6

Archive

The features described in this chapter are part of the Enlighten**DSM/**Advanced product. A dialog box will appear if you access these features without license authorization. An example of this dialog is shown in the Introduction on **page 1-3**.

This section describes how to perform the following operations: configure backup devices, perform tape operations, restore files, and perform full and incremental backups. The actual options are:

- Configure Devices
- Tape Operations
- Backup Partitions
- Restore Files
- Backup Catalogs
- Scheduled Backups

Configure Devices

You can use this module to add backup devices to the system. The device can be a custom device, a reel-to-reel tape, a 1/4-inch cartridge tape, or a raw device type. The Archive Device Configuration window (**Figure 6-1**) lists which devices are available for archiving data.

Figure 6-1 Archive Device Configuration window

From this window, you have the following options:

- Add a device

- Modify a device

- Delete a device

Add

Click the Add button to add a backup device. Enter the appropriate information in the Archive Device Add window (**Figure 6-2**).
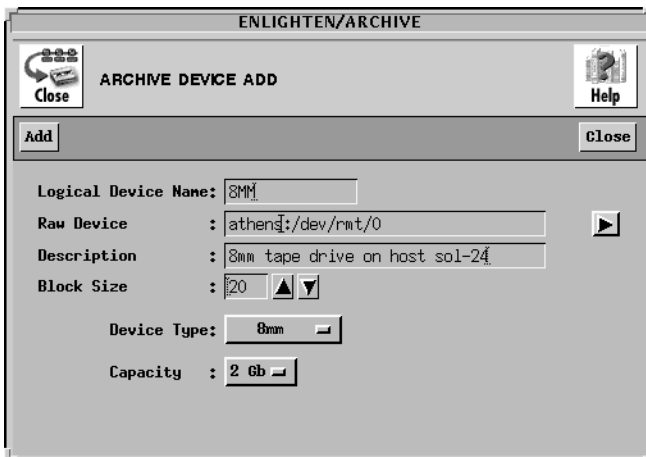

Figure 6-2 Archive Device Add window

The rest of this section describes the fields and their parameters within this window.

Logical Device Name

This field represents the common name a user will specify when accessing this backup device. This field is required.

Raw Device

This field contains the actual UNIX device name, such as /dev/rmt0. You can click the Select button to choose from a list of possible tape device names. You can also prefix the device name with its hostname, followed by a colon (:), to define remote backup devices on hosts running the enld daemon.

If, for example, you have a device /dev/rmt/0h on host athens, the name of the device would be:

        athens:/dev/rmt/0h

This field is required.

Description

This can be a friendly name for the device or a description of the device. This field is required.

Block Size

Each type of device has a blocking factor associated with it. The blocking factor is the size of each data block written to the device. The most common blocking factor is 20 blocks; however, you can back up data using a blocking factor of up to 2000 blocks. This field is required.

☞ Block size is O/S dependent. On Solaris 2.4, the block size is 1024 bytes (1K). ON SCO 5 the default block size is 1K.

Device Type

The Device Type specifies the device's capacity. This field is required. The following options are available:

- Cartridge Tape

- Reel

- Custom

- Raw

- 8 MM

Cartridge

When you click this button, tape length and density descriptions are displayed. For length, click the left mouse button and then drag the cursor to the appropriate value: 300, 450, or 600 feet. For density, click QIC 24 (low) or QIC 120 (high).

Reel

When you click this button, tape length and density line descriptions are displayed. For length, click the left mouse button and then drag the cursor to the appropriate value: 600, 1200, or 2400 feet. For density, click 1600 (low) or 6250 (high).

Custom

You can click the Custom button to define your own device. You will be prompted to enter the capacity for the new device in KB.

Raw

You can click the Raw button to quickly add an entry to the device list. Use this option to add a device with no capacity or a new piece of media. Eventually, you should redefine this storage device.

8 MM

Click the 8 MM button to define an 8mm cartridge tape device. You will be prompted to select the capacity of the tape. The options are 2 GB (default) and 5 GB. If neither of these options applies, create a Custom backup device instead, and manually set the device's capacity. Or you can create a Raw device and define the device capacity later.

Modify

You can use this to view and/or modify the backup devices configured on your system. Highlight any logical device name you wish to modify, then click the Modify button. A window will appear similar to the Archive Device Add window, except the Logical Device Name field is view-only.

There are also two button differences in the Modify window:

- You can use the Modify button (rather than the Add button) after you've made all your changes, and

- You can use the Next button to modify additional backup schedules if you've selected more than one backup to modify from the Add Device Configuration list.

For a description of the rest of the buttons and fields in this window, see **"Add" on page 6-3**.

Delete

Use the delete command to remove a backup device from Enlighten**DSM**. Once an entry has been removed, the only way to re-add it is to recreate the entry, so use care with this command. To ensure the correct backup device is being deleted, Enlighten**DSM** will prompt you for confirmation before deleting it.

Tape Operations

You can use this module to check retention of a logical device or erase all data on the backup media.

This program works only if the backup media is a tape device. The Tape Operations window (**Figure 6-3**) displays all configured backup devices and their descriptions.

Figure 6-3 Tape Operations window

The rest of this section describes how to use the buttons in this window.

Retention

You should use this option prior to using a tape for the first time or if it has been quite a while since the tape has been used. Highlight the logical device and click the Retention button. A window will appear confirming the action.

Erase

You can use this program to delete all data on the backup media, for example, to erase or clean tapes. Highlight the logical device you wish to erase, then click the Erase button. A window will appear asking for confirmation of the action. You should use this security precaution when a tape's use changes.

Backup Partitions

You can use this module to perform incremental or full backups, or to schedule backups, on filesystems (disk partitions). You do not need to know specific UNIX backup commands; Enlighten**DSM** will prompt you for all the information needed to create the backup. The Backup Partitions window is shown in **Figure 6-4**.
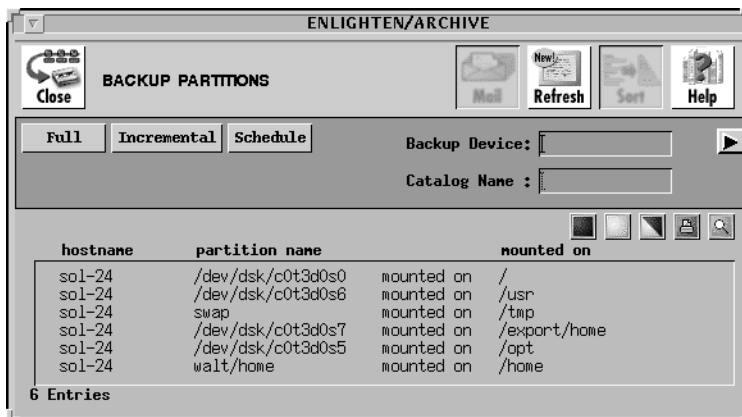

Figure 6-4 Backup Partitions window

You can have Enlighten**DSM** catalog the backed-up files. To do so, turn on the Catalog function in the Session Preferences menu item (see **"Session Preferences" on page 2-2**). These catalogs can be queried at a later time to help find instances of backed-up files. The default is NOT to keep a catalog of backed up files.

If the catalog option is enabled, you should enter a catalog name in the Catalog Name field. This can be a filename or just an identifying tag. If no name is entered, the default name of NONAME is used.

The rest of this section details the other backup options.

Full Backup

This program will back up all files on the highlighted partitions. The window displays a list of all current local and NFS-mounted partitions. Select the partitions you wish to back up. No other input is necessary, except for the backup device name. Enter the logical device name or click the arrow button for a pick list of defined backup devices.

Once you've selected the backup device name, click the Full button. A window will appear asking for confirmation of your action. Once the backup is completed, the name of the file will be displayed on the screen.

Incremental Backup

This program will back up only those files in the highlighted partitions that have been modified since a prior backup or were modified in the last *n* days. You should use this for daily backups since it runs much faster than a full backup. Highlight the partition name(s) for incremental backup and enter the desired backup device. (You can also click the arrow button for a pick list of available backup devices.)

Then, click the Incremental button. A window will prompt you for the type of incremental backup to run (**Figure 6-5**).

Figure 6-5 Incremental Backups

The options are Backup files CHANGED:

- Since Last Full Backup (the default)

- Since Last Incremental Backup

- Within time period (the last n days)

You may select only one option. Once you've made all your selections, click the Apply button. As Enlighten**DSM** does the backup, a listing of each file it archives will be displayed in a window.

Schedule Backup

This program helps you automatically schedule a full or incremental backup. For further details on how this process works, see .

Restore Files

You can use the Restore Files window (**Figure 6-6**) to view the table of contents and/or extract files from an archive of a backup device. If you do not know where a specific file is located or its backup device name, you can use a search pattern here to extract the file. Furthermore, you may view or extract any tar format archive, even those not created through Enlighten**DSM**.
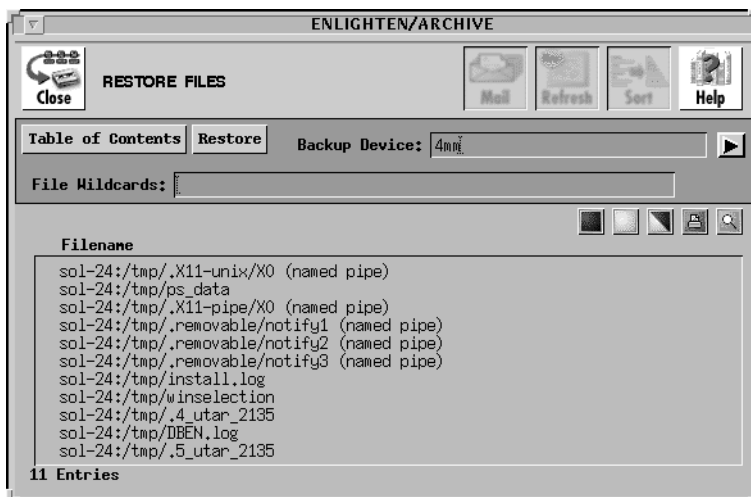

Figure 6-6 Restore Files window

The rest of this section defines the buttons and fields for this window.

Viewing an Archive

First, select the archival device's logical name as set up in the Configure Archive Devices window (see **"Configure Devices" on page 6-2**) by typing the name in (it must precisely match an existing name) or by selecting it from the list of available devices.

Next, if you place a file-matching pattern in the File Wildcards text field, this pattern acts as a filter to viewing an archive. For example, the pattern *pa* will find any file with the letters pa embedded in the name, such as /etc/passwd and partition.save. If you leave this field blank, all the files in the archive are listed in the results.

Finally, click the Table of Contents button. The full archive for the backup device is scanned. If EnlightenDSM encounters a multivolume archive generated through the Backup facility, it prompts you to exchange the media. At that time, you may interrupt the archive by selecting Cancel. Once the scan is completed, the results are displayed in the list box.

The list box is similar to that of the File Detail window; details about the file (its size, owner, etc.) appear at the top of the list box when you click on an entry. In this manner, you can preview which files to restore should you decide to extract files from the archive.

☞ Large archives, like those often found on a reel tape, may take several minutes to scan.

Restoring an Archive

First, select the archival device's logical name as set up in the Configure Archive Devices window (see **"Configure Devices" on page 6-2**) by typing the name in (it must precisely match an existing name) or by selecting it from the list of available devices.

Then, click the Restore button to extract the contents of an archive. The extraction is based on the following conditions, tested in the order shown.

- If any entries are highlighted in the list box, only those files are retrieved;

- Otherwise, if a pattern is entered in the File Wildcards field, only those files matching that pattern are retrieved. If this pattern matches a directory, then the full directory—with all subdirectories—is retrieved;

- Otherwise, if neither of the above conditions is true, the full archive is restored.

The status of the extract procedure is displayed in a text window. You may stop the progress by pressing "Ctrl-C" (or your appropriate interrupt key) within the window. If multivolume archives are encountered, Enlighten**DSM** will prompt you to exchange the media. At this point, you may Cancel the process, which will NOT impact those files already fully restored during this process.

☞ Any tar files that were created without absolute pathnames are restored in the directory where Enlighten**DSM** resides.

Backup Catalogs

You can have Enlighten**DSM** catalog the backed-up files. To do so, turn on the Catalog function in the Session Preferences menu item (see **"Session Preferences" on page 2-2**). These catalogs can be queried at a later time to help find instances of backed-up files. The default is NOT to keep a catalog of backed-up files.

You can use the Backup Catalog Query window (**Figure 6-7**) to search through the catalog of backed-up files. There are many search criteria available for finding files, including by name, owner, size, and modification date.

Figure 6-7 Backup Catalog Query window

The rest of this section defines the fields and parameters for this function. If no entry is made in a particular field, all values for that field are used in the search pattern.

Fields

This window contains the following fields:

Catalog Name

Use this field to limit the search to the specified catalog names. Make sure you enter the correct catalog names and place a space between each catalog name if you are specifying multiple catalogs.

Backup made since

Each catalog has a backup date and time associated with it. Specifying an entry in this field will limit the search to any backups made after the date entered. You can use one of two formats for the date. See **Appendix C, "Time Formats,"** for more details.

Backup made before

Specifying a date in this field (which uses the same format as the previous field) will limit the search to any files backed up before the date entered. You can also use the two Backup fields (since and before) together to specify a range of backup times in your search.

Find Filenames like

Use this field to specify filenames to use in the search pattern. The filenames can contain the standard UNIX wild card matching characters '*', '?', and '[ ]'. This field will accept more than one entry. Leave a blank space between each unique filename for multiple entries.

Skip Filenames like

This is the opposite of Find Filenames like. The filenames entered here create an exclusion list. Any filename entered here will NOT be matched by the search. This field uses the same format as the previous field.

User Owners

Every file on the system has an owner. In most cases the owner is the user who created the file. Use this field to find only those files whose owners match the names of the users entered. To exclude any files

owned by certain users, place a '!' before those usernames. This field will accept more than one entry. Leave a blank space between each unique owner for multiple entries.

Group Owners

Every file on the system belongs to a user group. Use this field to find only those files whose group ownership matches the user group names entered in this field. To exclude any files owned by certain user groups, place a '!' before those group names. This field will accept more than one entry. Leave a blank space between each unique group name for multiple entries.

File modified since
File modified before

When a file is created, the filesystem stores its creation date in what is called an inode. This inode is updated every time the file is modified. You can use these fields to look for files modified before and/or since certain inode dates.

These fields work similarly to the Backup catalog fields, except these fields define a search pattern for file inode dates rather than catalog modification dates. The input format for these fields is the same as the Backup formats described earlier. See **Appendix C, "Time Formats,"** for more details.

Minimum file size
Maximum file size

Every file residing on the system requires space. This space is referred to as the file size. Any input for these fields specifies the minimum and/or maximum file size a file can have as part of the search routine. If a file is smaller than the amount entered in the first field, the search routine will exclude it. Conversely, if the file is larger than the amount entered in the second field, the search routine will also exclude it.

To change the default size, enter the data in the format `N unit`, where `N` is the numeric size to search for and `unit` is one of the following units of measure:

- KB = Kilobytes
- MB = Megabytes
- GB = Gigabytes

Files to find

This field shows two values. The first (and default) option is to find only the most recently backed-up version of the requested files. The second option is to find all instances of the requested files. Use this second option with care since it can easily generate very long lists.

Buttons

Click the Clear Fields button if you want to clear all the fields before defining and executing another search pattern. After you've finalized your search criteria, click the Execute Search button to begin the search. A list of all matching files is displayed in a new window (**Figure 6-8**).
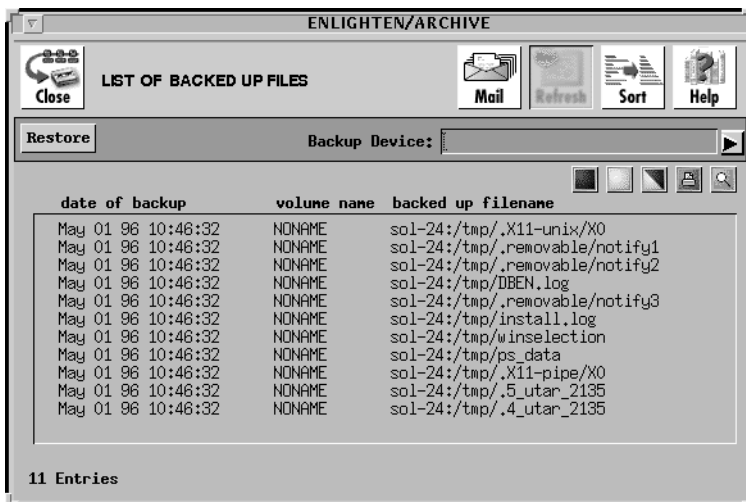

Figure 6-8 List of Matching Files

To restore any of the files in this list, enter the name of the backup device, highlight the desired files, and click the Restore button. If the selected files where backed up on more than one catalog, you will be prompted to load each backup catalog as required.

Schedule Backups

You can use the Scheduled Backup Configuration window (**Figure 6-9**) to have the system automatically back up selected files and partitions.
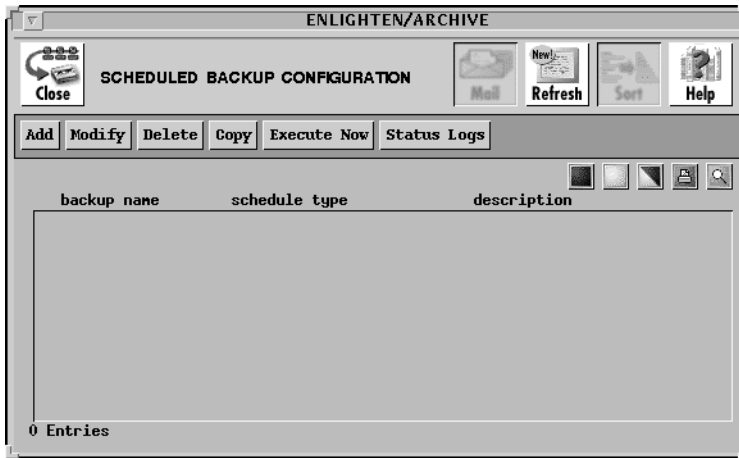

Figure 6-9 Scheduled Backup Configuration window

The Scheduled Backup Configuration window displays a list of currently defined scheduled backups, types, and descriptions. The rest of this section describes the buttons and fields in this window and other backup windows.

Add

Click this button to use the Add Scheduled Backup window (**Figure 6-10**).
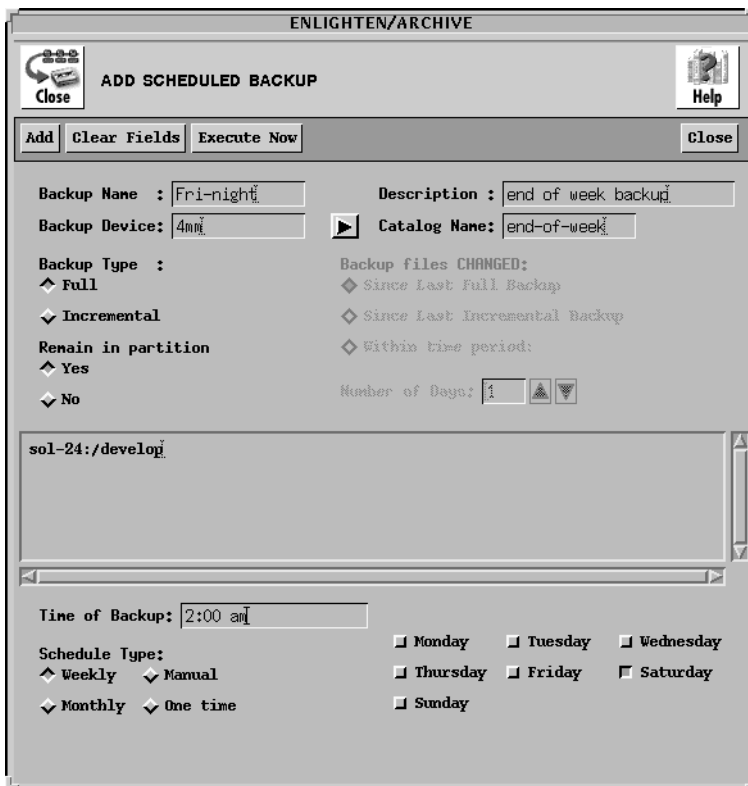

Figure 6-10 Add Scheduled Backup window

The rest of this subsection details this window's functionality.

Fields

The Add Scheduled Backup window contains the following fields:

Backup Name

Use this field to specify the backup's name.

Description

Use this field to provide a brief description of the backup.

Backup Device

Use this field to specify the logical device name for the backup. Logical device names are defined via the Configure Device window (see **"Configure Devices" on page 6-2**). You can also click the arrow button to the right to bring up a list of all defined device names and select one of them.

Catalog Name

If you have enabled backup catalogs, specify in this field a catalog name that will be used to keep a record of this backup. See the Catalog function in the Session Preferences menu item (see **"Session Preferences" on page 2-2** for more details).

Backup Type

These toggle buttons specify whether to run an Incremental or Full backup. The Incremental backup choice will also activate the Backup Files CHANGED toggle buttons.

Backup files CHANGED

This set of toggle buttons specifies which files should be backed up during an Incremental backup. The options are files that have changed:

- Since Last Full Backup (the default)

- Since Last Incremental Backup

- Within time period

The Within time period choice will also activate the Number of Days field so you can specify a time period.

Number of Days

You can use this field to specify how many days back Enlighten**DSM** will check to see if a file has changed and therefore should be backed up. The arrow buttons to the right will automatically increment or decrement the number displayed in the text field.

Remain in partition

Use this option to select whether you want the backup to cover only the immediately defined partition for a particular directory (Yes) or all partitions listed under that directory (No). The default is Yes.

File List

Use this list box to enter which files will be checked for changes. Those that have changed will then be the backed up as specified in the preceding fields.

Time of Backup

You can use this field with the Schedule Type toggle buttons to determine when a backup should be executed. See the following Schedule Type field description for more details on how this field is used.

Schedule Type

This set of toggle buttons determines how and when the backup will occur. The choices are:

- Weekly   The days of the week will be displayed. Select which days the backups should occur. Enter when the backup will occur in the Time of Backup field.

- Monthly   The days of the month will be displayed. Select which days the backups should occur. Enter when the backup will occur in the Time of Backup field.

- Manual   This option does not schedule a time to perform the backup; you run it by selecting the Execute Now button in the Scheduled Backup Configuration parent window.

- One time   Specify a (one time) date and time to run the backup in the Time of Backup field.

To specify a time/date value, see **Appendix C, "Time Formats."**

Buttons

The Add Scheduled Backup window contains the following buttons:

Add

Click this button to create the scheduled backup defined by the rest of this window's fields.

Clear Fields

Click this button to clear the existing choices in all fields.

Execute Now

Click this button to execute the highlighted backup immediately. This occurs regardless of the backup's defined schedule time.

Close

Click this button to close the window without saving any scheduled backup information.

Modify

Click this button to modify the schedule of a backup configuration. A window similar to the Add Scheduled Backup window will appear, except the Backup Name field is now a display-only field.

There are also two button differences in the Modify window:

- You can use the Modify button (rather than the Add button) after you've made all your changes, and

- You can use the Next button to modify additional backup schedules if you've selected more than one backup to modify from the Scheduled Backup Configuration list.

For a description of the rest of the buttons and fields in this window, see **"Add" on page 6-19**.

Delete

Click this button to delete the highlighted backup from the Scheduled Backup Configuration list. To ensure the correct backup schedule is being deleted, Enlighten**DSM** will prompt for confirmation before deleting it.

Copy

Click this button to copy the highlighted backup schedule. This action will pop up the Add Scheduled Backup window and initialize it with the values from your highlighted selection. Change the field values as needed and click the Add button to create the new copy backup schedule.

See **"Add" on page 6-19** for details on the buttons and fields in the Add Scheduled Backup window.

Execute Now

Click this button to execute the highlighted backup immediately. This occurs regardless of the backup's defined schedule time.

Status Logs

When backups are run (in the background) at their scheduled times, they create a backup log. Click the Status Logs button to access these status logs in the Backup Logs Configuration window (**Figure 6-11**).
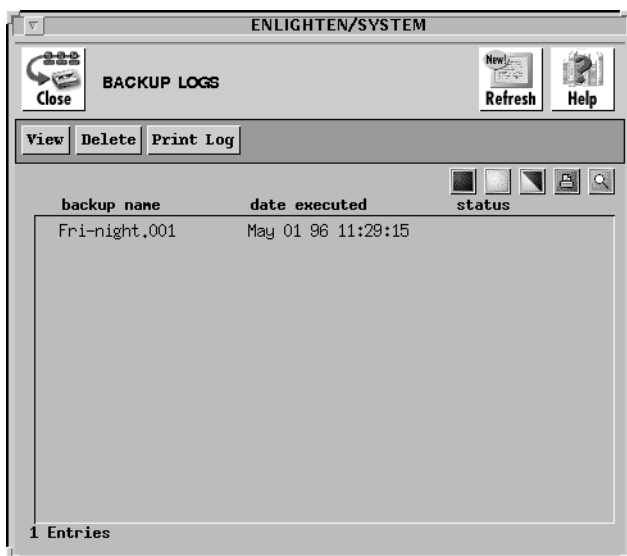

Figure 6-11 Backup Logs Configuration window

The window contains the following buttons:

View

Click this button to view the selected backup logs.

Delete

Click this button to delete the selected backup logs. Enlighten**DSM** will prompt you to confirm your action.

Print Log

Click this button to print a copy of the selected backup logs. The output is sent to the printer defined in the Print field in the Configure —> Session Preferences window. See **"Session Preferences" on page 2-2** for further information.