Setting up Quest® QoreStor™ as a CIFS and NFS Target on IBM Tivoli® Storage Manager (TSM) v7.1

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 QoreStor as a CIFS and NFS Target on Tivoli Storage Manager v7.1

Updated – August 31, 2018

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Revisions

Date	Description
August 2018	Initial release of QoreStor

Executive Summary

This paper provides information about how to set up QoreStor as a backup target for IBM Tivoli Storage Manager (TSM).

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/

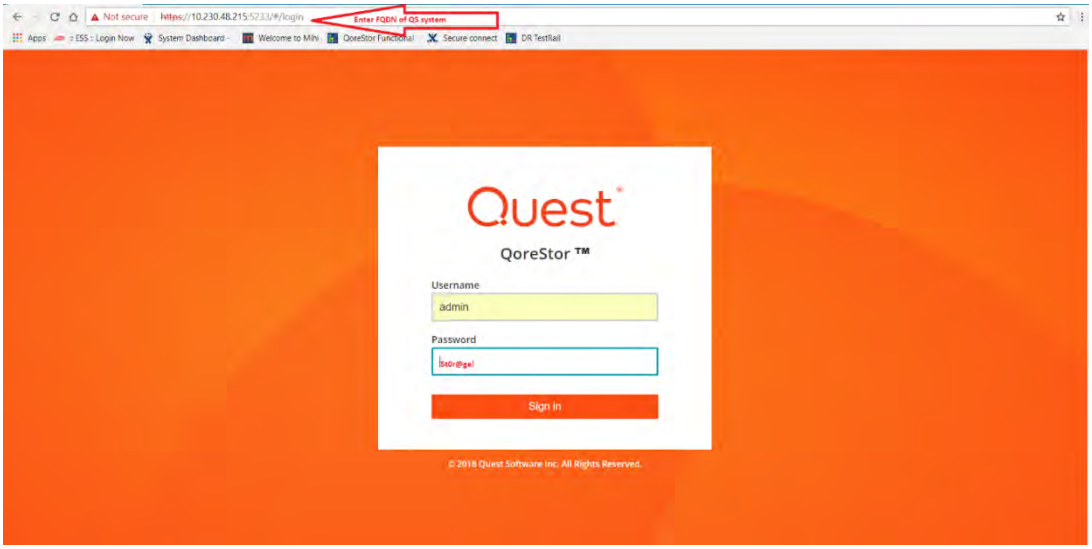
For more information about Tivoli Storage Manager, refer to the IBM documentation at:

https://www.ibm.com/support/knowledgecenter/en/SSEQVQ_8.1.2/tsm/welcome.html

NOTE: The QoreStor/TSM build version and screenshots used in this document might vary slightly, depending on the version of QoreStor/TSM Software version you are using.

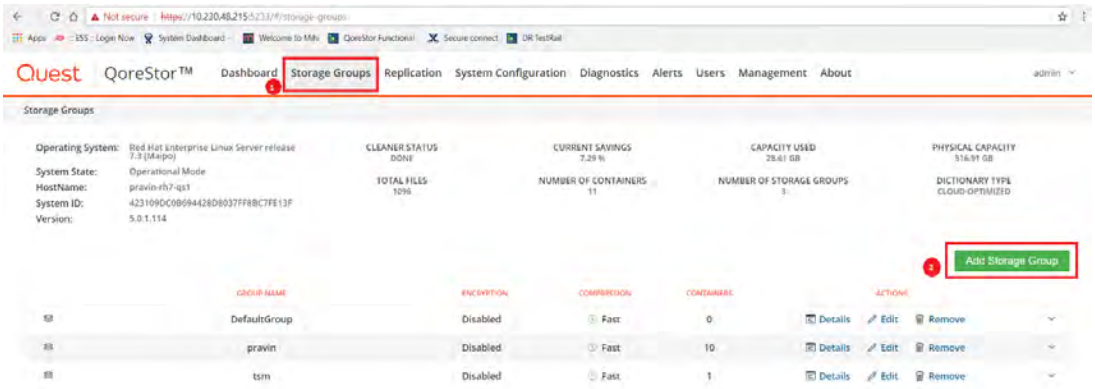
Configuring QoreStor

1 Log on to the QoreStor administrator console with the hostname or the IP address for the QoreStor system with the username: **admin** and password: **St0r@ge!** (The “0” in the password is the numeral zero).

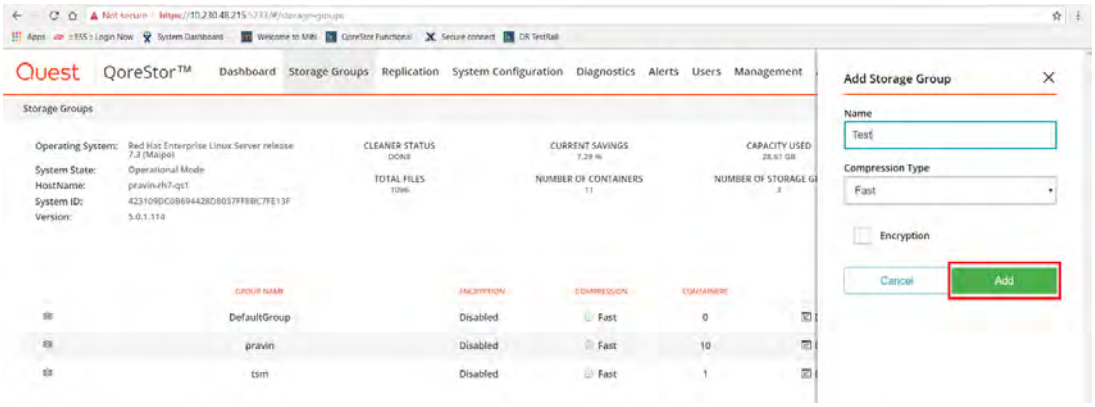


Creating a container with an NFS or CIFS connection

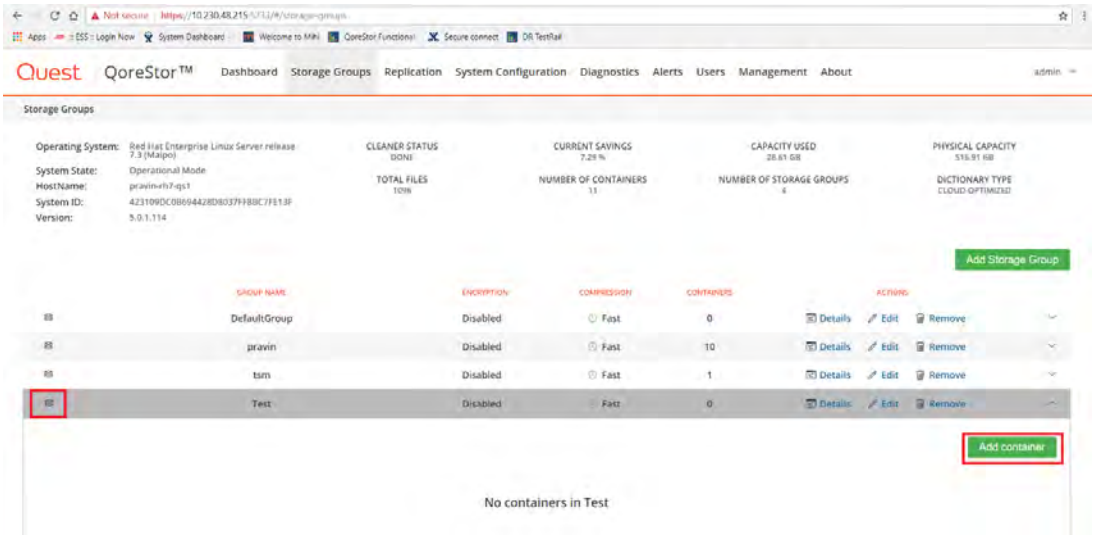
1 Create a Storage Group by Selecting **Storage Group** tab on the navigation menu. Select **Add Storage Group**.



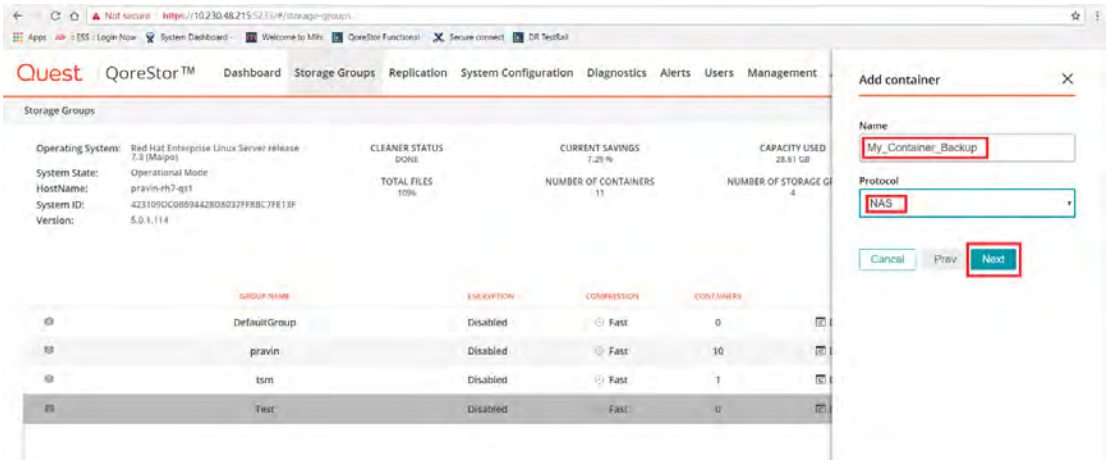
2 On the New pop-up window: enter a **Name** for the storage group; select required **Compression Type**, enable **Encryption** if required; and then click **Add**.



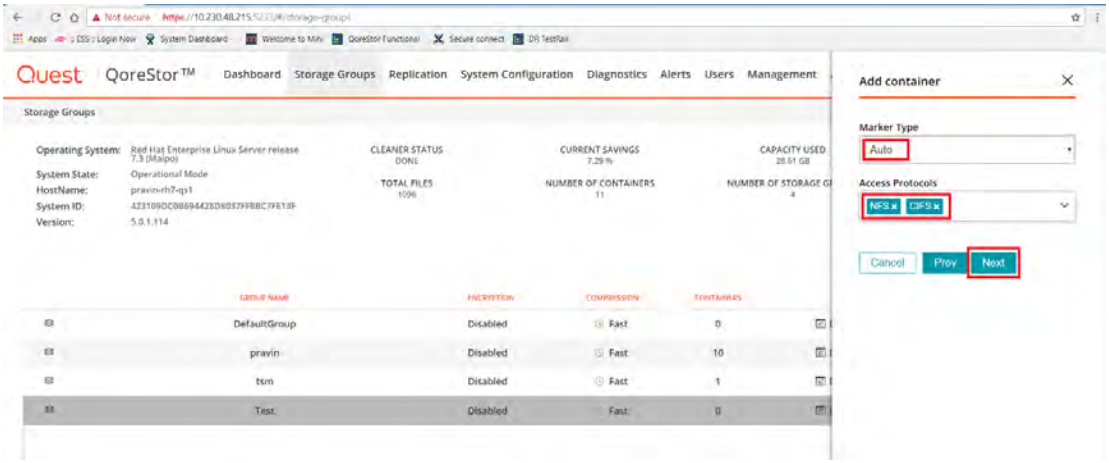
3 To add container, expand the drop down for the new storage group. Click **Add container**.



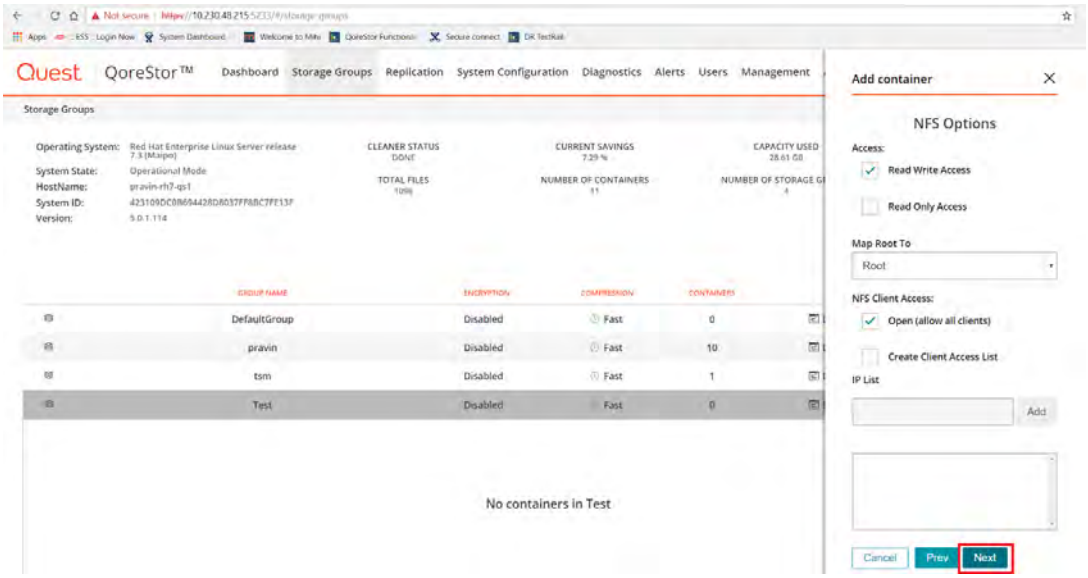
4 Enter container name and the protocol. Click **Next**.



5 Select **Marker Type** as **Auto**, and select **Access Protocols** as **NFS, CIFS**. Click **Next**.

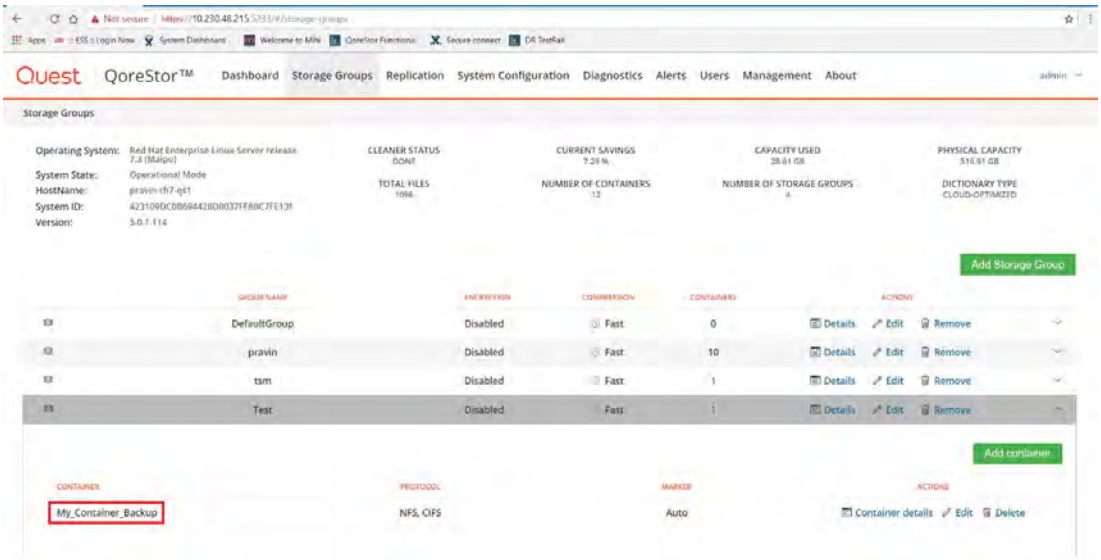


6 Select required **NFS** and **CIFS** options and click **Next**.



7 Review the container creation summary and click **Finish**.

8 Confirm that the Container has been added.



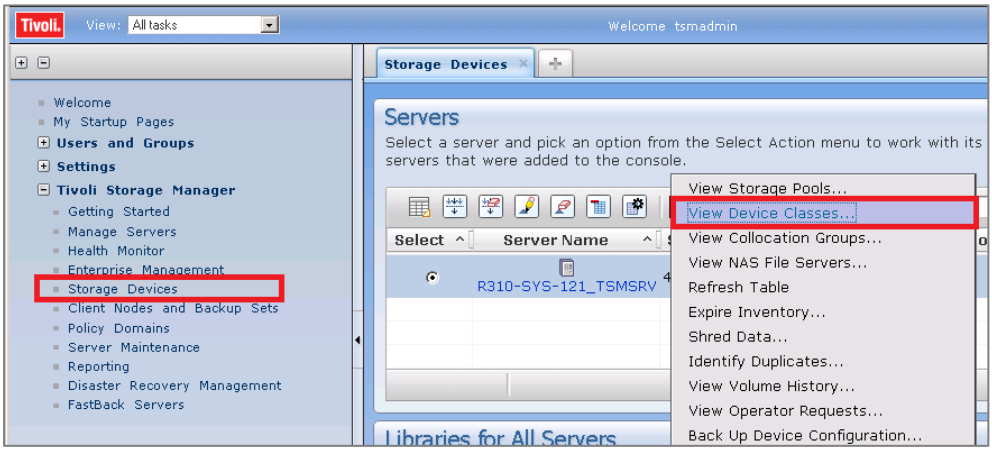
Configuring TSM for CIFS and NFS targets

Configuring the device class for CIFS and NFS protocols

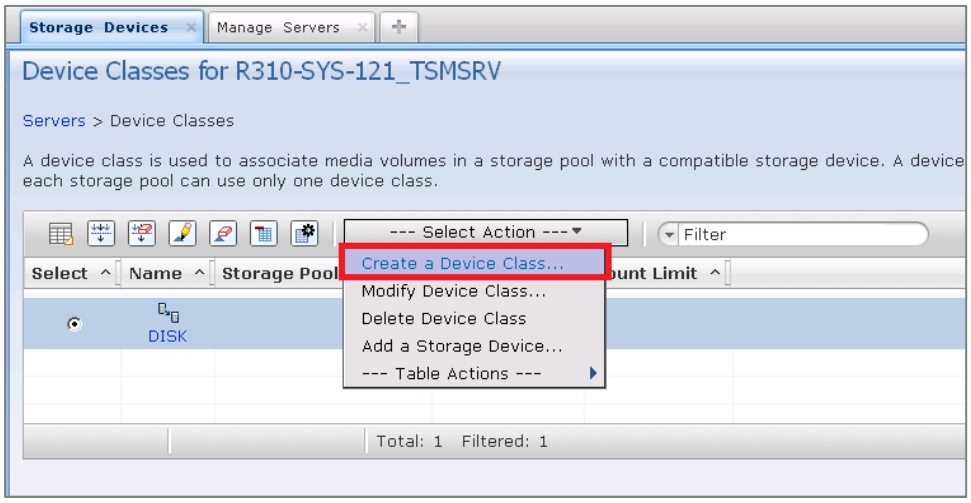
These instructions walk you through a basic configuration for connecting QoreStor with the Windows version of Tivoli Storage Manager (v7.1.4).

1 Open the IBM Tivoli Storage Manger Administration Center.

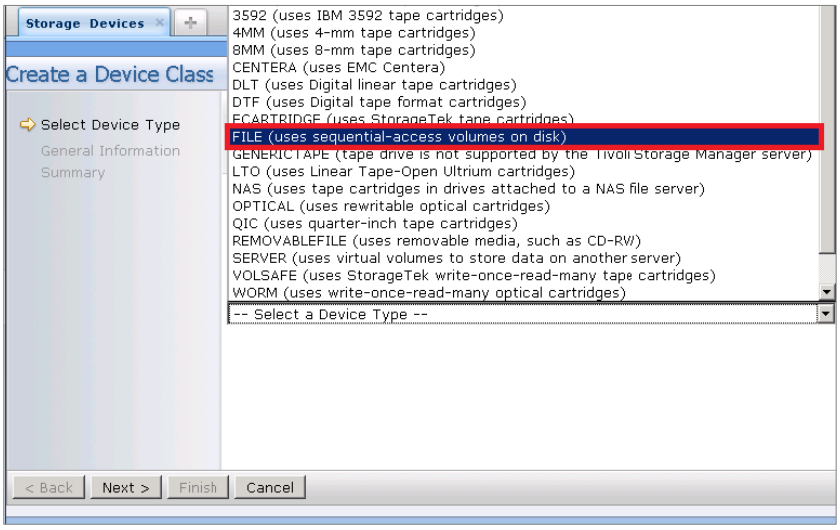
2 Click **Storage Devices** > **View Storage Classes**.



3 Click **Create a Device Class**.



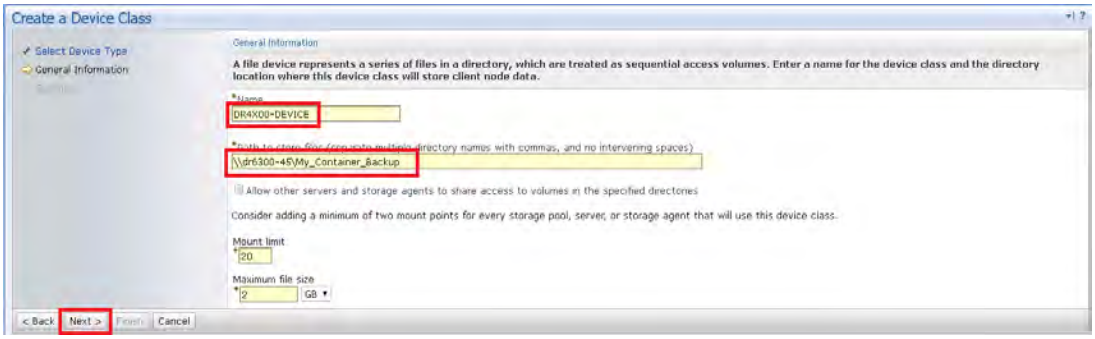
4 Select the **FILE** device type and click **Next**. (This device type is optimized for writing to disk-based storage.)



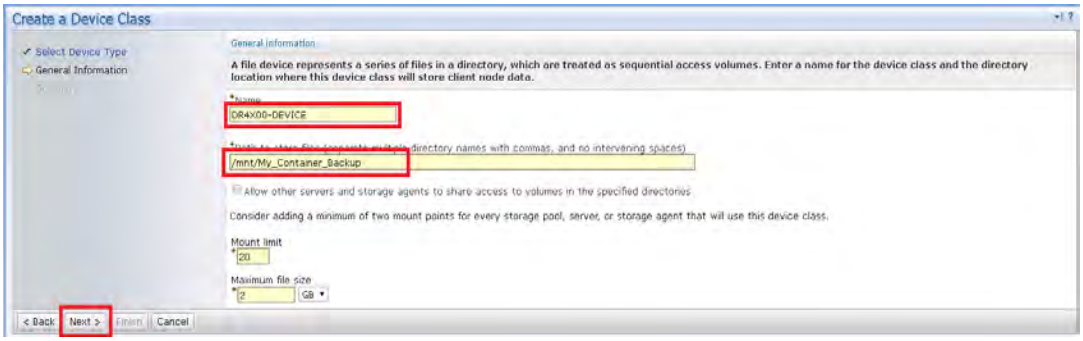
5 Enter the appropriate information under General Information and click **Next**.

6 Enter the appropriate information for your container type:

For a CIFS Container Path:



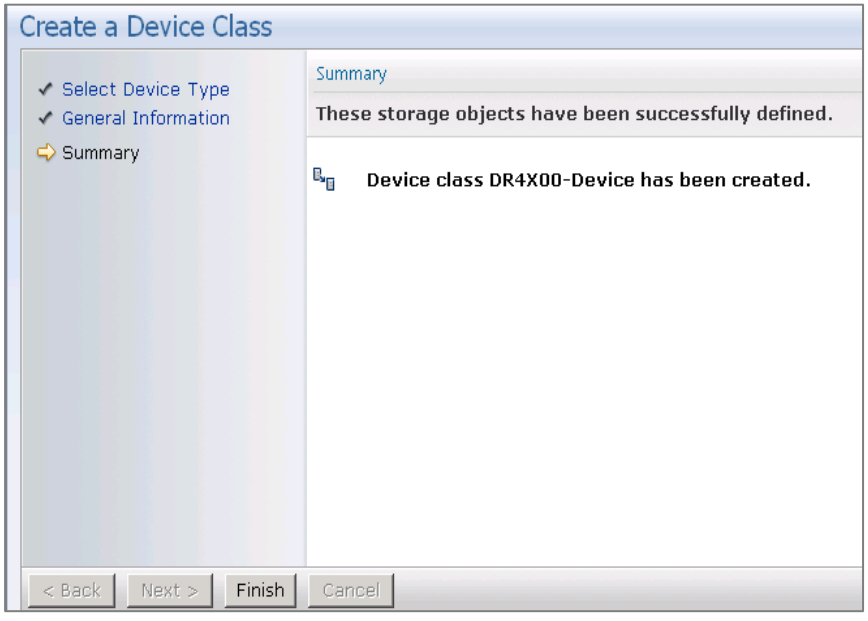
For an NFS container path:



- **Name**: Enter a descriptive name for the device class.
- **Path**: Add the UNC path to the QoreStor container for CIFS and the mount point of QoreStor export for NFS.
- **Mount Limit**: Set the connection limit. Please consult the *QoreStor Interoperability Guide* for your systems maximum 32 concurrent CIFS connections. The optimal number of connections is five.
- **Maximum File Size**: Set the maximum. QoreStor supports very large files such as 1TB. The recommended file sizes for TSM are between 1GB and 50GB to allow for fast space reclamation and replication of files to remote sites.

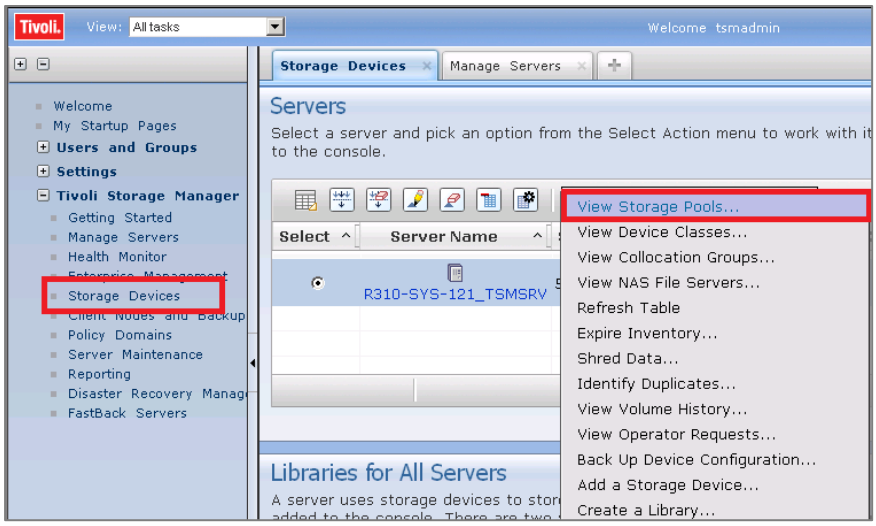
NOTE: The service account for Tivoli Storage Manager needs to have the correct permission to the QoreStor CIFS share for this step to complete successfully. Before providing the information, see Appendix A for information about setting up the TSM service account correctly.

7 Click **Finish**.

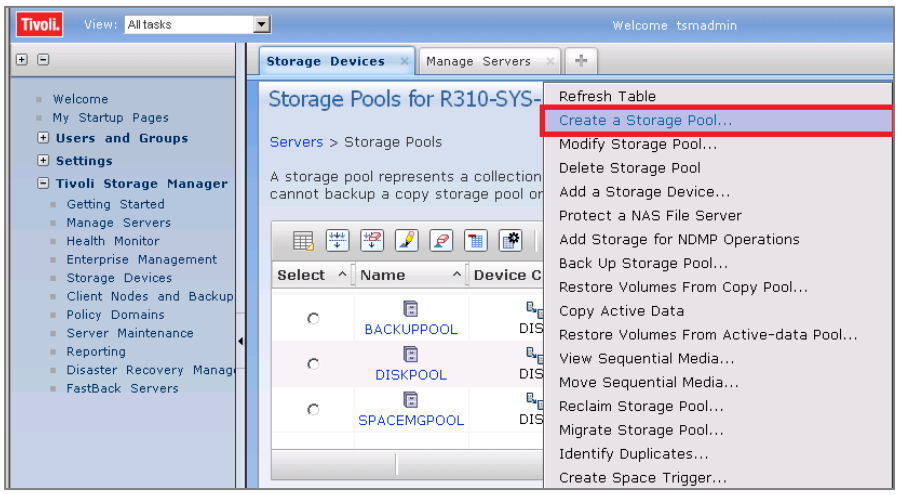


Configuring a storage pool for the CIFS and NFS protocols

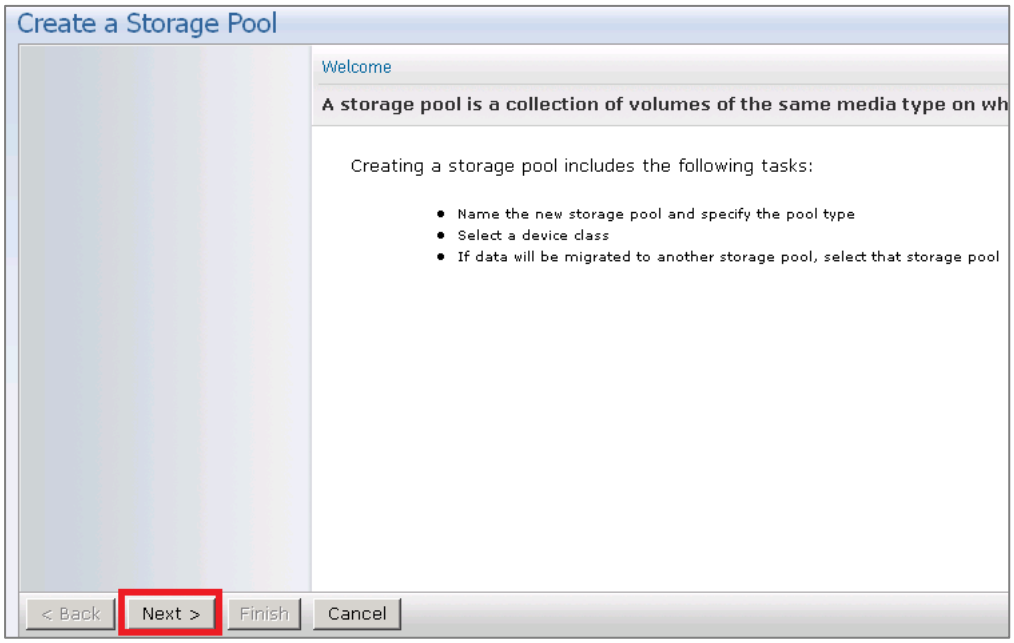
1 Click **Storage Devices > View Storage Pools.**



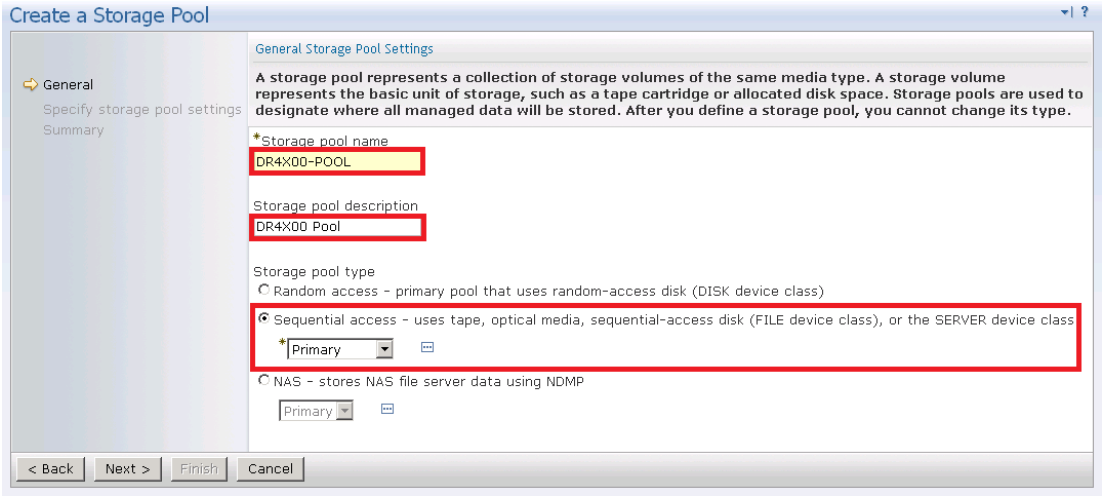
2 Click **Create Storage Pools**.



3 Click **Next**.

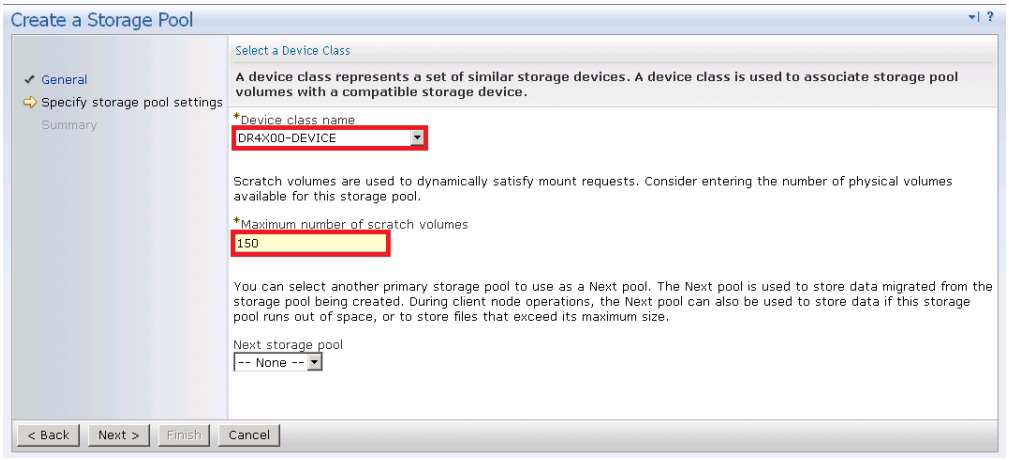


4 Enter the information for the **General Storage Pool Settings** and then click **Next**.



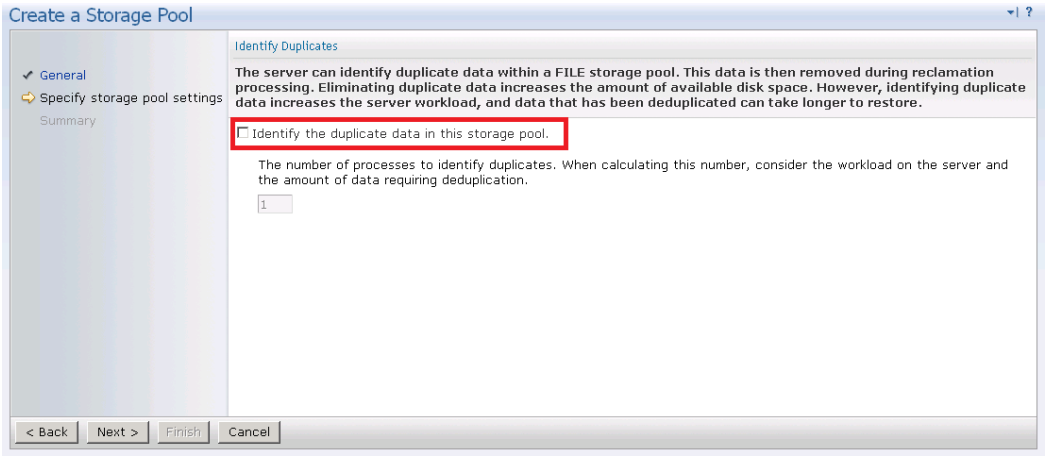
- **Storage Pool Name:** Enter a descriptive name for the QoreStor pool.
- **Storage Pool Description:** Enter a description for the QoreStor pool.
- **Storage Pool Type**: Select **Sequential Access** as QoreStor is integrated as a FILE type device.

5 Enter the required information for the device class, and click **Next**.



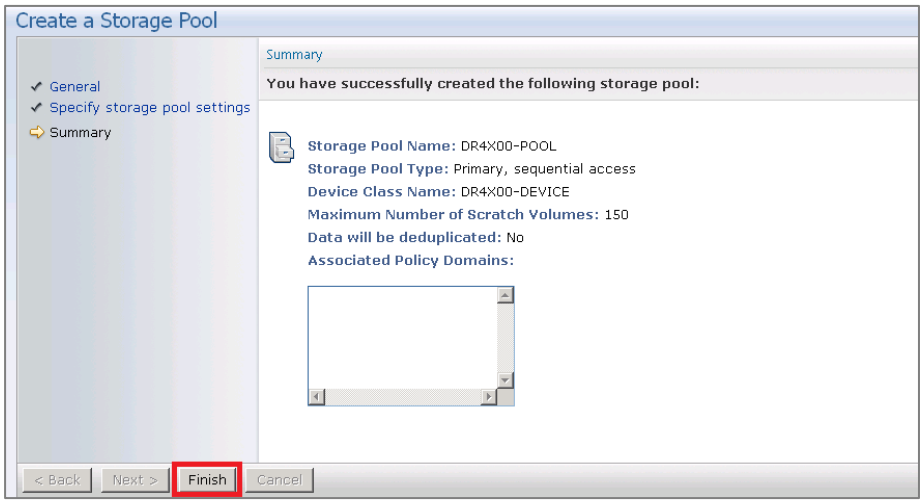
- **Device Class Name:** Select the name of the QoreStor device class (created previously).
- **Maximum Number of Scratch Volumes:** Set the number of scratch volumes in the system. (Setting the value between 100 to 200 scratch volumes is recommended.)

6 For **Identifying Duplicates**, accept the default selections, and click **Next**.



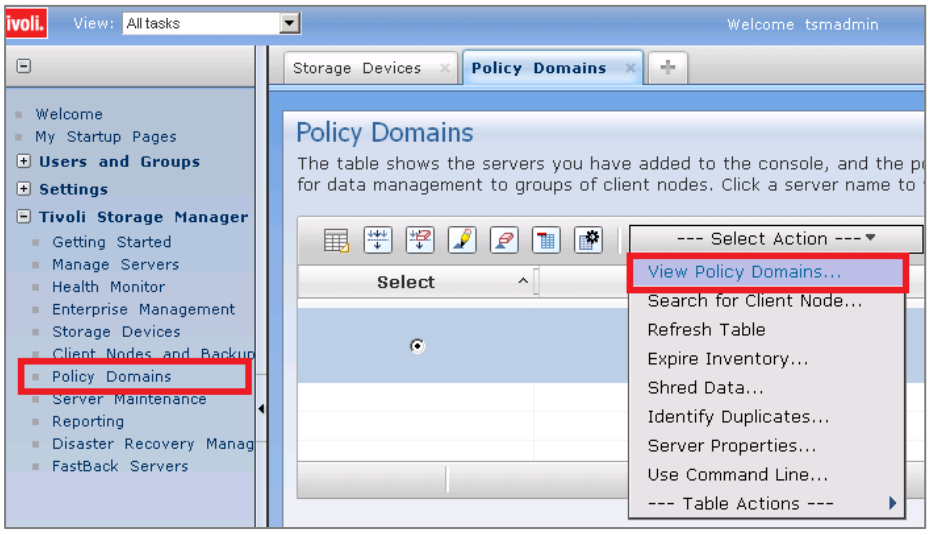
- Keep the **Identify the duplicate data in the storage pool** check box clear as QoreStor uses inline deduplication and already identifies and removes duplicate data.

7 Review the settings and click **Finish**.

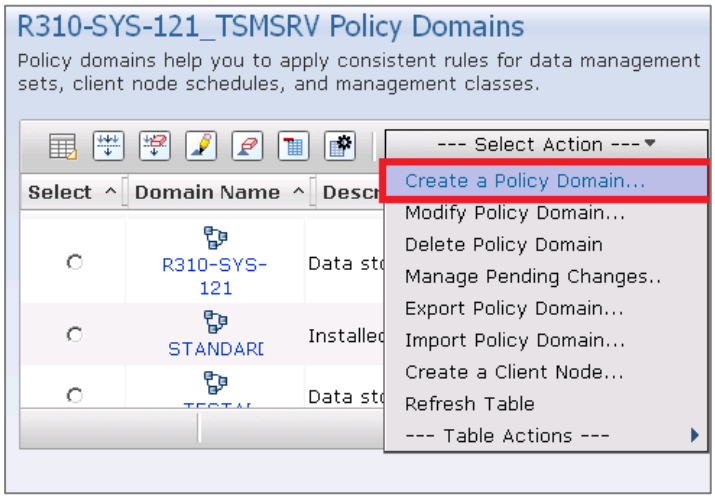


Creating a policy domain for the job

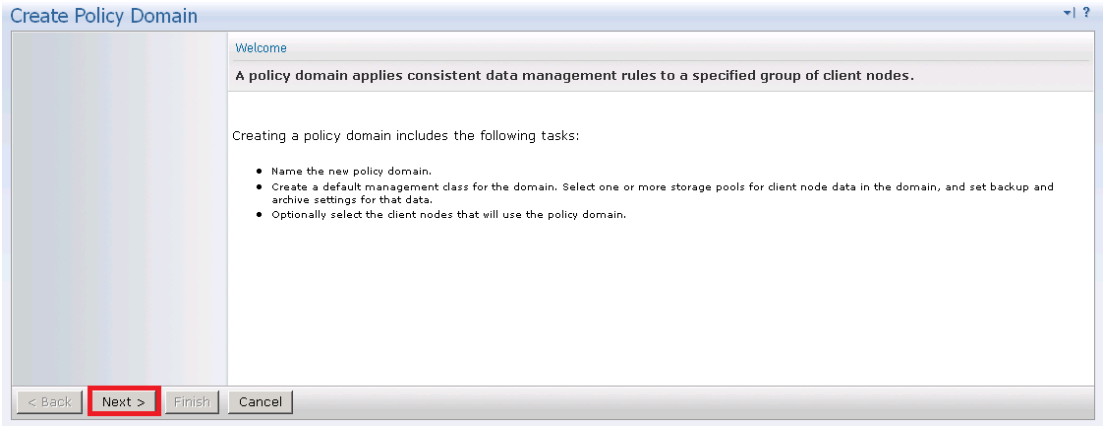
1 Click **Policy Domain > View Policy Domain**.



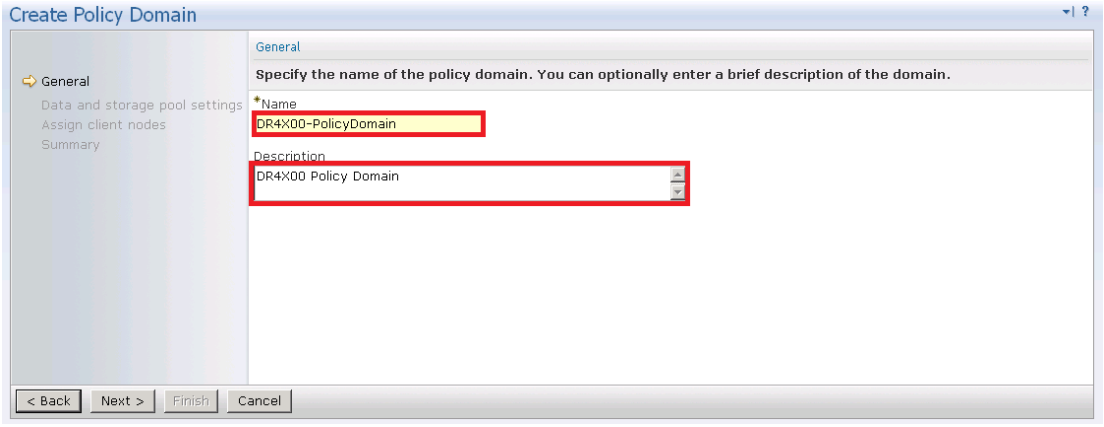
2 Click **Create a Policy Domain**.



3 Click **Next**.

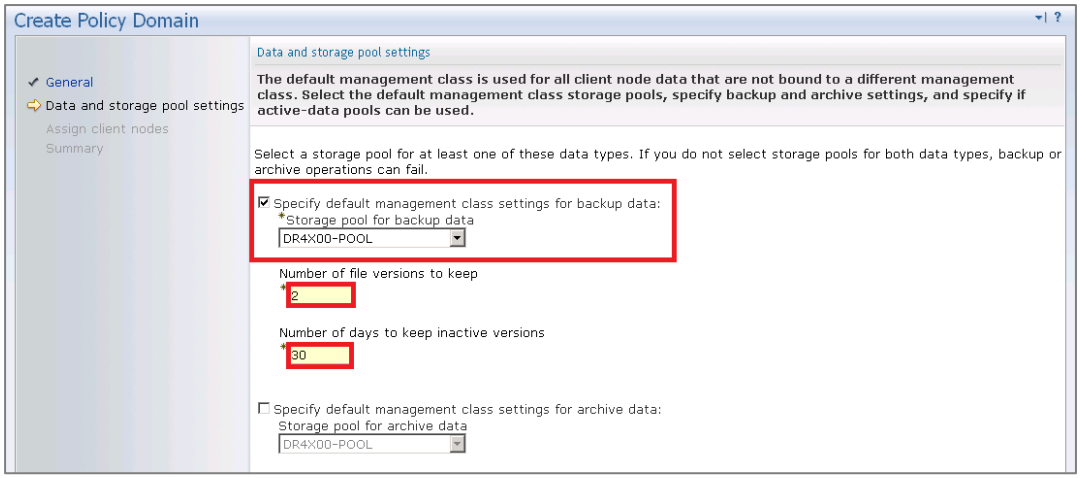


4 Enter the required information, and then click **Next**.



- **Name**: Enter a descriptive name for the QoreStor policy domain.
- **Description:** Enter a description for the QoreStor policy domain.

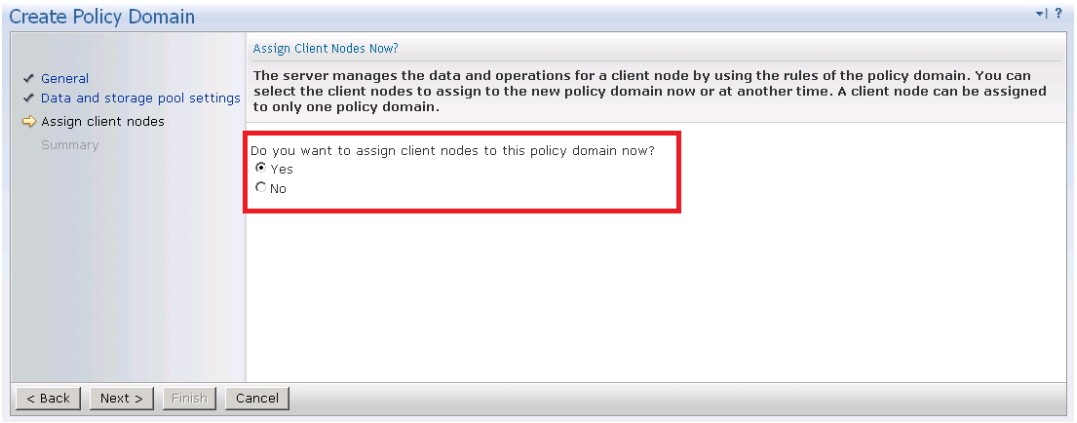
5 Enter the required information for data and storage pool settings, and then click Next.



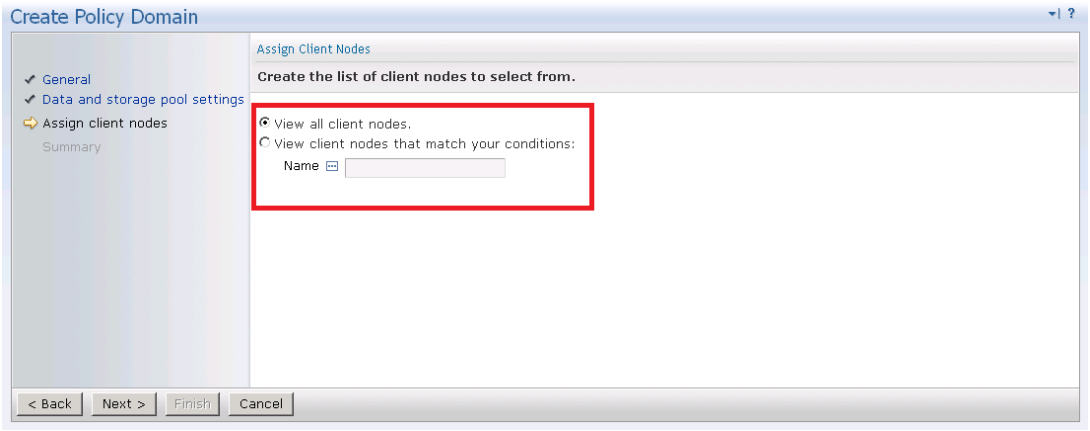
- **Specify default management class:** Select the QoreStor pool that was set up previously.
- **Number of file versions to Keep:** Specify how many versions of a file to keep.
- **Number of days to keep inactive versions**: Specify how many days to retain data after it falls out of policy.

> **NOTE:** File versions and inactive versions are set based on company policies.

6 Select to assign the policy domain to clients, and click **Next**.

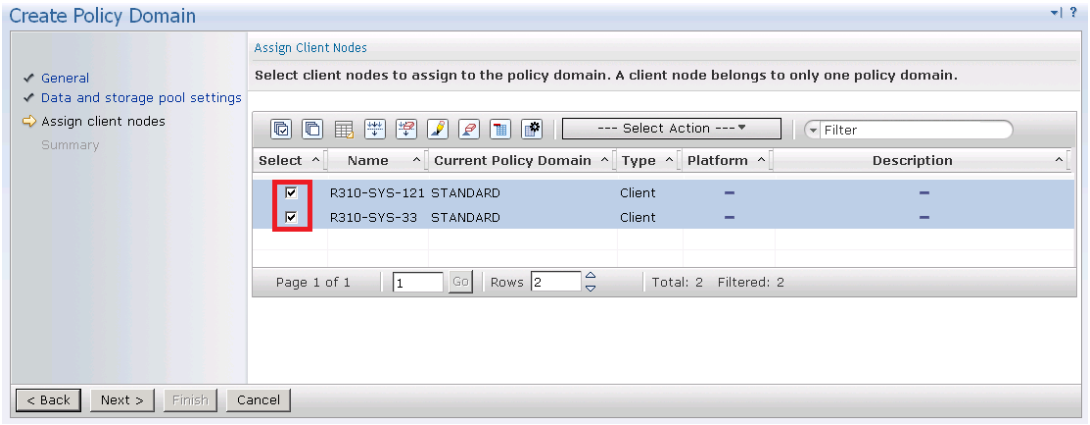


7 Select to display the set of clients to move to QoreStor, and click **Next**.

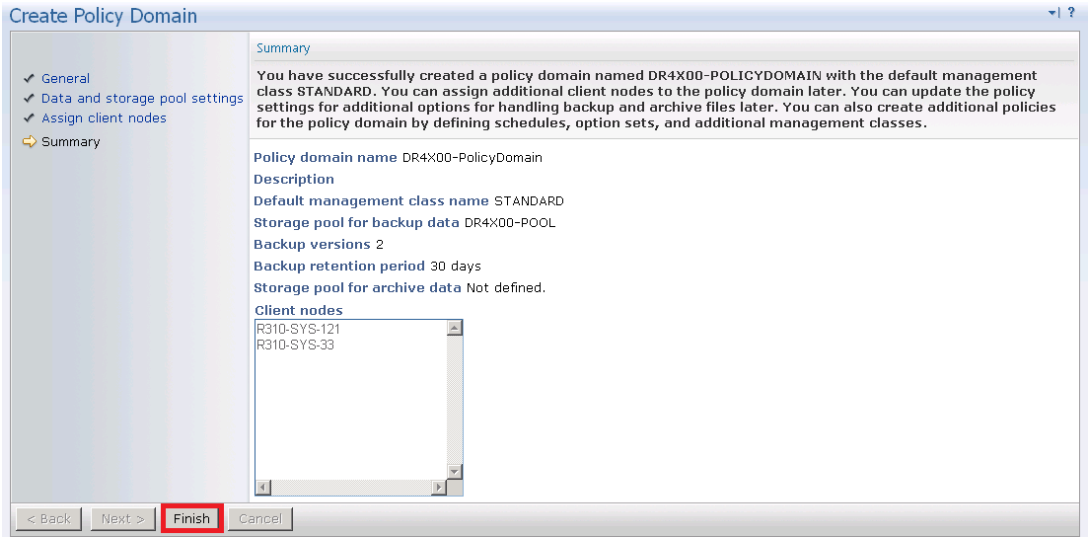


NOTE: Choose to limit if you have a lot of client computers.

8 Select the check box next to the clients you want to back up to QoreStor, and click **Next**.

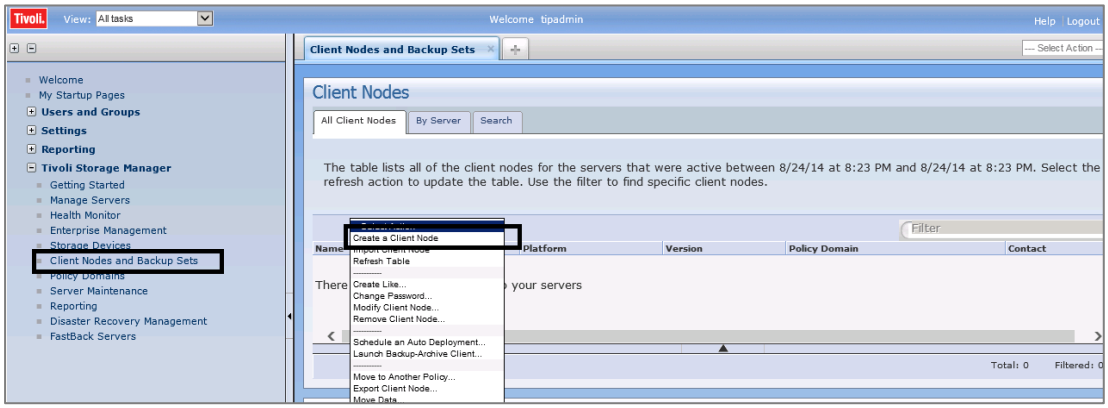


9 Click **Finish**.



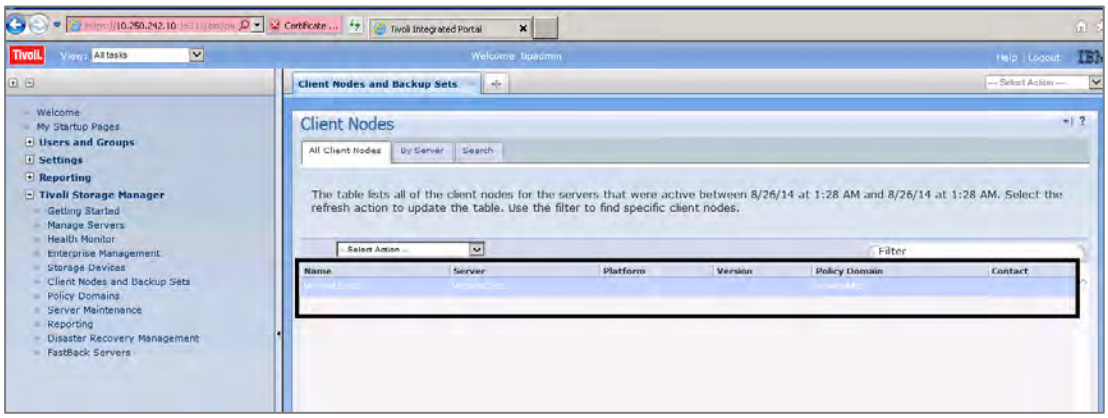
Creating client nodes and backup sets

1 Open the client nodes and backup sets from Tivoli Storage Manager to register the client machine.



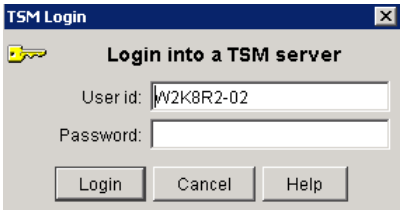
2 Provide the client name, policy name, and password to connect.

3 Confirm that the client node is successfully registered.

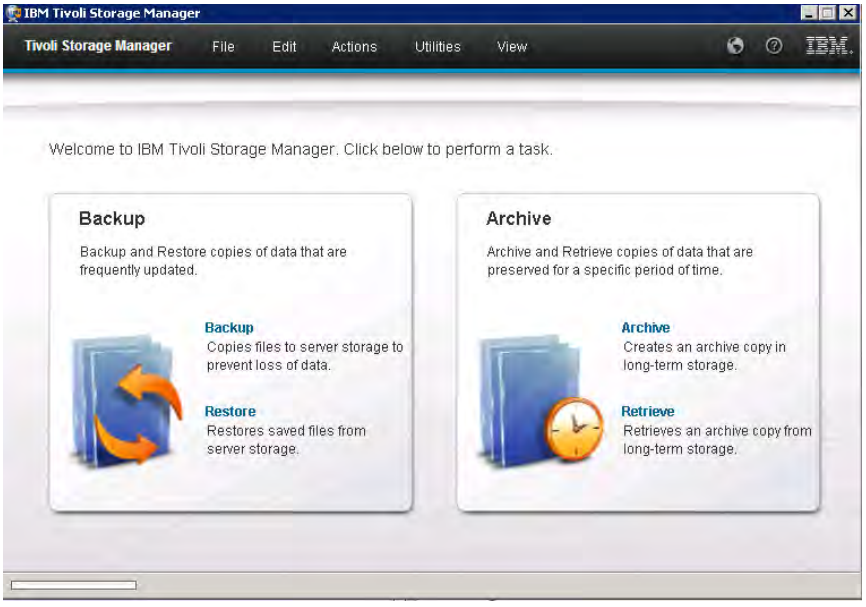


Using the backup and archive GUI

1 On a client machine, open the Backup-Archive GUI, provide the user ID and password details that were described previously.



When you have logged on, the Backup button is enabled. The Backup and restore manager is ready to perform.



When you have successfully completed the steps above, you have configured QoreStor for Tivoli Storage Manager. The next time the client is scheduled to back up it will back up to QoreStor(s). See Appendix B of this document for additional best practices.

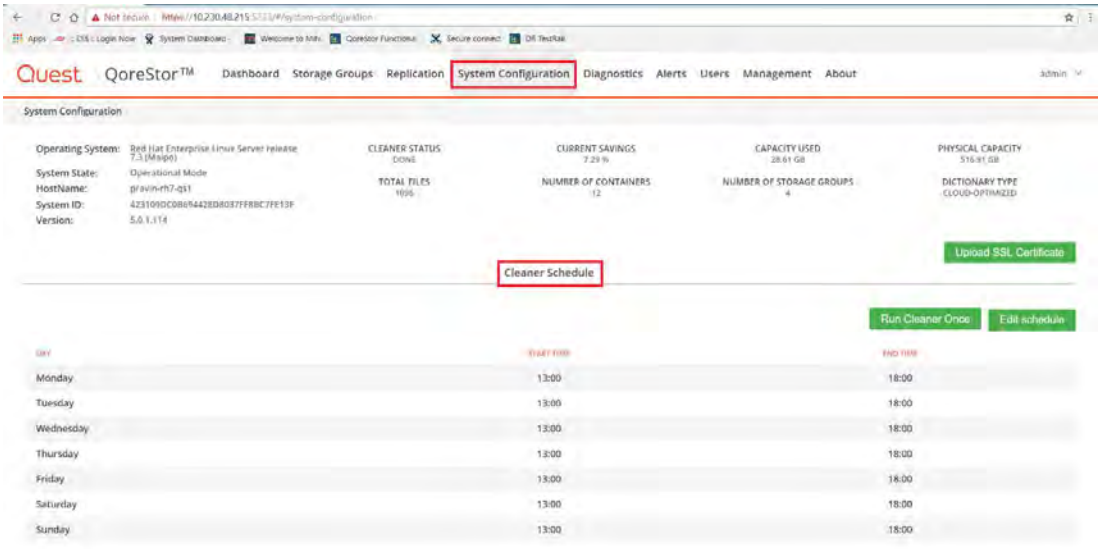
Setting up the QoreStor cleaner

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.

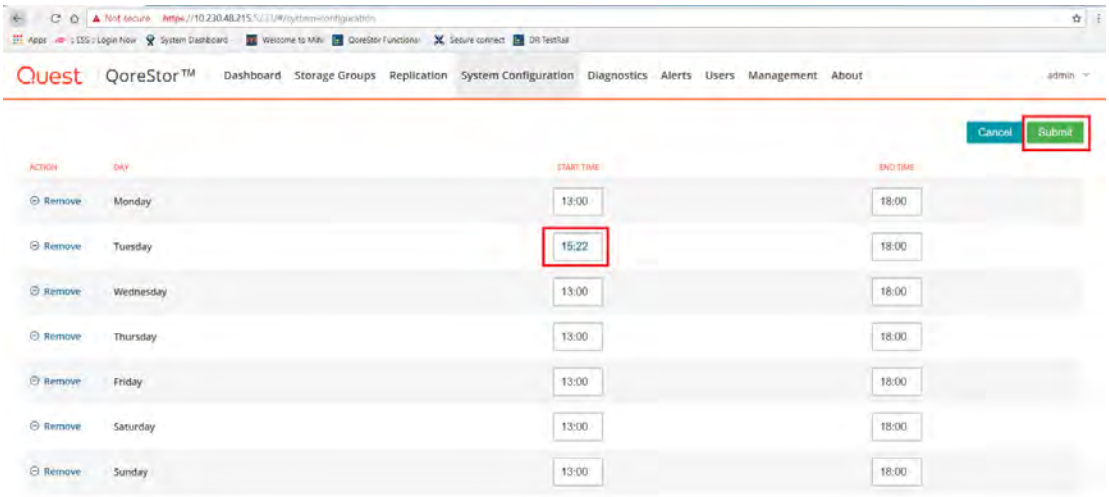
The system cleaner runs during idle time. If your workflow does not have a sufficient amount of idle time on a daily basis, then you should consider scheduling the cleaner to force it to run during a scheduled time.

If necessary, you can perform the procedure shown in the following example screenshot to force the cleaner to run. After all of the backup jobs are set up, the QoreStor cleaner can be scheduled. The QoreStor cleaner should run at least 40 hours per week when backups are not taking place, and generally after a backup job has completed. Follow these steps to add a cleaner event on QoreStor.

1 To view cleaner schedule, on the QoreStor GUI select **System Configuration**



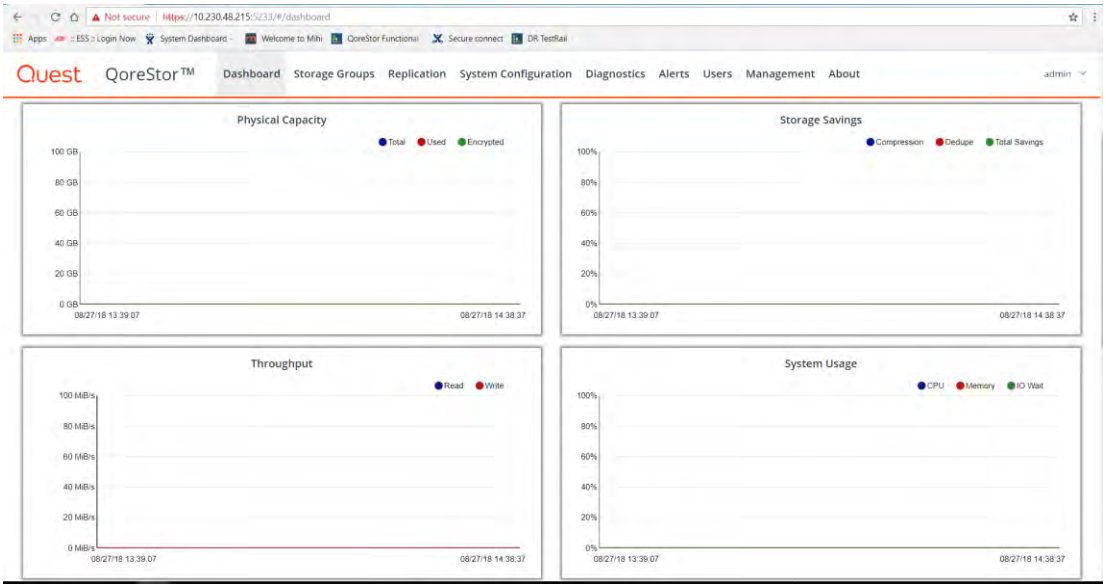
2 To update/add cleaner schedule, click on **Edit Schedule** and select **Submit** button once done.



Monitoring deduplication, compression, and performance

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

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. Backup jobs with a 12-week retention will average a 15x ratio in most cases.



Configuring CIFS authentication

This appendix describes the steps for sync-ing CIFS authentication between the Tivoli Storage Manager service account and QoreStor.

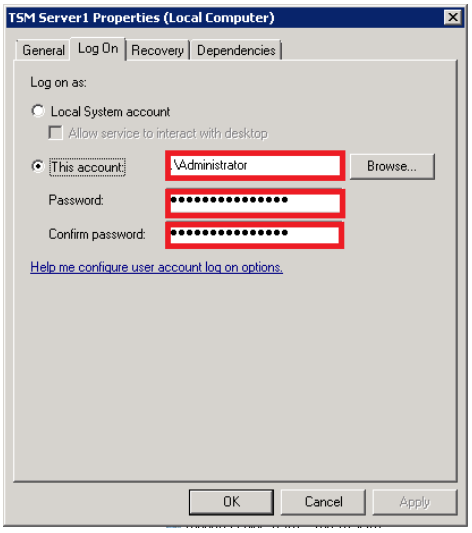
There are two methods for allowing the Tivoli Storage Manager service account to authenticate to a QoreStor system.

- Integrate the Tivoli Storage Manager Media Server and QoreStor with Active Directory.
  - Ensure the AD user has appropriate ACLs to the QoreStor Container
  - Set the TSM Server service to run with <Domain\User>
- Sync local usernames and passwords between QoreStor and the Tivoli Storage Manager media server. To set the password for the local CIFS administrator on the QoreStor system, log on to QoreStor using SSH.
  - Logon with the credentials: administrator/St0r@ge!
  - Run the following command: `authenticate --set --user administrator`

When an authentication method has been selected, set the Tivoli Storage Manager service account to use that account.

1 Launch the Microsoft Services Snap-in. (**Start > Run > Services.msc > Enter**).

2 Locate the TSM Server Service (**Right-click > Properties > Logon tab**.)



Note: If you are using local synced accounts instead of an Active Directory account, make sure that there is a ".\"in front of the user name.

3 Click OK.

4 Right-click the TSM Service process and click **Stop/Start** to restart the process.

Best practices/considerations

Deduplication and compression

QoreStor has inline deduplication and Compression built-in and does not require any additional deduplication/compression to be done ahead of data being written to QoreStor. The system will remove any redundancies in the data before the data is stored on disk and then compress the data blocks.

Enabling deduplication/compression before the data stream is sent to QoreStor will cause the data to be obfuscated, not allowing the system to achieve optimal savings. It is highly recommended that deduplication/compression is not done before the data stream is sent to QoreStor.

Encryption

QoreStor supports encryption-at-rest; hence there is no need to enable encryption for the data management application.

Enabling encryption before the data stream is sent to QoreStor will cause the data to be obfuscated, not allowing the QoreStor devices to achieve optimal savings. It is highly recommended that encryption is not done before the data stream is sent to QoreStor. It supports encryption on the wire for transferring data to remote sites using replication.

Space reclamation

For optimal performance, QoreStor and Tivoli Storage Manager backup and space reclamations jobs should be scheduled to happen at different times.