Chapter 5 Backing Up Data

Overview

This chapter describes how to:

- Back up files on selected resources
- Back up selected directories and files
- Specify custom job parameters
- Configure concurrent backup operations and jobs

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Introduction

This chapter addresses the data protection operations that you can define independently from automatic operations. Although using automatic operations provides the most complete and secure protection for your data, you may at times want to provide extra protection or copy files to media other than those used for automatic jobs.

Resource Manager and File Manager allow you to choose which items to back up. Greater control of the operations through custom jobs lets you determine which file versions are protected, where the copies are located, and whether records for the file copy exist in the File History Database.

See Chapter 4, "Customizing Your Installation," for information about backup parameters.

Backing Up Machines and Resources

Through Resource Manager, you select entire machines or resources for an operation. The program refers to the applicable file rules and parameters to determine whether a file residing on the resource is eligible for the operation. See Chapter 9, "Managing Files," for information about file rules.

> **NOTE:** If you are prompted with a Session Information dialog box, be sure to enter a supervisor-equivalent user. If you do not, the program cannot make the appropriate connections with servers and your jobs will not run.

There are three types of backup operations.

- **Full Backup**–Copies every file on the tagged resource and clears the archive bits.
- **Incremental Backup**–Copies every file that has changed since the previous full or incremental backup performed on the tagged resource. This type of backup operation clears the archive bit (by default).
- **Differential Backup**–Copies every file that has changed since the previous full backup of the tagged resource and does not clear the archive bit. Note that an incremental backup using managed media will clear the archive bit. Any subsequent differential backup written to managed media will be based on changes that occurred after the incremental operation.

NOTE: If you turn off the **Clear Archive Bits after Backup** option, an incremental backup operation behaves the same as a differential backup for non-managed backup operations.

NOTE: When you are backing up DOS workstations, Palindrome recommends disabling any broadcast message functions on those workstations. These messages can interfere with the workstation TSA and interrupt the backup operation.

To back up resources

1.
From
menu's *Sort* options to quickly tag an entire group of resources. For example, to back up only workstations
(such as DOS, OS/2, and Macintosh), select the *Sort by Type* option and tag the Workstation class.

TIP: To tag all associated items of a highlighted object, press the "/" key. For example, if you highlight a server and press the "/" key, all resources on that server are tagged.

2.
From
Incremental) operation you want performed.

3.   Select any other parameters for this job. The most common job parameter, **Prompt With Questions**, indicates that the job is performed in attended mode when selected.

4.   Choose **OK** to submit the job to the job queue. The Establishing Communications window appears as the job attempts to contact the job server.

TIP: To update the operation information displayed in the Resource tab, choose the *Refresh the Tree* from the Resource Manager Operations menu.

Preparing for Server Shutdown

When preparing for a scheduled shutdown of a volume or server, it is a good idea to copy every file on the volume(s) to a single backup media or media set. This will allow you to restore all of the files from that one media set and possibly a single media. Ideally, you should move this media or a duplicate of this media off-site.

Backup Director provides two methods of performing full backup operations for this task:

- Full backup job to non-managed media. Select all of the protected resources in Resource Manager for full backup operations. This method writes a copy to media that is not requested by the program for rotation.
- Automatic job with parameter changes. This method creates a "snapshot" of all

active resources. Verify that all protected resources are included for automatic operations before submitting the job. Make a duplicate of this media to avoid having the program overwrite the session.

Backing Up Directories and Files

Resource Manager has different types of backup operations which automatically select the files which are eligible for that operation. The incremental backup operation, for example, selects only those file versions that changed since the last full or incremental operation and have an Include rule.

In File Manager, the only eligibility requirement is having the Include rule. The Exclude rule parameter prevents you from performing any backup operation on a file. To back up files that you normally exclude, you must change or insert a backup rule set to **Include**. After the job completes, change the applicable rule to **Exclude**, otherwise the program will include the file in other backup operations.

In 4.x installations, any user who needs to submit file-level jobs (in other words, accessing File Manager) must be logged in to the tree where Backup Director is installed.

To back up specific directories and files

1.   Open File Manager.

2.   Open the File menu and select the *Open Resource* menu option. The Open Resource dialog box appears.

3.   Choose the **Resources** button.

4.   Double-click the available resource in which the files or directories reside.

        TIP: Use the icons on the drive bar as an alternative to selecting the **Open Resource** menu option. The drive bar displays resources and drives to which you are already mapped or connected to.

5.   Open the Tree menu and select the **Change Directory** option to enter the directory/path you want to view.

6.   Tag the directory containing the files you want to back up. Use the file window to tag specific files in the directory.

7.   After tagging the necessary directories and files, select the appropriate operation from the Operation menu.

8.   Choose **OK** to submit the custom job. The Job Status window appears.

        NOTE: Tagging all of the files on a resource in File Manager is not equivalent to tagging that same resource in Resource Manager. To ensure that you are backing up or restoring a resource's File History Database, tag the resource through Resource Manager instead.

Custom Job Options

Unlike automatic jobs, custom jobs allow greater flexibility in determining the type of media and device used for an individual job. Some custom job options are not available for all operations. Custom jobs provide one or more options which determine:

        •   Whether to prompt you with questions during the job

- Which media to use
- Which device to use
- When to submit the job

Media Options

Custom jobs allow you to specify media for the backup operation.

> **WARNING:** When creating new media labels, be sure to specify unique labels that do not duplicate media labels of media that are active or retired. Many operations are based on the media label. Duplicate labels can lead to inconsistencies on the media and in the database.

Backup Director writes or appends sessions only to blank media or media formatted by the current installation.

Which media library should you use? It depends on how you intend to use the session.

- Specify non-managed media for your custom backup if you are sending media off site and do not need the media returned.
- Specify a managed media set if you are scheduling a custom job to supplement your automatic jobs.

Managed Media

To specify managed media

1.
Tag the items you want to perform the operation on.

2.
Select the operation.

3.
From the Backup Options dialog box, select the operation type and then the **Media** button.

4.
Select the **Managed** option. This option is the default.

5.
Choose the media.

> To use the best eligible media for the operation, select **Current Set**.

> To specify which managed media, select **User Selected** and highlight that media.

6. Determine whether or not you want the program to prompt you with questions when it processes the job (by default, **Prompt With Questions** option is turned on).

7. Choose **OK** to submit the custom backup job.

Non-Managed Media

Using non-managed media allows you to:

- Dedicate the entire capacity of the media to a single session. Because the media is never requested for rotation, you can preserve backup sessions for as long as you want.
- Exclude sessions from being recorded in the File History Database. Since Backup Director will never call the untracked media for rotation or restore operations, you can send the media permanently off site. By comparison, the program tracks all sessions written to managed media.

To specify non-managed media

1. Tag the items you want to perform the operation on.

2. Open the Operations menu and select *Backup*.

3. From the Backup Options dialog box, select type of backup operation, and then the **Media** button.

4. Select the **Non-managed Media** radio button.

5. Choose the media.

 > To use new media, choose the **Label New Media** option. Type the label of this new media.

 > To select one of the existing non-managed media, choose **Existing Media**. Select the non-managed media you want to use from the list. Be sure to load the media that you specified for the backup job, otherwise the job will fail.

 > To track session information in the File History Database, select **Track in Database**.

 If you turn off the **Track in Database** option, you will not be able to restore data on the untracked sessions through Resource or File Manager. You can only restore data on these sessions in Media Manager following a journal operation.

 By tracking a session, you incorporate the file version in the File History Databases. Reasons for not tracking sessions are:

 - You are sending the media off-site.
 - You are concerned about the size of your File History Databases. Scheduled jobs that periodically write to non-managed media will create new file records for every file on disk.

6. If you are using existing media, indicate whether you want to overwrite data.

 > If you do not want sessions on the specified media to be overwritten, use **Append to media**. If you do not select **Append to media**, Backup Director will overwrite any existing sessions.

7. Select any other parameters for this job.

8. Choose **OK** to submit that custom backup job.

 NOTE: You can only append sessions to non-managed media from the current installation.

Schedule Options

Backup Director provides advanced scheduling features that allow you to schedule automatic and custom jobs to run once or many times from hourly to yearly intervals. Also, you can link a job to run after another scheduled job.

You may want to schedule jobs to run once a week (for example, to back up a certain volume at the end of every week) or every quarter (to get a quarterly snapshot of your entire system, for example).

The scheduling feature is available for all custom jobs, except journal operations. You can edit a job's schedule only through the Job Queue window.

To schedule a job

1. Select the item(s) you want to perform the operation on.

2. Select the operation.

3. From the operation's dialog box, select the operation type and then the **Schedule** button.

4. Select the **Schedule** button. The Scheduling Options dialog box appears.

5. Type the name of the job in the **Description** field. For example, you might describe a job as "**Monthly Backup**."

6. Specify when Backup Director will process the job.

    > To schedule a job to be processed once, select **Once**. After Backup Director processes the job, it deletes the job's specifications. Enter the time and date to process the job.

    > To schedule an on-going job, select **Periodically**. Enter the time and date for the job to begin. In the **Repeat Every** field, specify the interval or time period that passes between each repetition of the job. Specify any days on which you do not want the operation repeated.

    > For example, you want to run a job every 24 hours except on Saturdays and Sundays. Select the **Saturday** and **Sunday** buttons from the **Do not run on these days** parameter.

    > To schedule a job to follow another scheduled job, select **Start Job After**. From the **Start Job After** list box, select the job to precede the current job. The Scheduling Options dialog box displays the schedule of the preceding job so that you know approximately when the current job will be processed. Specify any days on which you do not want the operation repeated in the **Do not run on these days** parameter.

7. Choose **OK** to confirm your selections. The operation dialog box appears.

8. Choose **OK** to save the parameters for the scheduled job.

To view or edit a job's schedule

1. From Control Console, select the **Job Queue**. The Job Queue window appears.

2. Highlight the scheduled job you want to re-schedule. The status of the job must be "ready." If the

job has been assigned a job ID, you cannot edit the schedule.

3.   Select the **View** button. The Scheduling Options dialog box appears with the same parameters described in the procedures for scheduling a job.

4.   Select the new parameters to re-schedule the job.

5.   Choose **OK** to save the new parameters.

To clear the schedule parameters

>   If you no longer want the schedule a job, choose the **Default** button to clear any parameters you have set. This resets the **Time** and **Date** parameters to the present and the job will be performed once.

Device Options

You can choose a device used by the program for the custom job. Selecting a specific device prevents the program from performing concurrent backup operations. If you have received system messages concerning your hardware, you may want to record the SCSI instructions transmitted to the device during the operation.

To specify a device

1.   After selecting your operation, define any other parameters for this job. Due to the quantity of instructions generated by the **Device Trace** option, select only **one** volume for each job that records device instructions.

2.   Choose the **Devices** button. The Device Options dialog box appears. You may choose one or both options.

>   To use a specific device, select the **User Selected** option. Select a device from the list. If you have selected a specific media that is not on the selected device, this job will fail or prompt

>   To record all SCSI instructions which occurred during the course of the job, select **Device Trace**.

3.   Select any other parameters for this job.

4.   Choose **OK** to submit the custom job.

NOTE: You cannot specify a specific device for automatic jobs. However, you can indirectly specify a device by restricting other devices from performing an operation before the job server submits the job to the queue.

Concurrency in Backup Director

Concurrency refers to Backup Director's ability to simultaneously use multiple devices to perform:

- Multiple backup operations within a single job
- Backup jobs and restore and/or utility jobs

To take advantage of concurrency, your installation must have at least two devices configured.

If you are going to use concurrent operations, be sure:

> You have eligible media loaded in each device.

> You have at least 2 MB RAM available on your server for each concurrent process (for example, if you have two backup devices you need at least 4 MB of RAM).

To configure concurrent backup operations

1. In Configuration Manager, open the Configure menu and select *System Configuration*.

2. Select the Advanced tab.

3. Specify a number for the **Maximum Concurrent Backup Operations** parameter that is equal to the number of backup devices configured for backup operations.

4. Open the File menu and select *Save* to save your changes.

When you submit a backup job, Backup Director begins simultaneously processing the number of volumes equal to your **Maximum Concurrent Backup Operations** parameter. Remaining volumes wait until a backup process becomes available.

During an automatic job, the program must perform more than one operation. The program must process all of the resources for the first operation before it can begin process the next operation. For example, the program cannot begin processing the backup operations, even if devices are available, until it has completed database maintenance operations on all of the resources.

If you are using concurrent operations, you may want to reposition your items in the Protected Resources List so that the program processes resources optimally.

To optimize concurrent backup operations

> Move larger resources to the top of the list so that these resources complete at approximately the same time.

> Also, you should separate workstation drives in the Protected Resource List. For example, if the last two resources are a C: and D: drive for the same workstation, the program cannot process these concurrently. See Chapter 8, "Managing Resources," for information about re-arranging resources.

To configure concurrent jobs

1. In Configuration Manager, open the Configure menu and select *System Configuration*.

2. Select the Systems/Advanced tab.

3. Set **Maximum Concurrent Jobs** to **2** or **3**. To be able to process backup, utility, and restore jobs simultaneously, set the parameter to **3**.

Enabling concurrent jobs allows your installation to process one job for each type of engine that is loaded. If there are only three backup jobs in the job queue, the program can only process the first backup job submitted to the queue. If a restore job is submitted to the queue, the program processes the restore job concurrently with the backup job.

Remember that in most cases, concurrency depends on having devices available for the various jobs and

operations. Usually, if you run jobs concurrently, you also intend to run backup operations concurrently. There may may be occassions where there are no additional devices available for backing up multiple resources concurrently. The operation will proceed without concurrency. If a device and the appropriate become available, the program can continue using concurrency.

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