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

Dell Engineering
February 2014

A Dell Technical White Paper

Revisions

Date	Description
February 2014	Initial release

THIS WHITE PAPER IS FOR INFORMATIONAL PURPOSES ONLY, AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND.
© 2014 Dell Inc. All rights reserved. Reproduction of this material in any manner whatsoever without the express written permission of Dell Inc. is strictly forbidden. For more information, contact Dell.

PRODUCT WARRANTIES APPLICABLE TO THE DELL PRODUCTS DESCRIBED IN THIS DOCUMENT MAY BE FOUND AT: http://www.dell.com/learn/us/en/19/terms-of-sale-commercial-and-public-sector Performance of network reference architectures discussed in this document may vary with differing deployment conditions, network loads, and the like. Third party products may be included in reference architectures for the convenience of the reader. Inclusion of such third party products does not necessarily constitute Dell's recommendation of those products. Please consult your Dell representative for additional information.
Trademarks used in this text:
Dell™, the Dell logo, Dell Boomi™, Dell Precision™ ,OptiPlex™, Latitude™, PowerEdge™, PowerVault™, PowerConnect™, OpenManage™, EqualLogic™, Compellent™, KACE™, FlexAddress™, Force10™ and Vostro™ are trademarks of Dell Inc. Other Dell trademarks may be used in this document. Cisco Nexus®, Cisco MDS®, Cisco NX-0S®, and other Cisco Catalyst® are registered trademarks of Cisco System Inc. EMC VNX®, and EMC Unisphere® are registered trademarks of EMC Corporation. Intel®, Pentium®, Xeon®, Core® and Celeron® are registered trademarks of Intel Corporation in the U.S. and other countries. AMD® is a registered trademark and AMD Opteron™, AMD Phenom™ and AMD Sempron™ are trademarks of Advanced Micro Devices, Inc. Microsoft®, Windows®, Windows Server®, Internet Explorer®, MS-DOS®, Windows Vista® and Active Directory® are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Red Hat® and Red Hat® Enterprise Linux® are registered trademarks of Red Hat, Inc. in the United States and/or other countries. Novell® and SUSE® are registered trademarks of Novell Inc. in the United States and other countries. Oracle® is a registered trademark of Oracle Corporation and/or its affiliates. Citrix®, Xen®, XenServer® and XenMotion® are either registered trademarks or trademarks of Citrix Systems, Inc. in the United States and/or other countries. VMware®, Virtual SMP®, vMotion®, vCenter® and vSphere® are registered trademarks or trademarks of VMware, Inc. in the United States or other countries. IBM® is a registered trademark of International Business Machines Corporation. Broadcom® and NetXtreme® are registered trademarks of Broadcom Corporation. Qlogic is a registered trademark of QLogic Corporation. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and/or names or their products and are the property of their respective owners. Dell disclaims proprietary interest in the marks and names of others.

Table of contents

Revisions 2

Executive summary 4

1 Install and configure the DR Series system 5

2 Set up NetBackup for Virtual Synthetic Backup on a Windows or Linux client 10

3 Back up using NBU virtual synthetic backup 25

4 Monitor deduplication, compression, and performance 30

Executive summary

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

See the DR Series Deduplication Appliance documentation other data management application best practices whitepapers for additional information.

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

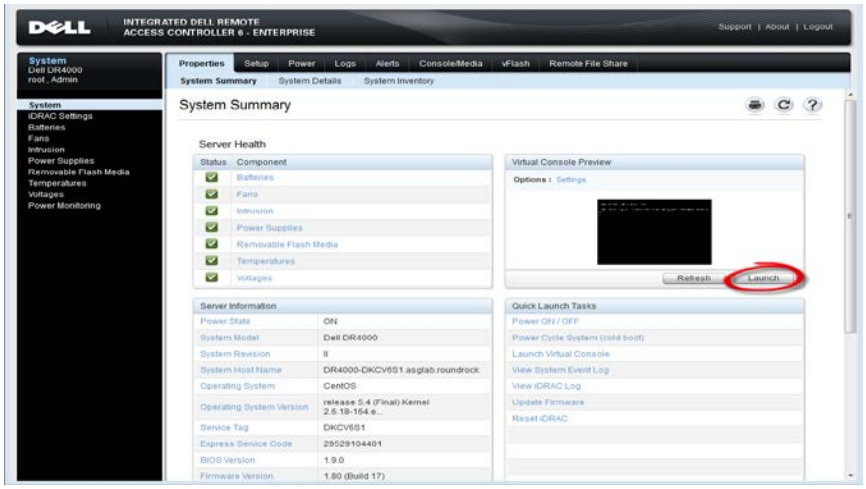
- **Dedupe backup:** In this mode, deduplication is done on the client and then the deduplicated packets are sent to the DR Series system.
- **Passthrough backup:** In this mode, deduplication is done on the DR Series system after data is transferred from the client.
- **Synthetic backup:** A synthetic 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.
- **Virtual Synthetic Backup/Optimized synthetic Backup:** A synthetic backup that avoids the need to move data across the network. The media server tells the storage server which full and incremental images to use to create the synthetic image.

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".

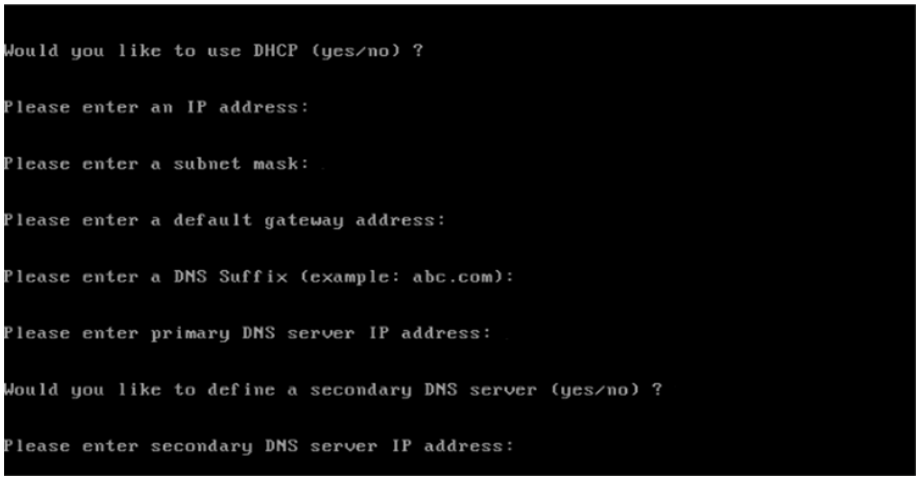
3. Log in to iDRAC using the default address **192.168.0.120**, or the IP that is assigned to the iDRAC interface. Use the user name and password of "**root/calvin**".



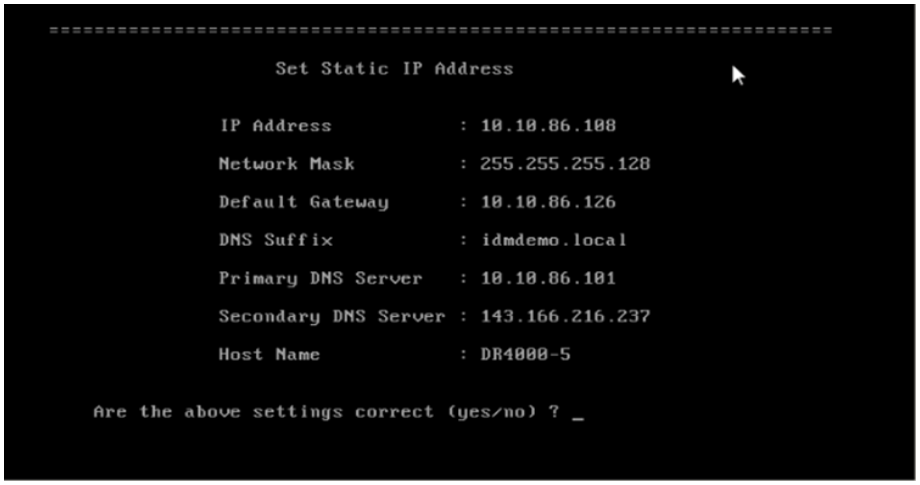
4. Launch the virtual console.

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).

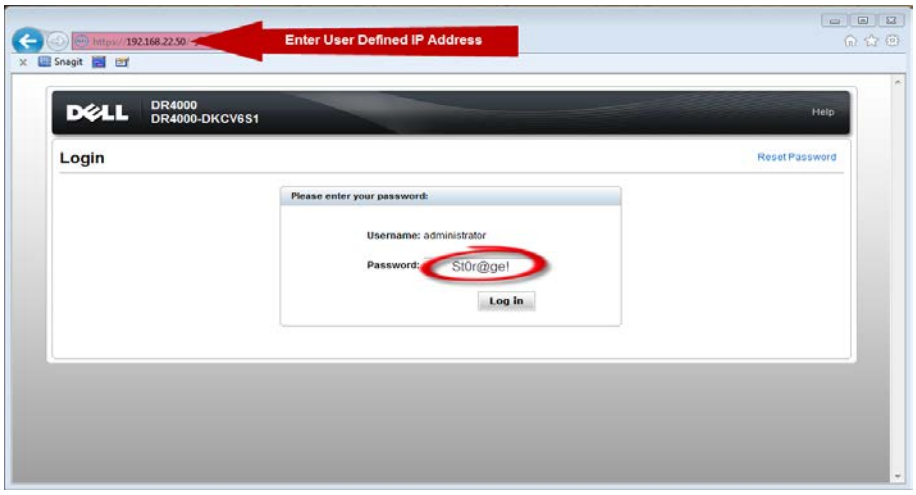
6. Set the user-defined networking preferences.



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



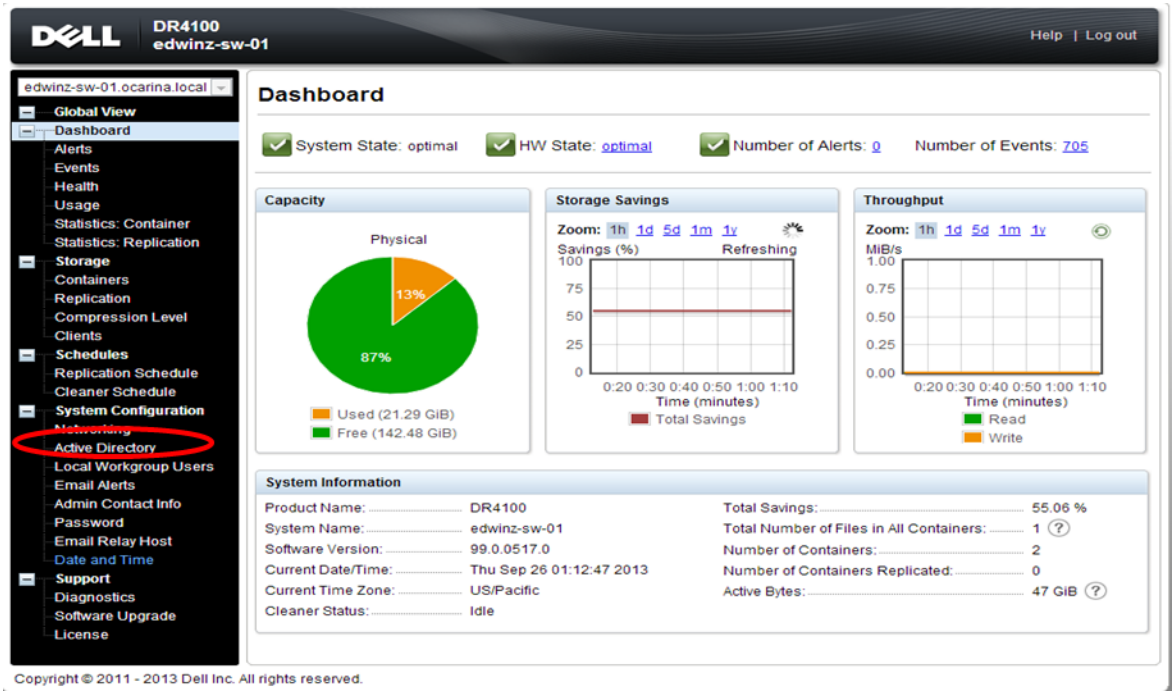
8. Log on to the DR Series system administrator console using the IP address you just provided for the DR Series system, the username **administrator,** and the password **St0r@ge!** (the "0" in the password is the numeral zero).



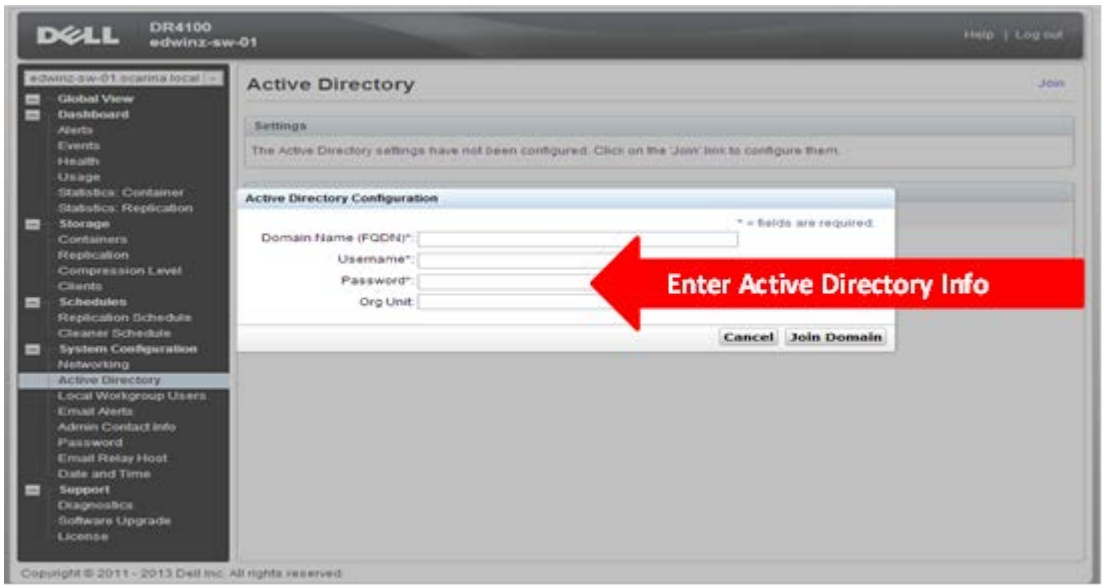
9. Join the DR Series system to Active Directory.

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.

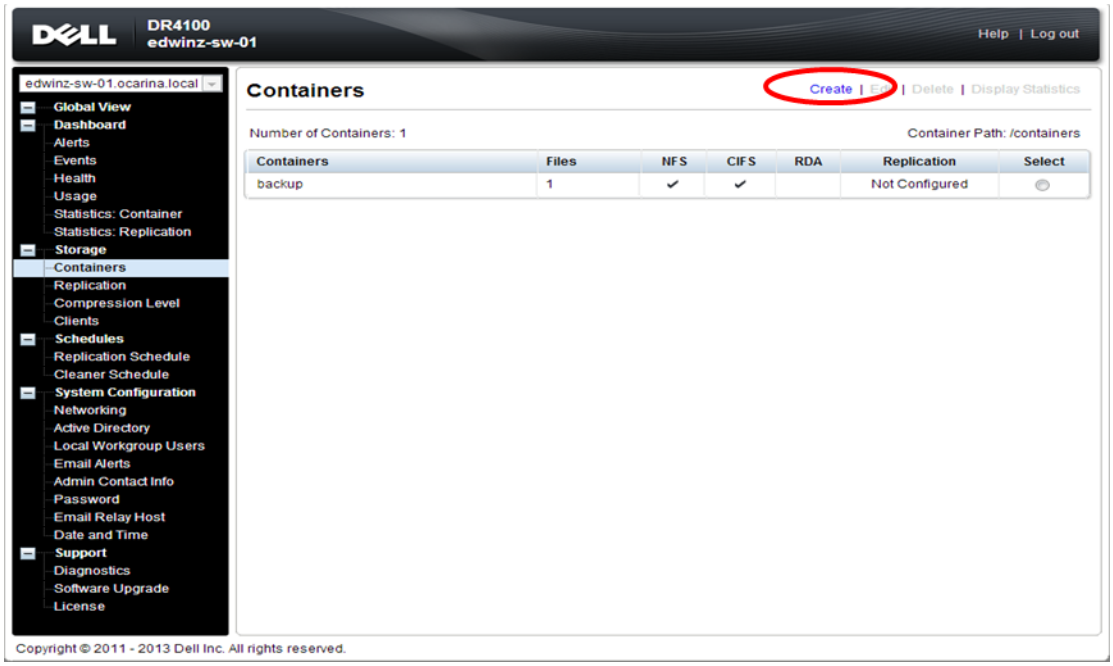
a. Select **Active Directory** from the navigation panel on the left side of the management interface (also known as the dashboard).



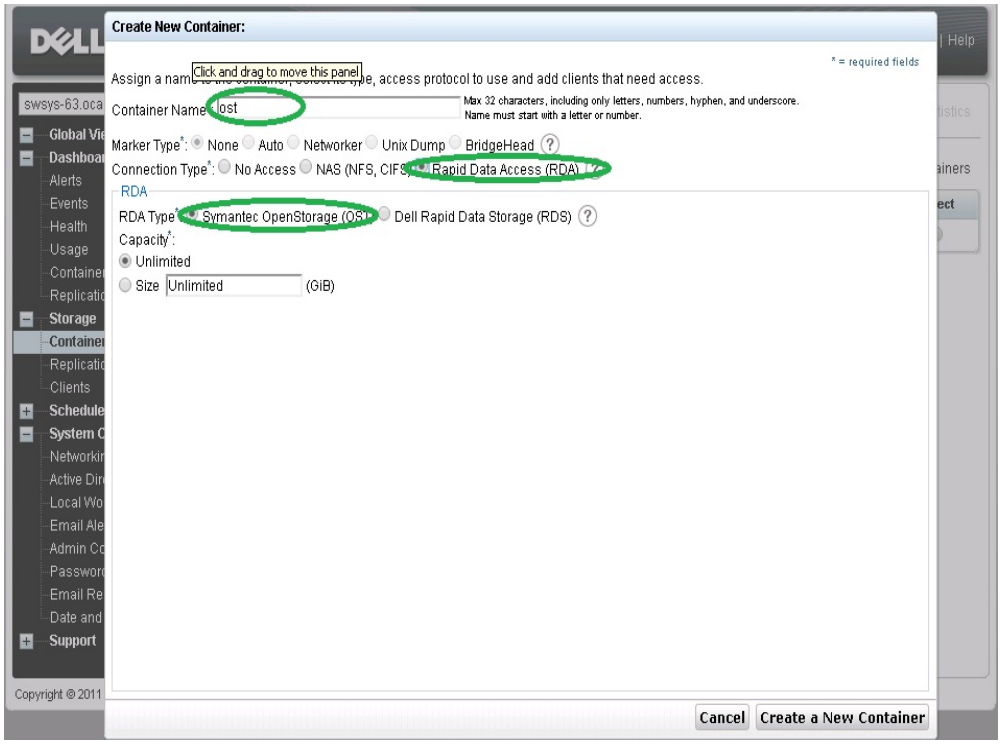
b. Enter your Active Directory credentials.



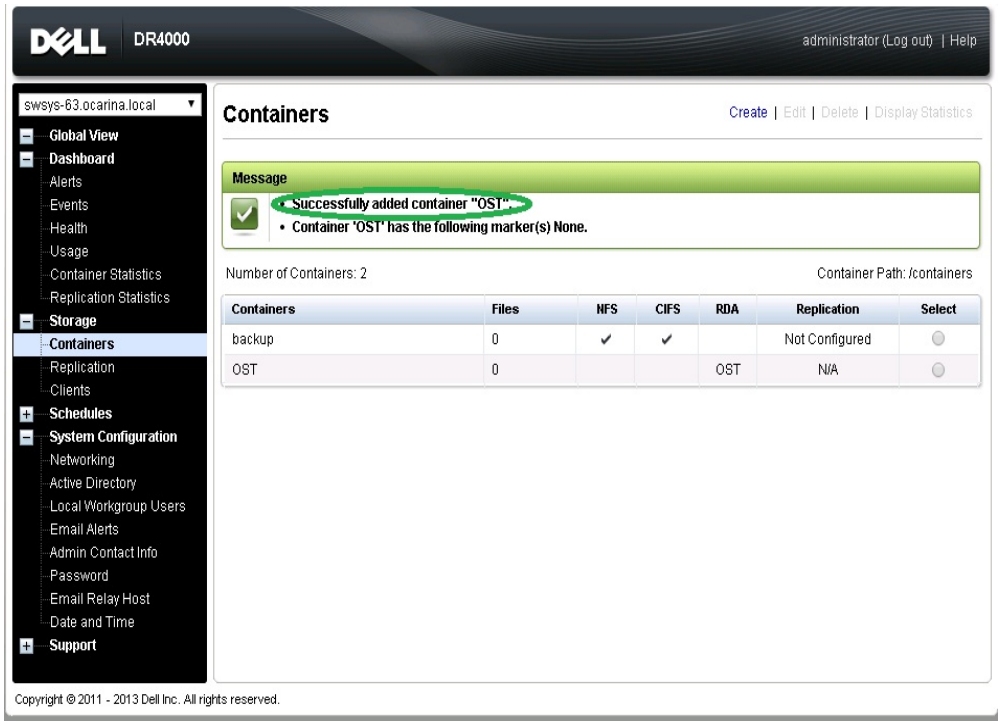
10. Create an **OST** container. Select **Containers** in the navigation panel on the left side of the dashboard, and then click the **Create** at the top of the page.



a. Enter a container name and select the connection type as RDA. Then select the RDA type as Symantec OpenStorage (OST).



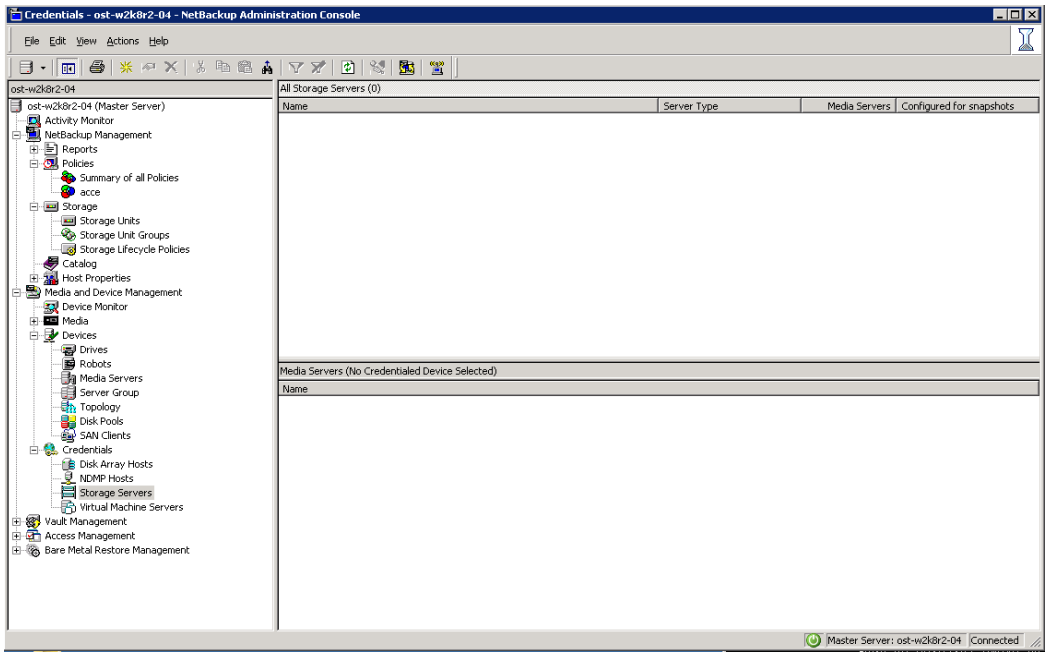
b. Click **Create a New Container** and confirm that the container was added.



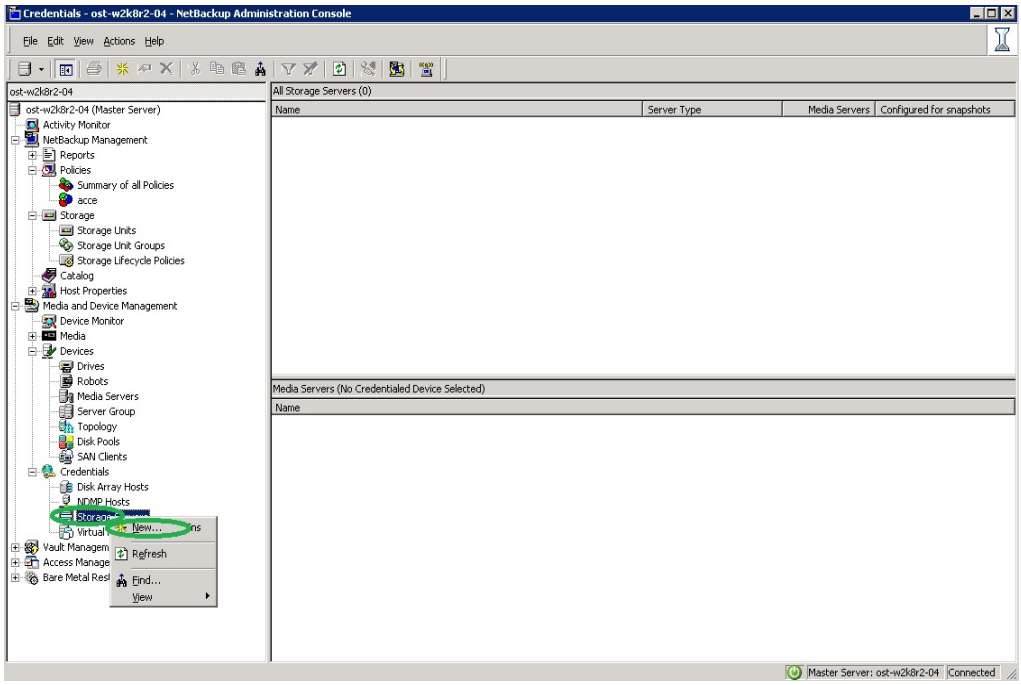
2 Set up NetBackup for Virtual Synthetic Backup on a Windows or Linux client

Note: Make sure that the Dell OST plugin is installed on the DMA client that is used for NetBackup (NBU) backup.

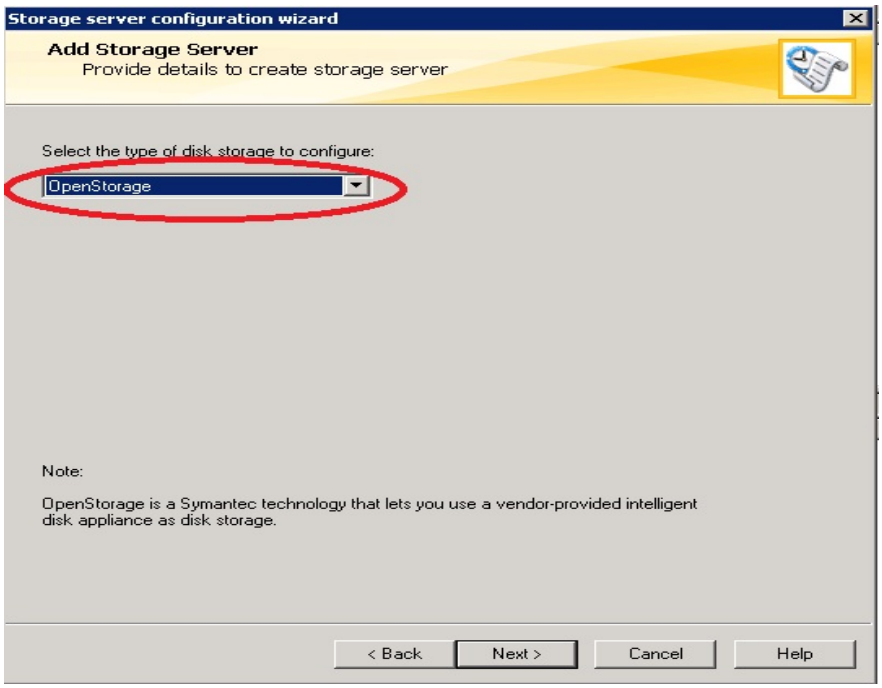
1. Launch **NBU Console**



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

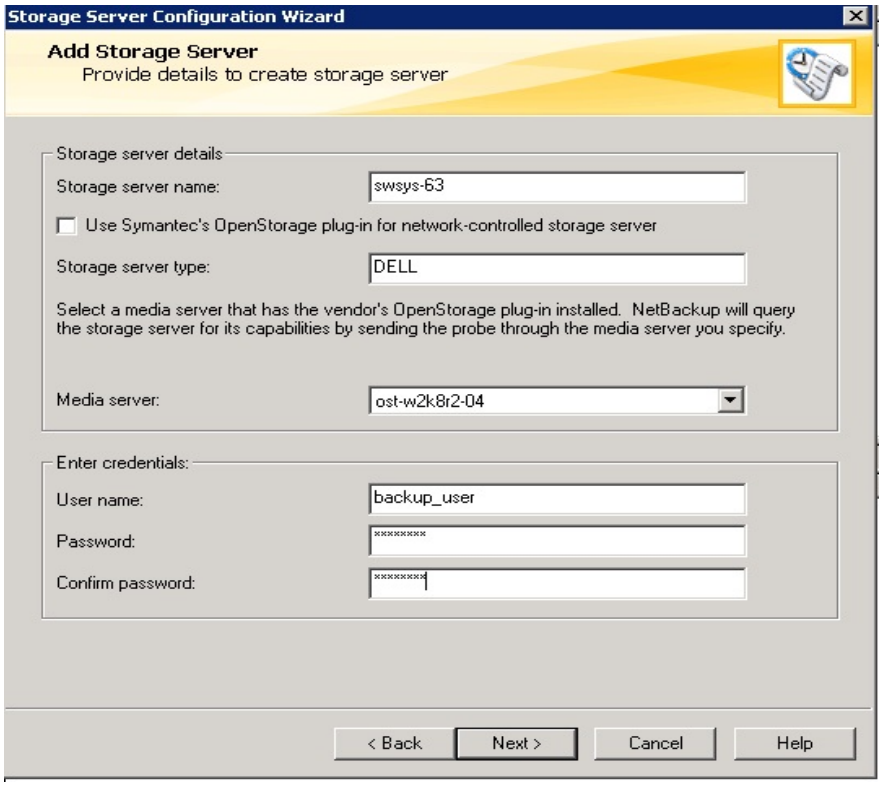


3. In the **Storage server configuration wizard** dialog box, choose **OpenStorage** from the list and click **Next**.

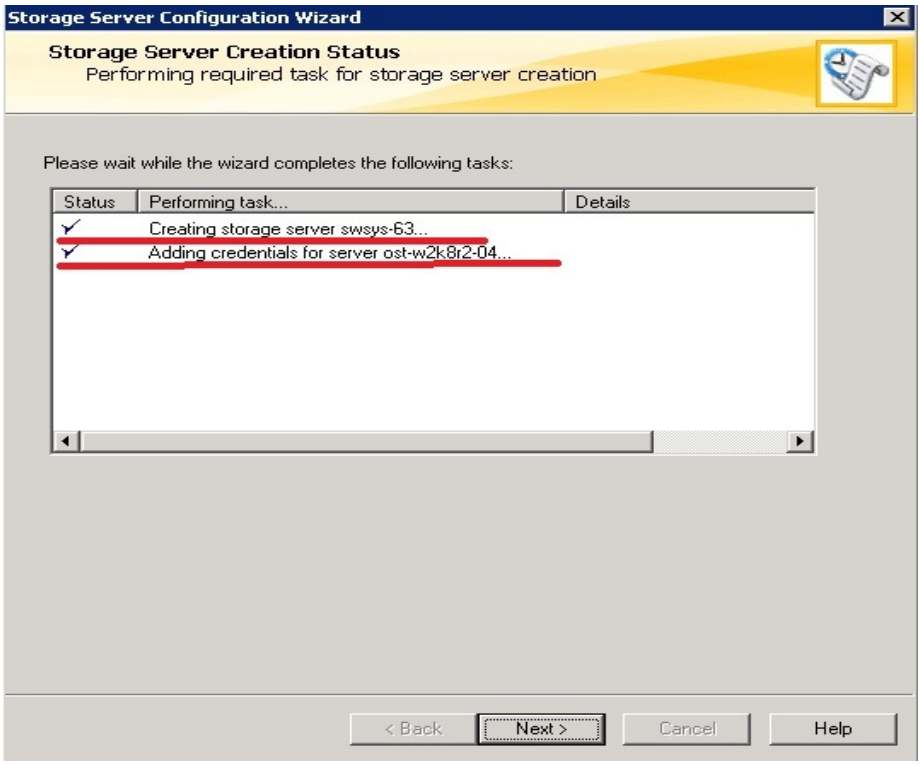


4. Under **Storage server name**, enter the DR Series system IP address or hostname. Under **Storage server type**, enter **DELL.**

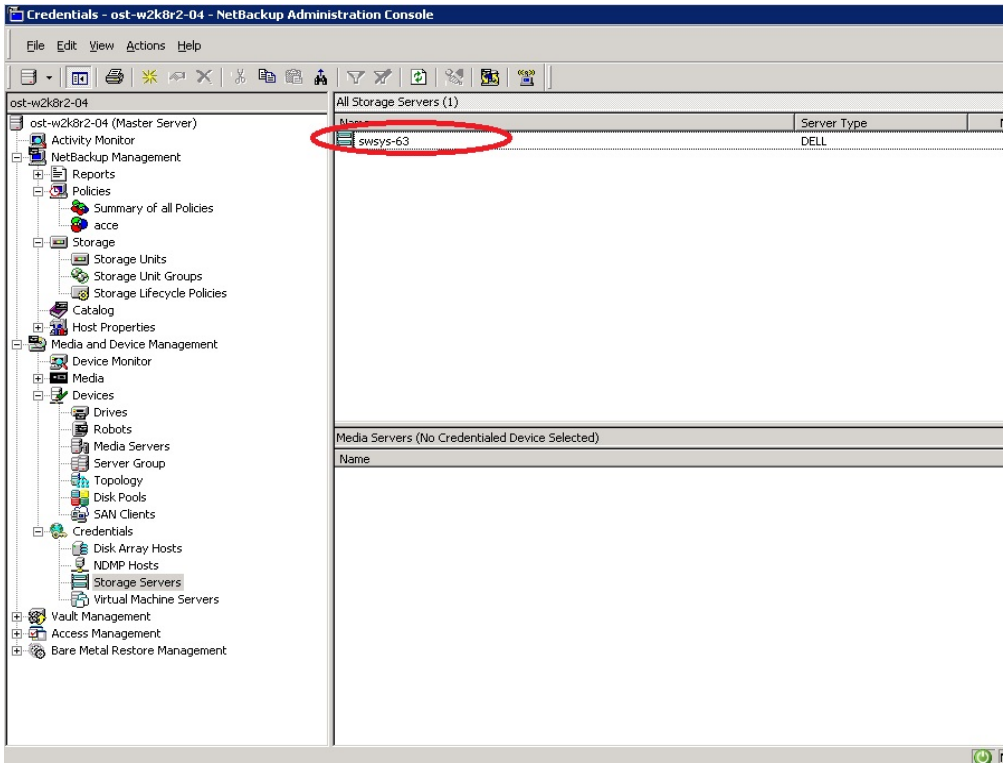
5. In the **Media server** list, select the media server and enter the user name: **backup_user**, password: **St0r@ge!**



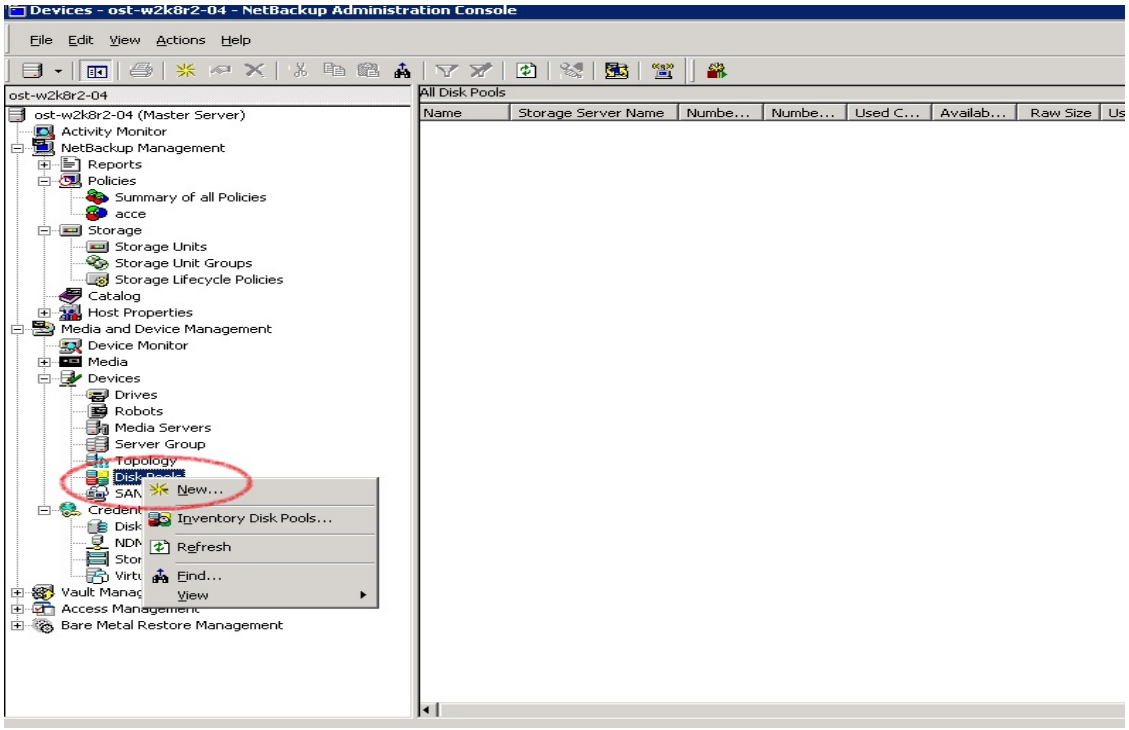
6. Make sure the storage server creation is successful and that authentication is fine.



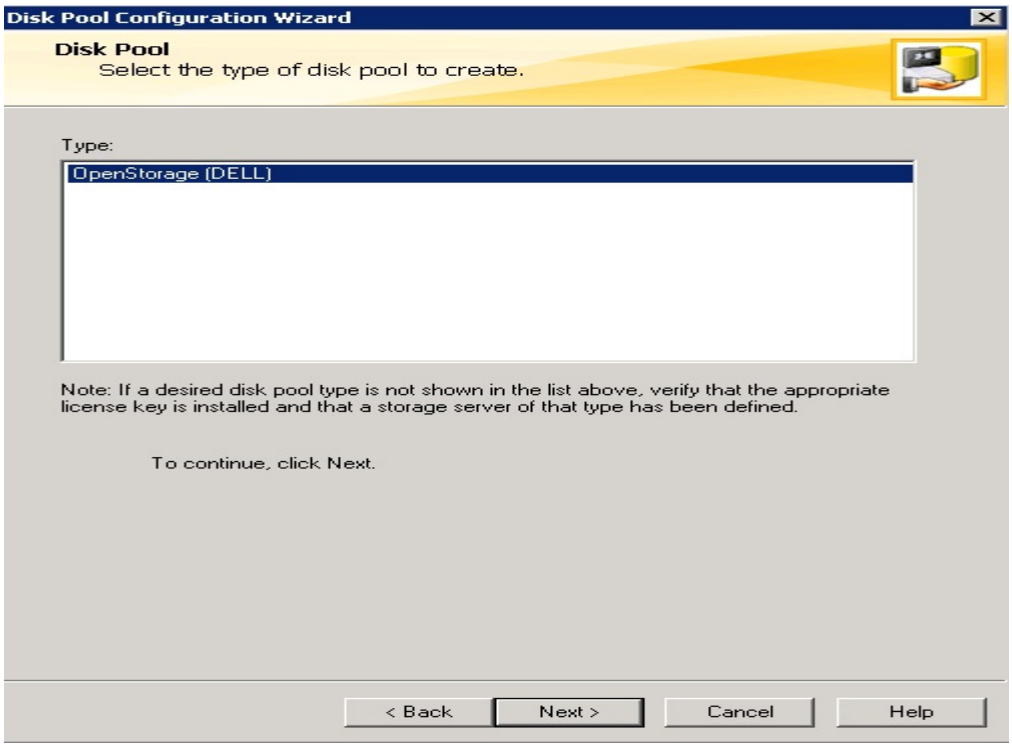
7. Created storage server should be listed.



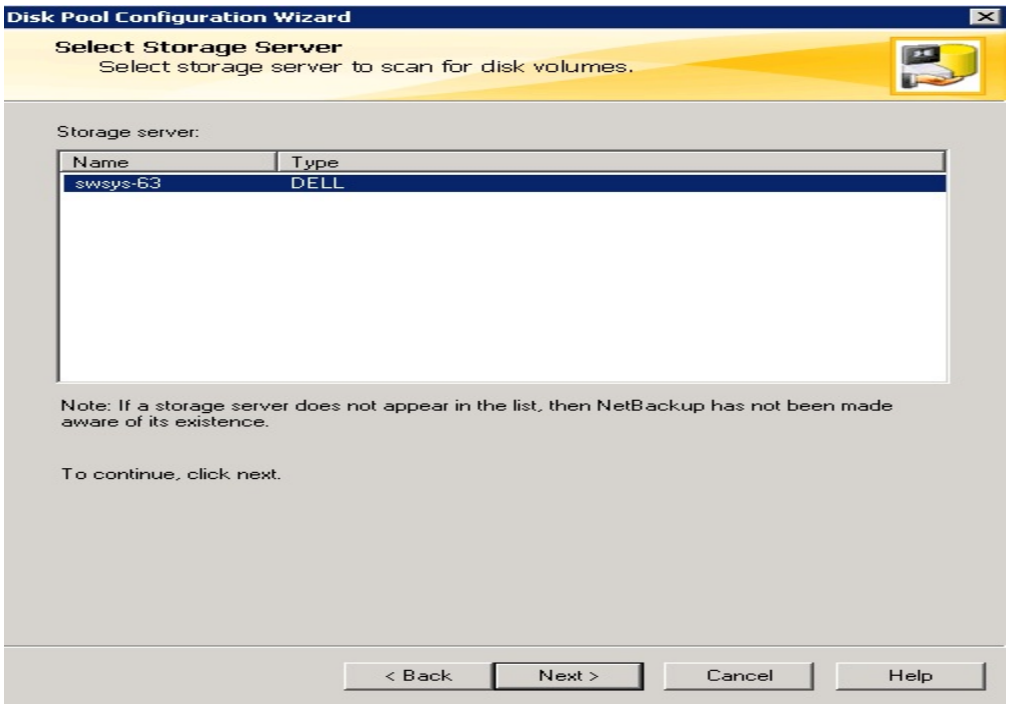
8. Right-click on **Media and Device Management -> Devices -> Disk Pool**. Click **New**.



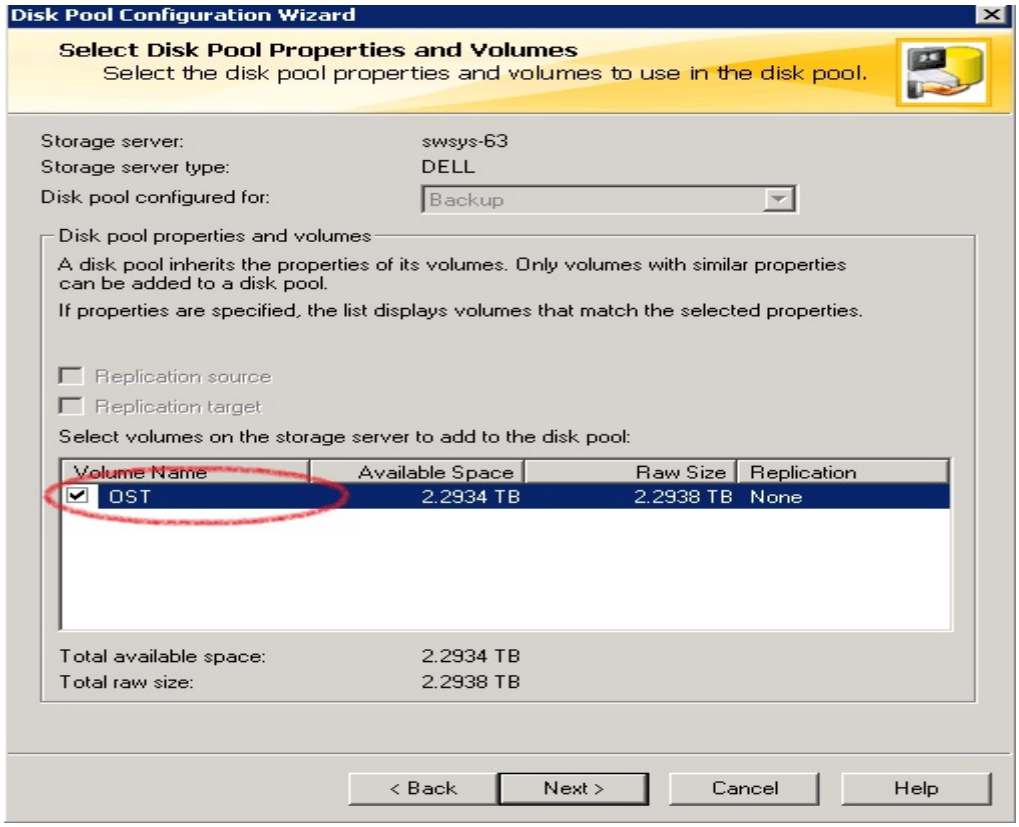
9. In the **Disk Pool Configuration Wizard** dialog box, select **OpenStorage (DELL)** for **Type**.



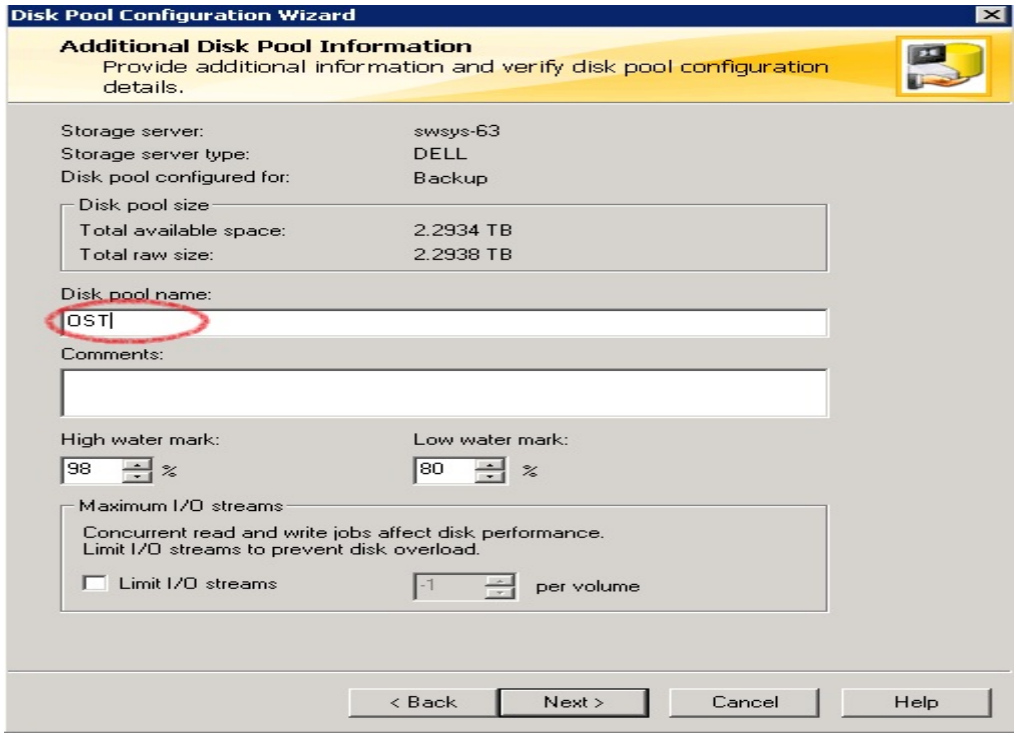
10. In the **Storage server** list, select the DR storage server created in steps 1-6.



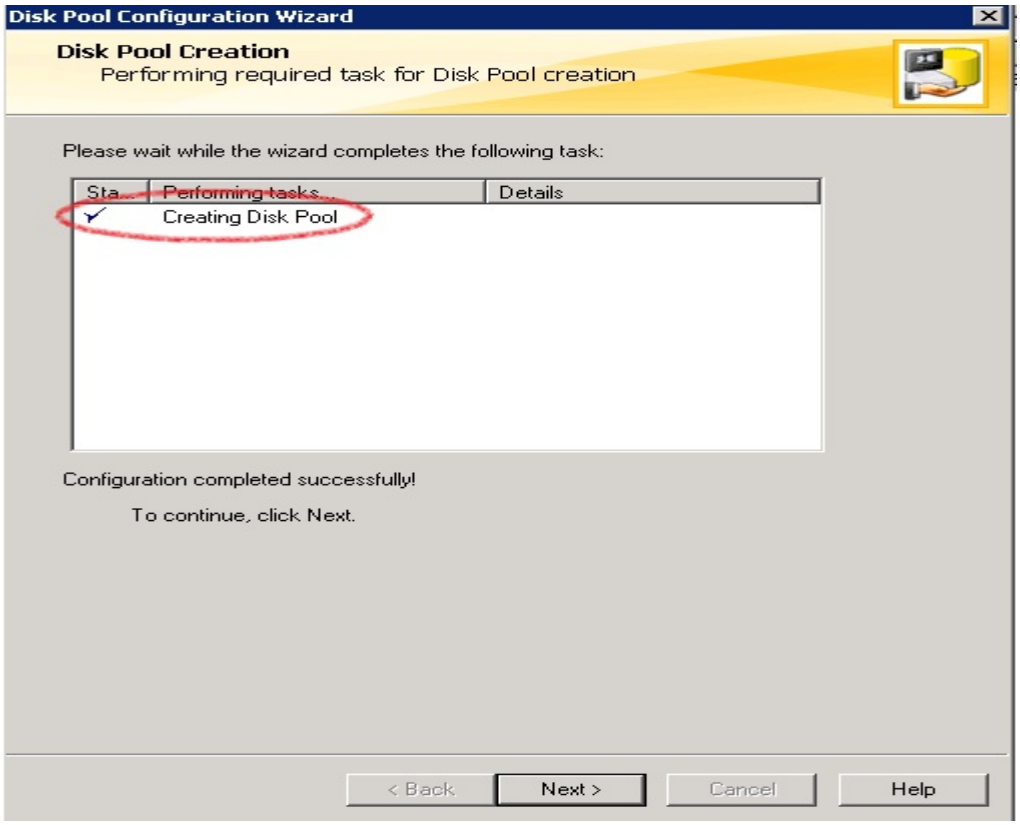
11. Select the **OST** container created in **Section 1**, which will be used for backup.



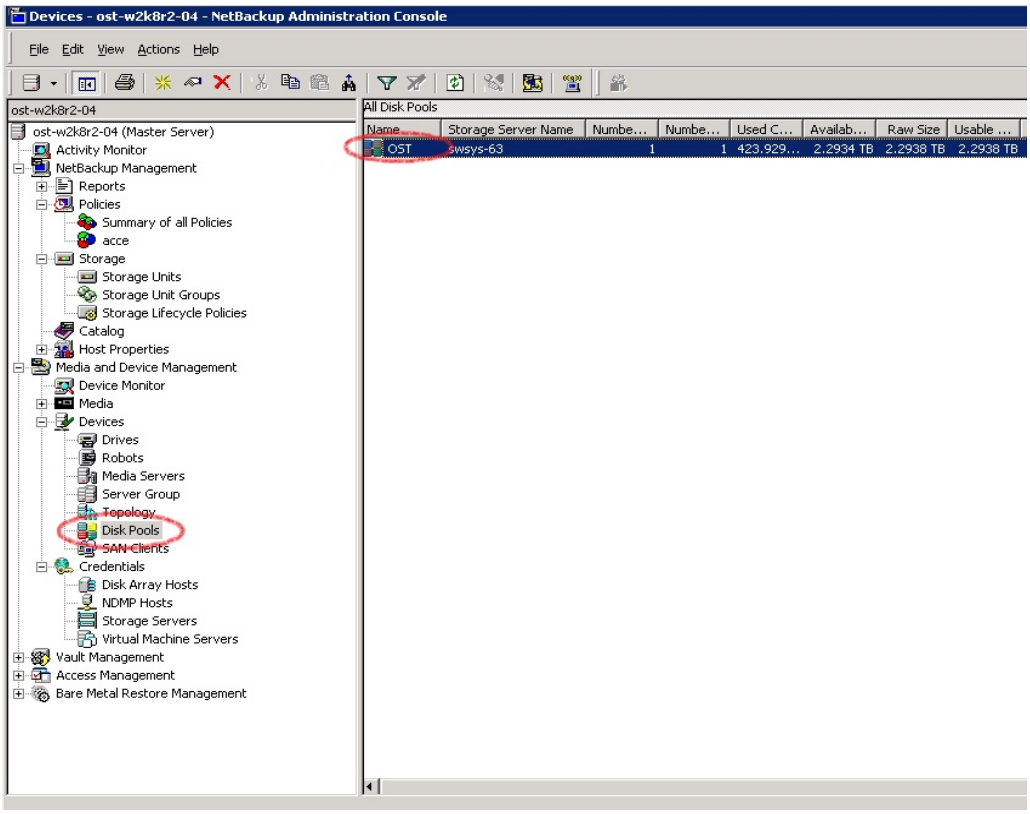
12. Enter the **Disk pool name**.



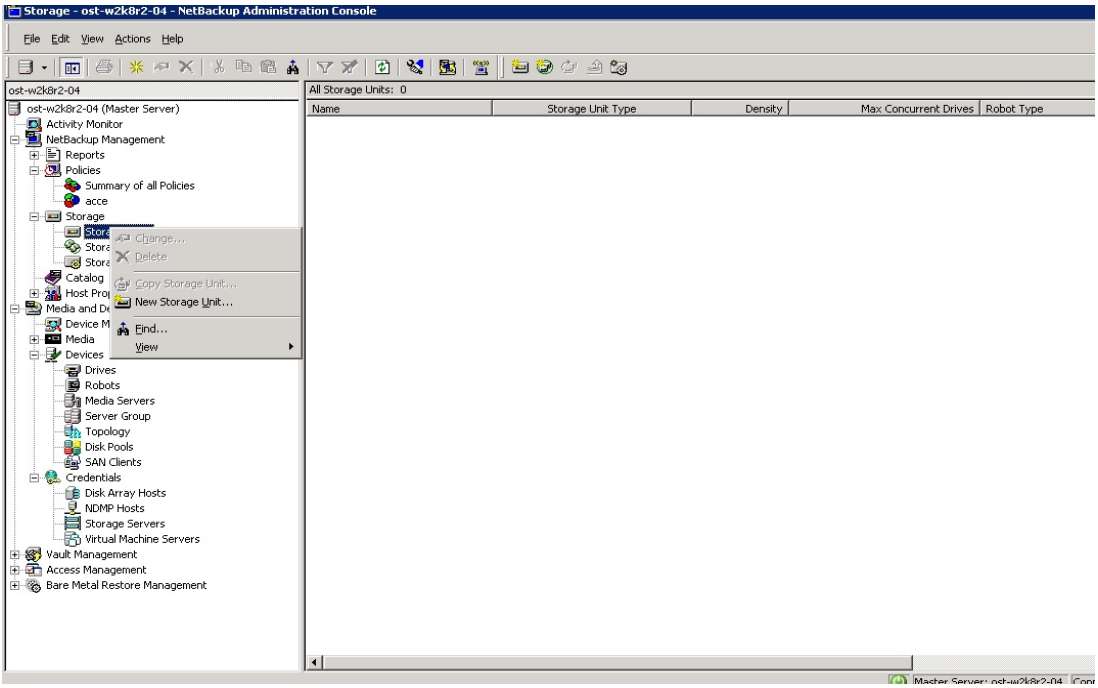
13. Confirm that disk pool creation is successful.



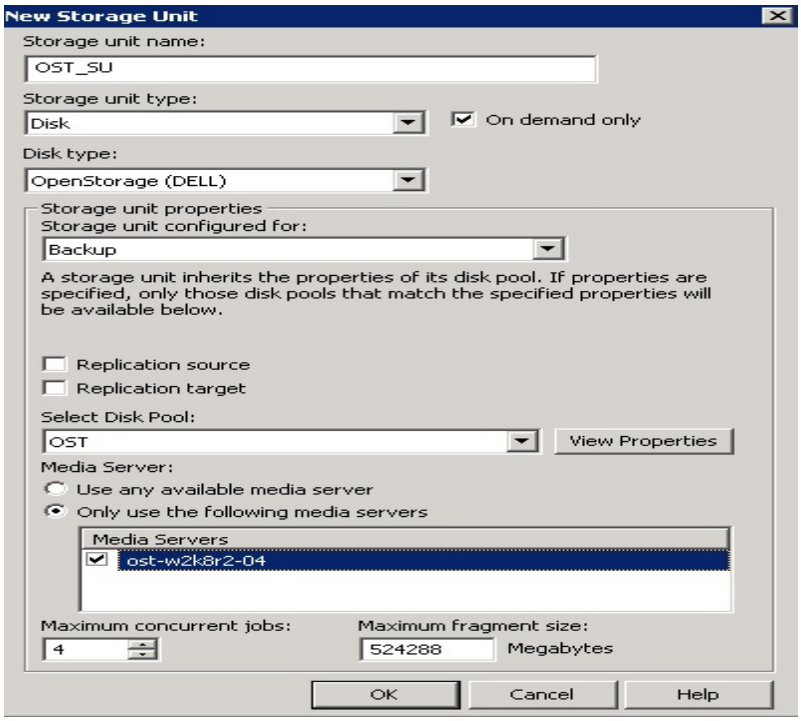
14. Make sure the disk pool is listed.



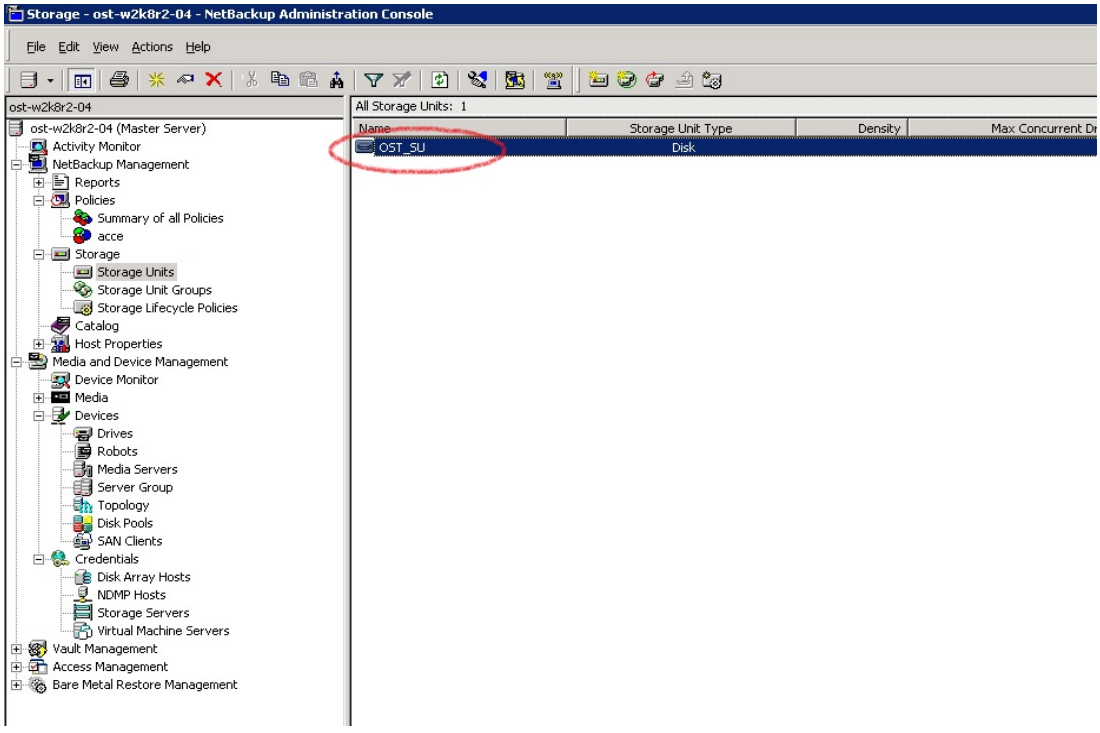
15. Right click **Netbackup Management** -> **Storage** -> **Storage Unit**. Click **New Storage Unit**.



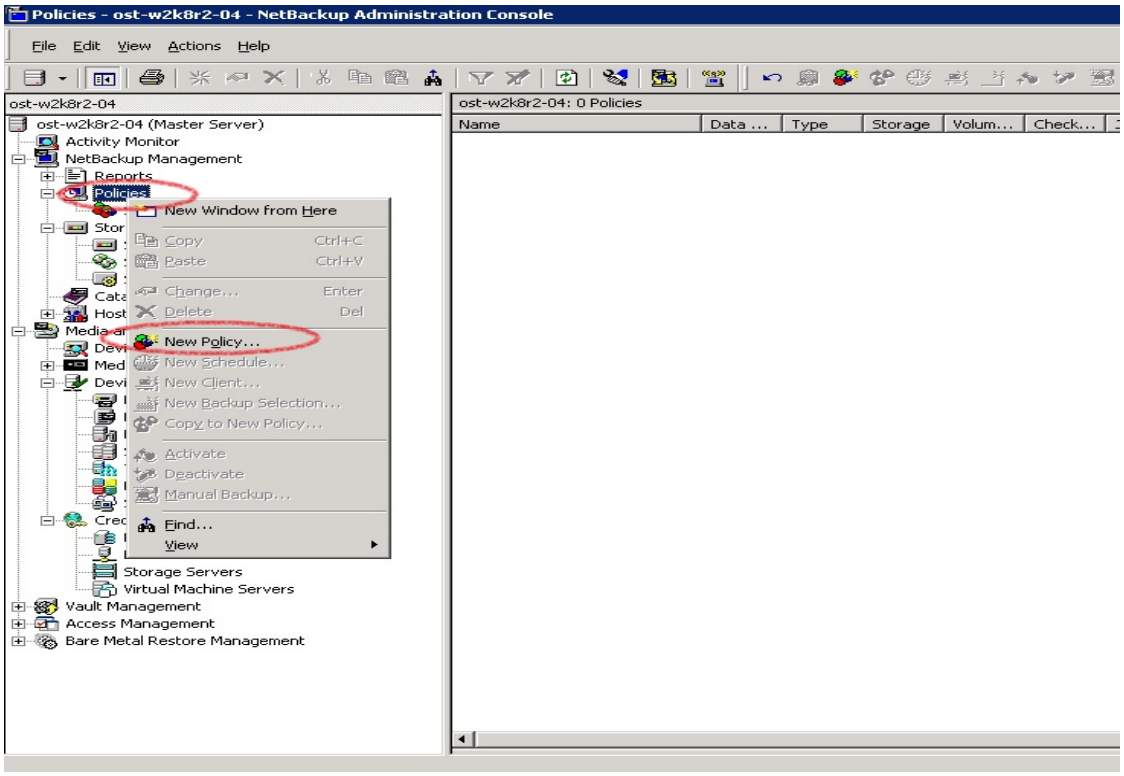
16. In **New Storage Unit**, enter a **Storage unit name**, **Storage unit type** as **Disk**, **Disk type** as **OpenStorage (DELL)**, **Storage unit configured for** as **Backup.** Select the disk pool that was created in steps 7-13, and select the media server that will be used for backup.



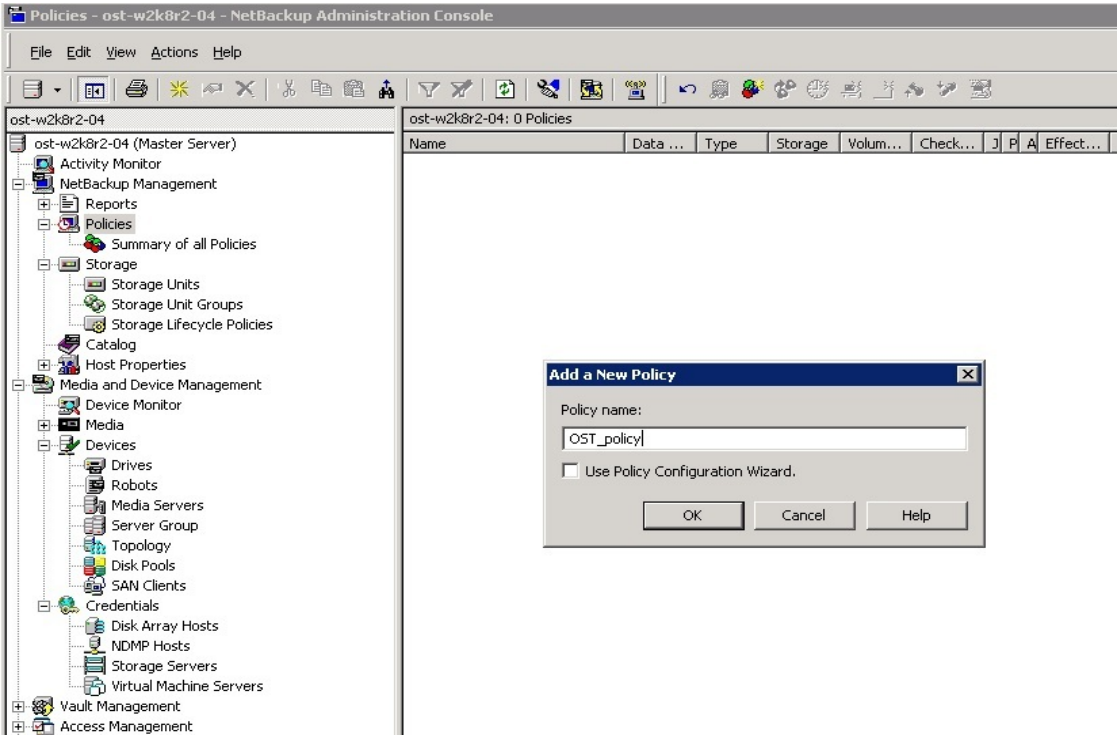
17. Make sure that the **Storage Unit** is listed after creation.



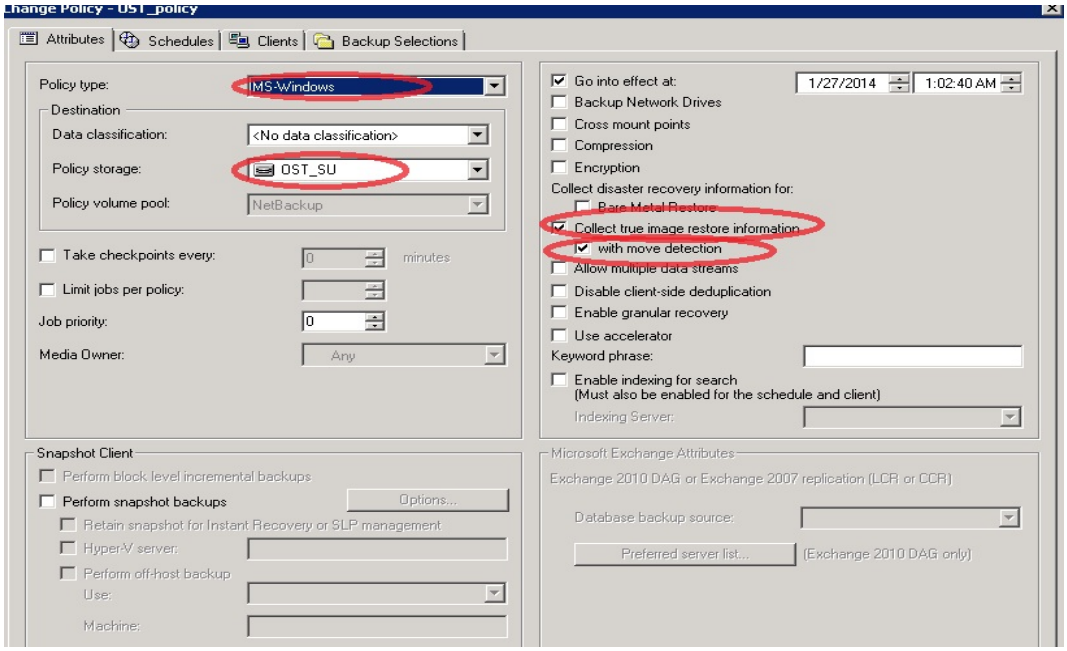
18. Right click under **Netbackup Management** -> **Policies**. Click **New Policy**.



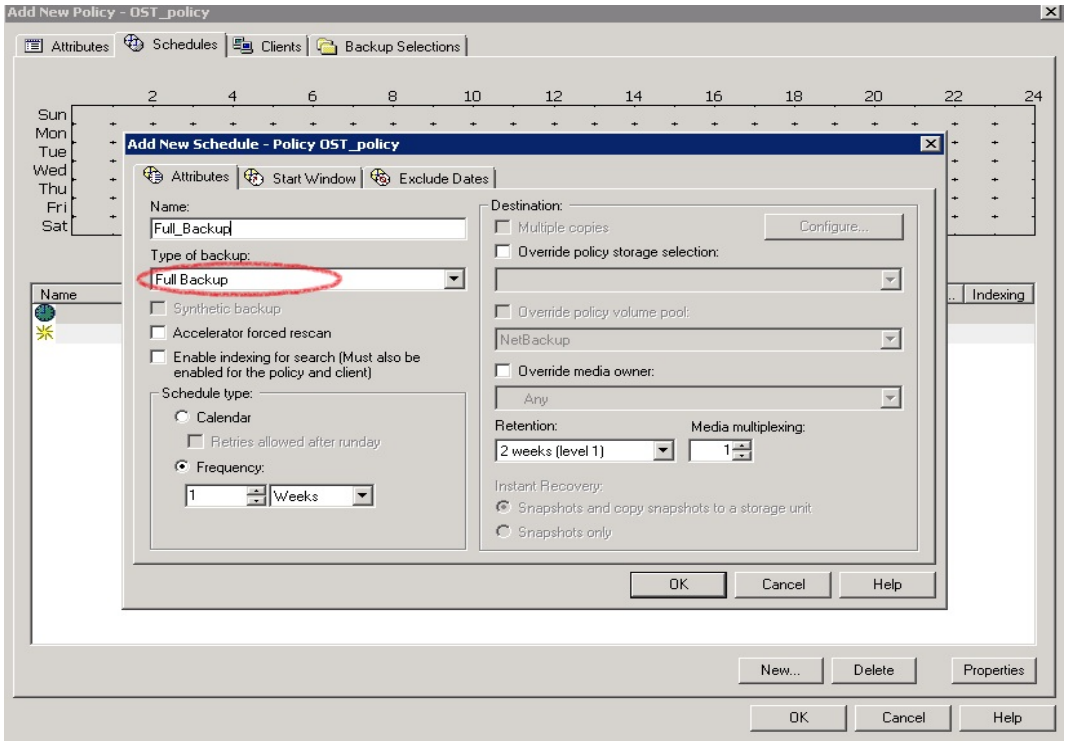
19. Enter **Policy name**.

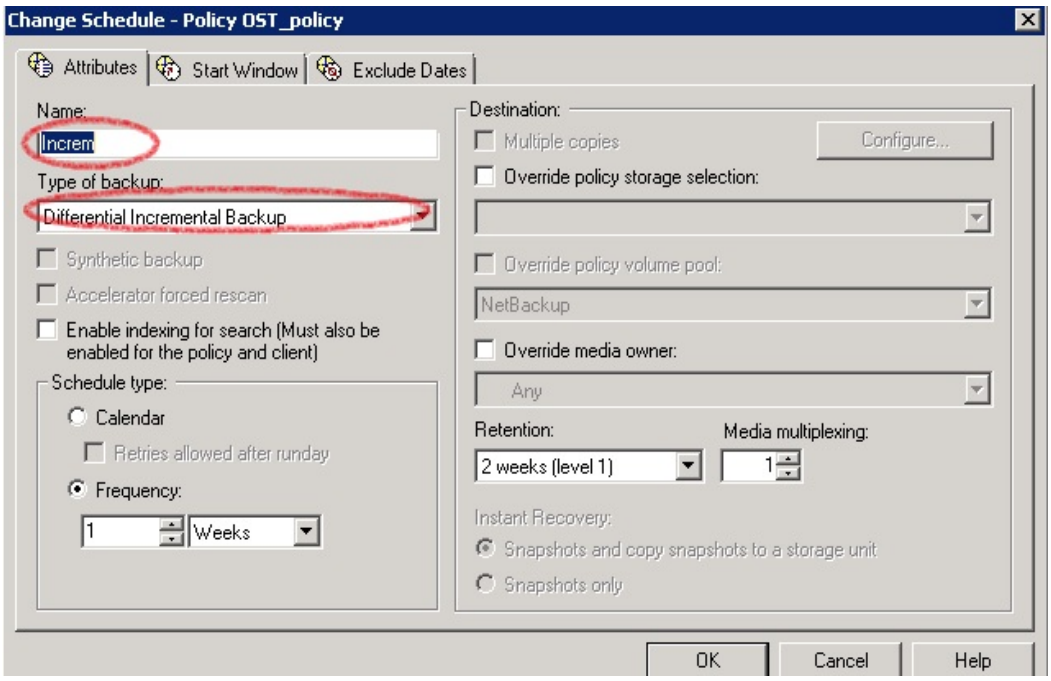


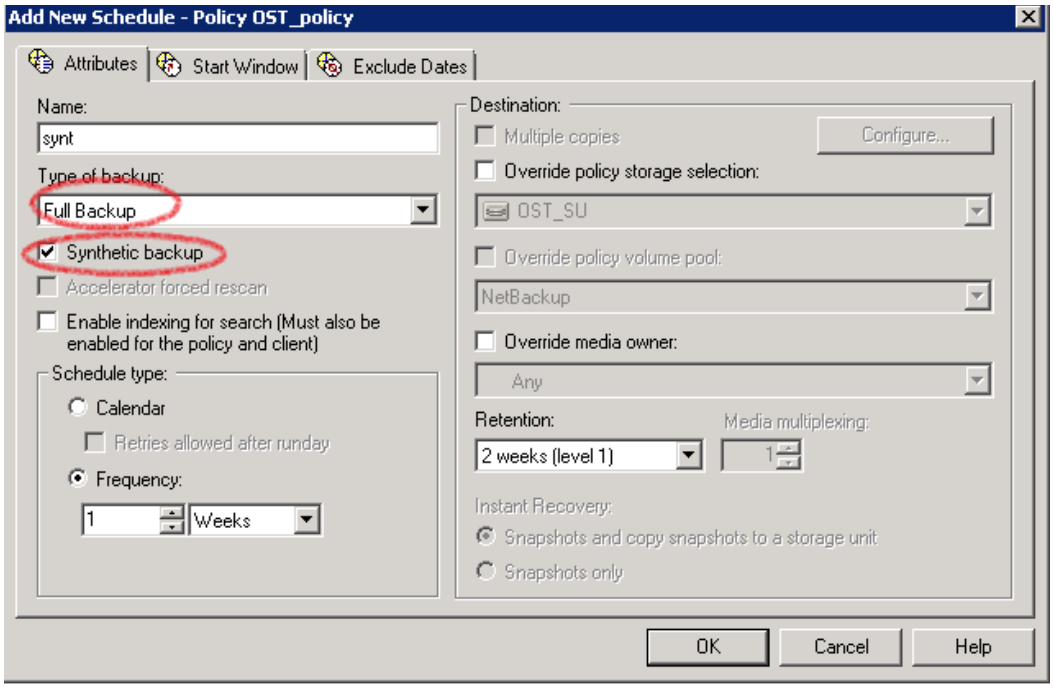
20. Enter policy attributes under **Attributes** tab: **Policy type** as **MS-Windows** (for Windows) or **Standard** (for Linux); **Policy storage** as the DR storage unit that was created in steps 14-16; enable **Collect true image restore information** and check **with move detection**.



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


Add New Policy - OST_policy
Attributes
Schedules
Clients
Backup Selections
Add New Schedule - Policy OST_policy
Attributes
Start Window
Exclude Dates
Name:
Full_Backup
Type of backup:
Full Backup
Synthetic backup
Accelerator forced rescan
Enable indexing for search (Must also be enabled for the policy and client)
Schedule type:
Calendar
Retries allowed after runday
Frequency:
1
Weeks
Destination:
Multiple copies
Configure...
Override policy storage selection:
Override policy volume pool:
NetBackup
Override media owner:
Any
Retention:
2 weeks (level 1)
Media multiplexing:
1
Instant Recovery:
Snapshots and copy snapshots to a storage unit
Snapshots only
OK
Cancel
Help
New...
Delete
Properties

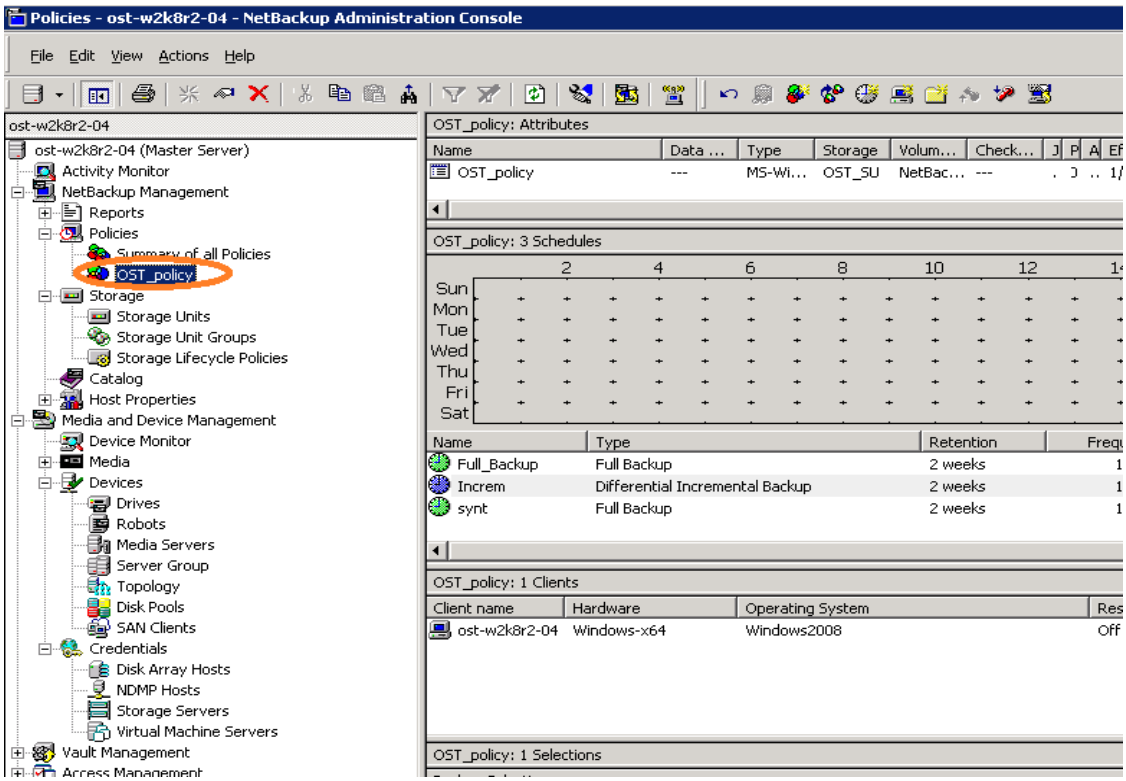

Change Schedule - Policy OST_policy
Attributes
Start Window
Exclude Dates
Name:
Increm
Type of backup:
Differential Incremental Backup
Synthetic backup
Accelerator forced rescan
Enable indexing for search (Must also be enabled for the policy and client)
Schedule type:
Calendar
Retries allowed after runday
Frequency:
1
Weeks
Destination:
Multiple copies
Configure...
Override policy storage selection:
Override policy volume pool:
NetBackup
Override media owner:
Any
Retention:
2 weeks (level 1)
Media multiplexing:
1
Instant Recovery:
Snapshots and copy snapshots to a storage unit
Snapshots only
OK
Cancel
Help



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.

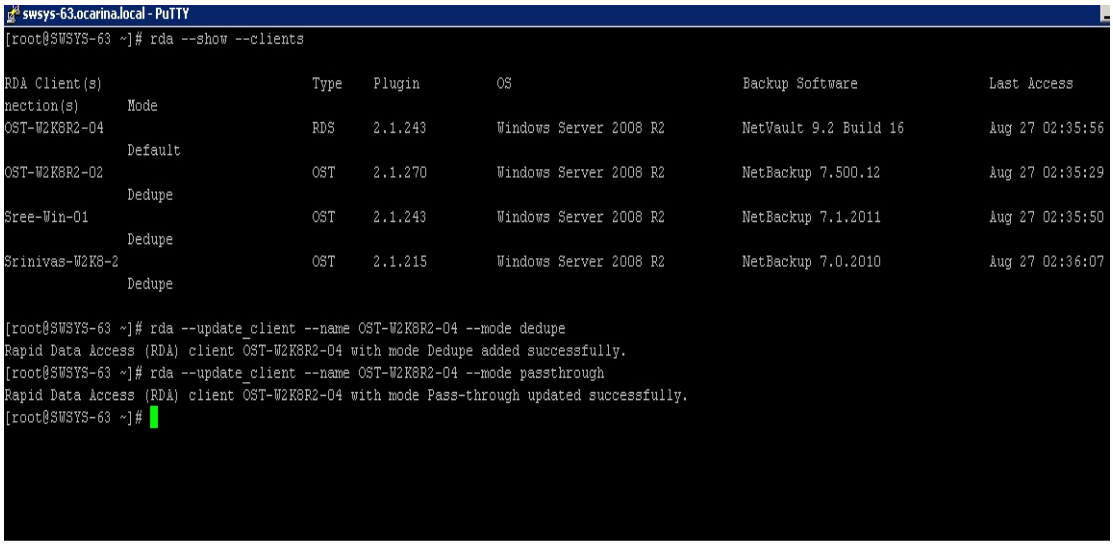
24. Make sure that the policy is created successfully.



25. Activate the policy before proceeding to backup. Right click the policy and click **Activate**.

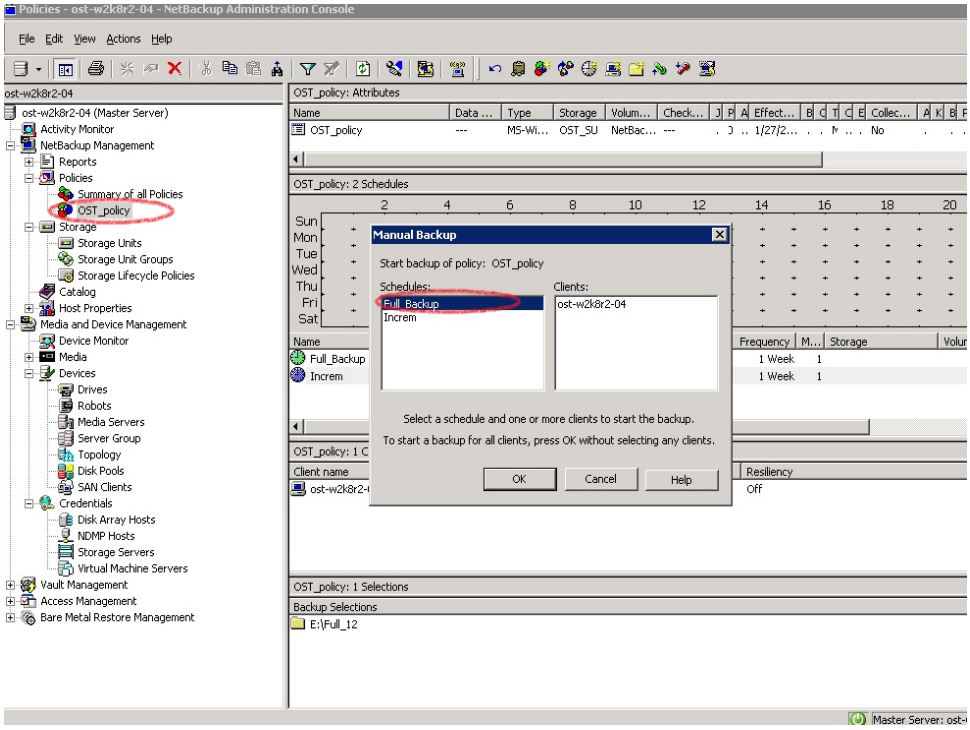
3 Back up using NetBackup virtual synthetic backup

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).

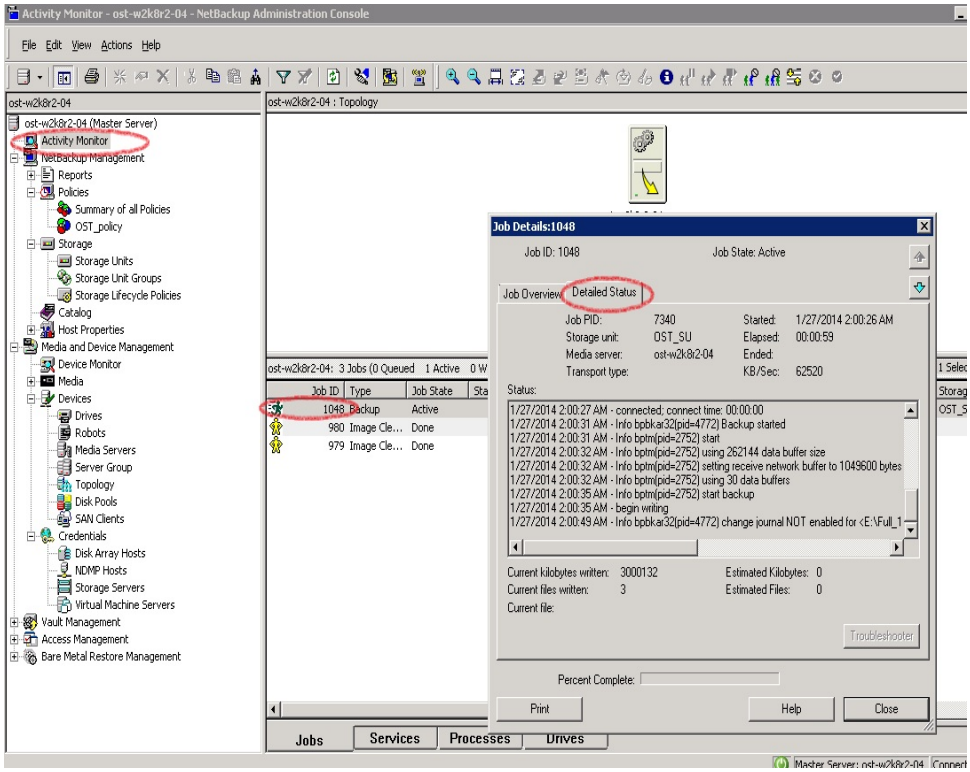


Note: You can schedule the backups or run them at a convenient time. This procedure uses a manual backup configuration.

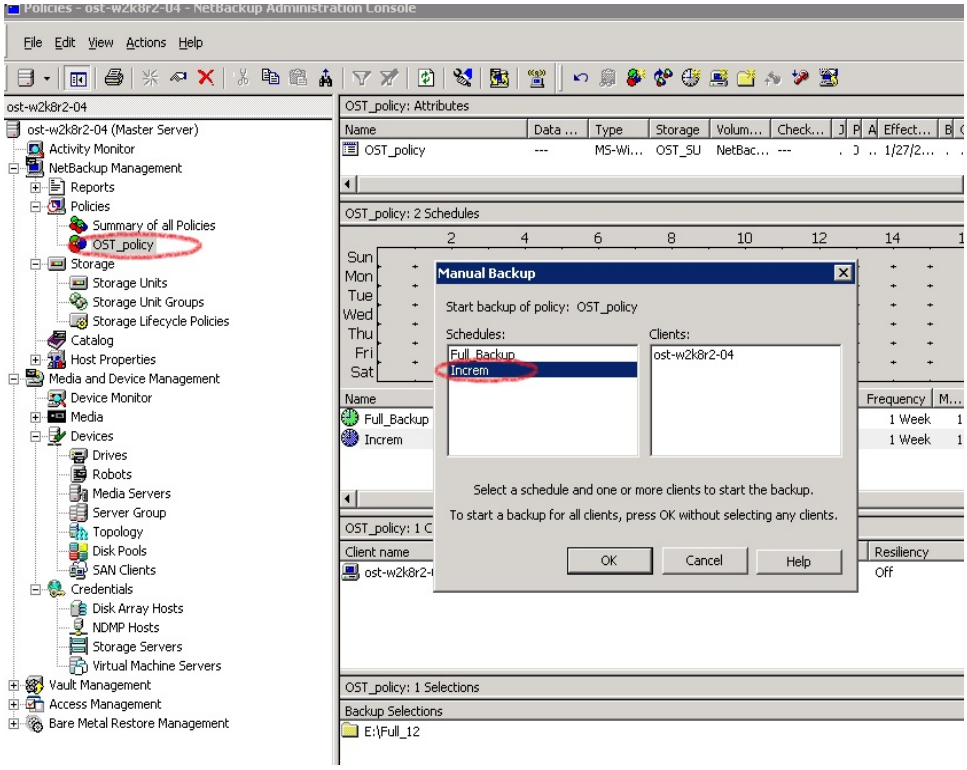
2. Under **Netbackup Management** -> **Policies**, right click on the policy created in the previous procedure and select **Manual Backup** to run the backup manually.



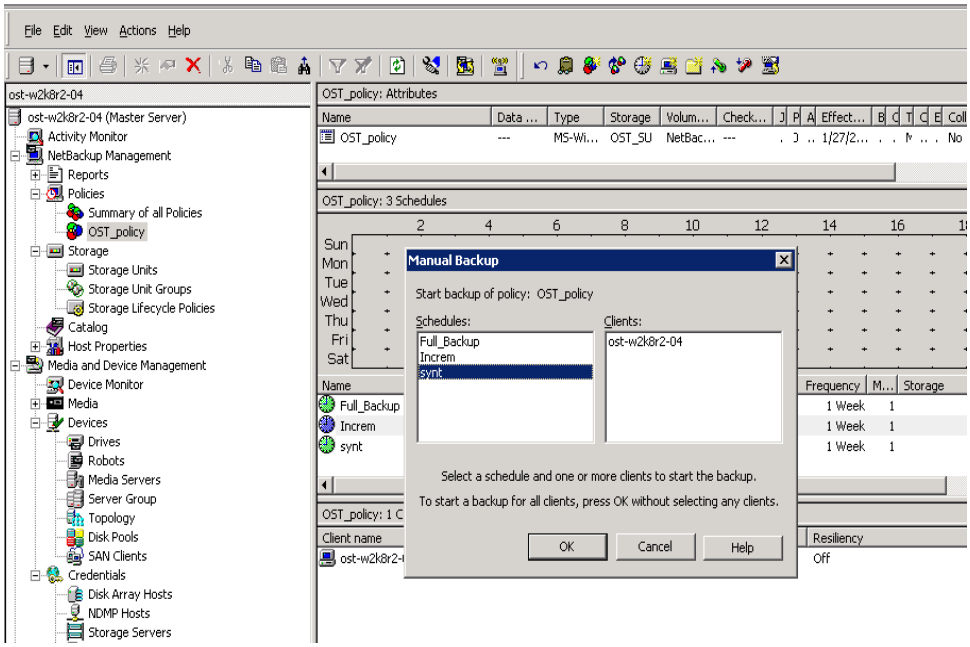
3. Run a manual **Full Backup** and check the status in the Activity Monitor. Double-click on the job to see the detailed status.



4. Run one or more configured **Incremental** backups to generate a set of backups that can make a synthetic full backup.

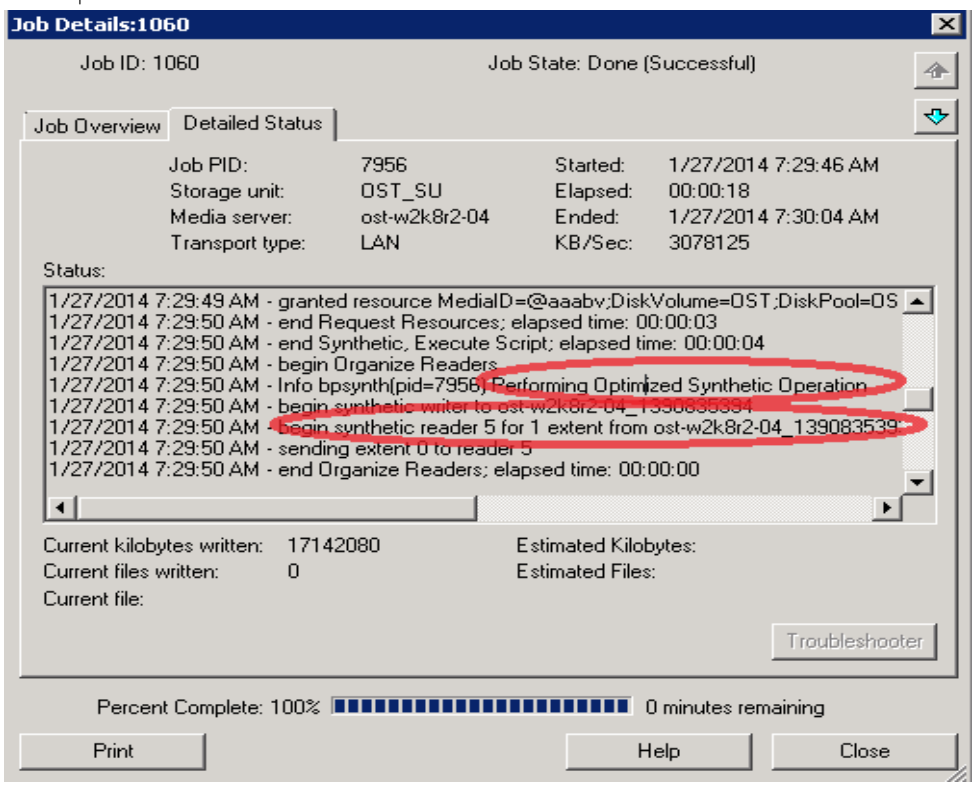


5. Then finally run a **Full Backup** with **synthetic backup** option enabled.

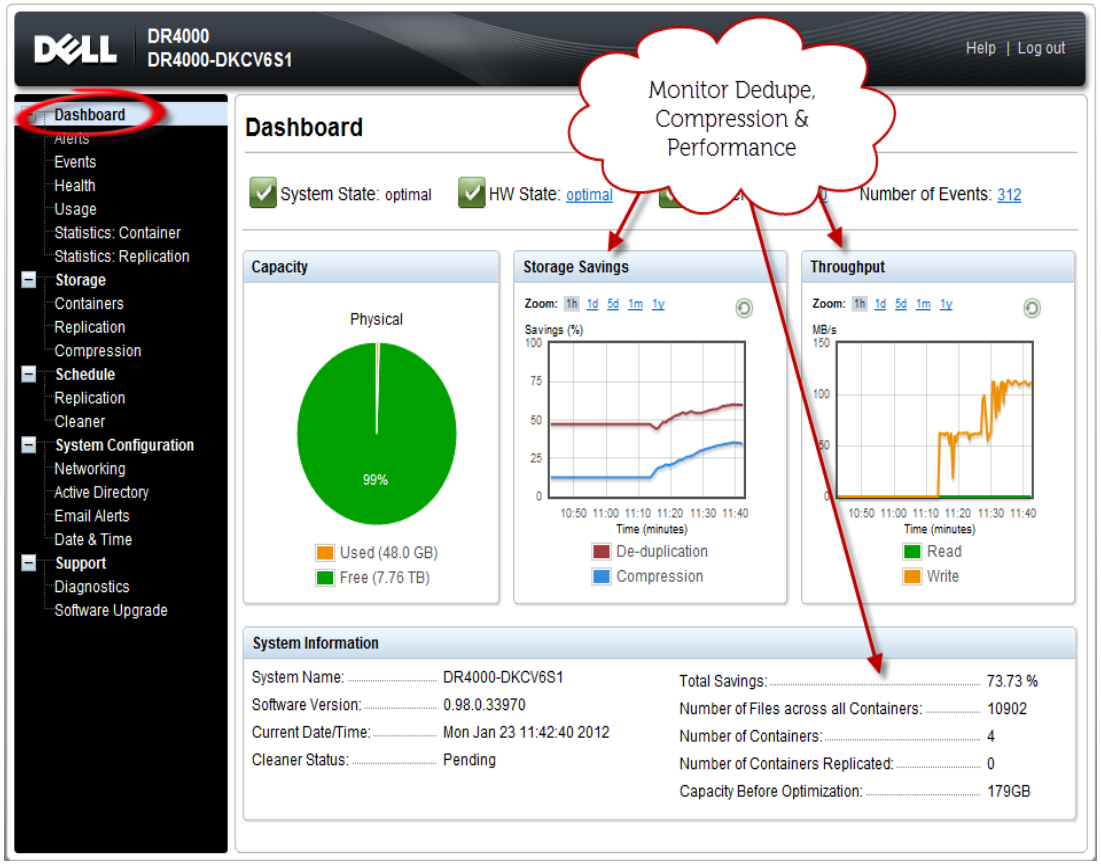


6. Confirm that the final full backup is synthesized.

7. Throughput of final backup should be much faster as it synthesizes the full and incremental backups.



4 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.