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

Dell Engineering
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Revisions

Date	Description
January 2014	Initial release

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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 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".

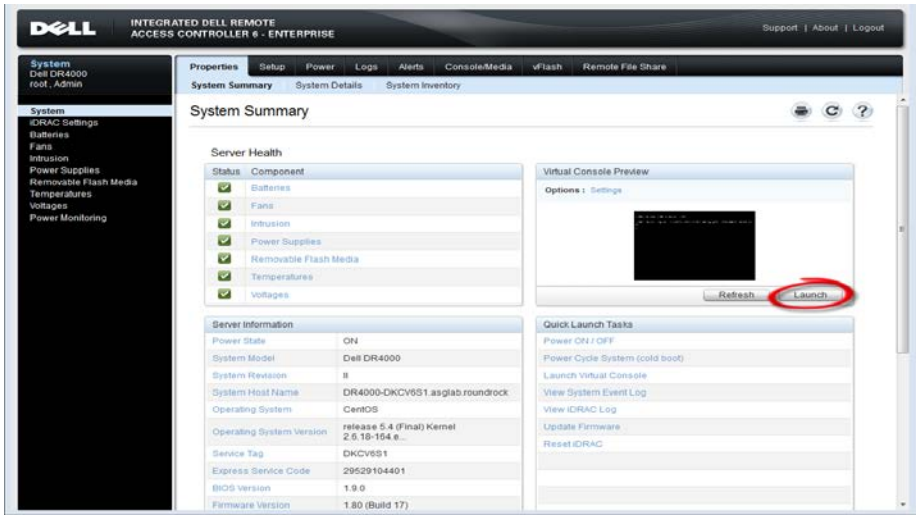
NOTE: The DR Series Deduplication Appliance/Networker build versions and screen shots used for this paper may vary slightly, depending on the version of the DR Series Deduplication Appliance/Networker software version used.

1 Install and Configure the DR Series Deduplication Appliance

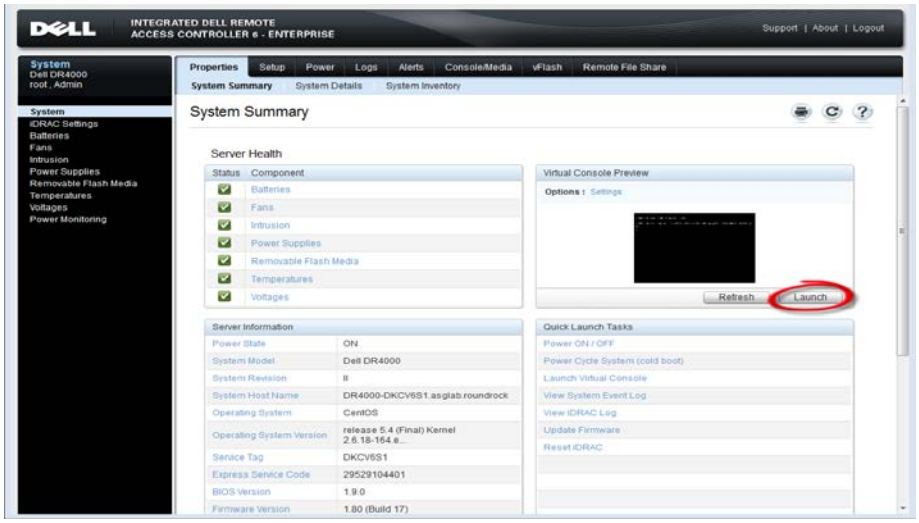
1. Rack and cable the DR Series Deduplication Appliance appliance, and power it on.

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**.

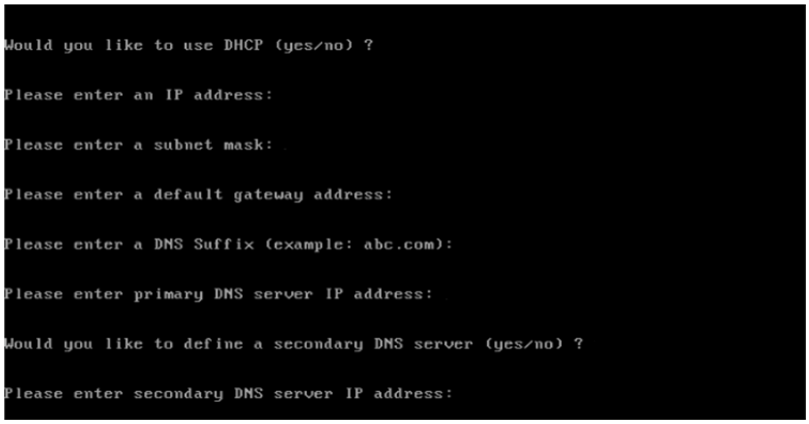


4. Launch the virtual console.

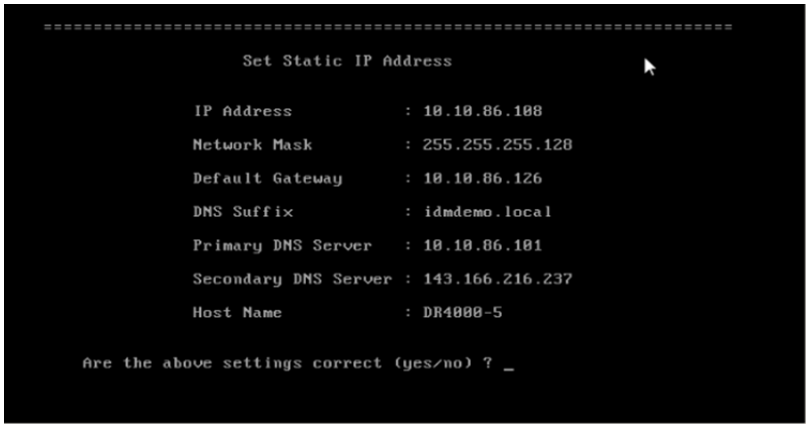


5. Once the virtual console is open, log in to the system as user **administrator** and the password **St0r@ge!** (The "0" in the password is the numeral zero).

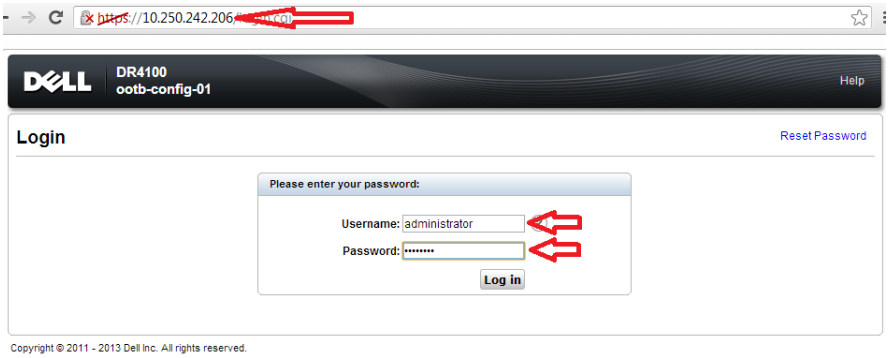
6. Set the user-defined networking preferences.



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



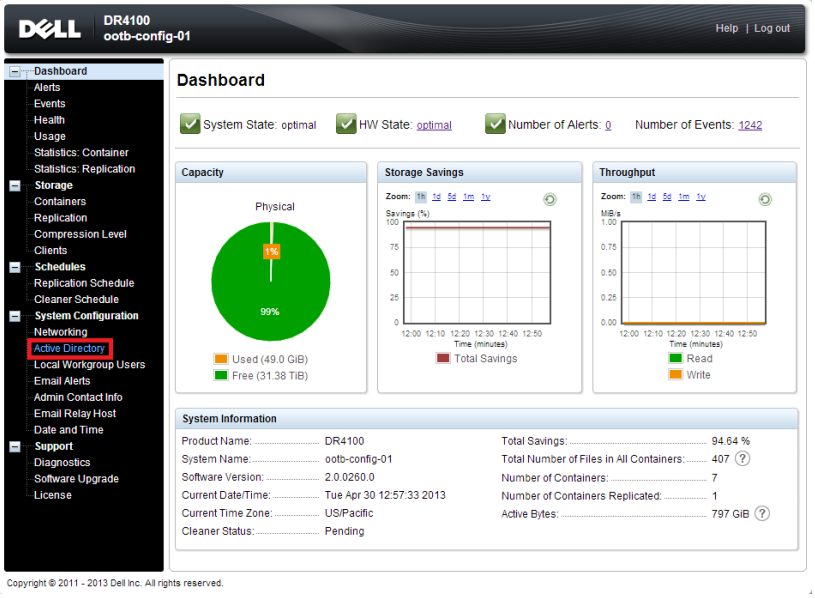
8. Log into the DR Series Deduplication Appliance administrator console, using the IP address you just provided for the DR Series Deduplication Appliance, user **administrator** and the password **St0r@ge!** (The "0" in the password is the numeral zero).



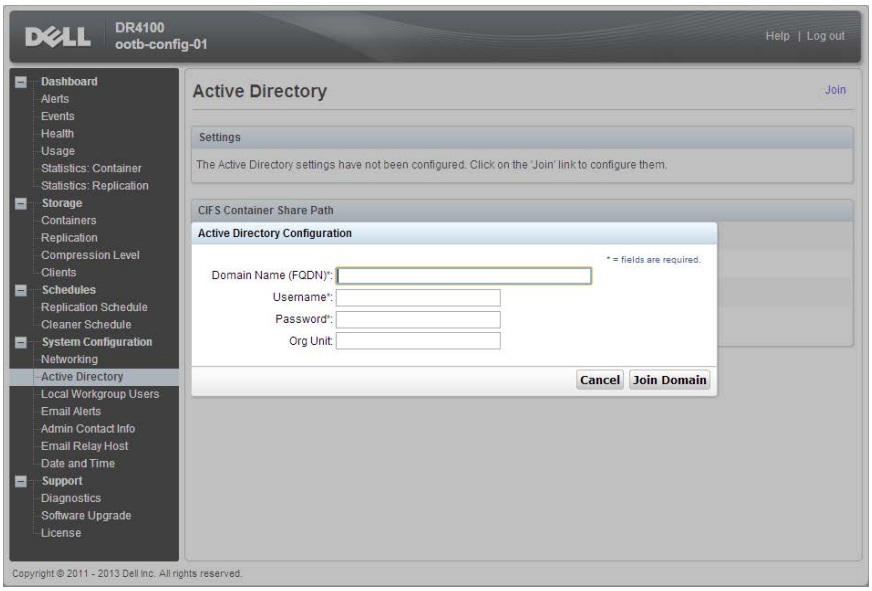
9. (Optional) Join the DR Series Deduplication Appliance to Active Directory --- only when the DR is also providing CIFS access to backup servers.

> **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.

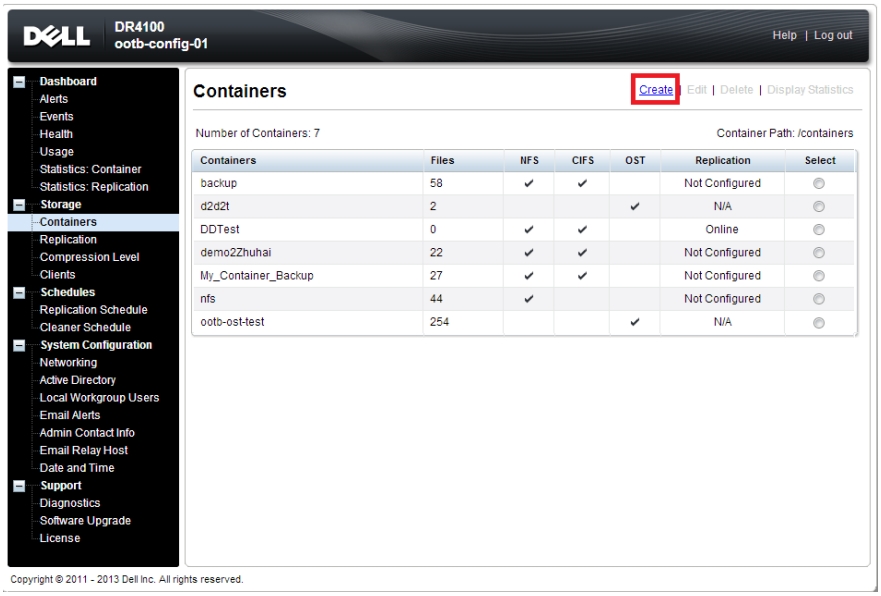


b. Enter your Active Directory credentials.

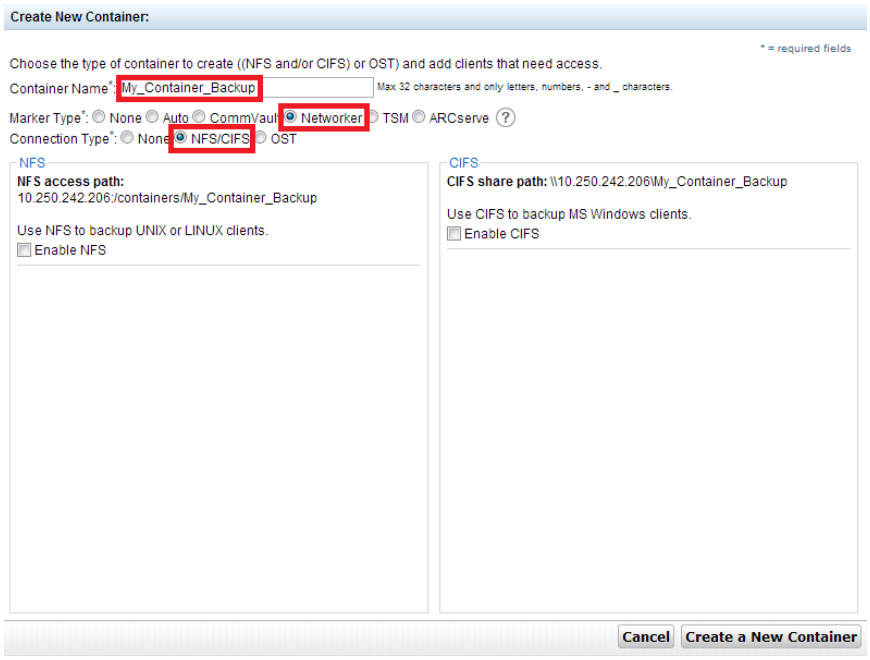


10. Create and mount the container.

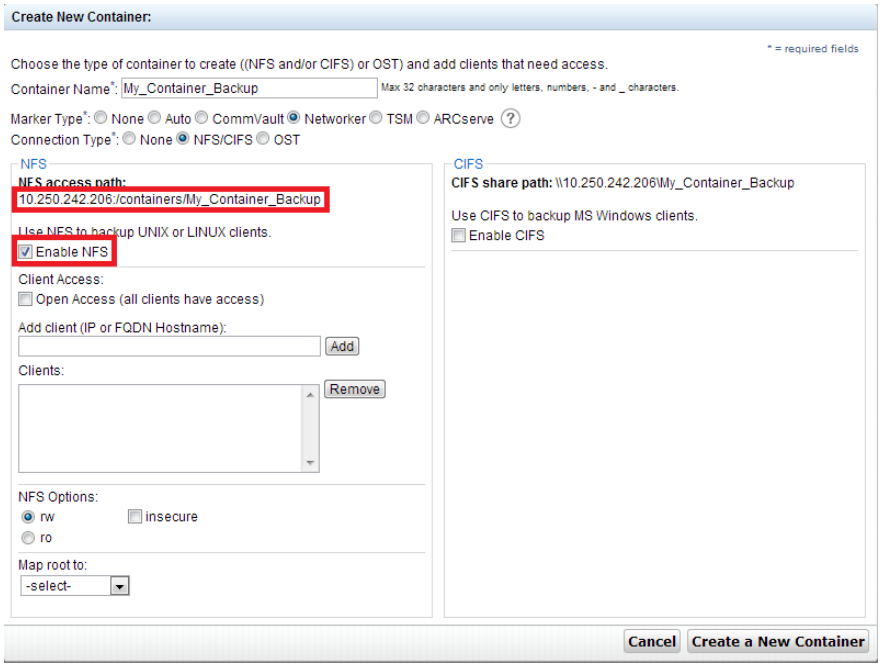
a. Select **Containers** in the tree on the left side of the dashboard, and then click the **Create** link at the top of the page.



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"



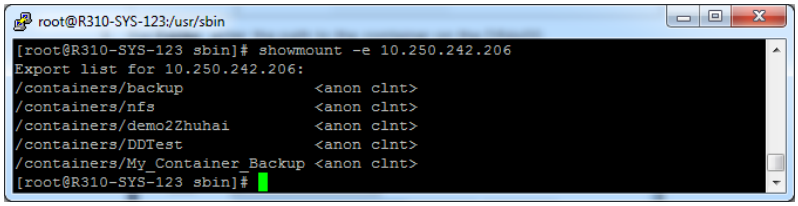
Note: For improved security, Dell recommends adding IP addresses for the following (Not all environments will have all components):

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

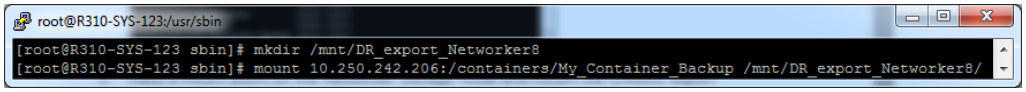
d. Click **Create a New Container**.
e. Confirm that the container is added.

2 Configure the Networker Storage Node

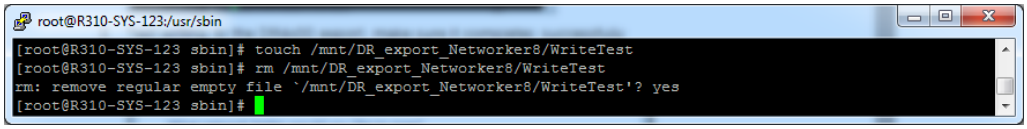
1. Log into the networker storage node and run the command as shown, to display the NFS exports on DR Series Deduplication Appliance



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

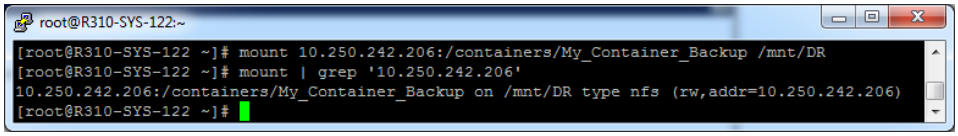


3. Test writing to the DR Series Deduplication Appliance export, make sure it completes successfully



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

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**

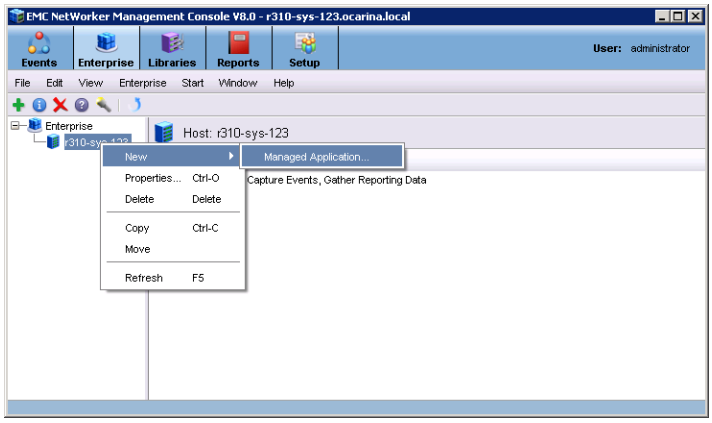


NOTE: On DR4x00 models, the maximum supported CIFS connections per Appliance is 32, and on DR6000 model the max is 64, so there should be no more than 32 and 64 corresponding clients connected/mapped to a single DR Series Deduplication Appliance for backup at the same time.

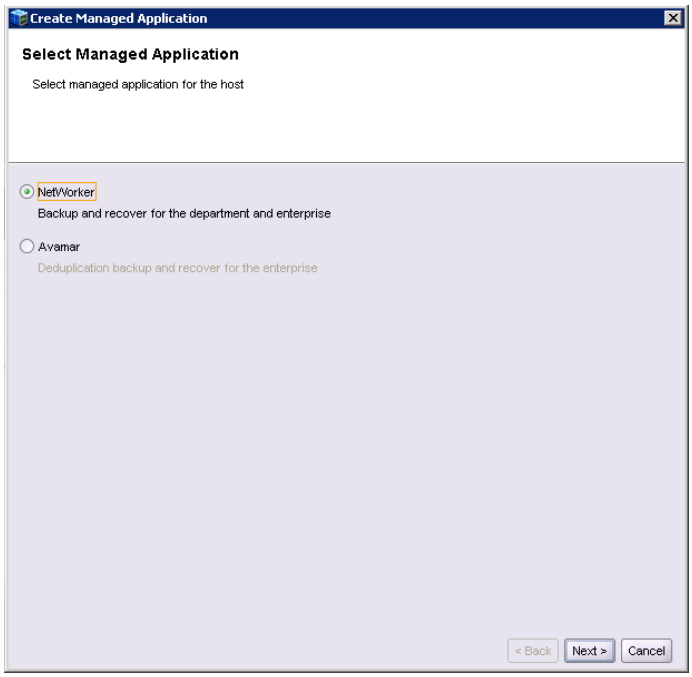
3 Set up Networker

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

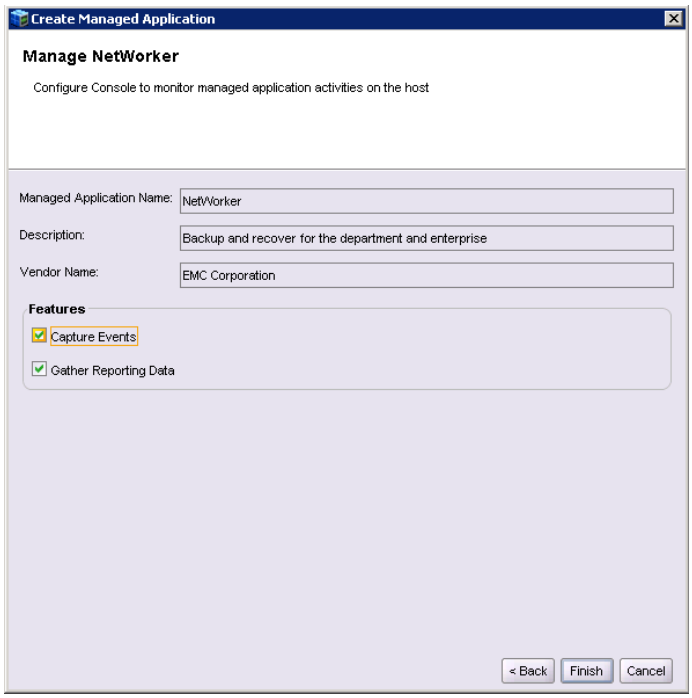
2. Click the **Enterprise** menu button, high-light the storage node that the DR Series Deduplication Appliance export will be configured as backup device, right-click on the host and select **New**, then select **Managed Application**



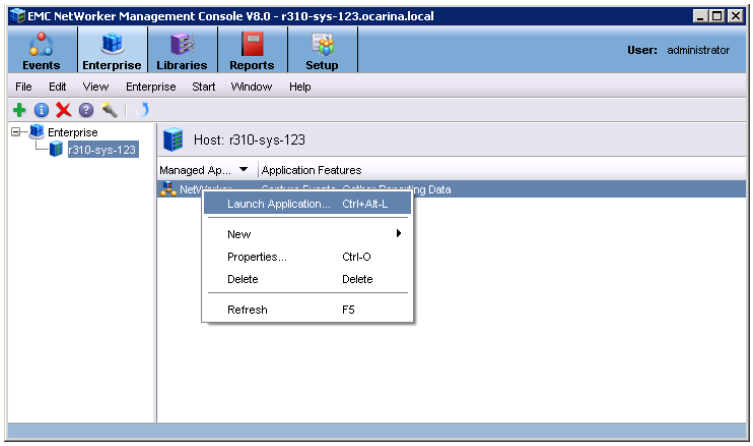
3. Select **Networker** and click on **Next**



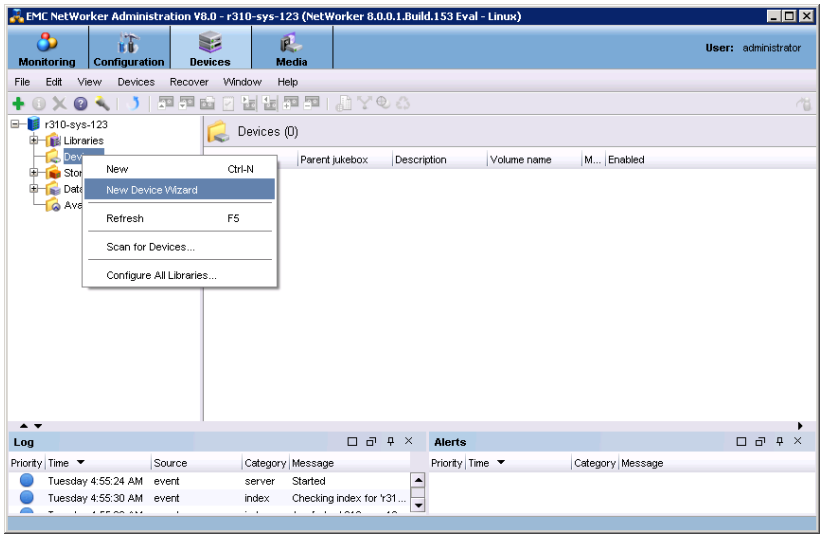
4. Click on **Finish**



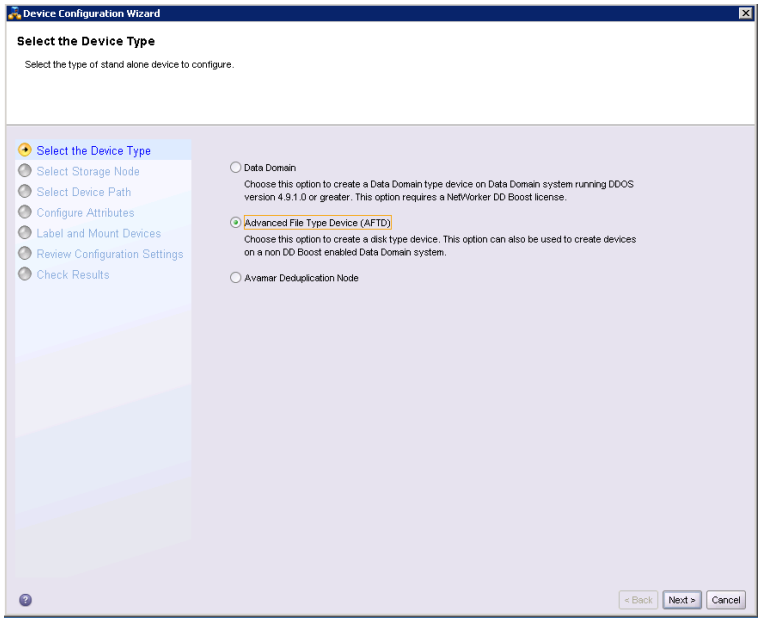
5. High-light the newly created Networker application, right-click on the application and select **Launch Application**



6. A new Devices window will open. On left side panel right-click on **Device**, select **New Device Wizard**

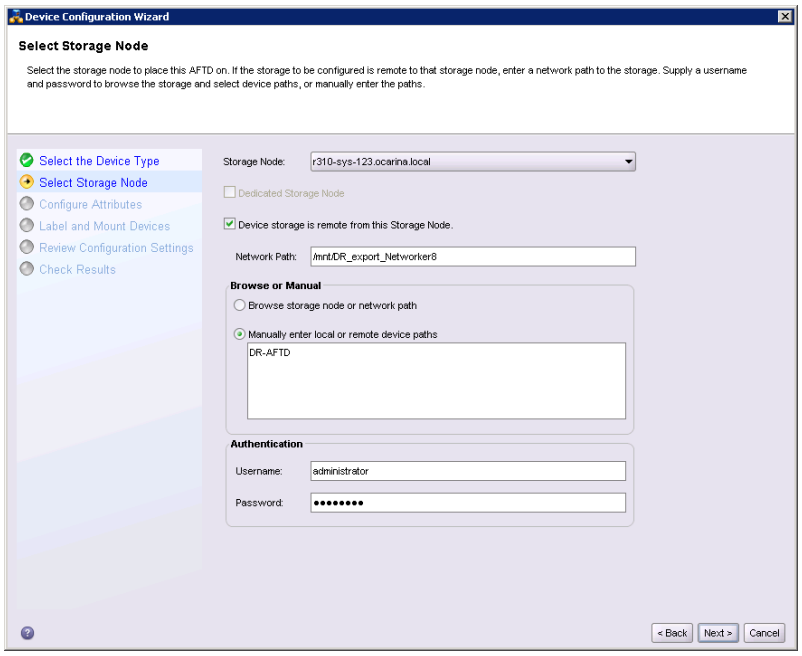


7. Select Advanced File Type Device (AFTD)

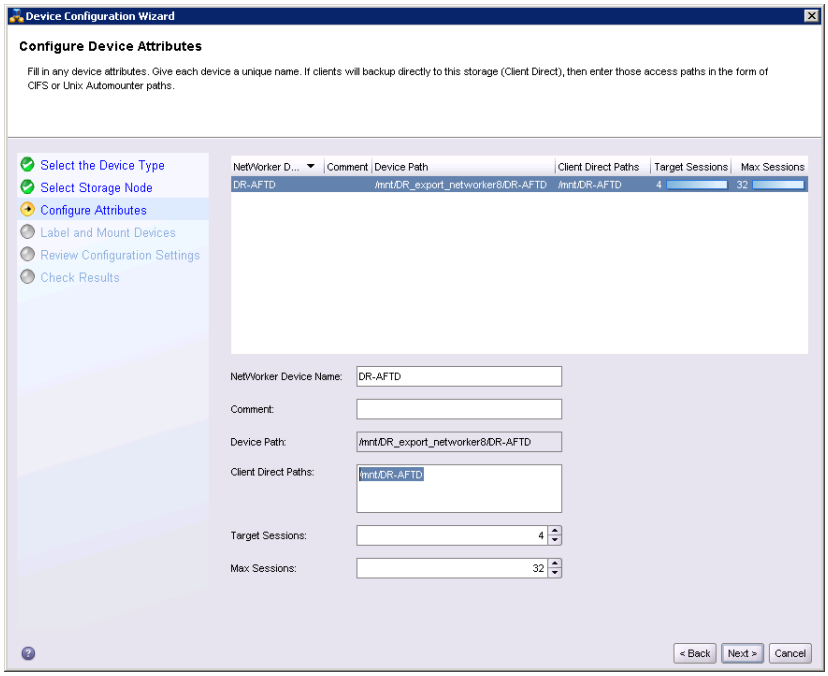


8. On next window, Select **Device storage is remote from this Storage Node,** in **Network Path** enter DR Series Deduplication Appliance export mount point on the storage node (if name resolution works, hostname or FQDN can be used in the server portion of the network path). Choose **Manually enter 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

with password to access the DR Series Deduplication Appliance export. Click on **Next**

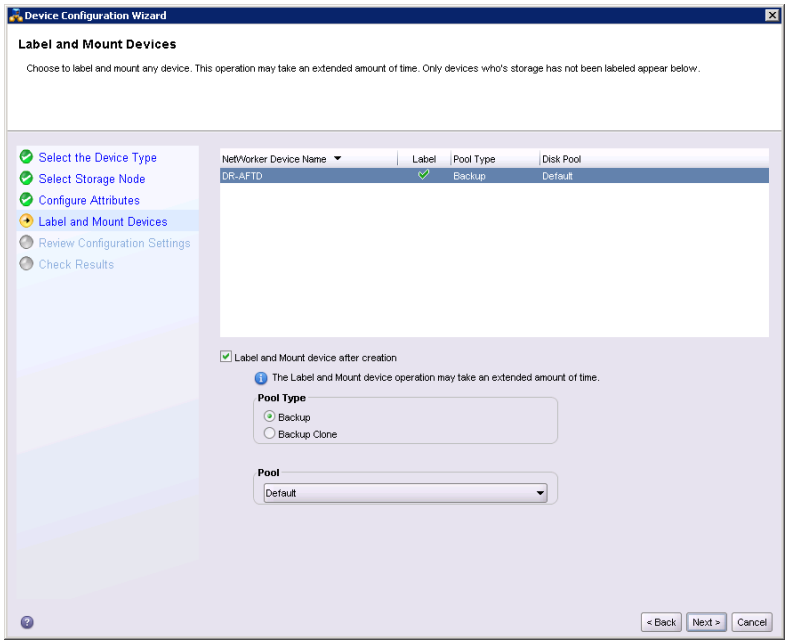


9. Set the sessions attributes according to Networker administration document. If **Client Direct** feature will be used, enter each of the client machine DR export mount points as a separate line into the **Client Direct Paths list** (Please refer to step 5 of last section **Configure the Networker Storage Node**). Click on **Next**

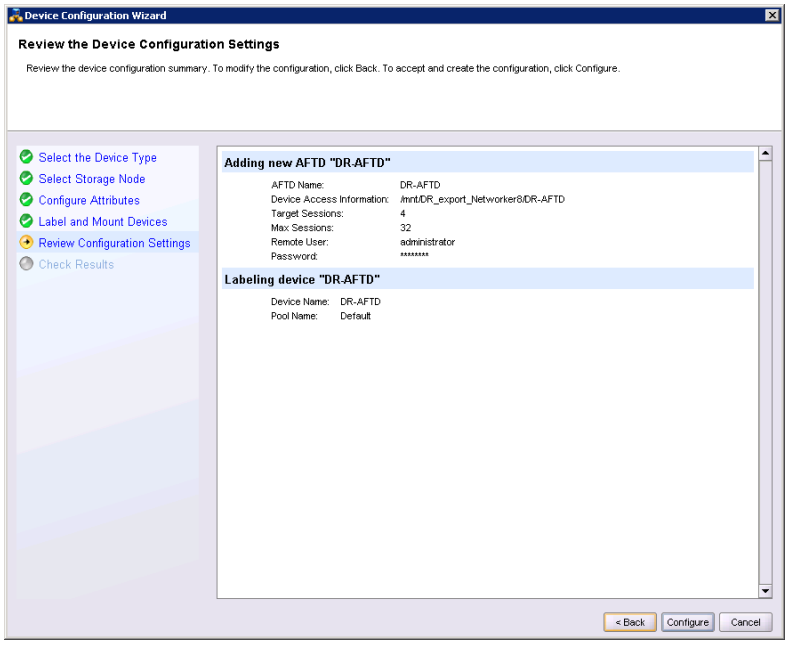


NOTE: On DR4x00 models, the maximum supported CIFS connections per Appliance is 32, and on DR6000 model the max is 64, so there should be no more than 32 and 64 corresponding clients connected/mapped to a single DR Series Deduplication Appliance for backup at the same time.

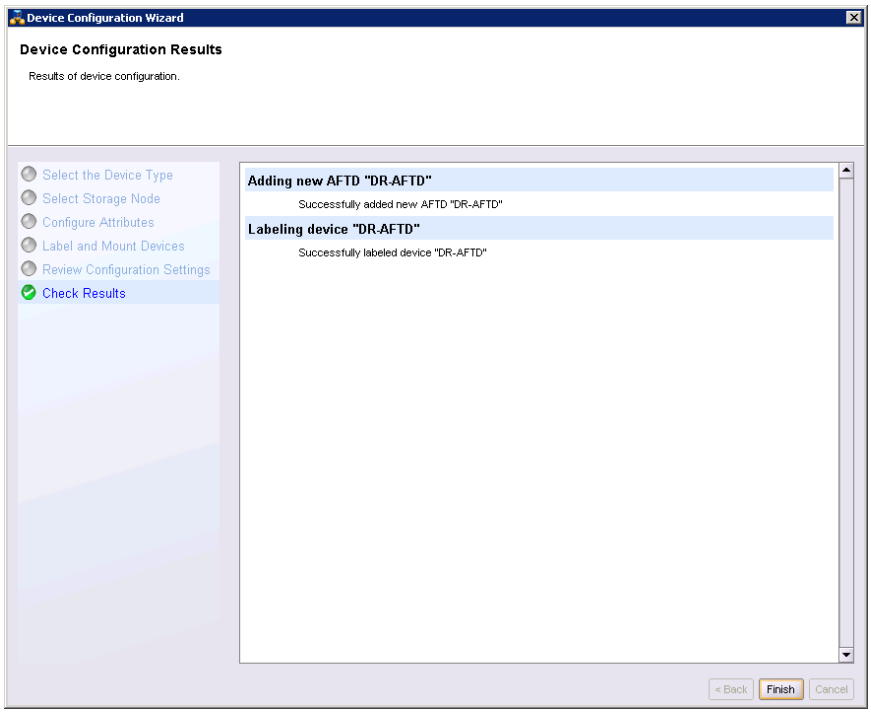
10. The new Networker device should have **Backup** as Pool Type, click **Next**



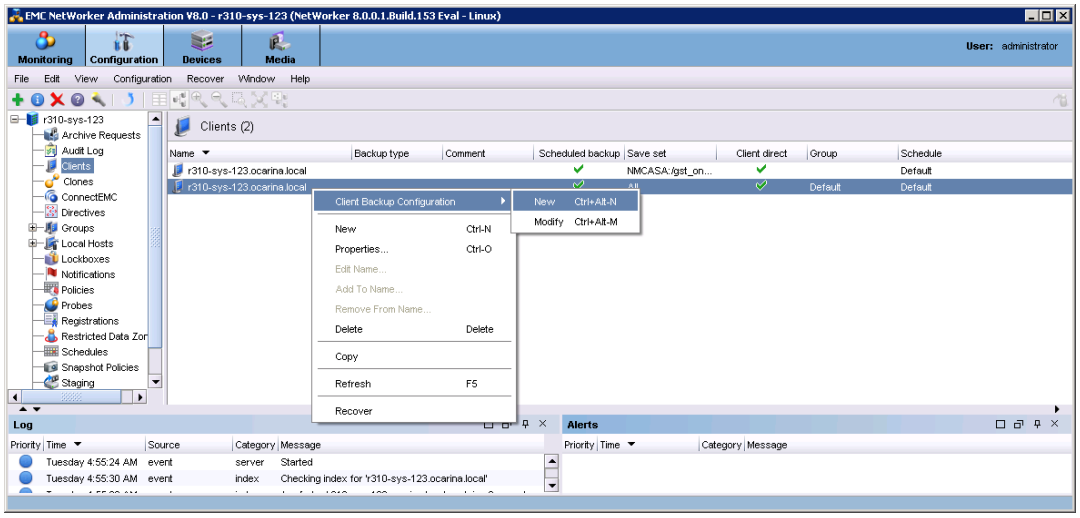
11. Review the configuration, then click on **Configure**



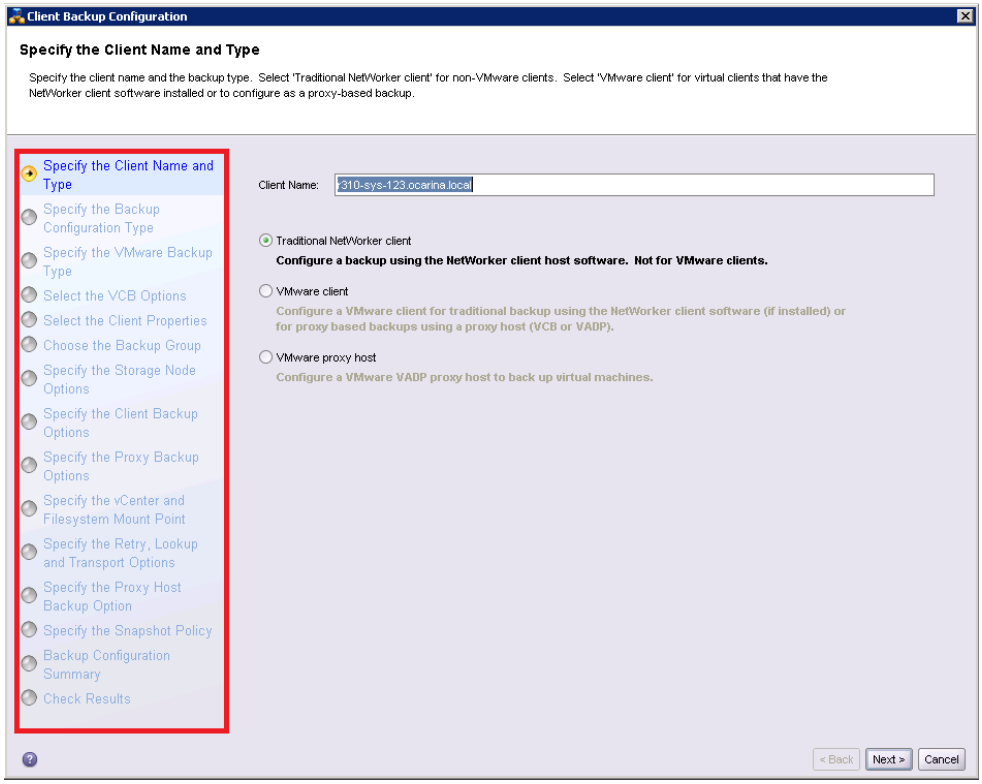
12. Click on **Finish**

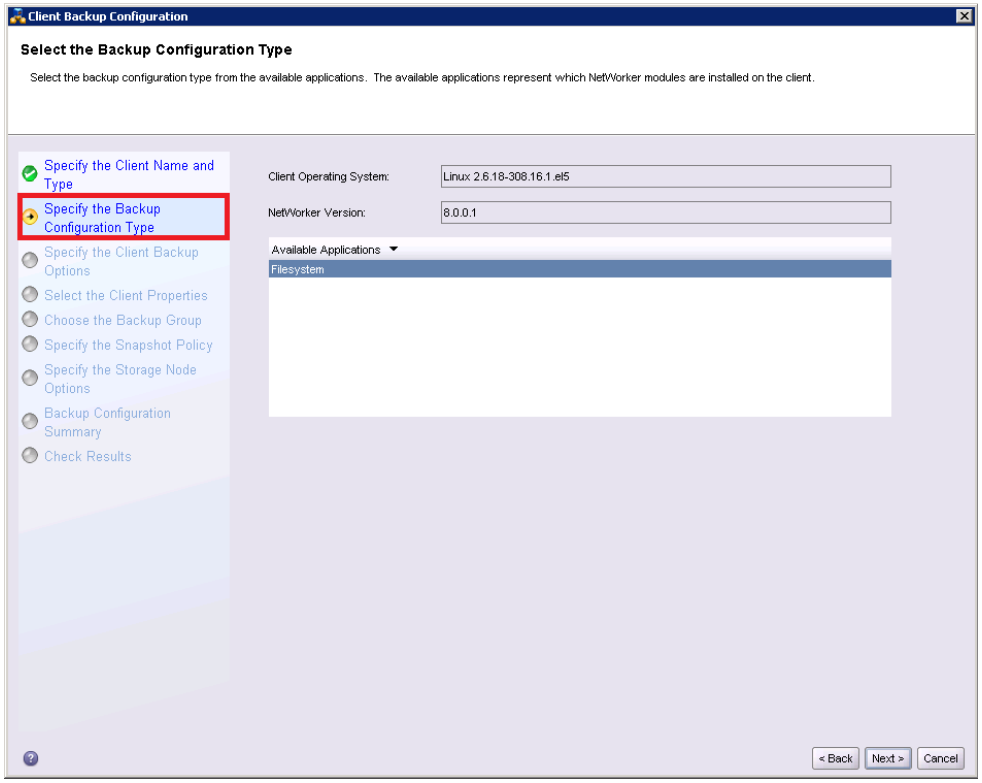


13. Under **Configuration** tab, select **Clients**, right-click on the client that will be backed up, select **Client Backup Configuration**, then **New**

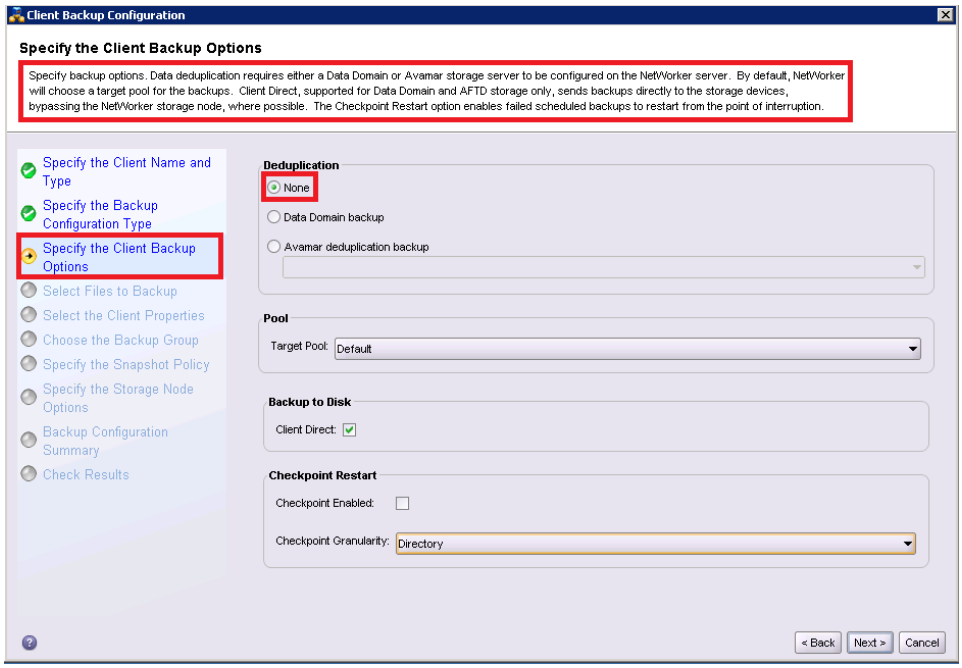


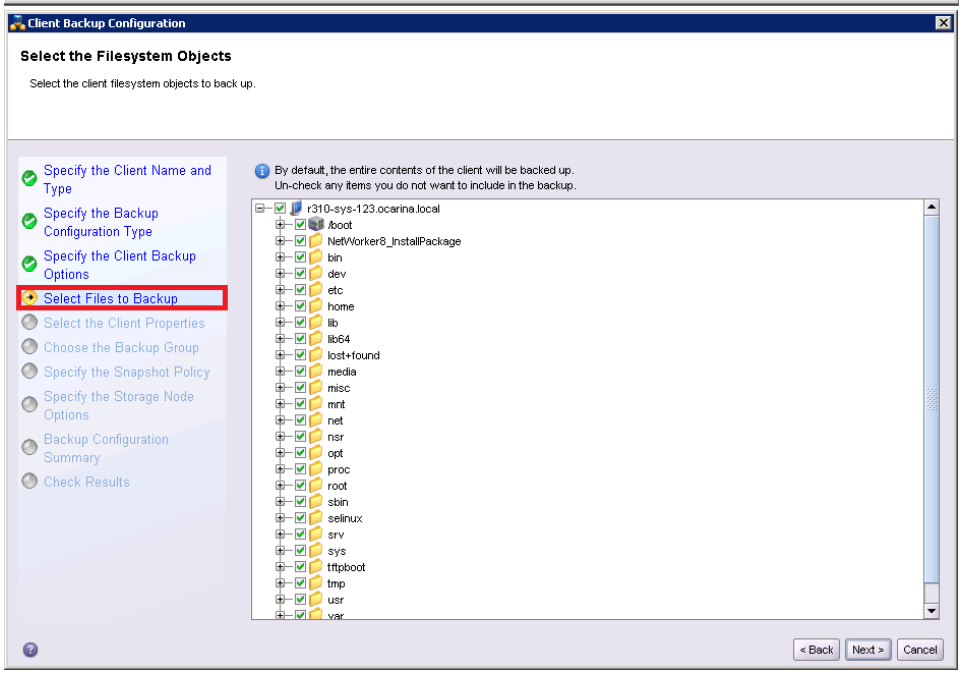
14. Go through the procedure of creating a new backup group

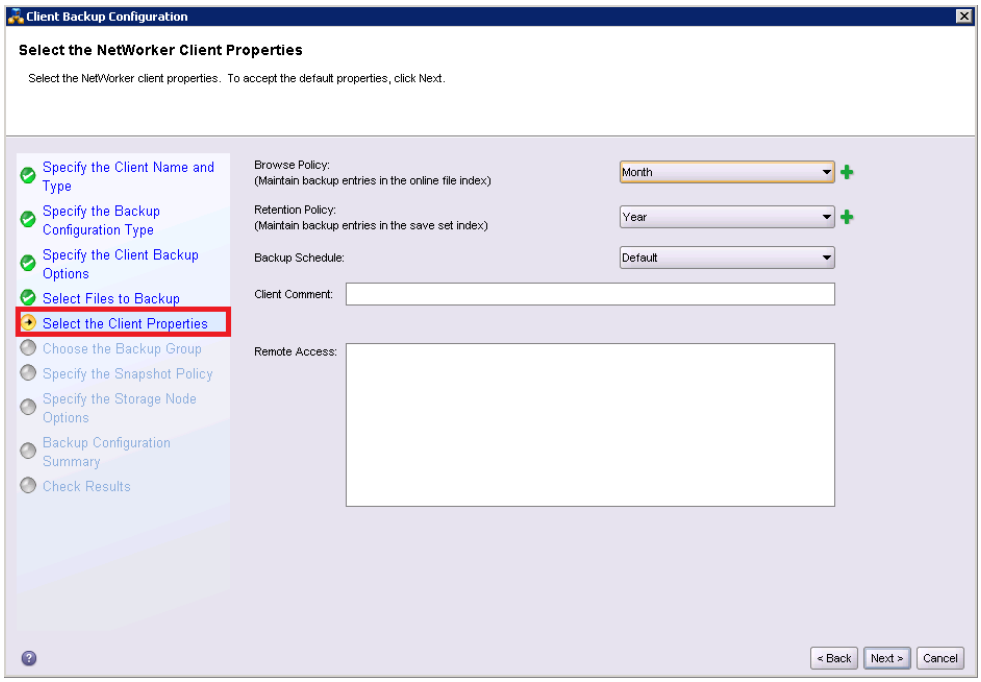


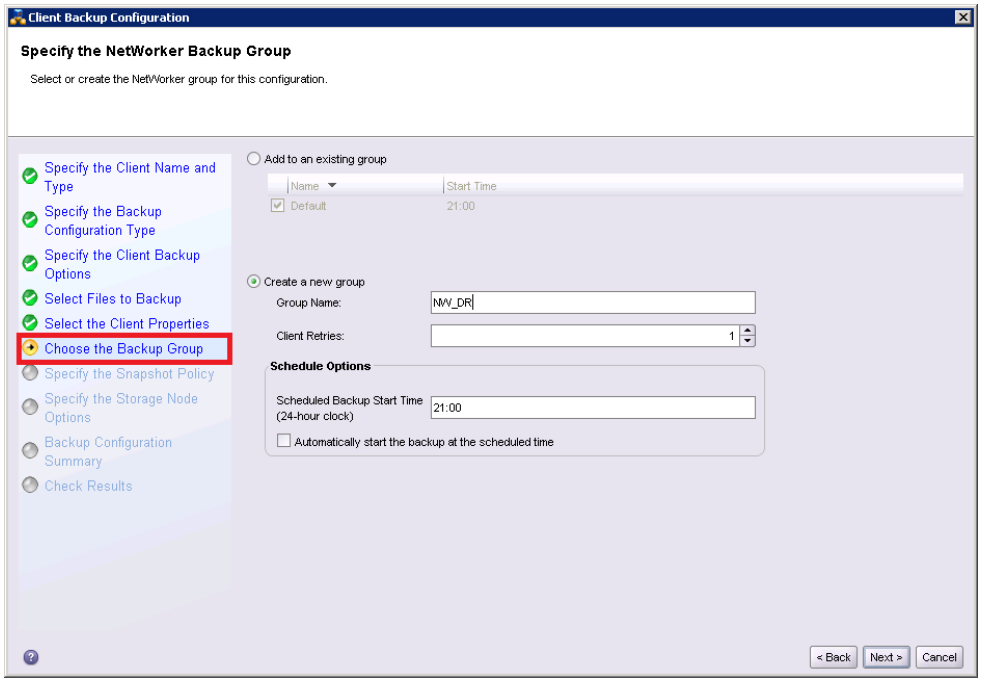


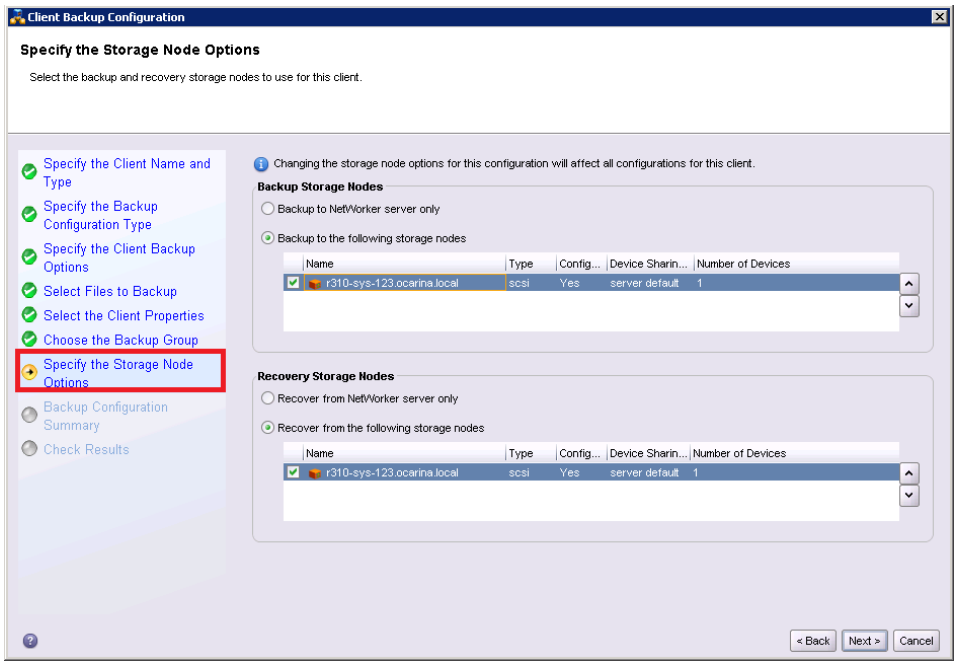
Note: Pay special attention to the following step while setting the other options appropriately according to the backup environment:
Deduplication should be set as **None**;
Target Pool should be set as the pool that has DR Series Deduplication Appliance device included;
Client Direct can be enabled 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).

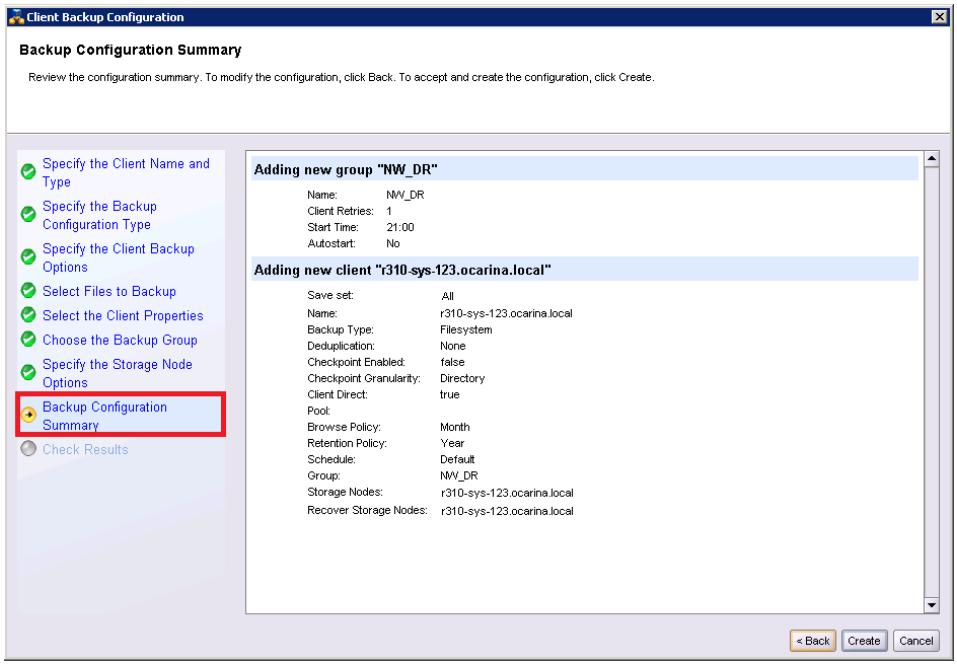


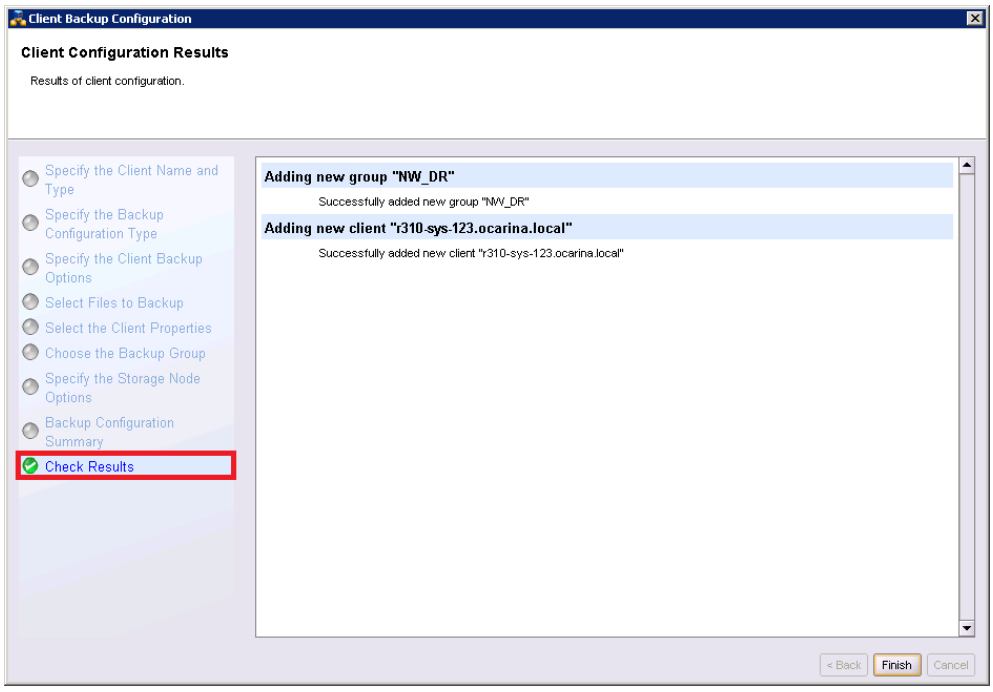



Client Backup Configuration
Select the NetWorker Client Properties
Select the NetWorker client properties. To accept the default properties, click Next.
Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
Browse Policy:
(Maintain backup entries in the online file index)
Month
Retention Policy:
(Maintain backup entries in the save set index)
Year
Backup Schedule:
Default
Client Comment:
Remote Access:
< Back
Next >
Cancel

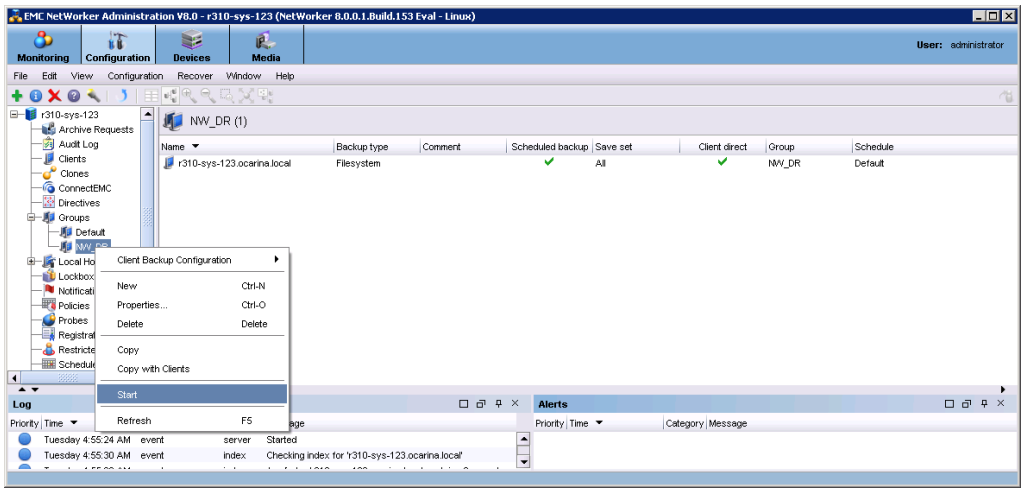

Client Backup Configuration
Specify the NetWorker Backup Group
Select or create the NetWorker group for this configuration.
Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
Add to an existing group
Name
Start Time
Default
21:00
Create a new group
Group Name:
NW_DR
Client Retries:
1
Schedule Options
Scheduled Backup Start Time
(24-hour clock)
21:00
Automatically start the backup at the scheduled time
< Back
Next >
Cancel


Client Backup Configuration
Specify the Storage Node Options
Select the backup and recovery storage nodes to use for this client.
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 Storage Node Options
Backup Configuration Summary
Check Results
Changing the storage node options for this configuration will affect all configurations for this client.
Backup Storage Nodes
Backup to NetWorker server only
Backup to the following storage nodes
Name
Type
Config...
Device Sharin...
Number of Devices
r310-sys-123.ocarina.local
scsi
Yes
server default
1
Recovery Storage Nodes
Recover from NetWorker server only
Recover from the following storage nodes
< Back
Next >
Cancel

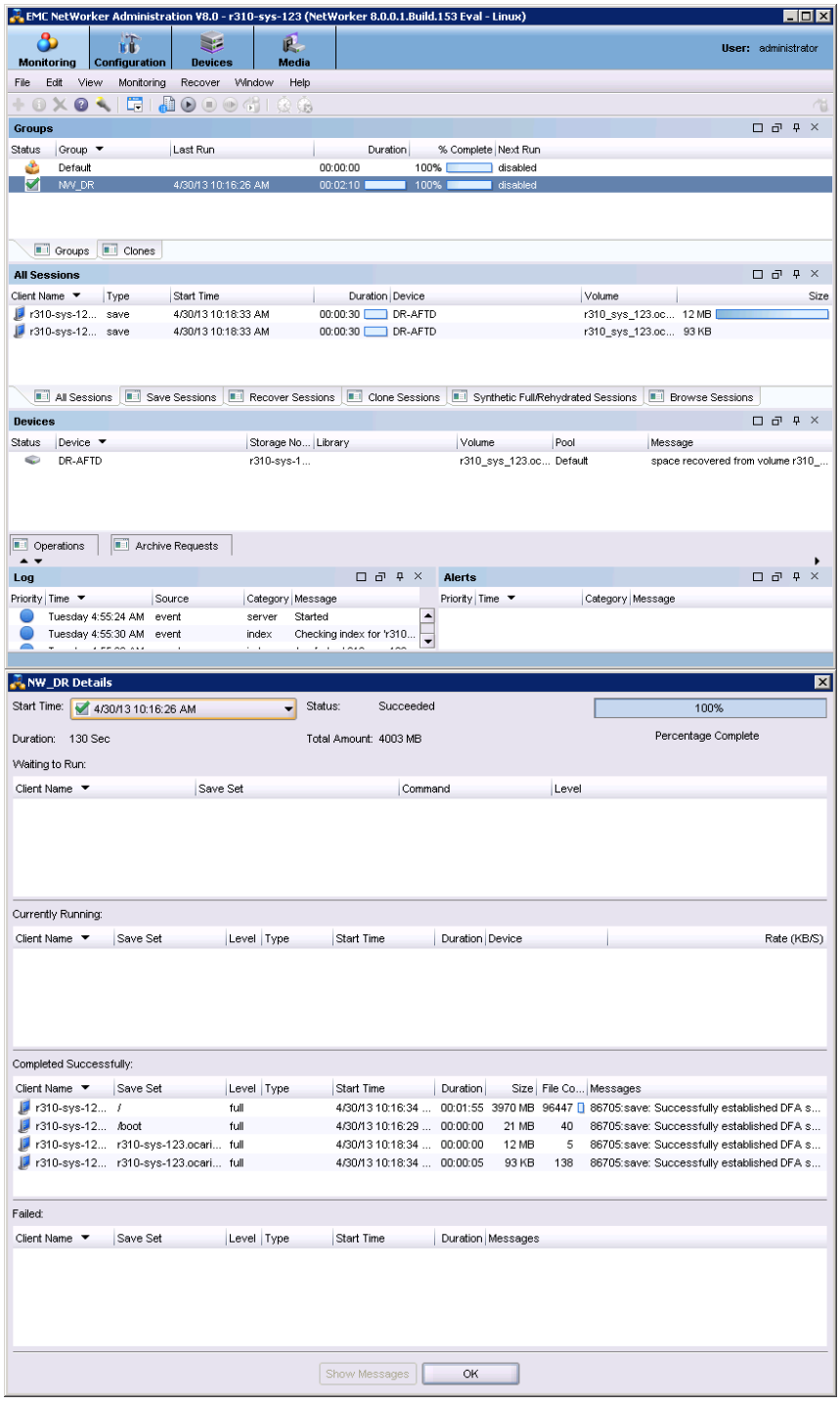

Client Backup Configuration
Backup Configuration Summary
Review the configuration summary. To modify the configuration, click Back. To accept and create the configuration, click Create.
Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Storage Node Options
Backup Configuration Summary
Check Results
Adding new group "NW_DR"
Name: NW_DR
Client Retries: 1
Start Time: 21:00
Autostart: No
Adding new client "r310-sys-123.ocarina.local"
Save set: All
Name: r310-sys-123.ocarina.local
Backup Type: Filesystem
Deduplication: None
Checkpoint Enabled: false
Checkpoint Granularity: Directory
Client Direct: true
Pool:
Browse Policy: Month
Retention Policy: Year
Schedule: Default
Group: NW_DR
Storage Nodes: r310-sys-123.ocarina.local
Recover Storage Nodes: r310-sys-123.ocarina.local
< Back
Create
Cancel



15. Once the backup group is successfully created, start the backup



16. Monitor the job status through Monitoring tab

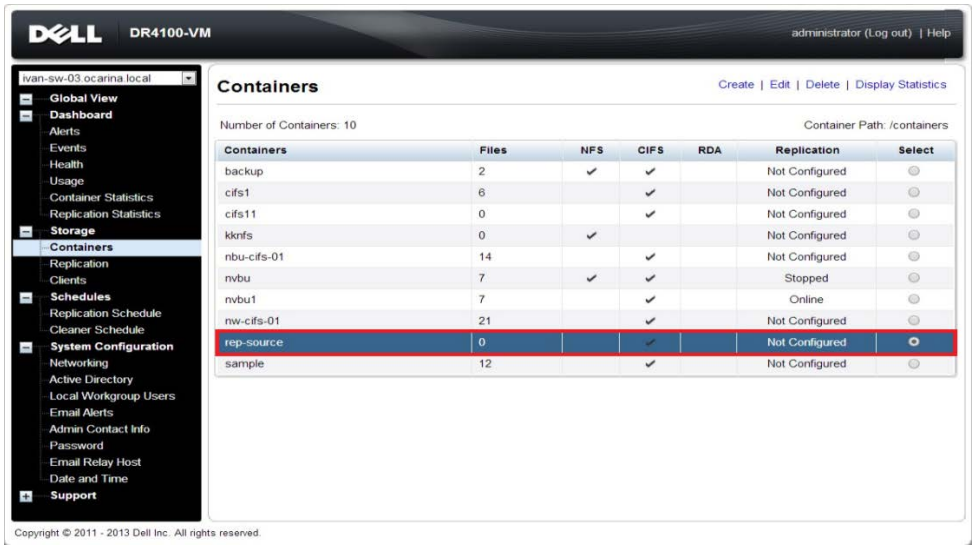


4 Set up DR Native Replication & Restore from Replication Target

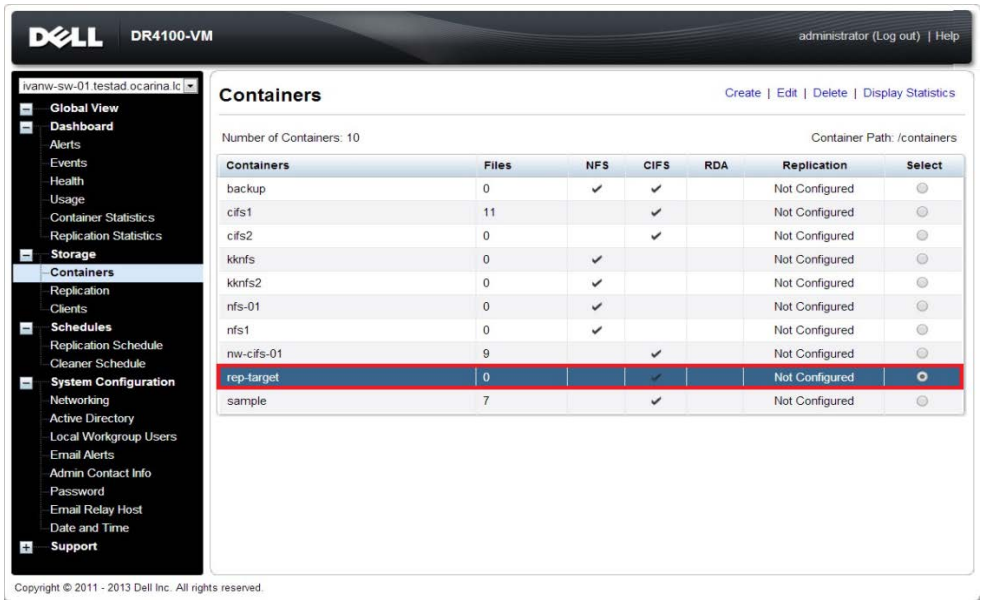
4.1 Create Replication Session between Two DR Appliances

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

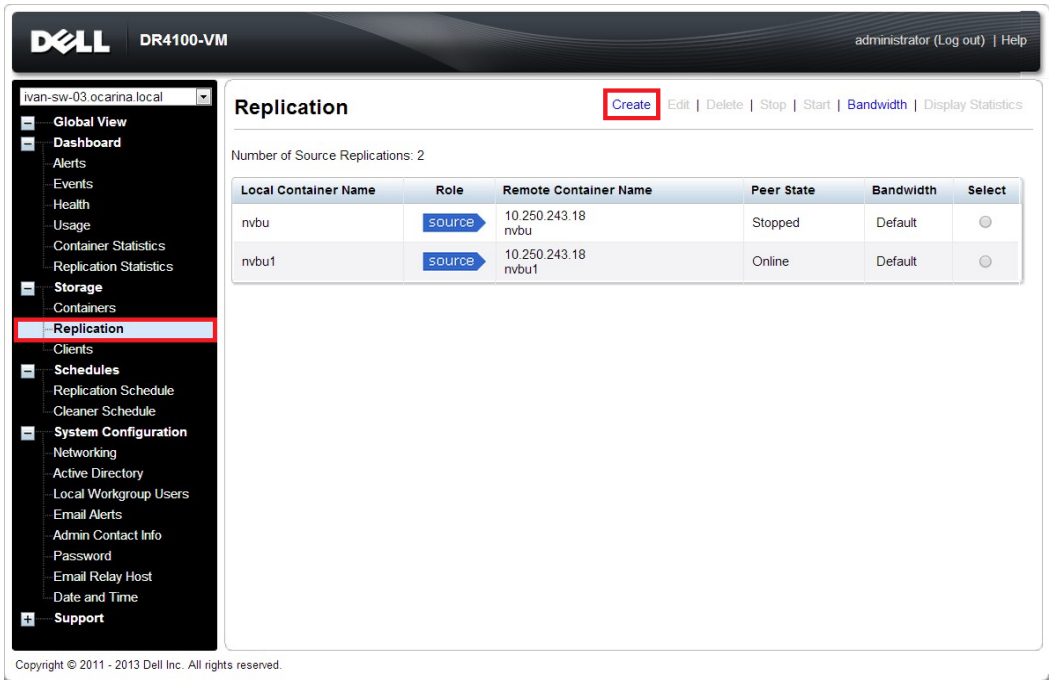
1. Create a source container on the source DR appliance



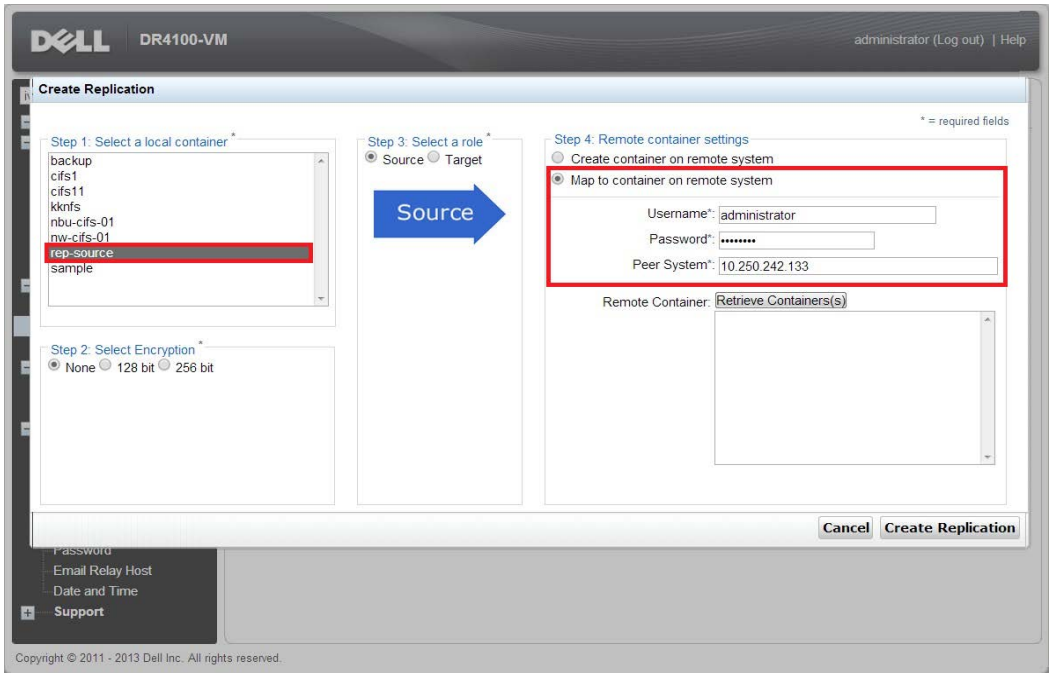
2. Create a target container on target DR appliance



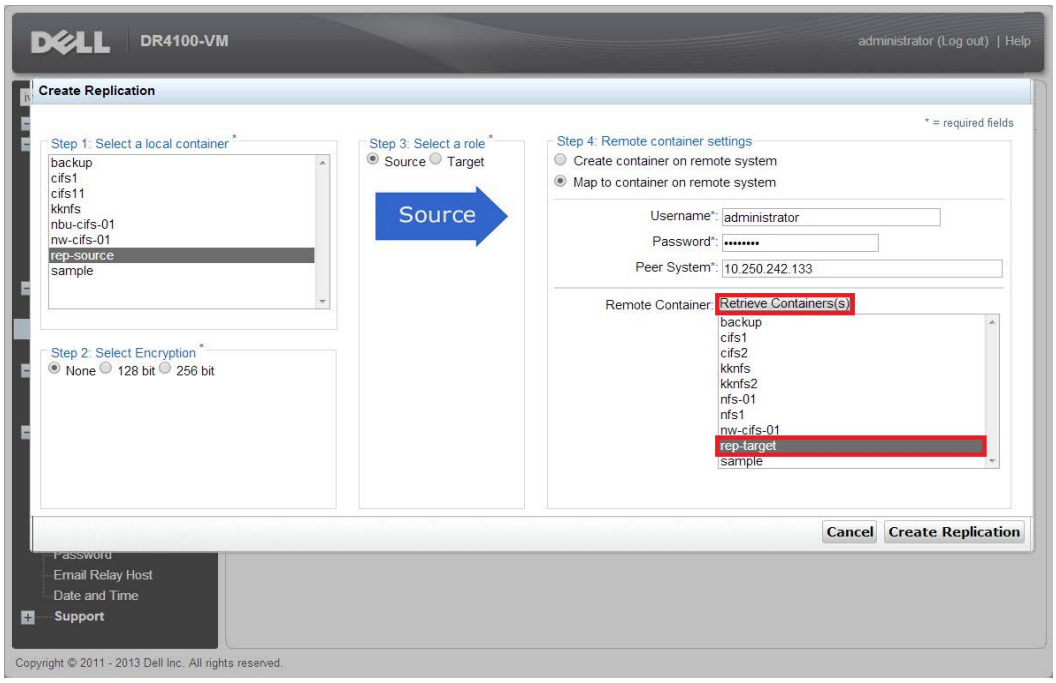
3. On source DR appliance, go to **Replication** menu, and then click **Create**



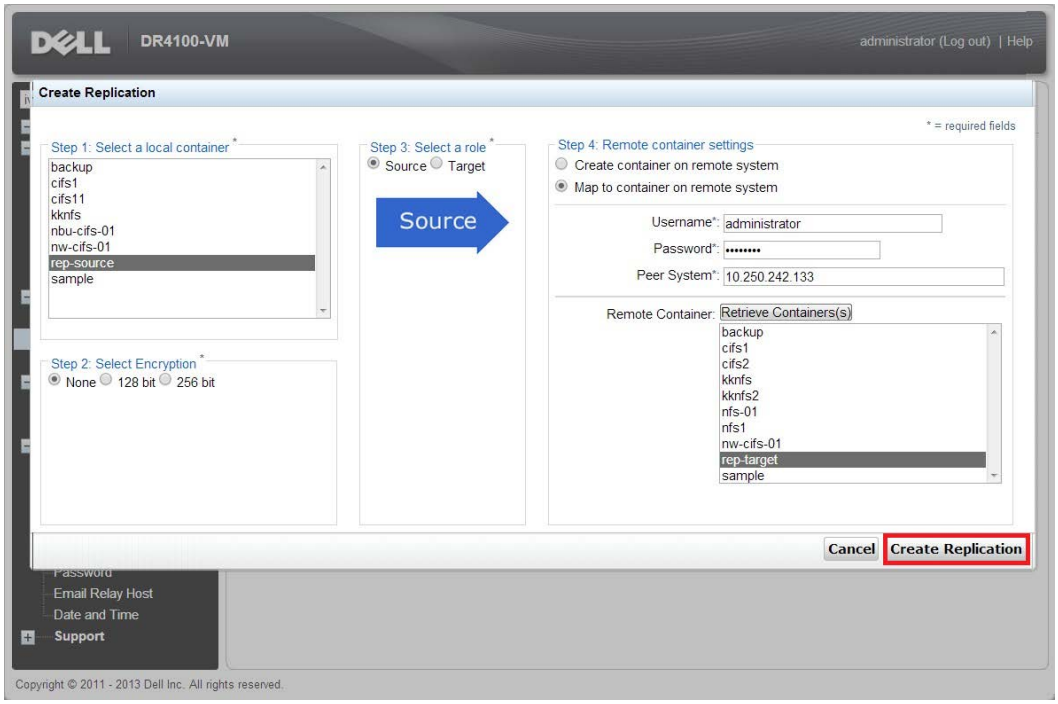
4. Select the newly created container as source container, then enter the target DR related info in **Step 4** menu item



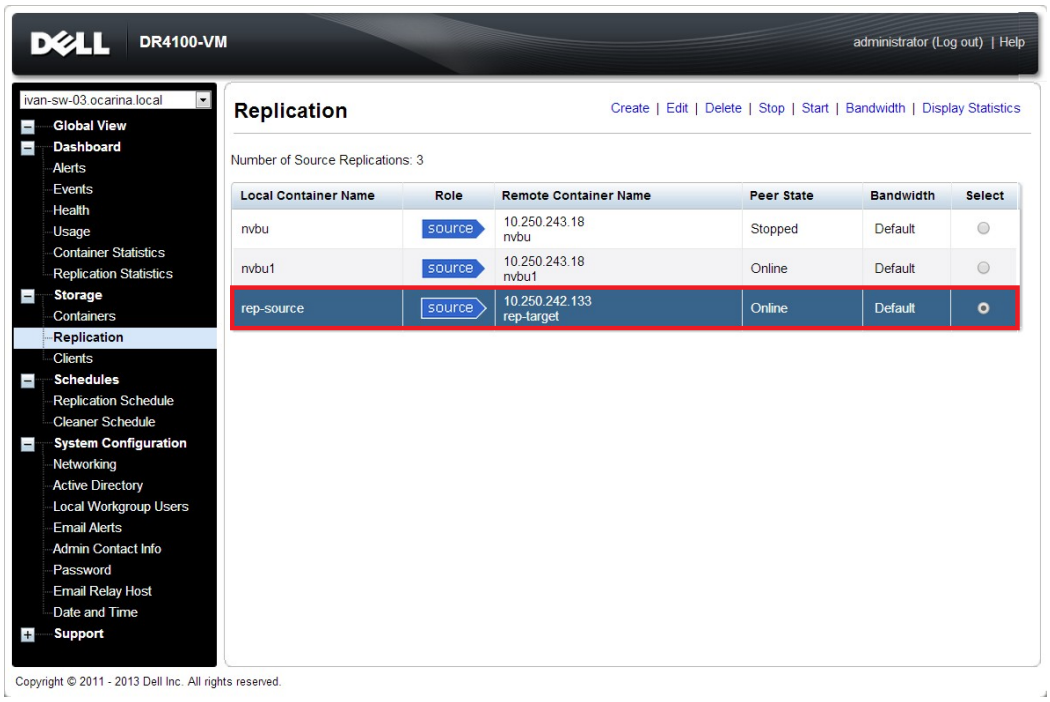
5. Click **Retrieve Container(s)** button, then select the newly created target container from the list



6. Click Create Replication button

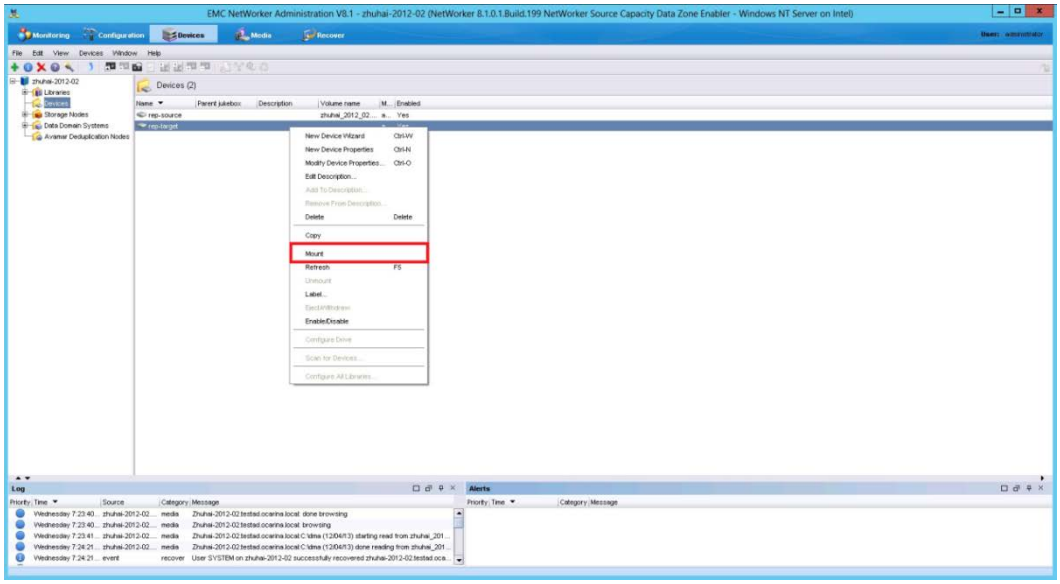


7. Verify the replication relation between DRs is created, and **Peer Status** is **Online**



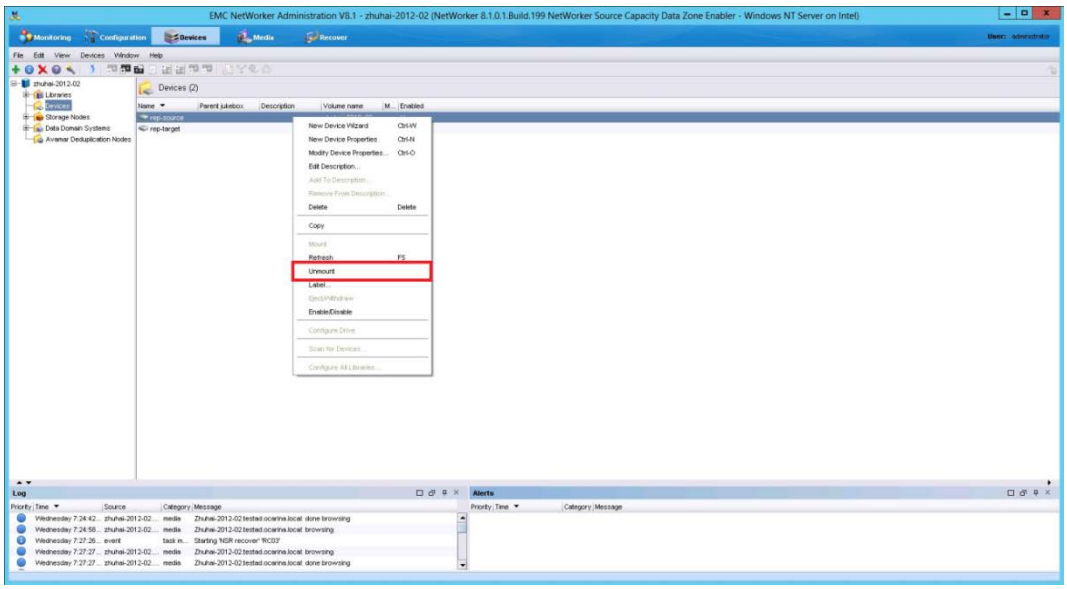
4.2 Restore from Replication Target Container

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

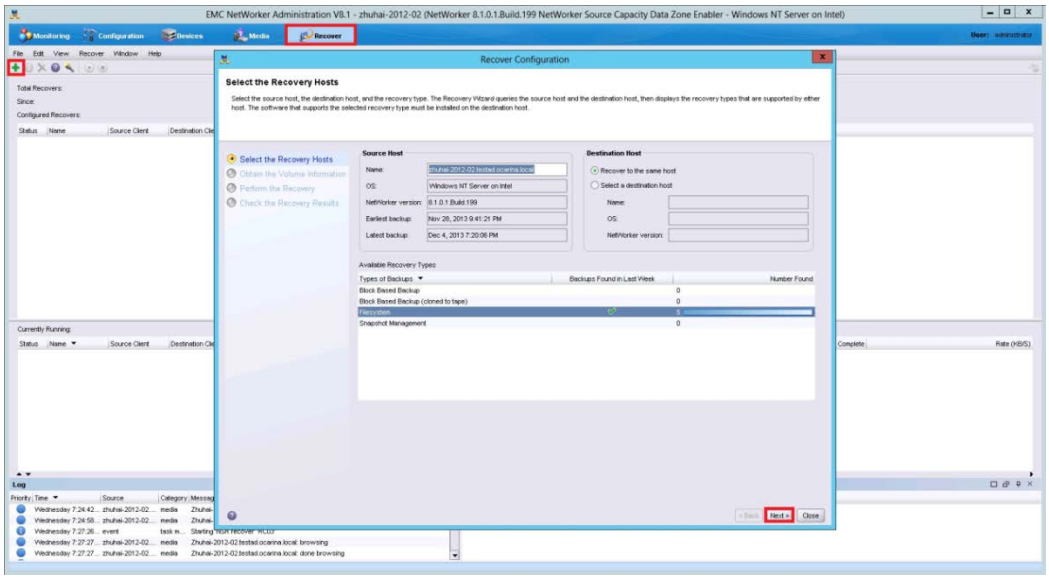


Note: Don't label the target device

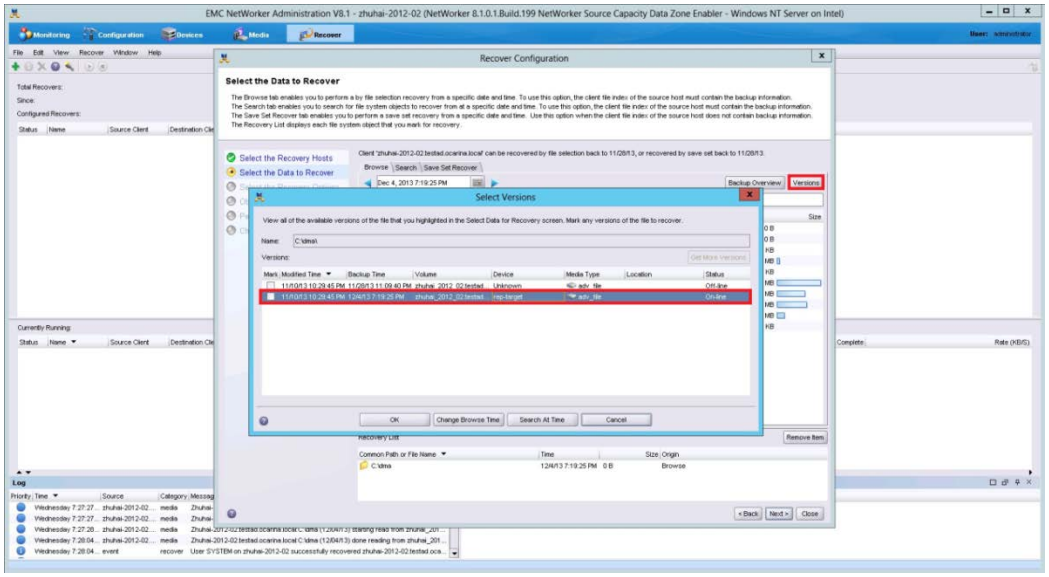
2. **Unmount** the source container



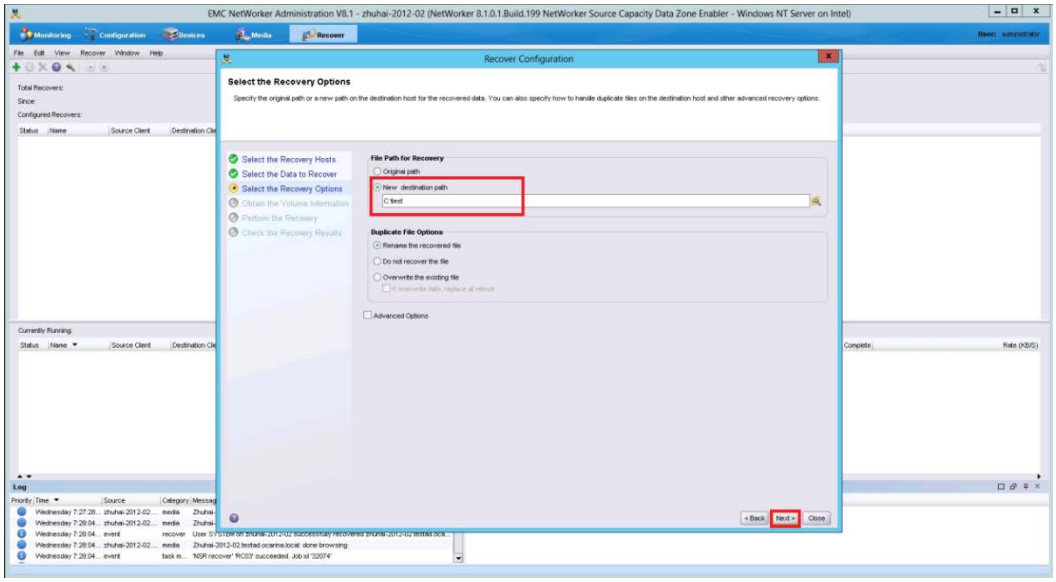
3. Go to **Recover**, click **+**, select a backup source host, then click **Next**



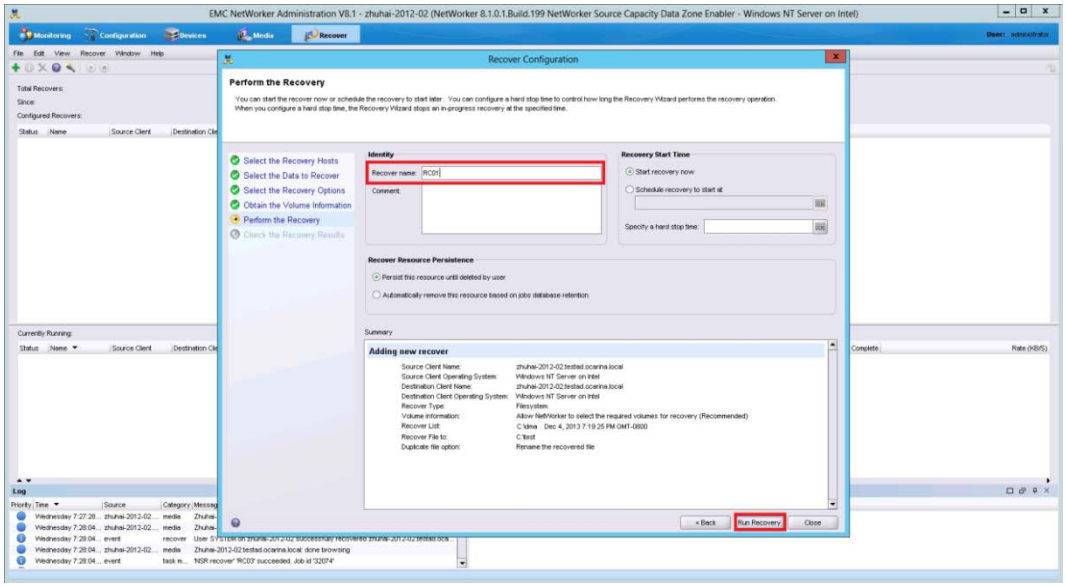
4. Select the data set to recover, click **Versions** to view **Select Versions** window, make selection on the data then click on **OK**



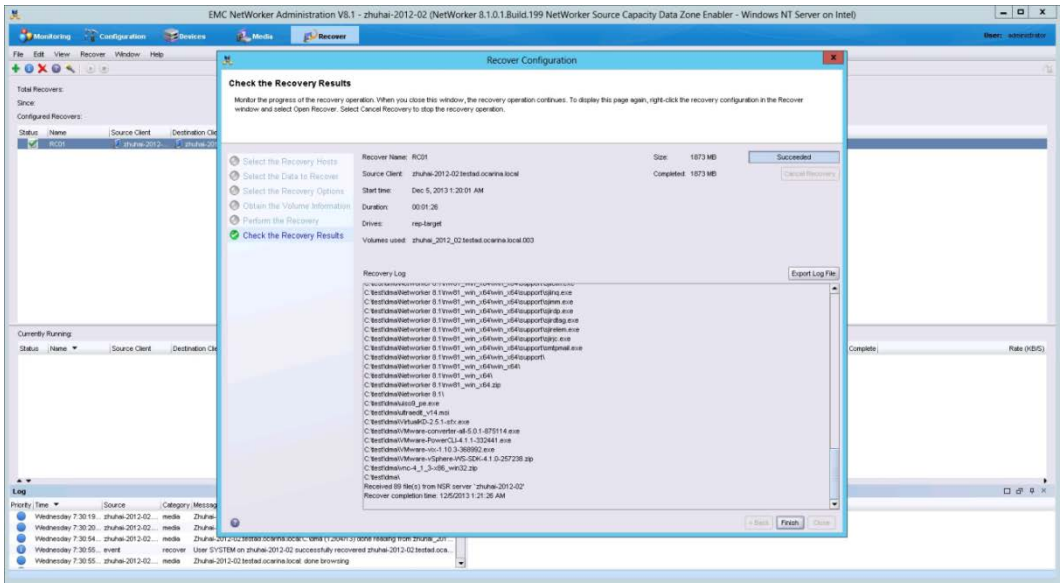
5. Select the **Recovery Options**, choose **Original path** or enter a **New destination path** to recover data to, then click **Next**



6. Specify a **Recover name**, then click **Run Recovery**



7. Check the Recovery Results

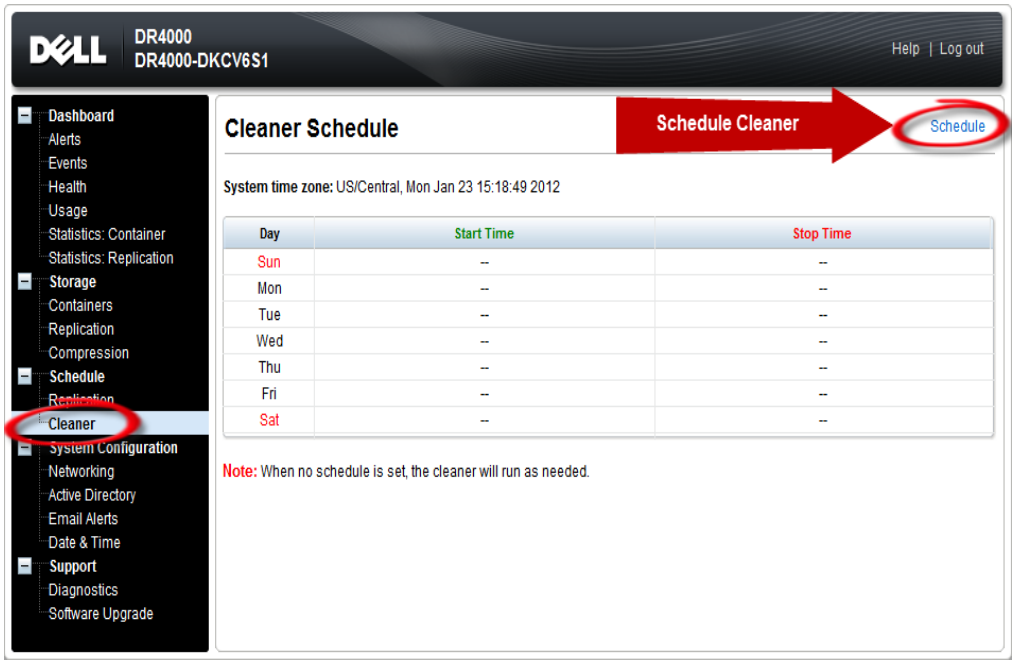


5 Set up the DR Series Deduplication Appliance Cleaner

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.



6 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.