Chapter 6 Restoring Data

Overview

This chapter describes how to:

- Restore selected files and directories
- Restore sessions from media
- Restore an entire resource
- Restore an older version of a database
- Restore data to another location
- Restore a server
- Recover the installation volume
- Clone a server

Contents

Introduction

Recovering data with Backup Director is easy because of its File History and System Control Databases. Using the databases, the program automatically prompts you for the backup media that will result in the most efficient restore process.

You can restore an entire volume, including the directory structure, data, and history database of a selected resource in Resource Manager, and selected directories and files on a resource in File Manager. Additionally, you can search for files on mounted media and restore them to disk using Media Manager.

Monitoring Restore Jobs

If you view the progress of a restore job through the Restore Job Status window, you will be able to see how many of the items remain to be restored.

The window displays information about the number of items specified for the restore operation (**Scheduled Items** parameter) and the number files that have yet to be restored (**Remaining Items** parameter)

Redirecting a Resource's Data

In some recovery situations, a volume may be off-line, requiring you to redirect data from that volume to another on-line volume.

The **Redirect to** option in the Restore Options dialog box allows you to redirect data (or an entire volume) to another volume.

To redirect data from one volume to another, select Restore/*Data* and choose **Redirect to**. All data (including directories) is redirected from the current volume to the target volume you choose. Use this procedure when a volume is going to be down temporarily, but you want access to the data on that volume.

To redirect an entire volume, including the volume's File History Database, to another volume, select Restore/*All* and choose **Redirect to**. When redirecting a full volume, you are basically “cloning” the source volume.

Generally, you would only use this procedure if you were replacing one volume with another volume and removing the original volume from the Protected Resource List.

> **NOTE:** If you plan on a full or partial restore of a volume to a **different server** (for example, from NetWare 3.11 or 3.12), you must recreate directory and file trustees for users not on the target server.

Restoring Directories and Files

This section details procedures for restoring the most current version of files to their original or new location. If you want to restore an older version, proceed to the “*Restoring an Older Version of a File*” section.

> **NOTE:** If you want to restore directories and files from one server to another,

you must first create the trustees and Object IDs on the target server for users that are not already defined there.

To restore directories or files

1. In File Manager, select the volume containing the files you want to restore using the File/*Open Resource* menu option.

   TIP: If you are unsure where the file is located within a particular volume, you can use the View menu's *Define File Filter* option or the Operations menu's *File Finder* option to locate the file.

2. Tag the directories and files you want to restore.

3. Open the Operations menu and select *Restore*.

4. Select the type of restore you want to perform. The Restore Options dialog box appears.

   > To restore the tagged file(s) to their original location, select *Restore/Original*.

   > To restore only the tagged file(s) to a different location, select *Restore/Redirected*. The SMS Target dialog box appears. Choose the **Resources** button to select the server, TSA, target service, and resource associated with the new location. Choose the **Path** button to specify the target directory path and its name space.

   −To also redirect the directories of the files, turn on the **Retain Directory Structure** option.

5. Sometimes the files scheduled for a restore operation already exist on the disk. Set the **Overwrite** parameter to specify when the program should overwrite the disk copy with the media copy.

   > To overwrite the disk file with the media version, select **Always**.

   > To preserve the file on disk, select **Never.**

   > To overwrite the disk copy only if it is older than the copy on media, select **Older**.

   > To receive a prompt when the program finds a file already on disk, select **Prompt**. If you submit a restore job in unattended mode with this parameter set to **Prompt**, the program will not restore any file that already exists on disk. As a result. Backup Director will record a message in the System Message database indicating that it did not restore the file.

6. Select any other job parameters.

7. Choose **OK** to submit the restore job to the job queue.

8. You may have to load media. If Backup Director cannot find any media or it needs additional media to complete the restore operation, it will prompt you for media. This provides the most automated restore behavior.

9. If Backup Director finds that no eligible media are mounted, a System Message dialog box appears. This dialog box provides a choice of options.

10. Select the **Display list of suggested media** option (choose **Defer** if you want to deal with the restore job at a later time). The Media Pick List dialog box appears.

The following information is provided on the screen:

Parameter	**Description**
Media	Displays the media label.
Status	Displays the media that Backup Director determines is best for the operation (resource-level restore operations only). Preferred media is the media with the greatest number of unique files scheduled for the restore operation. There can be multiple preferred media. Eligible media are all other media that have at least one of the scheduled files.
Files	Number of the scheduled files that are on a specific media (file-level restore operations only).
Unique	Number of scheduled files which exist only on one media (file-level restore operations only).
Type	The type of media (optical disk,, 8 mm tape,, etc.) the data is located on.
Location	The device or slot the media is located in (if any).

11. Load the media. Highlight the media and choose **OK**. If you turned on a device after the Media Pick List dialog box appeared, select the **Scan** button to refresh the list of media and devices.

> If you are using an autoloader with an import/export door, you may need to choose the **Import** button to load the media in the door. When you close the door, the device loads the media into the first available slot. Choose **Scan** to refresh the choices on the Media Pick List. Highlight the media and choose **OK**. When the program has restored all of the files from a media, the media no longer appears in the Media Pick List.

As media are used, subsequent pop-up windows indicate the correct number of files that still need to be restored.

In addition, the program automatically deletes a media from the list if it contains only those files which have already been restored from a previous media. As a result, the Media Pick List shows only those media containing files which have not yet been restored.

12. Continue to insert media until all of the files have been restored.

Restoring an Older Version of a File

Restoring an older version of a file is a common request in most LAN environments. Backup Director's use of the File History Database allows administrators, operators, and end users to restore an older version of a file from that file's history quickly and easily. The database maintains the history of every item that exists in the File History Database.

In order to restore an older version of a file, you must tag the desired version of the file in the history window.

> **TIP:** To quickly restore a single file version, you can select the file version from the Extended History window and choose the **Restore** button. The program restores the file to the original location.

To restore older versions

1. Highlight the file that you want to restore. The history window displays any available file versions for that file.

2. Tag the file version you want to restore. You cannot restore multiple file versions of the same file to the same location because each subsequent version will overwrite the previous one.

3. Open the Operations menu and select *Restore*. The Restore Options dialog box appears.

4. Select the location where you want to restore the file.

5. Specify the **Overwrite** parameter you want Backup Director to apply if it finds that any of the files scheduled to be restored already exist on the disk.

6. Specify any other job parameters.

7. Choose **OK** to submit the restore job to the job queue.

8. Insert the media requested by Backup Director until all of the files have been restored.

Restoring Files in Media Manager

Restoring from Mounted Media

If a file copy is not tracked in the File History Database, you must use Media Manager to select the file copy directly from mounted media and perform the restore operation. Some reasons why file versions are not recorded in the File History Database:

- The user did not choose to track this session in the File History Database when creating the job.
- The file was written to non-managed media by a pre-4.0 Palindrome product and could not be tracked in the File History Database.
- The media has been forgotten.
- The file was written by another SMS-compliant application and

therefore, Backup Director has no knowledge of these files.

In each of these cases, the only way to restore (or copy) a file from media to disk is to display the contents of the media (also called “journaling”). Then, search for the sessions containing the files you want.

To restore a file using the session journal

1. Mount the media in the device.

2. From Media Manager, open the View menu and select *Mounted Media*. The Mounted Media window appears.

3. Highlight the mounted media you want to journal.

4. Choose the **Journal** button. Do not close the job status window or Media Manager while the journal job is running; you will abort the job. The Session List window appears.

5. Select the appropriate button depending on the kind of restore job you want to create.

   > To restore an entire session, highlight a session and choose the **Restore** button. The Restore Options dialog box appears. “CP” indicates a backup session. File History Database sessions are labeled “DH” and System Control Database sessions are labeled “DC.”

   > To restore selected directories or files, highlight a session and choose the **View** button. The media session window appears. The file window lists files located under the highlighted directory.

6. If you choose the **View** button, the program begins building the directory and file windows. This can take some time, depending on the size and complexity of the directory structure. The program allows you to pause from building after it completes a directory. You can view the file window or perform an activity elsewhere while the program is building the directory structure.

   > To interrupt the building process, choose the **Pause** button after the program builds the directory you want to see. Choose the **Resume** button to let the program resume building directories.

In the media session window, the volume appears at the top of the tree, followed by a list of directories. The file information includes the date and time stamp, attributes, and byte size of each file.

You can collapse and expand directories. When you highlight a directory, the files residing on the directory appear in the file window on the right side of the window.

7. Tag the directories or files you want to restore.

8. Open the Operations menu and select *Restore*.

9. Select the type of restore operation. The Restore Options dialog box appears.

10. Specify the location where you want to restore the file(s).

11. Specify the type of **Overwrite** parameter.

12. Select any other job parameters.

13. Choose **OK** to submit the restore job to the job queue.

14. You can continue to journal the session and tag items for additional restore operations. Periodically, the program prompts you to indicate whether you are finished journaling the media. Choose **Yes** to end journaling and exit the mounted media's session window. The program will not attempt to process the restore jobs until you have completed journaling.

Restoring Tracked Files in Media Manager

Occasionally you may want to identify the files copies that reside on a particular tracked session. Media Manager provides a database session window which provides the same restore features as File Manager's directory and file windows.

If you know which tracked directories and files you want to restore, you can restore them more quickly through File Manager. If you want to view the files and directories located on a particular session, it is quicker to view the contents of the session through the Mounted Media window than build the database session window. If the media is not available and the session is tracked, you can still restore from the database session window.

To restore tracked file copies in Media Manager

1. From Media Manager, highlight a session.

2. Open the View menu and select *Session Window*. The program begins building the database session window. This can take some time, depending on the size and complexity of the directory structure. The program allows you to pause from building this window.

3. Tag the directories and files you want to restore.

   > If you must search for specific files, open the Operations menu and select *File Finder*.

4. Open the Operations menu and select *Restore*.

5. Select the type of restore operation. The Restore Options dialog box appears.

6. Specify the location where you want to restore the file(s).

7. Specify the type of **Overwrite** parameter.

8. Specify any other job parameters.

9. Choose **OK** to submit the restore job to the job queue.

Data from Non-SMS Versions

To restore a File History Database from non-SMS media, you must restore the appropriate *.PAC files through the Session List window. When restoring data from media written with non-SMS versions of Backup Director, all file data and attributes, and directories and their attributes are restored. CRCs (Cyclical Redundancy Codes) are also valid.

The following objects cannot be restored, however: trustees, volume restrictions, directory restrictions, owners, Bindery files, System Control Databases, and File History Databases.

Restoring Machines and/or Resources

To restore a machine and/or resource

1. From Resource Manager, tag the machine or resource you want to restore.

2. Open the Operations menu, and select *Restore*. The Restore menu appears.

3. Select *Full Resource*. For more information on this option, see the "*Restore Options*" section below.

4. Specify the location where you want to restore the resource.

5. Select any other job parameters.

6. Choose **OK** to submit the restore job to the job queue.

7. Load the media as requested to restore all directory, file, and trustee information that existed on the machine or resource the last time you backed it up.

A complete volume recovery may take some time depending on the amount of data to be restored. See chapter 6 for information about restoring a volume's data to another volume.

Restoring an Older Version of a Database

If you need to restore a version that is older than the most current version on media, you must select the version from the physical journal rather than through the database.

To restore an older version of the File History Database

1. Load the media you want to journal.

2. From Media Manager, open the View menu and select *Mounted Media*. The Mounted Media window appears.

3. Highlight the media you want to journal.

4. Choose the **Journal** button. Do not close the job window or Media Manager while the journal job is running; you will abort the job. The Session List window appears. This window displays the date, size, and number of files contained on each session.

5. Highlight the database session you want to restore. File History Database session you want to restore. File History Database sessions are labeled "DH" and System Control Database sessions are labeled "DC."

6. Choose the **Restore** button. The Restore Options dialog box appears.

7. Specify the restore parameters.

8. Choose **OK**.

9. Choose **Yes** to end journaling and exit the mounted media's session window. The program will not attempt to process the restore jobs until you have completed journaling.

Restore Options

This section details the options available through Resource Manager for restoring entire resources or resource i formation. The *Restore* operation has four available options:

Full Resource(s)

The *Full Resource(s)* option recovers all of the information for the tagged resource(s), including the File History Database(s), directories, trustees, files, and volume/disk and directory restrictions. Selecting this operation overwrites any existing information.

Typical use: This operation should be used if a complete server or volume was lost since it will restore all of the information for a selected volume.

File History Database(s)

The *File History Database(s)* option restores a resource's File History Database from media, overwriting the existing database.

The program restores the most recent copy of the database on media to its configured location.

Typical use: Use this operation if a volume's File History Database has been deleted or damaged and, therefore, must be restored from media (for example, the File History Database files are corrupt).

Directory Structure(s)

The *Directory Structure(s)* option allows you to recover the directory tree for the selected volume(s). NetWare trustee rights and volume/disk and directory restrictions on NetWare server volumes are also recovered. This option also restores empty directories. Depending on the version of directory structure you are restoring, this type of restore operation overwrites trustees for existing users and may recreate user trustees that were not currently configured prior to the restore. This operation does not restore user data, only the directory structure, associated trustee rights, and volume/disk restrictions.

Typical use: This operation can be a used to duplicate a directory structure on a new volume. After you restore the directory structure, you typically use the Restore/*Data* option to restore files. This operation can also be used to restore the most recent version of trustee rights from media and is the only option available to restore empty directories.

Data

The *Data* option recovers all user data for the selected volume(s), the directory structure,

and associated trustee rights. This option does not restore empty directories.

This does not include the NetWare Bindery files on SYS: volumes. Selecting this operation overwrites existing files only if the file on media has a newer time stamp (i.e., if the disk file is older than the file on media). NetWare Bindery files and NetWare Directory Services can only be recovered by tagging the Bindery resource and then selecting *Full Resource(s)*.

Typical use: This option should be preceded by the *Restore/ Directory Structure(s)* operation (unless the volume's directory structure already exists).

Redirecting Volume Data

The following provides instructions for redirecting data from one volume to another volume on the Protected Resource List. This procedure is especially useful if a volume is down and you want immediate access to its data.

Assumptions

- The volume you are redirecting data to is on the Protected Resource List
- Your installation directory is not on a failed volume.

To redirect a volume to a new or existing volume

1. If the volume you are redirecting to is not one that is currently protected, add the resource using Resource Manager.

2. In Resource Manager, highlight your original source volume (the volume you want to redirect data from) and tag it.

3. Select Operations/*Restore*.

   > Select *Data* to redirect data without moving the source volume's File History Database.

   > Select *Full Resource* if you want to clone the volume (redirect data and the source volume's File History Database to the target volume). The File History Database is copied to the target volume's File History Database location.

4. On the restore options dialog box, select **Redirect to**.

5. Choose the Server, TSA, Target Service, and Resource to redirect data to and choose **OK**.

If the server does not appear in the window, be sure you have loaded the correct TSA for that server.

All information (including all directory, file, and trustee information) is restored from your

original volume to the target volume you have selected.

If you selected *Full Resource* as your restore option, the File History Database from your original volume now belongs to the target volume.

Recovering an Installation Volume

Backup Director relies on its databases, the Windows executables, and the engine NLM files to run properly. If any of these components is missing, you will have to perform some type of recovery operation either at the Windows workstation or at the server.

Recovering Databases and Executables

If a volume fails that contains the System Control Database (and/or the executables), you can restore that volume using the Server Control Console on the installation server or from a workstation (using SETUP.EXE on the installation diskettes).

Assumptions

- The failed volume is not a SYS: volume
- Your Backup Director NLMs are available.

NOTE: If you need to recover a SYS: volume and/or Backup Director NLMs, proceed to "*Recovering a SYS: Volumes and NLMs*" below.

To recover an installation volume using the server console

1. Insert the most recently used media in your backup device (the System Control Database is written to the media with every backup operation).

2. At the server console of your installation server, type:

LOAD PAL

The following screen appears.

3. At the Server Control Console, select *Recover System Control Database*.

4. Select the server volume and path of your System Control Database (AS*.PAC) files.

5. Type in your auto login user name and password in the appropriate fields. This must be a valid user.

   If the Bindery or NDS doesn't exist on your installation server at this point, type SUPERVISOR in the auto login name field for NetWare 3.x servers; type **ADMIN** in the auto login name field for NetWare 4.x servers.

6. Select **Start Recovery**.

   When the System Control Database is found on media, you are notified of the date of the System Control Database on media. Be sure the date indicated represents the

last backup operation performed; if it does not insert the media with the latest backup session and retry the operation.

Once the System Control Database has been restored from media, the program will have access to the Protected Resource List so you can begin restore operations.

> **NOTE:** If you typed in a name different than your auto login user, the program asks if you want to use the name you typed in or the original auto login user to continue the recovery. If you need to restore NDS or the Bindery, use the current name (for example, ADMIN or SUPERVISOR). If not, use the original auto login user name.
>
> After the bindery (or NDS) is restored, update the System Control Database with the original auto login user name using the *Update Auto Login Information* option on the Palindrome Server Console.

7. After the System Control Database is restored, at the Server Control Console, select *Backup or Restore Resources*.

8. Tag the installation volume and select *Restore*.

   If you need to restore NDS or the Bindery, restore those resources first then restore the SYS: volume (if necessary) and then the installation volume.

9. Insert the requested media as prompted. This will restore to the new volume all directory, file, and trustee information that existed on the failed volume at the last backup.

To recover an installation volume using the workstation

1. Insert Backup Director installation diskette #1 into your disk drive.

2. At a Windows workstation, access Windows.

3. Open the File menu and select *Run*. Type:

   A:SETUP (where A: is the drive your diskette is in)

4. Specify your current installation directories for the Windows executables and the database files. Be sure to specify the same directory as you originally installed them. Choose **OK**. Files are copied to the directory(s) that you specified.

   After the files are copied, you are asked if you are performing an installation (including an upgrade) or a recovery. Select **Recovery**.

6. If the System Control Database needs to be recovered, Backup Director will prompt you to configure a device to use for the recovery.

After the device is configured, Backup Director automatically submits a job to restore the System Control Database and launches Control Console.

If for some reason, the job is not submitted to the job queue, load **PAL** at the server console and select *Recover System Control Database*. Specify the path of the installation directory and the auto login user name and select *Start Recovery*.

7. Monitor the job using Control Console at the workstation and respond to prompts.

8. After the System Control Database is restored, open Resource Manager. Tag the installation volume. Open the Operations menu and select *Restore/Full Resource*.

9. Insert the requested media as prompted. This will restore to the new volume all directory, file, and trustee information that existed on the failed volume at the last backup.

Recovering a SYS: Volume and NLMs

The procedure below outlines steps to recover a SYS: volume and Backup Director NLMs. NLMs must be recovered using the installation diskettes.

Backup Director requires the following NLMs and resource files to perform restore operations at the server: PALREST.NLM, PALMEDIA.NLM, PAL.NLM, PALALDRV.NLM, PALSDRV.NLM, PALLIB.NLM, PALJSRVR.NLM, ARNADAT.RSF, ARNANDX.RSF

These files are copied during installation to the SYS:\SYSTEM directory.

Depending on the type of recovery you need to perform, you may not need to perform all of the steps listed below.

To recover a SYS: volume and Backup Director NLMs

1. Reinstall NetWare and mount the volume.

2. To ensure you have the most recent NetWare modules, run SETUP.NLM on the server (SETUP.NLM is found on the Backup Director server preparation diskette #1). See the *Installation Guide* for more information on running SETUP.NLM.

3. If you ran SETUP.NLM, PALLOADR.NLM was copied to the SYS:\SYSTEM directory on your server. At the server console prompt, type:

   LOAD PALLOADR

4. At a workstation, insert the Backup Director installation diskette #1 into a workstation drive.

5. Access Windows.

6. Open the File menu and select *Run*. Type:

   A:SETUP

   (where A: is the drive your diskette is in)

7. Specify your current installation directories for the Windows executables and the database files. Be sure to specify the same directory as you originally installed them. Choose **OK**. Files are copied to the directory(s) that you specified.

8. After the files are copied, you are asked if you are performing an installation (including an upgrade) or a recovery.

> If your System Control Database exists (i.e., it is not on the SYS: volume you are recovering) select **Abort** and continue to the section "*Load NLMs*" below.

> If you need to recover the System Control Database, Select **Recovery**.

9. If the System Control Database needs to be recovered, Backup Director will prompt you to configure a device to use for the recovery.

   After the device is configured, Backup Director automatically submits a job to restore the System Control Database and launches Control Console.

   If for some reason, the job is not submitted to the job queue, load **PAL** at the server console and select *Recover System Control Database*. Specify the path of the installation directory and the auto login user name and select *Start Recovery*.

10. Monitor the job using Control Console at the workstation and respond to prompts.

11. After the System Control Database is restored, at the workstation, open Resource Manager.

12. Tag the SYS: volume. Open the Operations menu and select *Restore/Full Resource*. The SYS: volume will be restored to its most recent state.

    NOTE: On 3.x servers, restore the Bindery resource prior to recovering the SYS: volume.

    On 4.x servers, you do not need to restore NDS unless your installation server is the only server in your NDS tree.

Load NLMs

If you didn't need to recover the System Control Database when recovering the SYS: volume, perform the following. The job server (PALJSRVR) and PALMEDIA must be loaded on your installation server if they are not already loaded.

1. To load the job server, at the server console prompt, type:

   LOAD PALJSRVR /I<<*installation path*>>

   where <<*installation path*>> is the volume and directory of your installation directory (for example, VOL1:\PAL).

2. After the job server is loaded, at the server console prompt, type:

   LOAD PALMEDIA

3. At a workstation, open Resource Manager. Tag the SYS: volume in Resource Manager. Open the Operations menu and select *Restore/Full Resource*. The SYS: volume will be restored to its most recent state.

   NOTE: On 3.x servers, restore the Bindery resource prior to recovering the SYS: volume.

On 4.x servers, you do not need to restore NDS unless your installation server is the only server in your NDS tree.

Restoring a Server

The following provides steps for replacing a server that has crashed.

> **NOTE:** To prepare for disaster recovery such as a complete server crash, follow the instructions in Appendix C, “Disaster Recovery.”

If the server you are recovering contains the Backup Director installation volume, see the instructions for recovering an installation volume below.

Assumptions

- Your new server has the same name, NetWare version, and volume names as the original server.
- You are replacing your original server on the Protected Resource List.
- The File History Databases for your original server are accessible.

1. Remove the original server from your network by downing it.

2. Generate a replacement server by installing the same version of NetWare as your original server and giving it the same name. Add volumes with the same name as the volumes on your original server. Bring the server on-line and install the appropriate TSAs (see the *Installation Guide*).

3. Recreate your auto login user assigning the user the same name and password as on your original installation server.

4. In Resource Manager, tag the volumes on your failed server.

   > **TIP:** In Resource Manager, to tag all of resources on the same target, highlight one of the resources from that machine and press the “**/**” key to tag all of the resources for that machine.

5. Open the Operations menu and select *Restore/Full Resource*.

6. Insert the media as requested. This will restore the data on all tagged volumes on your original server to the new server.

Moving a Backup Director Installation

This section details procedures for moving a Backup Director installation from one server/volume to another.

Assumptions

- The Backup Director installation directory name has been created on the target server and is identical to the directory name on the source server.
- The auto login user exists on the target server with the same password and appropriate rights as the auto login user on the source server.
- The target server/volume supports the same name spaces as the source server/volume.

Procedures

Reconfigure the Installation

Before copying the installation files, you need to update the System Control Database and Enterprise Setup so it will represent the new installation.

> **TIP:** To save your original database files prior to updating them, copy or rename the *.PAC files in your installation directory.

1. Open Configuration Manager.

2. Open Configure/*Enterprise Setup*. Delete the current installation and the job queue (select **Delete Physical Queue**).

3. If appropriate, type in a installation description name in the installation name field.

Installing On a New Server

If you are not moving your Backup Director installation to a new server, proceed to "*Copy Software*" below. If you are moving your Backup Director installation to a new server, follow the steps below.

1. Open Configuration Manager. If using a new auto login user, add the user in the auto login name and password fields. If moving from a 3.x server to a 4.x server, use the NDS auto login name and password fields.

2. In the Admin list tab, remove any obsolete administrators/operators..

3. Add any new administrators/operators from the new installation server.

4. In the User list tab, remove any obsolete users and groups.

To install hardware on a new server

1. Install the SCSI Host Adapter and backup device on your target server.

2. Load the appropriate SCSI drivers on your server.

3. Copy SCSISCAN.NLM from the \TOOLS directory on the last Backup Director installation diskette to the SYS:\SYSTEM directory on your target server.

4. After the hardware is set up and the proper drivers loaded, type the following command at the server console:

   LOAD SCSISCAN

   SCSISCAN scans the SCSI bus and displays all SCSI devices. If the backup device is not displayed, this indicates that there is a hardware issue that needs to be resolved. See the *Installation Guide* for more details on installing the backup device and SCSI host adapter.

Copying Software

1. Create the Backup Director directory on the target volume using the DOS MKDIR command.

2. Copy the Backup Director installation and its subdirectories from the source server/volume to the target/server using a command similar to the following:

   XCOPY FS1\VOL1:\PAL*.* FS2\VOL1:\PAL /S

   (where FS1 is your source server, FS2 is your target server, and PAL is your installation directory. The /S parameter copies all subdirectories.)

   > **NOTE:** You must keep the same path for your System Control Database. For example, if your original installation directory was \PAL you must move it to a \PAL directory.

3. Copy all Backup Director NLMs and appropriate TSAs to the target server's SYS:\SYSTEM directory. If you are not moving your Backup Director installation to a different server, you probably do not have to perform this step (by default the NLMs are copied to the SYS:\SYSTEM directory).

4. From the source server's SYS:\SYSTEM directory, copy the following files to the target server:

   AR*.RSF, PAL*.NLM, PALSTART.NCF, TSAxxx.NLM+, SMDR.NLM, WSMAN.NLM

   +substitute the appropriate TSA for your server.

Unload NLMs

If you moved your Backup Director installation to a new server, skip to "*Preparing the New Server*" below.

If you moved your Backup Director installation to a different volume on the same server you must:

- Unload the job server (PALJSRVR.NLM) and PALMEDIA.NLM
- Delete the job queue
- Reload the job server and specify the proper path.

To unload PALJSRVR and PALMEDIA

> At the server console prompt, type:

UNLOAD PALJSRVR

UNLOAD PALMEDIA

If you haven't already, delete the job queue on the installation server.

> Open Configuration Manager and select Configure/*Enterprise Setup*.

> Delete the current installation and the job queue (select **Delete Physical Queue**).

To reload the job server and PALMEDIA

1. At the server console prompt, type:

   LOAD PALJSRVR /I<<*installation path*>>

   where <<installation path>> is the volume and directory that you copied your installation directory to (for example, VOL1:\PAL).

2. At the server console prompt, type:

   LOAD PALMEDIA

Continue to *Installation Configuration* below.

Preparing the New Server

1. If you have configured a new auto login user for the new installation, create the user on the server or in the NDS tree.

2. Load the appropriate TSA's on the target server. Refer to the *Installation Guide* if you are unsure of which TSA's need to be loaded.

3. At the server console prompt of your target server, type:

   LOAD PALJSRVR /I<<*installation path*>>

   where <<*installation path*>> is the volume and directory that you copied your installation directory to (for example, VOL1:\PAL).

4. At the server console prompt, type:

   LOAD PALMEDIA

Installation Configuration

Be sure to login as an administrator prior to running Backup Director.

To configure the installation

After successfully loading the job server and PALMEDIA:

1. Change the properties of your Backup Director icon so that the command line specifies the new installation location. If end users use File Manager, be sure to inform them of the new location of PALFILER.EXE.

2. Open Configuration manager. Open Configure/*Enterprise Setup*.

3. Choose **Insert**.

4. Select the installation server and the installation. (The path for your new installation should display in the installation text box.) Choose **OK**.

5. If necessary, add any administrators/operators to the Admin List and users to the User List.

Configuring File History Database Location

> **NOTE:** This section should be completed only if the Backup Director's databases are centralized.

Each resource on the protected resource list must have the File History Database location updated to reflect their new location.

1. Access Resource Manager. Highlight a resource that your original installation was protecting.

2. Open the Operations menu and select *Edit Resource Info*.

3. Select **Change File History Database Location**.

4. A pick list appears listing the target servers. Choose the target server, then select the target volume that you moved your Backup Director installation to.

   You should receive a message indicating that the File History Database already exists for the resource. Choose **Use Existing Histories**.

5. Repeat steps 1 through 4 for the rest of the resources on the Protected Resource List. The History path for each resource should identify the new target server.

6. After updating your resource's history database location, update the default location for your centralized databases. Choose *Operations/File History Database*. Select *Configure* and select the default server volume on which to store your history database(s).

Configure Backup Device

If the host adapter number or SCSI ID on the backup device has changed from the original setup, then the backup device may need to be re-configured. To do so, access Device Manager, choose *Operations/Scan for Devices,* then choose *Devices*. You may need to delete the current device and re-scan the bus to find the new host adapter number and/or SCSI ID.

Consolidating Volumes

Consolidating volumes is the process of combining two or more volumes. It is usually the result of adding a new, larger volume to replace existing volumes.

To consolidate volumes using Backup Director, you should

> Perform a Full Backup operation on the source volume(s).

> Tag the source volume in Resource Manager, open the Operations menu and select *Restore/Full Resource*. Select the **Redirect to** option.

> Select the target volume.

To perform a full backup

Prior to consolidating volumes, be sure have a snapshot of the volume(s) as it exists prior to redirecting its data to a new volume.

> In Resource Manager, tag the volumes being consolidated.

> Open the Operations menu. Select *Backup/Full*.

To copy data from one volume to another

1. In Resource Manager, tag one volume that you want to consolidate.

2. Open the Operations menu and select *Restore/Data*.

3. In the restore dialog box, select **Redirect to**.

4. Choose the Server, Target Service, TSA, and Resource to restore the data to and choose **OK**.

   This operation will restore all directories, files, and trustees from your source volume to the target volume.

5. Perform the steps above for each volume you want to consolidate.

6. When you have successfully consolidated the volumes to a single volume, perform a full backup on the volume so that all data is copied to backup media and so that the File History Database reflects the new volume configuration.

7. If you no longer will be using the volumes you are consolidating (VOL1 and VOL2 in the above example), delete them from the Protected Resource List or make them inactive (see chapter 8 for more information).

File History Databases

When consolidating volumes, you must decide which File History Database you want to use for the new volume or create a new File History Database for the new volume.

Your original File History Databases will not be redirected when performing the procedures above.

If there is a specific File History Database you want to use for your new volume, you should restore it to the new volume (note that you cannot merge File History Databases and a volume can have only one File History Database).

To redirect a File History Database

1. In Resource Manager, tag the source volume.

2. Open the Operations menu and select *Restore/File History Database*.

3. On the restore dialog box, select **Redirect to**.

4. Choose the Server, Target Service, TSA, and Resource to redirect the File History Database to and choose **OK**.

   Note that, unless distributing File History Databases, the File History Database is not actually moved to the target volume but it moves to the target volume's File History Database location.

File Server/Volume Cloning

Cloning is the process of making an exact duplicate of an existing volume or an entire server. When cloning a volume, the new volume includes the directory/file structure of the original volume and retains the original volume's File History Database.

Why Clone?

Why would you use Backup Director to clone a volume and/or file server? Why not just place the file server on the network and copy the directory/files to the new volume?

Cloning a volume involves more than just reconstructing the directory/file structure. In the case of a NetWare volume, there may be user privilege restrictions attached to directories that are just as important to duplicate as the directory/file structure.

For a NetWare 3.x file server to be cloned, the Bindery must also be duplicated. Without the help of Backup Director, this process involves multiple steps and can be very complicated.

When performing a cloning operation, if the file server and all the volume names are identical, you can run the same operation as you would for a full server restore.

Full Backup

Before cloning a volume or server you will want to be sure all files are copied to a single media set. The best method is to perform a full backup on each volume you are cloning.

Cloning a Server

The following is a summary of the steps required to perform a cloning operation.

> Perform a full backup on the source volume(s) to be cloned.

> In Resource Manager, tag the volume to be cloned.

> Open the Operations menu. Select *Restore/Full Resource*.

> On the restore options dialog box, select **Redirect to.**

> Choose the Server, Target Service, TSA, and Resource to redirect data to and choose OK.

Assumptions

The following procedure assumes the following for your new server:

- The target volumes have identical names to the source volumes
- You have installed and loaded the appropriate TSAs on the target server and added that server to the Protected Resource List

NOTE: If cloning volumes on a 3.x server to another server, you must also redirect the Bindery resource so the trustees and Object IDs for users not defined on the target server will not have to be recreated.

Procedure

1. If your new server is a NetWare 3.x server, recreate your auto login user with the same name and password.

2. In Resource Manager, tag the volume(s) you are cloning. Open the Operations menu and select *Full Backup*. This ensures you have a snapshot of your volumes on a single media or media set.

3. After the backup is complete, tag one of the volumes you are cloning. If you are cloning a 3.x server, you should tag the Bindery resource as your first resource to clone and then the SYS: volume.

4. Open the Operations menu and select *Restore/Full Resource*.

5. On the restore options dialog box, select Redirect to.

6. Choose the Server, Target Service, TSA, and Resource to redirect data to and choose OK.

7. Repeat the above procedures for each volume you are cloning.

NOTE: If you are cloning a Backup Director installation server, follow the instructions in *Moving a Backup Director Installation* for instructions on loading the appropriate NLMs and other setup information.
