec subdirectory on the workstation.
Tape Rotation	These are selections used for tape rotation jobs. They are stored in the tape rotation path on the current backup server.

Selection Files:

Displays a list of existing selections. Users do not have rights to view the backup or tape rotation selection files.

3. Click the selection file you want to view, then click View, or just double-click the file you want to view.

This opens a window displaying the selections contained in the selection file.
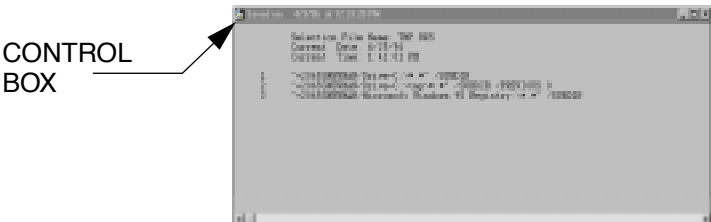
CONTROL
BOX

The title bar of the window tells you the date and time at which the selection file was saved.

4. Use the scroll bar to look through the selection file and view all of its contents.

5. When you finish viewing the selection file, click the control box to close the window.

	Note	You can print the contents of a selection file at any time by choosing Print from the File Menu while the Selection File window is active. Print functions are not available in the OS/2 client.

File Grooming *(Administrators Only)*

With Backup Exec's File Grooming feature, you can free valuable server disk space by migrating files that have not been accessed within a certain period of time to tape. The files that you select are backed up, the backup is verified, and the files are removed from the hard disk.

	Note	Backup Exec performs file grooming operations only on volumes that support last accessed date for files (e.g., NetWare volumes, OS/2 HPFS volumes and UNIX NFS volumes, etc.).

When a file grooming job is submitted, the files you specified for the operation are backed up and verified. After the data is verified successfully, the files are automatically deleted from the device on which they originated.

	Important	When using the file grooming feature, make sure the Preserve Last Accessed Date option in the Job Manager is marked. Otherwise the date for each file will be changed each time a file is backed up.

To set up a File Grooming job:

1. In the Backup Sources window, select the device(s) containing the data you want to groom.

2. Expand the Directory Tree window as necessary to reach the appropriate level of information.

3. When your selections are complete, click the File Grooming button in the Selection Bar or select Submit File Grooming from the Job Menu.

4. This opens the Submit File Grooming Job dialog box. (If any of your selections are on devices that do not support file grooming, you will be notified now.)
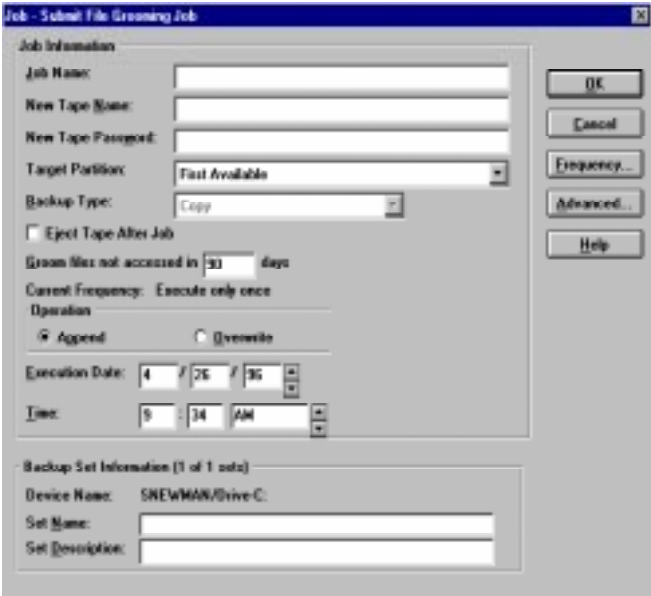
The Submit File Grooming Job dialog box includes options for your file grooming job. Following are descriptions for fields in this dialog box:

Setting	Description
Job Name	Enter a name that will differentiate this job from others in your job history records.
Tape Name	Name identifying the tape used for backup.
Tape Password	Password restricting access to the backup tape.
Target Partition	The job will default to the first available partition configured to accept file grooming jobs. Click the down arrow to scroll to other available partitions.
Backup Type	For file grooming operations, Copy is the only valid backup method.

Setting	Description
Eject Tape After Job	The Eject Tape feature has Backup Exec automatically eject the tape in the drive when an operation is completed. The Eject Tape feature is particularly useful when you are performing a restore operation and you want to have the tape ejected before the next backup job takes place. However, if you are using a loader, the tape is available for reuse even after it has been ejected.
Groom files not accessed in [ ] days	Specifies the number of days that a file should be dormant before being backed up and removed from disk. The program will groom only the files that have not been read or created during this many days.
Current Frequency	Indicates how often the job is to be run.
Operation	This defines the way the data will be placed on the tape. **Append** - The data will be added after the last backup set on the tape. **Overwrite** - The data will be placed at the beginning of the tape; overwriting any data contained on the tape. For example, if an append backup runs, followed by an overwrite file grooming job, the data from the append backup will be overwritten.
Execution Date	Date the job is scheduled to process. You can change this value by clicking on the up and down arrows to the right of the value.
Time	Time the job is scheduled to process. You can change this value by clicking on the up and down arrows to the right of the value.
Backup Set Information	Provide information for each backup set included in the job. You can enter a backup set name (e.g., Drive C) and a description of the backup set's contents (e.g., This is my hard drive).
Device Name	Name of the device you are grooming. This is the name you selected from the Backup Sources window.
Set Name	Name identifying the data you are grooming.
Set Description	Describes the data you are grooming.
Frequency	Click this button to change the schedule for a job (see *Frequency* on page 4–5).

Setting	Description
Advanced	Click this button to change the Advanced Job Options (see *Advanced Job Options* on page 4–9).

5. After completing the Submit File Grooming Job dialog box, click OK to process the file grooming job.

   The file grooming operation will automatically perform a verify operation after the data is backed up. If the verification of data fails, the operation will stop and the program will notify you of the failure. Your files will not be groomed from the disk. If you receive a verification failure, identify the file(s) that failed to verify, correct the problem, and start the file grooming operation again.

> ✍ **Note** You can save your file grooming job selections as selections files, just as you can for any backup job.

File Grooming Notes

- Tapes used for file grooming jobs can only be overwritten by administrators. To prevent the tapes containing file grooming jobs from being erased accidentally, write-protect the tapes and store them in a safe place.

- If you select individual files within a directory, only the files within that directory will be groomed. The directory will not be deleted once the operation has been completed unless the software is configured to remove empty directories. Root directories are never deleted.

- If you enter 0 in the *Groom files not accessed in x days* field in the Job Information window, all selections will be groomed.

Submitting a Cleaning Job (Administrator's Option)

The Job|Submit Cleaning command allows you to submit or schedule regular cleaning jobs for the tape drive(s) in your autoloader. This feature is intended for use with the Advanced Autoloader Option (see Appendix E *Advanced Autoloader Module.*

Before submitting a cleaning job, make sure that the intended partition is defined to support cleaning jobs. When the cleaning job runs, a cleaning tape will be inserted from the cleaning partition into the tape drive. Once the cleaning operation completes, the cleaning tape is returned to the loader slot. When submitting a cleaning job, you will be required to define specific details for the job.

Job Name	Enter a name that will identify the cleaning job in the Job Schedule.
Target Partition	Enter the partition which contains the cleaning tape. Only partitions which have been defined to support cleaning jobs will appear in the list.
Target Drive	If your loader contains multiple tape drives, specify which drive to clean in the Target Drive field.
Frequency Button	Click this button to select how often to run the job.
Execution Date/Time	Specify the date and time the job is to run. Cleaning jobs are usually scheduled to run immediately.

Advanced Button	**Submit Job on Hold** - Mark this option to submit the job on hold. You can toggle the job to Ready from the Job Schedule when you are ready to run the job.
	Console command before/after job - Before (or after) running this job, you can have Backup Exec run a console command. You can specify a delay time that is to elapse before the job runs following the console command. If you select to run a console command after the job completes, you can specify a delay time that should elapse before the next scheduled job runs.

Restoring Files

There are many reasons why you may want to restore data. Perhaps you groomed data off your hard disk to create more storage space and now you need it back on your hard disk. Maybe you deleted some data by mistake. Maybe you replaced your hard disk, or acquired a new workstation. Or, perhaps your hard drive has failed. For whatever reason, Backup Exec makes it easy to retrieve your data.

About Catalogs

Backup Exec keeps track of the information you have backed up by maintaining *catalogs*. A catalog contains a record of the backup sets that have been placed on tape. These catalogs provide security for Backup Exec; users can only see and restore from those catalogs that the user has backed up. Therefore, no other user can access data that you have backed up unless they know your password (or an administrator password) on the backup server.

There are three methods that you can use to view the catalogs:

■ The Restore Sources window. You access this view by double-clicking on the Restore icon located at the bottom of your screen.

■ The Tapes window *(Administrator only)*. You access this view by double-clicking on the Tapes icon located at the bottom of your screen.

■ The Catalog Search function. You access this view by selecting Catalog Search from the Admin menu, or by clicking on the Catalog Search button on the Selection Bar.

These views are discussed further in this section and in the *Keeping Track of Your Jobs* section (see *Keeping Track of Your Jobs* on page 4–43).

Selecting Data to Restore

Follow these steps to perform a restore operation:

> ✍ **Note** The steps that Administrators follow in performing a restore operation are identical to those followed by users.

1. Double-click the Restore icon located at the bottom of your screen. The icon looks like this:

    Restore

    This will open the Restore Sources window.
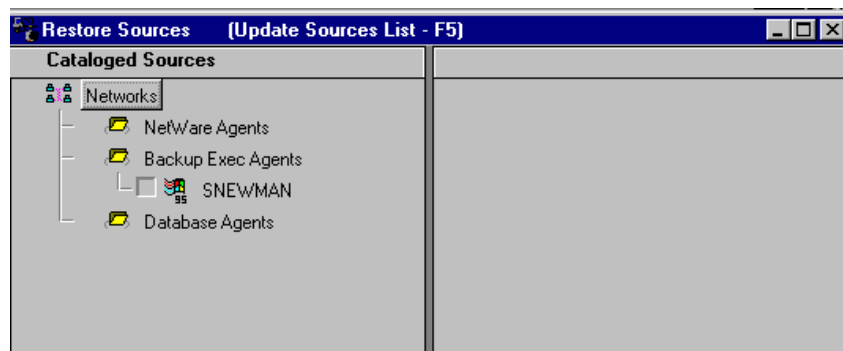
    The Restore Sources window displays catalogs sorted by device. If you are an Administrator, the Restore Sources window will display *all* available catalogs. Any device that has been backed up appears in this list (if its catalog has not been deleted). As a user, you will see only your own catalogs (administrators see all catalogs). A check box is associated with each catalog name. When you move the mouse pointer over the check box, the pointer changes to a pen.

☞ **Tip** To re-arrange the sources display, right-click the mouse in the Cataloged Sources window Label bar, then double-click on the Redefine Labels... tag. The Label Definition dialog window allows you to re-arrange and remove fields from the display.

2. Double-click the device name to expand the tree and display the available volumes.

3. If you want to display the individual backup sets created for the device, double-click the device name. The program expands the Directory Tree window to display the backup sets in the right side of the window.
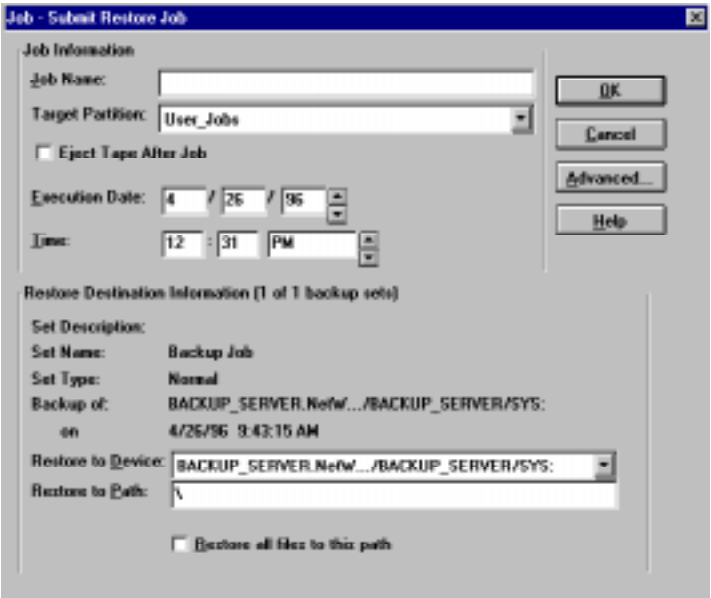
4. To display the individual directories and files created within a backup set, double-click the backup set name. The program creates a new Directory Tree window to display the directories within the backup set. Double-click a directory name to display the files contained within the directory.

✎ **Note** You can quickly expand the Directory Tree window by selecting Expand All from the Tree menu in the Menu Bar.

5. Using the pen, click in the check box to select each backup set or individual directory or file you want to restore (or use the cursor movement keys to highlight your selections and press <Spacebar> to check them).

6. When selections are complete, click the Restore button in the Selection Bar or select Submit Restore from the Job Menu.This will open the Submit Restore Job dialog box.

The Submit Restore Job dialog box contains the following fields:

Field	Description
Job Name	This is a name that uniquely identifies this job.
Target Partition	The name of the partition that contains the tape to be restored. To select another partition, click on the down arrow. A list of partitions that support restore jobs (and to which you have rights) will appear. Click on the partition you want, or use <first available>. Backup Exec automatically views the inventory to see if the tape containing the data to be restored is in a partition. If the tape is not found, the Target Partition will default to the partition in which the data was backed up. If you want to specify a target partition for the restore job, click on the down arrow in this field. A list of tape drives of the same media type as the backup tape will appear. For example, if the data was backed up to a 4mm (DAT) tape, a list of partitions that have 4mm drives is displayed.

Field	Description
Eject Tape After Job (Administrator only)	The Eject Tape feature has Backup Exec automatically eject the tape in the drive when an operation is completed. The Eject Tape feature is particularly useful when you are performing a restore operation and you want to have the tape ejected before the next backup job takes place. However, if you are using a loader, the tape is available for reuse even after it has been ejected.
Execution Date	This is the date for the job to process. Restore jobs are usually scheduled for immediate execution. You can change this date by clicking on the up and down arrows beside the date.
Time	This is the time for the job to process. You can change this time by clicking on the up and down arrows beside the time.
Set Description	This is the description that was given to the backup set when the backup was performed. If multiple sets are being restored, you should use the scroll bars on the right side of this box to move to the additional sets and view the set description.
Set Name	This is the name given to the backup set when the backup was performed.
Set Type	This identifies the type of backup performed for this set.
Backup of	This is the device from which the backup was made.
on	This is the date and time the backup was processed.
Restore to Device	This identifies the device to which you want to restore the data. This list only includes items contained in the password database, or items to which you have attached during this session. Note that some device limitations apply.
Restore to path	This is the path to which you want to restore the data. Backup Exec places this path in front of the path names associated with the data that you are restoring. If the path does not exist, Backup Exec will create it for you.
Restore all files to this path	If you want to restore the file to a directory path other than where it originated, specify the directory in the Restore to Path field, then select this option to restore all of the data to that directory. If you want to keep the original directory structure, then leave this option unmarked.

Field	Description
Advanced Job Options	The Advanced Job Options window contains the following options:
	Submit on hold - Select this option to submit the job with a hold status. This is useful when you want to submit a job, but you are not ready for the job to run.
	Console command before job (Administrator only) - This option executes a console command on the backup server just before the job starts to run.
	You can also specify a delay time to occur between the time the command is executed and the start of the job. This option is useful for closing database applications before restoring tablespaces.
	Console command after job (Administrator only)- This option can be used to execute a console command on the backup server just after the job runs.
	You can also specify a delay time to occur between the time the command is executed and the start of the next job.

7. When selections are complete, click OK to submit the job.

    The program displays a message confirming that the job has been successfully submitted to the server.

> **Note** Unlike a backup job, which can write to any tape in the tape drive, a restore job requires the specific tape containing the data you need. If the correct tape is not in the tape drive, the Job Manager notifies the administrator that the Backup Server needs attention. If your restore job does not execute (if its status is "active" for an excessive amount of time), ensure that your network administrator is available to change the tape in the drive.

Searching a Catalog

Backup Exec keeps a list of the files included in each backup in its catalog. Finding a single file or group of files among many backup sets could be difficult and time consuming. To speed up this process, Backup Exec has a Search feature that lets you find files to restore easily.

Follow these steps to search a catalog for one or more files to restore:

1. Select Catalog Search from the Admin menu, or click the Catalog Search button on the Selection Bar. The button looks like this:

    This opens the Enter Search Criteria dialog box.

    This dialog box displays the criteria that will be used to search the catalogs for data to restore. This dialog box is displayed when you select Catalog Search from the Admin menu or click the Catalog Search button on the Selection Bar. Options for the items in the Enter Search Criteria dialog box are as follows:

Options	Description
Path	If you know which directory the file was in when the device was backed up, enter it in the "Path" field. By specifying the path, you can search any available directory, or subdirectory. For example, you could locate the \BKUPEXEC\WIN_WS subdirectory in the selected device's backup sets by typing \bkupexec\win_ws in this field.
File	This field is used to search for any specific file or files. For example, you could search for all files with the .EXE extension by entering *.exe in this field.

> ✍️ **Note** Specifying at least the first character of the filename(s) will speed up the search process. For example, if you wanted to search for all files that began with the letter "A", type a* in the "File" field.

2. When you finish entering search criteria, click OK.

   Depending on how specific your search criteria are and how large your catalogs are, it may require several seconds for the program to complete the search. The search encompasses all available catalogs.

3. When the search is complete, the program displays the Search Results window.

   The Search Results window displays all of the files that matched the criteria specified for the search. A small check box appears to the left of each file name. When you move the cursor near one of these check boxes, the cursor turns into a pen.

   If more than 100 files match the selection criteria, a message is displayed stating that too many files were found and only the first 100 are displayed. You may need to limit your search criteria to see the file that you want using wildcard parameters (e.g., *.exe).

4. Use the pen to mark the files that you want to restore.

5. Once all files have been selected, click the Restore button in the Selection Bar or select Submit Restore from the Job Menu. This opens the Submit Restore Job dialog box. You may now submit the restore job as usual (see *Restoring Files* on page 4–29).
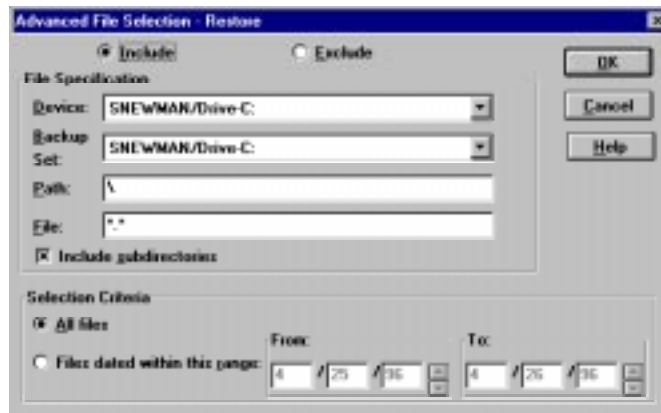
Advanced File Selection - Restore

Advanced File Selection enables you to quickly select groups of files to be included in or excluded from your Restore operations.

To make your Advanced File Selections, follow these steps:

1. In the Restore Window, select the device(s) that you want to restore.

2. Click the Select in the Menu Bar and click Advanced or click the Advanced File Selection button in the Selection Bar. The button looks like this:

This opens the Advanced File Selection - Restore window.

The following choices are available in the Advanced File Selection - Restore dialog box:

Choice	Description
Include or Exclude Files	Select whether to Include or Exclude devices, directories, and files that meet your specifications. The default is Include. Click Exclude if you want to exclude these items from the operation.

Choice	Description
File Specification	Specify where Backup Exec should look, and what to look for, when selecting files that will be included in or excluded from your Restore operation.
Device	Select the device that contains the files you want to include or exclude. The field contains the name of the device you chose through the Restore Sources dialog box. Click the down arrow located to the right of the device field to scroll to other available devices.
Backup Set	Name identifying the group of backed-up directories and files, as assigned when the backup was submitted.
Path	Enter any available directory or subdirectory on the device selected. Enter the full path to the subdirectory (do not include the device identifier). For example, if you have selected drive C, and the data you want to restore is in the MEMOS subdirectory of the DOCS directory, your full path would be \DOCS\MEMOS.
File	Specify any files to be included or excluded. Wildcard characters are permitted. The asterisk (*) in a file name or extension is a wildcard character that represents all characters occupying any remaining position in the file name or extension. The question mark (?), the wildcard for a single character, is also supported. For example, to include all files with the .EXE extension, type the following: *.EXE The default for File is *.*, which means every file name with every extension will be selected.
Include Subdirectories	Choose Include Subdirectories to include all subdirectories contained within all directories that are part of your selections. If the operation is beginning at the root level of a disk (e.g., drive C:), all directories and subdirectories on that disk will be included. If you entered a specific path (directory), all of the subdirectories contained within that directory will be included.

Choice	Description
Selection Criteria	Specifies the files to be included (or excluded) in the backup operation:
	All Files - Choosing All Files will include (or exclude) all files matching the file specification criteria in the restore operation. All Files is the default.
	Files Dated Within This Range - Choosing Files dated within this range will include or exclude all files that were changed or created within the specified range of dates. Specify a beginning (From) and an ending (To) date.

3. When your selections are complete, click OK.

    The program redisplays the Restore Sources window. The devices, services and volumes containing selections matching your criteria are now selected.

4. Click the Selection Bar's Restore button or select Submit Restore from the Job Menu to display the Submit Restore Job dialog box. You may now submit the job as usual.

Displaying File Versions

The File Version feature enables you to display a list of all versions of a file that have been backed up to tape. Using this feature, you can quickly identify which version of a file you want to restore.

Follow these steps to use the File Version feature:

1. Select the file through either the Tapes window or the Restore Sources window.

2. Select Display Info from the Admin menu, or click the File Version button on the Selection Bar. The button looks like this:
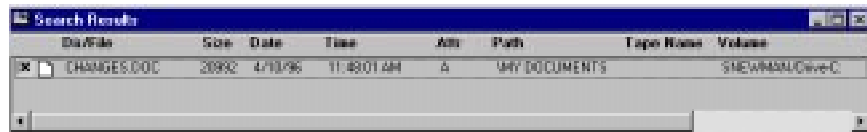

☞ **Tip** As a shortcut, you can also double-click a file name.

> ✍🏻 **Note** If Backup Exec is taking a long time to search for the file version information, you can press <Esc> to quit the search. Any version information already found will be displayed.

This displays the Search Results window.

Backup Exec searches all of the tape catalogs and lists the file version(s). The Search Results window displays the following information:

- ◆ File Name
- ◆ File size (in bytes)
- ◆ Date the file was created or last modified
- ◆ Time the file was created or last modified
- ◆ Path and backup set containing the file
- ◆ Name of the backup set
- ◆ Number of the backup set
- ◆ Name of the tape containing the file
- ◆ Volume from which the file was backed up

3. Select the version of the file you want to restore and click the Restore button on the Selection Bar, or select Submit Restore from the Job menu. This will open the Submit Restore Job dialog box.

Submit the job as usual (see *Restoring Files* on page 4–29).

> ✍🏻 **Note** If you return to the Restore Sources window after selecting a file version, you will notice that the volume containing that version has been automatically selected for you.

Viewing Tapes *(Administrator Only)*

If you are an Administrator, the Windows or OS/2 Client enables you to review the contents of the catalogs sorted by backup tape. This capability is especially useful for reviewing the contents of a cataloged tape before it is deleted from the catalogs.

To view tapes:

1. Click the Tapes icon on your Windows or OS/2 Client desktop. The icon looks like this:



    This opens the Tapes window.
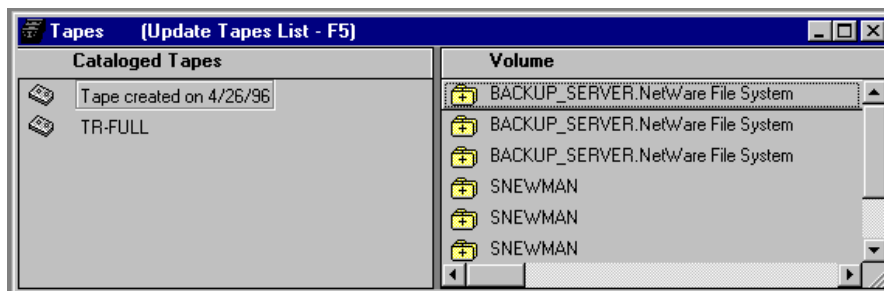
The Tapes window lists each cataloged tape on the left-hand side, by tape name. If the catalog spans multiple tapes, an icon showing more than one tape is displayed. The right-hand side of the window lists the backup sets that are contained on the tape(s), by backup set name.

☞	**Tip**	To re-arrange the sources display, right-click the mouse in the Cataloged Tapes window Label bar, then double-click on the Redefine Labels... tag. The Label Definition dialog window allows you to re-arrange and remove fields from the display.

2. To view the contents of a backup set, double-click the volume name in the right-hand side of the window.
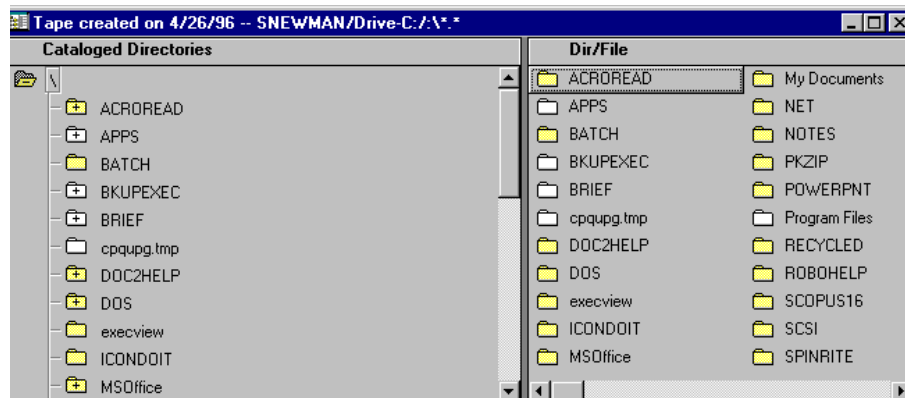
This expands the view to show the cataloged directories on the tape in the left-hand side of the window and the subdirectories and files shown on the right-hand side of the window. Double-click the directory icon to further expand the view and show the files it contains.

3. When you have finished viewing tape contents, close the Tapes window by clicking on the control box in its upper left hand corner.

Keeping Track of Your Jobs

Backup Exec includes features that allow you to keep track of your jobs. The Job Schedule allows you to monitor the job queue waiting to be processed and the Job History includes results from jobs that have already run.

Job Schedule

The Job Schedule dialog box includes jobs that are in the Backup Manager queue waiting to be processed. While in this menu, you can:

- View jobs you have submitted.
- View all jobs in the Backup Manager queue.
- Edit job information.
- Delete jobs.
- Place jobs on hold.
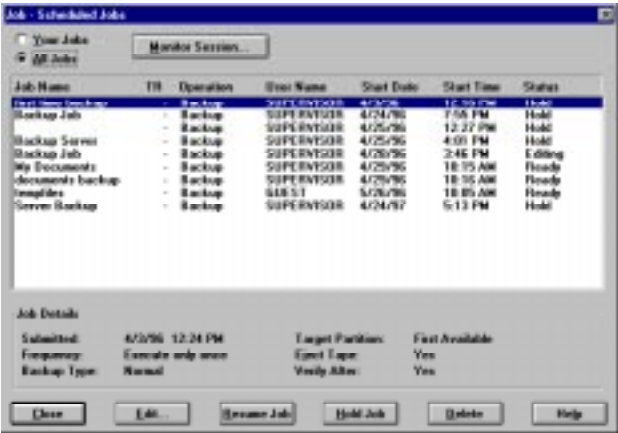- Resume jobs on hold.
- View jobs in progress.

Administrators follow the same procedures as users to display and work with the Job Schedule dialog box. However, administrators have the ability to display and edit all jobs in the queue.

To view the Job Schedule:

1. Select *View Schedule* from the Job menu, or click the Job Schedule button on the Selection Bar. The button looks like this:

   The Scheduled Jobs dialog box is displayed.

2. This Scheduled Jobs displays a list of jobs that are in the queue to be processed. From this dialog box, you can: check job status, place jobs on hold, delete jobs, edit jobs that you have submitted, and monitor the Job Manager. The jobs in the Scheduled Jobs dialog box are listed in order of execution time. Following are descriptions for each field:

Your Jobs	Displays only those jobs you have submitted.
All Jobs	Displays all jobs in the queue.
Job Name	The name assigned to the job when it was submitted.
Monitor Session	Click the Monitor Session button to view the Job Manager console screen from your workstation (see *Job Manager Monitor* on page 4–46). Administrators can access this function at all times; users can view the Job Manager only when their jobs are active.
Operation	The type of operation to be performed (e.g., Backup, Restore).
User Name	The name of the user who submitted the job.
Start Date	The date the job is to be run.
Start Time	The time the job is to be run.

Status	The status of the job in the queue. Options are: **Hold** - the job has been placed on hold **Ready** - the job is ready to be processed when it is reached in the queue **Active** - the job is currently being processed **Editing** - indicates when no changes can be made to a job because another client is modifying the job, or when the job manager may be updating the job.
Job Details	This item includes information about the currently highlighted job. If multiple jobs are highlighted, an outline is displayed around the job to which the details apply. This box contains information only while the list of jobs is the active element on your screen. **Submitted** - Date and time the job was first submitted to the backup server. **Frequency** - Indicates how often the job is processed. **Backup Type** of backup (if applicable). **Target Partition** - The partition assigned when the job was submitted. **Eject Tape** - Specifies whether the tape is to be automatically ejected after the job executes. **Verify After** - Specifies whether the job is to have a verify operation performed.
Close	Click this button to close the Scheduled Jobs dialog box and return to the application.
Edit	Click this button to edit the parameters of a job. If you select more than one job, and press the Edit button, you can edit each job in succession. When you finish editing the first job, press OK or Cancel to display the next job.
Resume Job	This button activates a job that was placed on Hold. If you have selected multiple jobs and press this button, all of the selected jobs are set to Ready.

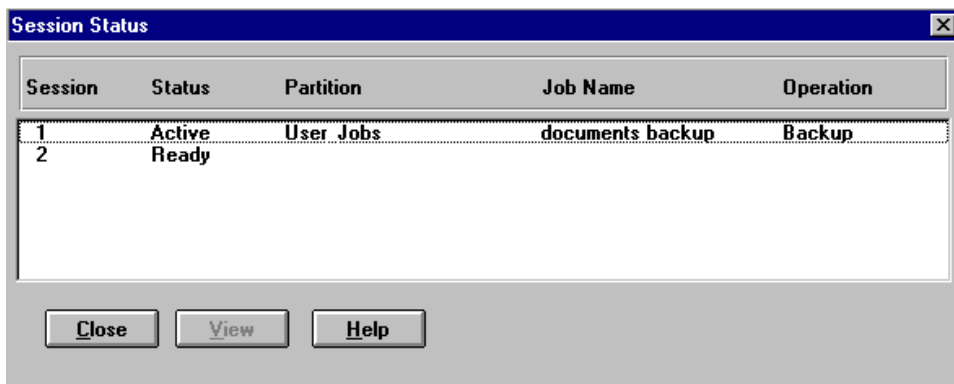|	
Hold Job	This changes a job's status from Ready to Hold. Jobs on hold cannot run until they are resumed (through the Resume button). If you select more than one job, and press the Hold button, all of the selected jobs are placed on Hold.
	Jobs that are on partition hold (when the partition the job is targeted to is on hold) cannot be resumed. They can only be resumed when the Administrator uses the Job Manager to take the partition off hold.
	However, if a job is on user hold as well as partition hold, then when the partition is taken off hold, the job remains on hold.
Delete	This deletes the selected job(s). Backup Exec prompts you to confirm the deletion of each job before removing it from the job queue. You cannot delete active jobs.
	Note: If you delete a Tape Rotation job, you will only be deleting this run of the job. For information on deleting or suspending a Tape Rotation job, see the Administrator's manual.
Help	Accesses on-line help.

> **Note** With the Windows or OS/2 clients, you will be able to see only the first 125 jobs in the queue. All jobs in queue can be viewed in the NetWare client.
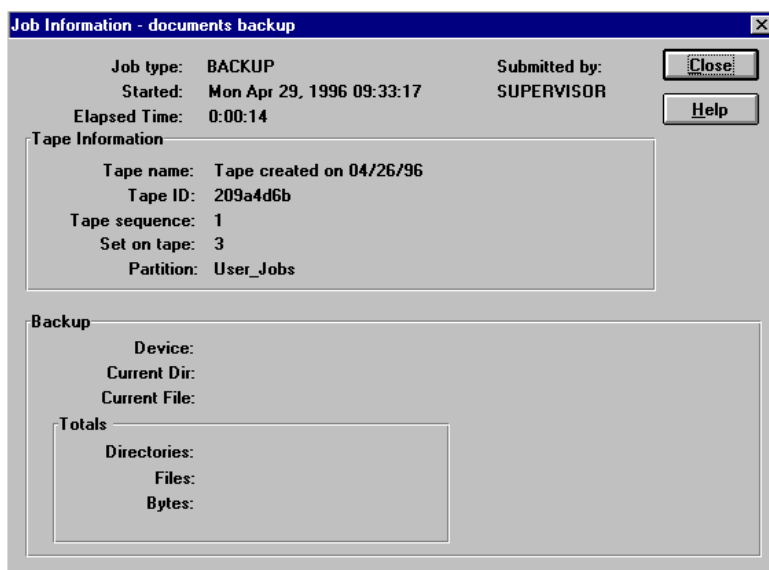
Job Manager Monitor

You can view the Job Manager console from the Windows or OS\2 client while your job is being processed. Administrators can access this function at all times; users can view the Job Manager only when their jobs are active.

To view the Job Manager console, click on the Monitor Session button in the Job Schedule window. The Session Status window is displayed
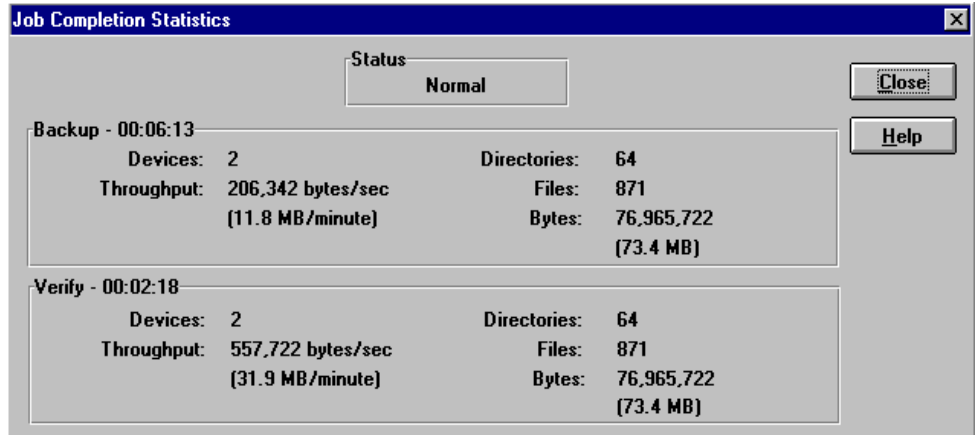
Session Status

Session	Status	Partition	Job Name	Operation
1	Active	User Jobs	documents backup	Backup
2	Ready			

Close   View   Help

To view details for the job being processed, click the View button. The Job Information window will appear.

Job Information - documents backup

Job type:	BACKUP	Submitted by:	Close
Started:	Mon Apr 29, 1996 09:33:17	SUPERVISOR	Help
Elapsed Time:	0:00:14		

Tape Information

Tape name: Tape created on 04/26/96
Tape ID: 209a4d6b
Tape sequence: 1
Set on tape: 3
Partition: User_Jobs

Backup

Device:
Current Dir:
Current File:

Totals

Directories:
Files:
Bytes:

The Job Information window lists the following information about the job being processed.

Item	Description
Job Type	Indicates the type of job being performed (e.g. Backup, Restore, File Grooming).
Submitted by	The name of the user that originally submitted the job.
Started	The time that the session started processing the job.
Partition	The name of the partition that is being used by this session.
Tape Name	The name of the tape that is being used in the operation.
Tape ID	The ID of the tape being used in the operation.
Tape Sequence	The sequence number of the tape being used in the operation.
Set on Tape	The number of the current backup set that is being processed.
Operation	The type of operation currently being performed.
Device	The device (or Agent) that is being processed.
Dir	The name of the directory that is currently being processed.
File	The name of the file that is currently being processed. Smaller files process quickly, so you may not be able to read all of the names as the files are processed.
Directories	The number of directories that have already been processed during this operation.
Files	The total number of files that have already been processed during this operation.
Elapsed Time	The amount of time that the session has been processing the current operation.
Bytes	The total number of bytes that have been processed during this operation.

When the job has been completed, the Job Completion Statistics window will appear. Check the job status to make sure that the job resulted normally. If the job ended with an error, check the Job History to find out why.

The job completion statistics window shows the final statistics for the last operation that was run in the session.

This window does not automatically update when other jobs run. To update the information in this window when other jobs run in the session, close this window, select another job from the Session Status window, and click on View.

Following are descriptions for items in the Job Completion Statistics window:

Item	Description
Status	This is the final status of the job. Possible status results are: *Normal* - Job terminated normally *Error* - Job encountered an error during execution *Aborted* - Job was aborted by the Administrator

Item	Description
Operation Boxes	Depending on the type of job that was processed, you will see different types and numbers of operation boxes. For example, if a backup operation with the verify option was performed, you will see two boxes: one for the backup operation and one for the verify operation.
	Following the title of each operation box is the amount of time required to perform each operation. Operation boxes have one or more of the following fields:
	Devices - The number of devices that were backed up or restored.
	Throughput - The rate at which information was transferred for this operation.
	Directories - The total number of directories processed during the operation.
	Files- The total number of files processed during the operation.

Editing Jobs in the Queue

Backup Exec enables you to change information for a scheduled backup or restore operation. If you are an administrator, you can edit any job in the queue. If you are not an administrator, you can edit only those jobs that you have submitted.

Note *Active* jobs cannot be edited. As a user, you can edit only those jobs you have submitted that are in Ready or Hold status. You can display the Edit dialog box for any job, but you cannot save changes to other users' jobs.

For details on a specific job:

1. Click a job to highlight it.

2. Click the Edit button or simply double-click the job.

   One of the following is opened: the Edit Backup Job dialog box, the Edit Restore Job dialog box, or the Edit File Grooming dialog box for file grooming jobs.

Backup Jobs

The Edit Backup Job dialog box allows you to change settings for the backup.

The Edit Backup Job dialog box contains the following fields:

Field	Description
Job Name	Enter a name that will differentiate this job from others in your job history records. Maximum length for the job name is 24 characters.
New Tape Name (Administrator Option)	Enter a name to identify the tape.
New Tape Password (Administrator Option)	Enter a password to prevent unauthorized access to the tape.
Target Partition	Click the down arrow to scroll to other available partitions.

Field	Description
Backup Type	There are four backup types: **Normal** (default)- backs up all selected files and changes the files' status to "backed up." **Incremental** - only backs up selected files that were modified or created since the last *Normal* backup. Selecting Incremental will also change the files' status to "backed up." **Differential** - only backs up selected files that were modified or created since the last *Normal* backup. Selecting Differential does not affect a file's backup status. **Copy** - backs up all selected files, but does not change their backup status.
Verify After Backup	Selecting this option has Backup Exec check to make sure the files you wrote to the tape can be read once a backup has been completed. You should leave this item marked.
Eject Tape After Job (Administrator only)	The Eject Tape feature has Backup Exec automatically eject the tape in the drive when an operation is completed. The Eject Tape feature is particularly useful when you are performing a restore operation and you want to have the tape ejected before the next backup job takes place. However, if you are using a loader, the tape is available for reuse even after it has been ejected.
Operation (Administrator Option)	This defines the way the backed-up information will be placed on the tape. **Append** - Data will be added after that already existing on the tape **Overwrite** - Data will be written over that already existing on the tape
Current Frequency	This indicates how often the job is to be run. To change this value, click the Frequency button at the right of the dialog box.
Execution Date	This is the date the job is scheduled to process. You can change this value by clicking on the up and down arrows to the right of the value.
Execution Time	This is the time the job is scheduled to process. You can change this value by clicking on the up and down arrows to the right of the value.
Frequency	Click this button to change the schedule for a job (see *Frequency* on page 4–5).

Field	Description
Advanced Options	Click this button to change the Advanced Job Options (see *Advanced Job Options* on page 4–9)

Restore Jobs

The Edit Restore Job dialog box contains the following information:

Field	Description
Job Name	This is the name that uniquely identifies this job.
Target Partition	The name of the partition which contains the tape to be restored. To select another partition, click on the down arrow. A list of partitions that support restore jobs (and to which you have rights) will appear. Click on the partition you want to select, or use <first available>. The partition must also use the same type of media that the data was backed up on. Only 4mm (DAT) partitions are available for data that was backed up using a 4mm DAT drive.
Eject Tape After Job (Administrator Only)	The Eject Tape feature has Backup Exec automatically eject the tape in the drive when an operation is completed. The Eject Tape feature is particularly useful when you are performing a restore operation and you want to have the tape ejected before the next backup job takes place. However, if you are using a loader, the tape is available for reuse even after it has been ejected.
Execution Date	This is the date for the job to process. You can change this date by clicking on the up and down arrows beside the date.

Field	Description
Time	This is the time for the job to process. You can change this time by clicking on the up and down arrows beside the time.
Advanced Options	Click this button to change the Advanced Job Options (see *Advanced Job Options* on page 4–9)

Once you have completed editing the job, click OK. The job will remain at its place in the queue unless you change the execution date and time.

Placing Jobs on Hold

You can place a job on hold for as long as you want. This is useful when you have a regularly scheduled job that you want to suspend temporarily, but not delete. To hold a job, highlight it and click the Hold Job button. You will see its status change to "Hold." When you are ready for the job to run again, highlight it and click the Resume Job button.

Jobs on partition hold can only be made "ready" by taking the partition off hold from within the Job Manager.

> **Note**   Jobs that are active or being edited cannot be placed on hold.

Deleting Jobs From the Queue

To delete a job, highlight it and click the Delete button. You can select multiple jobs to delete by pressing the mouse button and dragging the cursor to highlight the jobs. If you select multiple jobs to delete, Backup Exec will ask if you want to delete all of the selected jobs. Select Yes to delete the jobs. Otherwise, you will be required to confirm each job to be deleted.

> **Note**   Jobs that are active or being edited cannot be deleted.

Job History

The Backup Exec Job History contains summary information for backup and restore jobs. This allows you to keep track of the jobs completed by the Job Manager. Administrators can view histories for jobs; users can only see jobs they have submitted.
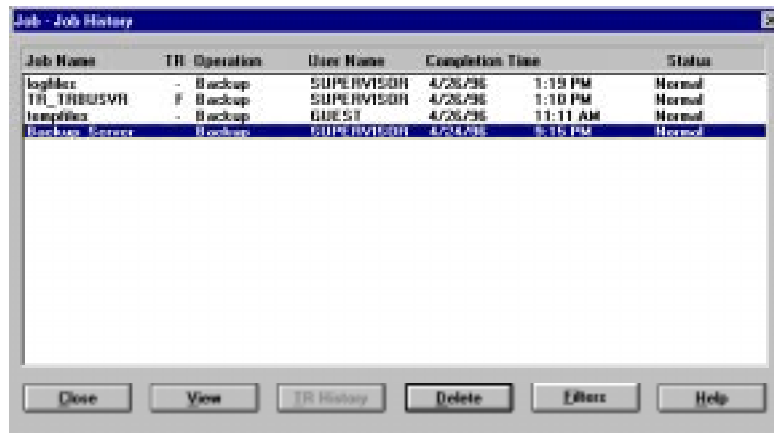
To view Job Histories:

1. Select View History from the Job menu, or click the Job History button in the Selection Bar.

   The button looks like this:

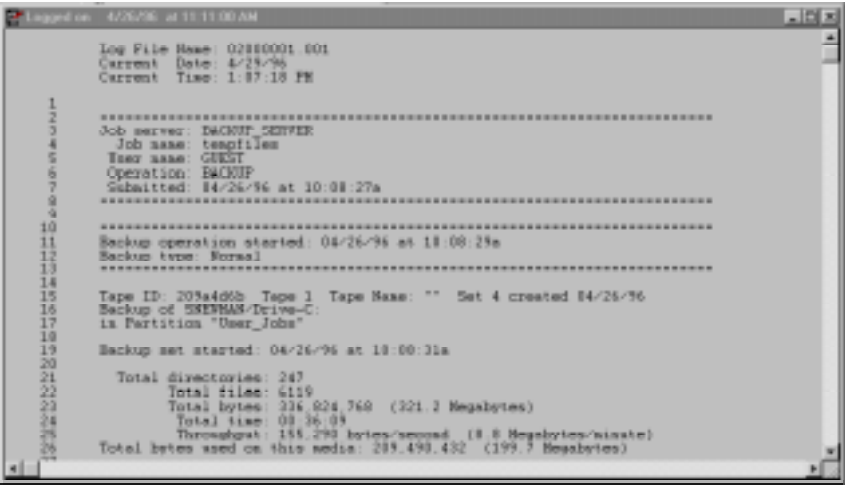

   A list of jobs is displayed in the Job History dialog box

This dialog box displays the results of jobs that have been processed. The jobs in the Job History dialog box are listed in chronological order, beginning with the job most recently completed. The following are descriptions for each field:

Field	Description
Job Name	The name assigned by the user when the job was submitted.

Field	Description
TR Operation (Administrator Option)	The type of operation for tape rotation jobs. The types are (F)ull, (D)ifferential,(I)ncremental, and (-) Not a tape rotation job.
Operation	The type of operation performed.
User Name	The name of the user that submitted the job.
Completion Time	The date and time the job finished processing
Status	The overall results of the job. Options are: **Normal** - Job terminated normally **Error** - Job encountered an error during execution **Aborted** - Job was aborted by the user
Close	Closes the Job History dialog box and returns to the application.
View	Displays the View Logs window containing the history log for the selected job.
TR History (Admin only)	Displays the run history for the selected tape rotation job.
Delete	Removes job history files for the specified jobs. You can select single or multiple job histories to delete; Backup Exec prompts you to confirm each deletion.
Filters	Accesses the Filters dialog box, enabling you to limit the range of job histories that you want to display. You can display history by operation, by user (Administrator Option), by specific job name, or list only jobs with errors.

2. For details on a specific job, click the job to highlight it and then click the View button. The Job History file window will appear.

In this window, you can view the comprehensive job history file. The history file includes the following information and depending on how the detail level is configured (see *Detail level for job history logs* on page 5–9) may include file and directory information.

Item	Description
Job Name	This is the name assigned to the job.
User Name	This is the name of the user that submitted the job.
Operation	This is the type of operation performed.
Submitted	This is the date and time the job was submitted.
Operation Started	This is the date and time the job was run by Backup Exec.
Tape ID n Tape name	This is the tape number and name assigned to the tape family. Refer to the Administrator Manual for a description of this field's usage.
Set n Set name	This is the set number on the tape and the backup set name.
Set description	This is the description provided for the backup set.
Total devices	This is the number of devices included in the operation.

Item	Description
In Partition	The partition in which the operation was performed.
Total bytes used on this media	The number of bytes that have been used on the tape.
Total bytes left on this media	The number of bytes remaining on the tape. This is not supported on all tape drives. Due to the overhead needed to store data on tape, the number of bytes left is greater than the number of bytes of data that can be stored on the tape.
Total bytes	This is the number of bytes/megabytes processed.
Total time	This is the amount of time the operation took to process.
Throughput	This is the amount of bytes per second/MB per minute.
Operation Ended:	This is the date and time the operation ended.
Job Completion Status	The Job Completion Status field tells you whether the job was completed successfully. Options are: **Normal** - the job completed with no critical errors **Error** - an error occurred and the job was not completed successfully. Try submitting the job again. **Aborted** - the operation was aborted by the administrator or the Job Manager.

Printing a Job History File

You can print the contents of the Job History file when this window is active. Before you can print a Job History file, a printer must be attached to your system and you must use File/Printer Setup to tell your system what printer to use. Print functions are not available in the OS/2 client.

To print a Job History:

1. Double-click the Job History icon.

2. Click the job containing the history you want to print.

3. Click View (within the dialog box).

4. From the File menu, choose Print.

Understanding Job History Results

What does the completion status mean?

There are three possible job completion status conditions:

- Normal
- Aborted
- Error

Normal means the job completed without errors.

Aborted means that the job did not run to completion. Some reasons why a job might be aborted are:

- Errors were found processing the device information associated with the job.
- No devices specified by the job were available when the job was run.
- Errors were found with the login information associated with the job.
- There was a problem with the tape drive when the job was run.
- The job information was corrupted.
- The administrator terminated the operation as it was running.

Error means that the operation took place, but one or more significant errors occurred. The job history log should indicate what caused the errors and you can decide if you want to run the job again. For example, an error is reported if the connection is lost to a device while it was performing an operation. Depending on the importance of the file, you may choose not to run the job again.

What happens to jobs with errors?

A once-only job that ends in an *Aborted* or *Error* status is put back in the queue on hold. If you want to try running the job again, you can go to the Job Schedule and resume the job. If you do not want to run the job again, delete the job.

A continual job that ends in an *Aborted* or *Error* status will be rescheduled for its next execution time. If you want to run this iteration of the job, you can modify the execution time for the job in the Job Schedule dialog box.
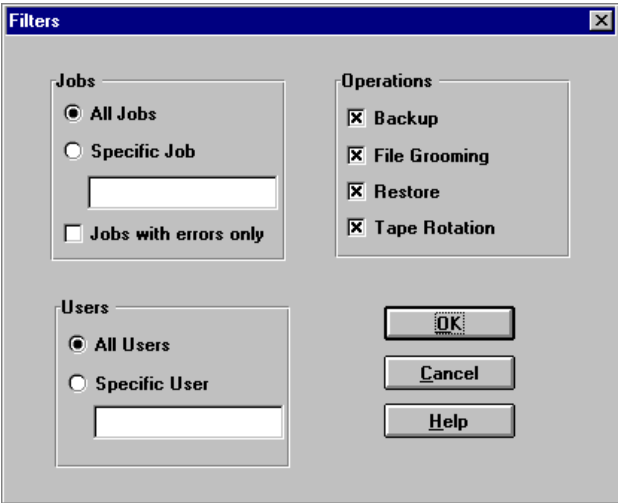
If your administrator has enabled job rerouting, your job may have run on another server. The job history will indicate if your job was rerouted.

Filtering Job History Information

You can apply filters to narrow down your view of the Job Histories that are available.

To apply filters:

1. Click the Filters button at the bottom of the Job History dialog box.

2. This opens the Filters dialog box.

The Filters dialog box contains the following options:

Option	Description
Jobs	This identifies the types of jobs you want to include in the Job History view: **All Jobs** - Include all jobs that have been processed. **Specific Job** - Show only the specified job (enter the job name in the space provided). **Jobs with errors only** - Show only jobs that concluded with errors.

Option	Description
Operations	This identifies the type of operations you want to include in the Job History view: **Backup** - Show backup jobs **File Grooming** (Administrator Option)- Include file grooming jobs **Restore** -Show restore jobs **Tape Rotation** (Administrator Option)- Show tape rotation jobs
Users **(Administrator Option)**	This identifies which user's jobs you want to include in the Job History view: **All Users** - Include jobs submitted by all users. **Specific User** - Include only jobs submitted by the specified user. Enter the user name in the space provided.

You can specify any combination of filters to apply. For example, you can choose to display only backup jobs that contain errors.

3.   When you finish specifying filters, click OK to close the dialog box and apply the filters.

✍ **Note** Filters do not reset within a single Backup Exec session. For example, if you apply a filter to show only jobs with errors, that filter will remain in effect every time you view the Job History within that session. If you exit and return to Backup Exec, the filters reset to their defaults.

Deleting Job History Entries

After making sure your job has run successfully, you may want to delete the job history entry. To delete Job History entries that you no longer want to keep, highlight the job by clicking it, then click the Delete button. Backup Exec will require you to confirm the deletion of the job history record.   To delete more than one entry, hold down the mouse button and drag the highlight bar until all of the entries you want to delete are selected; then click the Delete button. You will be prompted to confirm the deletion of all the selected histories. Select Yes to delete all or No to be prompted to confirm the deletion of each history individually.

Change Backup Server

The Change Backup Server function allows you to choose another backup server running the Job Manager for Backup Exec functions.

✍️ **Note** If you change to a backup server on which you are assigned different rights, information on your client screens may change. For example, if you are an administrator and change to a backup server on which you have only user privileges, some of the options available previously will not be available.

Changing backup servers updates the Restore Sources window. Therefore, if you have made any Restore Sources selections, they will be eliminated when you change backup servers.

To change your backup server:

1. Select Change Backup Server from the Admin menu or click the Change Backup Server button on the Selection Bar. The button looks like this:

    The Admin - Change Backup Server window will appear.

    The Admin - Change Backup Server window will appear.
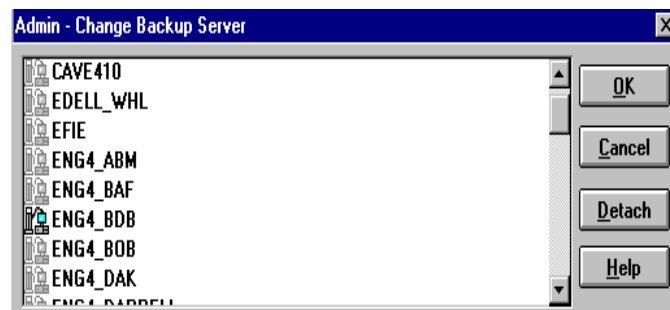
    This dialog box lists backup servers on the NetWare network. Your current backup server is highlighted. If no backup servers are found, you will receive a message.

2. To select a different server, highlight the server and click OK or simply double-click the server name.

    Servers to which you are not attached have grayed icons.

3. If the server is in your current NDS tree, and you have rights to that server, you are not prompted to enter a username and password.

    However, if you select a server that is in another NDS tree, or if it is a server to which you have a bindery login, or if Backup Exec is running in bindery mode, you will be required to enter a username and password.

4. You can detach from a server by selecting a server in the list and clicking Detach. You will not be allowed to detach from a server if it is your current backup server, or if it is your primary server (the server to which you are logged in).

Deleting Cataloged Tapes *(Administrator Option)*

Backup Exec keeps track of the contents of tapes created during a backup or file grooming job. This information is maintained in a catalog and is the basis for the information in the Restore Sources window.

Occasionally, you may need to remove a tape from the catalog. Perhaps the tape has been damaged or destroyed, or maybe the tape is no longer being used in Backup Exec operations.

To delete a tape from the catalog, select Delete Cataloged Tapes from the Admin menu. This function is available only to administrators.

This will open the Delete Cataloged Tapes dialog box.
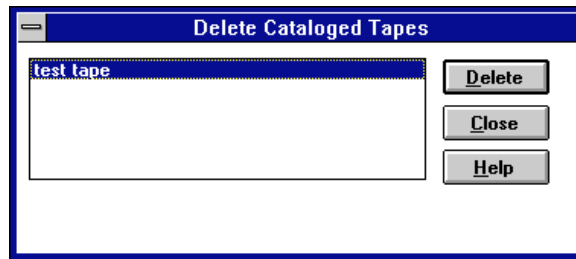
This dialog box lists all of the tapes currently existing in the catalog. To delete one or more tapes, highlight the tape name and click Delete.   You will be required to confirm the deletion. You can select multiple tapes for deletion by holding down the mouse button and dragging the highlight bar over the tape names you want to delete.

☞   **Tip**   You may want to view the contents of a tape before deleting it. To do this, use the Tapes Window (see *Viewing Tapes (Administrator Only)* on page 4–41).

Backup Tips and Strategies

This chapter provides information you need to select the best backup schedule for the data you are protecting on your workstation.

Backup Strategies

With Backup Exec, you can decide which files to back up on your workstation or server and how often to back them up. This is called a backup strategy. Included throughout the rest of this chapter are some helpful tips on creating a backup strategy for your data.

Choosing a Backup Strategy

In order to have a secure and effective data management plan, you must incorporate a strategy for backing up your data.

Several strategies are listed in this chapter. Prior to choosing a strategy to use with the Backup Exec system, you should note the following considerations.

How often should I back up?

While there is no absolute rule on how often to back up your data, there are considerations that can help you decide for yourself.

What is the cost of re-creating data that was added or modified since the last backup?

Calculate the manpower, lost time and/or sales, and other costs that would be incurred if your workstation crashed right before the next backup was to take place (always assume the worst scenario). If the cost is excessive, the strategy needs to be adjusted accordingly and you need to back up more often.

Ideally, you would want to do at least an Incremental or Differential backup every day. A normal backup should always be performed before adding new applications or drastically changing your workstation's configuration.

How much data must be backed up?

This is a key determinant of the backup strategy you choose. If you are backing up large amounts of data that needs to be retained for long periods of time, you will need to ask your network administrator how long tapes are kept before they are re-used.

Virus Prevention

The threat of viruses is a reality. Some viruses take effect immediately, while others take days or weeks to cause noticeable damage. Because of this, you should <u>at least</u> have the following backups available to restore at any time:

- A one-week-old Full backup
- A one-month-old Full backup

Having these backups available should allow you to restore your workstation to a time before it became infected.

Which devices am I backing up?

Since Backup Exec can backup servers, client workstations and agents, this needs to be considered when choosing backup strategies. If you are responsible for backing up devices other than your workstation, you will need to coordinate strategies with the users of those workstations. For example, when and how often they want their systems backed up.

The Archive Bit and Backup Types

The Archive Bit

Whenever a file is created or changed, the operating system assigns what is called an "Archive Bit". Backup Exec uses this bit to determine whether a file has been backed up - which is an important element of your backup strategy. Whenever a file has been backed up using either the Normal or Incremental Backup Type option, Backup Exec turns this bit "off" indicating to the system that the file has been backed up. If the file is changed again prior to the next Normal or Incremental backup, the bit will be turned on again, and Backup Exec will back up the file in the next Normal or Incremental backup. Differential backups include only files that were created or modified since the last Normal backup. When a Differential backup is performed, the archive bit is left intact. Copy backups back up all selected files and do not change a file's status.

Full, Normal, Incremental, Differential and Copy Backups

To help you decide which type of backups to use for your workstation, a simple backup strategy scenario is provided along with the advantages and disadvantages of each backup type.

Example: Simple backup strategy scenario:

Joe decides that he wants to implement a backup strategy for his workstation. Since Joe has thoroughly read this manual and knows that all backup strategies begin with a Full backup of a device, he creates a script that includes ALL of the workstation and submits the job to run at the end of the day on Friday.

Since Joe realizes that most of the files on his computer seldom change (e.g., operating system files, application files, etc.), he realizes that it would save time and media if he uses an Incremental or Differential backup strategy.

Joe decides to use an Incremental strategy, so he schedules the script to run at the end of the day, Monday through Thursday, with the Incremental backup type option selected in the Job Information window.

Here is what will happen: Joe's Friday tape will contain all of the data on the workstation and Backup Exec will have changed the status of all the files to "backed up" since he used the "Normal" backup type in the Job Information window. At the end of the day on Monday, the Incremental job will run and only the files that were created or changed will be backed up.

If Joe's workstation crashed on Thursday morning, once he got it running, he would simply need to restore each tape in the order in which it was backed up (e.g., Friday, Monday, Tuesday, etc.)

If Joe had decided to perform Differential backups on Monday through Thursday, he would have only needed Friday's and Wednesday's tapes: Friday's tape because it included all of the data, and Wednesday's tape because it included every file that had been created or changed since Friday's backup.

Before you can develop a backup strategy, you will need to decide whether you want to do only Full backups, Incremental, or Differential backups. There are advantages and disadvantages to each method.

Full Backups

Advantages

Files are easy to find - Since Full backups include all of the data you selected, you don't have to search through several catalog listings to find a file that you want to restore.

There is always a current backup of your entire system on one tape or tape family - If you should need to restore your entire system, all of the most current information is located on the last backup.

Disadvantages

Redundant backups - since most of the files on your hard drive rarely change, each backup following the first is merely a copy of what has already been backed up.

Full backups take longer to perform - Full backups can be time consuming, especially when there are many other devices on the network that need to be backed up.

✐ **Note**   A full backup is created using the *Normal* backup type.

Incremental Backups

Advantages

Better use of media - Only files that have changed since the last backup are included, so there is much less data storage space required.

Less time required for backup - Incremental backups take much less time than Full backups to complete.

Disadvantages

Files are more difficult to find - files backed up incrementally can be spread across multiple tapes since the last Full backup. To restore your entire system (in the event of a system crash) would require you to restore your last Full backup and all Incremental backups following it.

Differential Backups

Using a Full/Differential strategy is highly recommended. Differential backups include backing up all files modified since the last Full backup. The difference between Differential and Incremental backups is that Incremental backups include only the files that have changed since the last Full or Incremental backup.

Advantages

Files are easy to find - Restoring a system backed up under the Differential strategy requires restoring a maximum of only two catalog entries—the latest Full backup and the latest Differential backup. This is less time-consuming than backup strategies that require the latest Full backup and all Incremental backups executed since the Full backup.

Less time required for backup - Differential backups take less time to complete than Full backups.

Disadvantages

Redundant backups - All of the files created or modified since the last Full backup are included on each tape; thus creating redundant backups.

Copy Backups

Copy backups do not affect any backup strategy (i.e., the archive bit is not altered in any way). Copy backups are useful when you need to:

- back up data for a special purpose (e.g., send to another location).
- back up specific data.
- perform an additional backup to take off-site.

Backup Strategy Examples

Ultimately you will want to use a combination of Full and Differential or Incremental backups. The following is an example of a common backup strategy:

Monday	Tuesday	Wednesday	Thursday	**Friday**

	= Differential or Incremental		= Full

> ✍ **Note** Before implementing a Differential or Incremental backup strategy a Full backup must be performed. In the above example, a Friday Full backup would have begun the backup schedule.
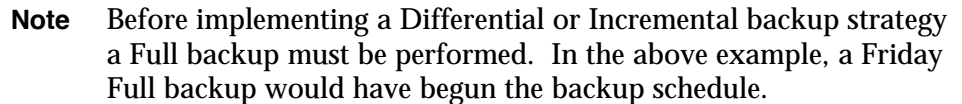
Depending on how much data you are backing up and how often your data changes, you can select whether to use Incremental or Differential backups between Full backups. For example, if you constantly work on a few files that are not very large, you would want to use a Differential backups. If you work on several large database files that change daily, your network administrator may prefer that you use Incremental backups to save time and storage space.

Whether you choose to do a Full backup once a week or more often is up to you.

> ✍ **Note** Your backup Administrator may want you to follow a different schedule. Always check with your Administrator to confirm the best schedule for you based on their tape rotation scheme.
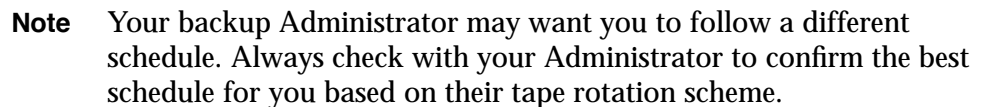
Configuring Your Backup Software

This chapter provides information you need to configure the Backup Exec client software for your workstation.

Windows and OS/2 Client Configuration Options

General
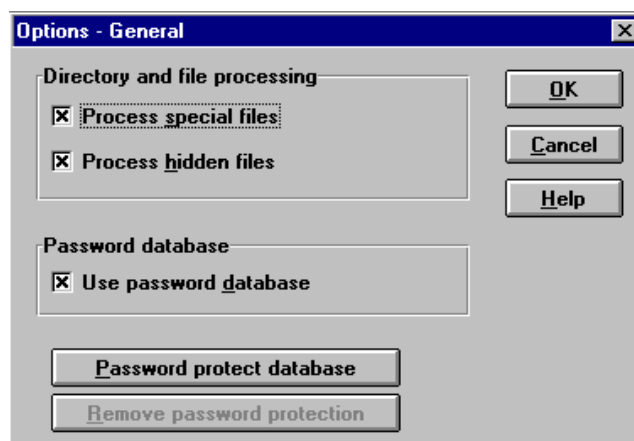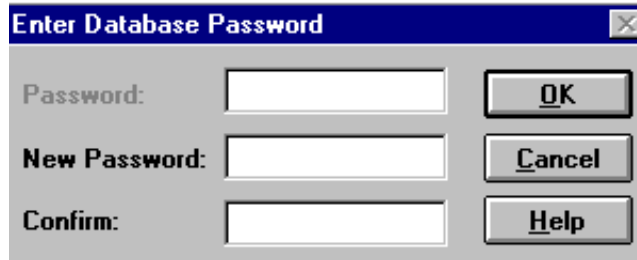
The Options - General window contains the following items:

Process special files	Special files include files that are marked with any combination of "system" and/or "read-only" attributes. Special files should normally be backed up. The default is on.
	If this option is unmarked, you can still back up special files by specifically checking their check boxes in the Directory Tree window when you create a backup job (as opposed to selecting an entire directory).
Process hidden files	These files are used by operating systems and some applications. Hidden files do not appear when you view a directory using File Manager or using the DOS DIR command. However, in the Backup Sources window, these files appear and are identified by a red exclamation point over the file icon.
	If this option is unmarked, you can still back up hidden files by specifically checking their check boxes in the Directory Tree window when you create a backup job (as opposed to selecting an entire directory). The default is on.
Use password database	The password database is a list of user names and passwords used to log in to servers and attach to agent workstations. If you mark this option, the passwords you enter to gain access to remote servers and workstations will be kept in a database so the next time you access the device the password will automatically be entered for you. If you do not mark this option, you will be prompted to enter the password each time you access a device. The contents of the password database are encrypted for security purposes. The default is on.
	For the clients, this is on a per-session basis only. As long as you don't quit the application, all logins will be kept until you unload (exit).
Password protect database	Backup Exec enables you to add password protection to your password database. This protects the password database against unauthorized access. When you click on this button, the Enter Database Password dialog opens. Backup Exec enables you to add password protection to your password database.

Enter Database Password Dialog

This dialog is used to enter a new password.

Enter a new password, then enter it again in the Confirm field.

If your database is password protected, Backup Exec prompts you for the database password when you start the application. If you enter the correct password, the password database is opened for use during the session. If you enter an incorrect password, Backup Exec displays an error message and gives you another opportunity to enter a correct password. You have three chances to enter a correct password; if all three tries are unsuccessful, Backup Exec continues with the password database locked. You cannot enable the password database or work with it in any way while it is locked. You must restart the application using a correct database password to unlock the database.

Remove password protection

If password protection is enabled, you can disable it by clicking on this button. This opens the Enter Database Password dialog. Enter the database password and click OK to disable the password protection.

Backup

Backup options control processing during backup operations.
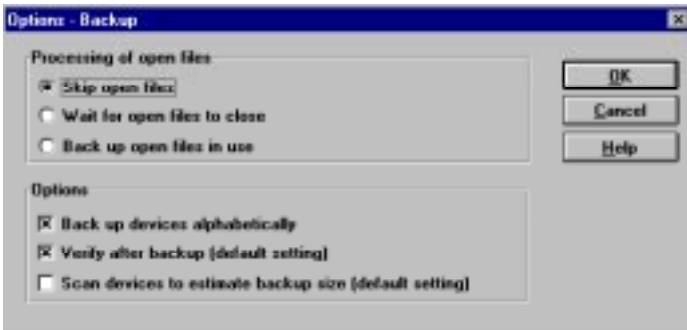
The Options - Backup window contains the following items:

Processing of open files	These options control how Backup Exec handles in-use files when they are encountered during a backup operation. Files on networks that are open by other workstations should not normally be backed up. Although backing up in-use files is not recommended, there are some files that are always in use and cannot be backed up in any other way. In these instances, it is better to get a backup of these files while they are open, rather than no backup at all.
Skip open files	This option causes Backup Exec to skip any files that are open during backup without attempting to close them. These files will *not* be included in the backup. This option is selected by default.
Wait for open files to close	This option causes Backup Exec to wait for open files to close before attempting their backup. The time that the system will wait before attempting backup is set at the Backup Server level. For example, the Administrator may determine that the system will wait five minutes for an open file to close before attempting to back up that file.
Back up open files in use	This option causes Backup Exec to back up any files that are currently open and in use. The file will not be available to the user while it is being backed up. Files that are opened with exclusive access cannot be backed up.

Back up devices alphabetically	This option allows you to have Backup Exec back up drives you have selected in alphabetical order. For example, if you selected devices "Server_1\SYS:" and "Bill" (in that order), and you want them to be included in the backup alphabetically (Bill and Server_1\SYS:) select this option. If this option is unmarked, devices are backed up in the order in which they were selected. The default is on.
Verify after backup	As each backup is submitted, you can select whether or not to verify the data backed up during that job. Verifying the tape ensures that the tape can be read, and that its data can be restored. When "Verify after backup" is marked, the "Verify after" field in the Submit window will automatically be turned on. The default is on.
Scan devices to estimate backup size	Select this option to have Backup Exec estimate the number of bytes to be backed up when the backup operation begins. This option may cause the backup to take a little longer, but it allows you to monitor the progress of the operation (by percentage). This is the default setting when you submit a new job. You can change the setting on a per job basis when you are submitting a job.

Restore

These options control processing during restore operations.
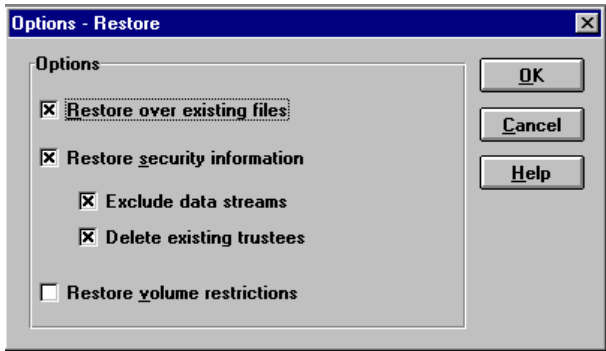
The Options - Restore window contains the following items:

Restore over existing files	When this option is unmarked, files on the tape will not overwrite files on the disk during a restore.
	If you select this option, be careful you don't restore older versions of files over existing files. For example, after you have upgraded system files or a software package, you would not want to restore older versions of the files over the more current versions.
	Unmarking this option causes the software to check for existing files, which slows down the restore operation. If you are only restoring a few files and you are certain that the files are the versions you want, leave this option marked.
Restore security information (Administrator Option)	When this option is selected, Backup Exec will restore NetWare trustee information for files and directories.
Exclude data streams (Administrator Option)	When this option is selected, Backup Exec will exclude the data streams when restoring a file. This option has no effect unless you select the option to restore security information and you are restoring an SMS file.
Delete existing trustees (Administrator Option)	When this option is selected, Backup Exec will delete the existing trustees of a file when restoring it. This option has no effect unless you select the option to restore security information and you are restoring an SMS file.

Restore volume restrictions (Administrator Option)	When this option is selected, Backup Exec will restore NetWare volume restriction information. Restoring volume restrictions is not recommended unless you are performing a disaster recovery operation.

File Groom (Administrator Option)

Process empty directories	Empty directories contain no files or subdirectories. If you do not want to back up or restore empty directories, unmark this option.
	With this option marked, empty directories may be deleted during a file grooming operation even though they are not explicitly marked. To avoid this, disable this option, or mark specific empty directories while setting up your file grooming operation.

Job History

Backup Exec keeps a record of all activity during a backup, restore, or file grooming session. These options determine the way Backup Exec stores this information.

The Job History Window displays whenever you choose Job History from the Options menu.
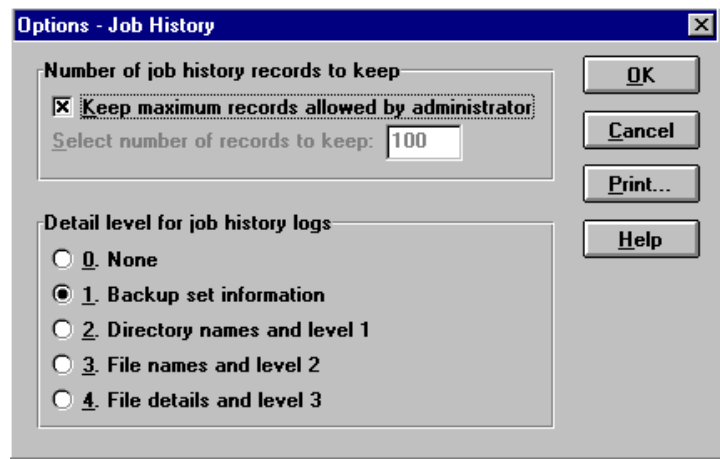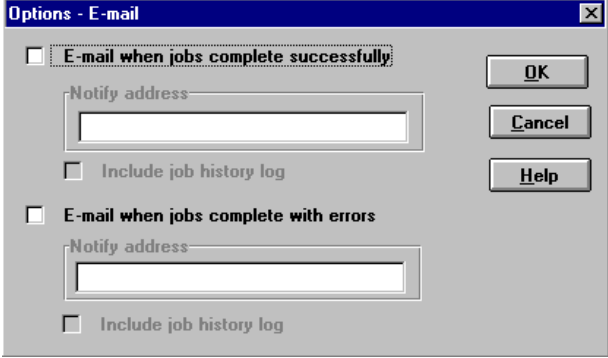
The Options - Job History window contains the following items:
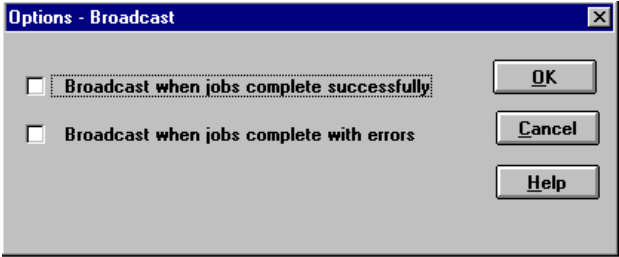
Number of job history records to keep	
Keep maximum records allowed by administrator	At the Job Manager level, the system administrator determines the maximum number of job history records that a user can keep. If you want to maintain the maximum number of records that your administrator has set, check this box. If the number of job history records exceeds this number, your oldest job history records are automatically deleted. To set up a different number of job history records to maintain, remove the check from this box. The maximum number of records allowed may vary from server to server; therefor, you can keep a different number of job history records for each server.

Select number of records to keep	You can decide to keep a different number of job history records from the number maintained by your administrator. To do so, enter the number of job history records that you want to keep (the minimum value is 0; the maximum value is 4095). The server will maintain the number identified up to the maximum allowed by the administrator (the field will show the number you select). If you select a number lower than the number of job history records that you currently have, the application deletes the excess records. This field is grayed if you elect to maintain the same number of records as your administrator.
Detail level for job history logs	This option allows you to choose the level of detail for your Job History log files.
	Each successive level includes the previous level's output in addition to output of the selected level.
	◆ **Level 0** - This turns the logging feature off. When this level is selected, you will see entries in the Job History window, but there will be no comprehensive log files to view.
	◆ **Level 1** - This includes a Novell network server/volume specification or Agent alias, the backup set number on the tape, the tape number, the tape label, the starting date and time, any errors encountered, ending date and time, and completion statistics. This is the default setting.
	◆ **Level 2** - This includes level 1 plus a list of all processed subdirectories.
	◆ **Level 3** - This includes levels 1 and 2 plus a listing of all the files processed.
	◆ **Level 4** - This includes level 3 plus file sizes, file date/time and file attributes.
	Note: The maximum detail level for Job History logs is set by the administrator in the Job Manager. If your job history logs show less detail than you have specified for this field, the maximum detail level in the Job Manager is set at a lower level

Print Button	By setting the options in the Print Job History Log window, you can request that Backup Exec automatically print job history logs when your jobs complete. Press <Enter> to activate the Print Job History Log window.
	Print when jobs complete successfully - Select this option if you want Backup Exec to print job history logs for jobs completing with a Normal status.
	Print when jobs complete with errors - Select this option if you want Backup Exec to print job history logs for aborted jobs or jobs completing with Errors.
	◆ **Server** - Enter the destination server for the print job.
	◆ **Print queue** - Enter the print queue on the destination server
	◆ **User name** - Enter the user name on the destination server.
	◆ **Password** - Enter the user's login password.

Notify

E-mail	The E-mail window enables you to determine whether E-mail will be sent to you when a job is completed.
	The E-mail notification data is retrieved and stored on the active backup server that you are currently logged into. The E-mail database saves information by user ID. Therefore, each user may have their own E-mail notification data on multiple backup servers. A window is displayed when you select E-mail from the Notify menu
	E-mail when job complete successfully - Choose this option if you want to be notified by E-mail when a job completes with a "Normal" status. In the *Notify address* field, specify the MHS address to be notified. See your administrator, or the Backup Exec Administrator's manual for details about setting up this address. If the wrong address is entered, E-mail messages will not be delivered.
	In the *Include Job history log* field, choose whether the job history log is to be included with the E-mail message.
	E-mail when job complete with errors - Choose this option if you want to be notified by E-mail when a job completes with a status of "Error" or "Aborted." In the Notify address field, specify the MHS address to be notified. See your administrator, or the Backup Exec Administrator's manual for details about setting up this address. If the wrong address is entered, E-mail messages will not be delivered.
	In the *Include Job history log* field, choose whether the job history log is to be included with the E-mail message.

GroupWise	The Windows client GroupWise Mail options dialog box allows you to specify an E-mail address in which to receive job completion messages from Backup Exec.
Broadcast	This function enables you to receive broadcast messages when a job is completed. Messages are sent via the NetWare broadcast mechanism. When the Broadcast feature is activated, you will receive messages at workstations you are logged in via the backup server.
	Broadcast when jobs complete successfully - Choose this option if you want to receive a network broadcast message when a job completes and has a status of "Normal." **Broadcast when jobs complete with errors** - Choose this option if you want to receive a network broadcast message when a job completes and has a status of "Error" or "Aborted."

Display

Display options determine whether certain Client window elements are displayed on your screen. You may want to "toggle off" display of these elements to obtain more room within the window, then redisplay them as needed.
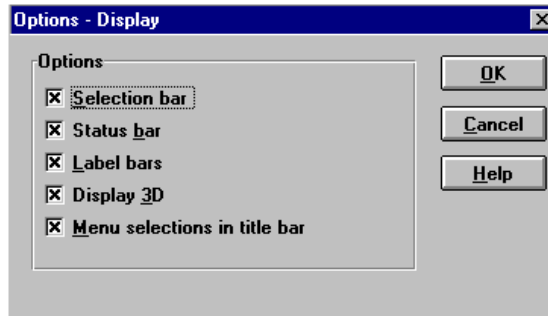
The Display options menu contains the following items:

Selection Bar	The Selection Bar is displayed across the top of your window when this option is selected. The Selection Bar contains buttons that allow quick access to Backup Exec functions. The default is on.
Status Bar	The Status Bar is displayed across the bottom of your window when this option is selected. The Status Bar displays the current status of Backup Exec. It also identifies your current backup server. The default is on.
Label Bars	Label Bars are displayed across the top of the Backup Exec windows when this option is selected. Each Label Bar provides column headings for the information in these windows. As you use the scroll bar to move across the window, these column headings move with the appropriate data. The default is on.
Display 3D	(Not available in OS/2 client) Determines whether the backup and restore sources windows display the currently selected item as highlighted or as a raised (3D) button. The default is on.
Menu Selections in title bar	(Not available in OS/2 client) Determines whether descriptions of menu items are displayed in the status line. The default is on.

Agent

Backup Exec has the ability to perform operations on remote workstations that are configured as Backup Exec agents. The agent software enables backup and restore operations for these workstations through a Novell network. The Agent Options enable you to determine whether agent functions are applicable for this workstation.

This window is displayed when you choose Agent from the Options menu.

The Options - Agent window contains the following item:

Enable workstation agent support	When this option marked, you will be able to select files and perform operations on workstations running the Backup Exec Agent software.

Troubleshooting

This chapter provides information you need to:

- include only specific NetWare agents to avoid spending unnecessary time scanning the network.

- quickly troubleshoot the Backup Exec Client and Agent software if you run into a problem.

Troubleshooting

This chapter is designed to assist you with problems you may encounter while using Backup Exec. If you do not find the help you need in this chapter, please contact your network administrator.

Should you choose to troubleshoot the problem yourself, this chapter includes most of the problems you may encounter and solutions to them.

SMDRINCL.DAT File

The SMDRINCL.DAT file allows you to specify the file servers (SMDRs) that appear in the Source window. This file can be created with a text editor (e.g., DOS's EDIT or Windows' Notepad). This file is useful in cases where you only want to perform operations on certain server volumes or if there are problems with a certain SMDR.

For example, if you have five servers on your network, and you only want Backup Exec to see three of them, the SMDRINCL.DAT file you create will look similar to this.
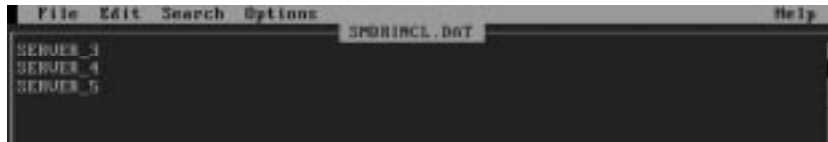
In this example, the three listed file servers will be the only servers on the network that will be seen by the Backup Exec client.

✍️   **Note**   If you want to temporarily exclude a device that is contained in the SMDRINCL.DAT file, place a "#" in front of it. For example, if you wanted to temporarily remove SERVER_3 from the list of servers that appear in Backup Exec, the entry in the file would be #SERVER_3.

You can use the wildcard character "*" in the SMDRINCL.DAT file to indicate multiple servers. For example, TEST* would include all servers beginning with the name "TEST" (e.g., TEST_1, TEST_2, etc.). The wildcard can only be placed at the beginning or the end of the text string (e.g., *TEST or TEST*).

The location of the SMDRINCL.DAT file is very important. The following table shows where the file should be located for each Backup Exec module:

Backup Exec Module	Location of the SMDRINCL.DAT file
Job Manager and NetWare client	SYS: BKUPEXEC
DOS client	C:\BKUPEXEC\DOS_WS (default)
Windows client	C:\BKUPEXEC\WIN_WS (default)
OS/2 client	C:\BKUPEXEC\OS2_WS (default)

The clients search the backup server's \BKUPEXEC directory first. If a SMDRINCL.DAT file is found there, it will be used and the local SMDRINCL.DAT file will be ignored.

Error Messages

The following chart lists problems and error messages you may encounter, and their solutions.

DOS Client Error Message Chart

Error	Cause	Solution
CATALOG		
Catalog file on <device name> is corrupted or invalid	The client found invalid information in a catalog file. The file has probably become corrupted. This message may also be seen if a catalog file from an older version of Backup Exec is scanned.	Notify the administrator. The tape corresponding to the corrupted file should be recataloged.
Fatal Catalog error: 0x<xxxx>	A catalog file has probably become corrupted.	Exit and reenter the client. Retry the operation. If the problem persists, have the administrator recatalog the tape.
One catalog file is presently unreadable. Catalog information from this file cannot be displayed.	The client is unable to read a catalog file that it had just found. The connection to the backup server has probably been lost.	Exit the client and verify your connection to the backup server.
Unknown catalog error message: 0x<xxxx>	An unknown error code was generated during a catalog operation.	Exit the client and restart it. If the problem persists, contact the administrator.
Catalogs could not be initialized on <device name>		Contact the administrator.
Error opening catalog file on <device name>.	The client could not open a catalog file that it has found. The network connection to the backup server has probably been lost.	Exit the client and verify your connection to the backup server. Make sure you have proper rights to the volume containing the catalog files.

Error	Cause	Solution
Error reading from the catalog file on <device name>.	The client could not read a complete record from the catalog file. The file has probably become corrupted. The connection to the backup server may have been lost.	Exit the client and verify your connection to the backup server. If the problem persists, have the administrator recatalog the tape corresponding to the corrupt file.
Error writing to the catalog file on <device name>.	The client could not write a complete record to the catalog file. The connection to the backup server has probably been lost. Because of this, the catalog file has probably become corrupted.	Have the administrator recatalog the tape.
No tapes are presently cataloged.	No backup jobs have been completed for the user. Existing catalogs could have been erased.	Make sure at least one job has been run for the user. If the catalogs were accidentally erased, restore them from a recent backup, or recatalog the tapes.
JOB HISTORY		
Could not obtain network information	A network error has occurred while building the Job History list.	Exit the client and verify your connection to the backup server.
Error opening log file	An error occurred while opening a Job history file. The connection to the backup server may have been lost. If the job was submitted with logging set to 0 or none, there will be no job history log for the record.	Exit the client and verify your connection to the backup server.
Error 0x<xxxx> reading summary file <xxxxxxxx>.	An error occurred while reading a Job History summary file from the backup server. A network error may have occurred or the summary file may be corrupt.	Verify your connection to the backup server. If the problem persists, delete the summary file and all associated log files (those with the same file name).
Unable to find any job history information	A job has not been run or the summary file has been deleted.	Make sure that at least one job has been run for the user. Make sure your history record configuration is not set to 0.

Error	Cause	Solution
Log file <xxxxxxxx.xxx> does not exist.	The job history log for this job does not exist. A network error may have occurred or the log file may have been accidentally deleted.	Verify that your connection to the backup server is still valid. Restore the log file from a backup. Be sure not to overwrite current data.
MEMORY		
Out of Memory	There was not enough memory for the current operation.	Make sure Virtual and EMS memory are enabled (DOS Client only). Exit and reenter the client. If the problem persists, free additional memory on the work station or file server.
Fatal virtual memory error - <xxxx>		
where xxxx = 3EB	The client could not write to the virtual memory file. The local disk drive may be out of space or have become corrupt.	Make sure there is space available on the local disk drive. Check the integrity of the local disk drive.
where xxxx = 3E9	The client could not read a record from the virtual memory file on the local disk drive. The file has probably become corrupt.	Check the integrity of the local disk drive. Exit the client and restart it.
where xxxx = 3EA	A seek error occurred while reading or writing the virtual memory file.	Check the integrity of the local disk drive.
where xxxx = 3F3	An EMS related error has occurred.	Contact the administrator.
where xxxx = any other value	A program error has occurred.	Contact the administrator.
Out of memory PR <file name> (raw 0x<xxxx>) Ln <nnnn>. The program will now terminate.	There was not enough memory for the current operation and the client cannot continue operation.	Free additional memory on the workstation and try the operation again.
NETWORK		
Error attaching to device <device name>	An error occurred while trying to attach to a device.	Make sure the device is still operating. Retry the operation.

Error	Cause	Solution
Connection to device <device name> has been lost.	The connection to a device has become invalid during an operation.	Exit the client. Reestablish the connection to the device and retry the operation.
CLIENT INITIALIZATION		
Unable to login <name> on connection <n>.	The login information provided was invalid.	Enter a valid user name and password for the device you are trying to access.
Unable to get connection number.	A network error has occurred during client start-up.	This error indicates a problem with the file server. Try launching the application again, if that does not work, contact the administrator.
Unable to communicate with the network. The workstation network software does not appear to be loaded.	A network error occurred while initializing network support within the client. The NetWare shell software is probably not loaded.	Verify that the NetWare shell software is loaded. If the problem persists, reboot the workstation.
Unable to get security level information on object <xxxxxxxx>.	A network error occurred while obtaining network security rights information. This error would be seen during start-up or while changing servers.	Check your connection to the backup server.
Unable to use backup server <server name>.	While changing backup servers, the new server's configuration file could not be read.	Make sure you have rights to the backup server's configuration file. Make sure your network connection to the server is still valid.
Unable to login to BEPSVR.NLM. Either BEPSVR.NLM is not compatible with this client or it has not been loaded on the server you are attaching to.	BEPSVR.NLM must be running on the backup server to which you are attaching. Also, the version of BEPSVR.NLM running at the backup server must be compatible with the version of the client you are running. You may not have installed the latest client at your workstation.	Contact your system administrator.

Error	Cause	Solution
Error Message: An error (<**xxxx**>) occurred while opening the job queue on Backup Server <device name>. where xxxx = 5004	You do not have sufficient rights to access the job queue.	Contact the administrator.
where xxxx = 5005	The server specified in your configuration file is not a Backup Server (no Backup queue was found).	Choose a Backup Server from the list that is presented following this message. If no list is presented, attach (using the NetWare ATTACH command) to at least one server that is setup as a Backup Server. Restart the client, choose the server and save a new configuration file.
where xxxx = any other number.	An unexpected error has occurred while connecting to the backup servers job queue.	Contact the administrator.
An error (<**xxxx**>) occurred while getting backup server information.	A network error occurred while connecting to or changing (DOS Client only) the backup server. The problem occurred while getting user security information.	Verify that the network connection to the backup server is still valid.
Could not open queue on server <new server name>. Current backup server is still <old server name>. (DOS Client only)	An error occurred while changing backup servers. The job queue on the new backup server could not be connected to and the entire change server operation was aborted.	Verify that the network connection to the new backup server is still valid.
Unable to use log path specified in the backup server options file. Log files will not be available.	The path for the log files in the server's configuration file was not found.	Make sure the path in the configuration file is correct and that the path exists. Make sure you have sufficient rights to see the path.

Error	Cause	Solution
Peer to Peer Link Initialization Failure	The agent could not be found. It has probably not been loaded.	Make sure the agent software has been loaded. If it has been, follow the directions in the error box. Check for conflicts between the agent and other programs. If you do not want to use Backup Exec agent support, disable it in the configuration section.
PASSWORD DATABASE		
Error accessing password database: 0x<xxxx>	The client could not open the password database file. There may not be enough disk space. There may not be enough file handles available. There may be a problem with the local disk drive.	Make sure there is space available on the local disk drive. Increase the number of FILES in the config.sys file and reboot the workstation. Check the integrity of the local disk drive.
Error writing password database: 0x<xxxx>	The client was not able to write an entry to the password database. There may be no more disk space or there may be a problem with the local disk drive.	Make sure there is disk space available on the local drive. Make sure the password database file has not been flagged READ_ONLY. Check the integrity of the disk drive.
Error reading password database: 0x<xxxx>	The client was not able to read a record from the password database. There may be a problem with the local disk drive.	Check the integrity of the local disk drive.
Unknown password database error: 0x<xxxx>	An unknown error occurred while writing to the password database. This is probably caused by memory being corrupted in the client.	Exit the client and restart it.

Error	Cause	Solution
RESOURCE FILE		
Unexpected error (0x<xxxx>) opening resource.		
where xxxx = 1F7	There was not enough memory available to load some resource information.	Make sure virtual memory and EMS memory are enabled. Free additional memory.
where xxxx = any other number	An unexpected error occurred during a resource manager operation. The resource file or memory may be corrupt.	Exit and re-enter the client application. If the problem persists, re-install the client software.
OTHER		
Unable to write options file	An error occurred while opening or writing to the local configuration file.	Make sure there is space available on the local disk drive. Check the integrity of the local disk drive.
Error writing script file	An error occurred while opening a local script file to be written to.	Make sure there is space available on the local disk drive. Increase the number of FILES in your config.sys file and reboot the work station. Check the integrity of the local disk drive.
Unknown log message 0x<nnnn>	An unknown command was passed to the log file output function.	Contact the administrator.
Cannot open script file <file name>	An error occurred while opening a local script file for reading.	Increase the number of FILES in your config.sys file and reboot. Check the integrity of the local disk drive.
This entry is not a job and cannot be edited	This error may occur if the job being edited has been deleted (by another process) since the edit was started. It may be generated if the network connection is lost while attempting to edit a job. It may also be generated if the user tries to edit the "no jobs" message in the job list window.	Verify that the network connection to the backup server is still valid.
There was an error submitting your job to the backup server <server name>.	A network error probably occurred just before or while you were submitting a job.	Verify that the network connection to the backup server is still valid.

Error	Cause	Solution
Fatal Error 0x<xxxx> (raw 0x<xxxx>) PR <file> Ln <line num>. The program will now terminate.	An error has occurred in the client and it cannot continue to operate.	Restart the client. If the problem persists, contact the administrator.
<device name> does not support File Grooming. It will not be included in this job.	The user has tried to submit a file grooming job for a device that does not support file grooming. A device must be writable to support file grooming. File grooming can only be performed on devices whose operating systems maintain a last access date. <device name> is part of a system running DOS (or another operating system) that does not support last access date.	If appropriate, flag the device as writable.
<device name> has nothing to back up. It will not be included in this job.	There was an error attaching to all sub-devices for a device. This would generally occur if the user could not supply proper login information for a device or its sub-devices. This error may also occur if the device being attached to crashes.	Submit another job for the device not included. Make sure the device is operating and you have the proper login information.
No restore destination is available on this device.	There are no sub-devices on this device that support file restoration. A device may contain only bindery or directory services sub-devices. These cannot be overwritten with other data.	Select a device that has restorable sub-devices.
Unable to login to BEPSVR.NLM. Either BEPSVR.NLM is not compatible with this client or it has not been loaded on the server you are attaching to.	BEPSVR.NLM must be running on the backup server to which you are attaching. Also, the version of BEPSVR.NLM running at the backup server must be compatible with the version of the client you are running. You may not have installed the latest client at your workstation.	Contact your system administrator.

Windows and OS/2 Client Error Messages

Error	Cause	Solution
Catalog		
Error initializing the catalogs.	Backup Exec could not initialize the catalogs because:	
	The catalog path specified in the Backup Server's configuration file does not exist.	Make sure the catalog path specified in the configuration file exists.
	You have insufficient rights to the catalog path.	Make sure that you have Read and Scan rights to the catalog directory, and that you have Read rights for every file that you have Scan rights for.
	The catalog files have become corrupted.	Restore the catalogs from the last backup that was made of them.
Error opening a file.	The client could not open a catalog file because:	
	The user does not have appropriate rights to the file.	Make sure that the user has Read rights to all the files for which he or she has Scan rights.
	The Backup Server is down.	Exit the client and try the operation again when the Backup Server is available.
Error positioning in a file.	There was an error positioning to an entry in the catalogs because:	
	The catalog file is corrupt.	Have the Administrator recatalog the tape corresponding to the catalog file.
	The Backup Server is down.	Exit the client and try the operation again when the Backup Server is available.

Error	Cause	Solution
Error reading a file.	One of the catalog files could not be read because:	
	The file is corrupt.	Have the Administrator recatalog the tape corresponding to the catalog file.
	The user does not have sufficient rights to the file.	Make sure that the user has Read rights to all the files for which he or she has Scan rights.
	The Backup Server is down.	Exit the client and try the operation again when the Backup Server is available.
Not enough available file handles.	A catalog file could not be opened because all file handles are currently in use.	Change your CONFIG.SYS to specify at least FILES=40.
Unable to use the catalog path specified in the Backup Server configuration file. Catalogs will not be available.	The catalog path specified in the Backup Server's configuration file could not be accessed. Either the directory does not exist or the user does not have sufficient rights to it.	Ensure that the catalog path specified in the Backup Server configuration file is correct and that the catalog path exists. Then, ensure that you have Read and Scan rights to the catalog directory. Refer to the Administration Manual for more information about the configuration file.
Unable to open the catalog file.	One of the catalog files could not be read because:	
	The file is corrupt.	Have the Administrator recatalog the tape corresponding to the catalog file.
	The user does not have sufficient rights to the file.	Make sure the user has Read rights to all the files for which he or she has Scan rights.
	The Backup Server is down.	Exit the client and try the operation again when the Backup Server is available.

Error	Cause	Solution
Unknown error.	An unexpected error has occurred while trying to access the catalog files. Probable reasons are:	
	The catalog file is being accessed by another user.	Try the operation again. If another user is accessing the catalog, the error should disappear after a few moments.
	The catalog file was deleted after the client located it.	Use the Job Manager to recatalog the tape corresponding to the file.
Client Initialization		
Unable to login to BEPSVR.NLM. Either BEPSVR.NLM is not compatible with this client or it has not been loaded on the server you are attaching to.	BEPSVR.NLM must be running on the backup server to which you are attaching. Also, the version of BEPSVR.NLM running at the backup server must be compatible with the version of the client you are running. You may not have installed the latest client at your workstation.	Contact your system administrator.
File Errors		
Cannot close the file <filename>.	A file that was previously opened by the client cannot be closed. This is probably caused by memory corruption.	Exit the client and try the operation again. If the problem persists, contact Technical Support.
Cannot open the file <filename>.	The file <filename> cannot be opened because:	
	The user does not have sufficient rights.	Make sure that the user has rights to the file.
	All available file handles have been used.	Make sure that FILES is set to at least 40 in your CONFIG.SYS.
	The file has been corrupted.	If this error is received on a selection file, recreate the selection file under a new name. If the message is received when trying to view a technical support log, it is not an error. Technical support logs can be created only by Technical Support.

Error	Cause	Solution
Cannot open the file <filename>. The file is currently in use.	The file <filename> is currently in use by the Job Manager.	Wait until the Job Manager closes the file. The Job Manager's technical support file BEMGRDBG.LOG remains in use as long as Job Manager is running. To view this file from the Windows Client, you will need to exit the Job Manager.
Log file *path*\BEWINDBG.LOG does not exist or Log file *path*\BEMGRDBG.LOG does not exist.	The Technical Support log file for the Client or Backup Server software does not exist.	None. These files are created in order to assist Technical Support in diagnosing errors. Unless you have encountered a severe error that required the assistance of Technical Support, you will receive this message if you try to view these files.
Hardware Errors		
Device <device_name> does not exist.	Backup Exec has tried to access a device that does not exist. The device is probably down.	Try the operation again when the device becomes available.
Drive not responding.	Backup Exec is trying to communicate with a drive that is not responding. The drive is probably down or the agent is locked.	Try the operation again when the device becomes available.
General failure on device <device_name>.	Backup Exec is trying to communicate with a drive that has experienced an error. The drive or its agent is probably down.	Try the operation again when the device becomes available.
Help Errors		
Help file BEWIN.HLP was not found.	The file containing the help text could not be found in the directory where the Backup Exec Windows Client is installed.	Reinstall the Backup Exec Windows Client software.

Error	Cause	Solution
Job Errors		
<Device_name> does not support File Grooming. It will not be included in this job.	File Grooming may only be performed on devices whose operating system maintains a last access date. <Device_name> is part of a system running DOS or some other operating system that does not support last access date.	Select a device that supports last access date.
<Device_name> has nothing to back up. It will not be included in this job.	<Device_name> is a Novell or Backup Exec agent that does not have any sub-devices to be backed up. This is not an error.	None.
Error # reading summary file for user <user_name>.	An error occurred when trying to read the job history summary file for the user. # is one of the following: 4105 - the file could not be found or the file could not be opened. 4101 - the file may be corrupt or the Backup Server may be down.	Ensure that the log file path specified in the Job Manager's configuration file is correct. Ensure that the file exists and the user has Read rights to the file. Determine whether the Backup Server is down. If it has, try the operation again when the server is available. If the file is corrupt, restore it from the most recent backup containing it.
Summary file is in use. Job history information for user <user_name> is not available at this time.	The Job Manager is currently servicing a job for <user_name> and has the summary file for that user open.	Wait until the Job Manager finishes servicing the user's job and try again.

Error	Cause	Solution
There are no restore targets readily available. Connect to the desired target objects in the backup sources window and retry.	You are only allowed to restore to devices that have supplied a user name and/or password (if needed). This message means that you have not provided a user name and password for any device. It may also mean that the device that you want to restore is read-only (published as "backup only").	To provide a user name and password for a device, double click on its parent in the Backup Sources window. Continue double-clicking on subsequent sub-devices until you are presented with a user name and password dialog. The user name and password that you supply will remain active until you exit the application (or indefinitely if you have the password database enabled). If the device is read-only, it must be republished to allow both backup and restore operations.
There are not any available restore targets appropriate for backup set <set_name>. Do you want to remove this set from your selections and continue?	You have not supplied a user name and password for any devices that are valid destinations for the given backup set. The rules for restoring backup sets are: NetWare 4.x Directory Services backup sets may only be restored to the Directory Services object from which the backup set was made. NetWare 3.x bindery backup sets may only be restored to another NetWare 3.x bindery. SMS object backup sets may only be restored to other SMS objects. Backup Exec Agent backup sets may only be restored to a Backup Exec Agent that allows restore operations.	Select the appropriate type of device in the Backup Sources window and double click on it. Repeat this operation on the sub-devices as necessary until you are presented with a user name and password dialog. The user name and password that you supply will remain active until you exit the application (or indefinitely if you have the password database enabled).

Error	Cause	Solution
There was an error submitting a job to Backup Server <server_name>.	The Backup Exec Windows Client was unable to submit a job to the Backup Server because:	
	The Backup Server is down.	Resubmit the job when the server is available.
	One of the devices that you have selected for backup has become unavailable.	Resubmit the job when the device becomes available.
	You have provided an incorrect password for one of the devices that you have selected for backup.	Ensure that the user name/password combination is correct for all devices you want to back up.
	You have selected an invalid selection file.	Create a new selection file and resubmit the job.
Unable to read log file <file_name>.	The log file <file_name> could not be read because:	
	The user does not have sufficient rights to the file.	Make sure that the user has Read rights to the file.
	The file is corrupt.	Restore the file from the most recent backup tape containing it.
	The Backup Server is down.	Try the operation again when the Backup Server is available.
Unable to use the log path specified in the Backup Server configuration file. Log files will not be available.	The log path specified in the Backup Server configuration file does not exist or you do not have sufficient rights to it.	Ensure that the log path specified in the Backup Server configuration file is correct and that it exists (refer to the Administration Manual for a discussion of the configuration file). Then, ensure that you have Read and Scan rights to the directory.
Memory Errors		
Insufficient memory available. Close other applications before starting this application again.	Not enough memory is available to load the Backup Exec software. This is usually caused by having too many applications active at one time. Backup Exec requires one MB of RAM, and requires that Windows be in enhanced mode.	Close any active Windows applications that you are not using. If this is unsuccessful, see your Windows manual for additional information on making more memory available for Windows applications.

Error	Cause	Solution
Insufficient memory available. To continue, close another application and press Retry or press Cancel to quit.	Not enough memory is available to complete the current operation. This is usually caused by having too many applications active at one time. Backup Exec requires one MB of RAM, and requires that Windows be in enhanced mode.	Close any active Windows applications that you are not using and press the Retry button. If this is unsuccessful, see your Windows manual for additional information on making more memory available for your Windows applications.
Out of Memory.	Not enough memory is available for the operation. This is usually caused by having too many applications active at one time.	Close any active Windows applications that you are not using. If this is unsuccessful, see your Windows manual for additional information on making more memory available for your Windows applications.
Network Errors		
Connection to device <device_name> has been lost.	You have lost your connection to device <device_name> because: The Backup Server is down. The server's network card has failed.	Try to run the operation again when the server is available. Make sure network cables are connected properly and the network card is not faulty.
Could not obtain network information.	Backup Exec could not get the network information while trying to build the list of job histories. The Backup Server is probably down.	Try the operation again when the Backup Server is available.
Error # during attachment to device <device_name>.	There was an error attaching to the device because: The device has become unavailable and could not be recognized. The Backup Exec Agent publishing the device may be locked. The maximum number of users may already be attached to that device.	Try the operation again when the device becomes available. Unload the Backup Exec Agent software for the device and reload it. Try the operation again when there are fewer users attached.

Error	Cause	Solution
This workstation does not have any published drives.	The Backup Exec Agent that you attempted to attach to does not have any published drives.	If you attempted to attach to your own Agent, load the Agent Publisher software and publish the drives. Otherwise, contact the custodian for the workstation running the Agent.
Unable to get a server connection list.	Backup Exec was unable to get a server connection list to determine which of your connected servers were backup servers. You have probably lost your connection to the network.	Try the operation again when the server becomes available.
Unable to get connection number.	Backup Exec could not get the connection number to a server that you were formerly attached to. The server is probably down.	Try the operation again when the server is available.
Unable to load NETWARE.DLL.	The network is not enabled for Windows or the network shell is not loaded.	If you are using Windows 3.1, go the Windows Setup and set the network to Novell NetWare (you must be running shell version 3.21 or higher). If this is already set, try setting it to None, then resetting it to Novell. If the network shell is not loaded, exit Windows, load the shell, and then return to Windows. Refer to your Windows documentation for assistance. If you are using Windows 95, you must add the Client for NetWare Networks in the Network Control Panel.
Unable to obtain the address of device <device_name> on the network.	Backup Exec was unable to determine the network address of a server for remote login.	Check the NetWare bindery (3.x) or NetWare Directory Services (4.x) to see if it is corrupted. For more information, refer to your NetWare documentation.
You do not see any backup sources even though you are connected to the network.	You are running an outdated version of the network shell.	Install version 3.21 or greater of the network shell. Your IPX.COM must be 3.10 or greater.

Error	Cause	Solution
Password Database Errors		
Error accessing the password database.	Backup Exec could not access the Password Database.	Quit and restart Backup Exec, then try the operation again. If the problem continues, you will need to delete the password database file (BEWIN.PWD) and recreate it.
Error reading the password database.	Backup Exec was unable to read the Password Database.	Quit and restart Backup Exec, then try the operation again. If the problem continues, you will need to delete the password database file (BEWIN.PWD) and recreate it.
Error writing to the password database.	Backup Exec was unable to write to the Password Database, or an error occurred that would not allow the file to be updated.	Quit and restart Backup Exec, then try the operation again. If the problem continues, you will need to delete the password database file (BEWIN.PWD) and recreate it.
Unknown password database error: #.	An unexpected Password Database error has occurred. This is probably error 308, the <server_name> / <user_name> / <password> combination is too long.	Make sure the <server_name> / <user_name> combination is 175 characters or fewer and the <password> is 96 characters or fewer.
Printing Errors		
There are no printers available.	Windows does not have any printers configured.	See your Windows manual for information on setting up printers.
Unable to start the print operation.	The configured printer is off-line or unavailable.	Change configured printers or try the operation again when the printer is available.

Error	Cause	Solution
Resource File Errors		
Inconsistent resource files were found. Please reinstall Backup Exec - Windows Client.	The resource file, BECRES.DLL, that Backup Exec - Windows Client is attempting to use is from another version of the software.	If you are using the Windows 3.1 client, edit your AUTOEXEC.BAT file and remove the two lines that load the agent files. Then, reboot the computer and reinstall the Backup Exec - Windows Client software. If you are using the Windows 95 client, reboot the computer and reinstall the Backup Exec - Windows Client software.
Selection File Errors		
Cannot open the selection file <filename>.	The file may not exist or it may be corrupt.	Make sure that the file exists. If the file is corrupt, you will need to recreate it using the Backup Exec - Windows Client software.
Unable to open selection file.	The file does not exist or it may be corrupt.	Make sure that the file exists. If the file is corrupt, you will need to recreate it using the Backup Exec - Windows Client software.
Backup Exec Errors		
Backup Exec: Your Backup Server connection is no longer valid because the connection ID was lost. This is possibly due to your Backup Server going down.	The connection to your configured Backup Server has been lost. Your Backup Server is probably down.	Change to another Backup Server or exit the Backup Exec - Windows Client and restart it when the server is up.
Backup Exec: Your Backup Server connection is no longer valid because the connection information was lost for connection #. This is possibly due to your Backup Server going down or a disconnect in the cabling.	The connection to your configured Backup Server has been lost because: The server has gone down. The server's network card has failed.	Change to another Backup Server or exit the Backup Exec - Windows Client and restart it when the server is up. Make sure that the network cables are connected properly and that the network card is not faulty.

Error	Cause	Solution
Error (#) opening job queue on Backup Server <server_name>.	The job queue could not be opened on the Backup Server because: The job queue has been removed from the server The network administrator has disabled user jobs from being submitted to the queue.	Load the Job Manager on the Backup Server to recreate the job queue and try the operation again. Try the operation again when the queue is available.
There was an error changing to the new Backup Server. Returning to current Backup Server.	You attempted to change to a Backup Server: That did not have a configuration file. That is down. From which the job queue has been removed. To which you do not have sufficient rights to submit a job.	Access the Options menu in the Job Manager (<Ctrl + O>) and then return to the Session Manager. This will write the configuration file. Try the operation again when the server is up. Load the Job Manager software on the Backup Server. This will create the queue. Retry the operation once the queue has been created. Make sure that you have Write rights to the Job Queue on the Backup Server.

Error	Cause	Solution
There was an error returning to the current Backup Server. Please select a new Backup Server.	You encountered an error in trying to return to your previous Backup Server after a failed attempt to Change Backup Server because:	
	The configuration file has been deleted.	Access the Options menu in the Job Manager (<Ctrl + O>) and then return to the Session Manager. This will write the configuration file.
	The server is down.	Try the operation again when the server is up.
	The Backup Server's job queue has been removed.	Load the Job Manager on the Backup Server. This will create the queue. Retry the operation once the queue has been created.
	You no longer have sufficient rights to submit job to the queue.	Make sure that you have Write rights to the Job Queue on the Backup Server.
Unable to change to this Backup Server.	You attempted to change to a Backup Server:	
	That did not have a configuration file.	Access the Options menu in the Job Manager (<Ctrl + O>) and then return to the Session Manager. This will write the configuration file.
	That is down.	Try the operation again when the server is up.
	From which the job queue has been removed.	Load the Job Manager on the Backup Server. This will create the queue. Retry the operation once the queue has been created.
	To which you do not have sufficient rights to submit a job.	Make sure that you have Write rights to the Job Queue on the Backup Server.

Error	Cause	Solution
Unable to open Backup Server configuration file BESRVR.CFG. You may have insufficient rights to this directory.	The Backup Server's configuration file could not be opened because: The configuration file does not exist. You have insufficient rights to the SYS:\BKUPEXEC directory.	Go to Job Manager's main menu on the Backup Server you attempted to access. Select the Options menu item and then select Save Options. This will write the configuration file. Make sure that you have Read rights to the BKUPEXEC directory.
Your workstation is not attached to your configured Backup Server.	You are not connected to the Backup Server that is listed in your configuration file as your default Backup Server. This is usually the last Backup Server that you were attached to in the Backup Exec Windows Client.	Select another Backup Server to submit jobs to, or attach to your configured Backup Server.
Backup Exec locks up while scanning for Network Agents at initialization or Backup Sources refresh.	The server whose name is shown in the Scanning for Network Agents message box is down. There is no way to recover from this condition.	Reboot your system and try the operation again. If this problem persists, contact Technical Support.

Automated Tape Rotation Feature

(Administrator Option)

Backup Exec Tape Rotation

Backup Exec's built-in tape rotation module automates the scheduling of backups for you. Once the Tape Rotation (TR) feature is set up, all you have to do is designate devices to be included in the tape rotation job, prepare tapes for the job, and insert the appropriate tapes in the drive when Backup Exec asks for them.

Before a tape rotation job can be submitted from the Windows or OS/2 client, the Tape Rotation feature must be enabled in the Job Manager.

Topics covered in this chapter include tape rotation functions that are only available to Administrators in the Windows and OS/2 Clients. For more details on the Tape Rotation feature, refer to your *Backup Exec for NetWare Administrator's Manual.*

Note The tape rotation feature is also available to administrators in the DOS client. Refer to the Administrator's Manual for instructions on using the tape rotation feature in the DOS and NetWare client modules.

Setting Up a Tape Rotation Job

To set up a tape rotation job in the Windows or OS/2 Client:

1. Double click on the Backup icon in your Windows or OS/2 Client window to open the Backup Sources window. The icon looks like this:

✎ **Note** To open the Backup Sources window using the keyboard, press <Alt + W> to display the Window Menu then press <↓> to highlight Backup and press <Enter>.

2. Click on the check box to select the device(s) you want to include in the tape rotation job.

3. When your selections are complete, open the Job menu and select Submit Tape Rotation. This opens the Select Save Tape Rotation Selection File window.
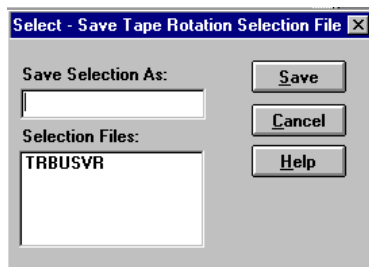
4. Enter a name for the tape rotation job and click Save. The Submit Tape Rotation Job window will appear.

5. Fill out the fields for the Submit Tape Rotation Job window. The descriptions for each field are as follows:

Job Name	The name you want to assign for the tape rotation job. Tape rotation job names can be up to 24 characters long.
	Note: To make tape rotation jobs easier to recognize in the Job Schedule, Backup Exec automatically applies a "TR_" prefix to the script name. If you do not want your job name to include this prefix, press <Backspace> to remove it.
Day of week to per-form full backups	The day of the week for the weekly full backup to occur. To change the day of the week, click the down button, select the day of the week you want the backup to take place and click OK.
Execution Date	The date the first tape rotation job (baseline backup) will run.
Time	The time of day the tape rotation job should be executed everyday.

Target partitions	**all Full jobs:** - Select a partition where all full backups for this tape rotation job will be targeted.
	all non-FULL jobs: - Select a partition where all differential or incremental backups for this tape rotation job will be targeted.
Backup Set Information	Enter a backup set name and description for each volume included in the tape rotation job.
Advanced Button	**Scan devices to estimate backup size** - Select this option to have Backup Exec estimate the number of bytes to be backed up at the start of the backup operation. Choosing this option slows down backup performance, but enables you to monitor the job's progress during the operation.
	Console command before job
	This option executes a console command on the backup server just before the job starts to run. You can also specify a delay time to occur between the time the command is executed and the start of the job. This option is useful for closing database applications before backing them up.
	Console command after job
	This option can be used to execute a console command on the backup server just after the job runs. You can also specify a delay time to occur between the time the command is executed and the start of the next job.

6. Click OK when your selections are complete.

The Tape Rotation Job Information window will appear.

Tape Rotation Job Information

Your tape rotation job named   TR_TRJOB   has been submitted to the server.
Using the device list specified in script   TR_TRHOB,   a job will be scheduled at the
regularly scheduled time of   5/7/96 5:00 PM   to be sure a baseline
exists for the tape rotation job. Tape rotation will maintain a schedule as follows:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Diff	Diff	Diff	Diff	Full	None	None

Based on 1 tape per full backup, this will require a minimum of 0004   tapes to complete
the tape rotation sequence. The actual number of tapes will depend upon the amount of
data to be backed up.
By default, no Tape Rotation jobs will be scheduled for Saturday and Sunday.

Be sure to check the 'Tape Rotation Tasks' on a DAILY basis. This list will give advanced
warning of Tape Rotation events. You will now be taken to this list to view the
tape rotation events.

[OK]

7. Once you have read the information, click OK to exit the window.

8. If there are tape rotation tasks to be performed, the Tape Rotation Task window will appear. This window includes functions that need to be performed before a tape rotation job can take place (e.g., prepare tapes, etc.).

9. A full (baseline) backup will be performed on the device(s) you included in the tape rotation job. This baseline backup will be regarded as the beginning of the tape rotation job and differential backups will be performed each day until the next full backup is to take place.

Managing a Tape Rotation Job

Once your tape rotation job has been submitted, Backup Exec will keep track of when to run the backups and which tapes to use. All you need to do is insert tapes when they are requested. Simply look at *Tape Rotation Tasks* in the Admin menu to see what is needed for the next job and insert the appropriate tape in the drive.

To monitor tape rotation tasks:

1. Select Tape Rotation Tasks in the Admin menu.

2. Click on a task to see details for that task.

    The Tape Rotation Tasks window will appear.
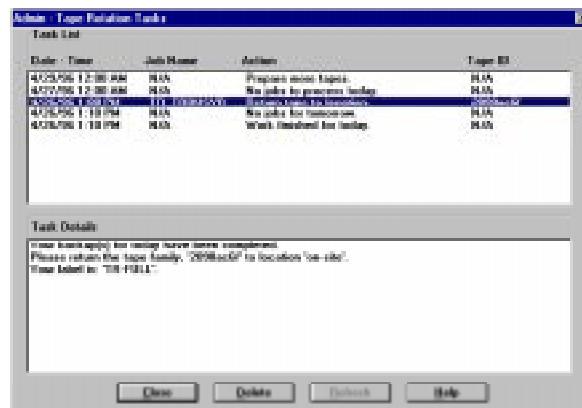
The Tape Rotation Tasks window includes actions that you need to take in preparation for the next tape rotation job. It displays which tape to provide for the job, and depending on the lead time entered when the tape was prepared, notifies you when a tape needs to brought in from an off-site location.

After a task is performed, it will automatically be removed from the system. However, if you want to manually delete a tape rotation task, select the task and press <Del>. Tasks are automatically purged after seven days.

✍	**Note**	The Tape Rotation Tasks window should be checked everyday. It is recommended that you handle tape rotation tasks as a "To Do List". Once you have completed a task item, delete it. This way you will know at a glance which tasks have yet to be completed.

The following are possible task messages:

Where do I go from here?	This message provides the information you need to begin maintaining your tape rotation job.
Your 1st job tomorrow	This message tells you that your first job is to run tomorrow. If tapes have already been prepared for the tape rotation job, this message will specify the tape name and ID number needed for the job.
No jobs for tomorrow	This message appears when no tape rotation jobs are scheduled for the next day.
Work finished for today	This message appears when all tape rotation jobs have been completed for the day.
No jobs to process today	This message appears when there are no jobs to process for the day. This message is informative when Tape Rotation jobs are scheduled over the weekend.
Prepare more Tape Rotation tapes.	More Tape Rotation prepared tapes are needed to perform tape rotation jobs.
[Job name] is on hold. [Tape ID].	The job (indicated by [Job name]) on tape [Tape ID] has been placed on hold. No other tape rotation jobs can run on the specified partition.
[Job name] is Scheduled. [Tape ID].	This item gives you schedule information for the tape rotation job. It lists the time and date the job will run, as well as the tape that will be needed for the job. It also lists whether the job will be appended to the tape or if it will overwrite the tape.
More jobs to be Scheduled.	A listing of the jobs that are to run today.
[Job name]. Return tape to location. [Tape ID].	The Tape Rotation jobs for today have been completed, and it is now possible for you to take this tape, indicated by [Tape ID], to the off-site storage location.

Jobs on tape marked permanent. [Tape ID].	When a tape is marked as permanent. This message will appear in the tasks window to let you know. Once you receive this message, the tape will not be requested for overwrite again.
Tapes needed on-site.	This task will show a list of tapes that are required on-site, the date that they are required, and the number of days until the tapes are required. This message can be refreshed by answering "Y" to the refresh question that is presented when an attempt to view the task detail message is made.

> ✍   **Note**   The Tape Rotation Task list is automatically refreshed periodically. When an attempt to delete a task fails, it could be because the task has already been removed automatically, but the system has not yet updated the list.

Viewing and Editing a Tape Rotation Job

Once a tape rotation job has been set up, you can view and/or change its attributes.

To view or edit a tape rotation job:

1. Click View Tape Rotation under the Job menu.

2. Select the job you want to view or edit. The Edit Tape Rotation Job window will appear.

Options for the fields in the Edit Tape Rotation Job dialog box are as follows:

Job name	The name of the tape rotation job.
User name	The name of the user that initially submitted the tape rotation job.
Selection File name	The name of the selection file from which the tape rotation job was created.
Today's Time	The time the job is to run today. You can change this field if you want to run the tape rotation job at a different time on a certain day.
Normal Time	The time the job should run all other days.
Initial Date	The date the first job in the tape rotation cycle was performed. Once the first TR job has been completed, this item will be grayed out.
Target partition Information	**all Full jobs** - Select a loader or multi-drive partition where all full backups for this tape rotation job will be targeted. **all non-FULL jobs** - Select a loader or multi-drive partition where all differential or incremental backups for this tape rotation job will be targeted.

Schedule	Press the Schedule button to display the Tape Rotation Schedule Options dialog box. The following options are included:

Weekly Schedule - Backup Exec's tape rotation strategy employs a combination of full and partial backups. If you want to adjust the backup strategy, you can do so. For example, you can change the day your full backup is performed, schedule backups to occur over weekends, or use an incremental backup strategy instead of a differential strategy. To change the backup type for a particular day, click on the down arrow next to a day. You will be able to select None, Full, Incremental, or Differential for that particular day. By default, a Full backup is scheduled for Friday, differential backups are scheduled for Monday through Thursday, and no backups for Saturday and Sunday.

Backup Cycle - The cycle on which the backup schedule is based. Options are weekly or monthly. With a weekly backup schedule, your backup window would encompass approximately three weeks; a monthly schedule would encompass approximately three months. The default is weekly.

Treat Backups - This field allows you to determine how your backup tapes will be recycled. Options are:

- **Recycle all tapes** - Continue to overwrite all tapes as they are called for in the tape rotation cycle. This is the default.
- **All fulls permanent** - When a full backup is performed, the tape will be rotated out of the cycle (i.e., Backup Exec will not request the tape anymore; you will need to prepare a new tape to take its place).
- **Weekly permanent** - If more than one full backup is scheduled during a week, the last full backup to take place will be considered a permanent backup and rotated out of the cycle.
- **Monthly permanent** - The last full backup every month will be rotated out of the cycle.

Tapes Needed (Mini-mum)	The minimum number of tapes that will be needed to complete the tape rotation cycle. This takes into account the backup period, the number of backup periods per cycle, the number of initial full backups that should be performed, and the number of days in a week full backups are to be performed. It does not take into account the amount of data to be backed up, so you may need more tapes if one or more of your backups requires more than one tape.
Initial Number of Full Backups	The number of full backups assigned to begin the tape rotation cycle when the job was initially defined. Once the first backup has been completed, this option will be grayed out.
Full Rotation	The number of times the backup period should be repeated before tapes are recycled. When the backup period is weekly, this will be the number of weeks in the period. When the backup period is monthly, this will be the number of months in the period.
Eject Tape After Job	The Eject Tape feature has Backup Exec automatically eject the tape in the drive when an operation is completed. The Eject Tape feature is particularly useful when you are performing an operation and you want to have the tape ejected before the next job takes place. However, if you are using a loader, the tape is available for reuse even after it has been ejected.
Temporarily suspend job	If you want to keep Backup Exec from automatically submitting operations for this tape rotation job, mark this field. **Note:** This is not the same as placing jobs on hold in the Job Schedule. When a tape rotation job is suspended, only that job will be held. If other tape rotation jobs are scheduled, Backup Exec will continue to submit them.
Verify after	Marking this field has Backup Exec perform a verify operation after each backup.
Full backup failure protection	If a full backup fails to execute properly and this option is marked, Backup Exec will submit another full operation in place of the next scheduled differential/incremental operation.

Advanced Options	Click this button to display the Advanced Job Options dialog box.
	Scan device to estimate backup size - Select this option to have Backup Exec estimate the number of bytes to be backed up when the backup operation begins. This option may cause the backup to take a little longer, but it allows you to monitor the progress of the operation (by percentage).
	Console command before job - This option executes a console command on the backup server just before the job starts to run. You can also specify a delay time to occur between the time the command is executed and the start of the job. This option is useful for closing database applications before backing them up.
	Console command after job - This option can be used to execute a console command on the backup server just after the job runs. You can also specify a delay time to occur between the time the command is executed and the start of the next job.

Once a tape rotation job has been edited, all changes will take place with the next scheduled job.

Tape Rotation Job Histories

Job histories for tape rotation operations are handled a bit differently than for regularly scheduled jobs.

The Job History window TR field lists the backup type of the tape rotation operation. Available listings include: F = Full, D = Differential, I = Incremental. Listing tape rotation jobs this way allows you to quickly look through the Job History window to make sure the tape rotation jobs were submitted and completed on schedule. The job history window also allows you to quickly see what tapes are needed to restore an entire device.

There are two ways to view tape rotation job histories in the Windows or OS/2 client:

■ From the Tape Rotation Jobs menu

■ From the *View History* item located in the Job menu.
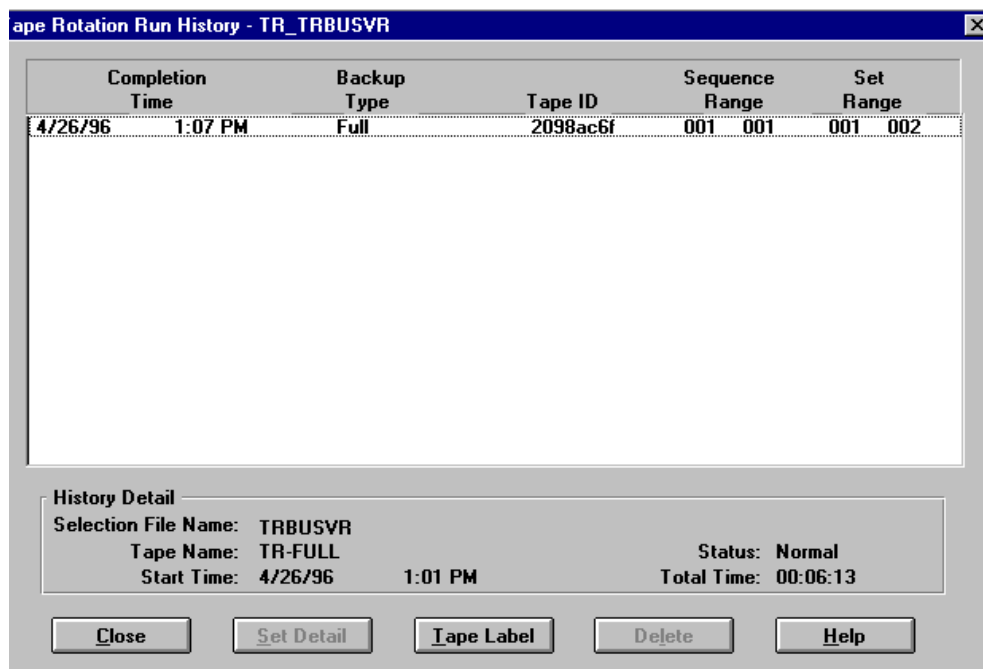
Descriptions for fields in the Tape Rotation Run History window are as follows:

Completion Time	The date and time the operation was completed.
Backup Type	The backup type of the operation (e.g., full or differential).
Tape ID	The ID number assigned to the tape when it was prepared.
Sequence Range	The number of tapes in the tape family. For example, if the backup spanned two tapes the range would be 001 - 002.
Set Range	The number of backup sets included in the tape rotation job. For example, a backup of a typical server would consist of at least two backup sets, one for the bindery and one for each server volume. Each device included in the tape rotation job will be included in an individual backup set.
History Detail	
Script Name	The name of the script used when the tape rotation job was created.
Tape name	The name supplied for the tape when it was prepared.
Status	How the job was completed. Options are: **Normal** - the job completed with no critical errors. **Error** - an error occurred and the job was not completed successfully. **Aborted** - the operation was aborted by the administrator or the Job Manager.
Start time:	The date and time the job began processing.
Total time:	The amount of time it took for the job to process.

To view backup set detail for a tape rotation job:

1.   Click on the job you want to view and press <Enter>. The Set Detail window will appear.
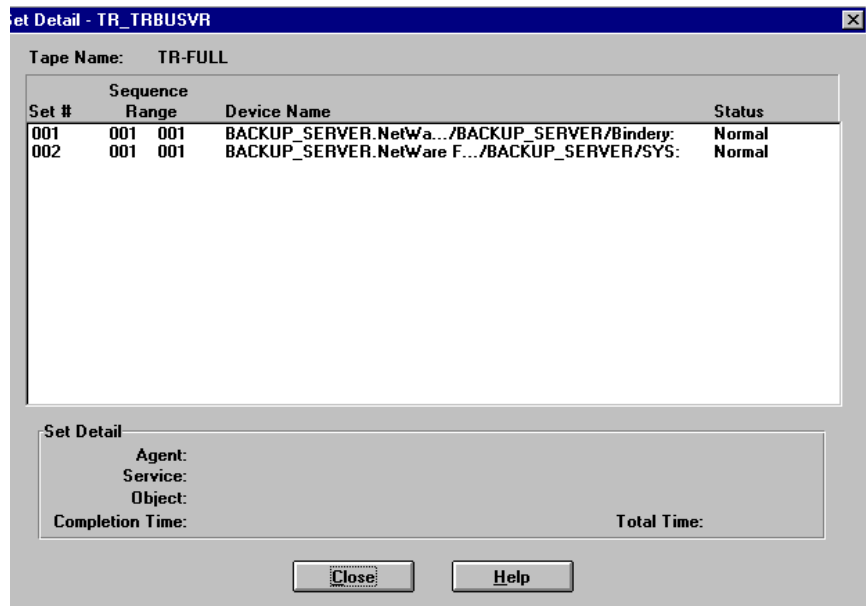
The Set Detail window lists information on each backup set included in a tape rotation job.

Tape name	The name of the tape on which the backup set resides.
Set #	The order in which the backup set is included on the tape.
Sequence Range	The number of tapes in the tape family. For example, if the backup spanned two tapes the range would be 001 - 002.
Device name	The device from which the data was backed up.
Status	The status of the operation. Possibilities are: **Normal** - the job was completed with no errors **Error** - errors were encountered while the job was processing **Aborted** - the job was aborted while it was processing.

Set Detail	
Agent	The agent to which this set belongs.
Service	The service of the agent.
Object	The object of the agent.
Completion time	The date and time the job was completed.

2. Click the Tape Label button in the Tape Rotation Run History window. The Tape Label window displays.

Following are options for the Tape Label window:

Tape Name	The name supplied for the tape when it was prepared.
Location	Where the tape will normally be kept (on-site, off-site, etc.).
Lead Time	Lists the number of days in advance Backup Exec will request the tape before it is needed for the next TR job.
First Job	The name of the first tape rotation job stored on the tape.
Other Tape Rotation Jobs on this tape family	Lists other tape rotation jobs on the tape family.
Tape ID	The ID number assigned to the tape when it was prepared.
Sequence #	The sequence number of the tape in the tape family. For example, if the tape rotation job spanned three tapes, the sequence would be 1, 2 or 3.
Backup Type	The type of backup operation the tape contains (Full, Differential or Incremental).
This tape is currently available	This field specifies whether the tape is currently available to be overwritten with another tape rotation job. Tapes do not become available until a tape rotation cycle is completed.
This tape marked as permanent	This field shows if the tape was designated to be a permanent tape.

Glossary of Terms

Term	Definition
Administrator	An *Administrator* is a user with extended rights to the Backup Exec system. By default, all NetWare supervisor-equivalent users are Backup Exec Administrators, but not all Backup Exec Administrators have NetWare supervisor-equivalence. Certain Backup Exec functions can only be performed by Backup Exec Administrators and are not presented to other users. Within Backup Exec Help messages, such functions are identified by the phrase *Administrator only.* NetWare supervisor equivalence is still required to install Backup Exec onto the server, login to the NetWare client, abort jobs, and to make security logins in the Job Manager when required. You can grant Backup Exec Administrator status to users from the Security Options menu in the Job Manager NLM at the server console (see "Job Manager Options" in the Backup Exec Administrator Guide). Granting this status to users is beneficial because they can perform certain functions without being given NetWare supervisor-equivalence.
Append	When performing a Backup operation, choosing Append will add Backup Sets after the last Backup Set on the tape.
Archive Bit	A file can only be in two states: either it has been backed up or it is a new or modified file. The archive bit indicates if the file is new/modified since the last Normal or Incremental backup or if it has been backed up.
Backup	Backup is a process where files on a server or workstation drive are copied and stored on a reliable form of media (e.g., tape).
Backup Exec Agent	A Backup Exec Agent is a component supplied with Backup Exec that allows remote workstation access.

Term	Definition
Backup Horizon	The amount of time in a schedule from which you can restore a backup. For example, the default tape rotation weekly backup strategy allows you to restore data up to three weeks preceding your last backup.
Backup Server	A Backup Server is a NetWare file server on which the Job Manager software and tape hardware is installed.
Backup Set	A group of directories and files placed together on a tape. Backup Sets contain directories and files from only one device (e.g., disk drive C:). Directories and files selected from multiple devices will create multiple Backup Sets.
Backup Sources Window	Backup Exec displays this window when you double-click on the "Backup" icon. The window displays all NetWare Agents and Backup Exec Agents that are available.
Backup Window	The amount of time you have to complete a backup (e.g., overnight, or at lunch time).
Baseline Backup	The initial full backup that takes place the day a tape rotation job is set up.
Branches	This is a segment of the Directory Tree, representing a directory and any subdirectories its contains.
Catalog	A catalog keeps track of the contents of tapes created during a Backup or File Grooming operation. The information in the catalog is the basis for the information in the Restore Sources window. You can only restore information from fully cataloged tapes. You can search for files in a catalog through the Catalog Search function. If you are an administrator, the search will show all file catalogs that meets the criteria you specify. If you are not an administrator, the search will show only the file catalogs that you have backed up.
Check	Backup Exec uses a check in the check box to indicate the type of selection. **Black Check Box** - Indicates full selection. **Gray Check Box** - Indicates partial selection.
Check Box	A square box on the left side of a disk, directory, file, server, volume, tape, or backup set icon, displayed in the directory tree window. When you place the cursor on a check box, the cursor becomes a pen. Click the mouse to check or uncheck the box and select or deselect an item.

Term	Definition
Client	A client is a front-end product that interfaces with the Backup Server and Backup Exec Agents.
Collapse	To hide additional directory levels below a selected directory in the Directory Tree.
Confirmation Dialog	If you perform an action that can be destructive to data (for example, deleting a job), Backup Exec gives you a chance to change your mind before it acts on your request. A confirmation dialog box asks you to verify that you want to carry out the action. Click Yes if you want to proceed, or No if you decide not to proceed.
Continual job	A job that is scheduled to run on a recurring basis. With Backup Exec, you can schedule jobs to occur at a specified daily, weekly, or monthly interval.
Copy Backup	Backs up all selected files, but does not affect the file's backup status (does not reset the archive bit).
Current Backup Server	The Current Backup Server is the Backup Server with which you are working right now. If you submit a backup job, the tape attached to this server will become the destination for the job. You can choose another Backup Server through the Change Backup Server function.
Differential Backup	Backs up all files that were modified or created since the last Normal or Incremental backup. A differential backup does not affect the file's backup status (does not reset the archive bit).
Directory Tree Window	A graphic display of a disk's or tape's directory structure. The directories on the disk or tape are shown as a branching structure. Directories are shown as branches extending from the top-level directory known as the root directory.
Expand	To show hidden directory levels in the Directory Tree. With Backup Exec, you can expand a single directory level, one branch of the Directory Tree, or all branches at once.
File Grooming	A process where selected directories and files contained on one or more disk drives are copied to tape, automatically verified, and if successfully verified, deleted from the disk drive(s).
Fully Cataloged Backup Sets	A fully cataloged backup set is the norm for Backup Exec. Backup sets are always fully cataloged unless a job is aborted. If this happens, you will have a partially cataloged backup set.

Term	Definition
Grayed	A menu command that is gray in color (shaded) instead of the normal dark color indicates that the command is not available for selection.
Highlight	Highlighted text identifies an item, such as a disk, directory, file, server, volume, tape, or job, that is selected. Highlighted text appears with a colored background (e.g., text may appear as white on a black background, or, on color monitors, as black with a colored background).
Include Subdirectories	You have the option of displaying subdirectories contained within directories in the Directory Tree. To do so, choose Include Subdirectories from the Select Menu. A check appears beside the Include Subdirectories command. To hide subdirectories, choose Include Subdirectories from the Select Menu and ensure that a check does not appear beside the command. You can also display subdirectories by double-clicking the icon representing the directory that you want to expand.
Incremental Backup	This backup only backs up files that were modified or created since the last Normal or Incremental backup. This backup changes the file's status to backed up (resets the archive bit after the files have been backed up).
Index	The Index contains a list of all Help topics available for Backup Exec. For information on how to use Help, press <F1> or choose Using Help from the Help Menu.
Job	A job is a task that has been scheduled for processing by the Backup Server. For example, if you make selections and submit a Backup based on those selections, you have created a job.
Job History	A job history is created when a job runs. It contains the output from the Job Manager that resulted from the job being run. You can review the job history to find out if your job was completed successfully.
Job Schedule	The job schedule is a view of the jobs waiting to be processed by the Job Manager.
Label Bar	The bar across the top of the Backup Resources Window, Restore Resources Window, and Tapes Window that provides column headings for the information in these windows. You can display or hide the label bar using the View menu.

Term	Definition
Multiple Selection List Box	A multiple selection list box is a Windows concept. In a multiple selection list box, you can select more than one element, then apply a procedure (such as Delete or Check) to all of the selected elements at once. You can select multiple items by using the mouse to click and drag (highlighting all selected elements), or press <Shift> plus the cursor movement keys.
NetWare Agent	A NetWare Agent, known as a TSA, is a component supplied with Novell's NetWare that allows remote workstation access. In the application, you see these agents under the NetWare Agents branch in the Backup Sources and Restore Sources.
NetWare Directory Services	Also known as "NDS", NetWare Directory Services replaces the NetWare bindery, which was a server-centric database. In the bindery, users had to have accounts on each server they wanted to log in to. With NDS, a user is created once , as an object, and rights to each network resource , such as a server, are stored in their user object. Therefore, if a user is granted rights to a server, they can access it without having a specific login to that server; they only need to login to the network. One login to NDS replaces the multiple, server-specific logins required by the bindery.
Normal Backup	A normal backup backs up all selected files and changes the file's status to "Backed Up" (resets the archive bit after the files are backed up). This is the default backup method.
Object	An object is any type of entity contained within a network service. These include file servers, print servers, user groups, or volumes. In Backup Exec, most objects are volumes. Objects are always the final level of the Tree; any items contained within expanded objects are displayed in the Directory window.
Once-Only Job	A job that is scheduled to run one time only. After a once-only job has processed, Backup Exec removes it from the queue. In order for a similar job to occur again, it must be submitted again.
Overwrite	When performing a Backup operation, choosing Overwrite will start the backup at the beginning of the tape, and will replace the data on the tape with the data being backed up.
Partially Cataloged Backup Sets	A partially cataloged backup set results from an aborted job. You cannot select individual files from a partially cataloged backup set, but you can restore the entire set. In order to fully catalog the backup set, you must re-catalog the tape, which can only be done at the backup server.

Term	Definition
Password Database	Backup Exec allows you to use an on-line password database to store login information. If you use this database, you will be prompted for login information (password and user ID) the first time you access a backup server that is protected by password security. Your login information is then stored in the database and automatically supplied the next time you attach to the server. Be careful; do not leave your workstation open to unauthorized access if the password database is in use.
Password Database Usage	The password database is a collection of passwords required for access to various devices. Backup Exec makes use of this database when: ◆ Users are accessing devices in the Directory Tree that require a password. Initially, users are prompted to enter a password and a user ID for the device. The system adds this information to the password database. After this initial access, users are no longer prompter for security information when accessing the device. ◆ Users schedule a Restore operation. The password database is used to generate a list of potential target devices that appears in the Restore to Device field of the Restore submission dialog box. ◆ Users load saved selections. If the database is used, the system does not prompt for a password for each device included in the selection set. Therefore, usage of the database streamlines the use of selection sets. ◆ Backup Exec enables you to protect the database itself through a password, assigned through the Options menu - General option. If your database password is password protected, Backup Exec prompts you for the database password when you start the application. If you enter the correct password, the password database is opened for use during the session. If you enter an incorrect password, backup Exec displays an error message and gives you another opportunity to enter a correct password. You have three chances to enter a correct password; if all three tries are unsuccessful, Backup Exec starts with the password database locked. You cannot enable the password database or work with it in any way while it is locked. You must restart the application using a correct database password to unlock the database.
Permanent Backup	A backup that is intended to never be overwritten.

Term	Definition
Prepared Tape	Tape rotation jobs require specially prepared tapes. This allows Backup Exec to automatically track the tapes. Tapes are prepared in the Job Manager.
Publish	In order for Backup Exec to recognize a workstation volume, the volume must be published through the Backup Exec Agent. Publishing a volume "advertises" the existence of that volume to Backup Exec Clients. Until the volume is published, clients cannot access it. To publish a volume, use the Agent Publisher program furnished with Backup Exec.
Restore	A process by which data that has been backed up to tape is returned to disk.
Restore Sources Window	Backup Exec displays this window when you double-click on the "Restore" icon. The window displays all NetWare Agents and Backup Exec Agents that have been backed up by the current backup server. Only cataloged backups are displayed. Use the left-hand side of the window to select the volume to which you want to restore information. Click on a volume name to see the backup sets associated with that volume. You can then decide which backup sets you want to restore and mark the check box beside each set accordingly. Once your selections are made, choose Schedule Restore from the Jobs menu to place your restore job on the job queue.
Scroll Bar	A bar that appears at the right and/or bottom edge of a window whose contents are not completely visible. Each scroll bar contains two scroll arrows and a scroll box, that allows you to scroll within the window.
Selection Files	Selection Files identify a set of specific drives, directories, and/or files that you want to perform operations upon. You create a Selection File by saving selections through the Save Selections dialog. Once saved, you can use the Selection File to reuse the selections you have made.
Service	A service is a grouping of objects within a NetWare agent.
SMS	Storage Management Services (SMS) is an interface developed by Novell that allows backup and restore software to "See" objects in a network, such as volumes, workstations, databases, etc. In the application, you see these SMS objects under the NetWare Agents branch in the Backup and Restore Sources windows.

Term	Definition
Snap-in	A Windows snap-in module for Novell's NWADMIN utility that adds extended flexibility in configuring Backup Exec for NetWare via the NWADMIN utility. For example, Backup Exec Administrators can be added through the NWADMIN utility when the snap-in module is added. You can install the Snap-in module when you install the Windows client, but it is only useful to Administrators who use the NWADMIN utility.
Split Bar	When you are in a directory tree window, the window is split into two parts. If you select the Split command from the View menu, a split bar appears between the two parts. Use your cursor to move the split bar and adjust the size of each window portion as needed.
Status Bar	The bar at the bottom of the Client window identifying the current status of Backup Exec. The status bar also identifies your current backup server. If you are not attached to a backup server, the message *No Backup Server* is displayed. You can display or hide the status bar using the View menu.
Tape ID	A tape ID number is assigned to each tape family when it is prepared. The ID number allows Backup Exec to identify each tape rotation tape family
Tape Family	When a backup spans a tape, the tapes that contain the backup are referred to as a "tape family."
Tape Rotation Database	The tape rotation database is a group of files that contain information for the tape rotation jobs you have created.
Tape Rotation Manager	The NLM that submits tape rotation jobs to the Backup Manager.
Tape Rotation Tasks	Tape rotation tasks are functions that you need to perform for tape rotation jobs. The Tape Rotation Tasks window in the client software provides a listing of these functions for you.
Tapes Window	This window is displayed when you double-click on the Tapes icon. It displays the tapes that are currently available for restoration. Double-click on a tape name to display the backup sets contained on that tape. This window is a helpful reference in performing catalog maintenance.

Term	Definition
Toolbar	The bar at the top of the Client window containing buttons representing Backup Exec functions. To quickly access one of these functions, click on the appropriate icon with the mouse. You can display or hide the Selection Bar using the View menu.
TSA	A Target Service Agent (TSA) is a program within Novell's SMS that provides access to a specific object. For example, if you want to perform operations on a DOS workstation through SMS, you will have to install the DOS TSA on that workstation.
Uncheck	If you change your mind about a selection, you can uncheck it. This action removes the check mark from the check box and de-selects the item.
User	A User is anyone who does not have NetWare supervisor-equivalence and has not been granted Backup Exec Administrator status.
Volume	A volume is a defined amount of hard disk storage space. It is considered to be the highest level of the Directory Tree structure, similar in concept to the root directory in DOS. Volumes can be divided into directories, which can be subdivided into subdirectories.
Wildcards	Backup Exec supports the use of wildcard characters to include groups of files in an operation. Use a question mark (?) to identify any single character, and an asterisk (*) to identify any numbers of characters. **Examples**: *.DOC includes all files with an extension of .DOC. ?????.B* includes all files whose extensions begin with B and whose names contain precisely five characters. File 12345.B2 would be included, but 1234.BBB or 12.B would not, because their names do not contain exactly five characters. **Note:** If you are searching for a file using the Catalog Search function, it is recommended that you try to specify the first character or two of the file name. This will speed the search process.

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