Setting Up the Dell™ DR Series System as a CIFS Backup Target on EMC Networker

Dell Engineering
January 2014

A Dell Technical White Paper
Revisions

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<th>Date</th>
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<tr>
<td>January 2014</td>
<td>Initial release</td>
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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 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 Networker screenshots used in this document may vary slightly, depending on the DR Series system firmware version and Networker version used.
1 Install and configure the DR 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 and mount the container.
   a. Select **Containers** in the navigation panel on the left side of the dashboard, and then click the **Create** 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**.

![Create New Container](image1)

- **NFS** section:
  - NFS access path: 10.250.242.200/containers/My_Container_Backup
    - Use NFS to backup UNIX or LINUX clients.
    - **Enable NFS**

- **CIFS** section:
  - CIFS share path: 10.250.242.200/My_Container_Backup
    - Use CIFS to backup MS Windows clients.
    - **Enable CIFS**

- **Client Access** section:
  - Open Access (all clients have access)
  - Add clients IP or FQDN: [Add]
  - Clients: [List]

  ![Create New Container](image2)

c. Under **CIFS** section, note down the **CIFS share path** (this will be used in configuring device on Networker server), and select **Enable CIFS**. For **Client Access** section, choose either **Open Access** or manually add clients into the allow list.

![Create New Container](image3)
**Note**: For improved security, Dell recommends adding IP addresses for the backup console (Networker Server), Networker storage nodes, and Networker clients. (Not all environments will have all components.)

d. Click **Create a New Container**.

e. Confirm that the container is added.
2 Configure the Networker storage node

1. Log into the storage node and click **Start ➔ My Computer**.

2. Click **Map network drive**

3. For **Folder**, enter the path to the container on the DR Series system.
4. Select the **Reconnect at logon** checkbox.

5. When prompted, enter the CIFS credential to authenticate on the Active Directory domain. The DR Series system container is now mounted to your backup server.

6. If Client Direct will be used, make sure all of the clients can access the same DR container share using this path. Otherwise separate **Client Direct Paths** will need to be filled in with the actual paths that clients use to access the DR container share (please refer to step 10 in the next section **Set up Networker**)

**Note:** On DR4x00 systems, the maximum supported CIFS connections per appliance is 32; on the DR6000 system the maximum is 64. Therefore, there should not be more than 32 and 64 corresponding clients connected/mapped to a single DR Series system for backup at the same time. For details, see the *Dell DR Series System Interoperability Guide*. 
3 Set up Networker

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

2. Click the **Enterprise** menu button, select the storage node that the DR Series system share will be configured as a backup device, right-click on the host and click **New > Managed Application**.

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

5. Select the newly created Networker application, right-click on the application, and click **Launch Application**.
6. In the Devices window, right-click Device in the left panel and click New Device Wizard.

7. Select Advanced File Type Device (AFTD).
8. In the next dialog box, select **Device storage is remote from this Storage Node**, type in the network path of the DR Series system container share location (if name resolution works, the hostname or FQDN can be used in the server portion of the network path). In the **Authentication** section, type in the CIFS credentials to access the DR Series system share. Click **Next**.

9. Click **New Folder**, type in an appropriate folder name, then select the folder and click **Next**.
10. Set the session attributes according to the Networker administration documentation and click **Next**.

If the Client Direct feature will be used, different device path(s) that clients use to access the DR container share can be entered into the **Client Direct Paths** (please refer to step 6 in the last section **Configure Networker Storage Node**). If all of the clients are able to access the DR container share using the direct path, there is no need to enter extra client direct paths.
11. The new Networker device should have Pool Type set to Backup. Click Next.

12. Review the configuration and then click Configure.
13. Click **Finish**.

14. On the **Configuration** tab, select **Clients**, right-click on the client that will be backed up, select **Client Backup Configuration**, and then click **New**.
15. Go through the procedure of creating a new backup group.

16. In Specify the Client Backup Options, pay special attention to the following settings:
   a. **Deduplication** should be set as **None**.
   b. **Target Pool** should be set as the pool that has DR Series Deduplication Appliance device included;
   c. **Client Direct** can be enabled if client directly backing up data to DR is preferred, thus bypassing the storage node managing the DR share. For **Client Direct** to work, the DR device must have at least one device path that the client can use to directly access the DR container.
share with (please refer to step 6 in the last section **Configure the Networker Storage Node**, and step 10 in this section).
17. After the backup group is successfully created, start the backup.

18. Monitor the job status through the Monitoring tab.
4 Set up the DR replication and restore from the replication target

4.1 Create a replication relationship between two DR systems

1. Create a source container on the source DR system.

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

4. Select the newly created container as source container, and then enter the target DR information.
5. Click **Retrieve Container(s)** and then select the newly created target container from the list.

6. Click **Create Replication**
7. Verify that the replication relationship between the DRs has been created and that the Peer Status is Online.
4.2 Restore from the replication target container

1. Add the target container onto the Networker storage node (right-click **Device** -> **New Device Properties**, and then fill in necessary information for the target device). When complete, mount the device.

2. Unmount the source container.

**Note**: Don’t label the target device.
3. Go to **Recover**, click **+**, select a backup source host, and then click **Next**.

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

6. Specify a **Recover name**, and then click **Run Recovery**.
7. Check the **Recovery Results**.
Set up the DR Series system cleaner

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.

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

If necessary, you can perform the procedure shown in the following screenshot to force the cleaner to run. After all of the backup jobs are set up, the DR Series system cleaner can be scheduled. The DR Series system cleaner should run at least six hours per week when backups are not taking place, and generally after a backup job has completed.
Monitoring 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.