## Quest

Setting up Quest<sup>®</sup> QoreStor<sup>™</sup> as a CIFS and NFS Target on IBM Tivoli<sup>®</sup> 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).** 

C ☆ ▲ Not secure https://10.230.48.215.5233/#/login Enter 5 ∞ = ±ESS = Login Now 😵 System Dashboard - 📓 Welcome to Mini 📓 Doresto			
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	QoreStor ™		
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	inter 6-24.		
	Sign in		
	A second second devices a second s		
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## 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**.

	ecure Hittps://10.230.48.215/5233/#/storage-gro ow 😵 System Dashboard - 🔳 Welcome to Mile		Secule connect	OR TestRail					\$
luest Qo	oreStor™ Dashboard Storage	Groups Replication	System Confi	guration Diagnostics Al	erts Users Mana	gement About			admin
orage Groups									
Operating System:	Red Hat Enterprise Linux Server release 7.3 (Maipo)	CLEANER STATUS		CURRENT SAVINGS 7.29 %		ACITY USED		PHYSICAL CAPAC 516.51 GB	IIX.
System State: HostName: System ID: Version:	Operational Mode pravio-rh7-qs1 423109DC0869442&D8037FF88C7FE13F 5.0.1,114	TOTAL FILES 1096		NUMBER OF CONTAINERS	NUMBER OF	STORAGE GROUPS		DICTIONARY 191 CLOUD-OPTIMIZI	
	CAPUTP HEAVE		ENCONPTION	сомянистом	CONTAINERS		Actions		rage Group
9	DefaultGroup		Disabled	Fast	0	Details	/ Edit	Remove	*
8	pravin		Disabled	💬 Fast	10	R Details	/ Edit	Remove	*
	tsm		Disabled	C Fast	1	E Details	Ø Edit	Remove	~

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**.

Quest Qa	DreStor <sup>TM</sup> Dashboard	Storage Groups	Replication	System Configura	ation Diagnostics Al	erts Users	Management	Add Storage Group	×
Storage Groups								Name	
Operating System:	Red Hat Enterprise Linux Server relea	se CL	EANER STATUS		CURRENT SAVINGS		CAPACITY USED	Test	
System State:	7.3 (Maipo) Operational Mode		DONS		7.29 %		28.67 GB	Compression Type	
HostName: System ID:	pravin-rh7-qs1 423109DC08694428D8037FF88IC7FE13		TOTAL FILES TOTAL	,	NUMBER OF CONTAINERS	NU	MBER OF STORAGE G	Fast	•
Version:	5.0,1.114							Encryption	
	CROUP NAME			Macamingh	E DIVINE SPON	CONTAINING		Cancel	Add
	DefaultGrou	p		Disabled	🖵 Fast	0	10		
8	pravin			Disabled	🗇 Fast	10	19		
er.	tsm			Disabled	@ Fast	1	21		

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

Storage Groups									
Operating System:	Red Hat Enterprise Linux Server release 7.3 (Maipo)	CLEANER STATUS		CURRENT SAVINGS 7.29 %		ACITY USED		PHYSICAL CAPACI 515.91 68	TY
System State: HostName: System ID: Version:	Dperational Mode pravin-rh7-qs1 423109DC08694428D8037FF88C7F813F 5.0.1.114	TOTAL FILES		NUMBER OF CONTAINERS	NUMBER OF	STORAGE GROUPS		DICTIONARY TYP	
	CACUP NAME		INCRIPTION		-		ACTION	_	rage Group
8	DefaultGroup		Disabled	COMPRESSION	COMMANDES-	E Details	/ Edit	Remove	~
8	pravin		Disabled	© Fast	10	😰 Details	/ Edit	Remove	~
8	tsm		Disabled	③ Fast	1	🖾 Details	/ Edit	Remove	~
	Test		Disabled	Fast	0	Details:	/ Edit	Remove	

4 Enter container name and the protocol. Click Next.

uest Qo	DreStor™ Dashboard Storag	e Groups Replication	System Confi	guration Diagnostics Al	erts Users Mana	igement .	Add container	>
orage Groups							Name	
Operating System:	Red Hat Enterprise Linux Server release 7.3 (Maipo)	CLEANER STATUS DONE		CURRENT SAVINGS		ACITY USED	My_Container_Backup	
System State: HostName:	Operational Mode pravin-rh7-gs1	TOTAL FILES		NUMBER OF CONTAINERS	NUMBER O	F STORAGE GE	Protocol	
System ID:	4231090C0869442808037FFR8C7FE13F	1096				4	NAS	
							Cancel Prev Next	
	GROUP NAME		LNEROFTICH	COMPRESSION	CONTAINERS			
0	DefaultGroup		Disabled	· Fast	0	(C) (		
10	pravin		Disabled	© Fast	10	हा		
0	tsm		Disabled	😳 Fast	1	12		
8	Test		Disabled	Fast	U.	121		

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

luest Qa	DreStor™ Dashboard Storage	e Groups Replication	System Confi	guration Diagnostics Ale	erts Users Mana	igement .	Add container	-
orage Groups							Marker Type	
Operating System:	7.3 (Maipo)	CLEANER STATUS		CURRENT SAVINGS 7.29 %		ACITY USED	Auto	
System State: HostName: System ID: Version:	Operational Mode pravin-rh7-qp1 423109OC0869442ED8037FF8EC7FE13F 5.0.1.114	TOTAL FILES 1098		NUMBER OF CONTAINERS	NUMBER O	F STORAGE GF	Access Protocols	
							Cancel Proy Next	
	CONTINUE FRAME		INCRYPTION	COMPRISION	TONTAMES			
0	DefaultGroup		Disabled	13 Fast	0	1		
0	pravin		Disabled	© Fast	10	<b>E</b> 1		
8	tsm		Disabled	③ Fast	1	121		
	Test.		Disabled	Fast	Π	100		

6 Select required NFS and CIFS options and click Next.

Quest Qu	DreStor <sup>TM</sup> Dashboard Store	Be groups Replication	System com	guration Diagnostics Ale	10 020	monugement of	Add container	>
itorage Groups Operating System: System State: HostName: System ID: Version:	Red Har Enterprise Linux Server release 7.3 (Nahon) Operational Mode gravin-h7-qs1 433306 C0M64428 (NoN37FF88C7FF13F 5.0.1114	CLEANER STATUS DONT TOTAL FILES 1098		CURRENT SAVINGS 729 % NUMBER OF CONTAINERS	NUT	CAPACITY USED 26.61 GB MBER OF STORAGE GI 4	NFS Options Access Read Write Access Read Only Access Map Root To	
							Root	
	DefaultGroup		Disabled	© Fast	CONTAINERS	हा।	NFS Client Access:	
8	pravin		Disabled	O Fast	10	ला र	Open (allow all clients)	
er	tsm		Disabled	(i) Fast	10.	(E) 1	Create Client Access List	
							IP List	
8	Test		Deabled	Fast	0	(E)		Add
			No con	tainers in Test				

7 Review the container creation summary and click Finish.

8 Confirm that the Container has been added.

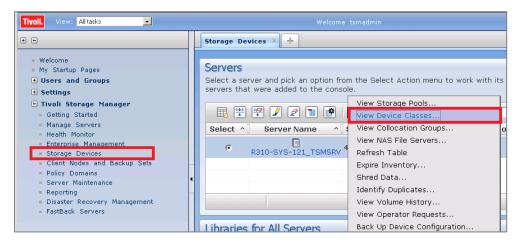
Quest Qa	DreStor <sup>TM</sup> Dashboard	Storage Groups Replication	System Confi	guration Diagnostics A	lerts Users Mana	igement About			adimin
storage Groups									
Operating System: System State: HostName: System ID: Version:	Red Kar Enterprise Linux Server release 7.4 (Maipo) Operational Mode provin-th7-ek1 4231090C08064428D8037FFABC7FE13F 5.0.7.114	TOTAL FILES		CURRENT SAVINGS 7.28 % NUMBER OF CONTAINERS 12		ACITY USED 28.61 GB F STDRAGE GROUPS I		PHYSICAL CAPACIT SIG SI GB DICTIONARY TYPI CLOUD-OPTIMIZIE	
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0	DefinultGroup	0	Disabled	S First	o	C Details	2 Edit	@ Remove	÷
.0	pravin		Disabled	③ Fast	10	(E) Details	/ Edit	Remove	~
8	tsm		Disabled	E Fast	0	(iii) Details	/ Edit	Remove	*
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								Add to	onlamer.
CONTAINER		PROFODOL			(AABAEB			ACTIONS	

# 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.

Storage Devices × Manage Servers	× ÷
Device Classes for R310-SYS Servers > Device Classes A device class is used to associate m each storage pool can use only one d	— edia volumes in a storage pool with a compatible storage device. A device
Select ^ Name ^ Storage Pool C DISK	Select Action▼       Filter         Create a Device Class       Filter         Modify Device Class       Junt Limit ^         Delete Device Class       Add a Storage Device         Table Actions       Junt Limit ^         Total: 1 Filtered: 1       Filter

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

Storage Devices × +	3592 (uses IBM 3592 tape cartridges)
storage Devices	4MM (uses 4-mm tape cartridges)
	8MM (uses 8-mm tape cartridges)
Create a Device Class	CENTERA (uses EMC Centera)
create a perice class	DLT (uses Digital linear tape cartridges)
	DTF (uses Digital tape format cartridges)
Select Device Type	ECARTRIDGE (uses StorageTek tane cartridges)
	FILE (uses sequential-access volumes on disk)
General Information	GENERICTAPE (tape drive is not supported by the Tivoli Storage Manager server)
Summary -	LTO (uses Linear Tape-Open Ultrium cartridges)
	NAS (uses tape cartridges in drives attached to a NAS file server)
	OPTICAL (uses rewritable optical cartridges)
	QIC (uses quarter-inch tape cartridges)
	REMOVABLEFILE (uses removable media, such as CD-RW)
	SERVER (uses virtual volumes to store data on another server)
	VOLSAFE (uses StorageTek write-once-read-many tape cartridges)
	WORM (uses write-once-read-many optical cartridges)
	Select a Device Type
< Back Next > Finish	Cancel

- 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:

	+1 3
Central Information A file device represents a series of files in a directory, which are treated as sequential access volumes. Enter a name for the device class and the directory focation where this device class will store class not the data.	
*Users DR4X00-DEVICE	
Ndr5300-45VMy_Container_Backup	
Consider adding a minimum of two mount points for every storage pool, server, or storage agent that will use this device class. Mount limit	
Maximum file size	
	A file device represents a series of files in a directory, which are treated as sequential access volumes. Enter a name for the device class and the directory location where this device class will store client node data.  * The second file free servers and storage agents to share access to volumes in the specified dectores Consider adding a minimum of two mount points for every storage pool, server, or storage agent that will use this device class.  Mgunt limit * To Maximum file size

For an NFS container path:

Create a Device Class		•17
Select Device Type	General Information	
	A file device represents a series of files in a directory, which are treated as sequential access volumes. Enter a name for the device class and the directory location where this device class will store client node data.	
	PRAMO-DEVICE	
	*nus to the City does not an identification names with commas, and no intervening spaces) //mnt/My_Container_Backup	
	TAllow other servers and storage agents to share access to volumes in the specified directories	
	Consider adding a minimum of two mount points for every storage pool, server, or storage agent that will use this device class.	
	Mount limit	
	Manimum file size	
< Back Next > Finish Can		

- 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.
- **i** 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.

Create a Device Class			
<ul> <li>Select Device Type</li> <li>General Information</li> <li>Summary</li> </ul>	Summary		
	These storage objects have been successfully defined.		
	Device class DR4X00-Device has been created.		
< Back Next > Finis	sh Cancel		

## Configuring a storage pool for the CIFS and NFS protocols

1 Click Storage Devices > View Storage Pools.

Tivoli. View: All tasks		Welcome tsmadmin
• =	Storage Devices × Manage Servers	×
<ul> <li>Welcome</li> <li>My Startup Pages</li> <li>Users and Groups</li> <li>Settings</li> </ul>	Servers Select a server and pick an option from to the console.	n the Select Action menu to work with it
<ul> <li>Tivoli Storage Manager</li> <li>Getting Started</li> </ul>	🔢 🖤 컞 🖌 🔊 📷	View Storage Pools
<ul> <li>Manage Servers</li> </ul>	Select ^ Server Name ^	View Device Classes
<ul> <li>Health Monitor</li> <li>Enterprise Management</li> </ul>		View Collocation Groups
<ul> <li>Storage Devices</li> </ul>	R310-SYS-121_TSMSRV	View NAS File Servers
Client Noues and Backup		Refresh Table
<ul> <li>Policy Domains</li> </ul>		Expire Inventory
<ul> <li>Server Maintenance</li> <li>Reporting</li> </ul>		Shred Data
<ul> <li>Disaster Recovery Manage</li> </ul>		Identify Duplicates
FastBack Servers		View Volume History
		View Operator Requests
	Libraries for All Servers	Back Up Device Configuration
		Add a Storage Device
	A server uses storage devices to stor	Create a Library

2 Click Create Storage Pools.

Tivoli. View: Alltasks 🔍 Welcome tsmadmin			
+ -	Storage Devices × Manage Servers	× 🕂	
<ul> <li>Welcome</li> <li>My Startup Pages</li> <li>Users and Groups</li> <li>Settings</li> </ul>	Storage Pools for R310-SYS- Servers > Storage Pools	Refresh Table Create a Storage Pool Modify Storage Pool	
<ul> <li>Settings</li> <li>Tivoli Storage Manager</li> <li>Getting Started</li> <li>Manage Servers</li> <li>Health Monitor</li> <li>Enterprise Management</li> <li>Storage Devices</li> <li>Client Nodes and Backup</li> <li>Policy Domains</li> <li>Server Maintenance</li> <li>Reporting</li> <li>Disaster Recovery Manage</li> <li>FastBack Servers</li> </ul>	A storage pool represents a collection cannot backup a copy storage pool or	Delete Storage Pool Add a Storage Device Protect a NAS File Server Add Storage for NDMP Operations Back Up Storage Pool	
	Select ^ Name ^ Device C C BACKUPPOOL DIS	Restore Volumes From Copy Pool Copy Active Data	
	C SPACEMGPOOL DIS	Reclaim Storage Pool	
		Identify Duplicates Create Space Trigger	

#### 3 Click Next.

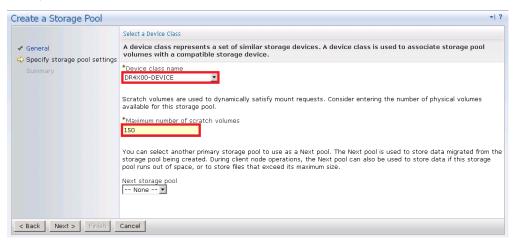
Create a Storage Pool	
	Welcome
	A storage pool is a collection of volumes of the same media type on wh
	Creating a storage pool includes the following tasks:
	<ul> <li>Name the new storage pool and specify the pool type</li> <li>Select a device class</li> </ul>
	<ul> <li>Select a device class</li> <li>If data will be migrated to another storage pool, select that storage pool</li> </ul>
< Back Next > Finish	Cancel

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

Create a Storage Pool	v) ?
	General Storage Pool Settings
♀ General Specify storage pool settings	A storage pool represents a collection of storage volumes of the same media type. A storage volume represents the basic unit of storage, such as a tape cartridge or allocated disk space. Storage pools are used to designate where all managed data will be stored. After you define a storage pool, you cannot change its type.
Summary	*Storage pool name DR4X00-POOL
	Storage pool description DR4X00 Pool
	Storage pool type © Random access - primary pool that uses random-access disk (DISK device class)
	<ul> <li>Sequential access - uses tape, optical media, sequential-access disk (FILE device class), or the SERVER device class</li> <li>* Primary</li></ul>
	© NAS - stores NAS file server data using NDMP Primary ▼  □
< Back Next > Finish	Cancel

- 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.

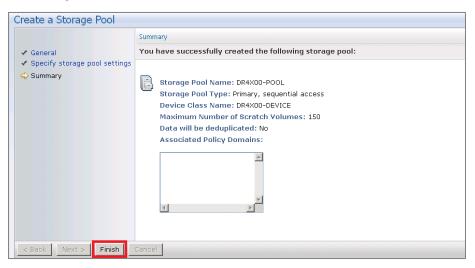


- Device Class Name: Select the name of the QoreStor device class (created previously).
- Maximum Number of Scratch Volumes: Set the number of scratch volumes in the system. (Setting the value between 100 to 200 scratch volumes is recommended.)
- 6 For Identifying Duplicates, accept the default selections, and click Next.

Create a Storage Pool	. ا∗
	Identify Duplicates
<ul> <li>✓ General</li> <li>⇒ Specify storage pool settings</li> </ul>	The server can identify duplicate data within a FILE storage pool. This data is then removed during reclamation processing. Eliminating duplicate data increases the amount of available disk space. However, identifying duplicate data increases the server workload, and data that has been deduplicated can take longer to restore.
Summary	🗆 Identify the duplicate data in this storage pool.
	The number of processes to identify duplicates. When calculating this number, consider the workload on the server and the amount of data requiring deduplication.
< Back Next > Finish	Cancel

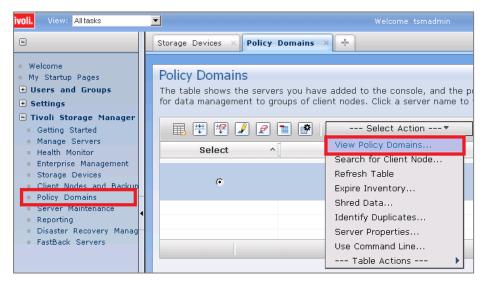
Keep the Identify the duplicate data in the storage pool check box clear as QoreStor uses inline deduplication and already identifies and removes duplicate data.

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.

R310-SYS-121_TSMSRV Policy Domains Policy domains help you to apply consistent rules for data management sets, client node schedules, and management classes.			
<b>I</b>	1 😰 📝 😰 🔳		Select Action
Select ^	Domain Name 🧹	Descr	Create a Policy Domain
0	R310-SYS- 121	Data sto	Modify Policy Domain Delete Policy Domain Manage Pending Changes
0	STANDARI	Installed	Export Policy Domain Import Policy Domain
0	CT AL	Data sto	Create a Client Node Refresh Table Table Actions

#### 3 Click Next.

Create Policy Domain	*  ?
	Welcome
	A policy domain applies consistent data management rules to a specified group of client nodes.
	<ul> <li>Creating a policy domain includes the following tasks:</li> <li>Name the new policy domain.</li> <li>Create a default management class for the domain. Select one or more storage pools for client node data in the domain, and set backup and archive settings for that data.</li> <li>Optionally select the client nodes that will use the policy domain.</li> </ul>
< Back Next > Finish	Cancel

4 Enter the required information, and then click Next.

	General
🗘 General	Specify the name of the policy domain. You can optionally enter a brief description of the domain.
Data and storage pool settings Assign client nodes Summary	DR4X00-PolicyDomain
	Description DR4X00 Policy Domain Z

- 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.

Create Policy Domain	*  ?
	Data and storage pool settings
✓ General ⇔ Data and storage pool settings Assign client nodes	The default management class is used for all client node data that are not bound to a different management class. Select the default management class storage pools, specify backup and archive settings, and specify if active-data pools can be used.
Summary	Select a storage pool for at least one of these data types. If you do not select storage pools for both data types, backup or archive operations can fail.
	Specify default management class settings for backup data: *Storage pool for backup data          TR4X00-POOL         Number of file versions to keep         2         Number of days to keep inactive versions
	Specify default management class settings for archive data: Storage pool for archive data DR4X00-POOL

- 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.

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

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

Create Policy Domain	*  ?
	Assign Client Nodes Now?
<ul> <li>✓ General</li> <li>✓ Data and storage pool settings</li> <li>⇒ Assign client nodes</li> </ul>	The server manages the data and operations for a client node by using the rules of the policy domain. You can select the client nodes to assign to the new policy domain now or at another time. A client node can be assigned to only one policy domain.
Summary	Do you want to assign client nodes to this policy domain now? © Yes Ĉ No
< Back Next > Einish C	ancel

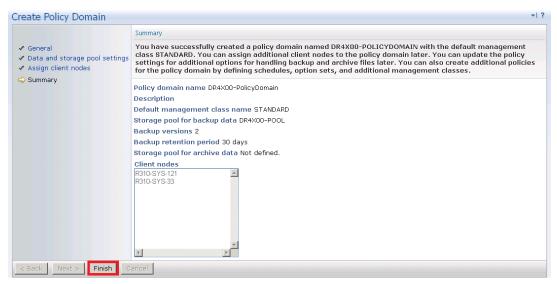
7 Select to display the set of clients to move to QoreStor, and click Next.

Create Policy Domain		<b>≁</b>   ?
	Assign Client Nodes	
🗸 General	Create the list of client nodes to select from.	
<ul> <li>Data and storage pool settings</li> <li>Assign client nodes</li> <li>Summary</li> </ul>	© View all client nodes. C View client nodes that match your conditions: Name	
<pre> Back Next &gt; Finish C.</pre>	Cancel	

- **i** 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.

Assign Citer	nt Nodes					
Select cli	ent nodes to as	sign to the polic	y domain. A client no	de belongs to onl	y one policy domain.	
	1 🎫 🛒	🔎 🔎 🖿 📝	Select Act	ion•	Filter	)
Select ^	Name ^	Current Policy I	Domain ^ Type ^ [ I	Platform ^	Description	^
	R310-SYS-121	STANDARD	Client	-	-	
	R310-SYS-33	STANDARD	Client	-	-	
Page 1	of 1 1	Go Rows 2	🚊 Total:	2 Filtered: 2		
	Select ^	Image: Select ^         Name ^           Image: R310-SYS-121         R310-SYS-33	Select ^ Name ^ Current Policy I R310-SYS-121 STANDARD R310-SYS-33 STANDARD	Image: Select Act         Select Act	Image: Select Action       Image: Select Action <td< td=""><td>Select ^       Name       ^       Current Policy Domain ^       Type ^       Platform ^       Description         Image: R310-SYS-121 STANDARD       Client       -       -       -         Image: R310-SYS-33 STANDARD       Client       -       -</td></td<>	Select ^       Name       ^       Current Policy Domain ^       Type ^       Platform ^       Description         Image: R310-SYS-121 STANDARD       Client       -       -       -         Image: R310-SYS-33 STANDARD       Client       -       -

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.

Tivoli. View: All tasks					Help   Logout
• •	Client Nodes and Backup Sets ×	+			Select Action
<ul> <li>Welcome</li> <li>My Startup Pages</li> <li>Users and Groups</li> <li>Settings</li> </ul>	Client Nodes All Client Nodes By Server Sea	rch			
Reporting     Tivoli Storage Manager     Getting Started     Manage Servers	The table lists all of the client refresh action to update the ta				d 8/24/14 at 8:23 PM. Select the
<ul> <li>Health Monitor</li> <li>Enterprise Management</li> <li>Storage Devices</li> </ul>	Create a Client Node	Platform	Version	Policy Domain	Filter
Client Nodes and Backup Sets Policy Domains Server Maintenance Reporting Disaster Recovery Management	Name Importonen robe Refresh Table There Create Like Change Password Modify Client Node Remove Client Node	your servers	version	Policy Domain	Contact
= FastBack Servers	Schedule an Auto Deployment Launch Badrup-Archive Client Move to Another Policy Export Client Node Move Data				Total: 0 Filtered: 0

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

10.250.242.10 - Remote Desktop Connection		1
Tivoll. View: Altanks	Welcome tipadmin	Help Logadt IIB
• =	Client Nodes and Backup Sets	- Select Action Sele
Welcome Hy Startup Pape Come and Groups Settings Come and Groups Come and Groups Come and Come and Come Manage Servers Health Monitor Photprine Management Storage Devices Clinch Mode and Backup Sets Poley Domains Server Mandenance Reporting Destromance Assister Recovery Management Server Servers	Create a client node by accepting the default settings or by entering new inform Click OK to create a node and return to Client Nodes and Blackup sets or click Ad form. To edit the default settings. Server: W2X892-02 *Name: W2X892-02 *Name: W2X872-02 *Name: W2X872-02 *Delicy domain: STANDARD *Name: W2X872-02 *Name: Contact: Contact: Contact: Web address: Policy Settings Security Settings Security Settings Momborships Add the following parameters to the generated command: OK Add Another Cancel	d Another to create a node and save all entries to a new

3 Confirm that the client node is successfully registered.

Tivoli, Views Alltaska		Welcome lupad	imin			Help Logent:	IB
	Client Nodes and Back	up Sets +				Selast Action	5
Welcome Wy Starbup Pages Users and Groups Sctungs Reporting Croupl Storage Nanager Getting Started Manage Servers	The table lists all o		he servers that were act		14 at 1:28 AM and 8/26/14		2
Health Monitor	Select Action	V			Filter		5
Storage Devices Client Modes and Backup Sets Policy Domains Server Meintenance Reporting Disaster Recovery Management FastBack Servers	Name.	Server	Platform	Version	Policy Demain	Contact	2

Setting up Quest® QoreStor™ as a CIFS and NFS Target on IBM Tivoli® Storage Manager (TSM) v7.1 21

## 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.

TSM L	ogin	×
	Login into a TSM server	
	Userid: W2K8R2-02	
	Password:	
	Login Cancel Help	

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

8M Tivoli Storage Manag īvoli Storage Manager	File Edit	Actions	Utilities	View		0	0	IB
Welcome to IBM Tiv	voli Storage Mana	ger. Click be	elow to perf	orm a task.				
Backup			16	Archive				٦
Backup and Restore copies of data that are frequently updated.			Archive and Retrieve copies of data that are preserved for a specific period of time.					
	<b>Backup</b> Copies files to s prevent loss of d		0		Archive Creates an arc long-term stora		opy in	
	Restore Restores saved server storage.	files from			Retrieve Retrieves an a long-term store		copy fr	om

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

	ole 😵 System Calabolaro - 📰 Wescome to Mile.		nec. 🖪 Di Testa		\$
luest Qa	DreStor <sup>TM</sup> Dashboard Storage	Groups Replication Syste	m Configuration Diagnostics Alert	s Users Management About	admin 💚
stem Configuration					
Operating System:	Red Hat Enterprise Linux Servet release 7.3 (Maipo)	CLEANER STATUS	CURRENT SAVINGS 7.29 %	CAPACITY USED 28.61 GB	PHYSICAL CAPACITY 516:91 GB
System State: HostName: System ID: Version:	Operational Mode pravin-rh7-q51 4231090C08664428D8037FF8BC7F813F 5.0.1.114	TOTAL FILES	NUMBER OF CONTAINERS	NUMBER OF STORAGE GROUPS	DICTIONARY TYPE CLOUE-OPTIMIZED
			Cleaner Schedule		Upload SSL Certificate
				R	un Cleaner Once Edit scheduln
Dev			Dial TOD		ND TIME
Monday			13:00		18:00
Tuesday			13:00		18:00
Wednesday			13:00		18:00
Thursday			13:00		18:00
Friday			13:00		18:00
Saturday			13:00		18:00
Sunday			13:00		18:00

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

1

		230.48.215.5/ 1/W/cyctore=configura	ión estor Functionar 🗙 Secure connect 📓 DR Teistkar		\$
Duest	QoreStor™	Dashboard Storage Gro	ps Replication System Configuration Diagnostics	Alerts Users Management About	admity ~
					Cancel Submit
ACTION	DAY		STARL TIME		END TIME
Remove	Monday		13:00		18:00
Remove	Tuesday		15;22		18:00
© Remove	Wednesday		13:00		18:00
© Remove	Thursday		13:00		18:00
⊙ Remove	Friday		13:00		18:00
⊖ Remove	Saturday		13:00		18:00
O Remove	Sunday		13:00		18:00

## 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.

i

	cure Https://10.230.48.215:5233/#/dashboard w 😤 System Dashboard - 💼 Welcome to Mihi 💽 Qon	eStor Functional 🗶 Secure connect 🖪 DR	lestRail		
est Qor	reStor™ Dashboard Storage Grou	ps Replication System Configu	ration Diagnostics Alerts	Users Management About	adn
	Physical Capacity	1.1.1.1.1		Storage Savings	
100 GB		Total     Used     Encrypted	100%	Compression	Deduper Total Savings
80 GB			80%		
60 GB			60%		
40 GB			40%		
20 GB			20%		
0 GB			0%		
08/27/18 13 39 0	07	08/27/18 14:38:37	08/27/18 13:39:07		08/27/18 14 38
	Throughput			System Usage	
100 MB/s		Read Write	100%	• CP	U Memory OIO Wait
80 MiB/s			80%		
60 MiB/s			60%		
40 MiB/s			40%		
20 MiB/s			20%		
0 MiB/s 08/27/18 13	3:39.07	08/27/18 14:38:37	0% 08/27/18 13:39:07		08/27/18 14:38

А

## 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.)

TSM Server1 Properties	(Local Computer)		×
General Log On Reco	overy Dependencies		
Log on as:			
C Local System account Allow service to intervice to i			
This account	. \Administrator		Browse
Password:	•••••		
Confirm password:	•••••		
Help me configure user	account log on options.		
	ОК	Cancel	Apply

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.