Application Note

November 2013

Configuring a NEO Tape Library using Symantec NetBackup on Solaris 10 Environment

Summary

This Application Note describes how to configure a NEO tape library on Oracle Solaris 10 with Symantec NetBackup 7.5. Upon successful completion of these procedures, the reader will have a general understanding on how to configure the NEO tape library using NetBackup and how to create a backup and restore job with the NEO library.

Prerequisites

Prior to performing this procedure, ensure that you have the following:

- This document assumes the reader is familiar with the SUN/Oracle Solaris 10 and Symantec NetBackup 7.5 environment. Any and all additional information can be attained through *Symantec NetBackup's Device Configuration Guide* and SUN/Oracle Solaris Administration documentation. This document also assumes the NEO tape library has already been installed and configured, for more information about basic configuration with the tape library, please reference the User Guide that came with it.
- This document also assumes the NEO tape library has already been installed and configured. For more information about basic configuration of the tape library, please reference the User Guide that came with it.

Additional Information

The steps provided in this guide reference an Overland Storage fibre channel NEO E-series library (NEO 4000e fw 2.1.026) with an IBM LTO-5 tape drive. Note also that we have documented some examples of a NEO 2000e and NEO 200s with IBM LTO-6 tape drives. This document can be used as a reference to all NEO Series libraries with HP or IBM tape drives

Versions

The test environments used for illustration in this document are as follows:

- NEO 2000e/4000e (FC) fw 2.01.026 / IBM LTO-6 FH fw D2DE
- NEO 200s (FC) fw C10/3.20e / IBM LTO-6 HH fw D2DB
- Symantec NetBackup 7.5
- Oracle Solaris Server version 10
- SUN/Oracle SG-XPCI1FC-QF4 (Qlogic) Fibre Channel HBA

Solaris Device Configuration and Discovery

NetBackup provides its own SCSI pass-through driver to communicate with SCSI-controlled robotic peripherals. This driver is called the SCSA (generic SCSI pass-through driver), also referred to as the ***sg driver***. The following steps describe how to configure and create the sg device drivers.

1. Depending on which library you have (NEO E-series or NEO S-series), use the one of the following steps to find the fibre channel WWPN for the devices.
   - For **NEO E-series** libraries, verify the WWN information of the library using the Web Management Interface by selecting **Status (tab) > Tape Drive > Full Drive Status**.

     Make note of the **World Wide Port 0 Name** for each of the tape drives in the library.

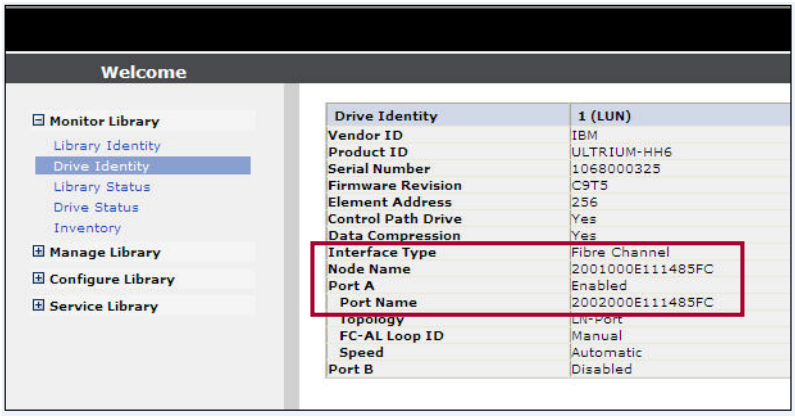
Drive 1 Status (Complete)	
Drive Identification	
Drive Type	IBM LTO5 fibre channel
Serial Number	1068045777
Vendor ID	IBM
Product ID	ULTRIUM-TD5
Revision Level	BBN2
Firmware Version	
World Wide Node Name	50:05:07:63:12:4A:6D:54
World Wide Port 0 Name	50:05:07:63:12:4A:6D:55
Port 0 Current Topology	Loop
Drive Status	
Media Status	Not Present
Cleaning Status	None
Error Condition	No

1 drive was detected in the library
Refresh the drive status display

Refresh status

- For the **NEO S-series** libraries, verify the WWN information of the library using the Web Management Interface by selecting **Monitor Library > Drive Identity**.

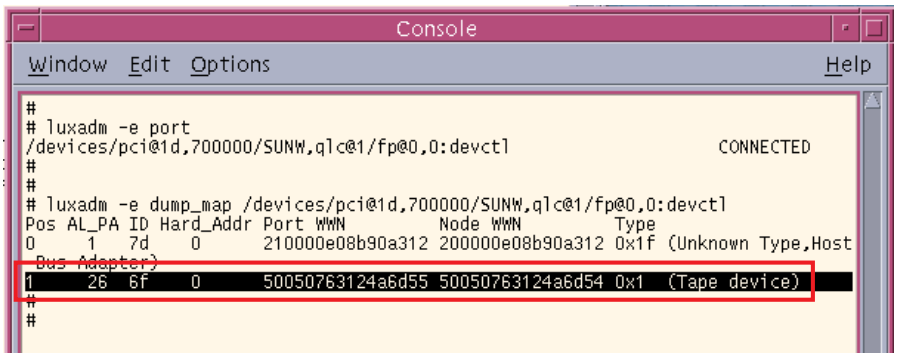
  Make note of the **Port Name** for **Port A** for each of the tape drives in the NEO-S tape library.



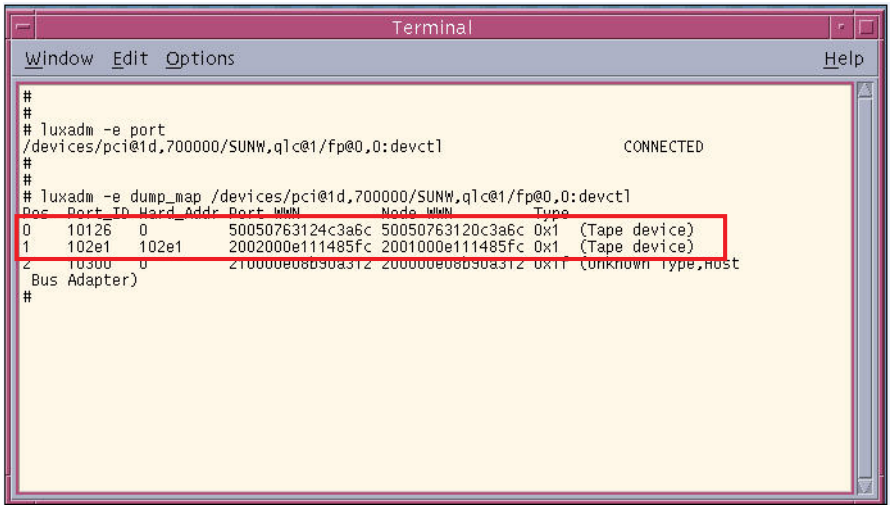
2. Type the following Solaris **commands** to display the devices:

```
luxadm –e port
luxadmin –e dump_map <device path>
```

Example of a NEO 4000e:



Example of a NEO 2000e and NEO 200s:



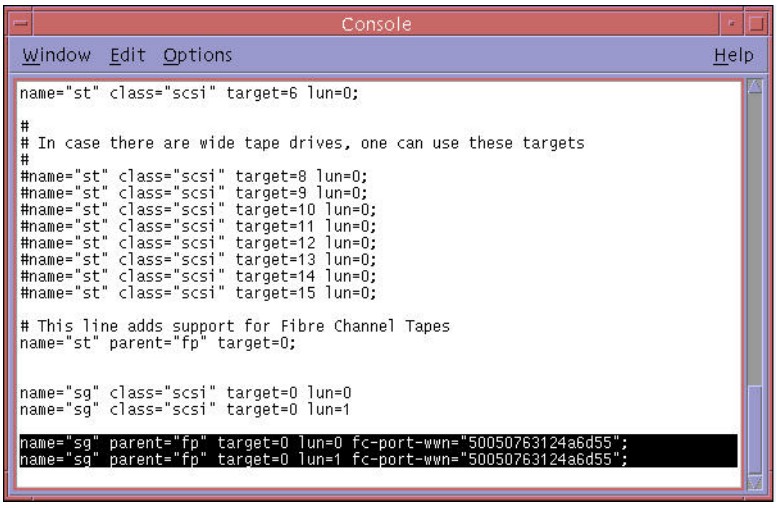
3. Type the following commands.:

```
cd /opt/open/volmgr/bin
./sg.build all –mt 1 –ml 1
```

The **–mt target** option and argument specify the maximum target ID that is bound to an FCP HBA. The **–ml lun** option and argument specify the maximum number of LUNs that are in use by an FCP HBA.

4. While modifying the **/kernel/drv/st.conf** is optional, if the fibre channel HBA in the Solaris host is older, adding the entries into the **st.conf** may be needed. Add each and all tape devices in the NEO tape library and then save the file when finished. Refer to Step 1 to find the WWPN information. Use this command:

```
name="sg" parent="fp" target=0 lun0 fc-port-wwn="wwn_port_addr_of_device";
```



5. Reboot the Solaris server with the **reconfigure** option:

   `reboot - - rv`

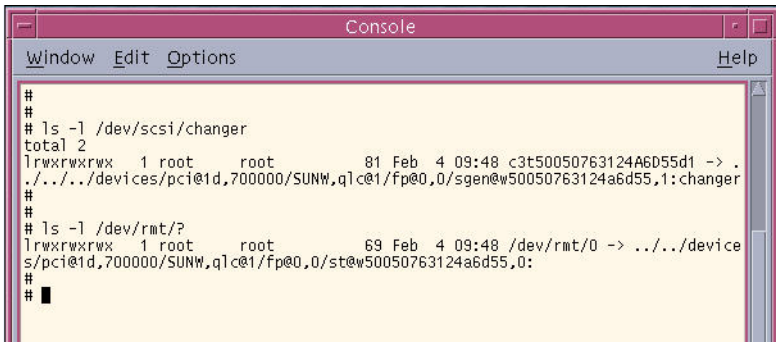
6. Stop the NetBackup **services** once the server is up:

   `/etc/init.d/netbackup stop`

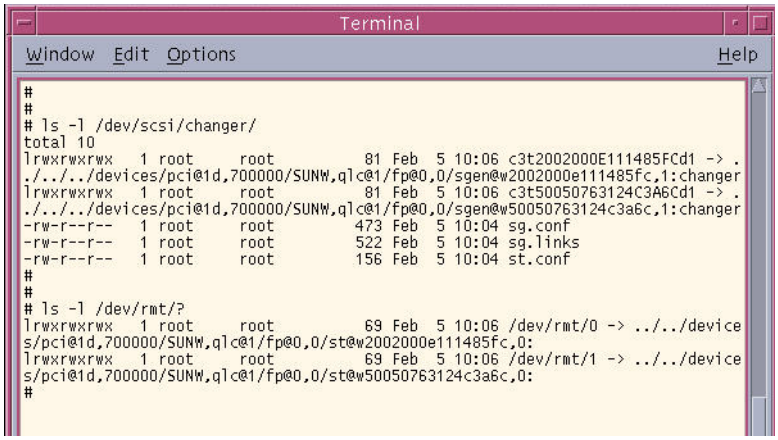
7. Verify **all devices** are discovered natively through Solaris:

   `ls –l /dev/scsi/changer`
   `ls –l /dev/rmt/?`

   Example of a NEO 4000e with an IBM LTO-5 full-height fibre tape drive:



   Example of a NEO 2000e and a NEO 200s with IBM LTO-6 fibre tape drives

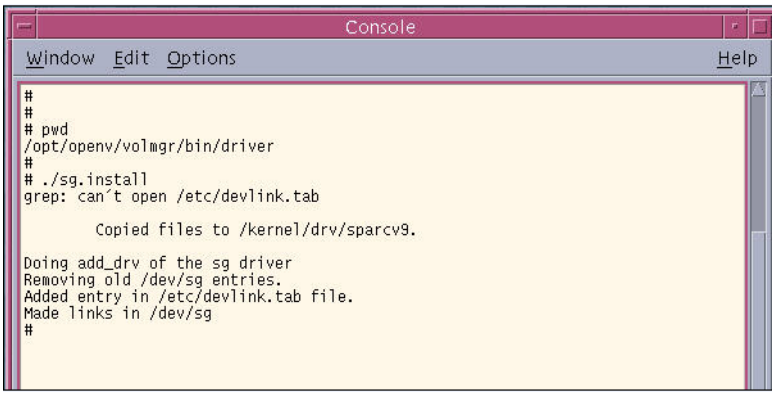


8. Use the following command to delete the **sg.conf** file:

```
rm –f /kernel/drv/sg.conf
```

9. Use the following command to install the NetBackup sg drivers:

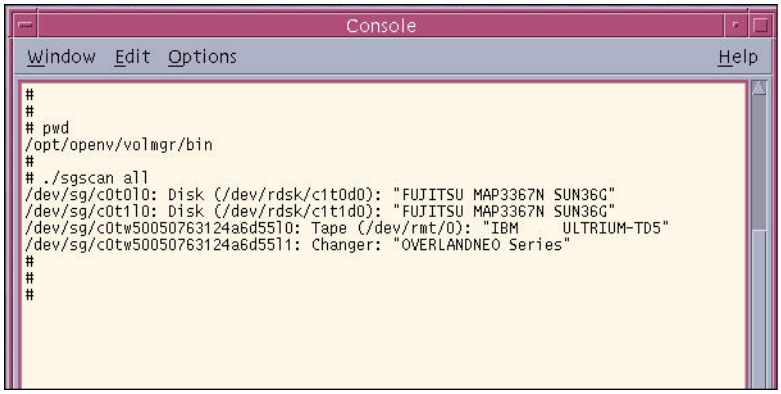
```
cd /opt/openv/volmgr/bin/driver
./sg.install
```



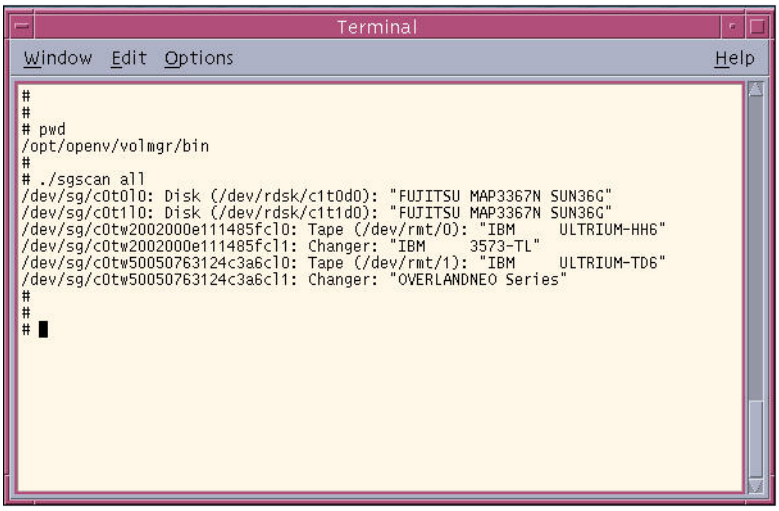
10. Verify if all devices are discovered using the NetBackup **sgscan** utility:

```
cd /opt/openv/volmgr/bin
./sgscan all
```

Example of a NEO 4000e with an IBM LTO-5 full-height fibre tape drive:



Example of a NEO 2000e and a NEO 200s with IBM LTO-6 fibre tape drives:



NetBackup Device Configuration

The following procedures can be used to configure the NEO library within the NetBackup Administration Console. The steps describe how to use the NetBackup Device Configuration Wizard to discover the tape library and create the Storage Unit dedicated to the library.

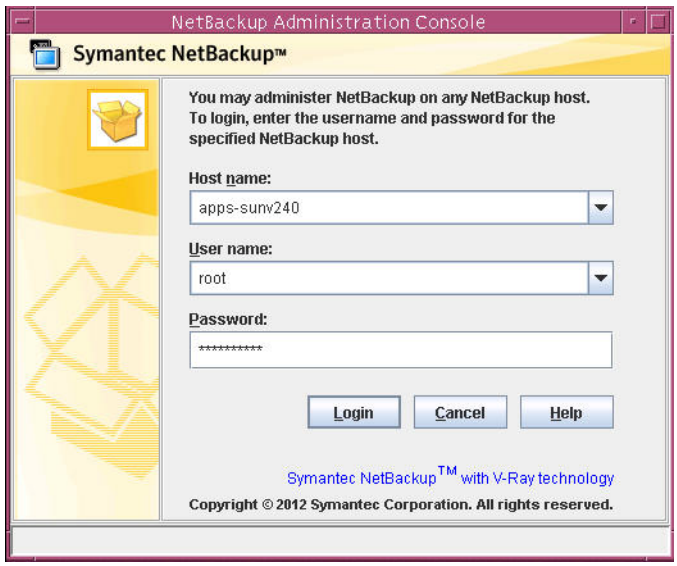
1. Use the following **command** to start the NetBackup services:

   `/etc/init.d/netbackup start`

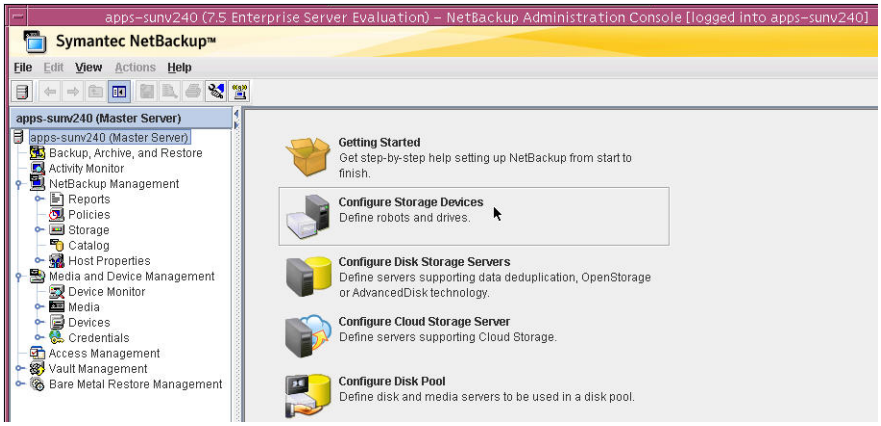
2. Use the following command to launch NetBackup **Administration Console GUI**:

   `cd /opt/openv/netbackup/bin`
   `./jnbSA &`

3. Enter the **credentials** to login to the Administration Console.

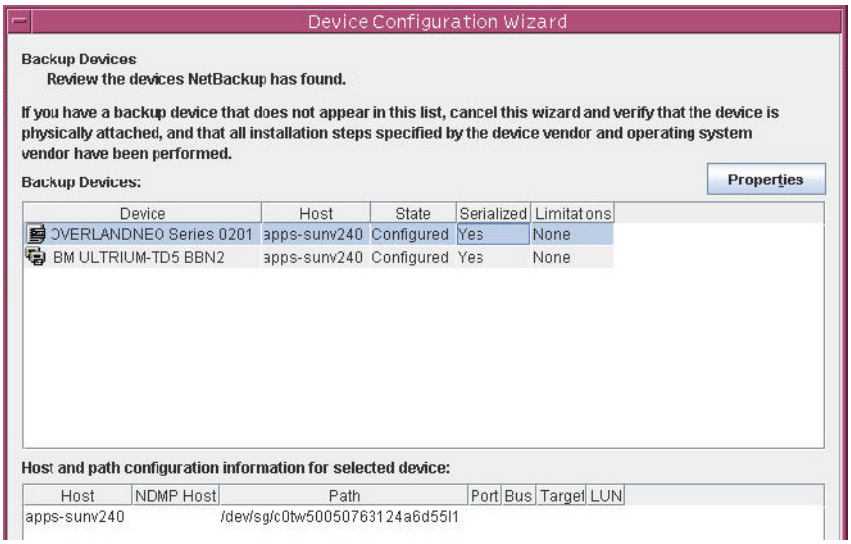


4. Click the NetBackup Server and select **Configure Storage Devices**.

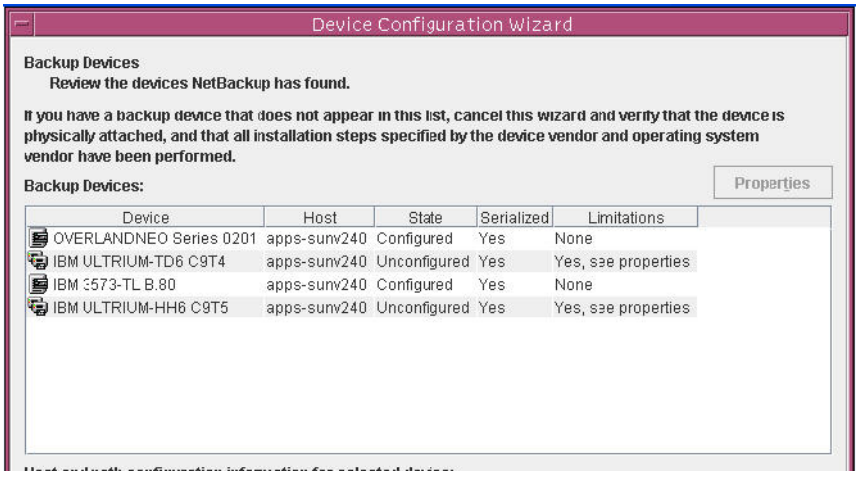


5. Click **Next** twice to complete the NetBackup Device Configuration Wizard.

Example of a NEO 4000e with an IBM LTO-5 full-height fibre tape drive discovered:

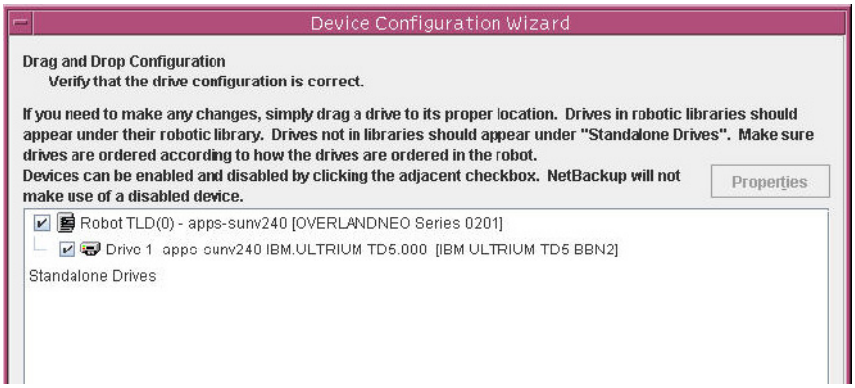


Example of a NEO 2000e and a NEO 200s with IBM LTO-6 fibre tape drives discovered:



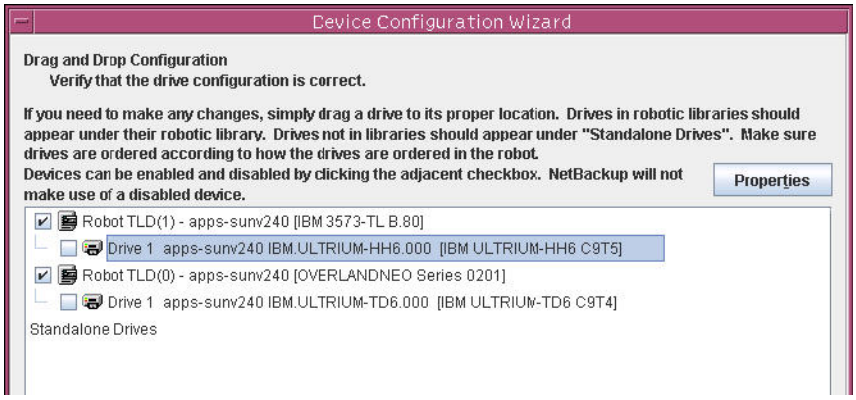
6. Enable both devices and click **Next**.

Example of a NEO 4000e with an IBM LTO-5 full-height fibre tape drive:

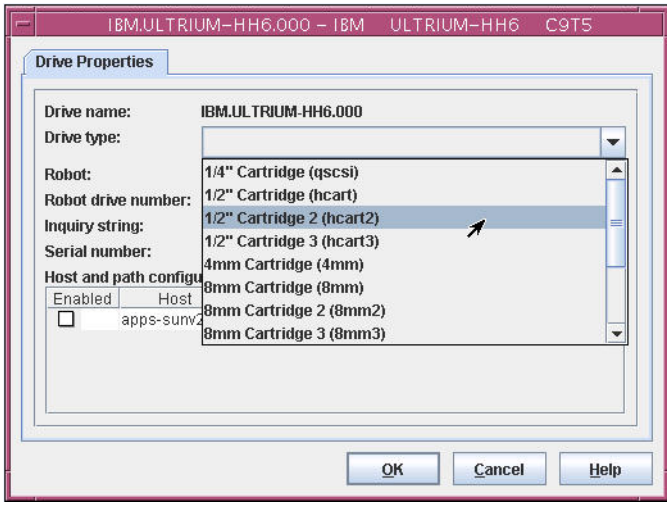


Example of a NEO 2000e and a NEO 200s with IBM LTO-6 fibre tape drives:

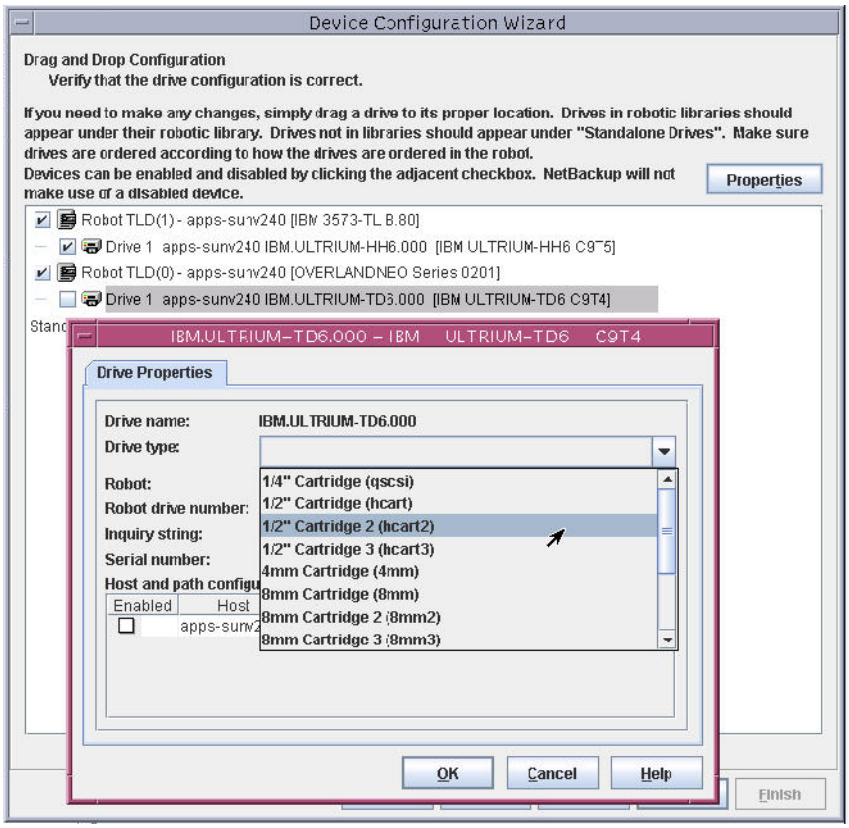
NOTE: In documenting the procedures, IBM LTO-6 with NetBackup 7.5 requires additional configuration. y default, the tape drives are not enabled until the Drive Type is selected.



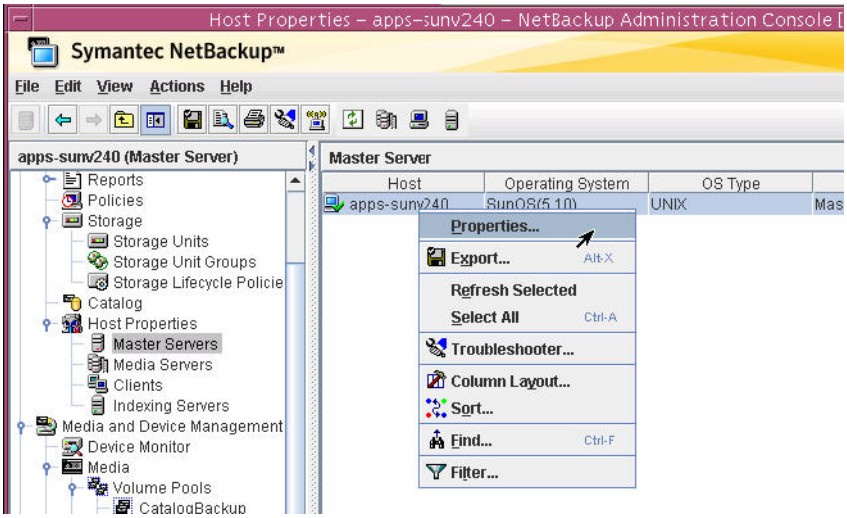
The example here is the setting for a NEO 200s with IBM LTO-6 HH (half-height) tape drives. You must select **1/2" Cartridge 2 (hcart2)**.



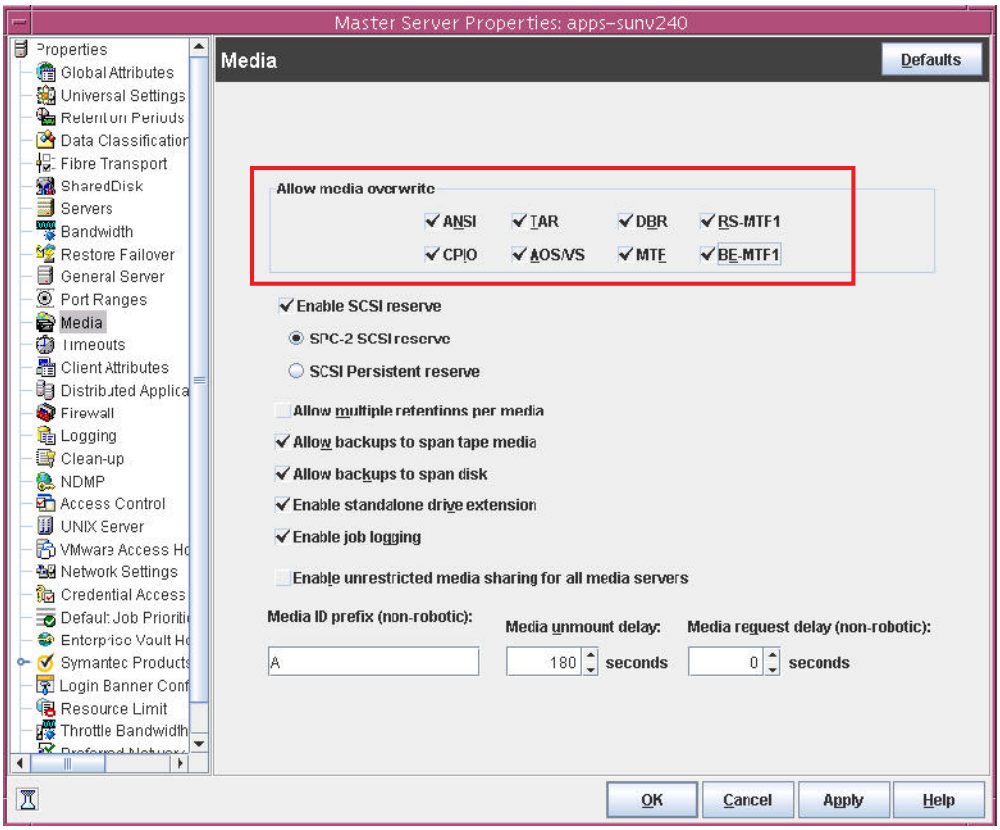
The example here is the setting for a NEO 2000e with IBM LTO-6 TD (full-height) tape drives. You must select **1/2" Cartridge 2 (hcart2)**.



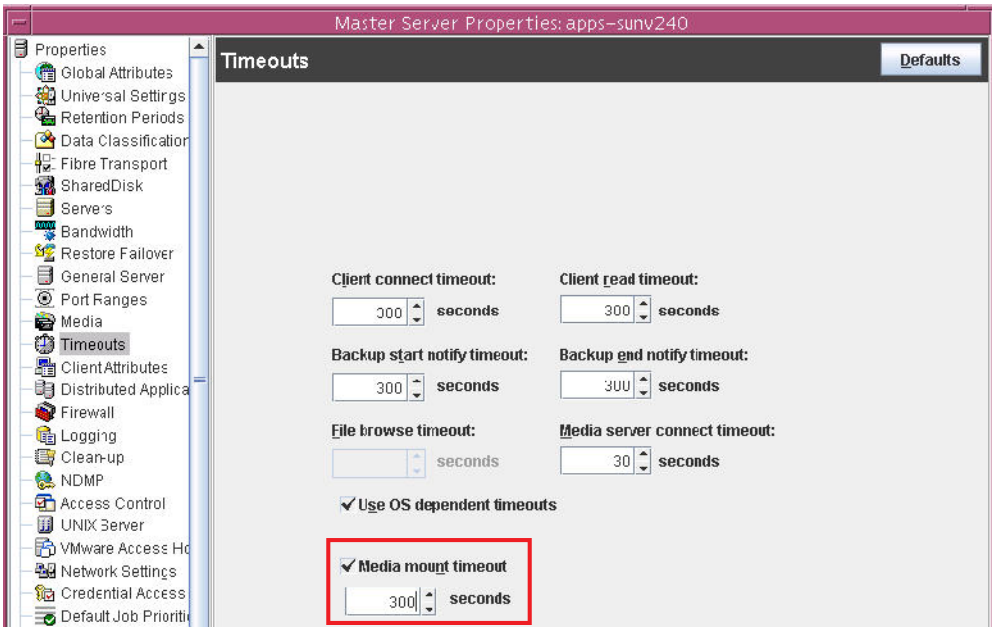
7. Click **Next** to continue to configure the Storage Unit.
8. Click **Finish** to complete the NetBackup Device Configuration Wizard.
9. Modify the **host properties**, use the following steps:
   a. Select **Host Properties > Master Servers**.
   b. Right-click the NetBackup **Master Server** in the list and select **Properties**.



c. Click **Media** option in the **Properties** list and enable **all options** found under **Allow Media Overwrite**.



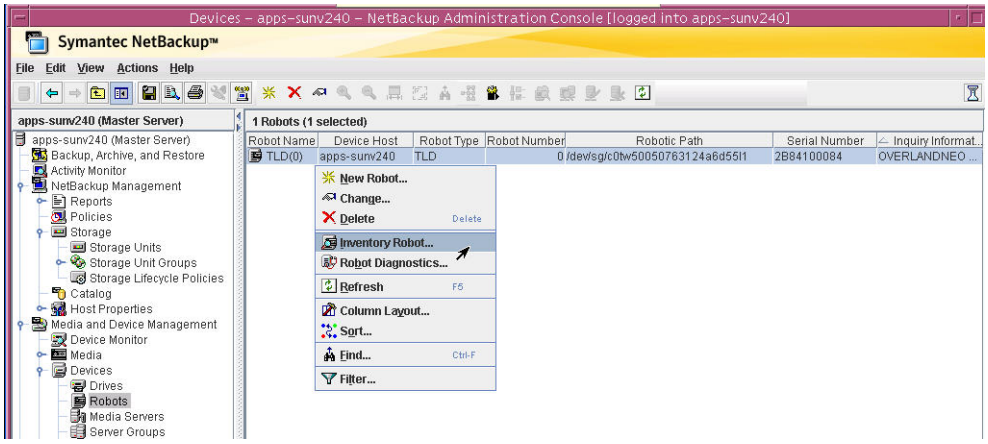
d. Click **Timeouts** option in the **Properties** list, enable the Media Mount Timeout, and enter 300 seconds for the value.



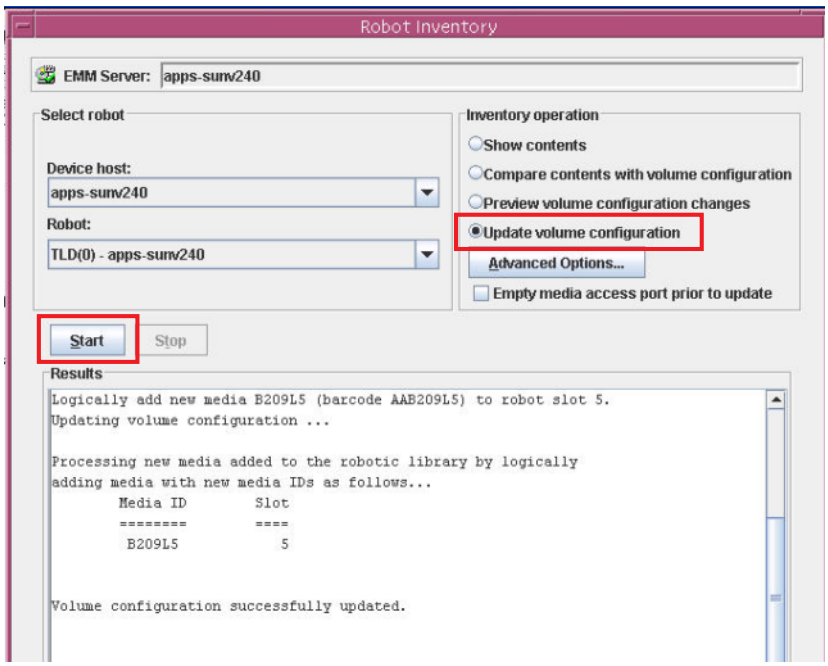
e. Click **Apply** and then click **OK**.

The NetBackup services must be restarted in order for the changes to take place.

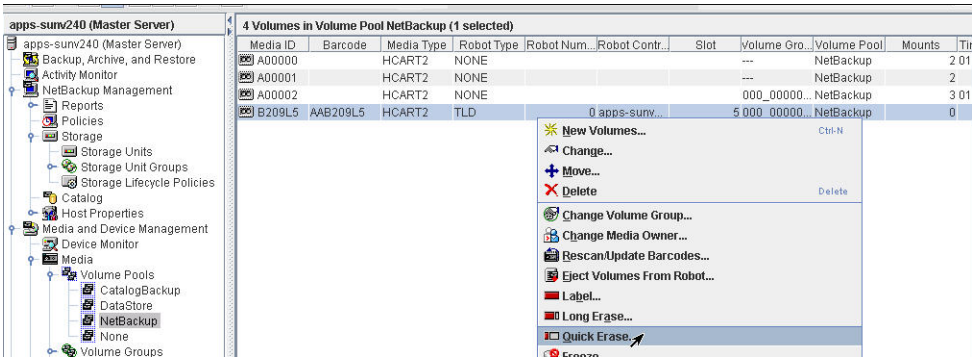
10. **Inventory** the tape library:
    a. Select **Media and Device Management > Robots**.
    b. Right-click the **Robot** name.
    c. Select **Inventory Robot**.



    d. Select **Update Volume Configuration** and then click **Start**.

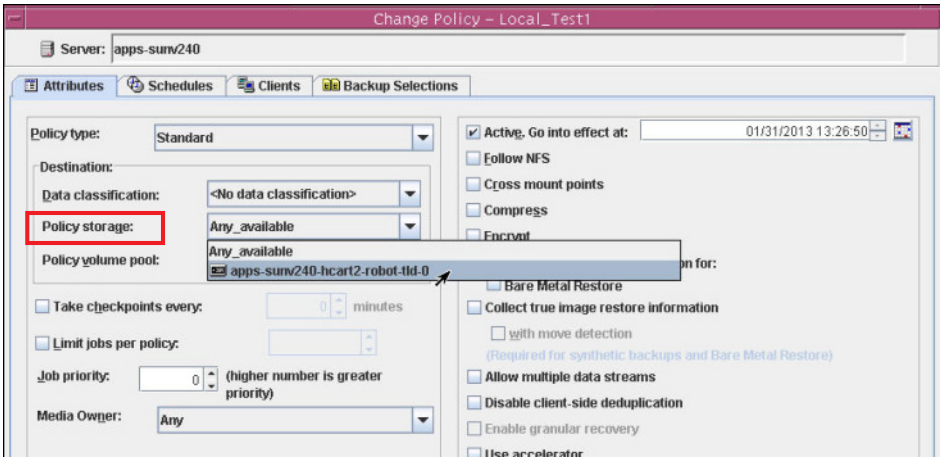


11. Erase all **Medias** in the NEO library for backup and restore use:
    a. Select **Media and Device Management > Media > Volume Pools > NetBackup**.
    b. Right-click all **medias** found in the library.
    c. Select **Quick Erase**.

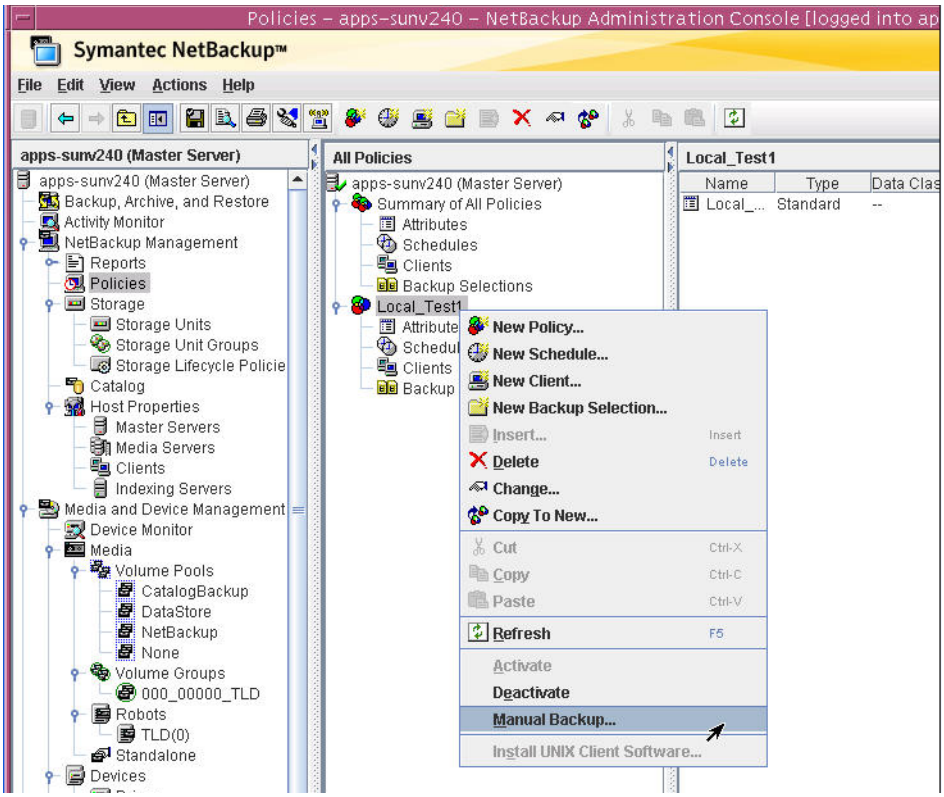


Creating a Backup Job

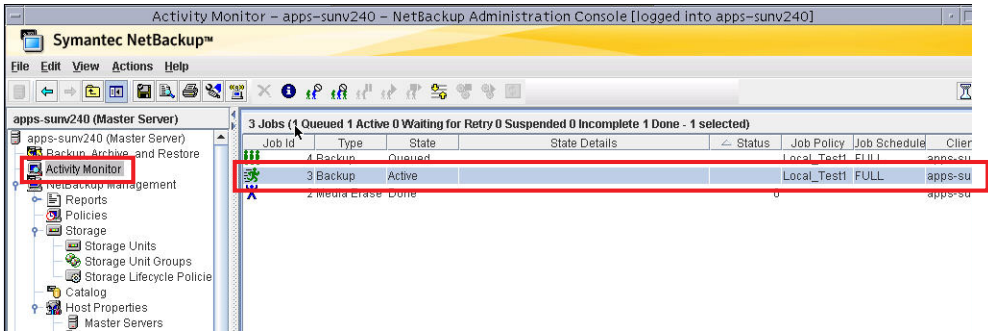
1. Modify an existing or create a new **backup job**.
    a. Select the **Attributes** tab.
    b. From the drop-down on Policy Storage, select the Overland robot **storage unit**.



2. Start a **Manual Backup** of the backup policy:
   a. Select **NetBackup Management > Policies**.
   b. Right-click the policy name and choose **Manual Backup**.



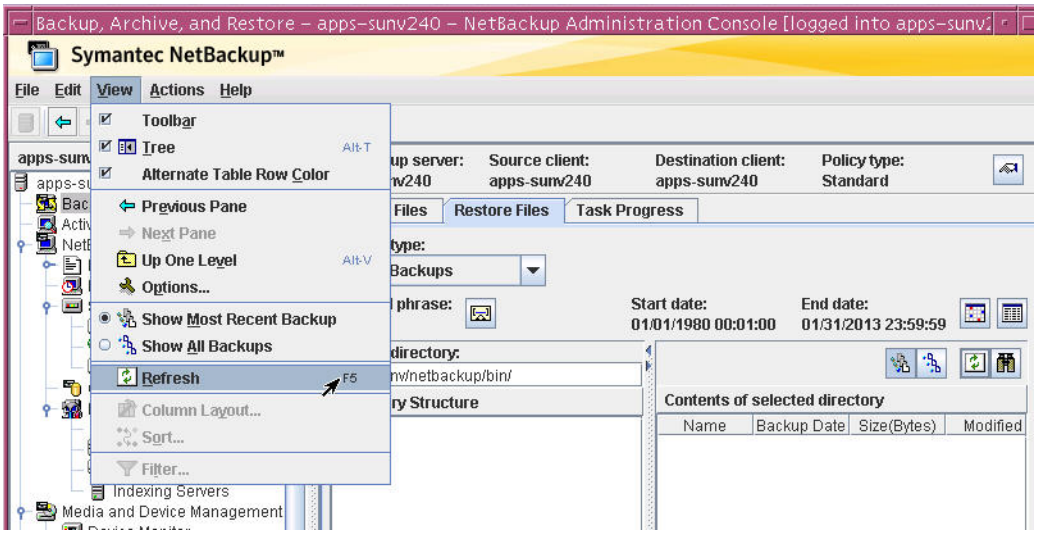
3. To view the active backup policy, click **Activity Monitor**.



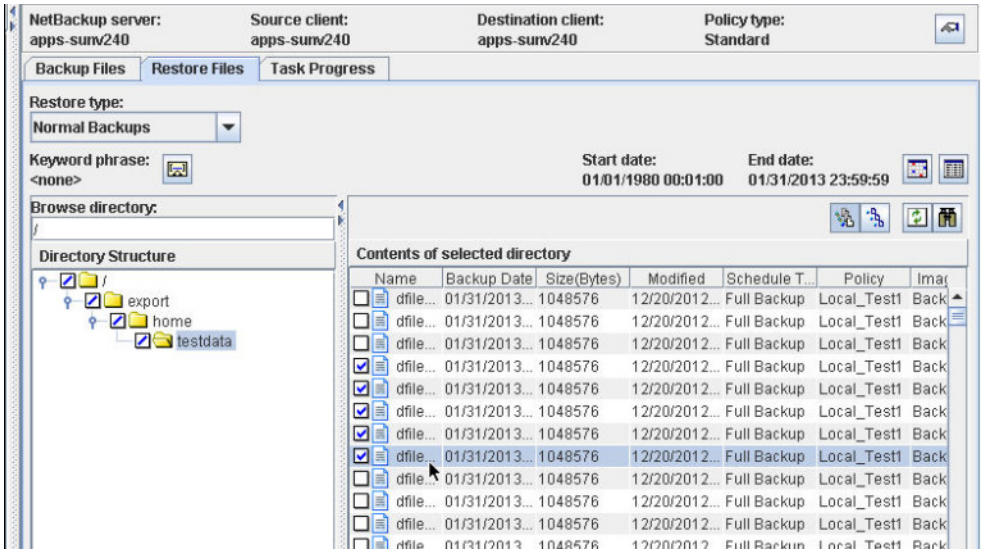
Creating a Restore Job

1. Select **Backup, Archive, and Restore**.

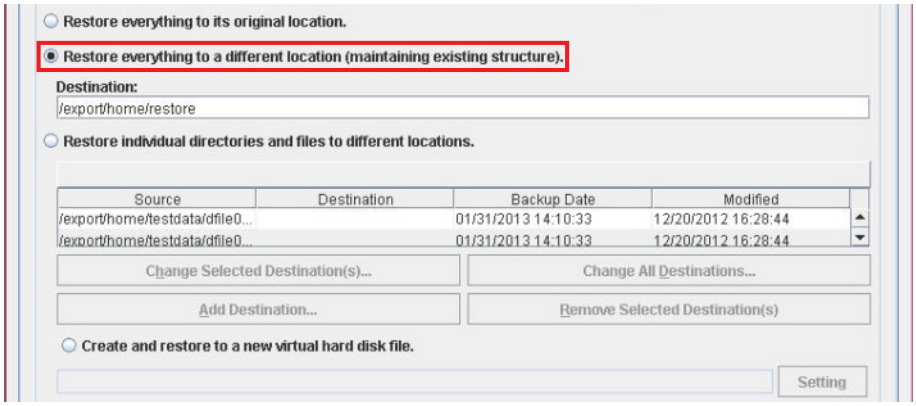
2. Choose **View > Refresh** (or press F5) to update the restore view.



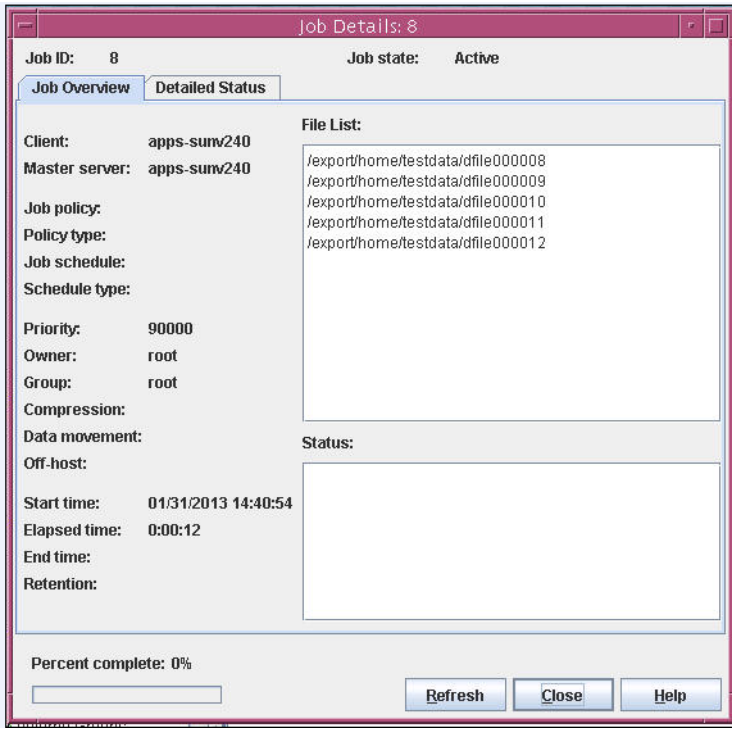
3. Select the **source** of the restore under **Restore Files** tab.



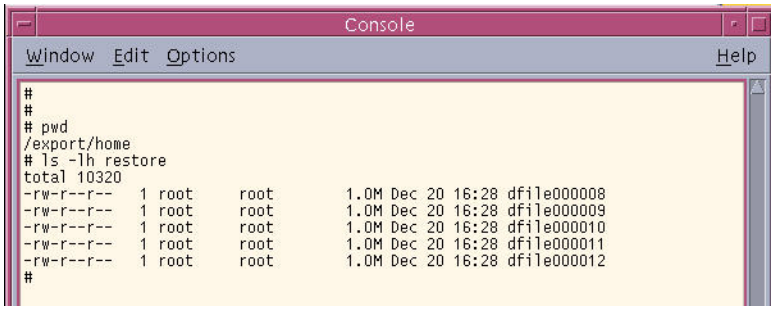
4. Select **Restore everything to a different location**, and click **Start Restore**.



Active restore details are displayed:



5. Verify the recovered files.



Additional Symantec NetBackup References

- Always verify that the current firmware is installed on your device. All Overland Storage firmware can be found at ftp.overlandstorage.com.
- Symantec NetBackup Device Configuration Guide (7.5): http://www.symantec.com/business/support/index?page=content&id=DOC5186
- Symantec NetBackup requires performance configuration files created in order to get the best performance possible with tape devices. http://www.symantec.com/business/support/index?page=content&id=TECH1724
- The following files are used with Symantec NetBackup on Solaris. Understanding where the files are located can help during troubleshooting Symantec NetBackup on Solaris.
  - **devlink.tab** found in:

    `/etc/`

- **sg.conf** found in:

  ```
  /opt/openv/volmgr/bin/driver/
  /opt/openv/volmgr/bin/
  /kernel/drv
  /dev/sg
  ```

- **sg.links** found in:

  ```
  /opt/openv/volmgr/bin/driver/
  /opt/openv/volmgr/bin/
  /dev/sg
  ```