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# Configuring Veritas NetBackup Version 4.5 for NDMP

## Overview of the Setup Process

To configure Veritas NetBackup version 4.5 for Mirapoint NDMP backup, you work in both the Mirapoint appliance command-line and in Veritas NetBackup's command-line and Administration Console GUI. You do the following:

1. Connect the tape drive or library to a network-connected server. (see [Connecting Tape Drives or Libraries](#) on page 1)
2. Complete the Mirapoint system software configuration and setup. (see [Completing the Mirapoint System Software Configuration and Setup](#) on page 2)
3. Complete the Veritas NetBackup server and data management application (DMA) software configuration and setup. (see [Completing the NetBackup Server and DMA Configuration](#) on page 4)
4. Test your NDMP backup configuration (see [Testing Your NDMP Backup Configuration](#) on page 20)

## Connecting Tape Drives or Libraries

Your tape drive or library (media changer) should come with instructions on how to connect your equipment to other systems. While these instructions are not specific to the Mirapoint appliance, they should provide enough information to allow you to complete the connections correctly.

To back up the Mirapoint appliance to a SCSI tape drive or library operating in random-access mode, that device must be attached to a network connected appliance or server.

There are two ways to connect a tape drive or library:

- ◆ Locally attached to the Mirapoint appliance (direct attached)  
For information on SCSI tape drives and tape libraries that Mirapoint approves for attachment, see [Approved Local Tape and Library Devices](#) within the Mirapoint Support Knowledge Base.
- ◆ Third-party attached to some other network-attached server  
When using a tape drive or library that is connected to a third-party system or server that is not a Mirapoint appliance, you must have a working knowledge

of the setup and installation of those devices to complete the NetBackup software setup portion of the process.

To use the media in a library after adding it, the library must first be inventoried. Otherwise, the DMA will not know it is available for use.

For more information on configuring tape drives to work with the Mirapoint appliance, see [Tape Device Configurations for NDMP DMAs](#) within the Mirapoint Support Knowledge Base.

## Completing the Mirapoint System Software Configuration and Setup

To complete the software configuration and setup on the Mirapoint appliance, you must enable and start the NDMP service, identify the changer or tape drive device address, and designate the DMA type you plan to use (for example, Veritas).

In this section, tape drives and libraries (changers or robots) are referred to as devices.

Do the following:

1. (This step is required only if the device is directly attached to the Mirapoint appliance.) Open a telnet window and log into the CLI as an administrator.
2. Verify the tape device you plan to use is recognized by the appliance.

If the device is a tape library, follow the instructions detailed below:

- a. Verify your tape library's address. Enter the following commands:

```
Diag Get Changeraddress
```

The Mirapoint system returns an output string that includes the device name, SCSI controller ID, target number, and logical unit number; for example:

```
Controller 1, Target 1, LUN 0, Device /dev/ch0
```

```
OK Completed
```

- b. Make note of the device name (/dev/ch0) provided in the output string; this is used later in the NetBackup DMA setup process. The controller, target, and LUN information is no longer required to complete the process, so these values can be ignored.
- c. Next enter the following command:

```
Diag Changer Inquiry "" "" ""
```

The Mirapoint system returns information on the manufacturer, model number, firmware version, and serial number of the device.

```
"EXABYTE " "Exabyte 17D " "E113" "THX1138"
```

```
OK Completed
```

If no information is returned for either command, then the device (tape drive or library) is either not attached, not attached correctly, or was attached while the system was live and is not recognized until the Mirapoint appliance is rebooted, or in the case of some media changers (robots), it is in sequential mode.

If you are certain the device is correctly installed on a network connected server, see [Troubleshooting a Tape Drive or Media Changer Connection](#) in the Mirapoint Support Knowledge Base.

If the device is a tape drive, follow the instructions detailed below:

- a. Verify a tape drive address, enter the following commands:

```
Diag Get Tapeaddress
```

The Mirapoint appliance returns an output string that includes the device name, SCSI controller ID, target number, and logical unit number; for example:

```
Controller 1, Target 2, LUN 0, Device /dev/nrsa0
```

```
OK Completed
```

- b. Make note of the device name (/dev/nrsa0) provided in the output string; this is used later in the NetBackup DMA setup process. The controller, target, and LUN information is not required to complete the process, so these values can be ignored.
- c. Next enter the following command:

```
Diag Tape Inquiry "" "" ""
```

The Mirapoint appliance returns information on the manufacturer, model number, firmware version, and serial number of the device.

```
"HP " "Ultrium 1-SCSI " "E12V" "THX1138"
```

```
OK Completed
```



Steps 3 and 4 are required when the device either locally attached, or if it is connected as a third-party attached device to some other network attached server.

3. Enable and start NDMP service. Enter the following commands:

```
Service Enable NdmP
```

```
Service Start NdmP
```

To verify that NDMP service has been enabled and started, enter the following command:

```
Service Started NdmP
```

4. Set the NDMP DMA type using the following CLI command:

```
NdmP Set Dma Veritas
```

To verify your NDMP DMA setting, use the NdmP Get Dma command.

5. Log out of the CLI, and close the telnet window.

If you are certain your locally attached tape drive or media changer is correctly installed, but it is not recognized by the Mirapoint appliance, see [Troubleshooting a Tape Drive or Media Changer Connection](#) in the Mirapoint Support Knowledge Base for instructions on how to use the CLI Diag commands to resolve the problem.

## Completing the NetBackup Server and DMA Configuration

After NetBackup is installed on a server as described in the documentation provided by Veritas, complete the data management application (DMA) setup.

Use the command-line to do the following:

- ◆ Authorize the data management application (DMA) to allow access for the Mirapoint appliance to the NetBackup server (see [Authorizing Access to the NDMP Server](#) on page 5)
- ◆ Configure the tape drive or library that will be used for NDMP backup (see [Configuring NDMP Storage Devices](#) on page 6)

Use the NetBackup **Administration Console** (GUI) to do the following:

- ◆ Add a robot and tape drive (see [Adding a Robot \(Tape Library\)](#) on page 8 and [Adding a Tape Device to the Tape Library](#) on page 10)
- ◆ Create a storage unit (see [Creating the Storage Unit](#) on page 12)
- ◆ Create a policy (see [Creating a Class or Policy](#) on page 14)
- ◆ Define a file in the new policy (see [Adding File Directives](#) on page 15)
- ◆ Define a schedule for the new policy (see [Defining a Schedule](#) on page 18)
- ◆ Add a client name to the newly created policy (see [Adding a Client Name](#) on page 19)

After completing each of these items, you test your settings to verify the DMA is properly configured (see [Testing Your NDMP Backup Configuration](#) on page 20).

NetBackup for NDMP has been tested on Solaris hosts. NetBackup runs on other platforms, but those have not been tested by Mirapoint. This procedure documents using a Solaris Unix workstation to complete the setup process.



Veritas may change their DMA at any time, rendering these instructions obsolete.

### Required Information

The following information is required:

- ◆ The device name for the tape drive you plan to use (see [Configuring NDMP Storage Devices](#) on page 6).
- ◆ The device name for the tape library or media changer (robot) if you plan to use one (see [Configuring NDMP Storage Devices](#) on page 6).
- ◆ The host name of the Mirapoint appliance to be backed up. The Mirapoint appliance provides the NDMP mover, data, tape, and SCSI services (in case of direct-attached).
- ◆ The host name of the Veritas NetBackup server.
- ◆ The host name of the server or system where the tape drive or library is attached. This can be the same Mirapoint appliance, a second Mirapoint appliance, or some other third-party network connected system or server.
- ◆ Determine the Mirapoint user login and password to be used by the NetBackup server (administrator is recommended, but this can be someone with administrator privileges) for authentication.



Veritas limits the password to a maximum of eight characters.

## Authorizing Access to the NDMP Server

Before you can use Veritas NetBackup to perform an NDMP backup of a Mirapoint appliance you must first authorize the NetBackup server to access the Mirapoint appliance. You must also setup NDMP authentication for the NetBackup media server.

From the Solaris command-line do the following:

1. Change from the root directory to the **volmgr/bin** directory, by entering the following:

```
cd /usr/opensv/volmgr/bin
```

This assumes the root or install directory is **/usr/opensv/**.

2. Add the host name for the NDMP server to be backed up, and a user login name and password for authentication. Enter the following commands:

```
set_ndmp_attr -auth ndmpserverhost username
```

```
password: secret
```

```
Re-enter password: secret
```

where:

- ❖ *ndmpserverhost* is the host name of the Mirapoint appliance to be backed up.
- ❖ *username* is the user name under which NetBackup accesses the NDMP host (your Mirapoint appliance in most cases). This user must have

permission to execute the NDMP commands, so use Administrator, or a user with administrator privileges.

- ❖ *secret* is the password selected for the login. Because of limitations in the NetBackup product, passwords entered via `set_ndmp_attr` are limited to a maximum of eight characters.
3. (Optional) For three-way configurations, if the tape drive or library is locally attached to an NDMP server and controlled by a different NDMP service other than the Mirapoint appliance to be backed up, then enter the host name of that server, and a user login name and password to be used for authentication. Enter the following commands:

```
set_ndmp_attr -auth ndmp3wayhost username
password: secret
Re-enter password: secret
```

where:

- ❖ *ndmp3wayhost* is the host name of the network connected server or system with the locally attached tape device; this can be another Mirapoint appliance, or a third-party network connected server or system.
- ❖ *username* is the name under which NetBackup accesses the NDMP host. This user must have permission to execute the NDMP commands, so use Administrator.
- ❖ *secret* is the password selected for the login.

## Configuring NDMP Storage Devices

Storage devices (tape drives and libraries) are configured first using the command-line on the NetBackup server, and then in the NetBackup Administration Console (the DMA user interface).

From the Solaris command-line, do the following:

1. Configure a robot (tape library) by entering the following command:

```
set_ndmp_attr -robot ndmpserverhost device 0 0 0
```

where:

- ❖ *ndmpserverhost* is the name of the system or server where the device is attached.
- ❖ *device* is the address of the library or media changer (see [Configuring NDMP Storage Devices](#) on page 6)

Mirapoint does not make use of the controller, target, or LUN information, so these should be entered as zero.

If you use `set_ndmp_attr` to configure a robot, then later remove the robot, you must delete references to it from the NetBackup server. If you do not remove the references, NetBackup continues to ping the non-existent device, and produce error messages. Enter the `set_ndmp_attr_help` with no arguments for details of the syntax to use.

2. Verify the authentication and robot information you entered is correct, by entering the following command:

```
set_ndmp_attr -verify ndmpserverhost
```

Where *ndmpserverhost* is the name of the system or some other server where the tape library or media changer (robot) is attached. For more information, see [Tape Device Configurations for NDMP DMAs](#) within the Mirapoint Support Knowledge Base.

This command attempts to log on using the information you specified up to this point. If the command fails, either NDMP is not running on the Mirapoint appliance, or authentication and/or robotics was not setup correctly on the client site.

## Completing the DMA NDMP Backup Configuration

Start the **Administration Console** from the command-line by entering the following command:

```
/usr/opensv/netbackup/bin/jnbSA &
```

The login screen displays. Login as an administrator with full access, or as root.

The **Main Menu** window displays.

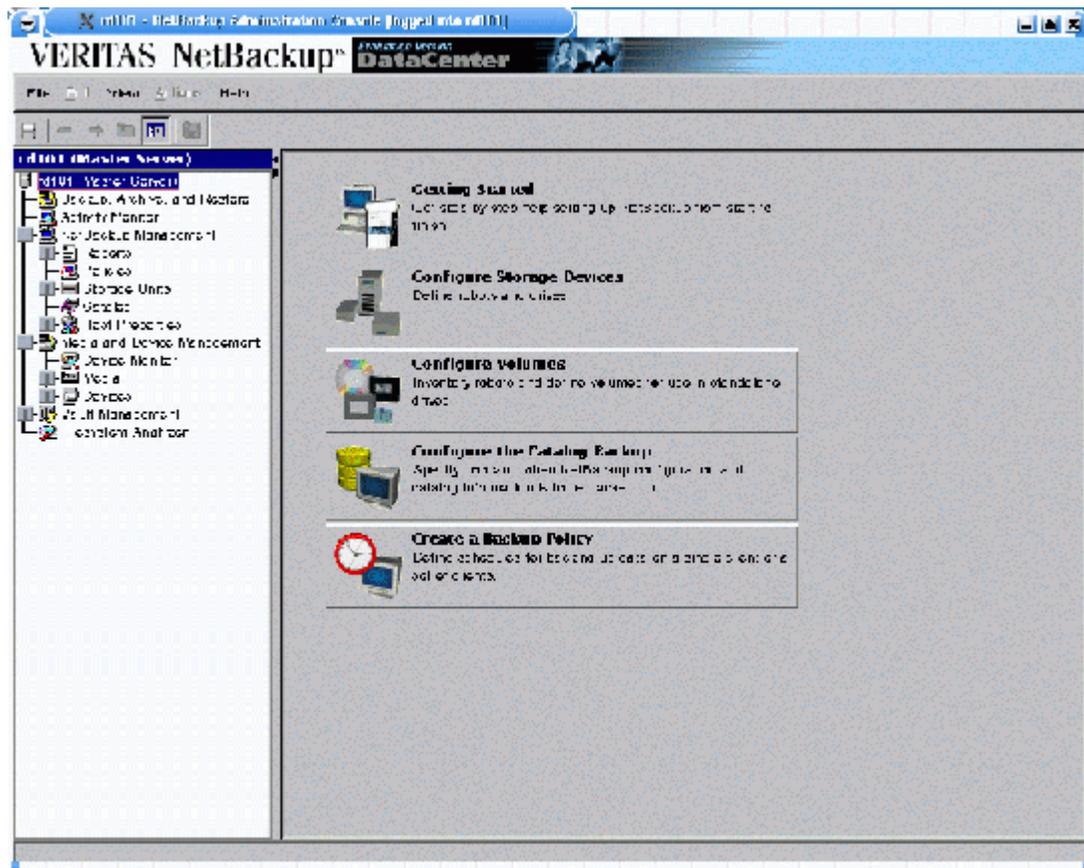


Figure 1 NetBackup Main Menu

## Adding a Robot (Tape Library)

From the main menu, select and expand **Media and Device Management > Devices**, then do the following:

1. Highlight and right-click on **Robots**, then select **New Robot** from the drop-down menu.

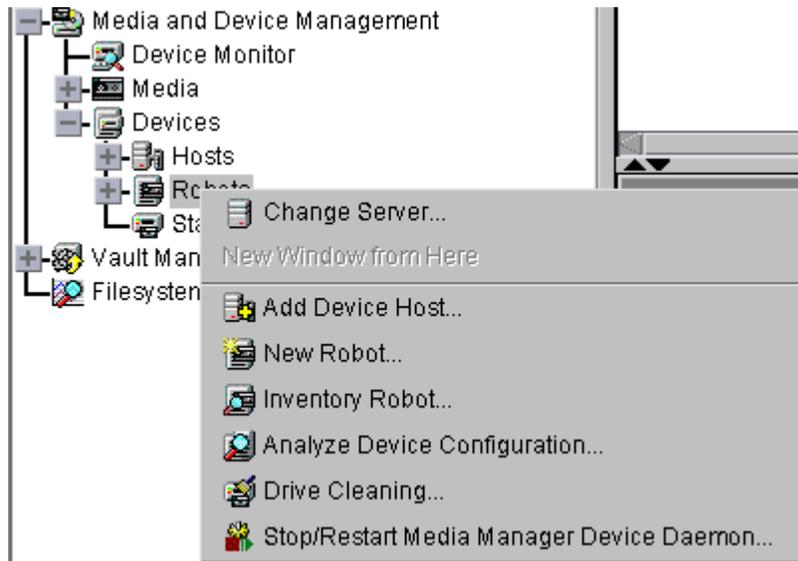


Figure 2 Robots Drop-Down Menu

The Add a New Robot pop-up window displays.

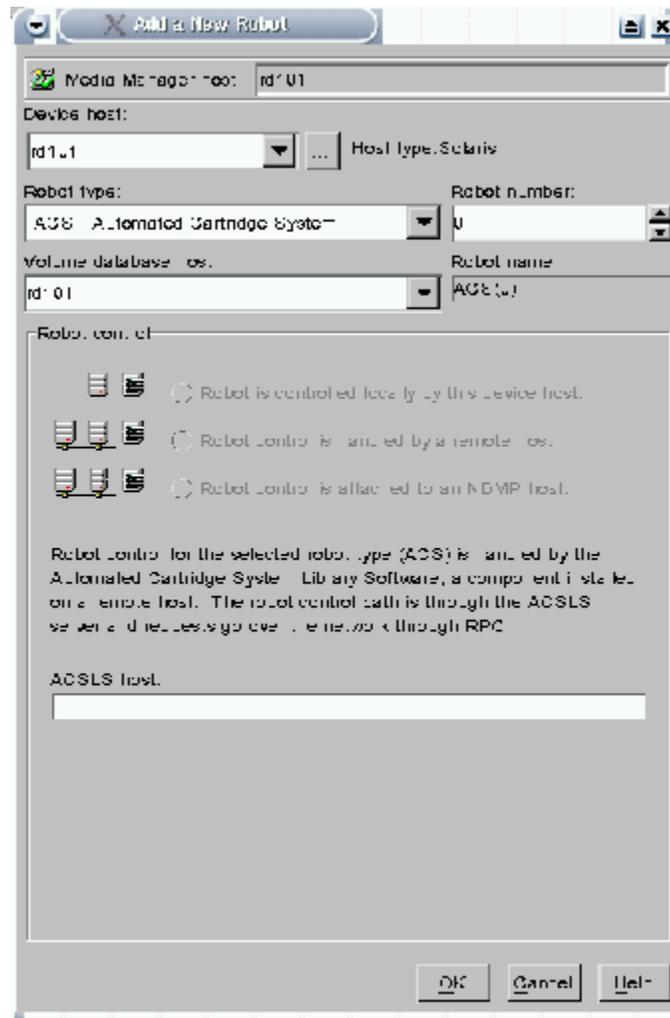


Figure 3 Add a New Robot Pop-Up Window

2. Enter the appropriate data in the following fields:

- ❖ **Robot Type:** Select the information for the robot you plan to use for backup storage from the drop-down menu.
- ❖ **Device Host:** Enter the host name of NetBackup system or server (this is not the Mirapoint appliance's host name). This should already be filled in by default.
- ❖ **Volume Database Host:** Enter the name of the NetBackup host that controls the volume database (this is not the Mirapoint appliance). This should already be filled in by default.
- ❖ **Robot Number:** Enter a number that you assign to this device, which does not conflict with a robot already created on the client.
- ❖ **Robot Control:** Select **Robot control is attached to an NDMP host**.

3. Locate and click on the  button immediately adjacent to the **Robot Device** text box.
  - a. Enter the address of the robot in the **Robotic Device File** field (for example /dev/ch0).
  - b. Click **OK**.
  - c. Enter the host name of the server or system where the robot is attached in the **NDMP Host Name** field. The NDMP host name must match the name entered when setting up authentication (see [Authorizing Access to the NDMP Server](#) on page 5).
4. Click **OK**.



If the Administration Console displays an error message, the **Robot Number** may need to be changed.

## Adding a Tape Device to the Tape Library

Next you add a tape device to the tape library you created in [Adding a Robot \(Tape Library\)](#) on page 8.

From the **Device > Robots** window, highlight the robot created previously, then do the following:

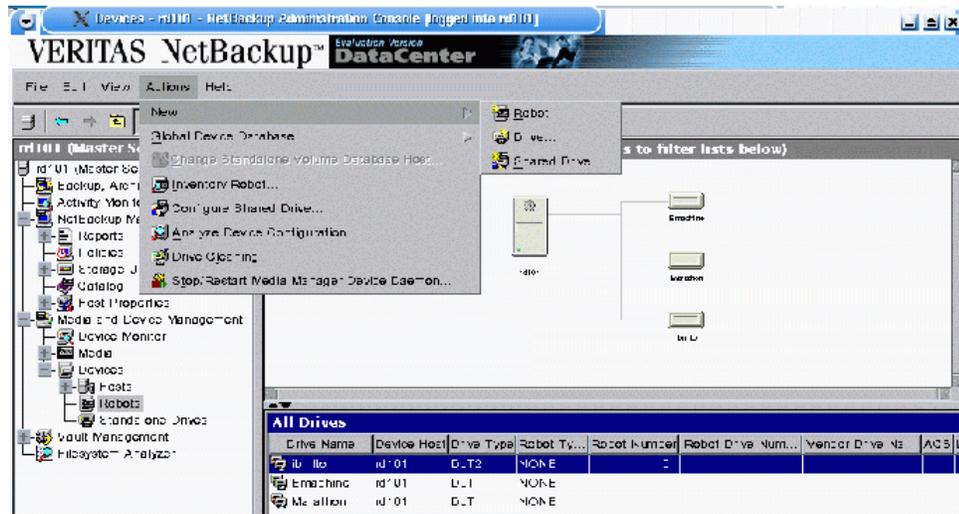


Figure 4 Adding a New Drive Using the Top Tool Bar

1. Select **Actions > New > Drive** from the top menu bar. The **Add a New Drive** window displays.

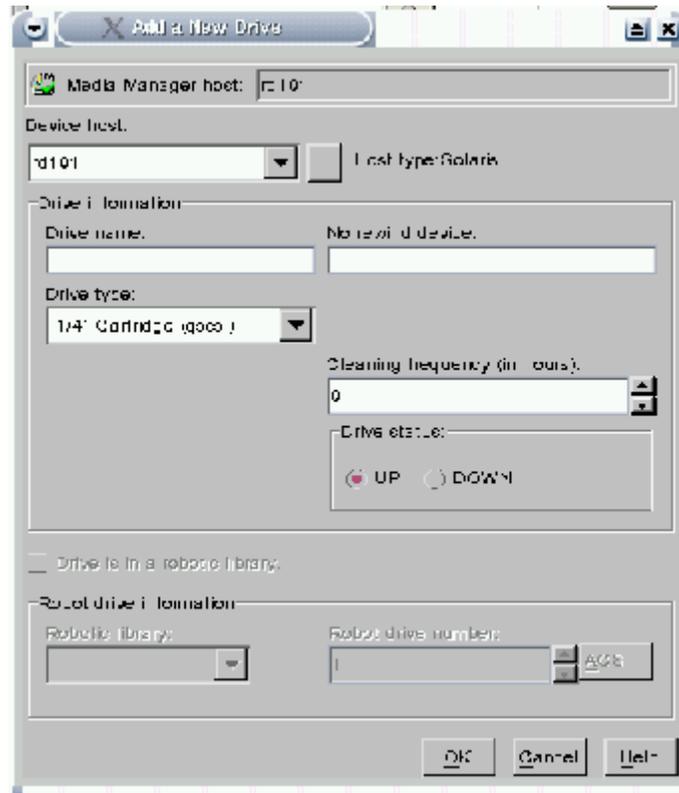


Figure 5 Add a New Device Pop-Up Window

2. Enter the appropriate data in the following fields:

- ❖ **Device Host:** Type the host name of the NetBackup server you are working with.
  - ❖ **Drive Name:** Type an informative name of your choosing, for example dlt7000.
  - ❖ **No Rewind Device:** Type the host name for the server where the tape device is attached, followed by a colon, and the name of the tape device. The host name is the same host name entered when you set up authentication (see [Authorizing Access to the NDMP Server](#) on page 5). For example: *hostname:/dev/mrsa0*.
  - ❖ **Drive Type:** Select the appropriate drive type from the drop-down menu.
3. Click **Drive is in a Robotic Library**.
  4. Click **OK**.

## Creating the Storage Unit

After adding the tape library (robot) and the tape devices to that robot, you create the storage unit.

A **storage unit** is the set of drives in a robot, or consists of one or more single tape drives that connects to the same host.

From the Main Menu, under **NetBackup Management**, highlight and right-click on **Storage Units**, then do the following:

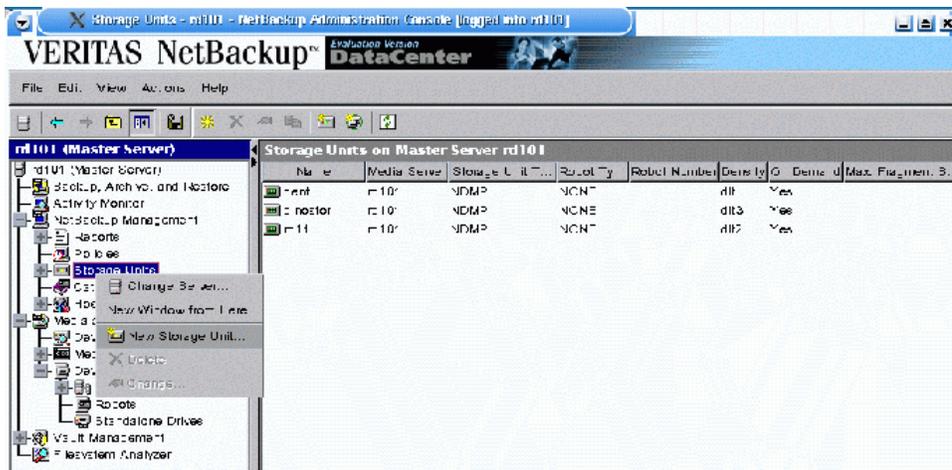


Figure 6 Adding a New Storage Unit Using the Navigation Menu

1. Select **New Storage Unit**. The **Add a New Storage Unit** popup window displays.

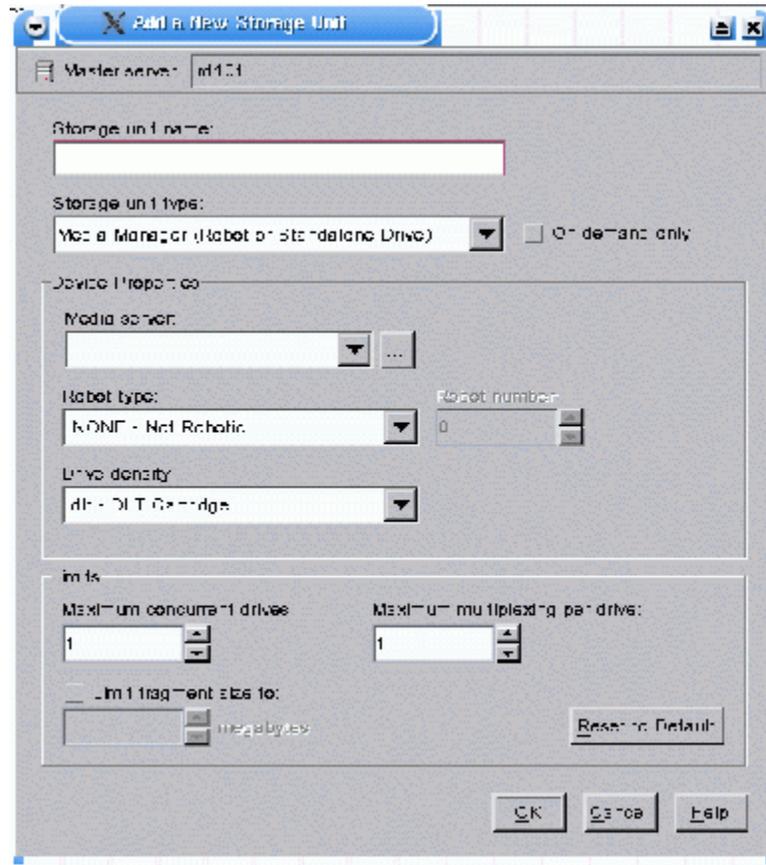


Figure 7 Add a New Storage Unit Pop-Up Window

2. Enter the appropriate data in the following fields:
  - ❖ **Storage Unit Name:** Enter a descriptive name of your choosing for a virtual storage unit within the NetBackup client.
  - ❖ **Storage Unit Type:** Select NDMP.
  - ❖ **Media Server:** Enter the host name for the media server. This is the NetBackup server.
  - ❖ **NDMP Host:** Enter the host name of the Mirapoint appliance.
  - ❖ **Robot Type:** Enter the type of device to be used for backup storage.
  - ❖ **Robot Number:** Enter the same number assigned when the robot was created (see [Adding a Robot \(Tape Library\)](#) on page 8).
  - ❖ **Drive Density:** Enter the appropriate information for your tape drive device.
  - ❖ **Limits: Maximum concurrent drives:** Leave the entry set to 1.
3. Click on **On Demand Only** to select the option.
4. Click on **OK**.

## Creating a Class or Policy

A **policy** defines the backup characteristics for a group of one or more clients that have similar backup requirements.

From the Main Menu under the **NetBackup Management**, select **Policies > Edit > New**.

The **Add a New Policy** popup window displays.

Do the following:

1. Type the policy name of your choosing in the dialog box.



Figure 8 Add a New Policy Pop-Up Window

2. Click **OK**. The **Change Policy** pop-up window displays for the new policy you just created. Do the following:

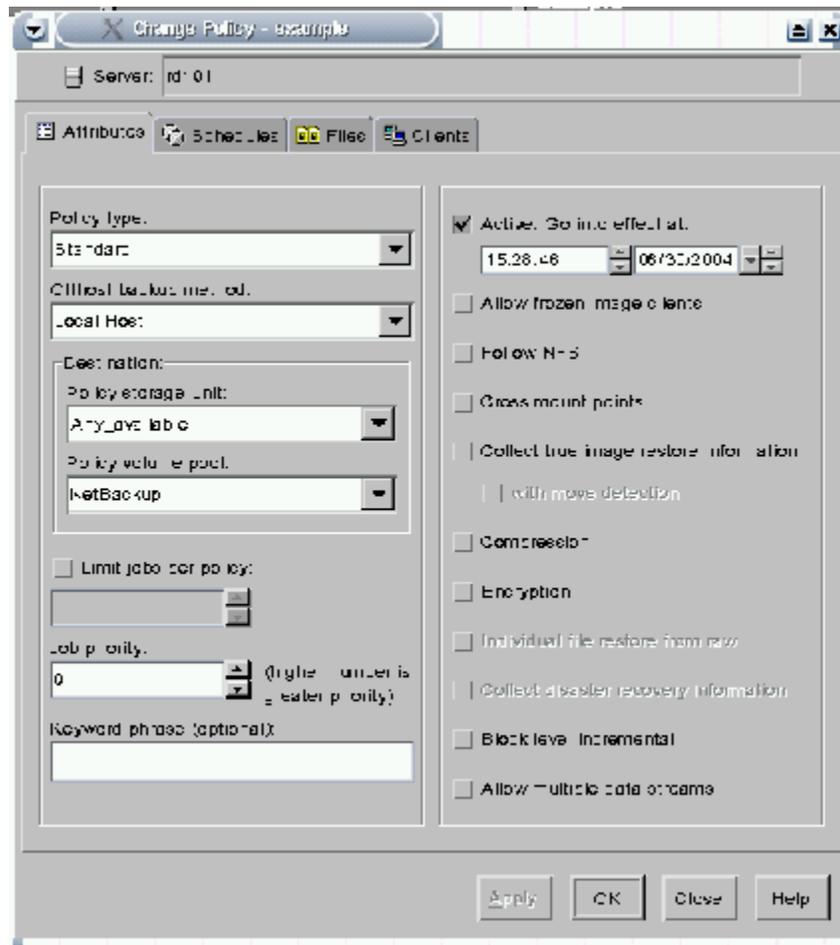


Figure 9 Change Policy Pop-Up Window (Attribute Tab Shown)

- a. On the **Attributes** tab, locate **Policy type**, then from the drop-down menu select **NDMP**.
- b. Locate **Policy Storage Unit:** in the **Destination:** pane of the pop-up window. From the drop-down menu, select the storage unit you created in [Creating the Storage Unit](#) on page 12.
- c. Locate **Policy volume pool:** in the **Destination:** pane of the pop-up window. From the drop-down menu, select **NetBackup**.

## Adding File Directives

From the **Change Policy** pop-up window, select the **Files** tab. The following directives should be displayed:

```
Set HIST=y
Set TYPE=image
/usr/store
```

If no directives are displayed on the **Files** list, follow the instructions in [Adding Directives to the Files List](#) on page 16.

If only the `/usr/store` entry is on the list, follow the instructions in [Inserting Directives in Existing Policy Files List](#) on page 17 to add the other required directives.

If any of the specified directives or pathname appear on the list, but have values other than those specified, follow the instructions in [Changing a Directive or Pathname](#) on page 17.

### Adding Directives to the Files List

All directives for a given pathname must appear before that pathname on the list if they are to be correctly applied. Therefore, the `set HIST=` and `TYPE=` directives must appear on the list before the `/usr/store` pathname. The `set HIST=` directive must precede the `set TYPE=` directive.

To add directives or the pathname, do the following:

1. Click the **New** button on the **Change Policy Files** tab.  
The **Add Files - Policy Management** pop-up window displays.

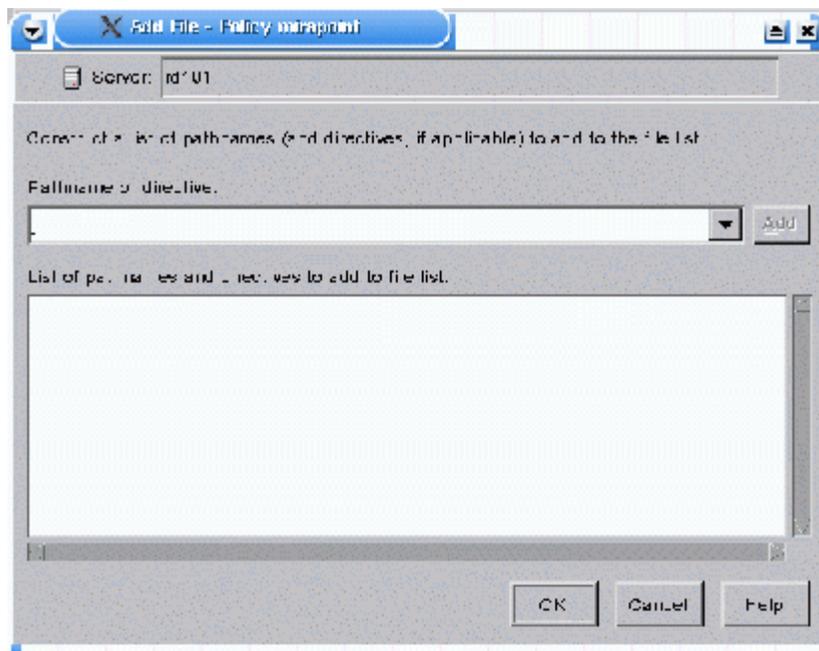


Figure 10 Add Files Pop-Up Window

2. Type `set HIST=y` in the **Pathname or directive** text box.
3. Click **Add**.
4. Type `set TYPE=image` in the **Pathname or directive** text box.
5. Click **Add**.
6. Type the pathname `/usr/store` in the **Pathname or directive** text box.
7. Click **Add**.
8. Click **OK**.

The **Add Backup Selection** pop-up window closes, and the **Change Policy Backup Selections** tab should now displays the policy directives in the correct order.

### Inserting Directives in Existing Policy Files List

If your policy file settings includes the **TYPE=** directive and the **/usr/store** pathname, but not the **HIST=** directive, you must add it to the list.

Remember, all directives for a given pathname must appear before that pathname on the list if they are to be correctly applied. Therefore, the **set HIST=** and **TYPE=** directives must appear on the list before the **/usr/store** pathname.

From the **Change Policy Directory Selections** tab, do the following:

1. Highlight the **TYPE=** entry on the **Directory Selection List**.
2. Click the **Insert** button. The **Insert File** pop-up window displays.

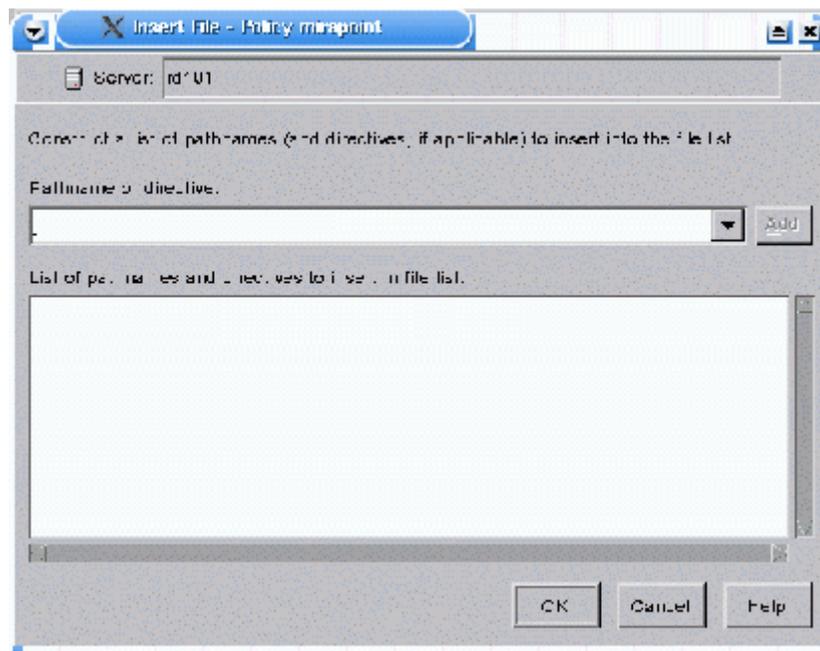


Figure 11 Insert Files Pop-Up Window

3. Type **set HIST=y** in the **Pathname or directive** text box.
4. Click **Add**.
5. Click **OK**.

The pop-up window closes, and the display reflects the changes.

### Changing a Directive or Pathname

If the history directive appear on the **Pathname or Directive List**, but has values other than what is specified in this document, you must change it.

Do the following:

1. Highlight the **HIST=** entry on the **Pathname or Directive List**.
2. Click the **Change** button. The **Change Directory Selection** pop-up window displays.

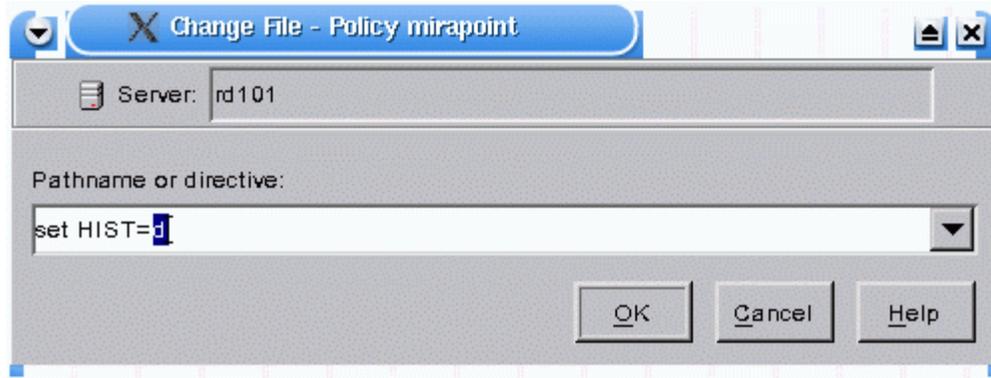


Figure 12 Change Files Pop-Up Window

3. Type correct value for the directive you selected in the **Pathname of directive** text box. For example:

Set HIST=y

4. Click **OK**.

The pop-up window closes.

## Defining a Schedule

**Schedules** control when backups occur. Additionally, it defines various aspects of the back up (full, incremental) and how long NetBackup retains the image.

From the **Change Policy** pop-up window, select the **Schedule** tab, then do the following:

1. Click **New**. The **Add Schedule** pop-up window displays. On the **Attributes** tab, do the following:

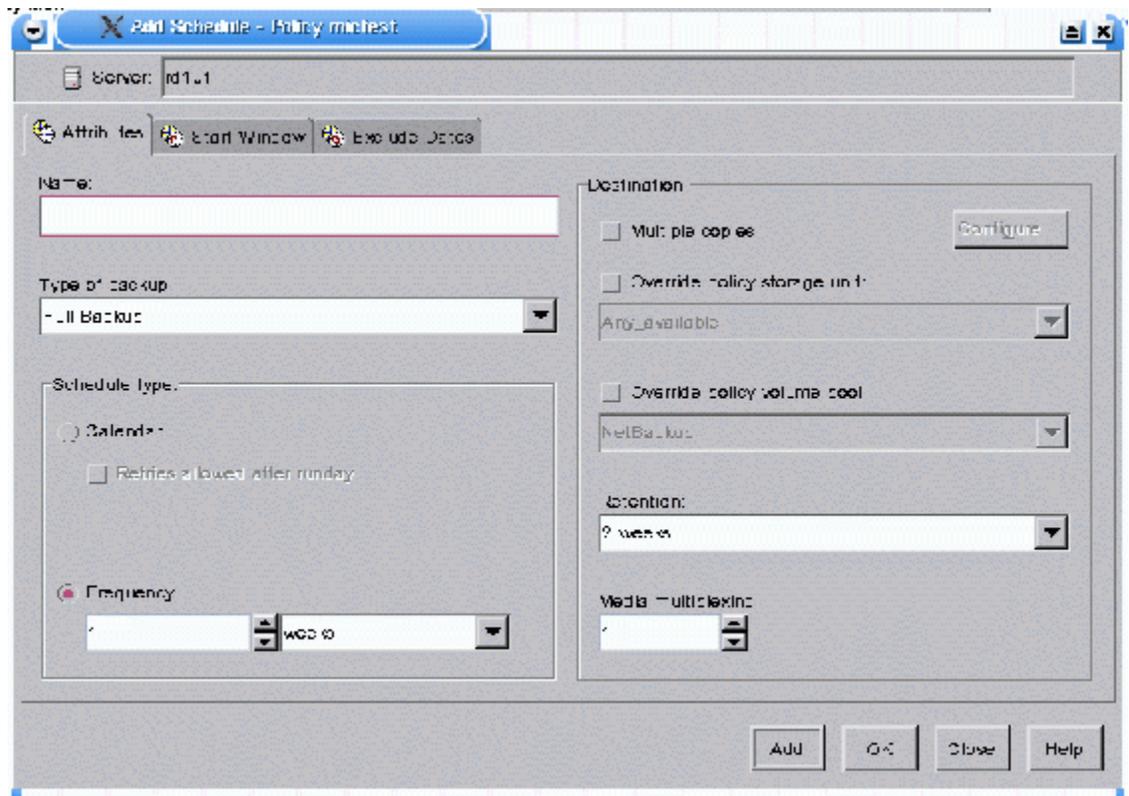


Figure 13 Add Schedule Pop-Up Window

- a. Type a name for the new schedule in the **Name** text box.
  - b. Use the **Type of backup** drop-down menu to specify the backup
  - c. Define any remaining attributes desired for this schedule.
2. Select the **Start Window** tab, and define the start and end times for this schedule.
  3. Select the **Exclude Dates** tab, and define any dates to exclude that match your requirements for this schedule.

## Adding a Client Name

A **client** is the system or appliance with the files to be backed up, archived, or restored.

From the **Change Policy** pop-up window, select the **Clients** tab, then do the following:

1. Select **New**. The **Add Client - Policy** pop-up window displays.

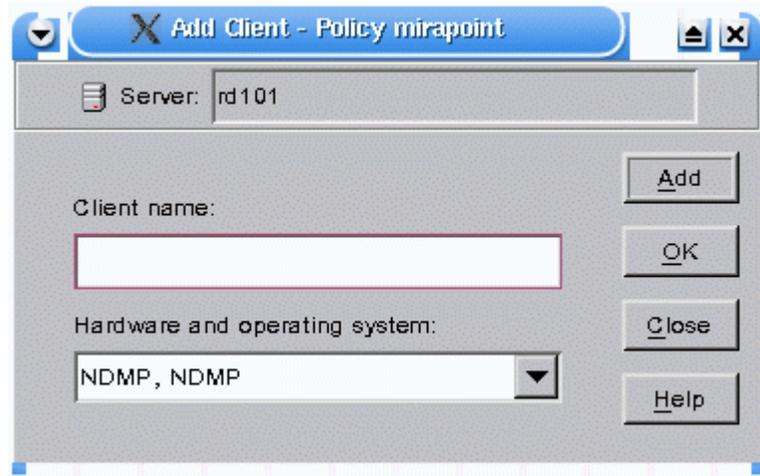


Figure 14 Add Client - Policy Pop-Up Window

2. Type the hostname of the appliance being backed-up in the **Client name** field.
3. Under **Hardware and operating system** select **NDMP, NDMP** from the drop-down menu.
4. Click **OK**.

Before running a backup, you must make sure tape volumes are available. Volume procedures are beyond the scope of this document. Consult the manuals provided by Veritas for more information on defining and managing data volumes.

## Testing Your NDMP Backup Configuration

After completing your NDMP backup configuration, test your settings by running a manual backup.

From the **Policies** window, select the policy you just created, then do the following:

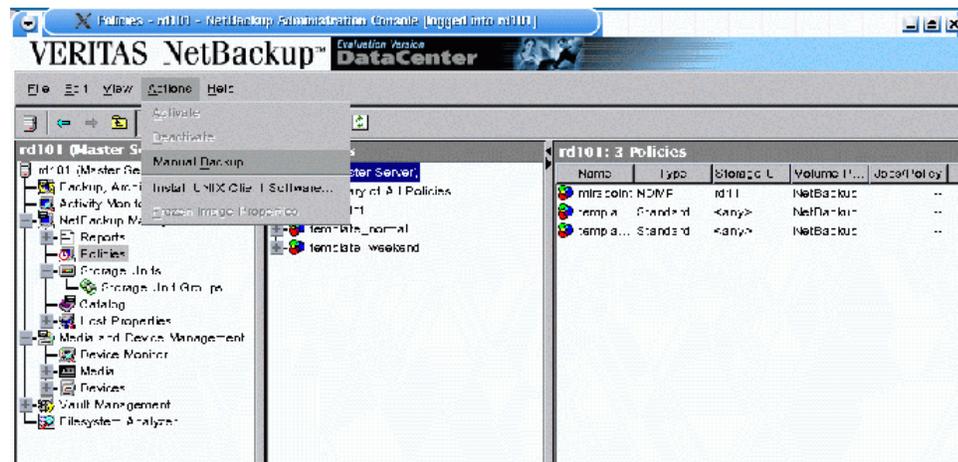


Figure 15 Using the Top Tool Bar to Start a Manual Backup

1. Select **Actions > Manual Backup** from the top tool bar. The **Manual Backup** pop-up window displays.

You can also right-click on the desired policy, then select **Manual Backup**. The **Manual Backup** pop-up window displays.

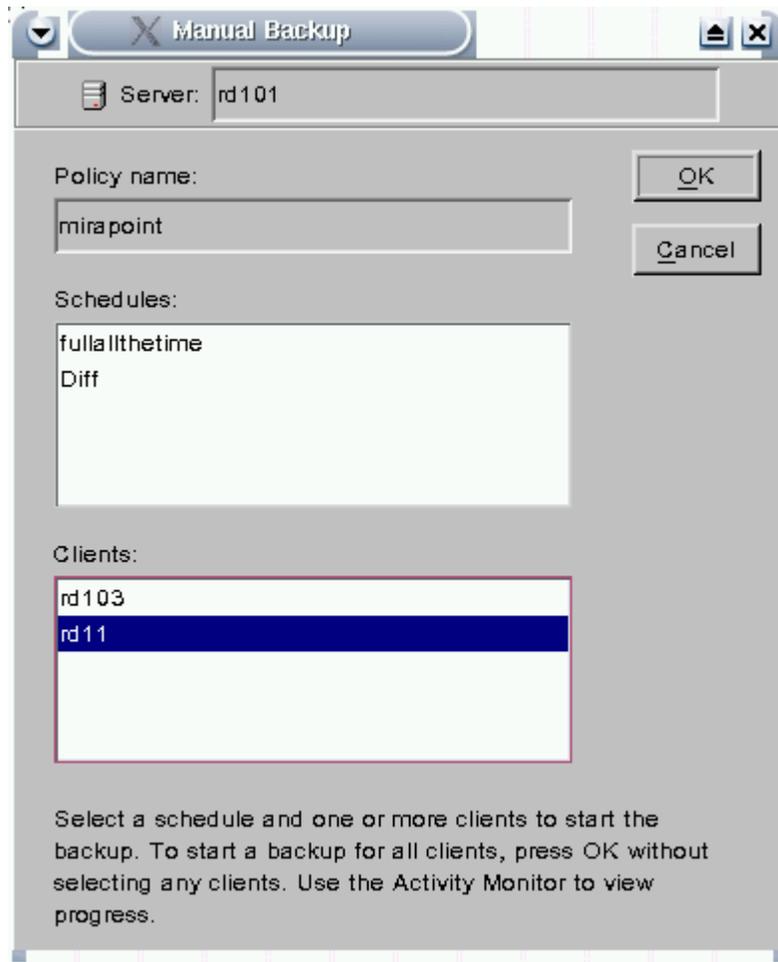


Figure 16 Manual Backup Pop-Up Window

2. Verify the settings in the **Manual Backup** pop-up window. The **Policy Name** text box should be the name of policy you selected at the beginning of this procedure. If not, click **Cancel** to return to the **Policies** screen, then select the appropriate policy.

If the policy name in the **Policy Name** text box is correct, but either the **Schedules** or **Clients** fields are incorrect, then you did not complete your configuration correctly. Return to [Completing the DMA NDMP Backup Configuration](#) on page 7 and make the necessary corrections.

3. Select the Mirapoint appliance you want to manually backup from the **Clients** list.
4. Select a schedule. If multiple schedules are on the **Schedules** list, select any you want to use for this manual backup. If you opt to not highlight a schedule, the backup will reflect all.
5. Click **OK** to start the manual backup.

If all values in the pop-up window are correct, then click **OK** to start the manual backup.