

Setting Up Quest® QoreStor™ as a CIFS/NFS
Target on Dell EMC™ Networker®

Technical White Paper

Quest Engineering

August 2018



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Legend

 **CAUTION:** A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

 **IMPORTANT, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

Setting Up Quest® QoreStor™ as a CIFS/NFS Target on Dell EMC™ Networker®

Updated – August 31, 2018

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Executive Summary

This paper provides information about how to set up QoreStor as a backup target for Dell EMC™ Networker®.

For additional information, see the QoreStor documentation and other data management application best practices whitepapers for your specific QoreStor version at:

<http://support.quest.com/QoreStor>

For more information about Networker, refer to the Networker documentation at:

<https://community.emc.com/docs/DOC-49315>



NOTE: The screenshots used in this document may vary slightly, depending on the version of QoreStor or Networker software you are using.

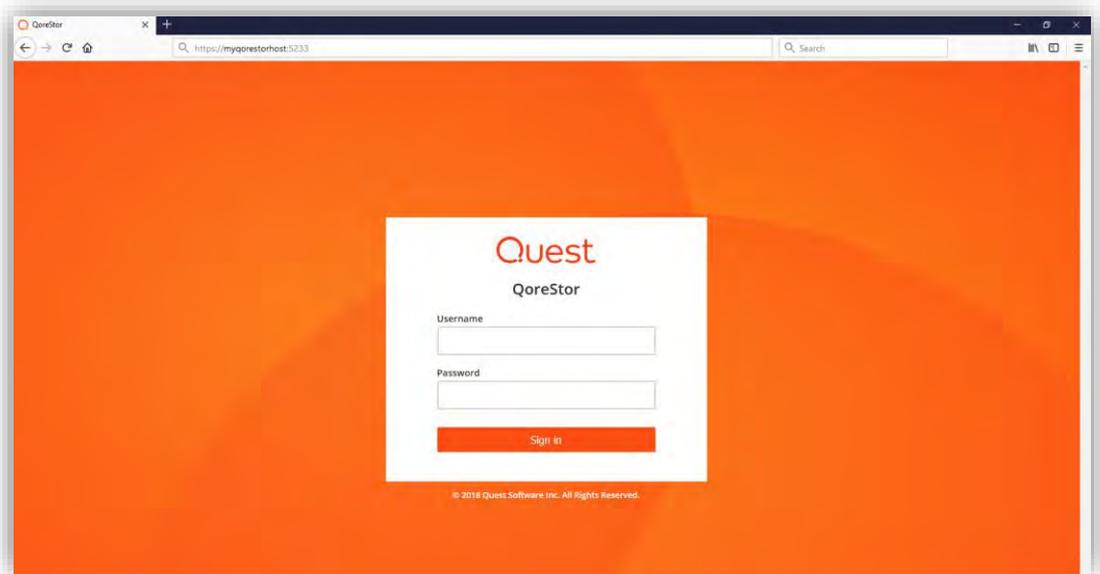
Revisions

Date	Description
January 2014	Initial release
November 2016	Updated the guide with new DR-4.0 GUI screens
October 2017	Updated with new QoreStor GUI with rebranding Changes(4.0.3)
August 2018	Added screens from QoreStor 5.0

Installing and configuring QoreStor

1. Before installing QoreStor, refer to the *QoreStor Interoperability Guide* to ensure your system(s) meet the installation requirements.
2. To install QoreStor on your system(s), follow the procedures documented in the *QoreStor Installation Guide*.

Using a supported web browser (refer to *QoreStor Interoperability Guide* for a list of supported browsers), connect to the QoreStor administrative console via https, using the host IP address/FQDN and port 5233 (<https://<hostname>:5233>). Log in with the username `admin` and password `St0r@ge!` (The “0” in the password is the numeral zero)

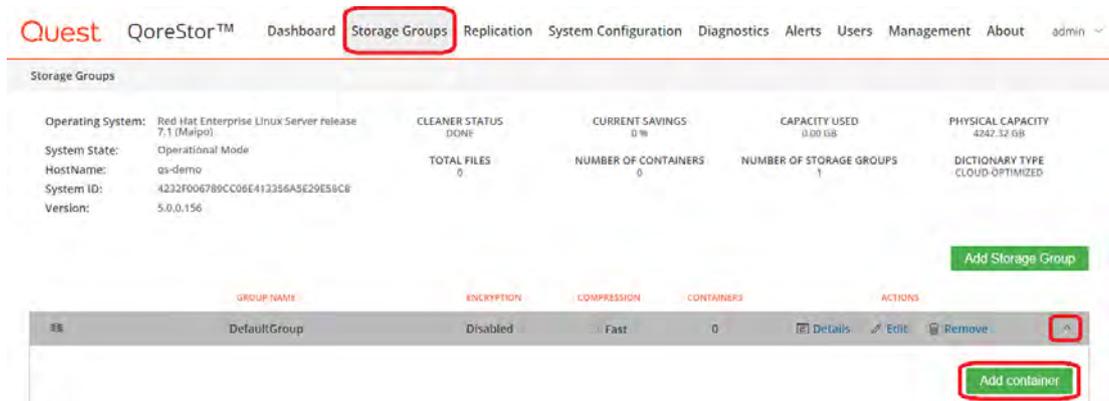


3. By default, QoreStor has a user with RDA Role named `backup_user` and password “`St0r@ge!`”. Refer to the *QoreStor User Guide* for information on changing user accounts. Administrator user also has the same password `St0r@ge!`.

Creating and configuring CIFS/NFS target container(s) for Networker

Creating the network share container for Networker use

1. Under the **Storage Group** select **Add Container**.



2. In the **Access Protocol** field, select **NFS** or **CIFS** as appropriate. Select **Marker Type** as **Networker** and click **Next** (Networker supports both CIFS and NFS protocols.)

Add container
✕

Marker Type

Networker
▼

Access Protocols

NFS ✕
CIFS ✕
▼

Cancel
Prev
Next

- Fill in backup container information for **NFS** or **CIFS** as appropriate, then click **Next**.

Add container [X]

NFS Options

Access:

- Read Write Access
- Read Only Access

Map Root To

Root

NFS Client Access:

- Open (allow all clients)
- Create Client Access List

IP List

[Add]

[Add]

[Add]

[Cancel] [Prev] [Next]

- Confirm the settings and click **Finish**.

Add container [X]

Container summary

Name: cifs_nw
 Protocol: NAS
 Marker: Networker

Connection summary

Protocol NFS:
 Options: Read Write
 Root Mapping: root
 Access: *

Protocol CIFS:
 Access: *

[Cancel] [Prev] [Finish]

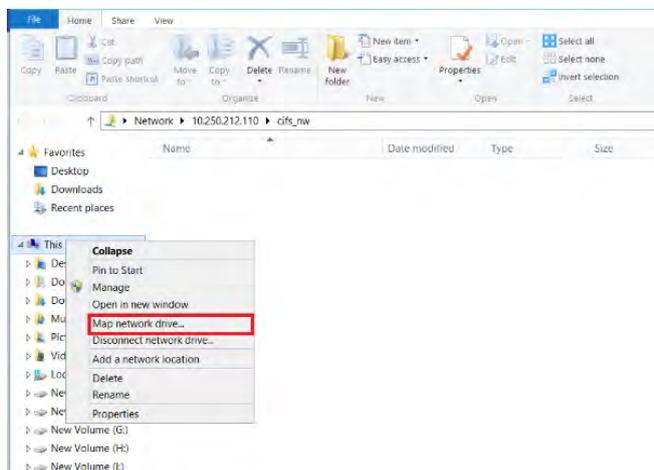
5. Confirm that the container is added successfully.



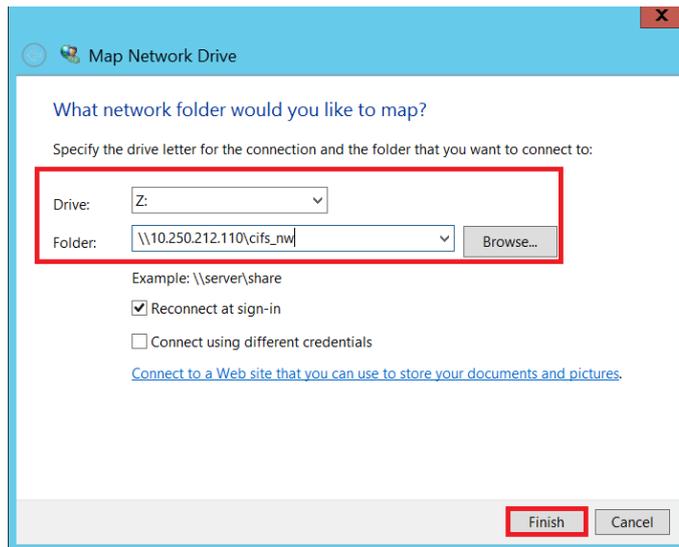
NOTE: For improved security, Dell recommends adding IP addresses for the backup console (Networker Server), Networker storage nodes, and Networker clients. Not all environments will have all components.

Configuring the Networker storage node CIFS & NFS

1. Log on to the storage node and click **Start > Computer**.
2. Rightly click **Computer** then click **Map network drive**.



3. In the **Map Network Drive** window, in the **Folder** field, enter the path to the container on the QoreStor system.



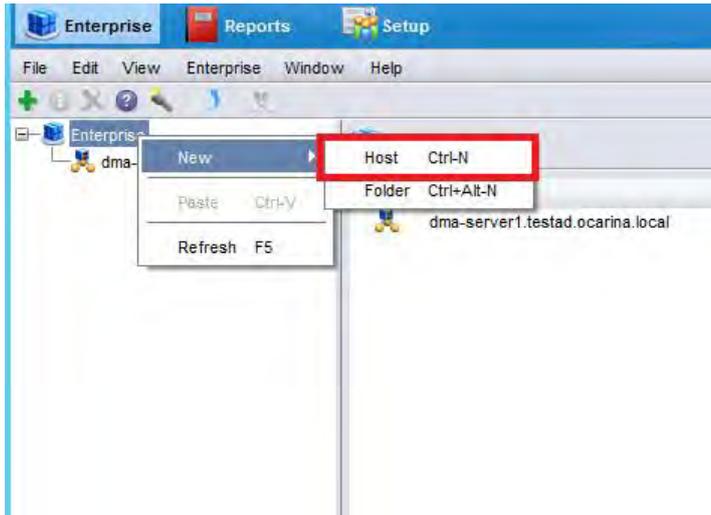
4. Select **Reconnect** at sign-in.

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

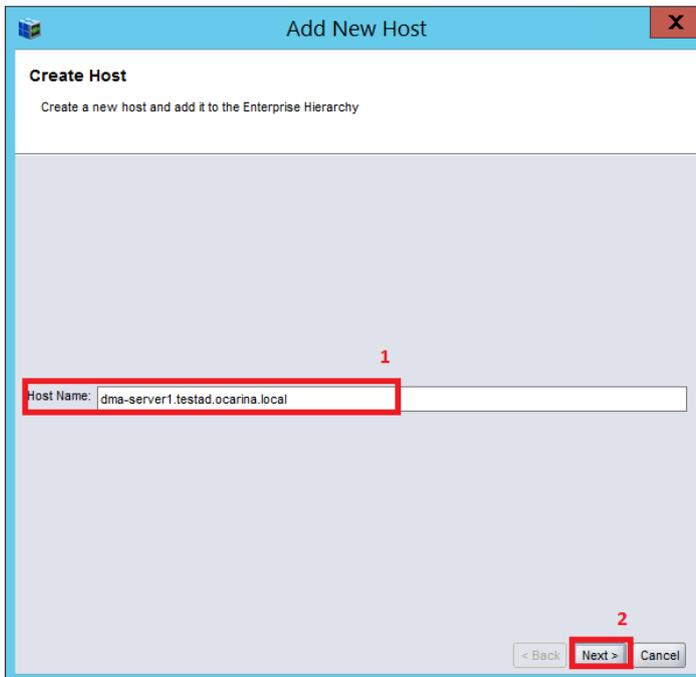
5. If **Client Direct** is used, make sure all the clients can access the same QoreStor container share using this path. Otherwise, separate **Client Direct Paths** must be entered with the actual paths that clients use to access the QoreStor container share (please refer to step 10 in the next section **Set up Networker**).

Configuring Networker to use the newly created network share

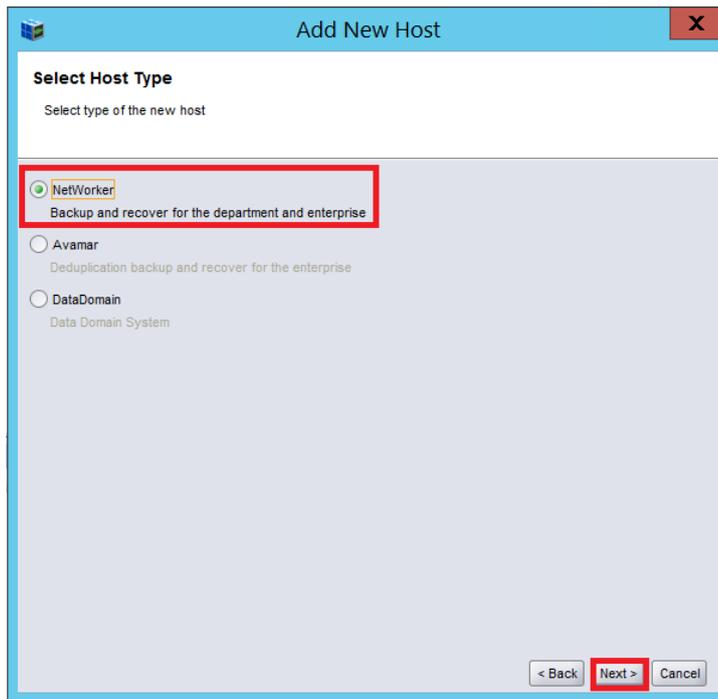
1. Open the Networker Management Console (NMC).
2. Click **Enterprise**, select the storage node for which the QoreStor share will be configured as a backup device, right-click on **Enterprise >> New >> Host**.



3. Add the **Host Name** and click **Next**.



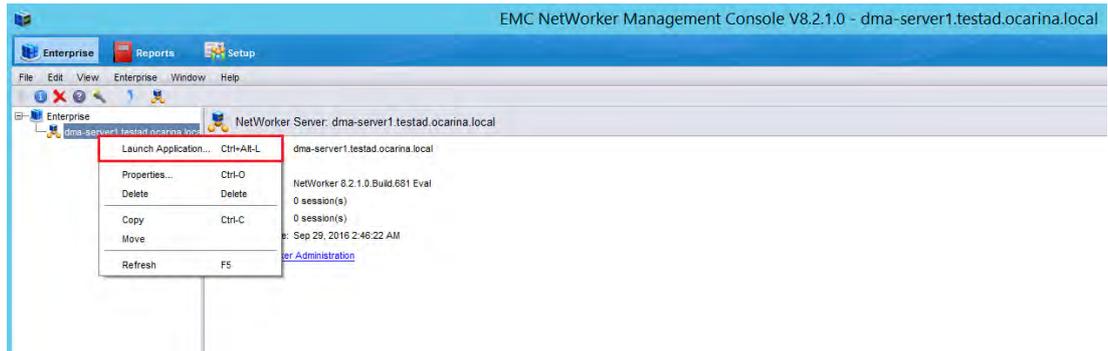
4. Select **Networker** and click **Next**.



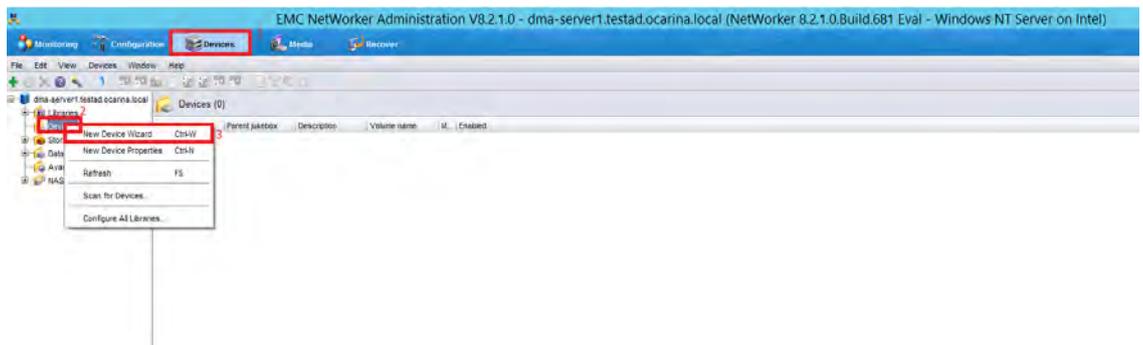
5. Click **Finish**.



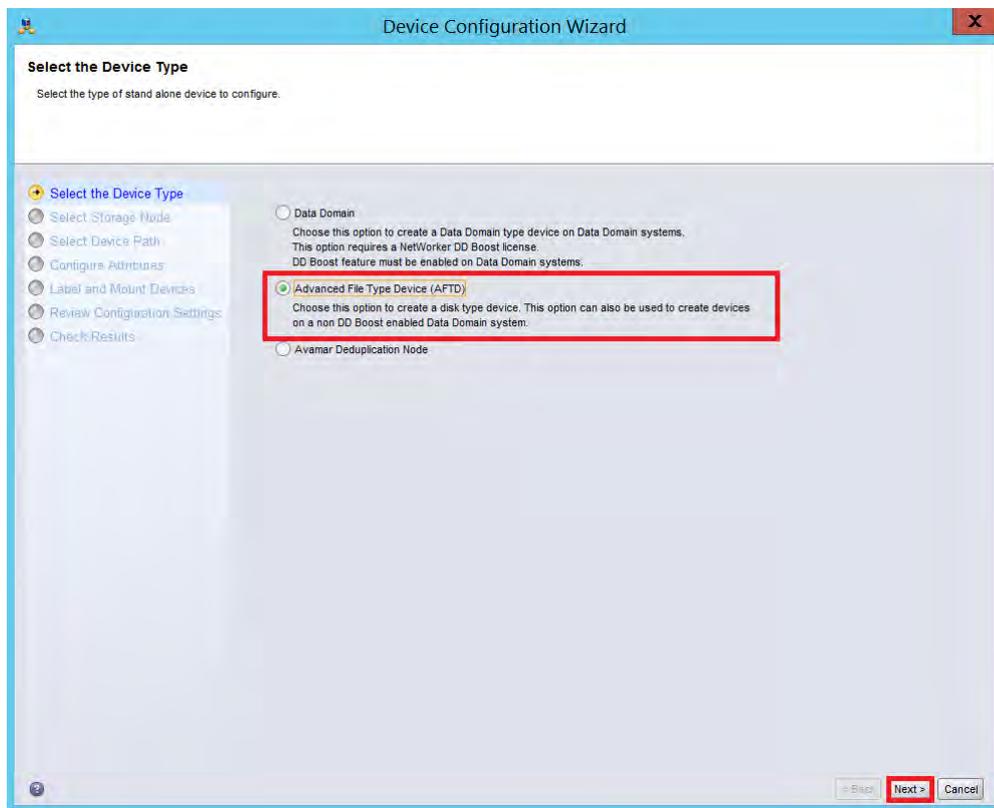
6. Right-click and select the newly created Networker application and click **Launch Application**.



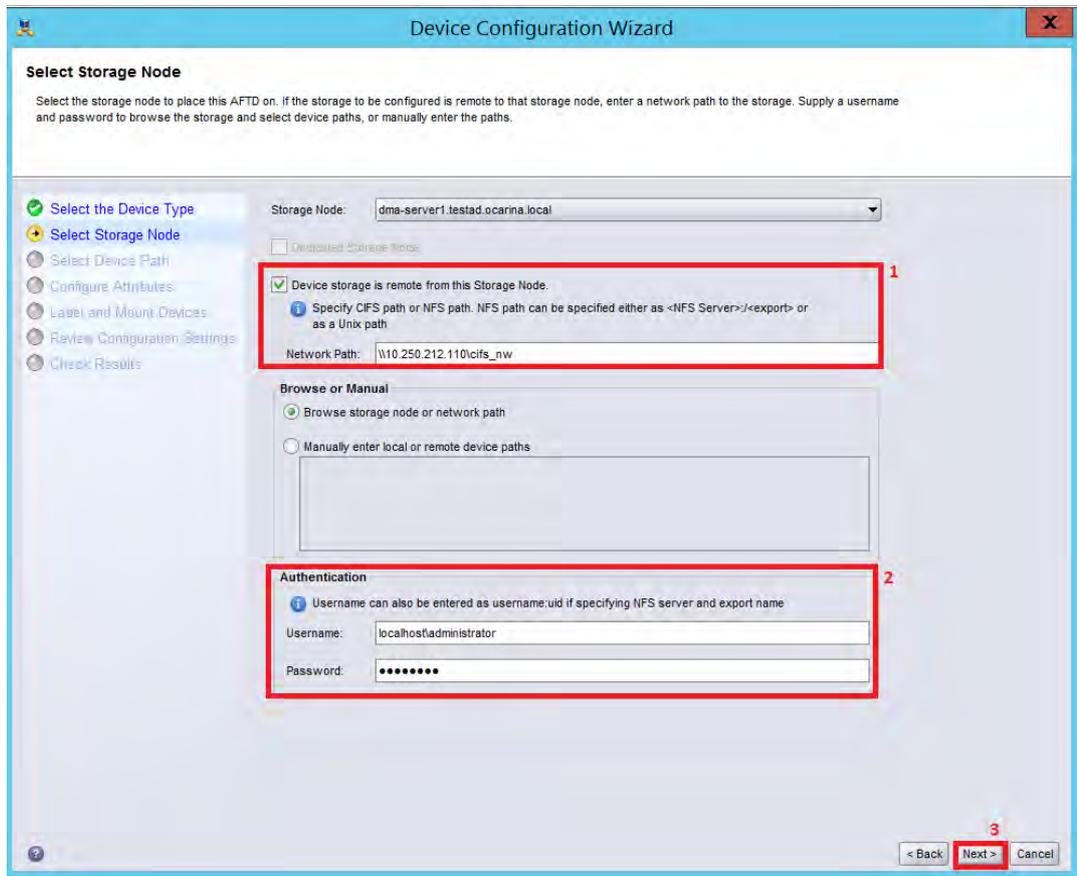
7. In the **Devices** window, right-click **Device** in the left panel and click **New Device Wizard**.



8. Select **Advanced File Type Device (AFTD)**.

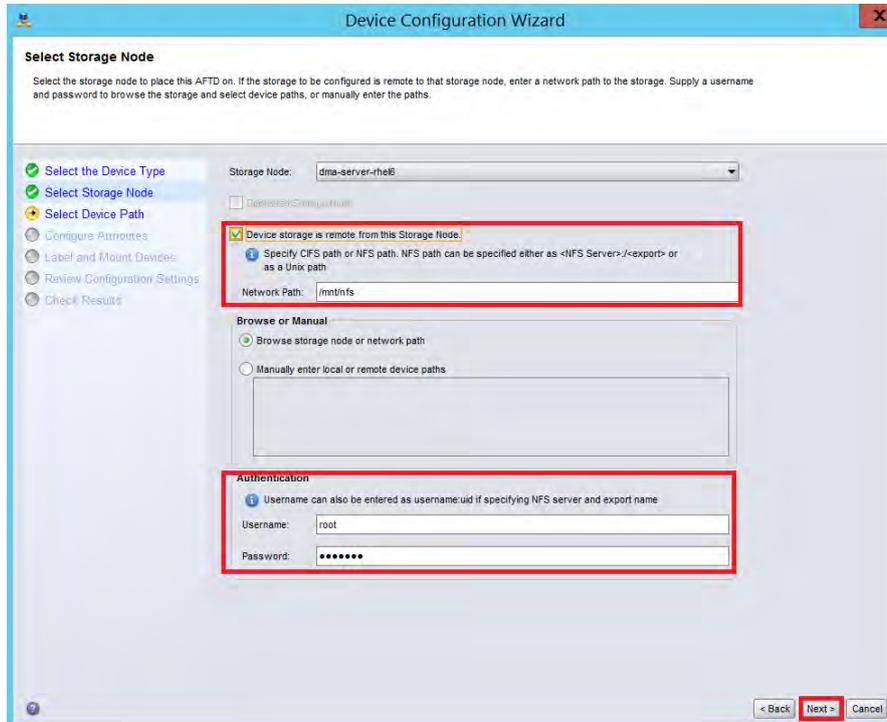


9. In the next dialog box, select **Device storage is remote from this Storage Node**, type in the network path of the QoreStor container share location (if name resolution works, the hostname or FQDN can be used in the server portion of the network path). In the **Authentication** section, type the CIFS credentials to access the QoreStor share. Click **Next**.

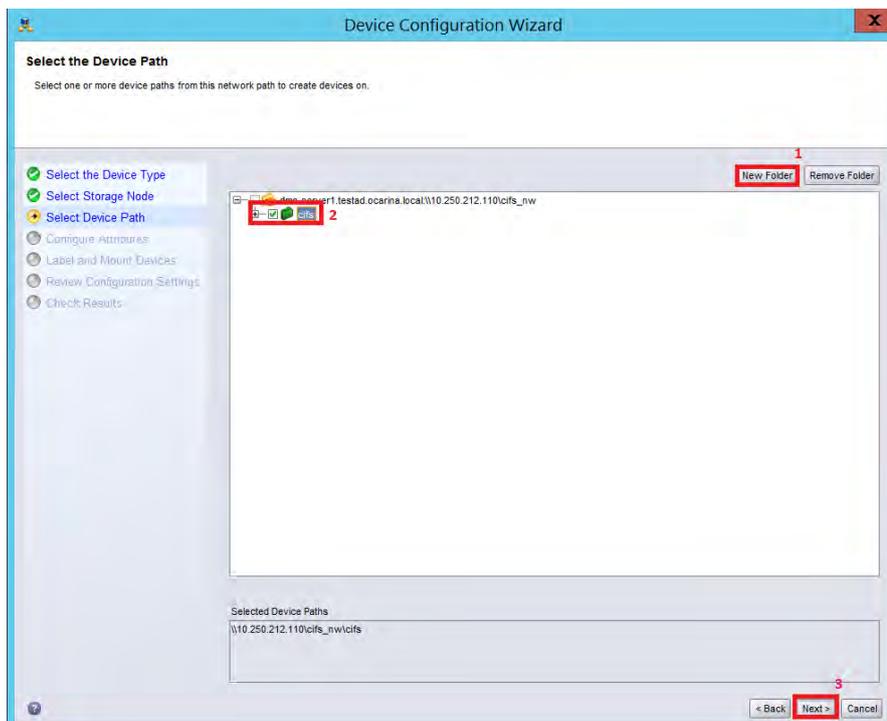


i **NOTE:** For NFS protocol, Device storage is remote from this Storage Node, type in the network path of the QoreStor container share location.

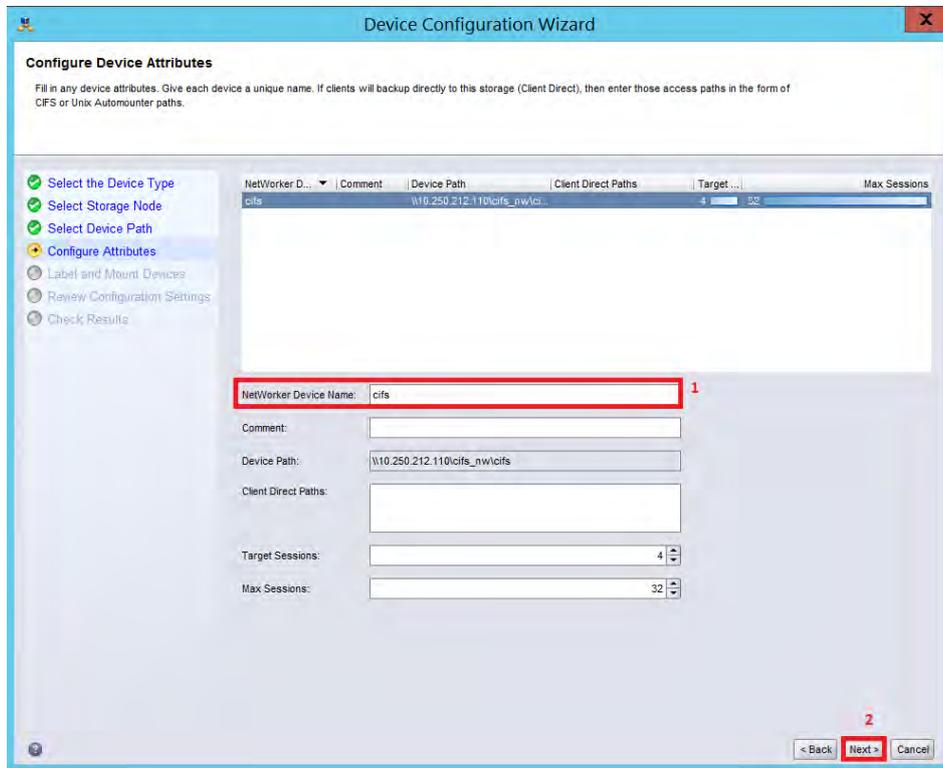
10. Mount QoreStor in the Linux machine and provide the mount path in the **Network Path** field. In the **Authentication** section, type the Linux Login credentials to access to QoreStor share. Click **Next**.



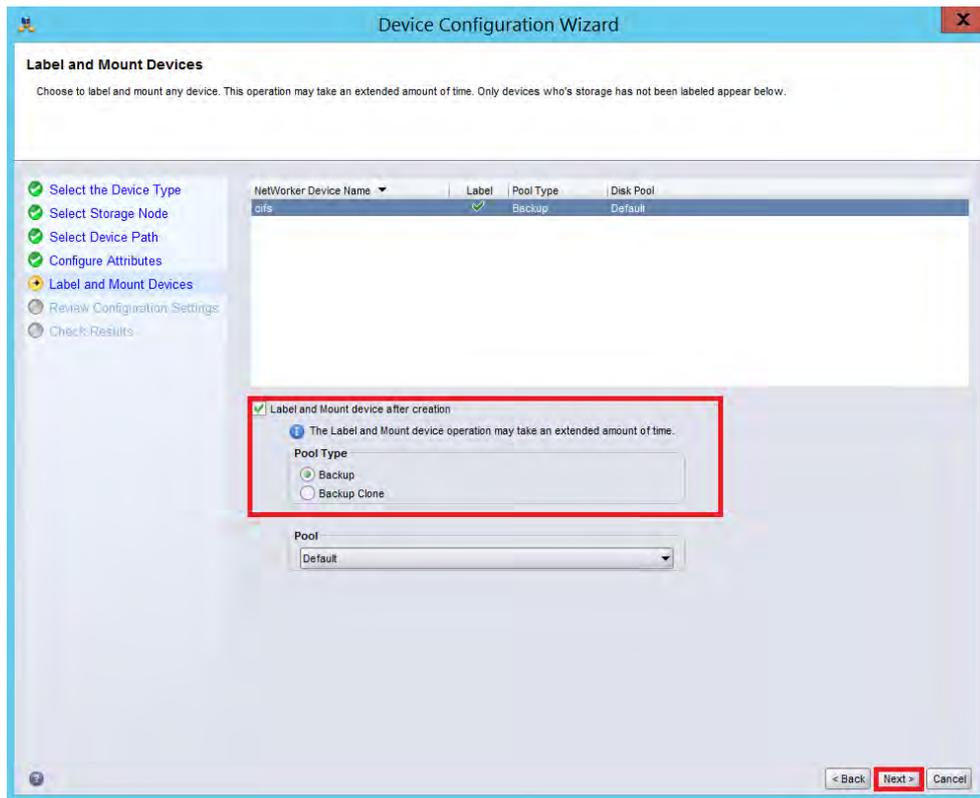
11. Click **New Folder**, type an appropriate folder name, enable the folder, and click **Next**.



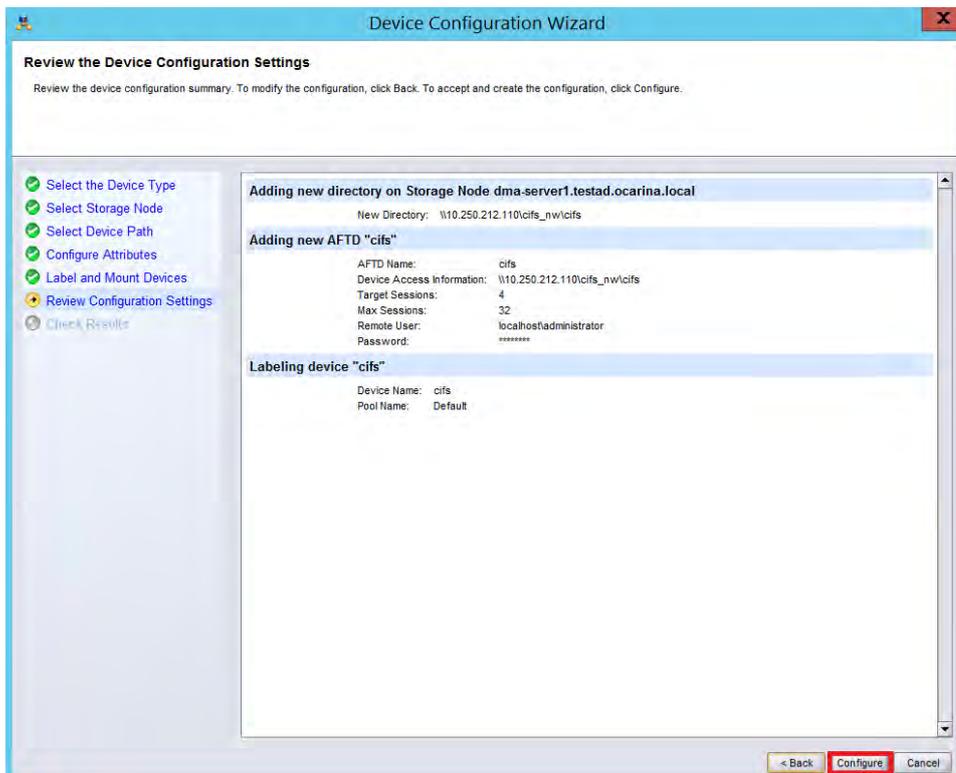
12. Set the session attributes according to the Networker administration documentation and click **Next**.
If the **Client Direct** feature will be used, different device path(s) that clients use to access the QoreStor container share can be entered into the Client Direct Paths. If all of the clients are able to access the QoreStor container share using the direct path, there is no need to enter extra client direct paths.



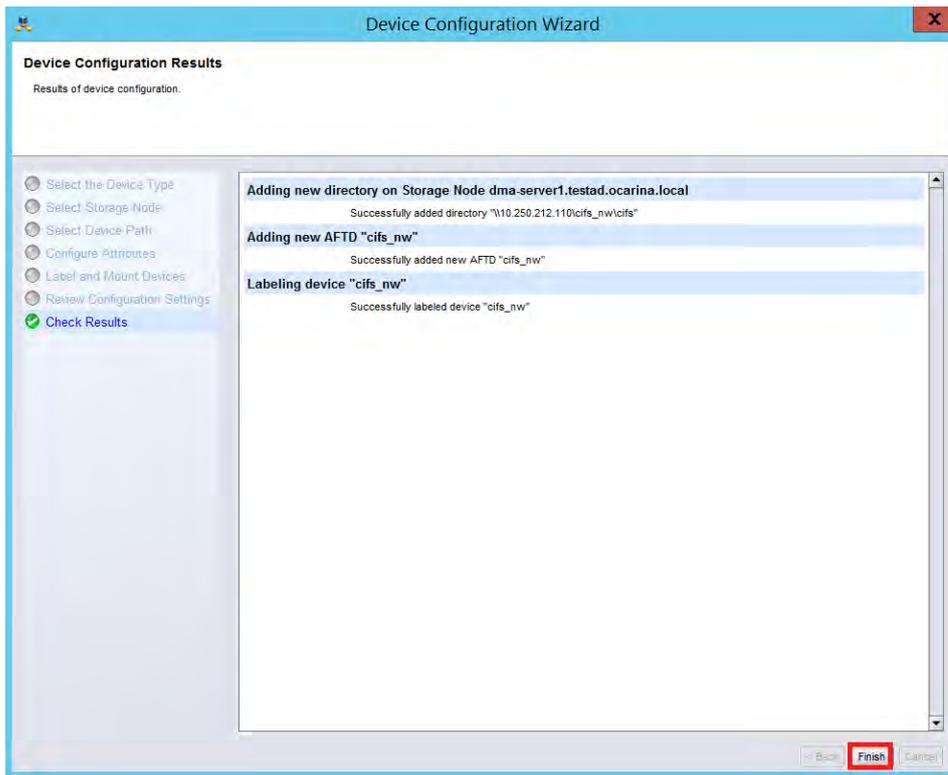
13. The new Networker device should have Pool Type set to **Backup**. Click **Next**.



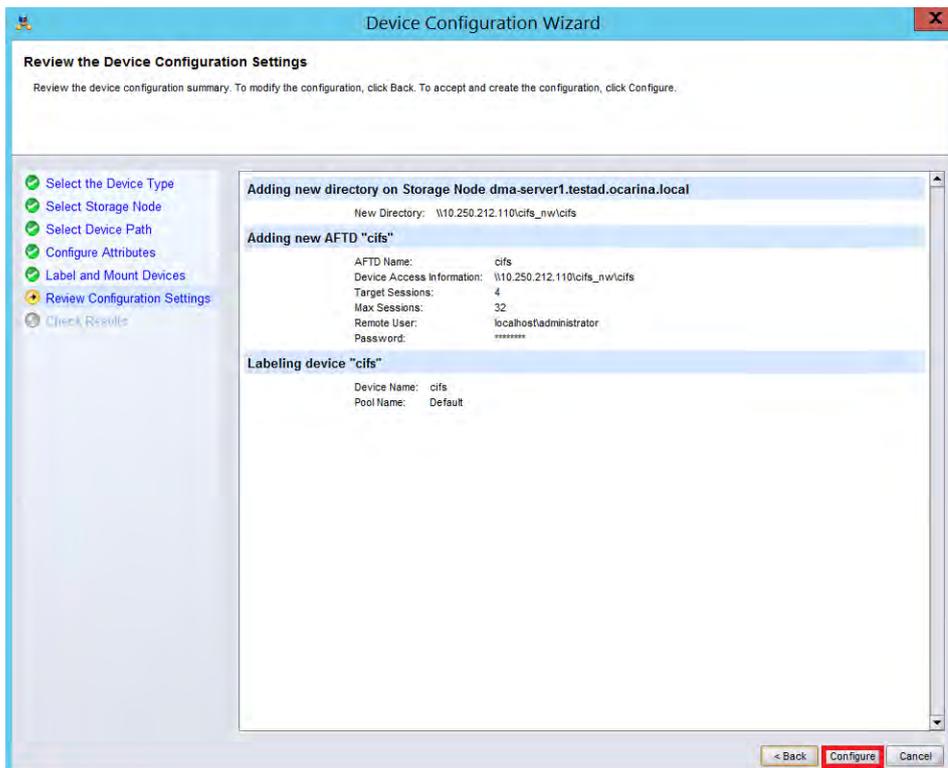
14. Review the configuration and click **Configure**.



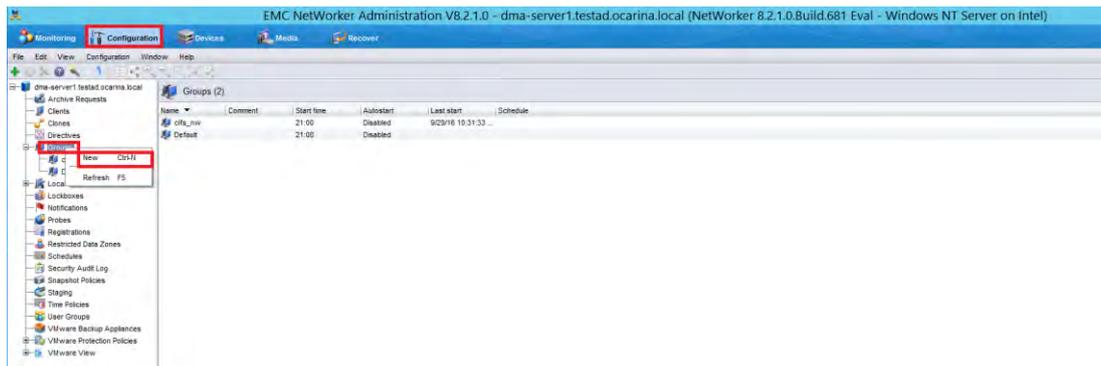
15. Check the results and click **Finish**.



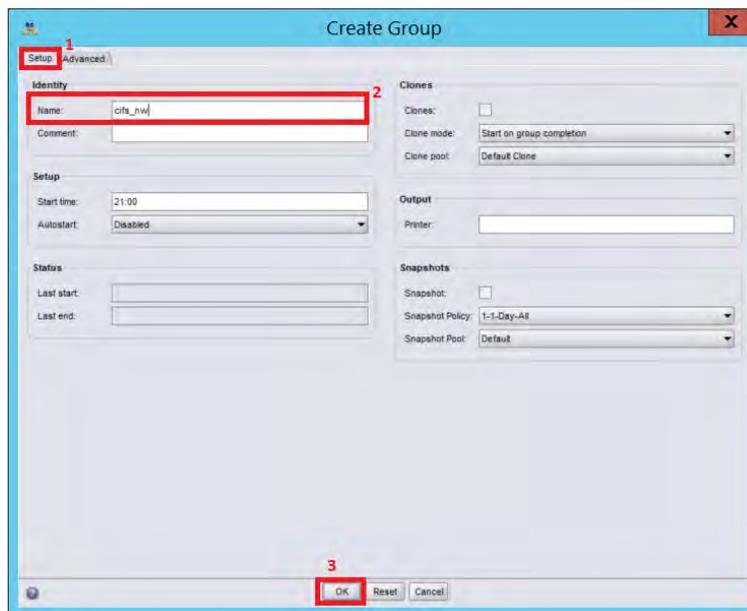
16. Review the Device configuration settings and click Configure.



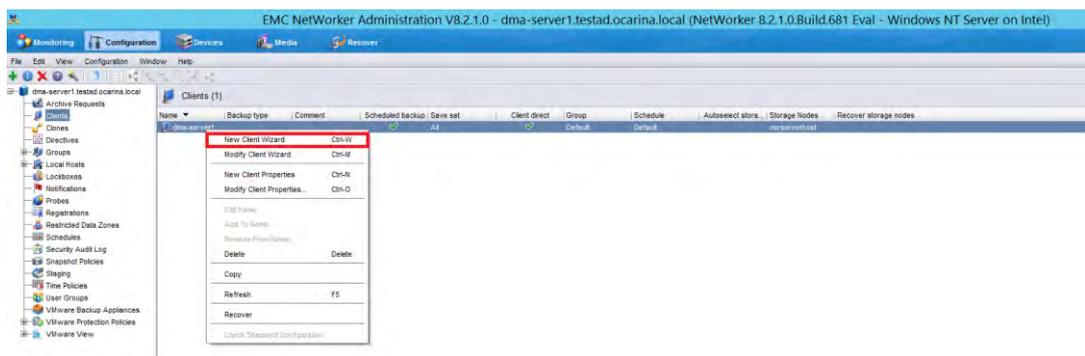
17. On the Configuration tab, Right click on Groups and select New.



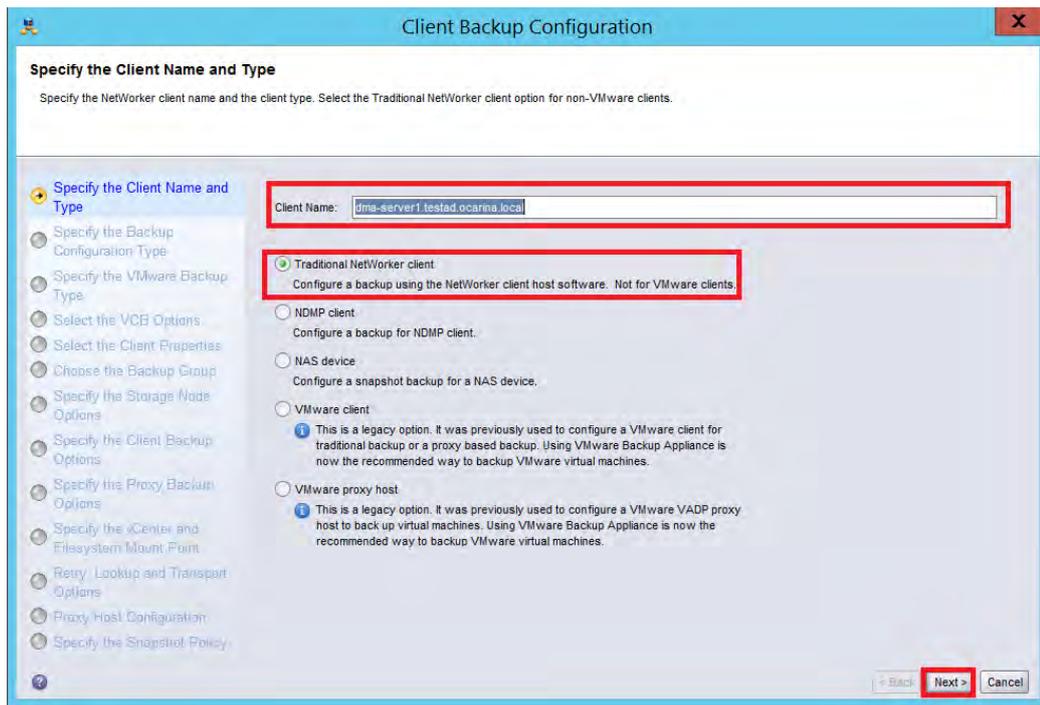
18. Fill the Required details and click OK.



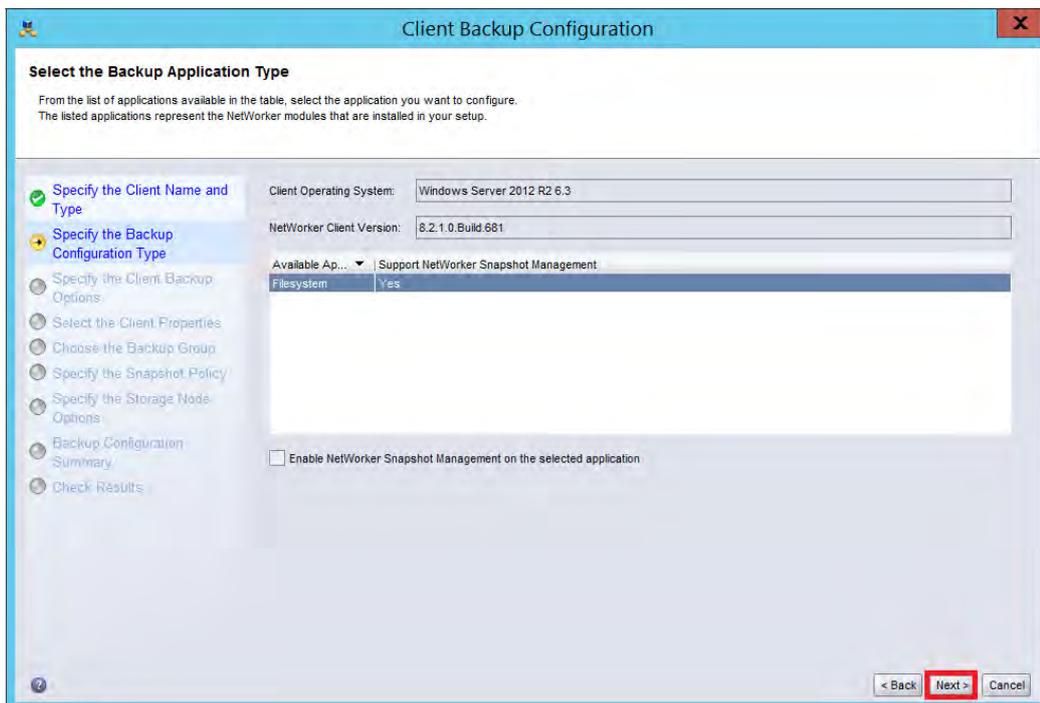
19. On the Configuration tab, right click on Clients and Select New Client Wizard.



20. Specify the Client Name and click Next.



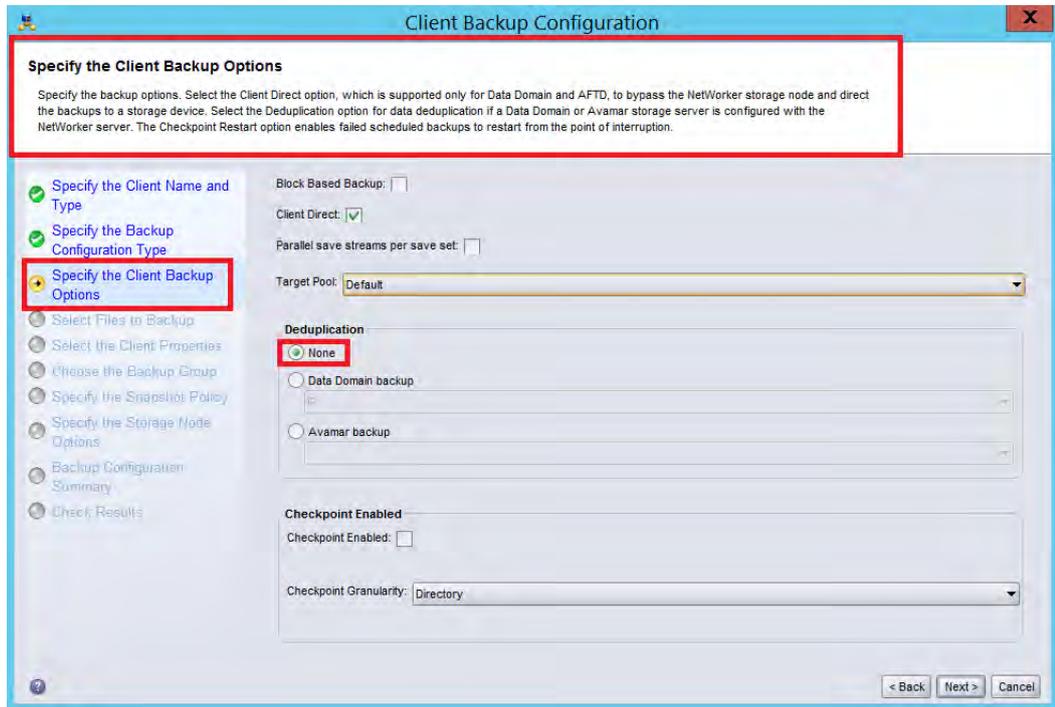
21. Select the **Backup Application Type** and click **Next**.



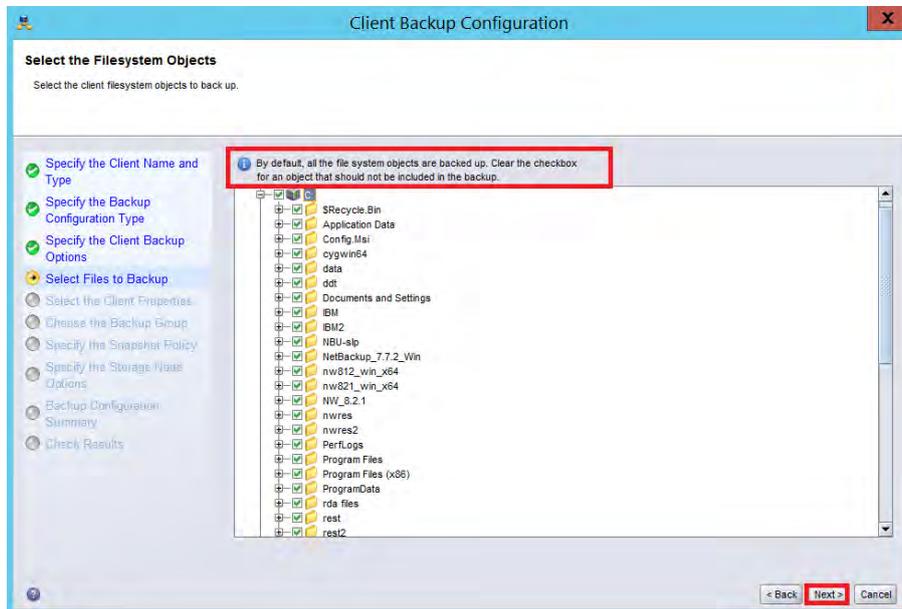
22. In **Specify the Client Backup Options**, define the following settings as follows.

- a Deduplication should be set as None
- b Target Pool should be set as the pool that has the QoreStor device included.

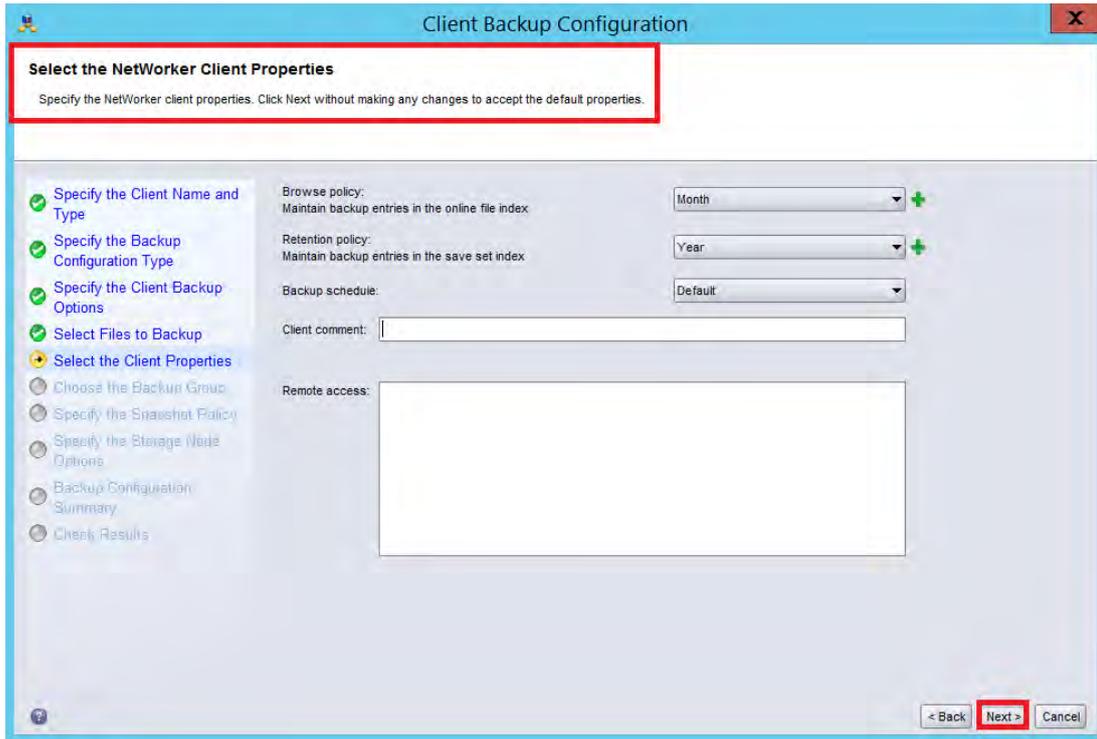
Client Direct can be enabled if the client is directly backing up data to a preferred DR, thus bypassing the storage node. For Client Direct to work, the QoreStor device must have at least one device path that the client can use to directly access the QoreStor container share.



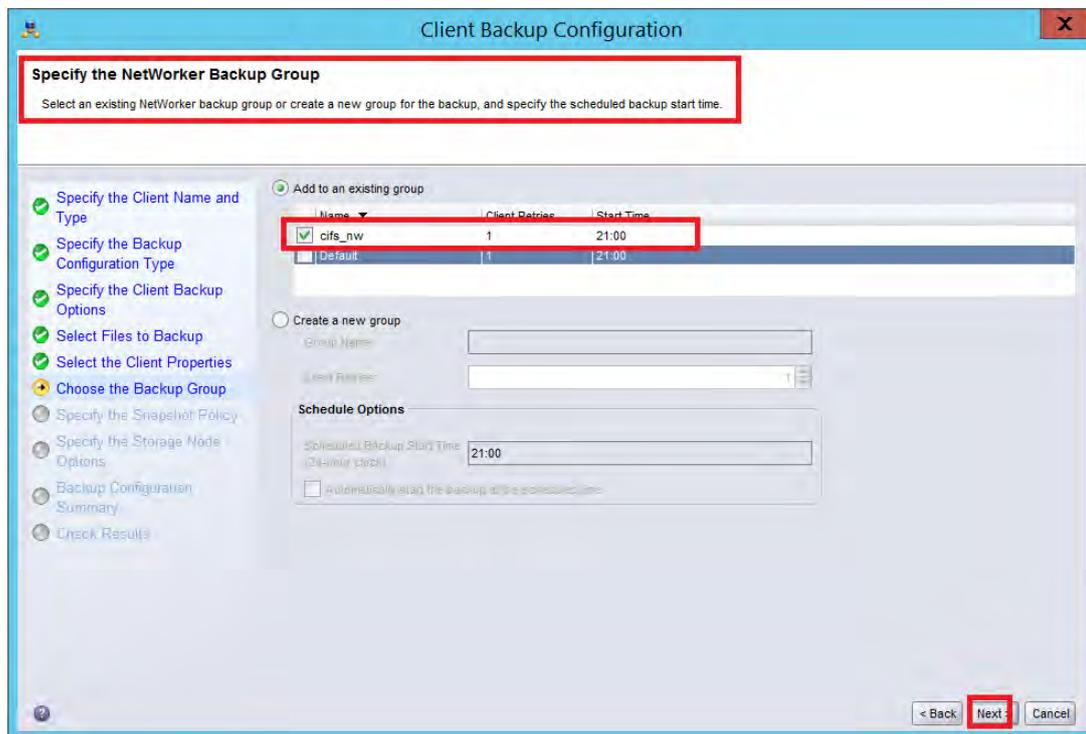
23. Select the Backup folder and click Next.



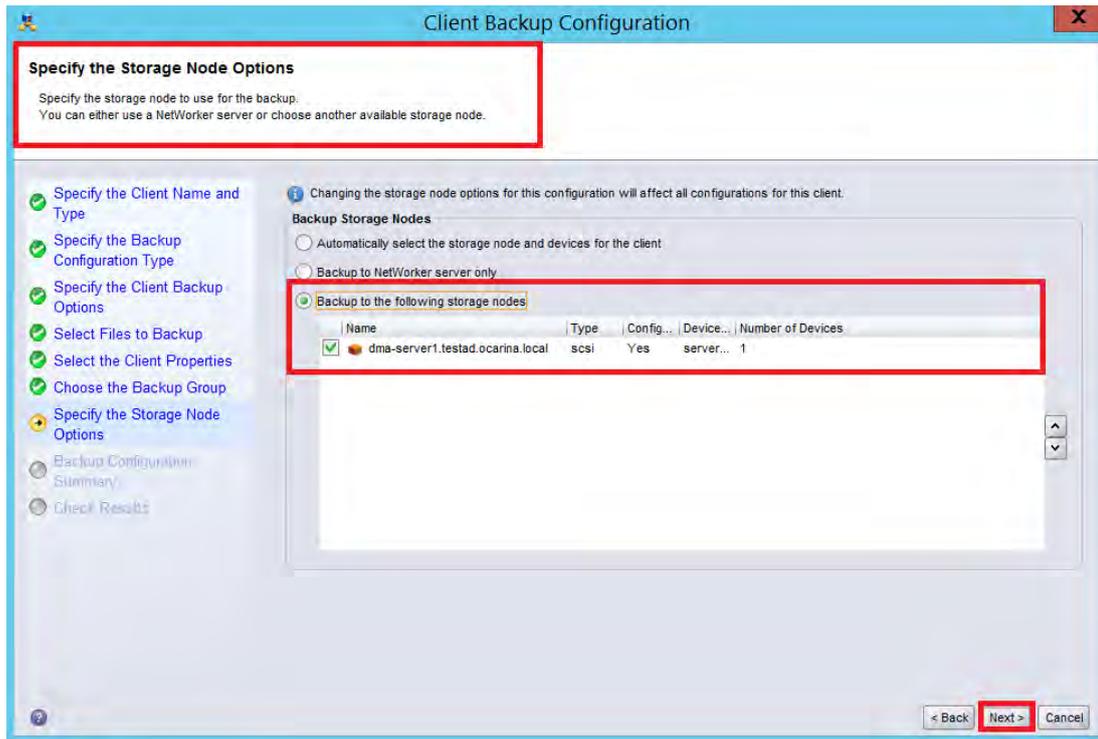
24. Select the Networker Client Properties and click Next.



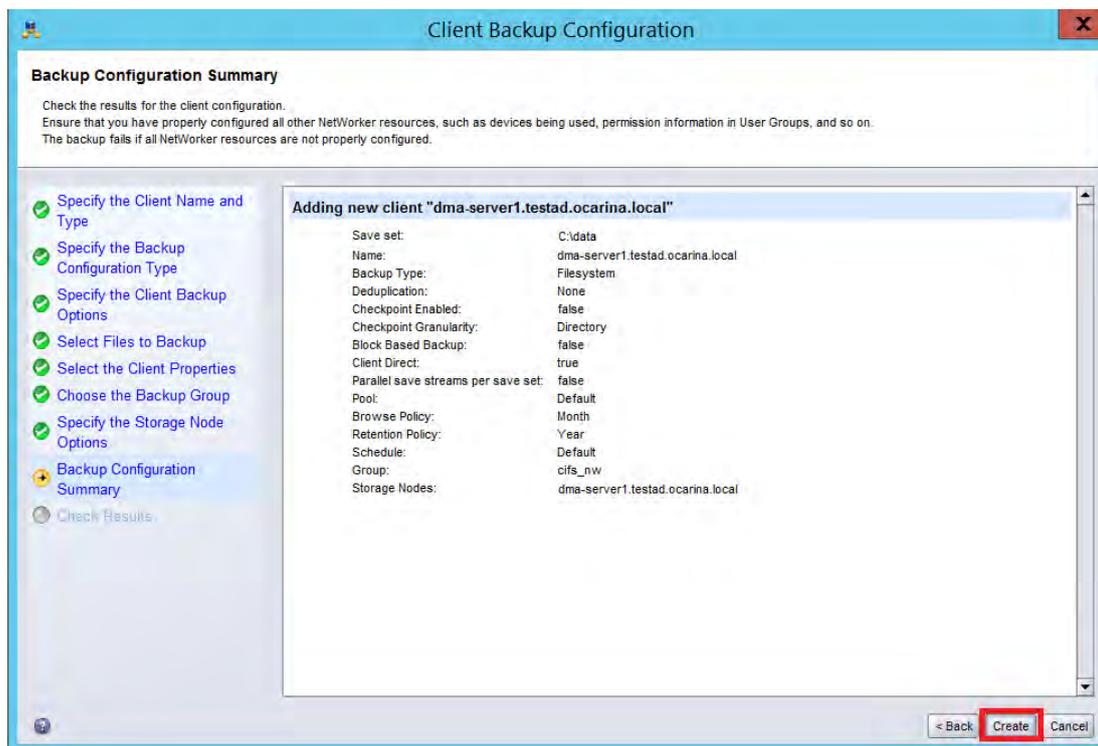
25. Specify the Networker Backup Group and click Next.



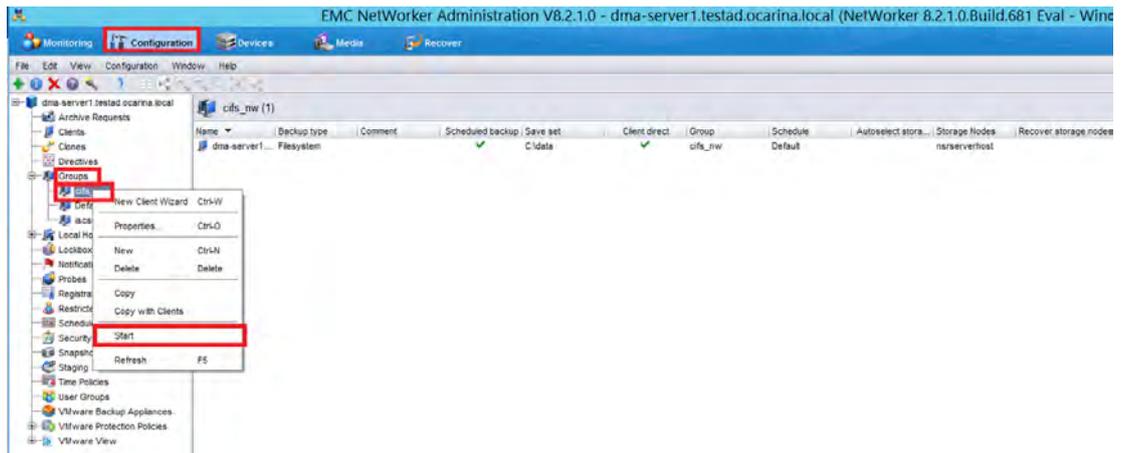
26. Specify the Storage Node Options and click Next.



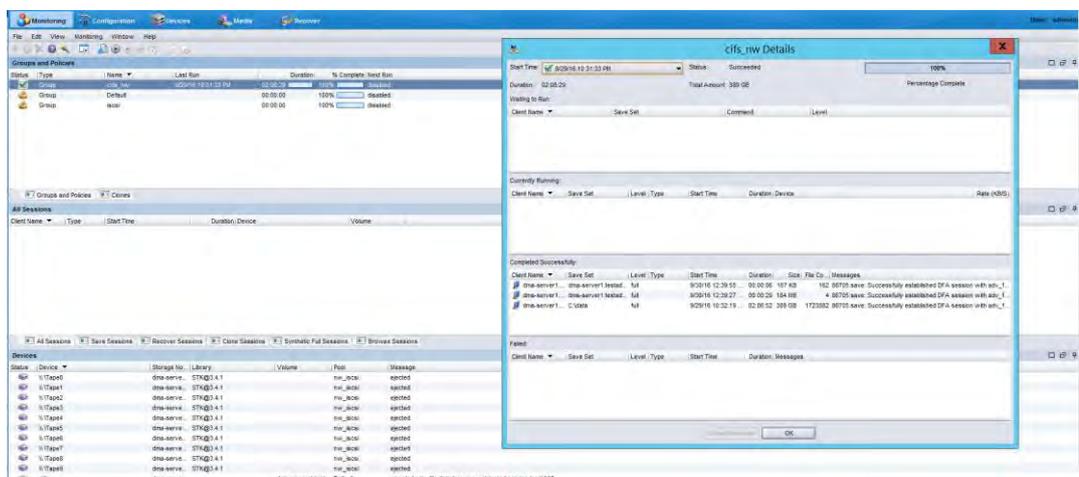
27. Verify the **summary** and click **Create**.



28. After completing the Client Backup configuration, expand **Groups** in **Configuration** tab and right-click the appropriate Backup group created, then click **Start**.



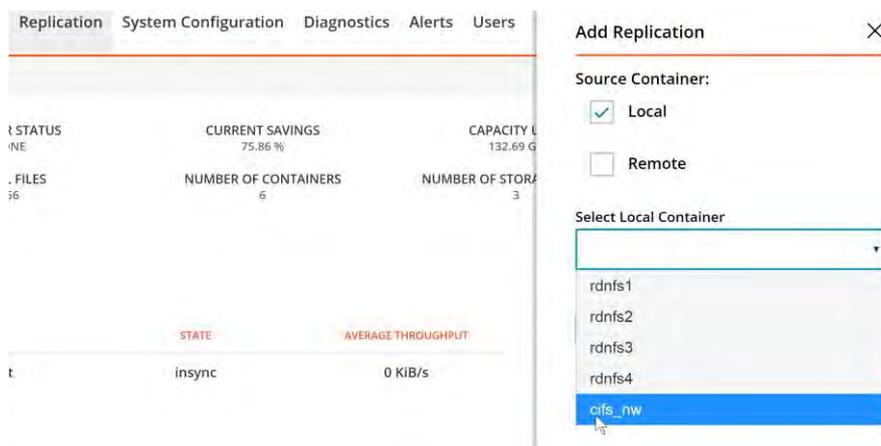
29. Monitor the job status in the **Monitoring** tab.



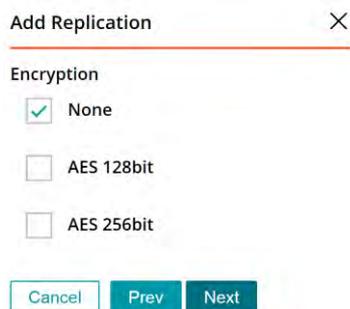
Setting up QoreStor system replication and restore from the replication target

Creating a replication relationship between two QoreStor systems

1. Create a **Source** container on the source QoreStor system.



2. Select the **Encryption Type** for the Source Container and click **Next**.



3. Select the remote container as previously created **Target** container in the replication wizard.

Add Replication ✕

Replica Container

Local

Remote

Username

administrator

Password

Remote Machine

10.230.48.125

Retrieve Containers

Select Remote Container

4. Verify the **Summary** and click **Finish**.

Add Replication ✕

Summary

Source container

Source: local

Container: cifs_nw

Encryption

Encryption: none

Replica container

Replica Location: remote

Container: target

Username: administrator

Password: *****

Machine: 10.230.48.125

5. Check **Replication** is added successfully and Confirm the **Replication** details

Quest QoreStor™ Dashboard Storage Groups Replication System Configuration Diagnostics Alerts Users Management About admin

Replications

Operating System: CentOS Linux release 7.3.1611 (Core)	CLEANER STATUS: DONE	CURRENT SAVINGS: 75.66%	CAPACITY USED: 132.69 GB	PHYSICAL CAPACITY: 275.60 GB
System State: Operational Mode	TOTAL FILES: 166	NUMBER OF CONTAINERS: 6	NUMBER OF STORAGE GROUPS: 7	DICTIONARY TYPE: STANDARD
HostName: networker-qs-01				
System ID: 423169A3E1736888F26201304646F72E				
Version: 5.0.1.105				

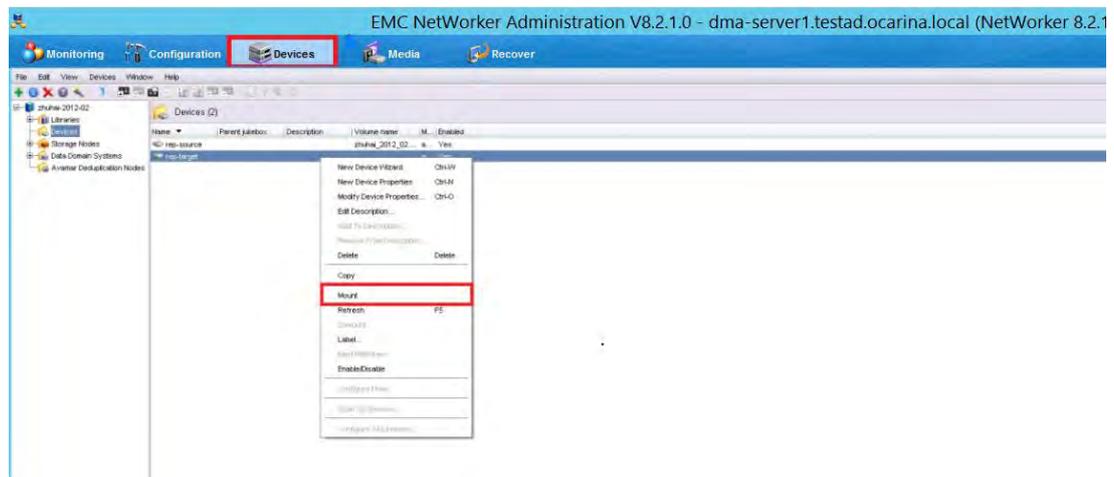
SOURCE	STATUS	REPLICA	STATE	AVERAGE THROUGHPUT	REDUCE NETWORK SAVINGS
cifs_nw	Online	target	insync	0 KIB/s	0.00%

Restoring from the replication target container

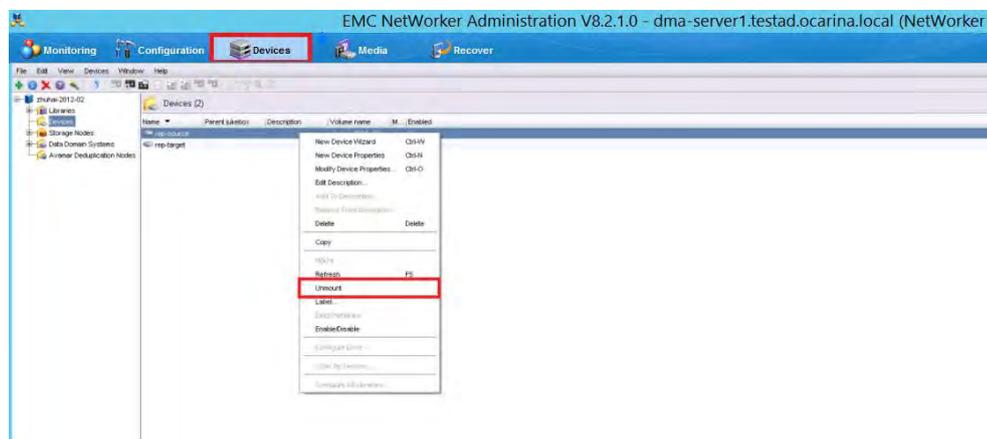
1. Add the target container onto the Networker storage node. Right-click **Device** > **New Device Properties**, and then enter necessary information for the target device. When complete, mount the device.



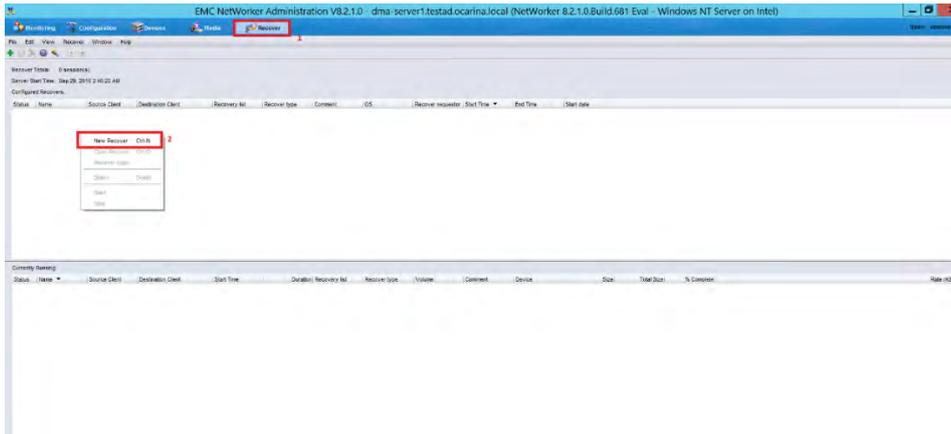
NOTE: Do not label the target device.



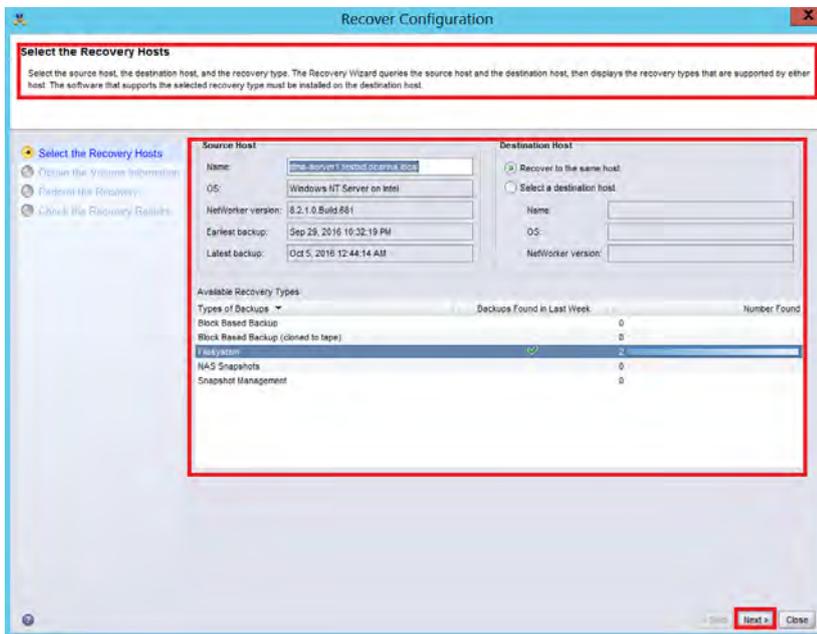
2. Unmount the source container.



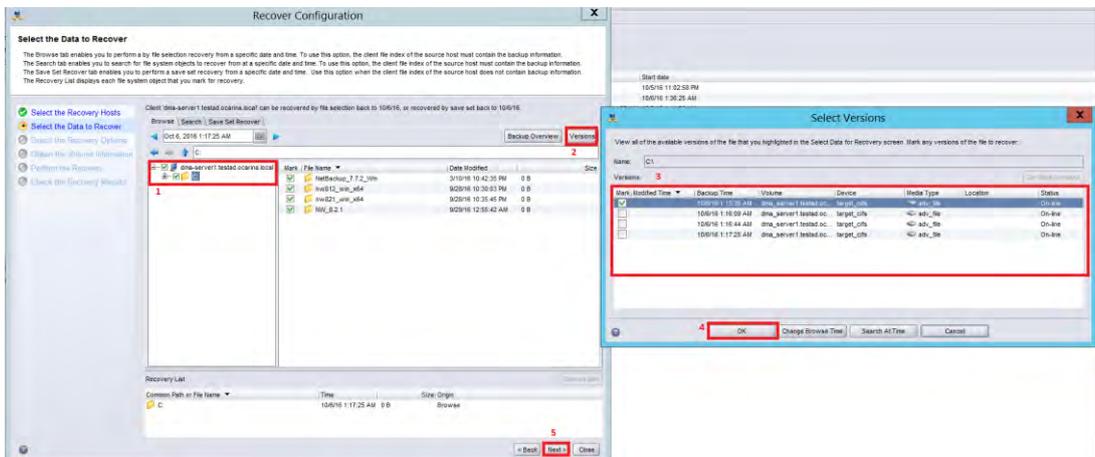
3. Go to **Recover** Tab, Right click and Add **New Recovery**



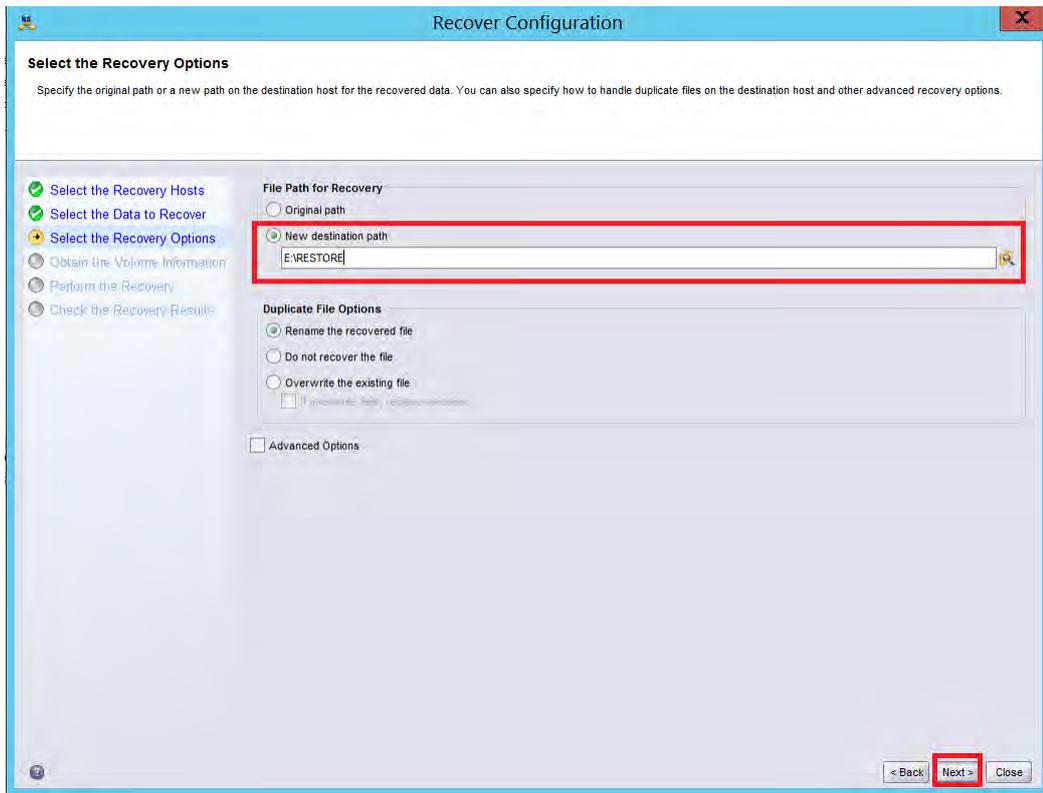
4. Fill the appropriate information in the **Recovery Hosts** and click **Next**



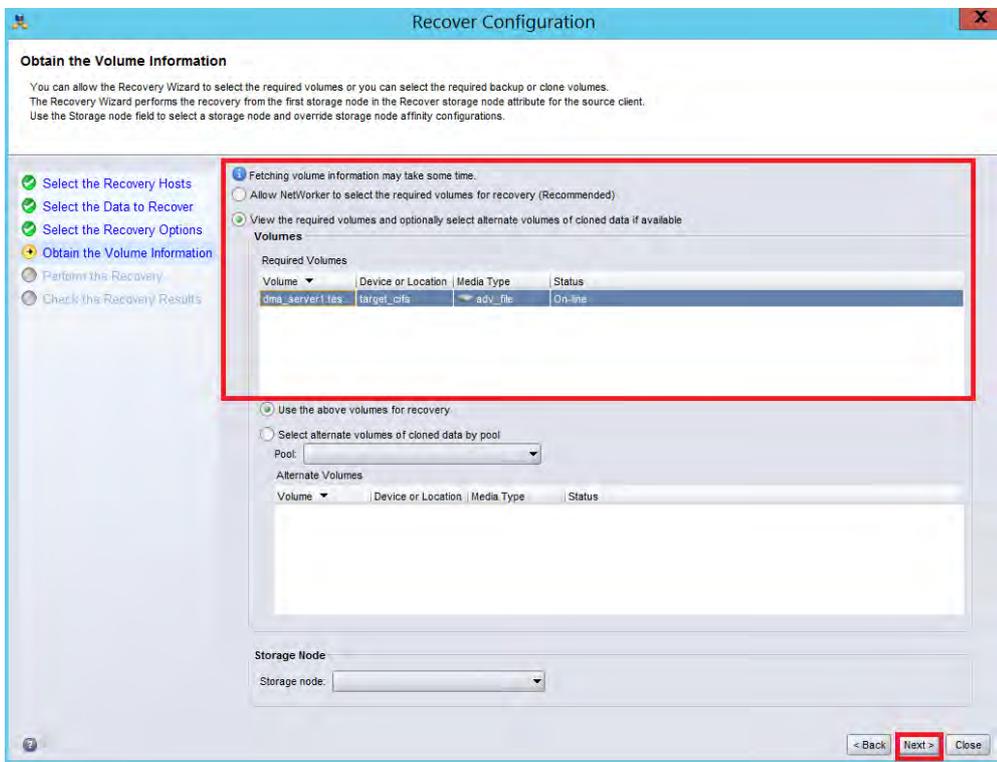
5. Select the data set to recover, click **Versions** to view the **Select Versions** window, select the data, and click **OK**.



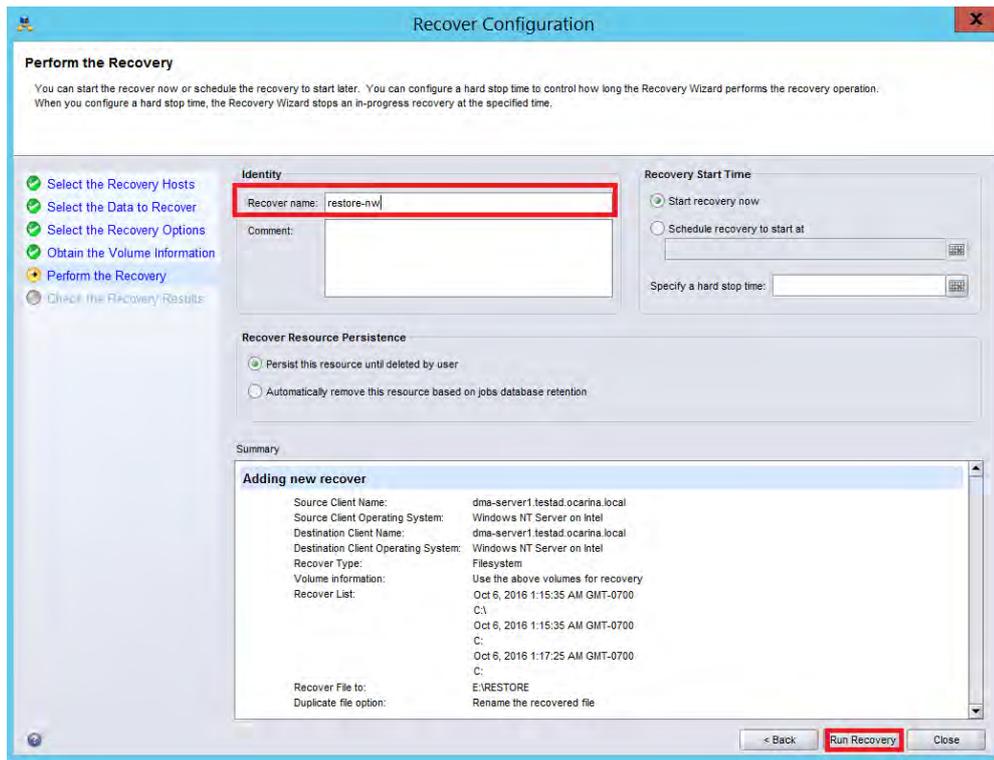
6. Select the recovery options, choose **Original path** or enter a **New Destination Path** to which to recover data, and click **Next**.



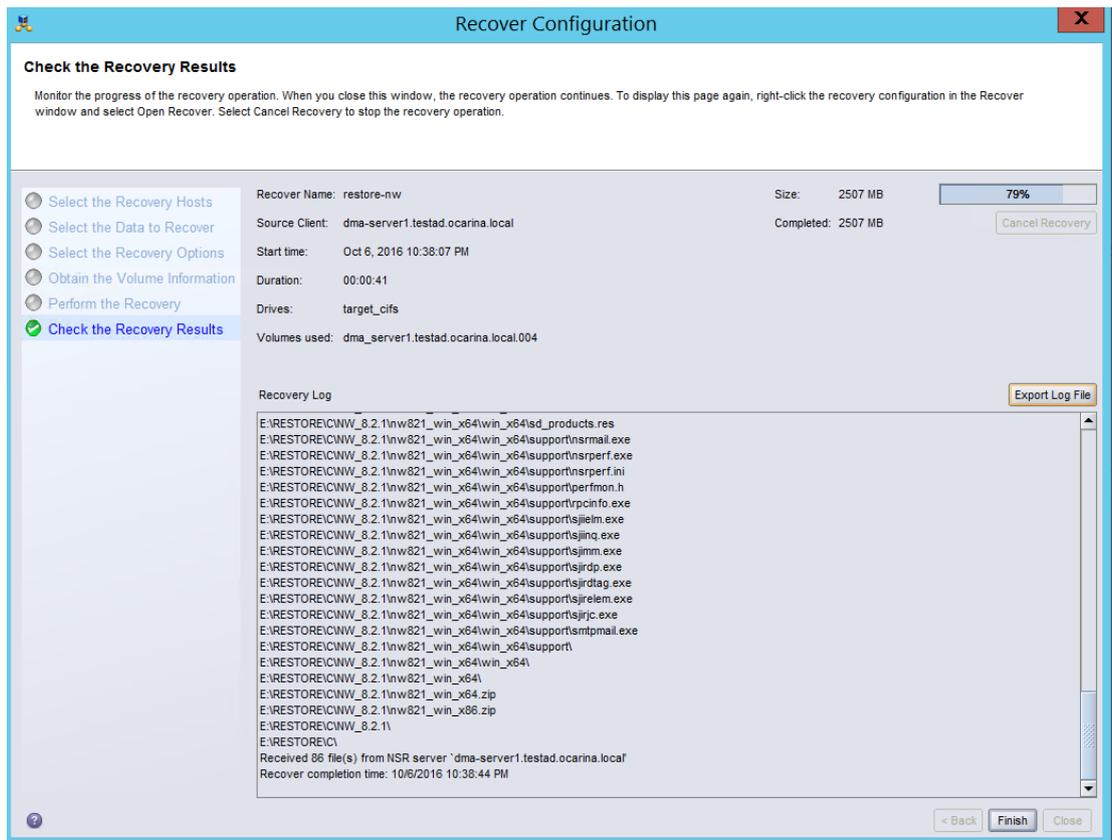
7. Allow the recovery wizard to select the required volumes and click **Next**.



8. Enter a Recover name, and click **Run Recovery**.



9. Check the Recovery Results.



Configuring RapidCIFS with NetWorker

RapidCIFS is a Quest developed protocol that accelerates writes to CIFS shares on the QoreStor system. This is done by only sending unique data to the appliance. This usually causes significant network savings and even sometimes performance boosts.

Windows prerequisites

- The Storage Node OS must be the 64-bit version of Windows 2008 R2, Windows 2012/R2, or Windows 2016.

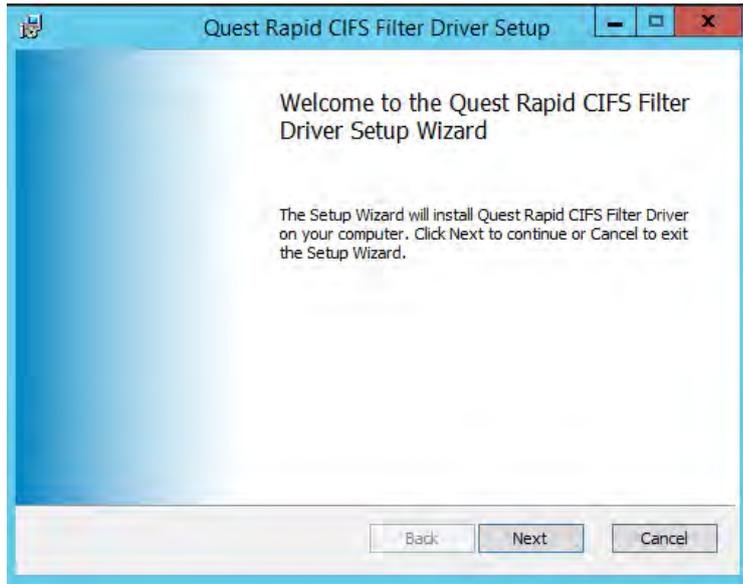


NOTE: For the accelerator to work properly, the backup traffic must go directly to the QoreStor system. For NetWorker you should install RapidCIFS on the Storage Nodes.

Installing RapidCIFS on a NetWorker Storage Node

Follow these steps to install RapidCIFS.

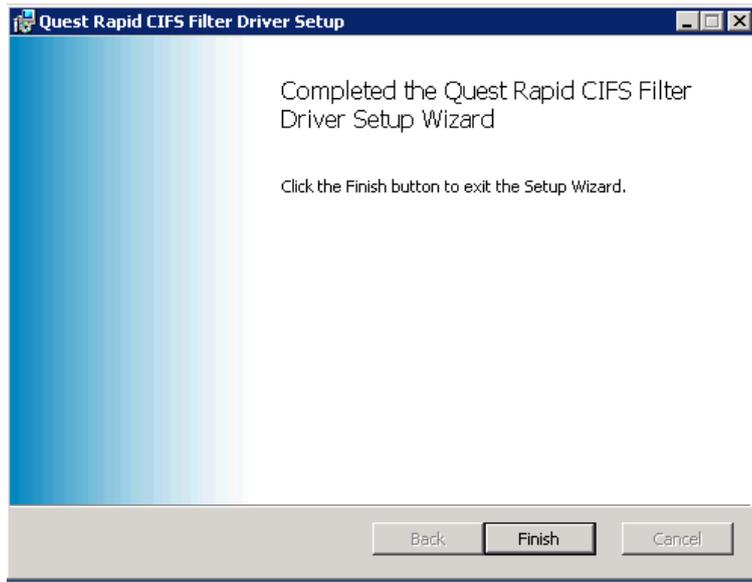
1. Download the MSI to the Server/Proxy by doing the following:
 - a. Go to support.quest.com/qorestor/ and select your version.
2. On the support page for your product, click **Software Downloads**.
3. For the RapidCIFS plugin for your QoreStor version, click the **Download** icon to download the installer package (.msi file).
4. Run the MSI and follow the instructions in the installation wizard as shown in the screenshots below. Click **Next** on the first screen.



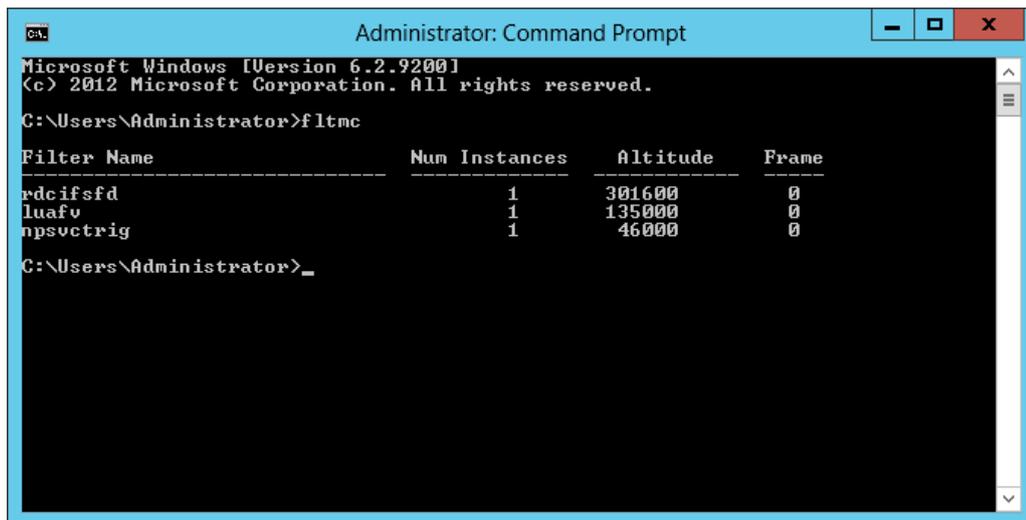
5. Click **Install**.



6. Click **Finish**.



7. Verify that the "rdcifsfd" driver is loaded automatically; this can be checked by using the command fltmc.



Configuring RapidNFS with NetWorker

Linux prerequisites

- The Storage Node OS must be the 64-bit version of CentOS or SUSE.
- The FUSE module should already be installed, as follows:

On NFS Storage Node, run the command below and verify the command output:

```
# rpm -qa | grep fuse
```

```
fuse-2.8.3-4.el6.x86_64
gvfs-fuse-1.4.3-15.el6.x86_64
fuse-libs-2.8.3-4.el6.x86_64
```

- The plug-in must be installed on the designated Linux-based Storage Node in the following directory, `/usr/opensv/lib/`.



NOTE: For the accelerator to work properly, the backup traffic must go over NFS directly to the QoreStor system and not pass through a Storage Node. If that is the case, you should install RapidNFS on the Storage Node.

Installing RapidNFS on a NetWorker Storage node

Follow these steps to install RapidNFS.

- 1 Download the installation package to the Storage Node using the following steps:
- 2 Go to support.quest.com/qorestor/ and select your version.
- 3 On the support page for your product, click **Software Downloads**.
- 4 For the RapidNFS plugin for your QoreStor version, click the **Download** icon to download the installer package (.bin.gz file).
- 5 Use WinSCP or a similar utility to copy the package to the client. The plug-in must be installed in the following directory, `/usr/opensv/lib/`.
- 6 On the NFS Storage Node, assuming that the current working directory has the installation package named `QuestRapidNFS-4.0.3036.0-centos5.7-x86_64.bin.gz`, run the following commands in order:

```
gunzip ./ QuestRapidNFS-4.0.3036.0-centos5.7-x86_64.bin.gz
chmod a+x ./QuestRapidNFS-4.0.3036.0-centos5.7-x86_64.bin
```

- 7 Run the installer:

```
./QuestRapidNFS-4.0.3036.0-centos5.7-x86_64.bin -install
```

```
[root@CVDemoCentOS RapidNFS]# ./QuestRapidNFS-4.0.3036.0-x86_64-RHEL.bin -install
Starting, please wait...
RDNFS file systems are not mounted, proceeding with installation...
2 processors with 4 cores each running at average 2600 MHz ...
Total computing power 20800 MHz ...
Preparing...
QuestRapidNFS
oca-libs
Installation successful!
Log for this operation is /var/log/rdnfs_installer.log
Cleaning up, please wait...
```

- 8 Create a directory on Storage Node:

```
mkdir /mnt/backup
```
- 9 Mount the QoreStor NFS container on the Storage Node with the NetWorker marker:

```
mount -t rdnfs 4300-26:/containers/backup /mnt/backup -o
marker=networker
```

Setting up the QoreStor cleaner

The cleaner will run 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 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 QoreStor can be scheduled. The QoreStor cleaner should run at least 40 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.

i | **NOTE:** Refer to the document Best Practices Guide for QoreStor for guidance on setting up the cleaner.

The screenshot shows the Quest QoreStor System Configuration page. The 'Cleaner Schedule' section is visible, showing a table with columns for ACTION, DAY, START TIME, and END TIME. The table lists four scheduled cleanups: Monday, Tuesday, Wednesday, and Thursday, each starting at 13:00 and ending at 18:00. There are 'Cancel' and 'Submit' buttons at the bottom right of the schedule table. Above the table, there are buttons for 'Upload SSL Certificate', 'Cancel', and 'Submit'.

ACTION	DAY	START TIME	END TIME
<input type="radio"/> Remove	Monday	13:00	18:00
<input type="radio"/> Remove	Tuesday	13:00	18:00
<input type="radio"/> Remove	Wednesday	13:00	18:00
<input type="radio"/> Remove	Thursday	13:00	18:00

Monitoring deduplication, compression, and performance

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

i 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.

Monitor the Storage savings, Capacity, system and Throughput graphs

