Setting up Dell™ DR Series Deduplication Appliance as NFS Backup Target on EMC Networker

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Revisions

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Table of contents

Revisions............................................................................................................................................................................................. 2
Executive Summary .......................................................................................................................................................................... 4
1   Install and Configure the DR Series Deduplication Appliance ................................................................. 5
2   Configure the Networker Storage Node .............................................................................................................................. 11
3   Set up Networker ..................................................................................................................................................................... 12
4   Set up DR Native Replication & Restore from Replication Target ........................................................................ 24
    4.1  Create Replication Session between Two DR Appliances ..................................................................................... 24
    4.2  Restore from Replication Target Container ............................................................................................................. 28
5   Set up the DR Series Deduplication Appliance Cleaner ............................................................................................ 32
6   Monitoring Dedupe, Compression & Performance............................................................................................... 33
Executive Summary

This paper provides information about how to set up the Dell DR Series Deduplication Appliance as a backup target for EMC Networker™ software. This paper is a quick reference guide and does not include all DR Series Deduplication Appliance deployment best practices.

See the DR Series Deduplication Appliance documentation for other data management application best practices whitepapers at http://www.dell.com/support/troubleshooting/us/en/04/Product/powervault-dr4100, under "Manuals & Documentation".

**NOTE:** The DR Series Deduplication Appliance/Networker build versions and screen shots used for this paper may vary slightly, depending on the version of the DR Series Deduplication Appliance/Networker software version used.
1 Install and Configure the DR Series Deduplication Appliance

1. Rack and cable the DR Series Deduplication Appliance appliance, and power it on.

2. Please refer to Dell DR Series System Administrator Guide, under sections of “iDRAC Connection”, “Logging in and Initializing the DR Series System”, and “Accessing IDRAC6/Idrac7 Using RACADM” for using iDRAC connection and initializing the appliance.

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

4. Launch the virtual console.
5. Once the virtual console is open, log in to the system as 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 into the DR Series Deduplication Appliance administrator console, using the IP address you just provided for the DR Series Deduplication Appliance, user administrator and the password St0r@ge! (The “0” in the password is the numeral zero).

9. (Optional) Join the DR Series Deduplication Appliance to Active Directory --- only when the DR is also providing CIFS access to backup servers.

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

a. Select **Active Directory** in the tree on the left hand side of the dashboard.
b. Enter your Active Directory credentials.

10. Create and mount the container.
   a. Select Containers in the tree on the left side of the dashboard, and then click the Create link at the top of the page.
b. Enter a **Container Name**, select **Networker** as **Marker Type**, and select the **NFS/CIFS** check box for **Connection Type**.

c. Under **NFS** section, note down the **NFS access path** (this will be used in configuring device on Networker server), and select **Enable NFS**. For **Client Access** section, choose either **Open Access**, or manually add clients into the allow list with having **NFS Options** as "rw"
**Note**: For improved security, Dell recommends adding IP addresses for the following (Not all environments will have all components):

- Backup console (Networker Server)
- Network Storage Nodes
- Networker Clients

d. Click **Create a New Container**.
e. Confirm that the container is added.
2 Configure the Networker Storage Node

1. Log into the networker storage node and run the command as shown, to display the NFS exports on DR Series Deduplication Appliance

   ![Command output]

2. Make a mount point on the Networker Storage Node and mount the DR Series Deduplication Appliance export

   ![Mount command and output]

3. Test writing to the DR Series Deduplication Appliance export, make sure it completes successfully

   ![Test command and output]

4. Create a subdirectory to be used as device path in configuring DR Series Deduplication Appliance export onto the storage node

   ![Dir creation command and output]

5. If Client Direct feature will be used, on each of the client, mount the DR export and note down the mount point. This mount point is needed in step 9 of the next section of Set up Networker

   ![Mount command on client]

**NOTE:** On DR4x00 models, the maximum supported CIFS connections per Appliance is 32, and on DR6000 model the max is 64, so there should be no more than 32 and 64 corresponding clients connected/mapped to a single DR Series Deduplication Appliance for backup at the same time.
3 Set up Networker

1. Open the **Networker Management Console (NMC)**

2. Click the **Enterprise** menu button, high-light the storage node that the DR Series Deduplication Appliance export will be configured as backup device, right-click on the host and select **New**, then select **Managed Application**

3. Select **Networker** and click on **Next**
4. Click on Finish

![Image of Manage NetWorker window]

5. Highlight the newly created Networker application, right-click on the application and select Launch Application

![Image of Networker Management Console]

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13. Setting up Dell™ DR Series Deduplication Appliance as NFS Backup Target on EMC Networker
6. A new Devices window will open. On left side panel right-click on Device, select New Device Wizard

7. Select Advanced File Type Device (AFTD)

8. On next window, Select **Device storage is remote from this Storage Node**, in **Network Path** enter DR Series Deduplication Appliance export mount point on the storage node (if name resolution works, hostname or FQDN can be used in the server portion of the network path). Choose **Manually enter local or remote device paths** and type in the subdirectory name previously created as device path (please refer to step 4 of previous section Configure the Networker Storage Node). In **Authentication** section, type in DR Series Deduplication Appliance administrator
9. Set the sessions attributes according to Networker administration document. If Client Direct feature will be used, enter each of the client machine DR export mount points as a separate line into the Client Direct Paths list (Please refer to step 5 of last section Configure the Networker Storage Node). Click on Next.
10. The new Networker device should have **Backup** as Pool Type, click **Next**

11. Review the configuration, then click on **Configure**
12. Click on **Finish**

13. Under **Configuration** tab, select **Clients**, right-click on the client that will be backed up, select **Client Backup Configuration**, then **New**
14. Go through the procedure of creating a new backup group
**Note**: Pay special attention to the following step while setting the other options appropriately according to the backup environment:

- **Deduplication** should be set as *None*;
- **Target Pool** should be set as the pool that has DR Series Deduplication Appliance device included;
- **Client Direct** can be enabled if client directly backing up data to DR is preferred, thus bypassing the storage node managing the DR share (please refer to step 9 above in the same section, and step 5 in Configure the Networker Storage Node section).
20 Setting up Dell™ DR Series Deduplication Appliance as NFS Backup Target on EMC Networker

Select the NetWorker Client Properties

Select the NetWorker client properties. To accept the default properties, click "Next."

- Specify the Client Name and Type
- Specify the Backup Configuration Type
- Specify the Client Backup Options
- Select Files to Backup
- Select the Client Properties
- Choose the Backup Group
- Specify the SnapShot Policy
- Specify the Storage Node Options
- Backup Configuration Summary
- Check Results

Remote Access:

Specify the NetWorker Backup Group

Select or create the NetWorker group for this configuration.

- Specify the Client Name and Type
- Specify the Backup Configuration Type
- Specify the Client Backup Options
- Select Files to Backup
- Select the Client Properties
- Choose the Backup Group
- Specify the SnapShot Policy
- Specify the Storage Node Options
- Backup Configuration Summary
- Check Results

Choose the Backup Group

- Add to existing group
- Create a new group

Schedule Options

- Scheduled Backup Start Time
- Automatically start the backup at the scheduled time

Client Retries: 1

Group Name: [Client Name]
Setting up Dell™ DR Series Deduplication Appliance as NFS Backup Target on EMC Networker
15. Once the backup group is successfully created, start the backup
16. Monitor the job status through Monitoring tab
4 Set up DR Native Replication & Restore from Replication Target

4.1 Create Replication Session between Two DR Appliances

**Note**: below screenshots show as CIFS containers, but the procedure is exact the same for NFS containers

1. Create a source container on the source DR appliance

2. Create a target container on target DR appliance
3. On source DR appliance, go to Replication menu, and then click Create.

4. Select the newly created container as source container, then enter the target DR related info in Step 4 menu item.
5. Click **Retrieve Container(s)** button, then select the newly created target container from the list.

6. Click **Create Replication** button.
7. Verify the replication relation between DRs is created, and **Peer Status** is **Online**.
4.2 Restore from Replication Target Container

1. Add the target container onto NetWorker Storage Node (Right-Click Device -> New Device Properties, then fill in necessary information for the target device). After it’s done, Mount the device.

   ![Image of NetWorker interface]

   **Note**: Don’t label the target device.

2. Unmount the source container.

   ![Image of NetWorker interface]
3. Go to **Recover**, click **+**, select a backup source host, then click **Next**

4. Select the data set to recover, click **Versions** to view **Select Versions** window, make selection on the data then click on **OK**
5. Select the **Recovery Options**, choose **Original path** or enter a **New destination path** to recover data to, then click **Next**

6. Specify a **Recover name**, then click **Run Recovery**
7. Check the Recovery Results
5  Set up the DR Series Deduplication Appliance Cleaner

The cleaner will run during idle time. If you workflow does not have a sufficient amount of idle time on a daily basis then you should consider scheduling the cleaner which will force it to run during that scheduled time.

If necessary you can do the following procedure as described in the screenshot to force the cleaner to run. Once all the backup jobs are setup, the DR Series Deduplication Appliance cleaner can be scheduled. The DR Series Deduplication Appliance cleaner should run at least 6 hours per week when backups are not taking place, generally after a backup job has completed.

Performing scheduled disk space reclamation operations are recommended as a method for recovering disk space from system containers in which files were deleted as a result of deduplication.
Monitoring Dedupe, Compression & Performance

After backup jobs have run the DR Series Deduplication Appliance will track Capacity, Storage Savings and Throughput on the DR Series Deduplication Appliance dashboard. This information is valuable in understanding the benefits the DR Series Deduplication Appliance.

**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 complete the ratios will increase. As mentioned before backup jobs with 12 week retention will average a 15x ratio in most cases.