Setting Up the Dell™ DR Series System on Symantec NetBackup to Use Backup Acceleration

Dell Engineering
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A Dell Technical White Paper

Revisions

Date	Description
February 2014	Initial release
May 2014	Updated policy attributes instructions.

Table of contents

Executive summary

This paper provides information about how to set up the Dell DR Series system to run backup acceleration on NetBackup (NBU). This document is a quick reference guide and does not include all DR Series system deployment best practices.

For additional data management application (DMA) best practice whitepapers, see the DR Series system documentation at http://www.dell.com/support/Manuals/us/en/19/Product/powervault-dr4100.

Note: The DR Series system and NetBackup screenshots used in this document may vary slightly, depending on the DR Series system firmware version and NetBackup version used.

Terminology

- **Backup Accelerator:** Inline synthetic creation during backup.
- **Dedupe backup:** In this mode, deduplication is done on the client and then the deduplicated packets are sent to the DR Series system.
- **Optimized duplication:** Optimized duplication allows disk-based backups to be replicated between devices under NBU control. In other words, Optimized duplication enables deduplicated data to be copied directly from one OpenStorage (OST) device to another OST device from the same vendor.
- **Passthrough backup:** In this mode, deduplication is done on the DR Series system after data is transferred from the client.
- **RDA:** Rapid Data Access, which is Dell's proprietary technology for faster data access.
- **Synthetic backup:** A synthetic backup is identical to a regular full backup in terms of data, but it is created when data is collected from a previous, older full backup and assembled with subsequent incremental backups.

1 Install and configure the DR Series system

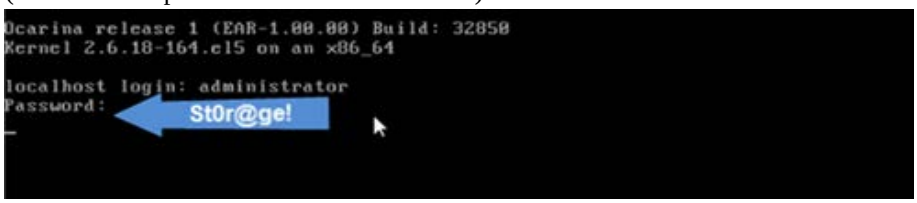
1. Rack and cable the DR Series system and power it on.

2. Initialize the DR Series system. Refer to the *Dell DR Series System Administrator Guide* under the following topics: “iDRAC Connection,” “Logging in and Initializing the DR Series System,” and “Accessing iDRAC6/iDRAC7 Using RACADM”.

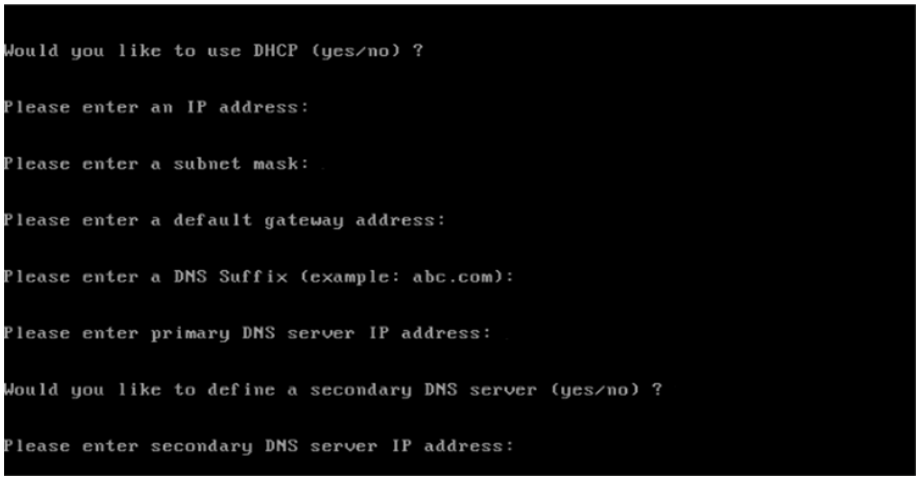
3. Log in to iDRAC using the default address **192.168.0.120**, or the IP that is assigned to the iDRAC interface. Use the user name and password of “**root/calvin**”.

4. Launch the virtual console.

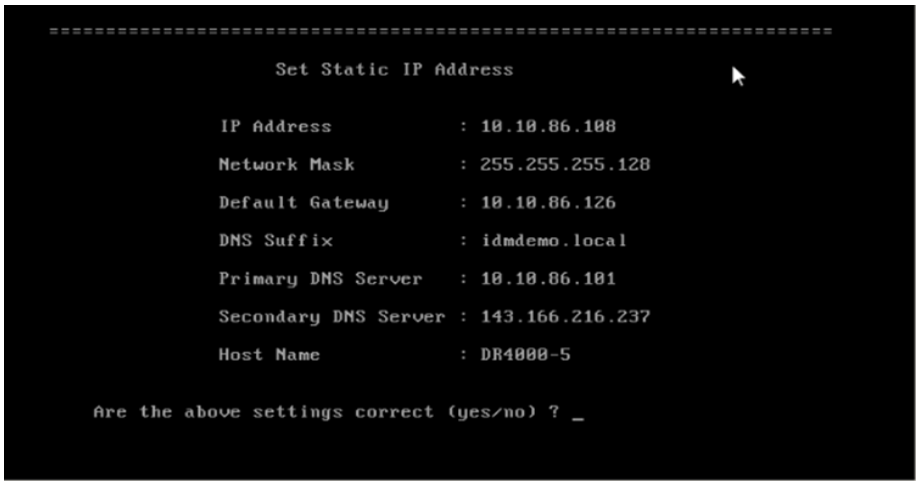
5. After the virtual console is open, log in to the system with the user **administrator** and the password **St0r@ge!** (the "0" in the password is the numeral zero).



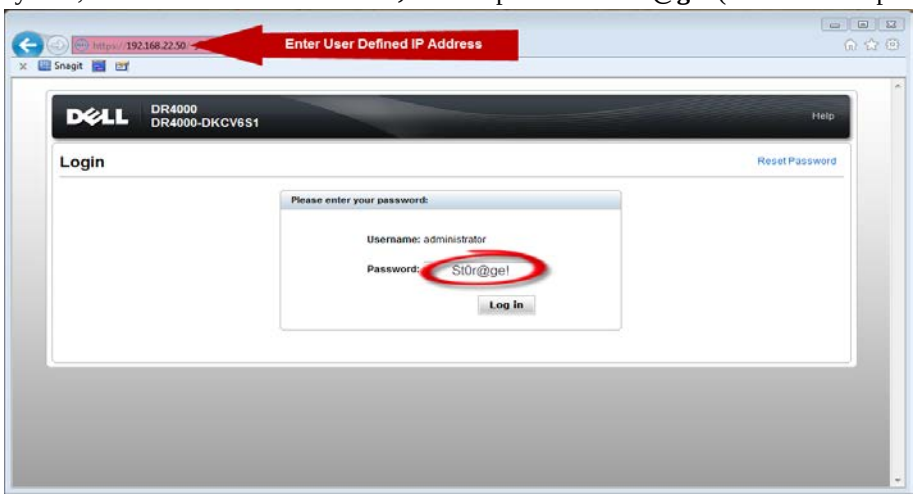
6. Set the user-defined networking preferences.



7. View the summary of preferences and confirm that it is correct.



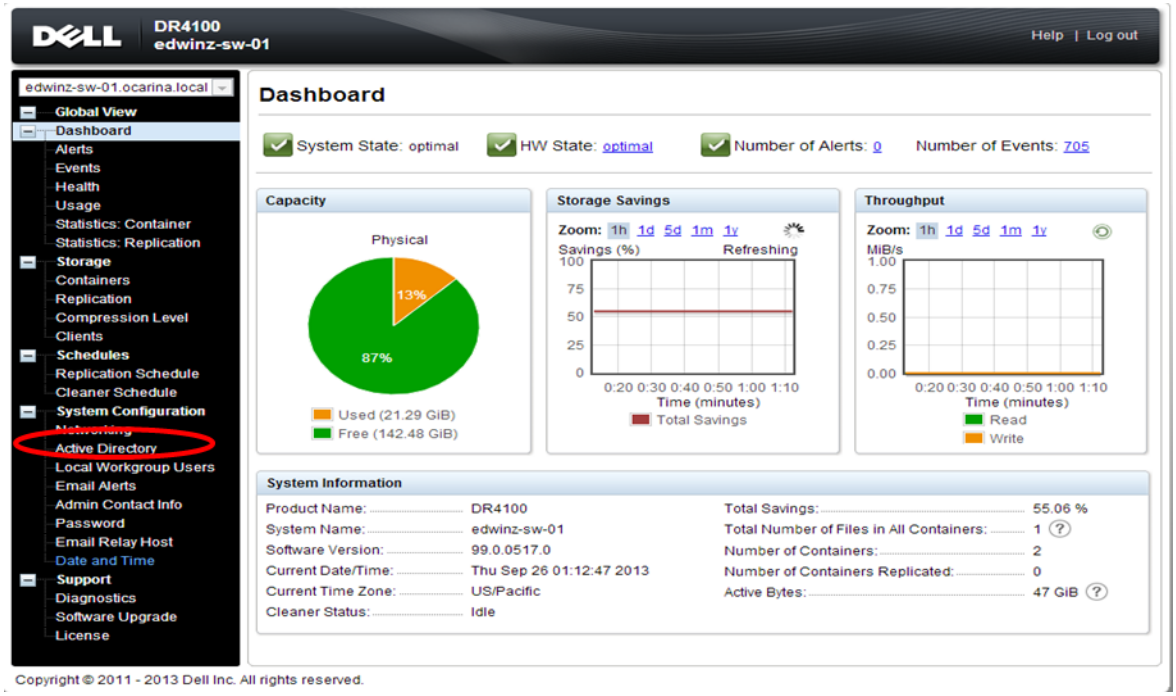
8. Log on to the DR Series system administrator console using the IP address you just provided for the DR Series system, the username **administrator,** and the password **St0r@ge!** (the "0" in the password is the numeral zero).



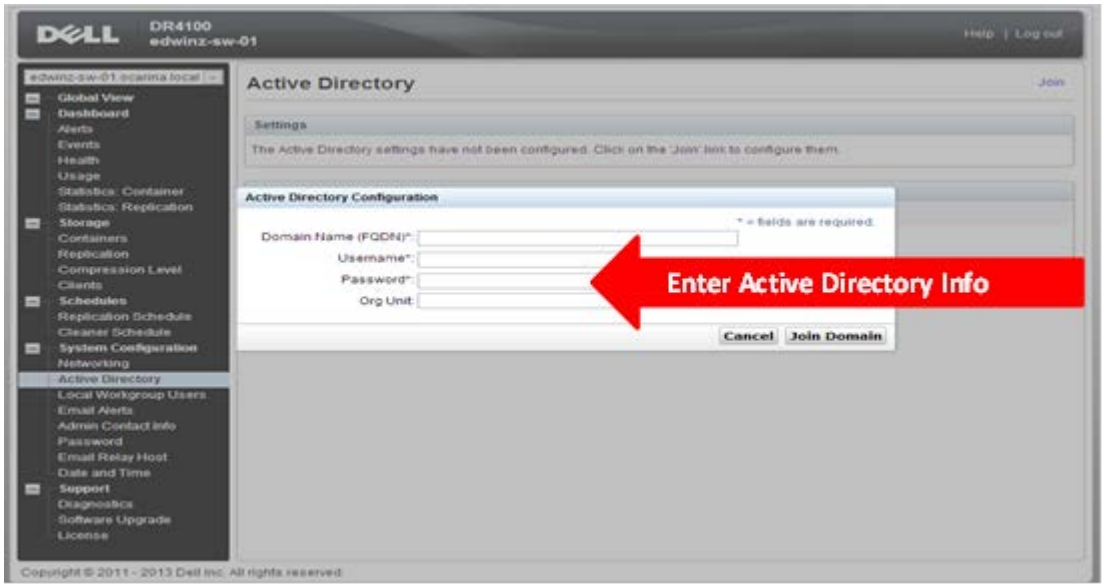
9. Join the DR Series system to Active Directory.

Note: If you do not want to add the DR Series system to Active Directory, see the *DR Series System Owner's Manual* for guest login instructions.

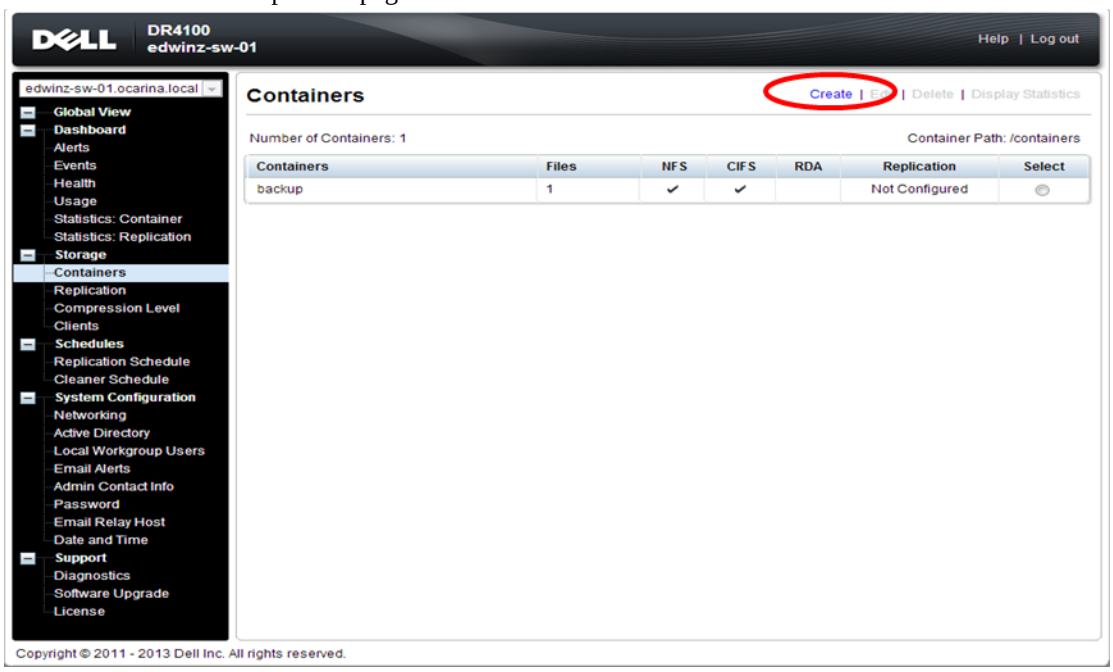
a. Select **Active Directory** from the navigation panel on the left side of the management interface (also known as the dashboard).



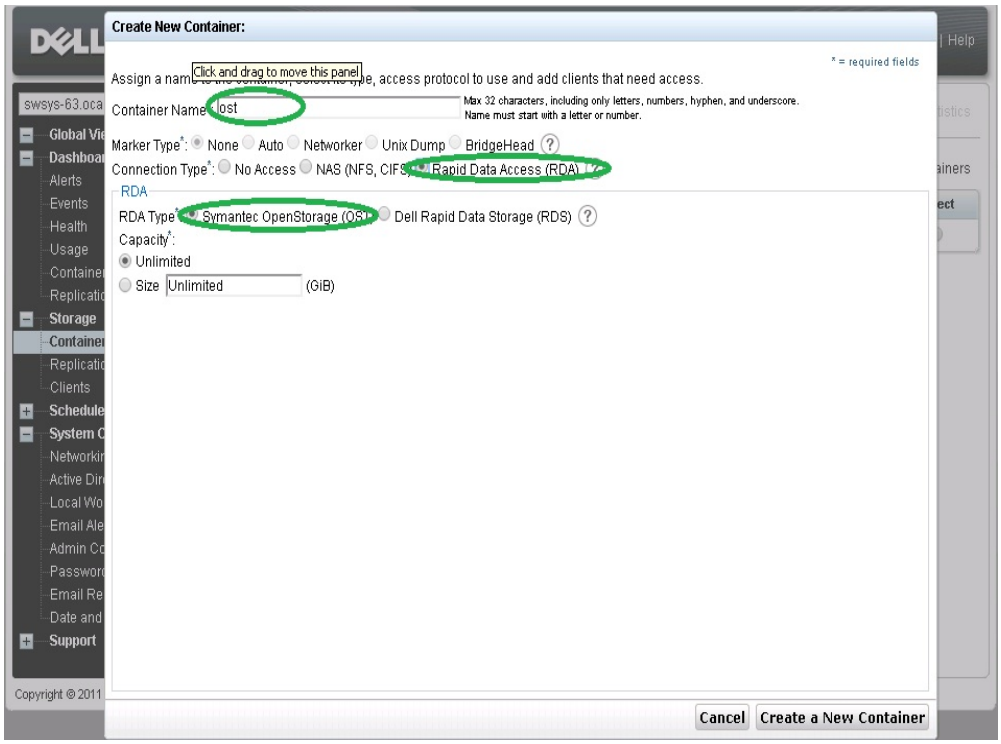
b. Enter your Active Directory credentials.



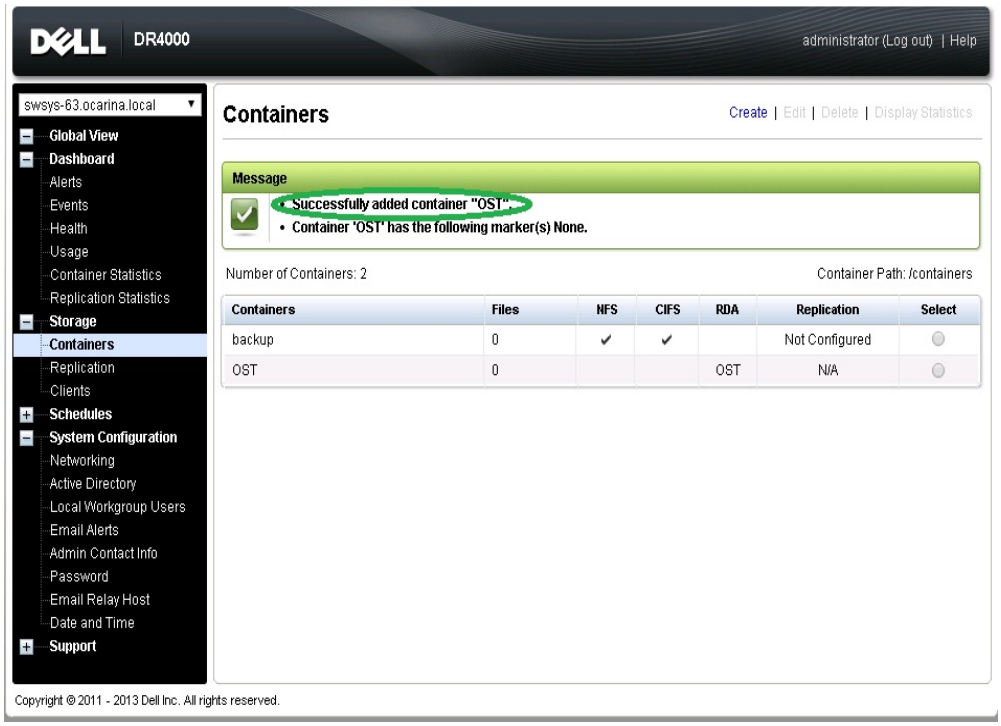
10. Create an **OST** container. Select **Containers** in the navigation panel on the left side of the dashboard, and then click the **Create** at the top of the page.



a. Enter a Container Name and select Connection Type as RDA, and then select RDA Type as Symantec OpenStorage (OST).



b. Click **Create a New Container** and Confirm that the container is added.



2 Set up NBU for backup acceleration on Windows

2.1 Prerequisites

2.1.1 Install OST plugin

Make sure that the Dell OST plugin is installed on the DMA client that is used for NBU backup.

2.1.2 Map external_robotics and external_types files

To enable the backup accelerator for DELL DR4x00/DR6X00, the external_robotics.txt and external_types.txt files must be mapped.

These instructions assume that NetBackup is installed at the default location of C:\Program Files\VERITAS\. If NetBackup is installed in a different location, substitute that path for C:\Program Files\VERITAS\ in the instructions below.

1. Copy the external_types.txt file from the temporary location to C:\Program Files\VERITAS\NetBackup\var\global\ on the master server or EMM server.

2. Copy the external_robotics.txt file from the temporary location to C:\Program Files\VERITAS\NetBackup\var\global\ on the master server, EMM server, each media server that controls a robot, and each media server from which robot inventories will be run.

3. Bring up a command window using **Start -> Run**. Type "cmd".

4. Update the NetBackup Enterprise Media Manager database with the new device mappings version. This only needs to be done once and must be run from the master server or the EMM server. Use the command format below that corresponds to the installed version of NetBackup:

   ```
   NetBackup 6.5/7.0/7.1/7.5:  C:\Program Files\VERITAS\Volmgr\bin\tpext -loadEMM

   NetBackup 6.0:  C:\Program Files\VERITAS\Volmgr\bin\tpext
   ```

5. For media servers running 6.0_MP4 and earlier, manually update each media server with the new device mappings. This command must be run on each 6.0_MP4 and earlier media server that has devices attached. (On media servers running 7.5, 7.1, 7.0, 6.5 or 6.0_MP5 and later, this command is not needed since is not needed since Device Manager will update the device mappings when it starts.)

   ```
   C:\Program Files\VERITAS\Volmgr\bin\tpext -get_dev_mappings
   ```

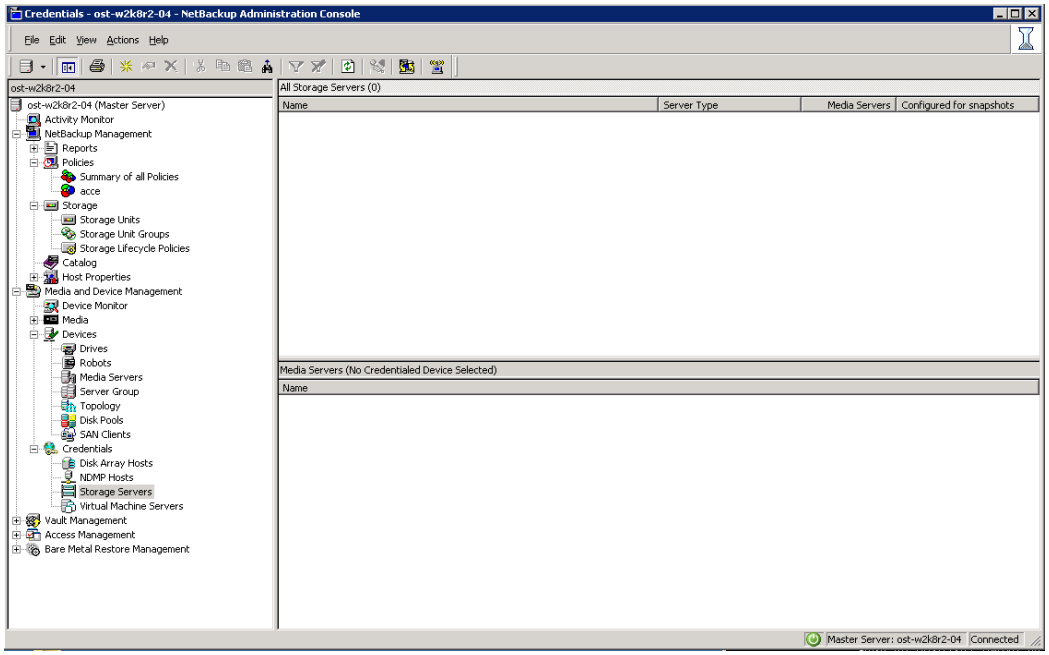
6. Restart Device Manager on each media server.

7. Verify that the version that is now stored in the Enterprise Media Manager database is the same as what is in the file stored on the media server:

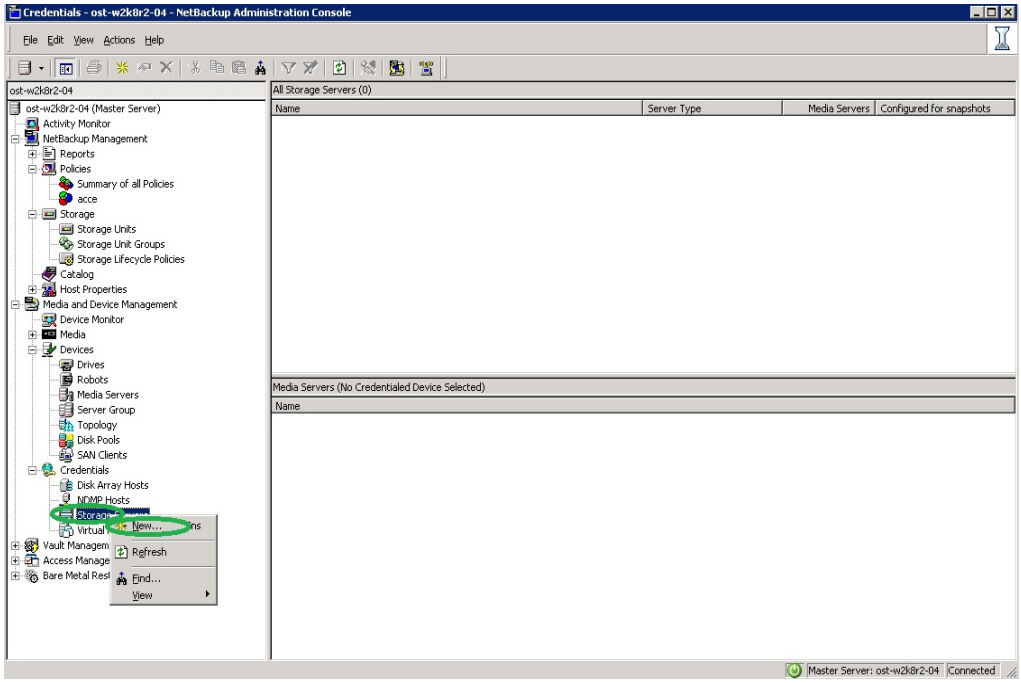
```
C:\Program Files\VERITAS\volmgr\bin\tpext -get_dev_mappings_ver
```

2.2 Procedure

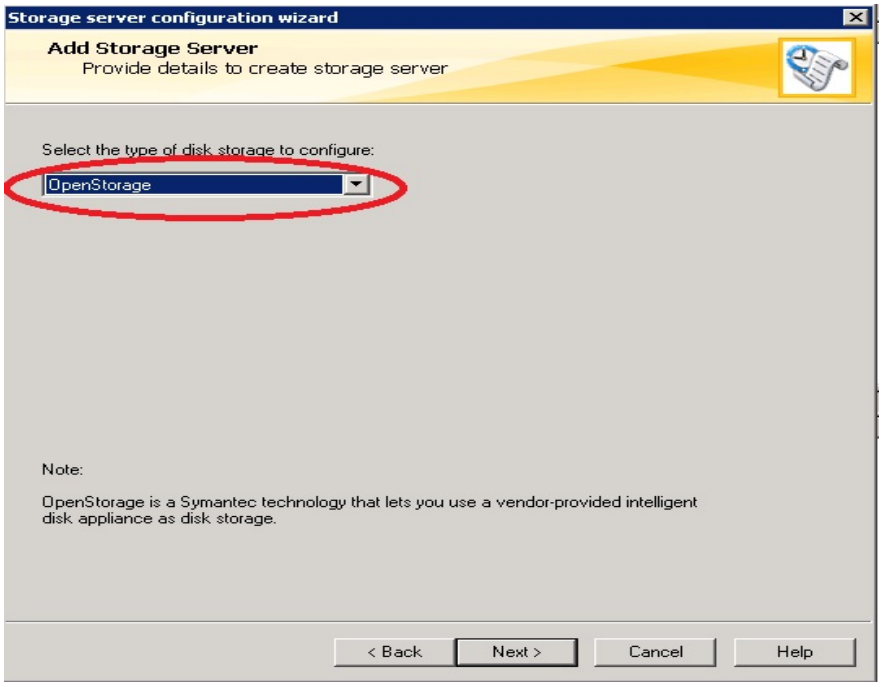
1. Launch **NBU Console**



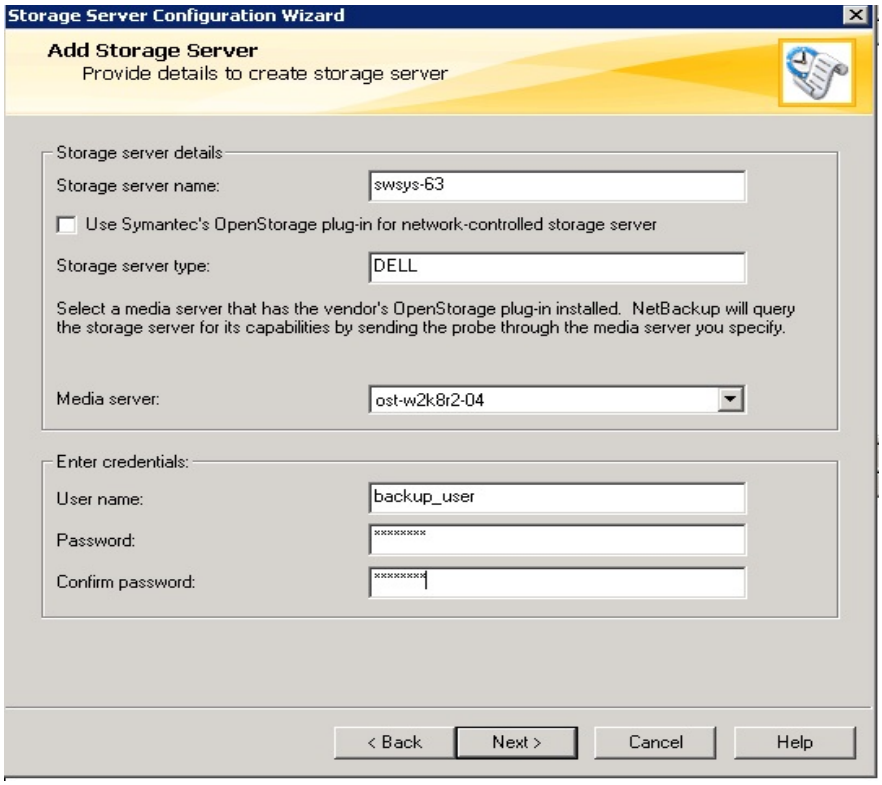
2. Right-click on **Media and Device Management** -> **Credentials** -> **Storage Server**. Click **New**.



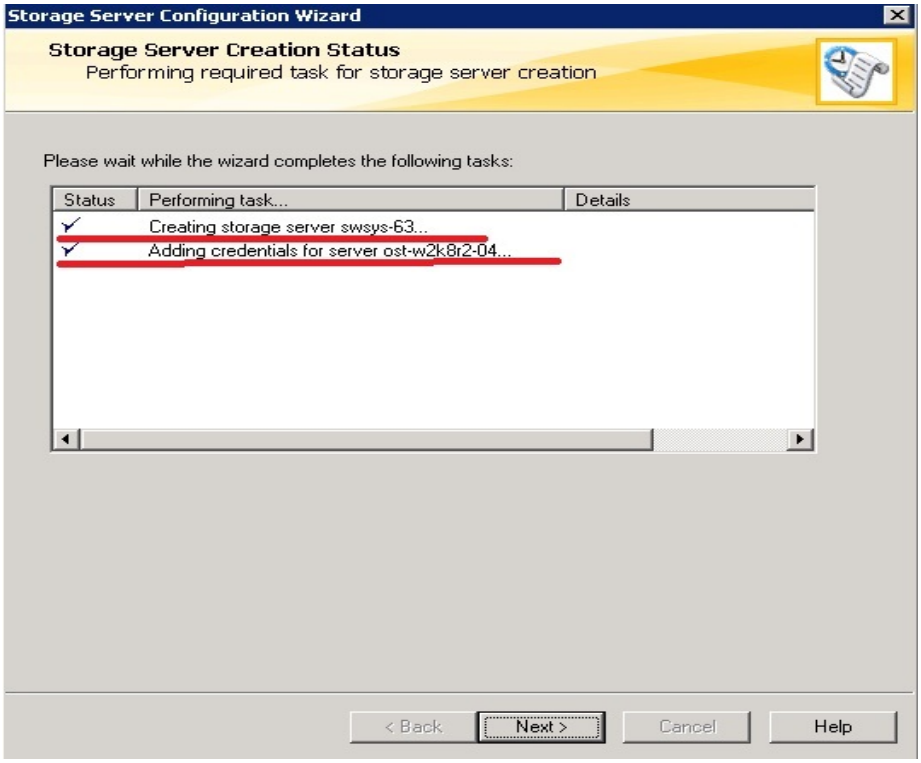
3. In the **Storage server configuration wizard** dialog box, choose **OpenStorage** from the list.



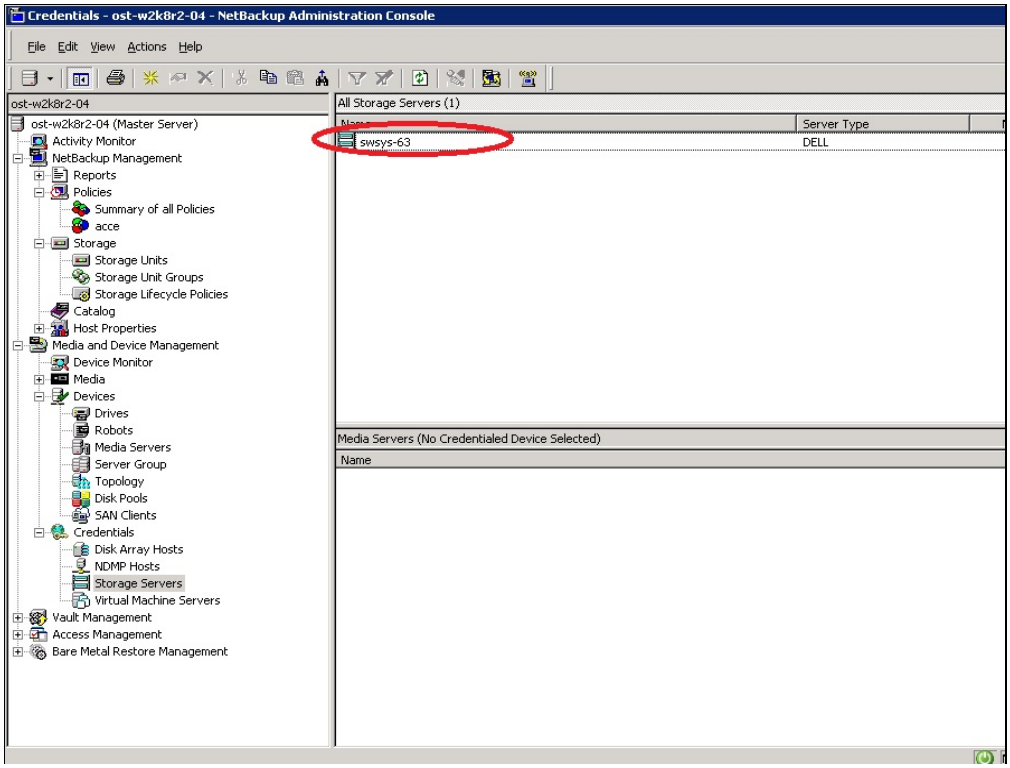
4. Under **Storage server name**, enter the DR Series system IP address or hostname. Under **Storage server type**, enter **DELL.**
5. In the **Media server** list, select the media server and enter the user name: **backup_user**, password: **St0r@ge!**



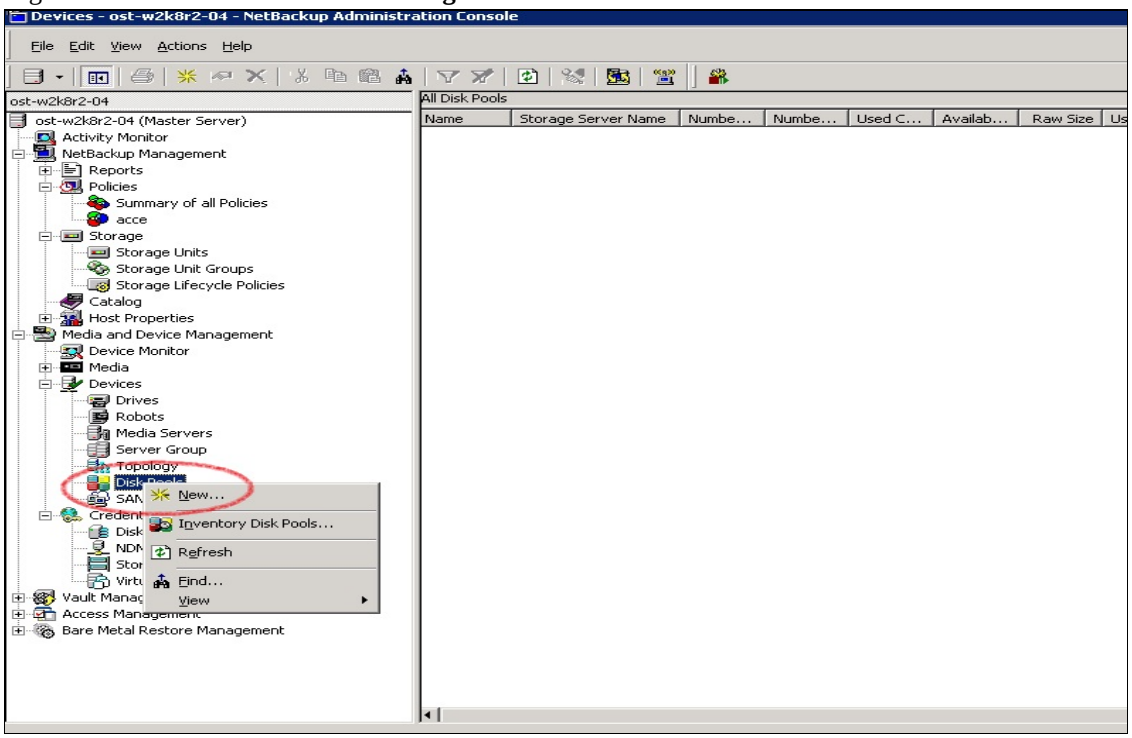
6. Make sure the storage server creation is successful and also authentication is fine.



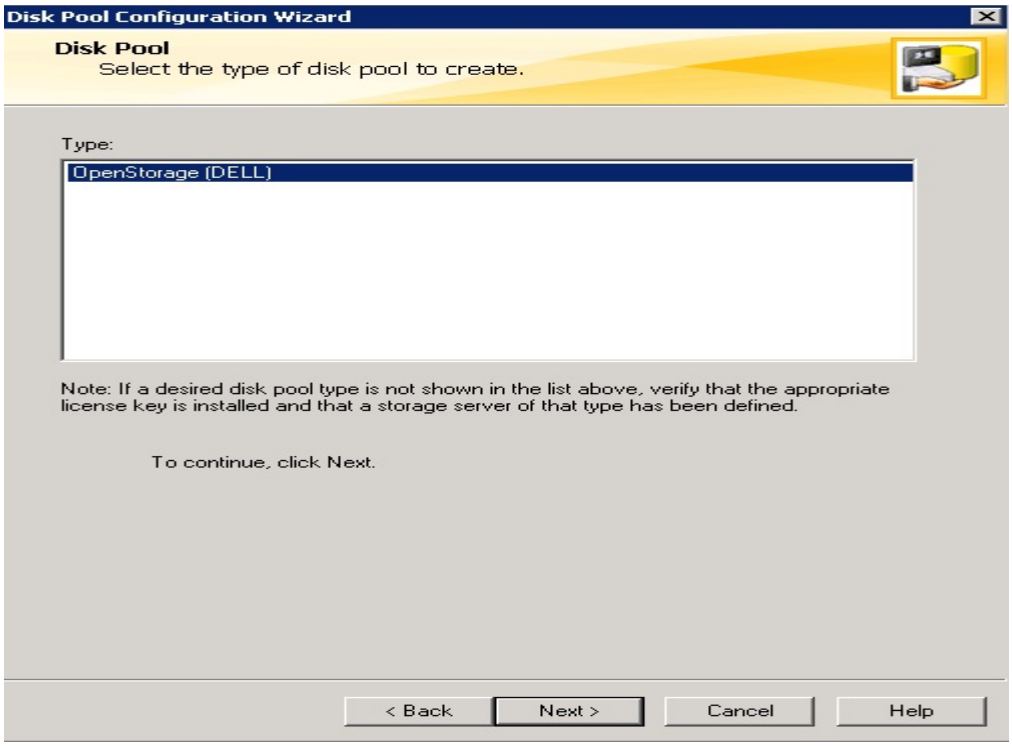
7. Created storage server should be listed.



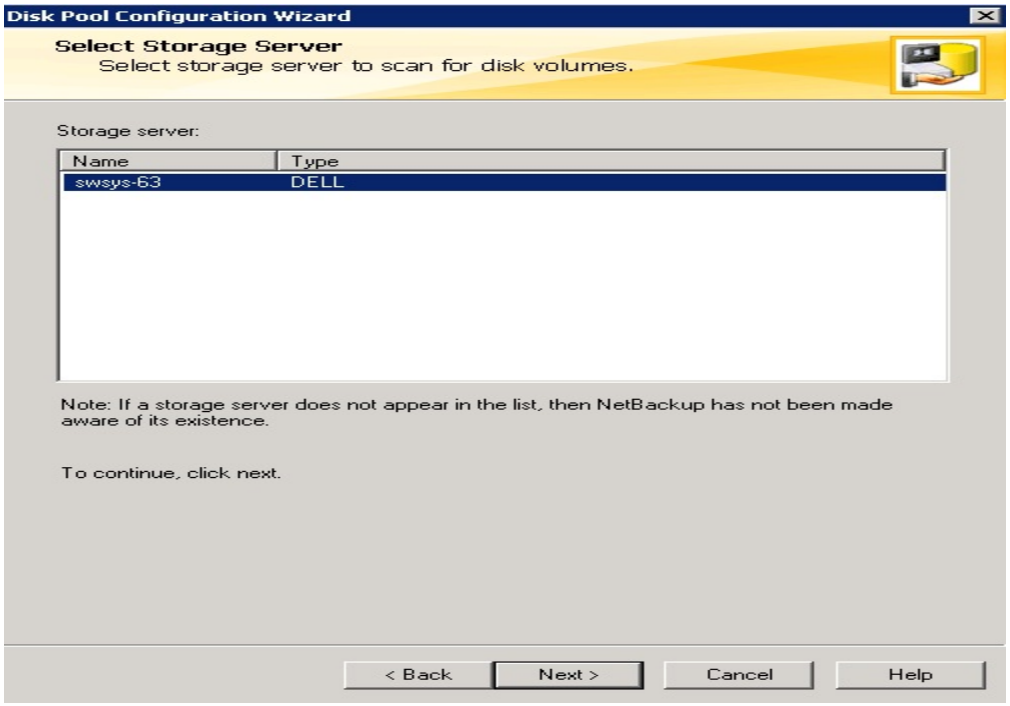
8. Right-click on **Media and Device Management** -> **Devices** -> **Disk Pool**. Click **New**.



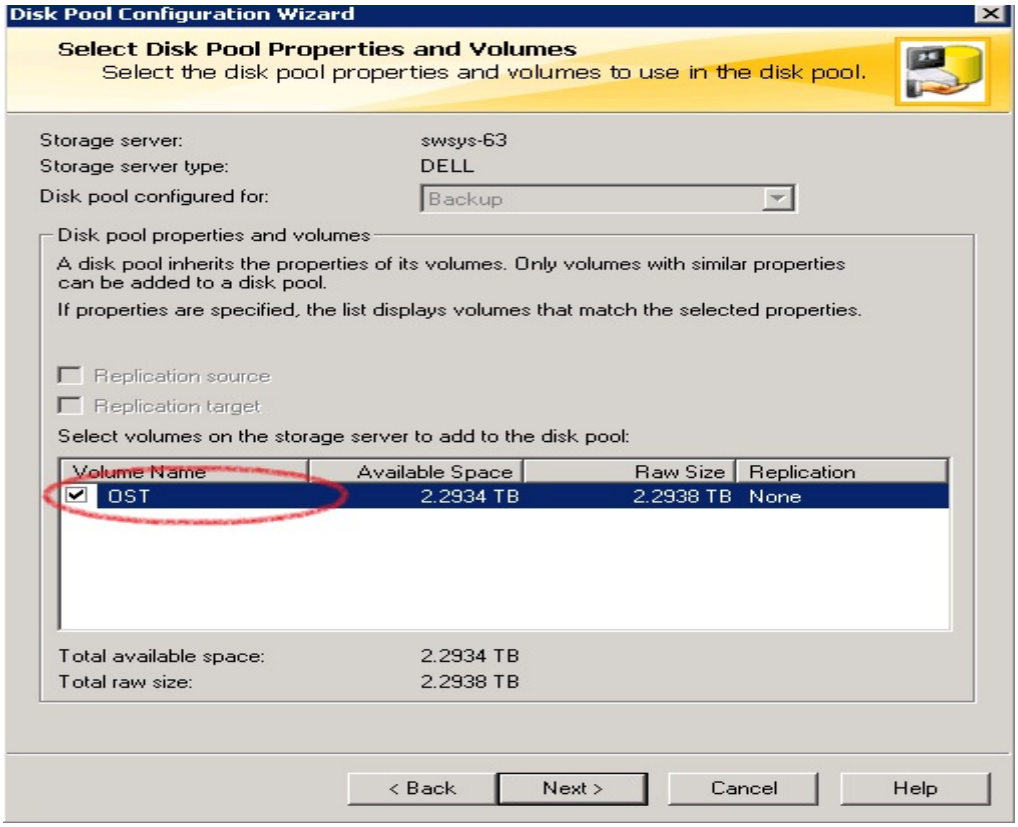
9. In the **Disk Pool Configuration Wizard** dialog box, select **OpenStorage (DELL)** for **Type**.



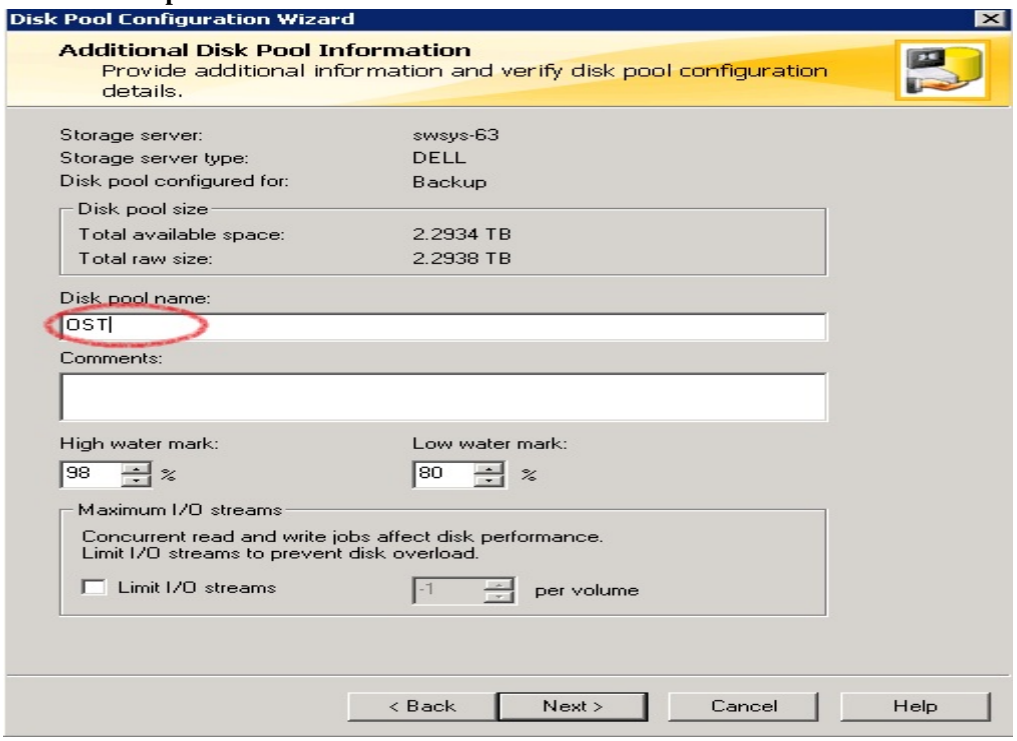
10. In the **Storage server** list, select the DR storage server created in steps 1-6.



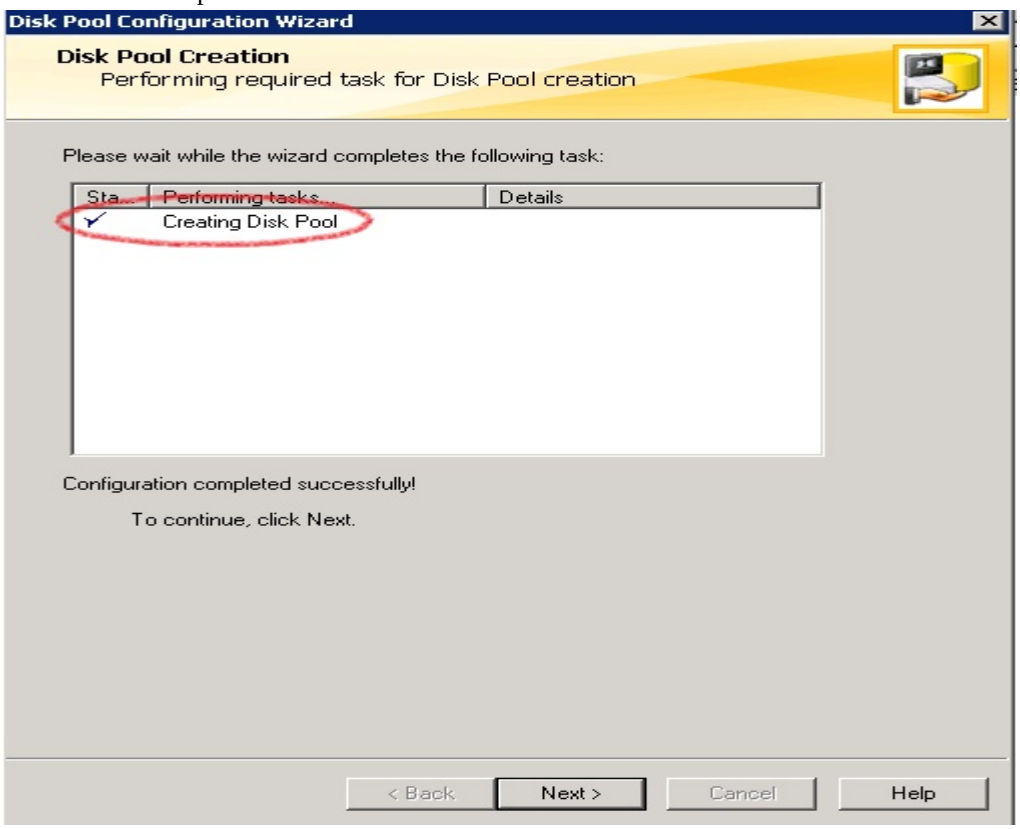
11. Select the **OST** container created in **Section 1**, which will be used for Backup.



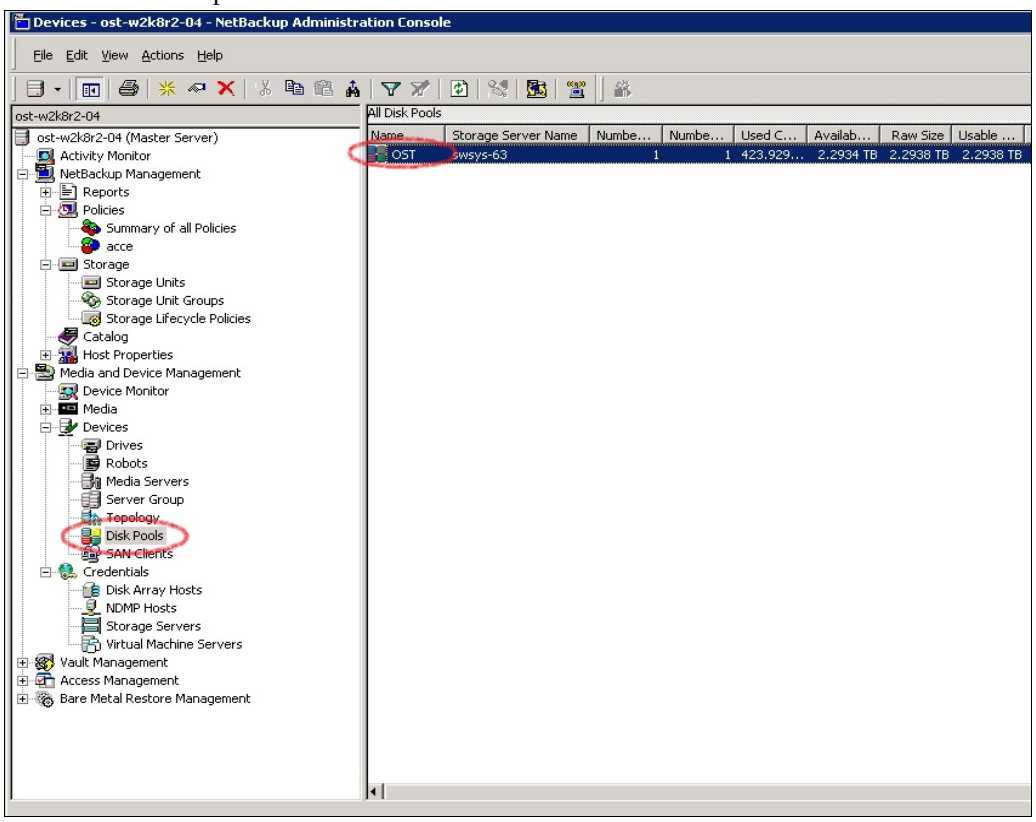
12. Enter the **Disk pool name**.



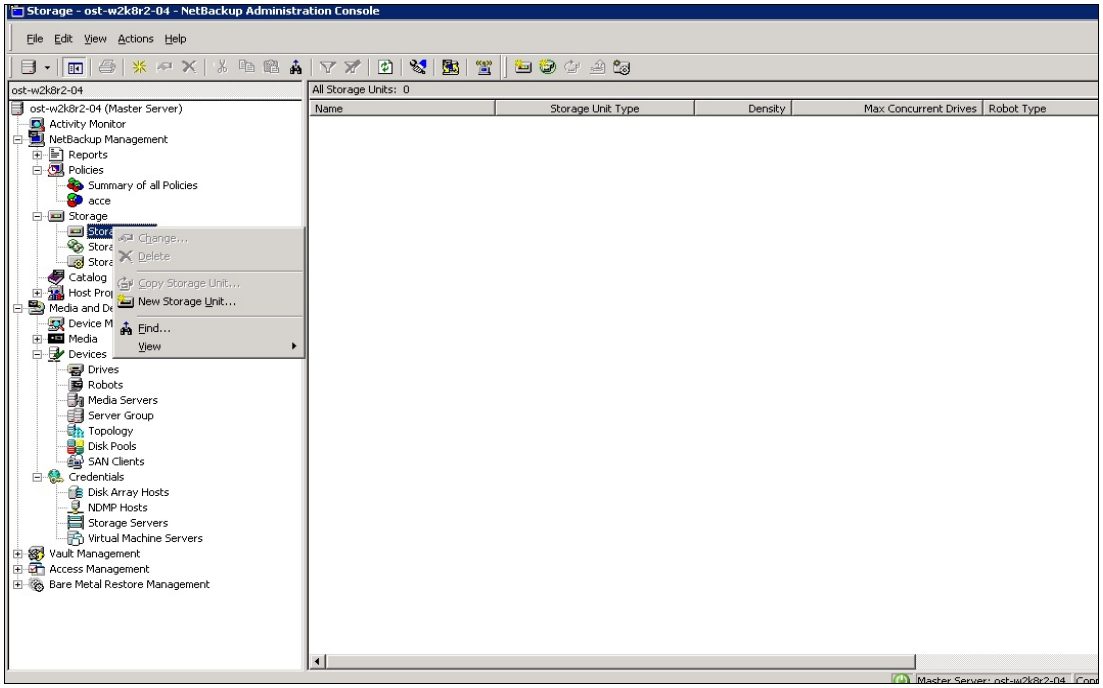
13. Confirm that disk pool creation is successful.



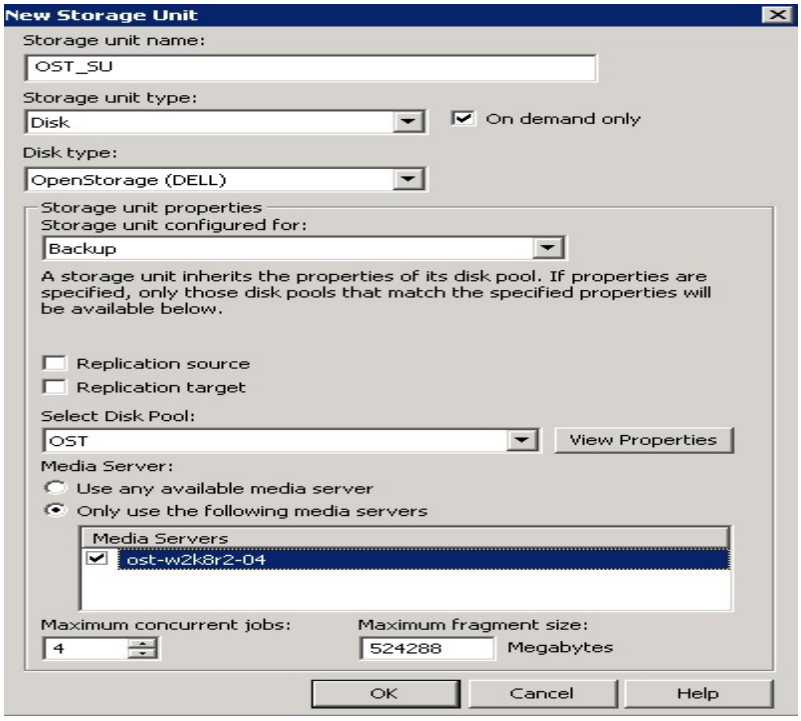
14. Make sure the disk pool is listed.



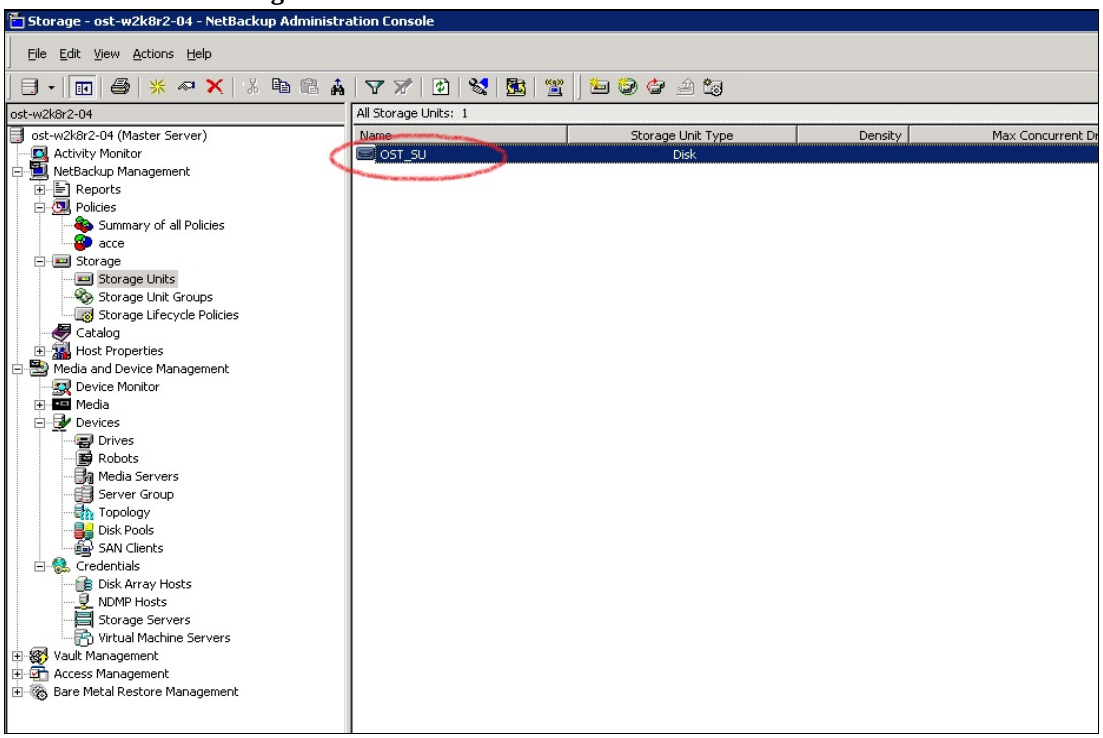
15. Right click under **Netbackup Management** -> **Storage** -> **Storage Unit.** Click **New Storage Unit**.



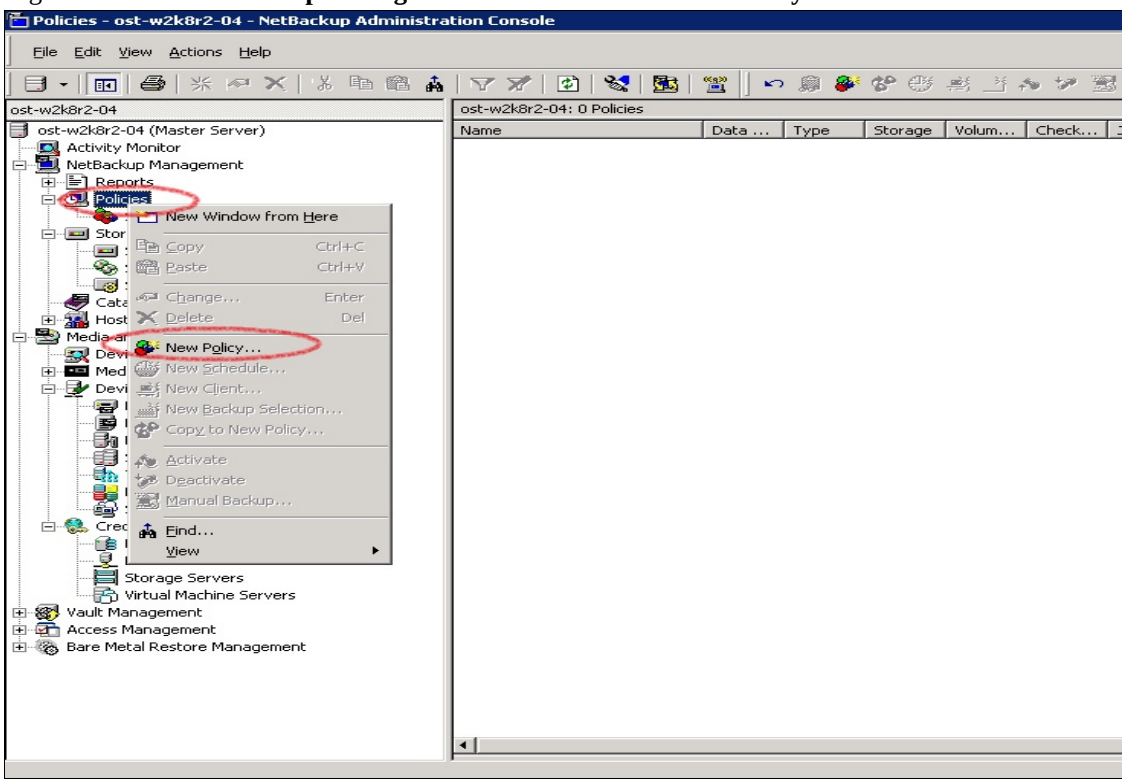
16. In **New Storage Unit**, enter a **Storage unit name**, **Storage unit type** as **Disk**, **Disk type** as **OpenStorage (DELL)**, **Storage unit configured for** as **Backup.** Select the disk pool that was created in steps 7-13, and select the media server that will be used for backup.



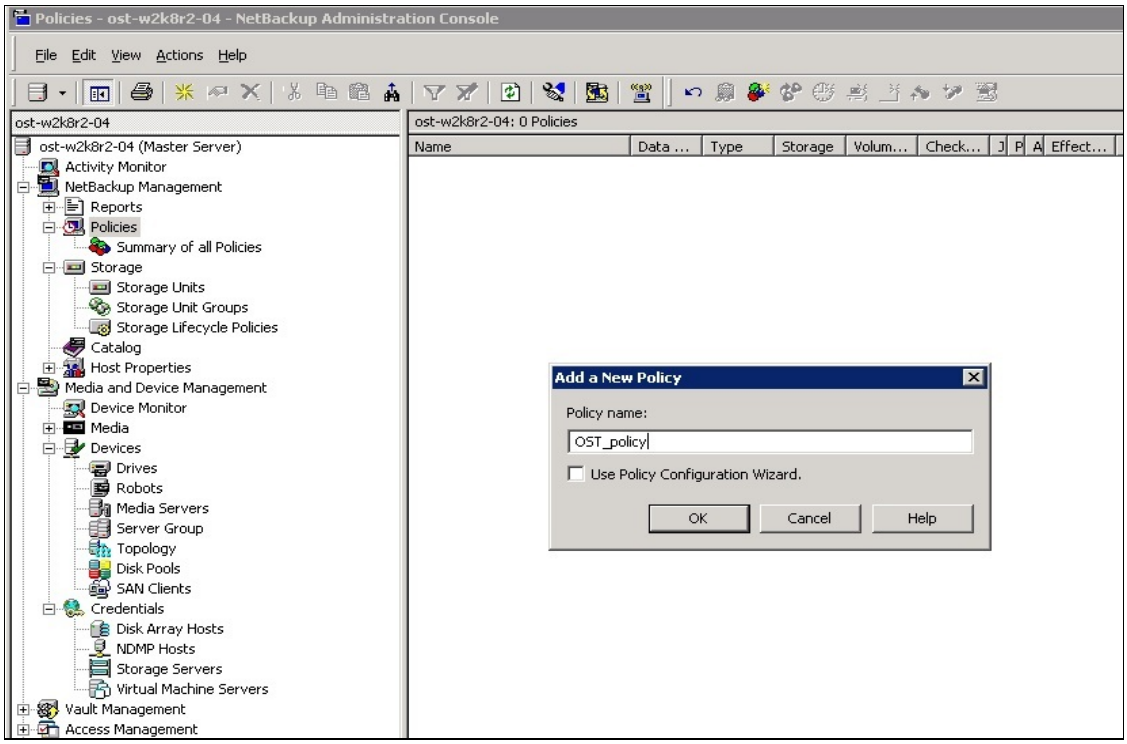
17. Make sure that the **Storage Unit** is listed after creation.



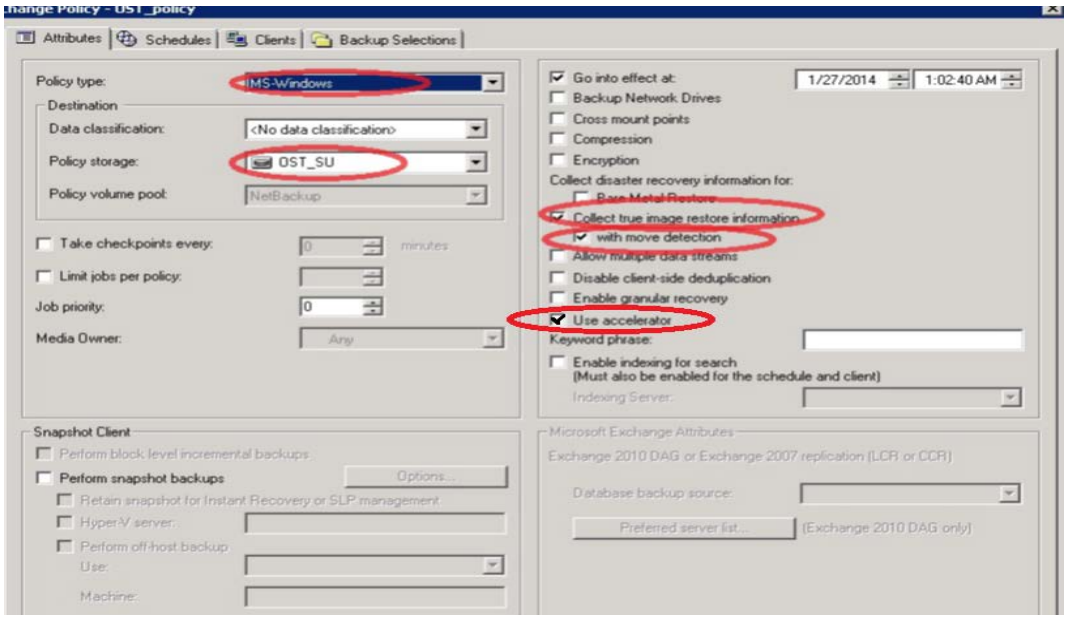
18. Right click under **Netbackup Management** -> **Policies**. Click **New Policy**.



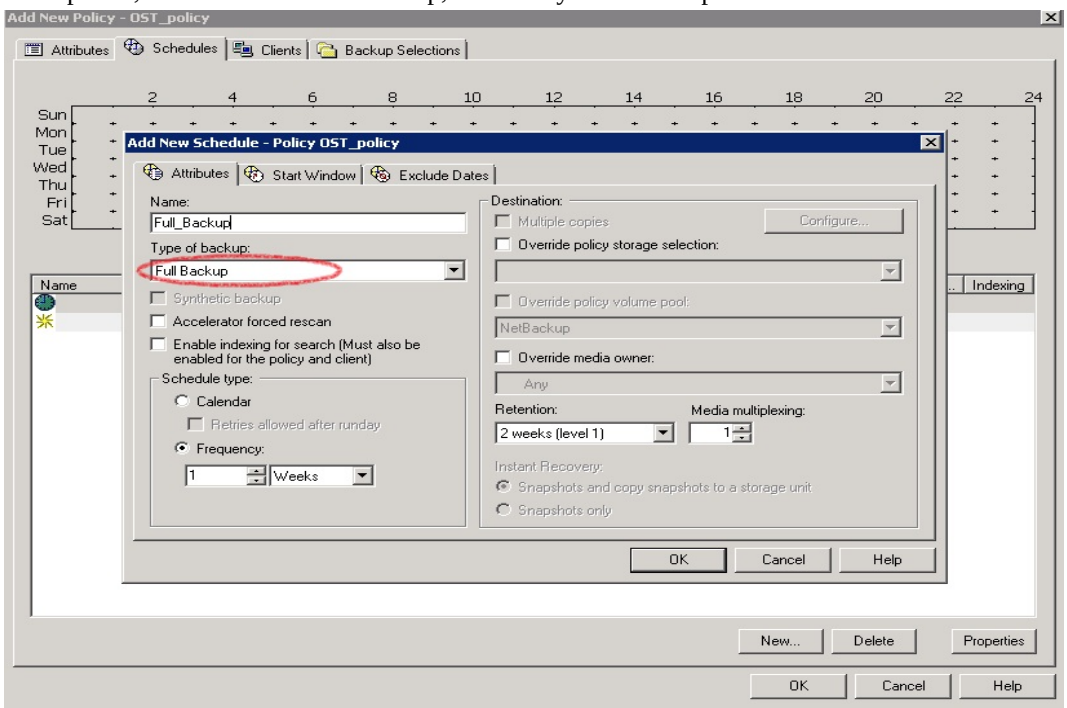
19. Enter **Policy name**.

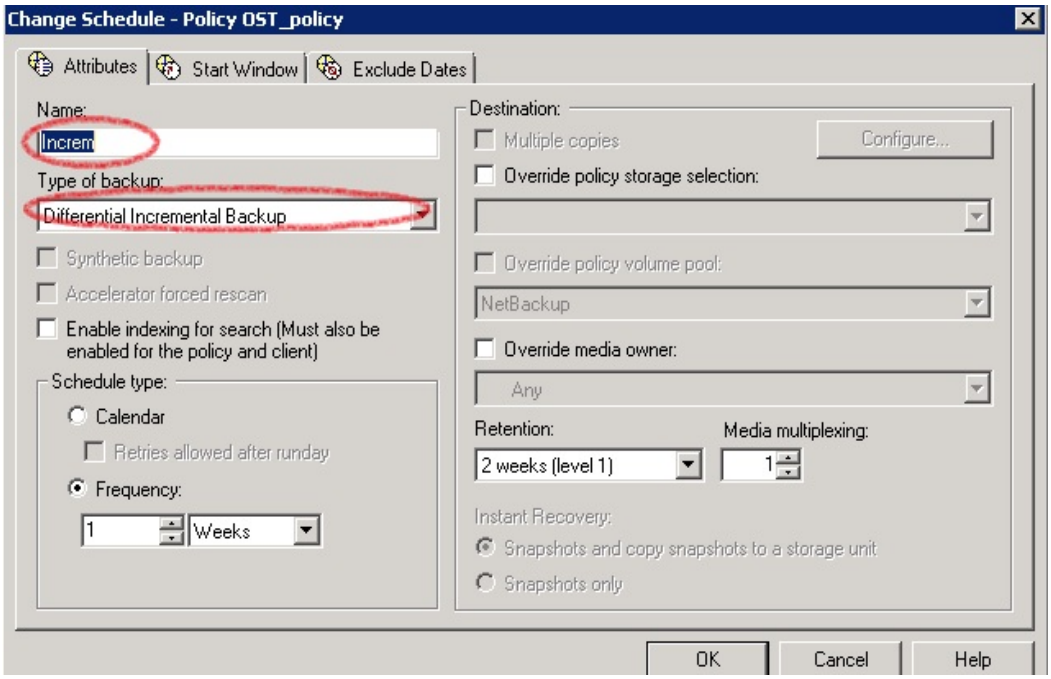


20. Enter policy attributes under **Attributes** tab: **Policy type** as **MS-Windows** (for Windows) or **Standard** (for Linux); **Policy storage** as the DR storage unit that was created in steps 14-16; enable **Collect true image restore information** and check **with move detection**, and check **Use accelerator**.



21. On the **Schedules** tab, create two schedules: one for **Full Backup**, the second one for either **Differential Incremental Backup**, or **Cumulative Incremental Backup**. The schedule should be such that first a full backup runs, then an incremental backup, and finally a full backup.

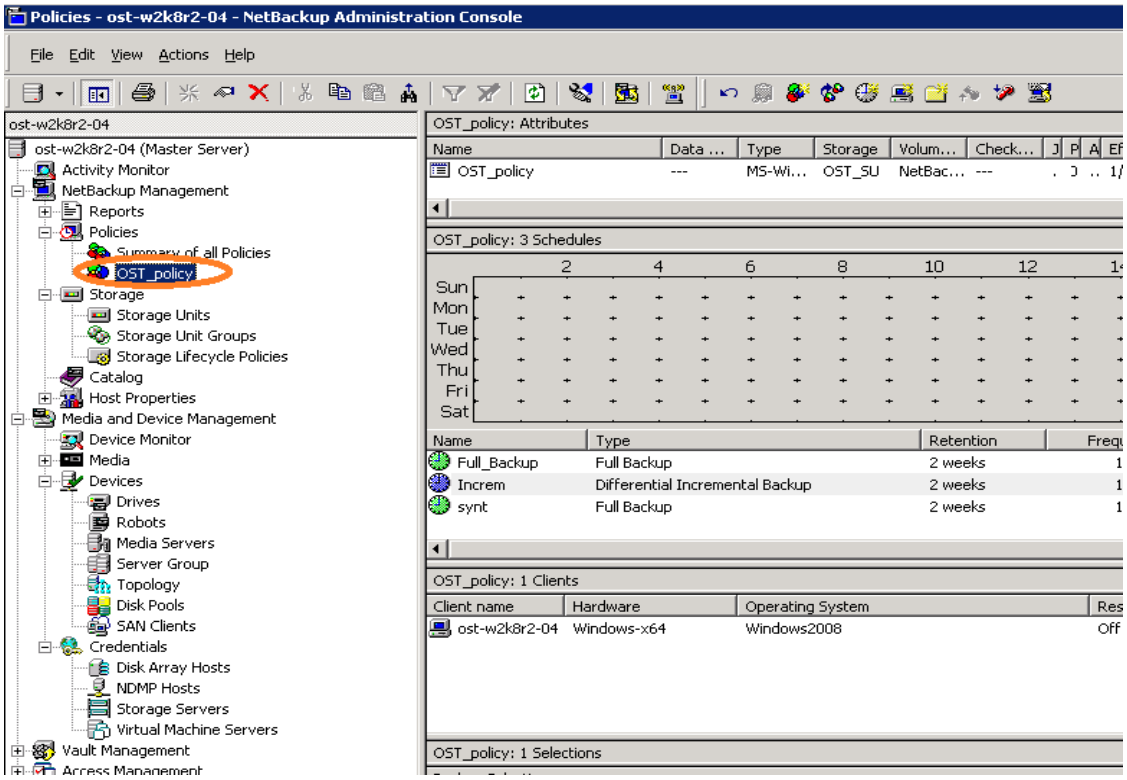




22. On the **Clients** tab, select the client(s) from which data is backed up.

23. On the **Backup Selection** tab, provide the data set that needs to be backed up.

24. Make sure that the policy is created successfully.



25. Activate the policy before proceeding to backup: right click on the policy and click **Activate**.

3 Set up NetBackup for backup acceleration on Linux

3.1 Prerequisites

3.1.1 OST plugin

Make sure that the Dell OST plugin is installed on the Linux DMA client that is used for NBU backup.

3.1.2 Map external_robotics and external_types files

To enable the backup accelerator for DELL DR4x00/DR6X00, the external_robotics.txt and external_types.txt files must be mapped.

These instructions assume that NetBackup is installed at the default location of /usr/openv/. If NetBackup is installed in a different location, substitute that path for /usr/openv/ in the instructions below.

1. Copy the external_types.txt file from the temporary location to /usr/openv/var/global on the master server or the EMM server:
   ```
   cp /temp_dir/external_types.txt /usr/openv/var/global/
   ```

2. Copy the external_robotics.txt file from the temporary location to /usr/openv/var/global on the master server, EMM Server, each media server that controls a robot, and each media server from which robot inventories will be run:
   ```
   cp /temp_dir/external_robotics.txt /usr/openv/var/global/
   ```

3. Update the NetBackup Enterprise Media Manager database with the new device mappings version. This only needs to be done once and must be run from the Master Server or the EMM Server. Use the command format below that corresponds to the installed version of NetBackup:
   ```
   NetBackup 6.5/7.0/7.1/7.5:  /usr/openv/volmgr/bin/tpext –loadEMM

   NetBackup 6.0:  /usr/openv/volmgr/bin/tpext
   ```

4. For media servers running 6.0_MP4 and earlier, manually update each media server with the new device mappings. (On media servers running 7.5, 7.1, 7.0, 6.5 or 6.0_MP5 and later, this command is not needed since Device Manager will update the device mappings when it starts.) This command must be run on each 6.0_MP4 and earlier media server that has devices attached:

   ```
   /usr/openv/volmgr/bin/tpext -get_dev_mappings
   ```

5. Restart Device Manager (ltid) on each media server.

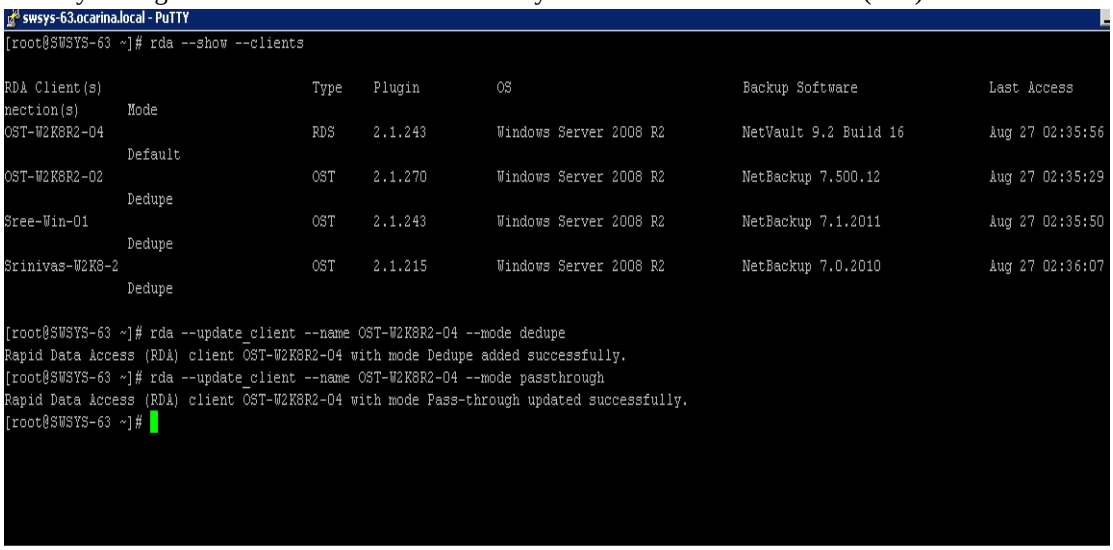
6. Verify that the version that is now stored in the Enterprise Media Manager database is the same as what is in the file stored on the Media Server:
   ```
   /usr/openv/volmgr/bin/tpext -get_dev_mappings_ver
   ```

3.2 Procedure

To create the storage server, disk pool, storage unit and policy, follow the same steps as in the previous topic for the Windows environment. (The policy type should be **standard**.)

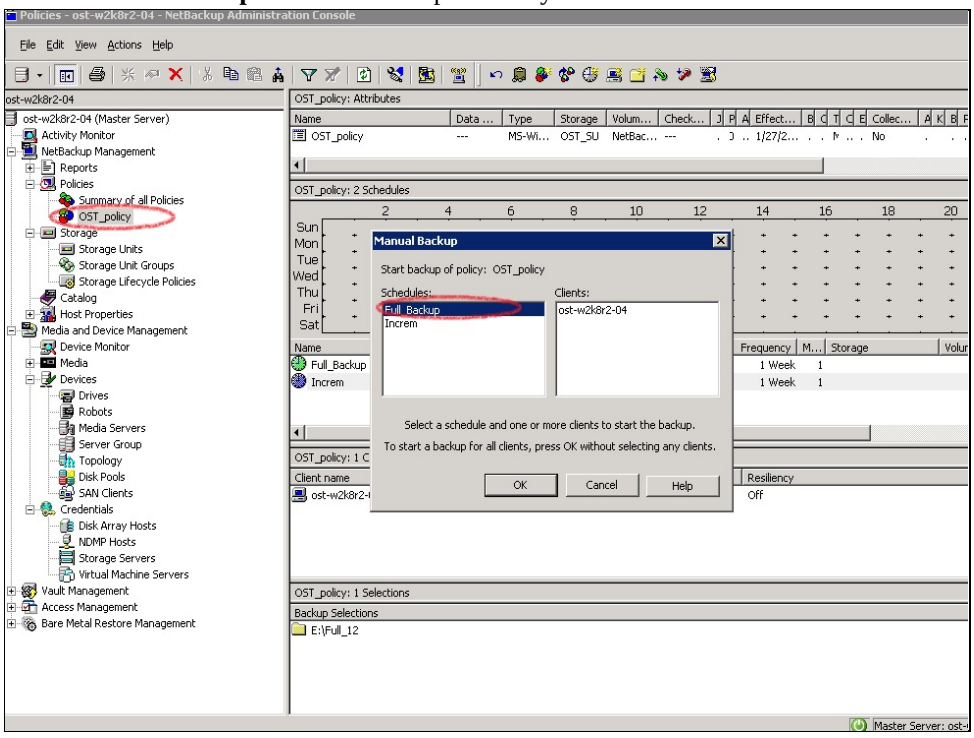
4 Back up using NBU backup acceleration

1. Before running backup, make sure which backup mode you want to use: **Passthrough** or **Dedupe**. This can be done by setting the RDA mode in the DR Series system command line interface (CLI).

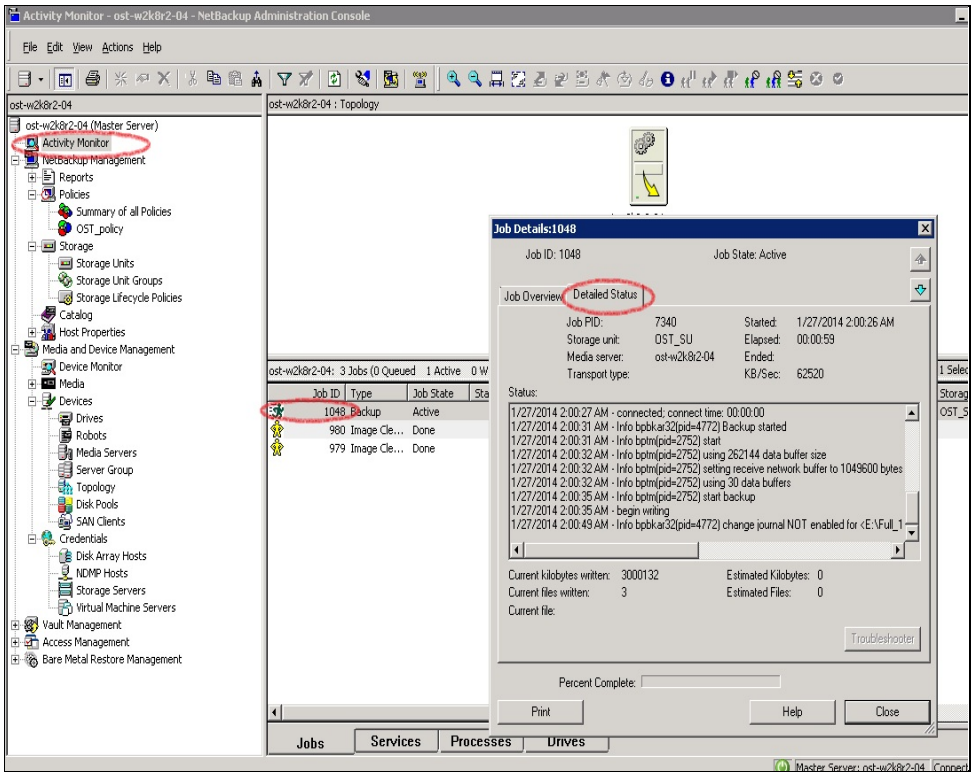


Note: You can schedule the backups or run them at a convenient time. This procedure uses a manual backup configuration.

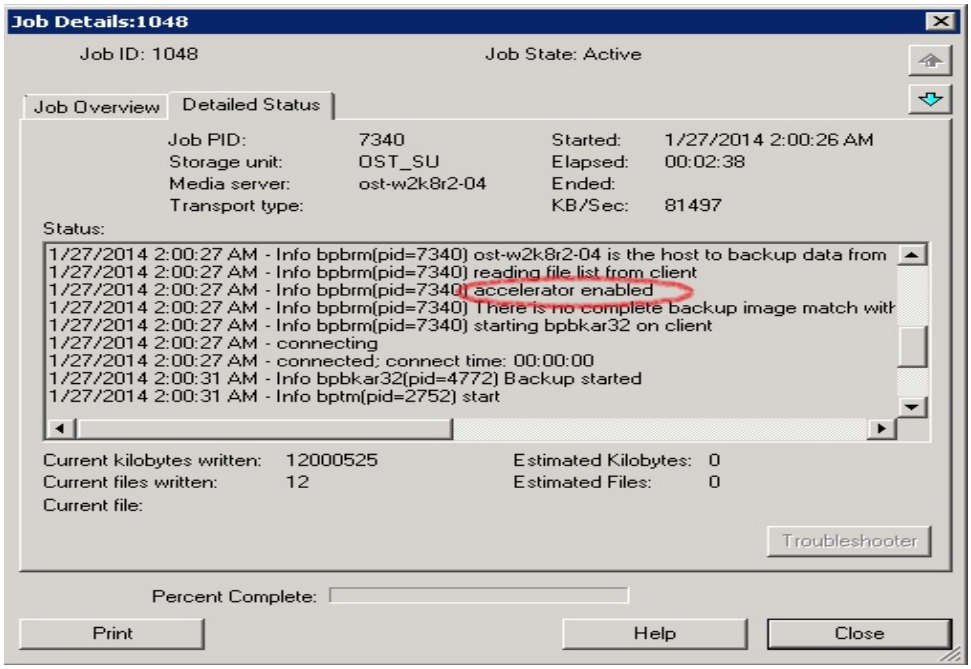
2. Under **Netbackup Management** -> **Policies**, right click on the policy created in the previous procedure and select **Manual Backup** to run the backup manually.



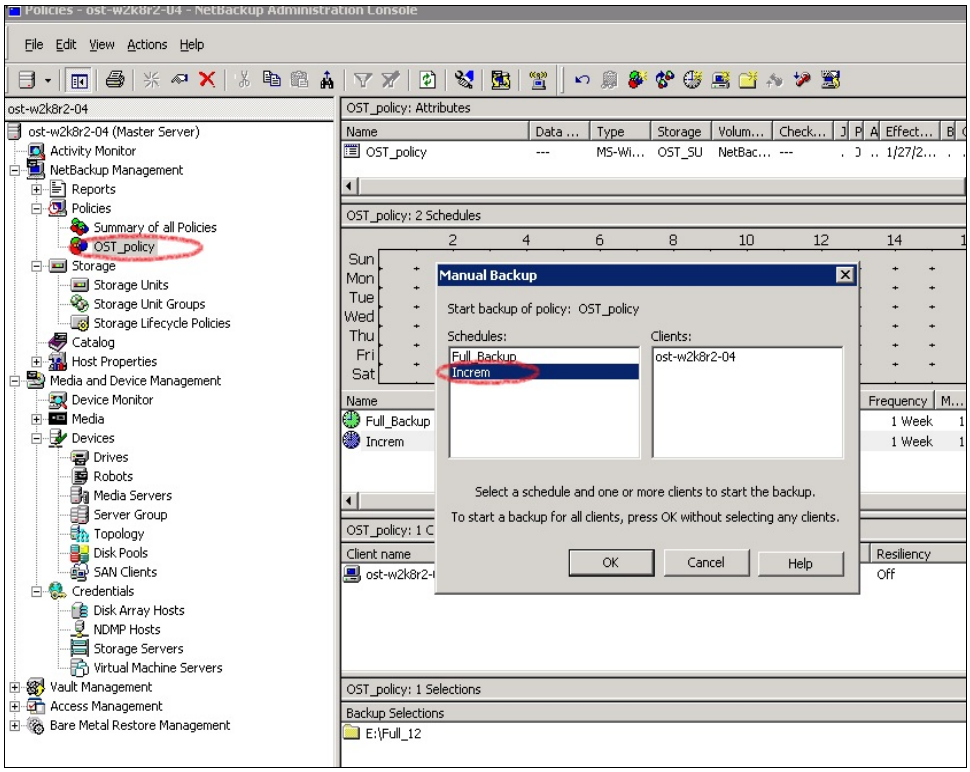
3. Run a manual **Full Backup** and check the status in the Activity Monitor. Double-click on the job to see the detailed status.



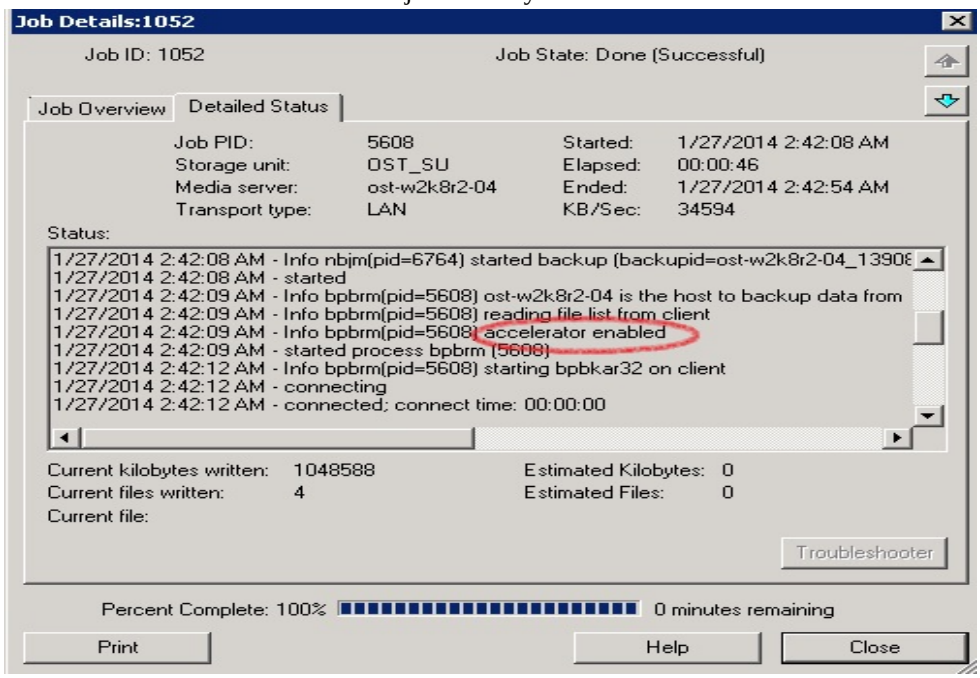
4. Check the **Detailed Status** tab and verify that the accelerator is enabled.



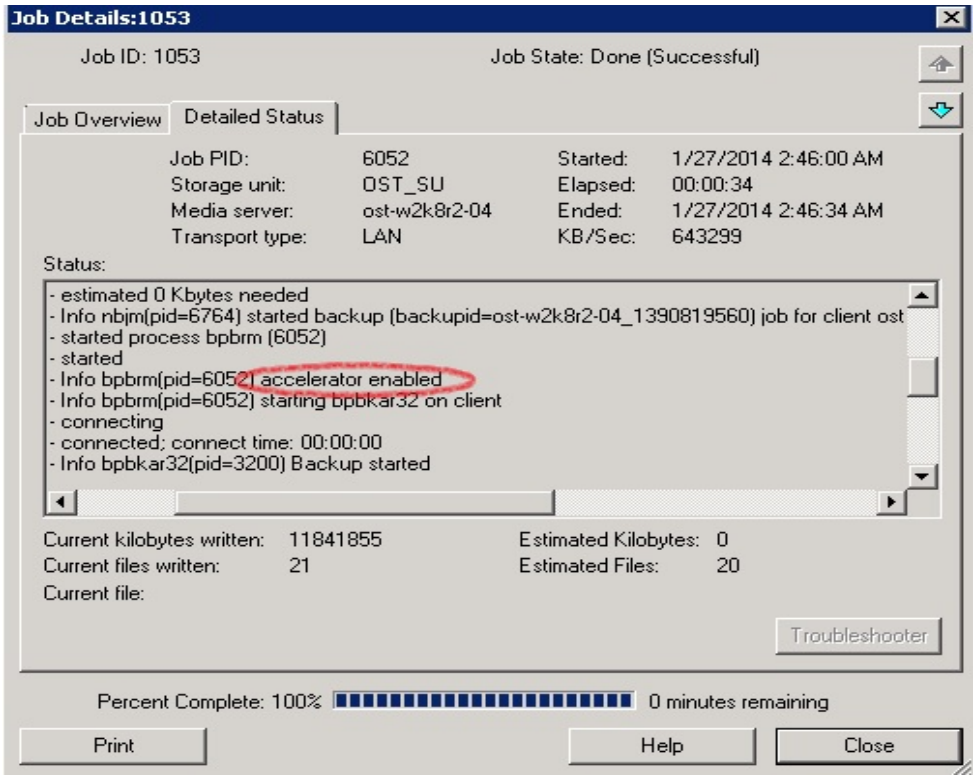
5. Run one or more configured **Incremental** Backups.



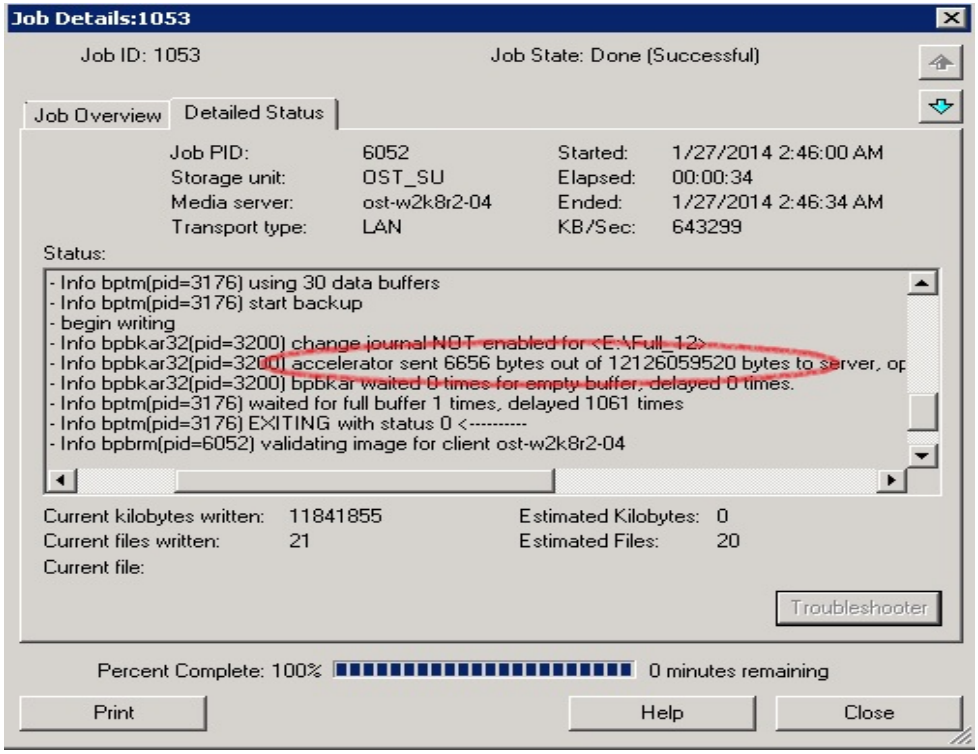
6. Check the **Detailed Status** tab of the job to verify that the accelerator is enabled.



7. Run another full backup.
8. Confirm that the backup is accelerator-enabled.



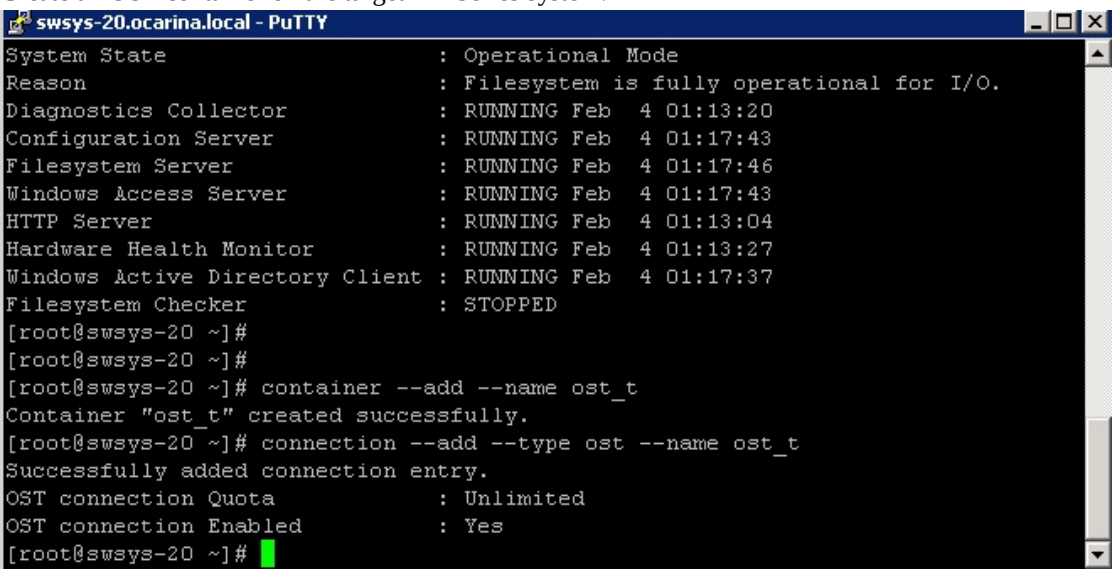
9. Verify the summary of the job.



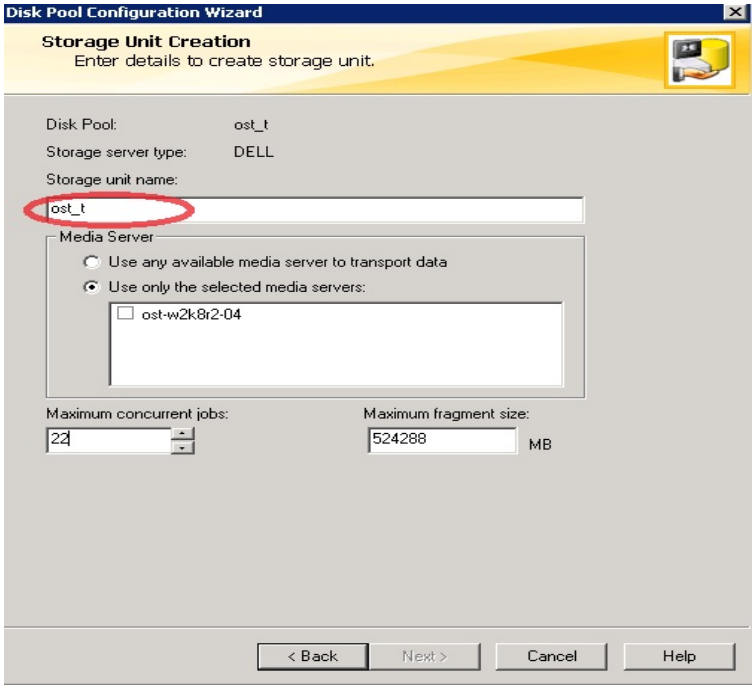
5 Duplicate the backup data to the OST replication target container

Note: This procedure is the same for NetBackup (NBU) on a Windows or Linux host.

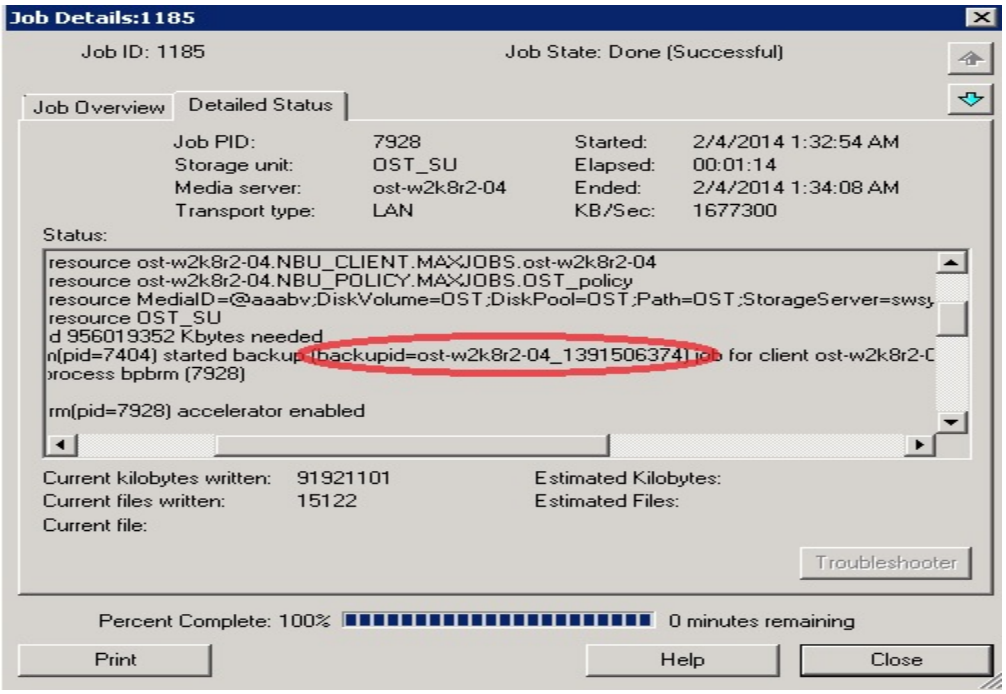
1. Create an OST container on the target DR Series system.



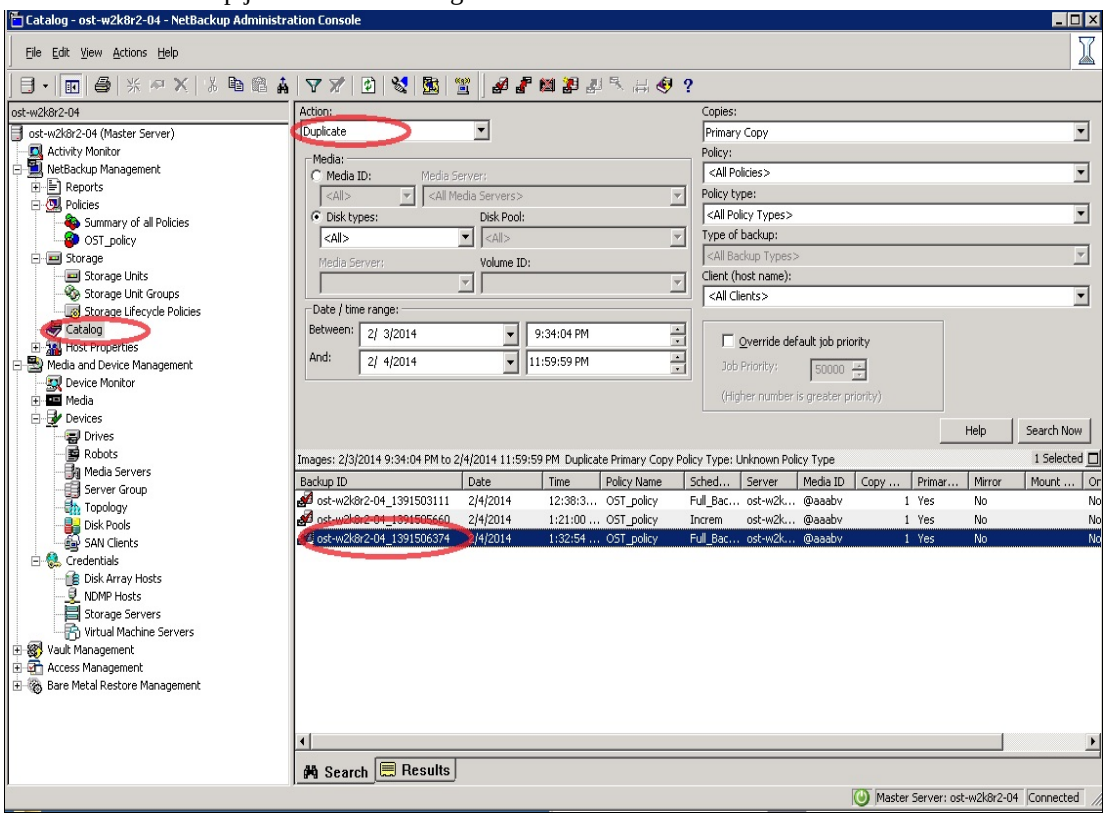
2. Repeat steps 1-16 in Section 2, or follow Section 3 for adding the container as a storage unit onto NetBackup (NBU). Verify that the storage unit was created successfully.



3. Look for the job that backs up to the source OST container with backup acceleration. Get the backup ID of the backup job from the job's **Detailed Status**.

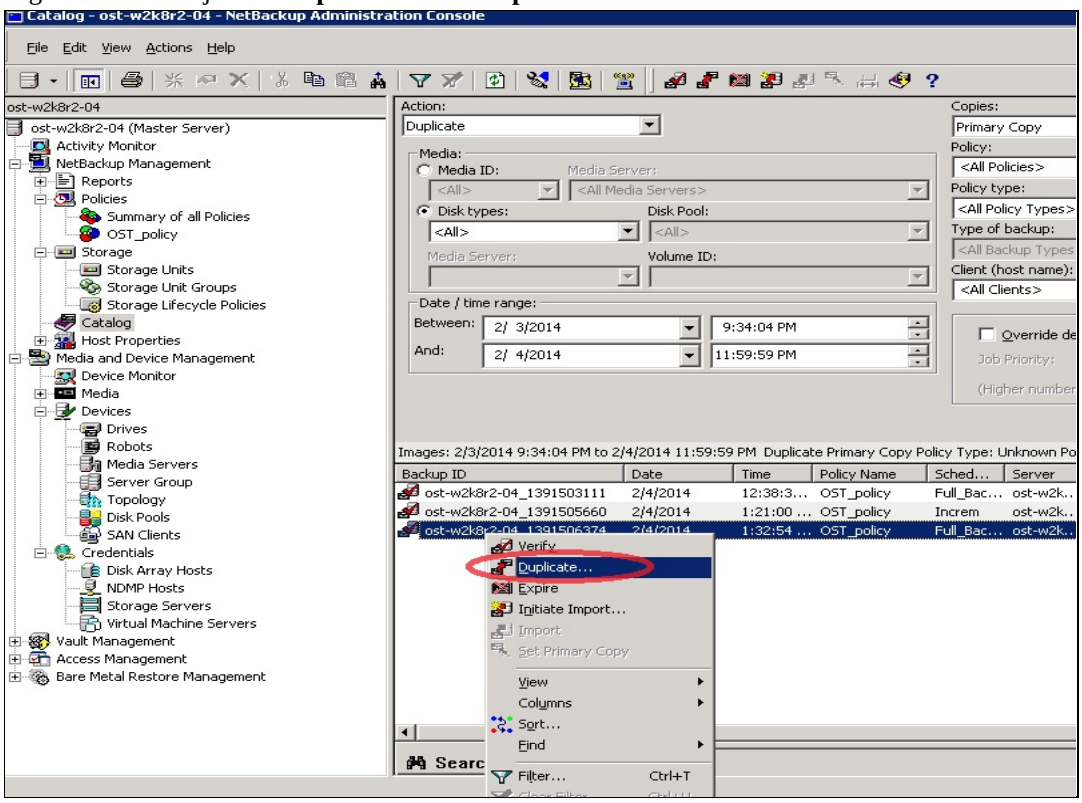


4. Search for the backup job ID in the catalog.

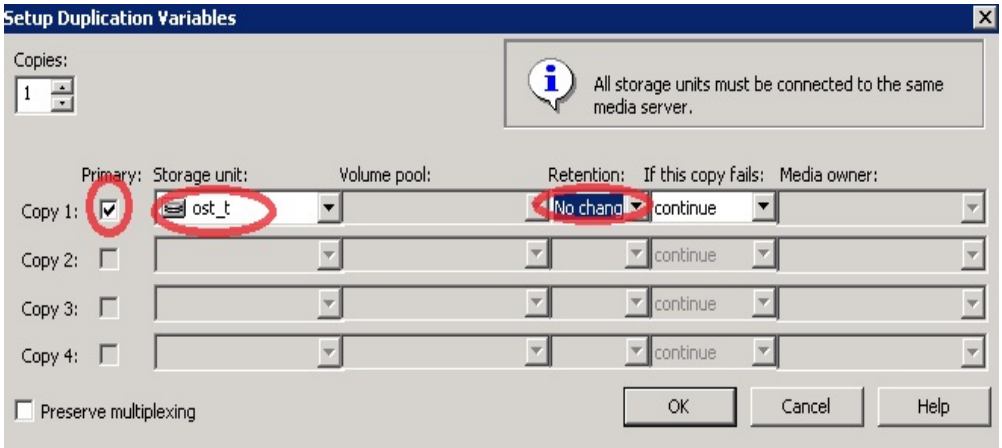


Note: You can search for all jobs in a specific date and time range by going to **Catalog**, selecting **Duplicate** under **Action**, selecting appropriate dates and then clicking **Search Now**.

5. Right-click on the job **Backup ID** and click **Duplicate**.



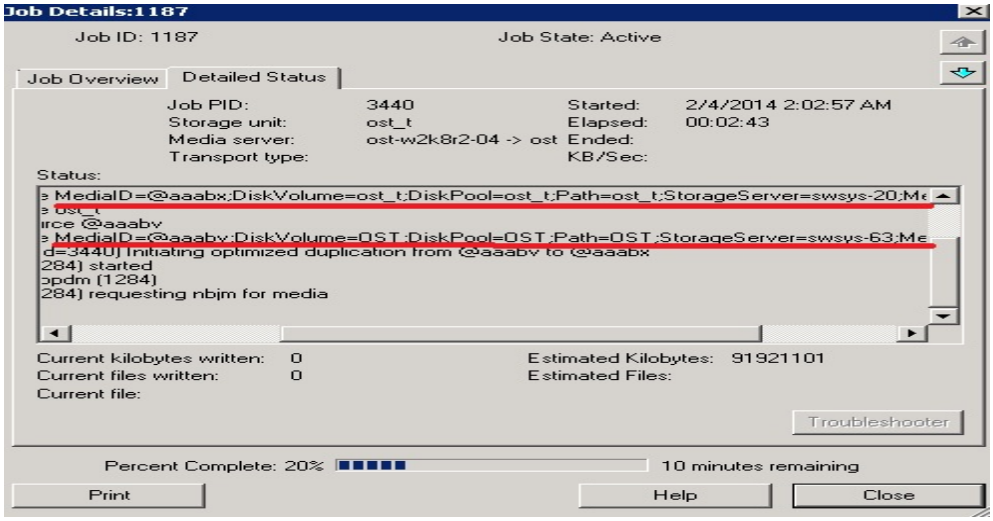
6. Set appropriate values for **Setup Duplication Variables**.



a. Under **Storage Unit**, select the target OST container.

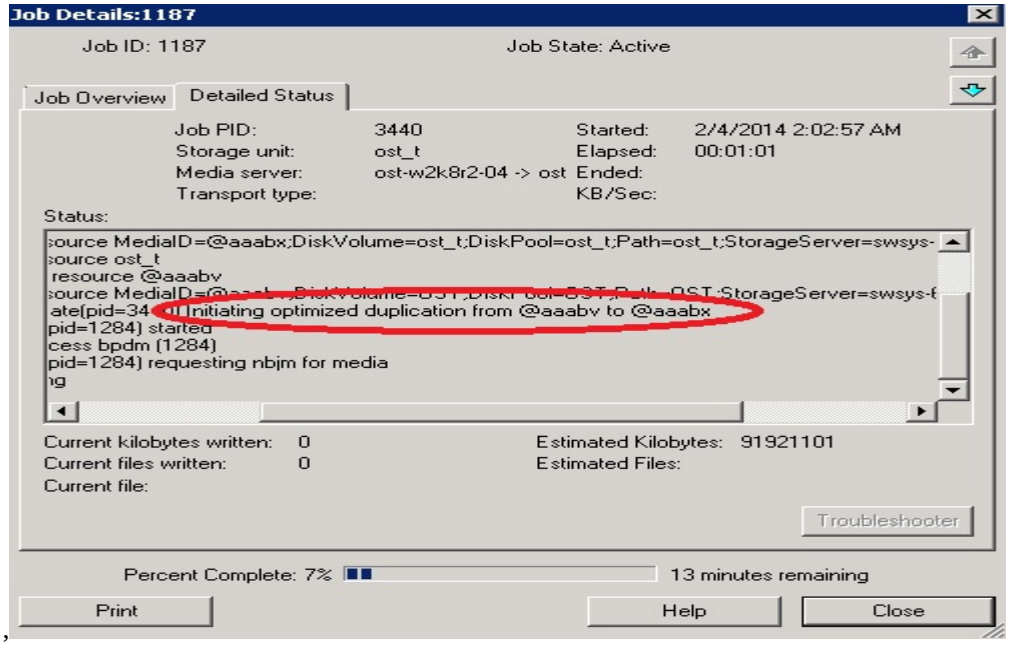
b. If the **Primary** checkbox is selected, the duplicated data on the target becomes the primary copy, which means by default the restore and data verification is run on the target container. In this example, the flag is enabled so that data verification can be run on the target container.
c. If the **Primary** checkbox is deselected, the data on the source container remains the primary copy and all of the restore and data verification jobs will run on the source container.

7. Check the duplication job details.



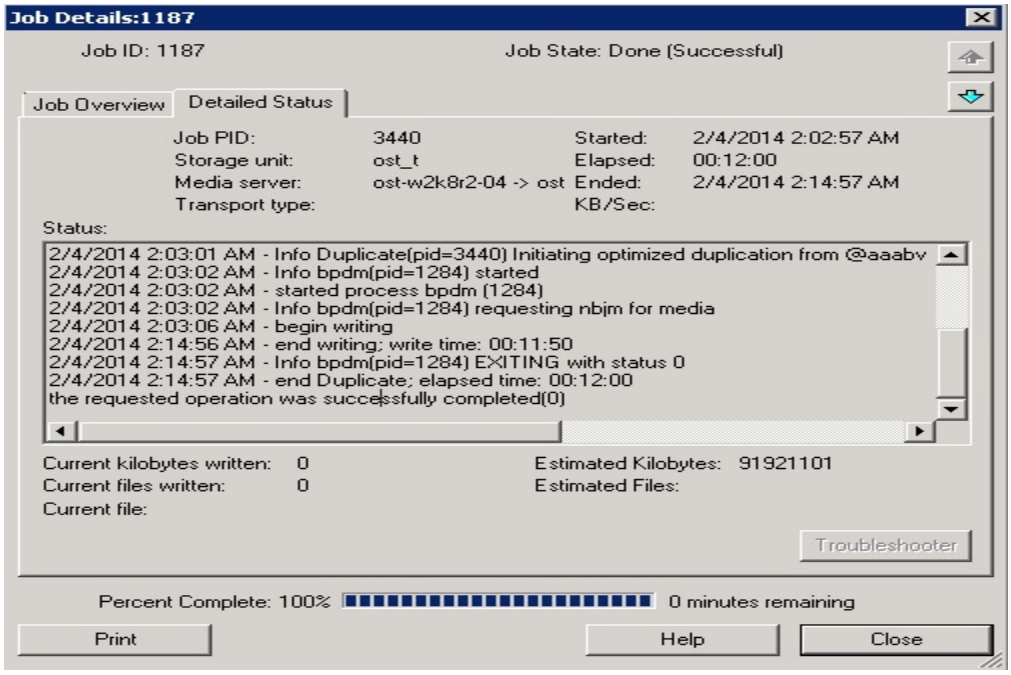
In this example, the duplication job is running from Media Id : @aaabv to @aaabx where:

> @aaabv is the media ID of source container 'OST'
> @aaabx is the media ID of target container óst_t'

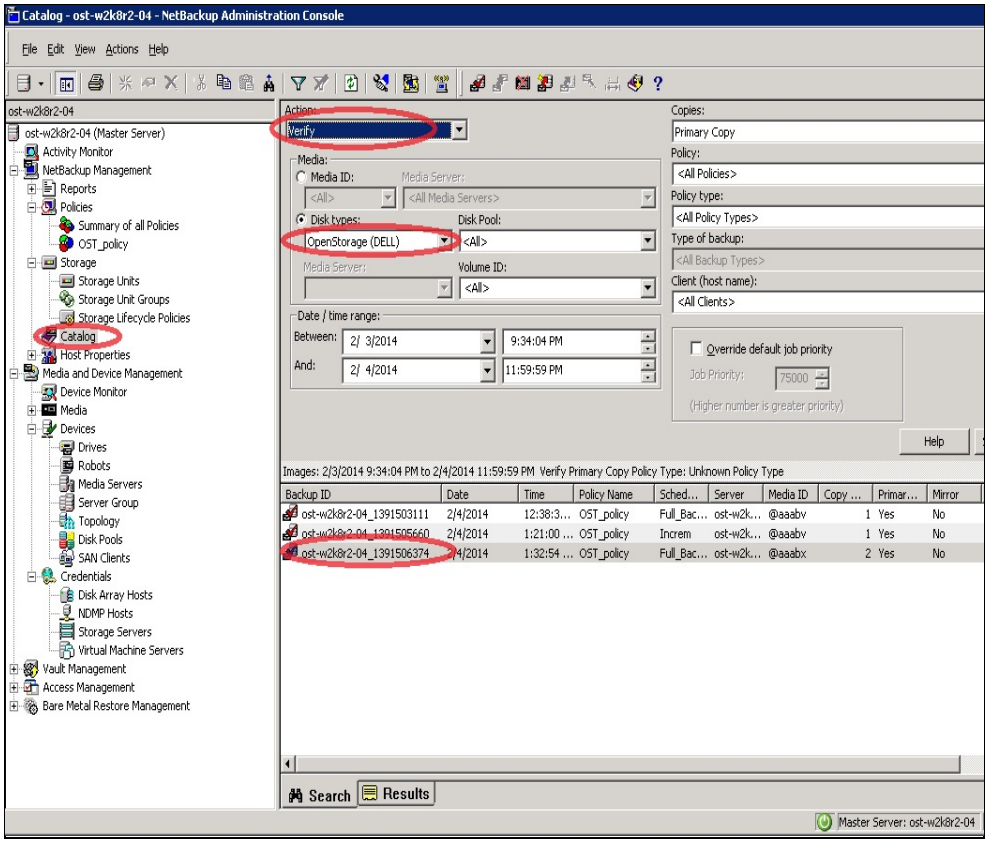


,

8. Verify that the duplication successfully completed.

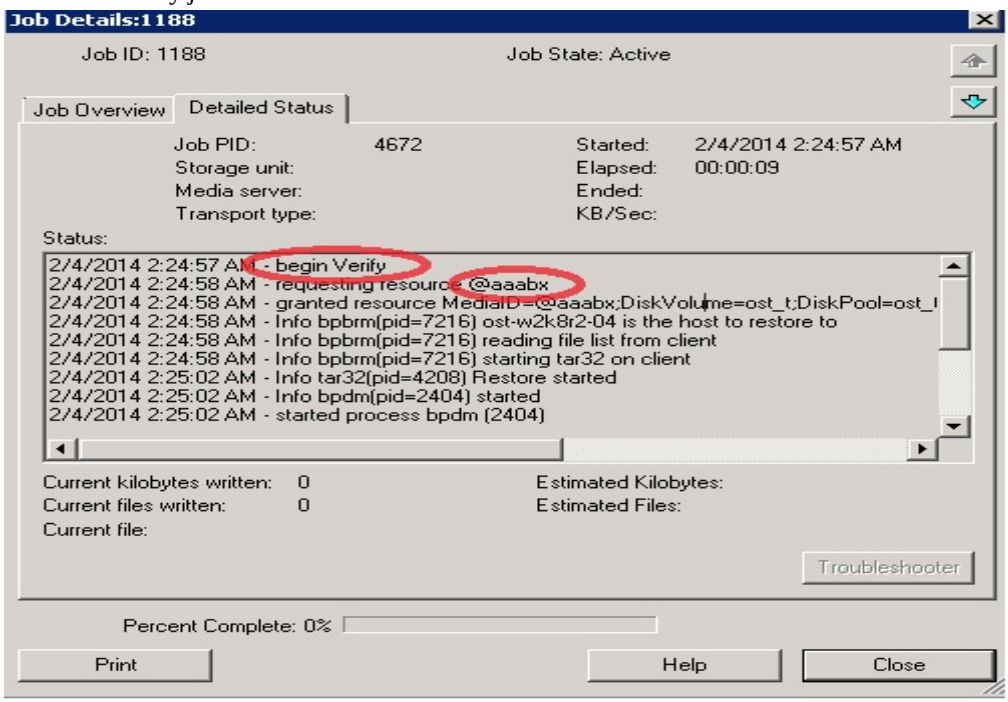


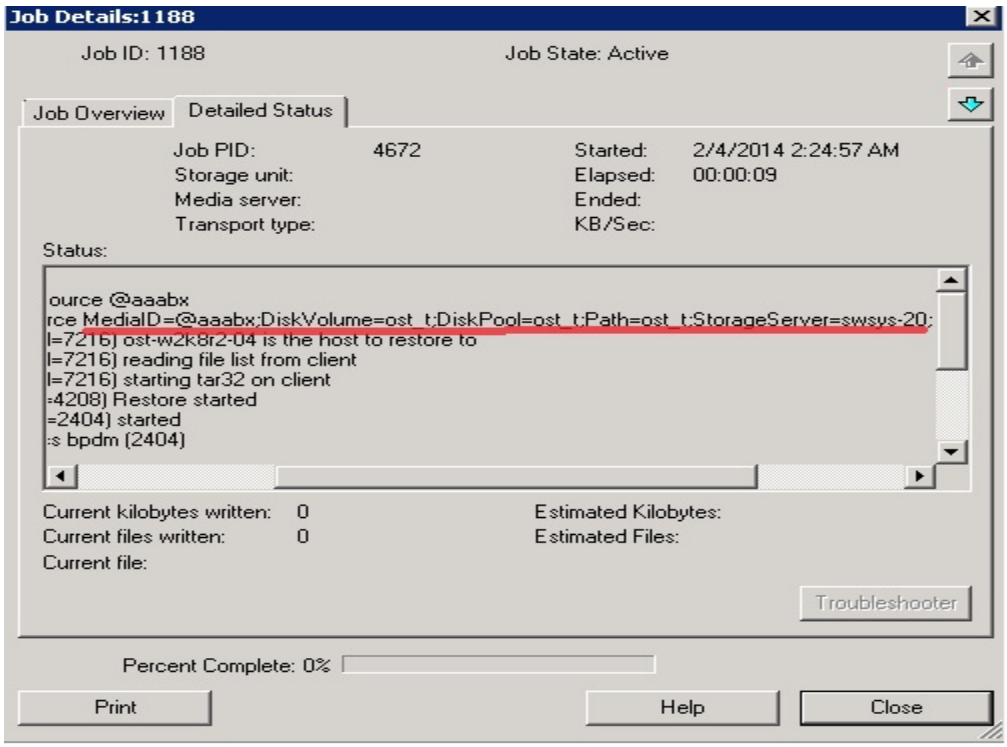
9. Under **Catalog**, choose **Action** as **Verify**, **Disk Type** as **OpenStorage(DELL),** click **Search Now** and choose the job with backup acceleration. Right-click on it and click **Verify**.



Note: If data on the target container is set as **Primary** copy, the data verification will run on target container data. In this example, you can confirm this from the media ID @aaabx, which is the media ID of the target container. The media ID of the source container is @aaabv.

10. Check the verify job details.





Note: Check which container verify job is running by using the media ID. In this example, the media ID @aaabx is for the target container 'ost_t'.

6 Monitor deduplication, compression, and performance

After backup jobs have run, the DR Series system tracks capacity, storage savings, and throughput on the DR Series system dashboard. This information is valuable in understanding the benefits of the DR Series system.

Note: Deduplication ratios increase over time. It is not uncommon to see a 2-4x reduction (25-50% total savings) on the initial backup. As additional full backup jobs are completed, the ratios will increase. Backup jobs with a 12-week retention will average a 15x ratio, in most cases.