Quest

Setting Up the Quest[™] as an OST Backup Target for Veritas[™] NetBackup[™]

Technical White Paper

Quest Engineering February 2023

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Quest Software Inc.

Attn: LEGAL Dept

4 Polaris Way

Aliso Viejo, CA 92656

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Legend

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WARNING: A WARNING icon indicates a potential for property damage, personal injury, or death

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 Veritas NetBackup Updated – February 17, 2023

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Executive Summary

This white paper provides information about how to set up QoreStor as a backup target for Veritas NetBackup. This document is a quick reference guide and does not include all QoreStor deployment best practices.

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

http://support.quest.com/qorestor

For more information about Veritas NetBackup, refer to the NetBackup Exec documentation at:

https://www.veritas.com/support/en_US/NetBackup

NOTE: The QoreStor and Veritas NetBackup screenshots used in this document might vary slightly depending on the QoreStor version and NetBackup version you are using.

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>).

\leftrightarrow \rightarrow C \textcircled{a}	Q https://myqorestor:5233/#/login		⊚	lin ≡
		QoreStor™		
		QUIESCUI		
		© 2021 Quest Software Inc. ALL RIGHTS RESERVED.		

3 By default, QoreStor has a user with OST Role named backup_user and password "St0r@ge!". Refer to the *QoreStor User Guide* for information on changing user accounts.

6

Creating an OST container for NetBackup

In this chapter, we will show how to create an OST container for Backup Exec using the QoreStor administrative console. If you wish to use QoreStor CLI please refer to the *QoreStor CLI Reference Guide*.

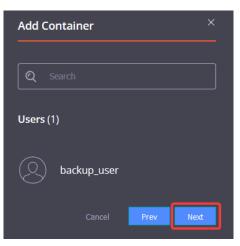
- 1. Open the QoreStor administrative Console and log in.
- 2. Select **Containers** in the left navigation pane.
- 3. Click Add container.

Quest Qor	eStor		
ılı Dashboard		Containers (0)	
Containers			
😫 Local Storage			
Cloud Storage			
Replications			\circ
🖬 System			0
Q Diagnostics			No Containers Available
A Users			
🖶 Events			Add Container
Management			

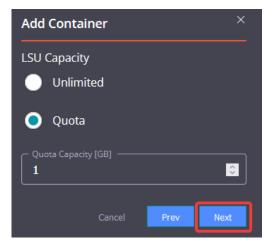
- 4. Select Veritas OpenStorage (OST) from the Protocol dropdown.
- 5. Type a container Name.
- 6. Click the **Next** button.

Add Contair	her		×
Veritas Oper	nStorage ((DST)	~
Name —			
Storage Group	p		~
	Cancel		

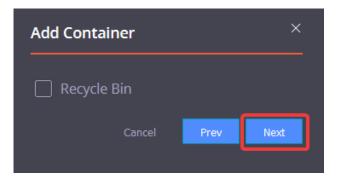
- **NOTE:** Refer to the QoreStor User Guide for information on creating a new Storage Group.
 - 7. Select the **User(s)** that will have access to the container and click the **Next** button.



8. Select the LSU Capacity and click the Next button.

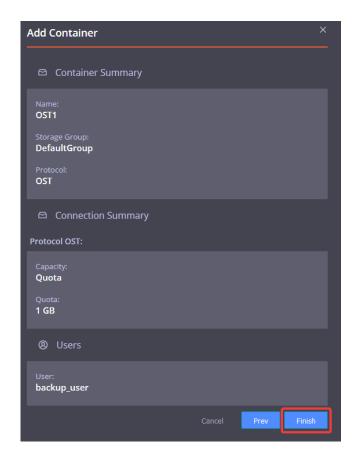


Setting Up the Quest[™] as an OST Backup Target for Veritas[™] NetBackup[™] -Creating an OST container for NetBackup 9. Select if you want to enable **Recycle Bin** and click the **Next** button.



i NOTE: Refer to the QoreStor User Guide for information on Recycle Bin feature.

10. Review the Container settings and click the **Finish** button.



Installing the Quest OST Plugin

To enable NetBackup to use QoreStor, the Quest OST Plugin must be installed in the NetBackup Media Server(s).

Before proceeding, refer to the *QoreStor Interoperability Guide* for a list of supported Operating Systems, NetBackup, and OST Plugin versions. Once identified, download the OST Plugin at https://support.quest.com/qorestor/.

Installing the OST Plugin on Windows

- 1 Download the Quest OST Plugin onto the server you wish to install.
- 2 Execute the OST Plugin .msi installer and follow the screen prompts.

🖞 Quest Storage Plugin for Veritas OST (64-bit) Setup 🗕 🗖 🗙	😼 Quest Storage Plugin for Veritas OST (64-bit) Setup 🔄 🗖 🗙
Welcome to the Quest Storage Plugin for Veritas OST (64-bit) Setup Wizard	End-User License Agreement Please read the following license agreement carefully
The Setup Wizard will install Quest Storage Plugin for Veritas OST (64-bit) on your computer. Click Next to continue or Cancel to exit the Setup Wizard.	Software Transaction Agreement
Back Next Cancel	Print Back Next Cancel
Quest Storage Plugin for Veritas OST (64-bit) Setup	🖞 Quest Storage Plugin for Veritas OST (64-bit) Setup 💶 🗴
	Veritas OST (64-bit) Setup Wizard
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.	Click the Finish button to exit the Setup Wizard.
Back Install Cancel	Back Finish Cancel

Setting Up the Quest™ as an OST Backup Target for Veritas™ NetBackup™ -Installing the Quest OST Plugin

Installing the OST Plugin on Linux

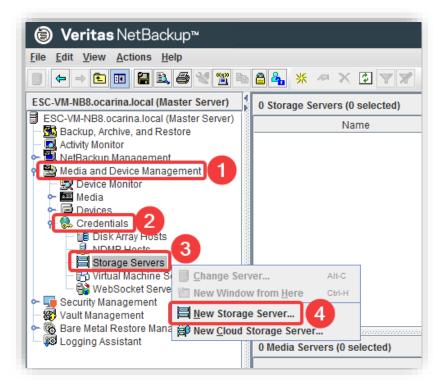
- 1 Download the Quest OST Plugin onto the server you wish to install.
- 2 Extract the .bin file from the .gz package and give it executable permission.
- 3 Execute the .bin file adding -install switch.



Adding an OST container to Veritas NetBackup

This section provides information needed to add an existing or newly created OST container to NetBackup.

- 1. Open the NetBackup administration console.
- Expand Media and Device Management ①, then Credentials ②. Right-click Storage Servers
 ③, and click New Storage Server… ④.



3. In the Storage Server Configuration Wizard select OpenStorage and click Next.

4 Select the desired Media server from the dropdown, write QUEST on the Storage server type and specify the QoreStor host IP/hostname or FQDN for the Storage server name; enter the OST User name, Password, and Confirm password (the default OST username is backup_user and the default password is St0r@ge!) and click Next.

	at has the vendor's Open Storage plug-in installed.
MetBackup uses this med Media server:	lia server to determine the storage server capabilities. esc-vm-nb8.ocarina.local
Storage server type:	QUEST
	QUEST
<u>S</u> torage server name:	myqorestorhost.mydomain.local
Enter storage server cre	edentials
Enter storage server cre User name:	edentialsbackup_user
<u>U</u> ser name:	backup_user

i NOTE: If additional media servers are available, you will see an additional step where you can choose which media servers to add.

5 Confirm all the information is accurate and click **Next.**

torage Server Configuration Sum Verify the storage server confi	
	ration summary. You can change the
onfiguration, if required.	
Storage server type:	QUEST
Storage server name: Media server name:	myqorestorhost.mydomain.local esc-vm-nb8.ocarina.local
Media server name: User name:	esc-vm-nb8.ocarina.iocai backup_user
user name.	backup_user

6 If you wish to **Create a disk pool using the storage server that you have just created**, check the **checkbox** and click **Next**, otherwise uncheck the **checkbox** and click **Close**. The steps to create a disk pool will be demonstrated in the next section.

		-
Status		Detai
1	Creating storage server myqorestorhost.mydomain.local Adding credentials for server esc-vm-nb8.ocarina.local	
	-	
•		
•	<u> </u>	
	III	
Storage s	erver "esc-phy-qs1.ocarina.local" is successfully created.	
Storage s		
Storage s	erver "esc-phy-qs1.ocarina.local" is successfully created.	
Storage s	erver "esc-phy-qs1.ocarina.local" is successfully created.	
Storage s	erver "esc-phy-qs1.ocarina.local" is successfully created.	
Storage s	erver "esc-phy-qs1.ocarina.local" is successfully created.	
itorage s	erver "esc-phy-qs1.ocarina.local" is successfully created.	

Setting Up the Quest™ as an OST Backup Target for Veritas™ NetBackup™ -Adding an OST container to Veritas NetBackup After adding the QoreStor host as a Storage Sever, the next stage will be to create a Disk Pool. The following steps will demonstrate how to do this.

If not continuing from the previous section, where Create a disk pool using the storage server that you have just created checkbox would have been checked, expand Media and Device Management
 then Devices ②, right-click Disk Pools ③, and select New Disk Pool… ④

🗿 Veritas NetBad	ckup™			
<u>File Edit View Actions</u>	<u>H</u> elp			
	l 🖉 🗶 🖺 🖿	84 7	<mark>⋇</mark> × ≈ ۹	Θ_{k}
ESC-VM-NB8.ocarina.local (N	laster Server)	0 Disk Pools (0	selected)	
ESC-VM-NB8.ocarina.local ESC-VM-NB8.ocarina.local NetBackup, Archive, and R NetBackub Manaoeme Media and Device Mana Device Monitor Media Device Monitor Media Device Monitor Media Server Groups San Clients Server Groups San Clients Server Groups San Clients Server Groups San Clients Server Groups San Clients	estore nt agement	Name	Storage Server	Sen
🗠 🚷 Credentials	Change Serve	r	Alt-	С
 Security Management Wault Management 	🛅 New Window f	rom <u>Here</u>	Ctrl	-H
🗣 🔞 Bare Metal Restore Ma	😜 <u>N</u> ew Disk Pool			
🗆 🖓 Logging Assistant	Invento <u>r</u> y Disk	Pool		
	Inventory Robo	ot		
	Stop/Restart N	ledia Manager De	evice Daemon	
	18			

2 Select Open Storage (QUEST) for the Storage server type and click Next. Select the QoreStor Storage server and click Next.

Disk Pool Configuration Wizard	Disk Pool Configuration Wizard
Welcome to the Disk Pool Configuration Wizard!	Storage Server Selection Select storage servers to scan for disk volumes.
The wizard helps you create and configure a disk pool and a storage unit. Before you begin the storage server configuration, ensure that the following prerequisites are met: -The disk devices are deployed and configured as per the	Storage server: Name Type
instructions by the storage system vendors.	myqorestorhost.mydomain.local QUEST
-All necessary software plug-ins are installed on the NetBackup Media Servers. -Details about the storage servers and credentials to access these servers are added in NetBackup. Storage server type: Open Storage (QUE ST)	
Note: If you cannot see the required storage server type in the list, ensure that the appropriate license is installed and the storage server of the specified type is defined.	Note: If you cannot see a required storage server in the list, ensure that the storage server details are added in NetBackup.
Next > Cancel Help	< <u>B</u> ack <u>Next></u> <u>C</u> ancel <u>H</u> elp

3 Select the OST container(s) you wish to add by ticking the corresponding checkbox and click Next.

	Disk Pool Confi	guration Wizard	x
Select Disk Pool Prope Select disk pool pro	rties and Volumes operties and volume	s to use in the disk p	oool.
Storage server: Storage server type: Disk pool configured f Disk Pool Properties (A disk pool inherits th properties can be add If properties are spec properties. Replication source Replication target	QUEST Backup and Volumes he properties of its v ded to a disk pool. iffied, the list display		es with similar
Select storage server	volumes to add to th	ie disk pool.	
Volume Name	Available Space	Raw Size	Replication
BE20	16.43 TB	18.06 TB	None
NB8	16.43 TB	18.06 TB	None
Total available space Total raw size:	e: 16.43 TB 18.06 TB		
	< <u>B</u> ac	:k <u>N</u> ext >	<u>Cancel</u> <u>H</u> elp

4 Select a **Disk Pool name** and if desired, set the **Limit I/O streams** number **per volume** and click **Next.**

Additional Disk Poo Provide additio	Disk Pool Configuration Wizard
Storage server:	myqorestorhost.mydomain.local
Storage server typ Disk pool configure	
Total available sp Total raw size:	bace: 16.43 TB 18.06 TB
Disk Pool name:	IS-OST-Disk-Pool
Comments:	*
High <u>w</u> ater mark	98 🖕 %
Low water mark	* 80 × %
Maximum I/O Stre	eams
	read and write jobs affect disk performance. s to prevent disk overload.
Limit I/O stream	ams: per volume

4 Verify the disk pool configuration and click Next.

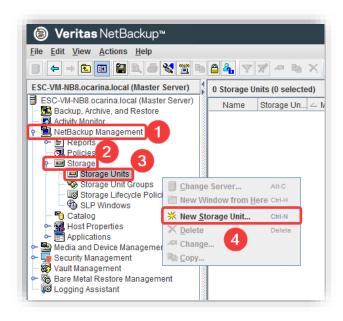
required. Storage server:	myqorestorhost.mydomain.local	
Storage server type:	QUEST	
Volumes:	NB8	
Disk Pool Details:		
Disk Pool name:	QS-OST-Disk-Pool	
Configured for snapshots:	false	
Replication:	None	
High water mark:	98	
Low water mark:	80	
Maximum IO Streams:	Unlimited	
Comments:		
]	

5 If you wish to **Create a storage unit using the disk pool that you have just created**, check the **checkbox** and click **Next**, otherwise uncheck the **checkbox** and click **Close**. The steps to create a storage unit will be demonstrated in the next section.

Performing tasks	
NetBackup Disk Pool created	
DST-Disk-Pool" is successfully created.	
prage unit using the disk pool that you have just created	

Setting Up the Quest[™] as an OST Backup Target for Veritas[™] NetBackup[™] -Adding an OST container to Veritas NetBackup After adding the QoreStor host as a Storage Server and creating a Disk Pool, the final stage before enabling the OST container to be used will be to create a Storage Unit. The following steps will demonstrate how to do this.

1 If not continuing from the previous section, where Create a storage unit using the disk pool that you have just created checkbox would have been checked, expand NetBackup Management ①, then Storage ②, right-click Storage Units ⑥, and select New Storage Unit… ④



2 Specify a Storage unit name, select Disk and Open Storage (QUEST) from the Storage unit type and Disk type respectively, and Select disk pool disk using the dropdown button. Chose if you want to Use any available media server or Only use the following media servers (and check the ones you wish to use). Adjust the Maximum concurrent jobs field if needed. Click OK.

New Storage Unit		
Storage unit name:		
QS_Storage_Unit		
Storage unit type:		
Disk 🔹 🔽 On demand only		
Disk type:		
Open Storage (QUEST)		
Properties and Server Selection		
Storage unit configured for:		
Backup		
A storage unit inherits the properties of its disk pool. If properties are specified, only those disk pools that match the specified properties will be available below.		
Replication target		
Select disk pool:		
QS-OST-Disk-Pool Vie <u>w</u> Properties		
Media server:		
Maximum concurrent jobs: Maximum fragment size: 1 524288 Megabytes		
<u>O</u> K <u>C</u> ancel <u>H</u> elp		

i NOTE: If you are continuing from the Disk Pool Configuration Wizard, the pop-up window is slightly different, since it assumes the values from the previously created disk pool:

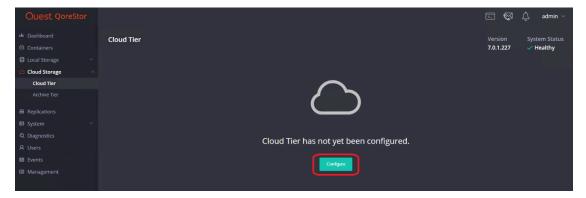
Enter details to crea	të storage unit.
Disk pool:	QS-OST-Disk-Pool
Storage server type:	QUEST
Storage unit name:	QS-OST-Disk-Pool-stu
Media Server	
Use any availa	able media server to transport data
Unly use the s	elected media servers: Media Servers
esc-vm-n	b8.ocarina.local
esc-vm-n	
Maximum concurrent	b8.ocarina.local
Maximum concurrent	jobs: 1
	jobs: 1
Maximum concurrent	jobs: 1

i NOTE: When choosing the number of maximum concurrent jobs, both the QoreStor and the hosting Hardware limits need to be taken into consideration to prevent job failures should those limits be exceeded. Refer to the QoreStor Interoperability Guide for more information.

Creating a policy-driven Cloud Tier

Cloud Tier is a feature that allows a QoreStor system to tier deduplicated blocks of files to a cloud provider via S3 protocol. There are several cloud and on-prem solution providers supported including Azure, AWS, Wasabi, IBM, Google, and many other S3-compatible solutions. Once added one or more containers can be added to a policy. How that policy is configured can determine how long the data is available on-prem in QoreStor, how long it's available both on-prem and in the cloud simultaneously, and finally at what point is it only available in the cloud.

1. Open the QoreStor UI, expand the **Cloud Storage** section, and select the **Cloud Tier** page. Click the **Configure** button.



2. Select the Cloud Provider dropdown and pick your required provider, depending on the provider the fields below will change. The Container field will be a folder/bucket created in the cloud provider, there is no need to create a folder on your own. This folder name is usually limited in accepted characters by the provider. Also please make sure to keep your passphrase, without this the data is not recoverable in a Disaster Recovery scenario. Finally, click Configure.

Configure Cloud Tier	×
Cloud Provider Azure Blob	
? Need Help?	
Azure Container	
Connection String -	
Cloud Tier Encryption	
Passphrase	
- Confirm Passphrase	
	Close Configure

3. Once added this is how the cloud tier page should appear.

					🕞 🚱 🗘 admin -
Dashboard Containers	Cloud Tier				Version System Status 7.0.1.227 Version
Local Storage Performance Tier Storage Groups	To Schedule				
Cleaner	Connector Details				
Cloud Storage ^	Connection String	Connection Type AZURE	Cloud Container test	Encryption Mode static	
Cloud Tier Archive Tier					
Replications System V	Savings		Capacity	Summary	
Q Diagnostics A Users ∰ Events	08 Current Bytes 0B	0 % 0.0%	thad Licensed Cloud Capacity - Licensed Cloud Capacity No. 5.57/15 0.8 8.278 16.578 24.778 35/16 41.278 49.578 57.778 66/16	Name DefaultCloudTier	Encryption Enabled
Management	DEDUFE	COMPRESSION		Compression Mode Fast	Passphrase Set True
				Status Online	Encryption Mode static
					Created On May 7, 2021, 3:55:38 PM
				Quota [GiB] N/A	

4. We need to add a cloud tiering policy to a specific container. Do this by navigating to the **Containers** page, selecting the **ellipsis** in the top right corner of the specific container, and clicking **Enabled Cloud Tiering Policy**.

Quest QoreStor			
u Dashboard Containers	Containers (2)		
E Local Storage	Add Container		
Performance Tier			
Storage Groups			
Cleaner			
Cloud Storage	QSPL-6000-01_CWF-NVBU-RDS ···· /containers/QSPL-6000-01_CWF-NVBU-RDS	nvstore /containers/nvstore	
Cloud Tier			
Archive Tier	Marker Connection Replication None	Marker Connection Replicati None NAS (<< CIFS) No	
Replications			
🖬 System 🗸 🗸	Storage Group	Storage Group	
Q Diagnostics	DefaultGroup	DefaultGroup	
오 Users			
🛱 Events			
Management			

In the next window, we need to define the policy. Idle time before cloud migration specifies the number of hours/days datablocks must be kept idle before being sent to the cloud. On-Prem Retention age specifies the number of hours/days files will be kept locally after they are sent to the cloud. Finally, click Enable.

Enable Cloud Tiering Policy			
Cloud Policy			
Idle time before cloud	migration —	days v	
On-Prem Retention Ag		days v	
Advanced Options			
	Cancel	Enable	

6. The container should now be shown with the cloud tiering policy enabled.

	nvstore /containers/nvstore	Ø	
Marker None	Connection NAS (🗸 CIFS)	Replication No
Storage Gr DefaultGr o		Cloud Tiering Po	licy

Setting up the QoreStor cleaner

Performing scheduled disk space reclamation operations are needed as a method for recovering disk space from system containers in which files were deleted as a result of deduplication. Ideally, the QoreStor cleaner should complete a full cycle at least once a week. This will be accomplished in most cases by the predefined QoreStor cleaner schedule. The cleaner also runs during idle time.

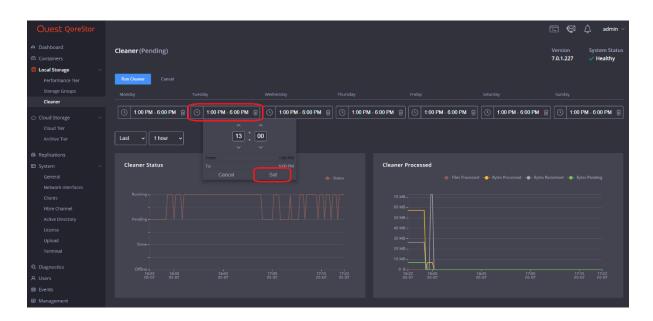
To change the predefined cleaner schedule times, perform the following steps:

- 1. Open the QoreStor administrative console.
- 2. Expand **Local Storage** in the top navigation pane.
- 3. Select Cleaner.
- 4. Click Edit Schedule.

Quest QoreStor					🕞 🐼 🗘 admin ~
III Dashboard	Cleaner (Running)				Version System Status
Containers	cleaner (Ranning)				7.0.1.227 Vealthy
E Local Storage					
Performance Tier	Stop Cleaner Edit Schedule				
Storage Groups					
Cleaner					
Cloud Storage	S 1:00 PM - 6:00 PM S 1:00 PM - 6:00 PM	(C) 1:00 PM - 6:00 PM	- 6:00 PM	🕓 1:00 PM - 6:00 PM	
Cloud Tier					
Archive Tier	Last 🗸 1 hour 🗸				
O Destructure					
Replications	Cleaner Status		Cleaner Processed		
General Network Interfaces					Keclaimed – — Bytes Pending
Clients					
Fibre Channel			60 MB		
Active Directory			50 MB-		
License			40 MB -		
Upload			30 MB -		
Terminal			20 MB -		
Q Diagnostics			10 MB-		
Q Diagnostics			0 8- 16:20 16:30 05-07 05-07	16:45 17:00 05-07 05-07	
X Users B Events					
Management					

5. Define the schedule and click **Set**.

i



NOTE: If necessary, you can also perform a full cleaner cycle manually using either the QoreStor Administrative Console, QoreStor CLI, or the NetVault Backup UI:

Quest QoreStor	
ılı Dashboard	Cleaner (Pending)
🗠 Containers	,
😫 Local Storage 🛛 🗸 🗸	
○ Cloud Storage ~	Run Cleaner Edit Schedule
🖨 Replications	Monday Tuesday
🖬 System 🗸 🗸	
Q Diagnostics	(1:00 PM - 6:00 PM) (1:00 PM - 6:00 PM)
A Users	
曲 Events	Last V 1 hour V
Management	

Figure 1: Using the QoreStor Administrative Console

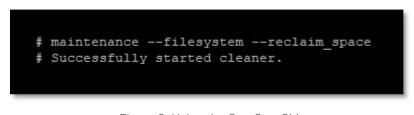
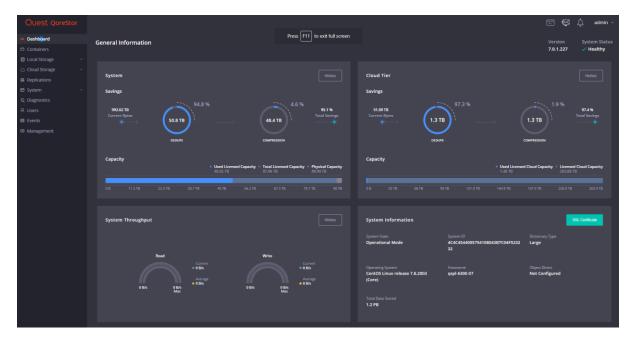


Figure 2: Using the QoreStor CLI

Monitoring deduplication, compression, and performance

After backup jobs have run, QoreStor tracks capacity, storage savings, and throughput. To view the historical representation of these values is shown in the dashboard of the QoreStor administrative console. 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 are completed, the ratios will increase. Backup jobs with a 12-week retention will average a 15x ratio in most cases.

i