Quest

Setting Up Quest® QoreStor™ with Veritas™ NetBackup™

Technical White Paper

Quest Engineering August 2018

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Quest Software Inc.

Attn: LEGAL Dept

4 Polaris Way

Aliso Viejo, CA 92656

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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 with Veritas[™] NetBackup[™]

Updated – August 31, 2018

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Executive Summary

This document provides information about how to set up Quest QoreStor for Veritas NetBackup, including:

- Configuring the QoreStor system as a CIFS/NFS storage unit for Veritas Netbackup 7.X and 8.X
- Configuring an OST container on the QoreStor system for use with Veritas Netbackup 7.X and 8.X

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

https://support.quest.com/qorestor/

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NOTE: The QoreStor/Veritas NetBackup build version and screenshots used for this paper may vary slightly, depending on the version of QoreStor/Veritas NetBackup software you are using.

1

Configuring QoreStor as a CIFS/NFS storage unit

Creating a CIFS container for use with Veritas NetBackup

1 Select the **Storage Groups** tab, then expand the drop down for the storage group into which you would like to add the container. Click **Add container**.

orage Groups								
Operating System:	Red Hat Enterprise Linux Server release 7.1 (Maipo)	CLEANER STATUS DONE	CURRENT SAVI	NGS	CAPACITY USED 0.00 GB		PHYSICAL CAP 4242.32 G	
System State: HostName: System ID:	Operational Mode qs-demo 4232F006789CC06E413356A5E29E58C8	TOTAL FILES	NUMBER OF CON	IAINERS N	UMBER OF STORAGE G	ROUPS	DICTIONARY CLOUD-OPTIM	
Version:	5.0.0.156							
							Add Store	ge Group
	GROUP NAME	ENCRYPTION	COMPRESSION	CONTAINERS		ACTIONS		
.8.	DefaultGroup	Disabled	E Fast	n	E Details	🤌 Fdit	Remove	*

2 Enter a Container Name, and select NAS from the Access Protocol drop down menu. Then click Next.

Vame	
sample	
ratocol	
NAS	

3 Click the drop down on the Access Protocols field then select the check mark for CIFS. Leave Marker Type on Auto, then click Next.

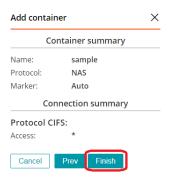
Add container	×
Marker Type	
Auto	•
Access Protocols	
CIFS ×	
Select All	
NFS	
CIFS	

4 Fill in backup container information for CIFS options. Click Next.

Add
1

NOTE: For improved security, Quest recommends adding IP addresses for only NetBackup Media Servers

5 Confirm the settings and click Finish. Confirm that the container has been added.



Adding the QoreStor CIFS container as a storage unit on NetBackup

1 Open the NetBackup administration console. Expand NetBackup Management and Storage, then select Storage Units. Right-click anywhere in the right hand panel and select New Storage Unit.

⊚ Veritas NetBackup™								
ile <u>E</u> dit <u>V</u> iew <u>A</u> ctions <u>H</u> elp								
) (+ -> 🖻 📧 🎴 L 🍜 💸 🚆 B	🔒 🐴 🝸 🛪	🗠 🖻 🗙	: 🖻 🖗 (3	D 🗘		Login Ac	ctivity 🔻
R630-25.systest.ocarina.local (Master Server)	17 Storage	Units (1 selec	ted)			8	Search	V
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- 🖪 Activity Monitor		r630-25.sv		Basi	_			10
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	2	r320-svs-41		Basi	🔊 Cha	nge		
	🗖 🖬 dr6300	r630-25.sy	Media Man		🖹 Cop	- N		
🕂 🖃 Storage Units <	🗖 📼 dr6300	r630-25.sy	Media Man			ual Relocation to Final Dest	ination	
🗢 🥎 Storage Unit Groups	🖬 dr6300	r630-25.sy	Disk	Basi				
- 🐻 Storage Lifecycle Policies	🖃 dr4300	r320-sys-41	Disk	Basi	× <u>D</u> ela	ete	Delete	
🗆 🏟 SLP Windows	🖃 dr4300	r630-25.sy	Disk	Basi	Cop	y To Clipboard	Ctrl-C	
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🖵 🚰 Access Management								
- 🐯 Vault Management								
– 🍘 Bare Metal Restore Management – 🚾 Loααing Assistant	0000							
- 👐 Lugging Assistant	2000							
	•							
						() Alert Notifi	ination	

Setting Up Quest® QoreStor™ with Veritas™ NetBackup™ -Configuring QoreStor as a CIFS/NFS storage unit

2 Add a Storage unit name for the device, then select the **Storage unit type** drop down and click **Disk**. Select the **Disk type** drop down and click **BasicDisk**. If needed, select the **Media server** drop down and pick the correct media server. In the **Absolute pathname** to directory field put the UNC path to the QoreStor CIFS container. Set the **Maximum concurrent jobs** to a desired level. Click **OK**.

N	ew Storage Unit	×
Storage unit same: sample_storage_unit		1
Storage unit type:		
Disk 🧲		🕶 🔲 On demand only
Disk type:		2
Basichisk		T
Properties and Server Selec	tion	
Meilia server:		
r630-25.systest.ocarina.loc	at 👻	
Absolute pathname to direct	toryc	
-07.systest.ocarina localisan	nple Browse	View Properties
High water mark: 98 1 % Enable Temporary Stagin according to its staging s		to its final destination
Simplini Scharoub		
	OK I	Cancel Help

i NOTE: With all of the above information entered correctly you may test the storage unit by clicking **View Properties**. If this returns an error or a Capacity of 0 Megabytes, then there is a problem and jobs will not succeed to this storage unit. Double check the above recommendations and then contact Support.

	Directory Properties				
I	Details for directory \\dr6300-07.systest.ocarina.local\sample				
	Properties				
	Capacity: 16267775 Megabytes				
	Available Space: 15200446 Megabytes				
	% Full: 7				
L	Close				

3 The storage unit should now be seen on the **Storage Units** panel

i

Elle Edit View Actions Help	A VIABX BO			Login Acti	vity 🔻
R630-25.systest.ocarina.local (Master Server)	18 Storage Units (1 selected)			Search	Y
F630-25 systemt orraring local (Mauter Server) Backup, Archive, ant Restore Actiny Monitor Actiny Monitor NetBackup Management Image Storage Units Image Units Image Storage Units Image Units	Name	 Media S. Storage 1320-sys-41 Disk. r630-25.sy. Disk. Any Available Disk. r630-25.sy. Media N. r630-25.sy. Media N. r630-25.sy. Media N. r630-25.sy. Disk. Any Available Disk. r320-sys-41 Disk. r630-25.sy. Disk. Any Available Disk. r320-sys-41 Disk. r630-25.sy. Disk. Any Available Disk. r630-25.sy. Disk. 	BasicDisk BasicDisk DELL BasicDisk	TLD TLD	nu61 foa
 Baré Metal Réstore Management Logging Assistant 					

NOTE: Please review the *QoreStor Interoperability Guide* for the supported maximum number of connections.

To change this number later at any time, go to the **Storage Units** panel, right click the storage unit, and select **Change...**

Creating a NFS container for use with Veritas NetBackup

1 Select the **Storage Groups** tab, then expand the drop down for the storage group into which you would like to add the container. Click **Add container**.

Setting Up Quest® QoreStor™ with Veritas™ NetBackup™ -Configuring QoreStor as a CIFS/NFS storage unit

orage Groups							
Operating System: System State:	Red Hat Enterprise Linux Server release 7.1 (Maipo) Operational Mode	CLEANER STATUS DONE	CURRENT SAVI	NGS	CAPACITY USED 0.00 GB	PHYSICAL CAPACITY 4242.32 GB	
HostName: System ID: Version:	gs-demo 4222P006789CC06E413356A5E29E58C0 5.0.0.156	TOTAL FILES	NUMBER OF CONTAINERS		UMBER OF STORAGE GROUPS	DICTIONARY TYPE CLOUD-OPTIMIZED	
	GROUP NAME	ENCRYPTION	COMPRESSION	CONTAINERS	ACTION	Add Storage Grou	
8	DefaultGroup	Disabled	Fast	D	🔄 Detalls 🥒 Edit	@ Remove	

2 Enter a Container Name, and select NAS from the Access Protocol drop down menu. Then cqlick Next.

Name	_
sample	
Protocol	
NAS	

3 Click the drop down on the Access Protocols field then select the check mark for NFS. Leave Marker Type on Auto. Click Next.

Add container	×
Marker Type	
Auto	•
Access Protocols	
NFS ×	
Select All	
NFS	
CIFS	

4 Fill in backup container information for NFS options, then click Next.

Add container	×
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
	-

NOTE: For improved security, Quest recommends adding IP addresses for only NetBackup Media Servers

5 Confirm the settings and click **Finish**. Confirm that the container is added.

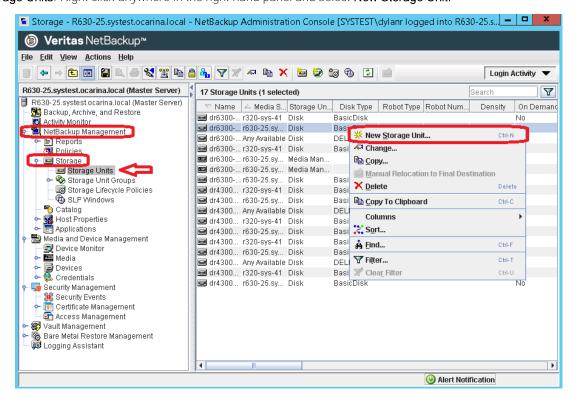


Adding the QoreStor NFS container as a storage unit on NetBackup

1 Mount the QoreStor NFS Container onto a Unix/Linux Media Server.



2 Open the NetBackup admiration console. Expand NetBackup Management and Storage, then select Storage Units. Right click anywhere in the right hand panel and select New Storage Unit.



3 Add a Storage unit name for the device, then select the Storage unit type drop down and click Disk. Select the Disk type drop down and click BasicDisk. Select the Media server drop down and pick the correct media server if needed. In Absolute pathname to directory, put the mount path to the NFS container. Set the Maximum concurrent jobs to a desired level. Click OK.

	New Storage Unit	×
Storage unit name:		
sample_storage_unit		
Storage unit type:		
Disk		🝷 🗌 On demand only
Disk type:		
BasicDisk		-
Properties and Server	Selection	
Meilia server:		-
r630-25.systest.ocarin	saliocal 👻	$\langle \neg \rangle$
Absolute pathname to	directory:	
-07.systest.ocarina loc	alisample Browse	View Properties
Enable Temporary S according to its sta	Staging Area. Copy the data ging schedule.	a to its final destination
		o to na mini wearmanan
Stagno Schoola		
	08	Cancel Help
	- Mar	Famely Righ

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NOTE: With all of the above information entered correctly you may test the storage unit by clicking **View Properties**. If this returns an error or a Capacity of 0 Megabytes, then there is a problem and jobs will not succeed to this storage unit. Double check the above recommendations and then contact Support

	Directory Properties					
I	Details for directory /mnt/sample					
	Properties					
	Capacity:	16267775	Megabytes			
	Available Space:	15442877	Megabytes			
	% Full:	5				
			Close			

4 The Storage Unit should now be seen on the **Storage Units** panel

	6 4, 7 7 4 b x 2 9	901	6X		Login Acti	vity 🔻
R630-25.systest.ocarina.local (Master Server)	18 Storage Units (1 selected)				Search	V
P630-25 system ocarina local (Master Berver) Backup, Archive, and Restore Actinh Monitor NetBackup Management Difference Policies Pallicies Biologie Storage Units Catatiog Biologications Media and Device Management Devices Bioleces Devices Scuthy Management Scrage Linker, and Device Management Devices Scuthy Management Catatiog Media and Device Management Devices Catatiog Applications Media Devices Catatiog Applications Media Devices Scuthy Kanagement Access Management Access Management Access Management Access Management Access Management Access Management Cate Media Restore Management Cate Media Restore Management	Name dr6300-07_CVFF-NBU-RDNFS1 dr6300-07_CVFF-NBU-RDCFS1 dr6300-07_CVFF-NBU-RDCFS1 dr6300-07_CVFF-NBU-RCVTL1 dr6300-07_CVFF-NBU-RCVTL1 dr6300-07_CVFF-NBU-RCVFS1 dr6300-07_CVFF-NBU-RDCFS1 dr4300e-16_CVFF-NBU-RDCFS1 dr4300e-16_CVFF-NBU-RDCFS1 dr4300e-16_CVFF-NBU-RDCFS1 dr4300e-16_CVFF-NBU-RDFS1 dr4300e-16_CVFF-NBU-RDFS1 dr4300e-16_CVFF-NBU-RDCFS1 dr4300e-14_CVFF-NBU-RDCFS1 dr4300e-14_CVFF-NBU-RDFS1 dr4300e-14_CVFF-NBU-RDF51 dr4300e-	- Media S 3 1320 sys-41 1530 25 sy. Any Available 1320 sys-41 1630 25 sy. 1630 25 sy. 1630 25 sy. 1630 25 sy. Any Available 17320 sys-41 1630 25 sy. Any Available 17320 sys-41 1630 25 sy. Any Available 17320 sys-41 1630 25 sy. 17320 sys-41 1630 25 sy. 17320 sys-41 1630 25 sy. 17320 sys-41 1630 25 sy. 17320 sys-41 1050 25 sy. 17530 sys-41 1050 sy	Disk Disk Aedia Mari Aedia Mari Aedia Mari Disk Disk Disk Disk Disk Disk Disk Disk	Disk Type BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk	Robot Type Ro	nuvi foa
C Logging Assistant				Alert No	Officiations	

NOTE: Please review *QoreStor Interoperability Guide* for the supported maximum number of connections.

To change this number later at any time, go to the Storage Units panel, right click the storage unit, and select **Change...**.

Setting up QoreStor replication

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NOTE: For the steps in this procedure, assume QS1 is the replication source QoreStor system, and QS2 is the replication target QoreStor system. Additionally, 'source' is the replication source container, and 'target' is the replication target container.

Creating a CIFS/NFS replication session

- 1. Create a source container on the source QoreStor system.
- 2. Create a target container on the target QoreStor system.
- 3. On the source QoreStor system, go to the Replication tab. Click Add Replication.

plications					
Operating System:	Red Hat Enterprise Linux Server release 7.1 (Malpo)	CLEANER STATUS	CURRENT SAVINGS	CAPACITY USED 0.00 GB	PHYSICAL CAPACITY 4242.32 GB
System State:	Operational Mode	1	and a second second second second		
HostName:	qs-demo	TOTAL FILES	NUMBER OF CONTAINERS	NUMBER OF STORAGE GROUPS	DICTIONARY TYPE CLOUD-OPTIMIZED
System (D:	4232F006789CC06E413356A5E29E58C8				
Version:	5.0.0.156				
					Add Replicatio

4. Select the source container for replication and click Next.

Add Replica	>	<		
Source Cont	ainer:			
🖌 Local				٦
Remo	ote			
Select Local C	ontainer			
source				•
				ノ
Cancel	Prev	Next		

5. Select the Encryption Type for the source container. Click Next.

Add Replication	×
Encryption	
AES 128bit	
AES 256bit	
Cancel Prev	Next

6. Enter the target QoreStor systems information then click **Retrieve Remote Containers**. Select a target container from the populated list, and click **Next**.

Add Replication $ imes$
Replica Container
Remote
Username
admin
Password
Remote Machine
qspl-6000-07.systest.ocarina.local
Retrieve Containers
Select Remote Container
target 🔹
Cancel Prev Next

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

Add Replication >		
Summary		
So	urce container	
Source:	local	
Container:	source	
	Encryption	
Encryption:	aes256	
Re	plica container	
Replica Locatio	on: remote	
Container:	target	
Username:	admin	
Password:	******	
Machine:	qspl-6000-	
	07.systest.ocarina.local	
Cancel	Prev Finish	

8. Check Replication is added successfully and confirm the Replication details.

Restoring from the replication target

During a QoreStor system Disaster Recovery Scenario there are two options for restore. The first option is to simply reverse the replication configured between the source and target QoreStors, replicating all the data back to the original system. This option requires no re-configuration in NetBackup assuming the new source system has the original hostname or IP used. The second option is to import the images from the replicated system. This is a somewhat complicated process involving expiring the original images from the NetBackup master sever followed by a 2 phase import process in the Catalog section of the NetBackup administrator console. This will not be covered in detail as NetBackup covers this in several KB's and in their guides. See the following links:

- https://www.veritas.com/support/en_US/article.000018385
- https://www.veritas.com/support/en_US/article.TECH43584

Configuring QoreStor as a OST storage unit

OpenStorage Technology is a protocol used by Veritas NetBackup to optimize backup jobs to deduplication storage devices. Using OST enables Media Servers to assist in the deduplication process often providing for decreased backup windows and increased performance. It also achieves network savings preventing some data from being sent over the network. The OST Protocol requires a NetBackup license in order to use this functionality.

Creating an OST container for use with Veritas Netbackup

1 Select the **Storage Groups** tab, then expand the drop down you would like to add the container into. Click **Add container**.

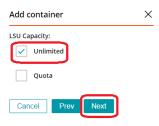
orage Groups						
Operating System: System State: HostName: System ID: Version:	Red Hat Enterprise Linux Server release 7.1 (Malpo) Operational Mode gs-demo 4232F006709CC06E413356ASE20E58Ch 5.0.0.156	CLEANER STATUS DONE TOTAL FILES 0	CURRENT SAVINGS ହର୍କ NUMBER OF CONTAINE ସ	CAPACITY US 0.00 GB RS NUMBER OF STORAG 1		PHYSICAL CAPACITY 4242.32 GB DICTIONARY TYPE CLOUD-OPTIMIZED
2	GROUP NAME	ENCOVPTION		ONTAINES:	ACTIONS	Add Storage Gro
9	DefaultGroup	Disabled	Fast	0 E Detail	e dit	@ Remove

Setting Up Quest® QoreStor™ with Veritas™ NetBackup™ -Configuring QoreStor as a OST storage unit

2 Under Protocol, select OST. Enter a Container Name and then click Next.



3 Set the LSU Capacity as needed, and click Next.



4 Review the configuration Summary page, and then click Finish.

Add container				
Co	ntainer	summary		
Name:	sam	ple		
Protocol:	OST			
Marker:	Auto			
Cor	nnection	summary		
Capacity:	Unlimited			
Cancel	Prev	Finish		
Cancel	Tiev	1 milisti		

Installing the OST plugin

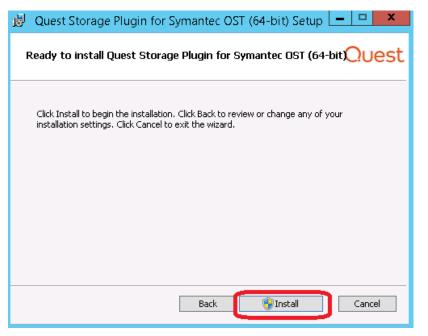
- 1 Before installing the OST plugin, the Media Server services will need to be stopped. The OST plugin should only be installed on Media/Master servers. Client side deduplication cannot be used with the Quest OST plugin. You can get the installation packages from the list of binaries provided by Quest, Inc.
- 2 On the Setup Wizard Welcome page, click Next.

👸 Quest Storage Plugin for Symantec OST (64	4-bit) Setup 💻 🗖 🗙
Welcome to the Qu Symantec OST (64	uest Storage Plugin for -bit) Setup Wizard
The Setup Wizard will install Symantec OST (64-bit) on y continue or Cancel to exit th	our computer. Click Next to
Back	Next Cancel

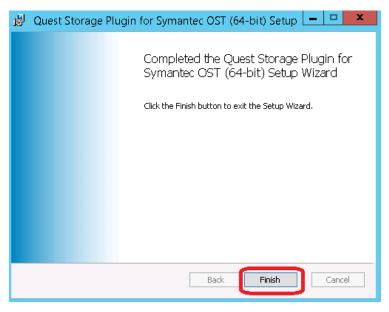
3 Accept the license agreement. Click Next.

岁 Quest Storage Plugin for Symantec OST (64-bit) Setup	_		x
End-User License Agreement Please read the following license agreement carefully	С)ue:	st
Software Transaction Agreement PLEASE READ THIS AGREEMENT CAREFULLY BEFORE USING THIS PRO DOWNLOADING, INSTALLING OR USING THIS PRODUCT, YOU ACCEPT AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT. FOR OI PLACED OUTSIDE THE UNITED STATES OF AMERICA, PLEASE GO TO < <u>http://quest.com/legal/sta.aspx></u> TO VIEW THE APPLICABLE VERSIO AGREEMENT FOR YOUR REGION. IF YOU DO NOT AGREE TO THE TERM CONDITIONS OF THIS AGREEMENT OR THE APPLICABLE VERSION OF T AGREEMENT FOR YOUR REGION, IF YOU DO NOT AGREE TO THE TERM CONDITIONS OF THIS AGREEMENT OR THE APPLICABLE VERSION OF T AGREEMENT FOR YOUR REGION, DO NOT DOWNLOAD, INSTALL OR US PRODUCT. IF YOU HAVE A SIGNED AGREEMENT WITH PROVIDER THAT SPECIFICALLY REFERENCED IN AN ORDER THAT IS EXECUTED BETWEE AND PROVIDER. THEN THAT SIGNED AGREEMENT WILL SUPERSEDE TH	AND RDERS ON OF TH S AND THIS E THIS IS IS IN YOU		
I accept the terms in the License Agreement			
Print Back Next		Iancel	

Setting Up Quest® QoreStor™ with Veritas™ NetBackup™ -Configuring QoreStor as a OST storage unit 4 Click Install to proceed with installation.



5 Click **Finish** to complete the installation of the OST plugin.



Configuring the OST device in Veritas Netbackup

Creating an OST Storage Unit consists of three steps in Netbackup. First the QoreStor device will need to be added as a Storage Sever. Next a Disk Pool of one or more containers from a Storage Server will need to be added. Finally, a Storage Unit can be created from the containers added to the Disk Pool.

Adding QoreStor system as a Storage Server

1 Launch the NetBackup administration console. Expand Media and Device Management, then Credentials. Select the Storage Servers section then right click anywhere in the storage servers panel on the right side of the screen. Click New Storage Server....

Credentials - R630-25.systest.ocarina.loca	al - NetBao	kup Administration Consol	e [SYSTES	T\dylanr logge	ed into R630 💻 📕	×
(a) Veritas NetBackup™						
<u>File Edit View Actions H</u> elp						
+ → È II ¦ L 4 × 2 h 2	<mark>螽</mark>	◎ 🗙 🖸 🍸 🗶 🔍			Login Acti	vity 🔻
R630-25.systest.ocarina.local (Master Server)	5 Storage	Servers (1 selected)			Search	7
■ R630-25.systest.ocarina.local (Master Server) ■ Mackup, Archive, and Restore		Name			Server Type	
- Activity Monitor		27.systest.ocarina.local		DELL		
🔶 🗒 NetBackup Management	dr4300	🗏 New Storage Server 🔌		DELL		
💽 🔁 Media and Device Management 🛄	dr4300	~		DELL		
- 👷 Device Monitor 🕶 🔤 Media	dr6300-			DELL		
e 🔁 Devices		A Change				
Credentials		😽 Update Storage Server Det	ails			
		Copy To Clipboard	Ctrl-C			
Storage Servers		Columns	•			
- 🙀 WebSocket Servers						
🗢 🖵 Security Management		🎪 Eind	Ctrl-F			
🗢 🍓 Bare Metal Restore Management		🍸 Fi <u>l</u> ter	Ctrl-T			
🗆 🕼 Logging Assistant		🎢 Clea <u>r</u> Filter	Ctrl-U			
	•	<u> </u>				•
	1 Media S	ervers (O selected)			Search	7
	r630-25.sys	stest.ocarina.local				
	•	II				•
				(U) A	lert Notification	

2 In the Storage Server Configuration Wizard, select the OpenStorage option and click Next.

	Storage Server Configuration Wizard
	Welcome to the Storage Server Configuration Wizard!
ey	The wizard helps you create and configure a storage server and a disk pool. Before you begin the storage server configuration, ensure that the following prerequisites are met:
	 The disk devices are deployed and configured as per the instructions by the storage system vendors.
	- 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.
	Select the type of disk storage that you want to configure. AdvancedDisk Media Server Deduplication Pool DureDisk Deduplication Pool
	Note: OpenStorage is a Veritas technology that lets you use the intelligent disk appliances provided by a vendor, as disk storage.
	Next > Cancel Help

3 On the following screen select the Media server dropdown and select the appropriate media server if needed. Then in Storage server type, enter "QUEST" without quotation marks. DO NOT click the Storage server type dropdown. In the Storage server name field, add the fully qualified domain name or IP address of the QoreStor server. In the User name field add the OST username configured on the QoreStor server. In the Password and Confirm password fields input the OST user password configured on the QoreStor server, Finally click Next. The default username is backup_user and the default password is Stor@ge!.

Storage Server Configuration	n Wizard X
Add Storage Server Provide storage serve	er details.
	at has the vendor's OpenStorage plug-in installed. Jia server to determine the storage server capabilities.
Media server:	r630-25.systest.ocarina.local 🔹
Storage server type:	QUEST
	QUEST
Storage server name:	qs-demo.systest.ocarina.local
Enter storage server cr	edentials
<u>U</u> ser name:	backup_user
Password:	•••••
Confirm password:	
<u> </u>	
	< <u>Back</u> <u>N</u> ext > <u>C</u> ancel <u>H</u> elp

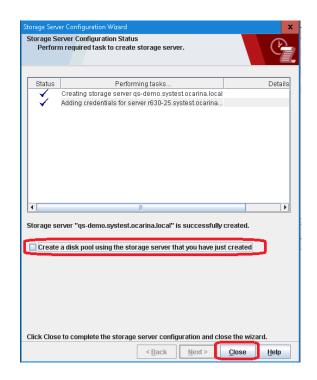
4 If additional Media Servers are available, you may select them for access now and click **Next**. If your environment only has one media server this screen will not show.

Storage Server Configuration Wizard
Additional Media Server Configuration for OpenStorage Devices Specify the media servers that should have access to the OpenStorage device.
Specify additional media servers to grant access to the OpenStorage device. These media servers will appear in the storage unit's media server selection list.
 ✓ Media Server ✓ R310-sys-83 ✓ r320-sys-41
< Back Next > Cancel Help

5 On the verify screen confirm all the information is accurate and click Next.

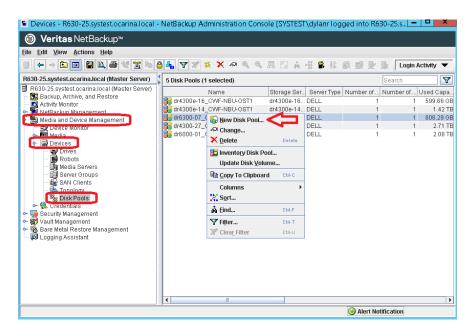
eview the storage server confi onfiguration, if required.	guration summary. You can change the
Storage server type:	QUEST
Storage server name:	qs-demo.systest.ocarina.local
Media server name:	r630-25.systest.ocarina.local
User name:	backup_user
Additional media servers:	r310-sys-83.systest.ocarina.local, r320-sys-41

6 On the next screen the storage server will be created and added to the list of storage servers. Uncheck the Create a disk pool using the storage server that you have just created check box and then click Close.



Creating a Disk Pool

 Launch the NetBackup administration console. Expand the Media and Device Management section followed by the Devices section. Select Disk Pools from the right hand side menu and right click anywhere in the Disk Pools panel on the right side of the screen. Click New Disk Pool...



2. In the **DiskPool Configuration Wizard** make sure the Storage server type is set to the OpenStorage (QUEST) option. Click **Next**

Disk Pool Configuration Wizard
Welcome to the Disk Pool Configuration Wizard!
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 instructions by the storage system vendors.
-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:
OpenStorage (QUEST)
OpenStorage (UELL)
Note: If you cannot see the required storage server type in the list, ensure that the appropriate license key is installed and the storage server of the specified type is defined.
Next > Cancel Help

3. Select the **QoreStor Storage Server** then click Next.

Disk Pool Configuration Wizard	x
Storage Server Selection Select storage servers to scan for disk	volumes.
Storage server:	
Name	Туре
CWE-2300v-01	QUEST
qs-demo.systest.ocarina.local	QUEST
QSPL-4300-26.systest.ocarina.local	QUEST
QSPL-4300-27.systest.ocarina.local	QUEST
QSPW-6300-46.systest.ocarina.local	QUEST
Note: If you cannot see a required storage storage server details are added in NetBac	
<bat< th=""><th>:k Next > Cancel Help</th></bat<>	:k Next > Cancel Help

4. In Select storage server volumes to add to the disk pool, select the OST container or containers created in pervious steps.

Disk Pool Configuration Wiza	rd				x
Select Disk Pool Propertie Select disk pool proper		ise in the dis	sk pool.		
Storage server: Storage server type: Disk pool configured for:	qs-demo.systest.oca QUEST Backup	arina.local]		
Disk Pool Properties and	Volumes				
A disk pool inherits the p properties can be added		es. Only volu	imes with si	milar	
If properties are specifie properties.	d, the list displays vol	umes that n	natch the sel	ected	
Replication source					
Replication target					
Select storage server vol	umes to add to the dis	sk pool.			
Volume	Name	Available	Raw Size	Replication	n
🗹 sample		3.86 TB	3.92 TB	None	
Total available space: Total raw size:	3.86 TB 3.92 TB				
	< <u>B</u> ack	<u>N</u> ext >	<u>C</u> ancel	Help	

5. In the Disk Pool name field add an appropriate name for this Disk pool then click Next

Disk Pool Configuration Wizard				
Additional Disk Pool Information Provide additional disk pool information.				
Storage server: qs-demo.systest.ocarina.local				
Storage server type: QUEST				
Disk pool configured for: Backup				
Disk Pool Size				
Total available space: 3.86 TB				
Total raw size: 3.92 TB				
Disk Pool name: Sample_DiskPool				
Comments:				
High <u>w</u> ater mark: 98 🗘 %				
Low water mark: 80 C %				
Maximum VO Streams				
Concurrent read and write jobs affect disk performance.				
Limit I/O streams to prevent disk overload.				
Limit I/ <u>O</u> streams: -1				
< Back Next > Cancel Help				

6. On the next screen verify the details are correct and click Next.

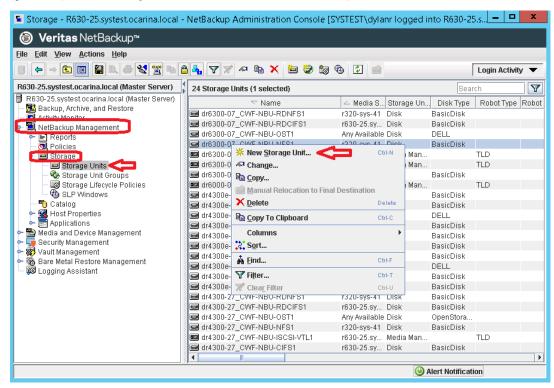
equired. itorage server:	gs-demo.systest.ocarina.local
itorage server type:	QUEST
olumes:	sample
isk Pool Details:	
lisk Pool name:	Sample_DiskPool
Configured for snapshots:	false
leplication:	None
ligh water mark:	98
ow water mark:	80
laximum 10 Streams:	Unlimited

7. On the next screen the **Disk Pool** will be created. Clear the **Create a storage unit using the disk pool that** you have just created option and click **Close**.

	Disk Pool Configuration Wizard	x
	iguration Status sk pool creation task.	
Status	Performing tasks	1
	NetBackup Disk Pool created	4
	pple_DiskPool" is successfully created. orage unit using the disk pool that you have just created	
Click 'Close' to	complete the disk pool configuration and close the wizard.	
	< <u>B</u> ack <u>N</u> ext > <u>Close</u> <u>H</u> elp	

Create a Storage Unit

 Launch the NetBackup administration console. Expand the NetBackup Management section followed by the Storage section. Select Storage Units from the right hand side menu and right click anywhere in the Storage Units panel on the right side of the screen. Click New Storage Unit...



 Add a name in the Storage unit name field. In the Storage unit type drop down, select Disk, then in the Disk Type drop down select OpenStorage (Quest). In the Select disk pool drop down select the Disk pool created in previous steps. Modify the Maximum concurrent jobs field as desired. Click OK.

New Storage Unit
Storage unit name:
Sample_Storage_Unit
Storage unit type:
Disk 📃 🔽 On demand only
Disk type:
OpenStorage (QUEST)
Properties and Server Selection
Storage unit configured for:
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 source
Replication target
Select disk pool:
Sample_DiskPool View Properties
Media server:
Use any available media server
Only use the following media servers
Media Servers
r630-25.systest.ocarina.local
Maximum concurrent jobs: Maximum fragment size:
20 C 524288 Megabytes
meganytes
OK Cancel Help

3. The storage unit should now be seen on the **Storage Unit** panel

R030 25.systeet.coarina.local (Master Server) R030 25.systeet.coarina.local (Master Server) So Satura, Achive, and Rastore Active Monitor NotStatura, Management Servers Rotset Sorage Units	25 Storage Units 1 selected). Name Sample_Storage_Unit areson 0.7_CVF-NBU-RDVF81 areson 0.7_CVF-NBU-RDCIF81 areson 0.7_CVF-NBU-RDCIF81 de5800.07_CVF-NBU-RDCIF81	- Media G., Biorage Un. Any Avaable Disk 1920-oys-41 Disk 1930-25 sy Disk	Disk Type OpenStorage BasyChisk	- Robol T
Daskup, Archive, and Rastore Activity Monitor NetBackup Management Policies Policies Policies	Gample Storage Unit arction 07_CVF-NBU-RONE 81 arction 07_CVF-NBU-RDONE 81	Any Available Disk r320-oys-41 Disk	OpenStorage	- RobolT_
Storage Unit Orcups Storage Liferode Antiles Calving Assatisfies	de309.07_CVM-H0U-KF3 de309.07_CVM-H0U-KF51 de309.07_CVM-H0U-KF51 de4309.15_CVM-H0U-KF51 de4309.15_CVM-H0U-KF51 de4309.16_CVM-H0U-KF51 de4309.27_CVM-H0U-KF51 de4500.20_F51 de500.20_F71 de50	1933 4239 Orion Am Ankiholiko Disk, 1200 4974 41 Orio, Disk, 1200 4974 41 Orio, Disk, 1200 4974 41 Orio, Disk, 12010 5210 1000 1600 125 500 Disk, 1200 6974 41 Orion 1200 5974 10 Orion 1200 5974 41 Orion 1200 5570 Disk, 1200 Disk, 1200 Disk, 1200 Disk, 1200 Disk,	BasicDisk DELL BasicDisk BasicDisk BasicDisk DELL BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk BasicDisk	TLD

NOTE: Please review the *QoreStor Interoperability Guide* for the supported maximum number of connections.

To change this number later at any time, go to the **Storage Units** panel, right click the storage unit, and select **Change...**

Configuring OST Optimized Duplication using a Storage Lifecycle Policy

Optimized Duplication is a way of duplicating or replicating OST backup images from one QoreStor system to another. In this duplication process only unique data is sent. This causes increased duplication performance while sending less data between the two QS system. This is achieved in NetBackup by configuring Storage Lifecycle Policy(SLP) which are, in effect, devices you can point backup jobs to. All backup jobs pointed to a SLP will write to a chain of storage units defined inside the SLP.

In the following example we will create a Storage Lifecycle Policy to duplicate jobs between two independent QoreStor systems. Before this example each QoreStor system will need separate Storage Units created in NetBackup. Follow the pervious section for each system to configure those storage units.

 Launch the NetBackup administration console. Expand the NetBackup Management section followed by the Storage section. Select Storage Lifecycle Policies from the right hand side menu and right click anywhere in the Storage Lifecycle Policies panel on the right side of the screen. Click New Storage Lifecycle Policy...

🔊 Storage - R630-25.systest.ocarina.local -	NetBackup Administration Console [S	SYSTEST\dylanr logg	ed into R630-25.s 🗕 🗖 🗙
⊚ Veritas NetBackup™			
<u>File Edit View Actions H</u> elp			
= + + 🔁 🖬 😫 💐 😤 🖿 🖴	🐴 🏹 🖉 🐘 🗙 🔤 🗑	🔁 🗈	Login Activity 🔻
R630-25.systest.ocarina.local (Master Server)	1 Storage Lifecycle Policies (0 selected)		Search 🍸
R630-25.systest.ocarina.local (Master Server)	Name		Data Classification
- Activity Monitor	BR4300-27_CWF-NBU-OST1_to_DR600	00-01_CWF-N	
E NetBackup Management			
Policies	% New Storage Lifecycle	Policy Ctrl-N	
- 🔤 Storage	APR Change		
Storage Units Storage Unit Groups	≫ <u>D</u> elete	Delete	
Lo Storage Lifecycle Policies	Ph Copy	Alt-C	
Catalog	All Suspend secondary op		
 Catalog Most Properties 	Activate secondary ope	erations	
- E Applications	Copy To Clipboard	Ctrl-C	
 Security Management 	Columns	•	
🗣 🐼 Vault Management	\$\$ S <u>o</u> rt		
 ⁶ ⁶	🐴 Eind	Ctrl-F	
We Logging Assistant	🍸 Fi <u>t</u> ter	Ctrl-T	
	₩ Clea <u>r</u> Filter	Ctrl-U	
			•
			Alert Notification

1 In the **Storage lifecycle policy name** field create a name for the policy. This is, in effect, the device name you select when configuring a backup policy. Then click **Add...**

S New Sto	age Lifecycle Policy
Storage Lifecycle Policy Validation Report	
Storage lifecycle policy name: Data classific Sample_SLP No data classific Operation Window Target Master Storage Volume	
Add Change Remove	
State of secondary operation processing	To find impact on Policies associated with this SLP due to change in configuration click here.
	<u>Q</u> K <u>C</u> ancel <u>H</u> elp

 In the Operation drop down, select Backup. In the Destination Storage drop down select the desired Storage Unit. This will be the unit that the traditional backup will occur to. In the Retention period section select the desired backup retention. Click OK.

1	New Operation
Properties Source storage: Operatio <u>n</u> : Backup	
Destination Storage Attributes Destination storage: Sample_Storage_Unit Volume pool: NetBackup Media owner: Any	Retention Retention type: Fixed Retention period: 2 weeks (Retention Level 1)
	<u>O</u> K <u>C</u> ancel <u>H</u> elp

3. On the New Storage Lifecycle Policy page. click Add...

Setting Up Quest® QoreStor™ with Veritas™ NetBackup™ -Configuring QoreStor as a OST storage unit

i i			N	ew Storage	e Lifecycle Po	licy			
Storage Lifeo	cycle Policy	Validation Rep	ort						
Storage lifec	ycle policy nai	ne:	<u>D</u> ata (classification	к: <u>Е</u>	Priority for seco	ondary operati	ions:	
Sample_SLF)		<no (<="" th=""><th>lata classific</th><th>ati 🔻</th><th>0</th><th>(higher numb</th><th>er is greater p</th><th>riority)</th></no>	lata classific	ati 🔻	0	(higher numb	er is greater p	riority)
Operation Backup	Window	Target Master	Storage Sample		ol Media Owner		Retention P 2 weeks	. Alternate Re	. Preserve m. No
• •	+ +	→							
	+ + Change	_⇒ <u>R</u> emove]						
1 Add	Change]	To		Policies associ	ated with this	SLP due to	
1 Add	Change	Remove]		III find impact on F ange in configur			SLP due to	()
Add State of sect	Change ondary operat	Remove		cha	find impact on F	ation click here	э.	SLP due to	
Add State of seco Active	Change ondary operat	Remove		cha	find impact on F ange in configur	ation click here	э.	SLP due to	4

4. In the **Operation** drop down, select **Duplication**. In the **Destination Storage** drop down, select the desired Storage Unit. This will be the unit duplication/replication will occur to. In the **Retention period** section select the desired backup retention, note replication on both storage units can be different. Click **OK**.

Ne Ne	w Operation
Properties Window Source storage: Sample_Storage_Unit (Backup)	
Operation: Duplication	
Destination Storage Attributes Destination storage: Sample_Storage_Unit Volume pool: NetBackup Media owner: Any	Retention Retention type: Fixed Retention period: 2 weeks (Retention Level 1) Duplication Alternate read server: Preserve multiplexing
Postpone creation of this copy until the source copy i	is about to expire Advanced
	<u>Q</u> K <u>C</u> ancel <u>H</u> elp

i

NOTE: Default behavior is to duplicate backup images between devices as soon as a backup job finishes. If duplication should only occur during specific windows of time, such as daytime, then that can be configured in the Window tab.

5. You should now see the operations in the order they are perform listed on the pervious screen.

5	New Storage Li	fecycle Po	blicy			x
Storage Lifecycle Policy Validation Report						
Storage lifecycle policy name:	oata classification:			ondary operations:		
Sample_SLP	<no classificati.<="" data="" th=""><th> 🔻</th><th>0</th><th>(higher number is gro</th><th>eater priority)</th><th></th></no>	🔻	0	(higher number is gro	eater priority)	
Operation Window Target Master		Pool Medi		ion Ty Retention P		
	Sample		Fixed	a neene		No
Duplication Default_24x	🛃 Sample		Fixed	2 Weeks		No
<u> </u>						
Add Change Remove						
State of secondary operation processing	To find	Limmont on	Delining appendi	ated with this SLP due	. **	
Active			ration click here		; 10	
Postponed	Val	idate Acros	s Backup Polici	95		
Until 7/26/17 2:51 PM	<u></u>		o Duckup Folick			
				<u>O</u> K <u>C</u> a	ancel	Help

6. This process can be repeated to a chain or multiple chains of duplication. Once finished click **OK**.

5			New Stora	ge Lifecycle	Policy				x
Storage Lifecycle Policy	Validation	n Report							
Storage lifecycle policy	name:	Į	<u>)</u> ata classificati	on:	Priority for s	econdary ope	erations:		
Sample_SLP			<no classif<="" data="" td=""><td>īcati 🔻</td><td>0</td><td>) (higher nu</td><td>imber is great</td><td>er priority)</td><td></td></no>	īcati 🔻	0) (higher nu	imber is great	er priority)	
Operation	Window	Target Mast		Volume Pool				Alternate Re	
Backup			🖃 Sample			ixed	2 weeks		No
Duplication	Default_24x		🖻 dr4300			ixed	2 weeks		No
Duplication	Default_24x		dr4300e			ixed	2 weeks		No
Duplication Duplication	Default_24x Default_24x		dr4300e Sample			Fixed Fixed	2 weeks 2 weeks		No No
 ↑ ↓ ▲ ▲ Add Change 	← →								
State of secondary ope Active Postponed Until 7/	26/17 2:51 PM			hange in confi	on Policies asso guration click h oss Backup Po	iere.	his SLP due to		
						<u>o</u> ĸ		el <u>H</u> el	p

Setting up the QoreStor Series system 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 system cleaner can be scheduled. The QoreStor system cleaner should run at least 40 hours per week when backups are not taking place, and generally after a backup job has completed. Refer to the *QoreStor Series Cleaner Best Practices* white paper for guidance on setting up the cleaner.

1 In the QoreStor system GUI, Click the System Configuration tab then click Edit Schedule.

ystem Configuration					
Operating System: System State: HostName: System ID: Version:	Red Hat Enterprise Linux Server release 7.1 (Maipo) Operational Mode qs-demo 4232F006789CC06E413356A5E29E58C8 5.0.0.156	CLEANER STATUS DONE TOTAL FILES 0	CURRENT SAVINGS 0 % NUMBER OF CONTAINERS 1	CAPACITY USED 0.00 GB NUMBER OF STORAGE GROUPS 1	PHYSICAL CAPACITY 4242.32 GB DICTIONARY TYPE CLOUD-OPTIMIZED
		Clear	ner Schedule		Upload SSL Certifica
				Run Cleane	er Once Edit schedu
DAY			START TIME	END TH	
DAy Monday			TART TIME 13:00	END TI 18:0	ME
Monday					ме 0
			13:00	18:0	ме 0 0
Monday Tuesday Wednesday			13:00 13:00	18:0	ME 0 0
Monday Tuesday			13:00 13:00 13:00	18:0 18:0	ME 0 0
Monday Tuesday Wednesday Thursday			13:00 13:00 13:00 13:00	18:0 18:0 18:0 18:0	ME 0 0 0 0

2 Define the schedule and click Submit.

		Cleaner Schedule	
			Cancel Submit
ACTION	DAY	START TIME	END TIME
⊖ Remove	Monday	06:00	18:00
⊖ Remove	Tuesday	06:00	18:00
⊖ Remove	Wednesday	06:00	18:00
⊖ Remove	Thursday	06:00	18:00
⊖ Remove	Friday	06:00	18:00
⊖ Remove	Saturday	06:00	18:00
⊖ Remove	Sunday	06:00	18:00

The new cleaner event is displayed on the System Configuration Tab.

stem Configuration					
Operating System:	Red Hat Enterprise Linux Server release 7.1 (Maipo)	CLEANER STATUS DONE	CURRENT SAVINGS 0 %	CAPACITY USED 0.00 GB	PHYSICAL CAPACITY 4242.32 GB
System State: HostName:	Operational Mode qs-demo	TOTAL FILES	NUMBER OF CONTAINERS	NUMBER OF STORAGE GROUPS	DICTIONARY TYPE CLOUD-OPTIMIZED
System ID:	4232F006789CC06E413356A5E29E58C8				
Version:	5,0.0.156				
					Upload SSL Certificate
		Clear	ner Schedule		
DAÝ		2	START TIME	Run Clean	
		3	17ART TIME 06:00		TIMÈ
Monday				END T	TIME
DAY Monday Tuesday Wednesday		5	06:00	END T 18:0	200 200
Monday Tuesday Wednesday		3	06:00 06:00	END 1 18:1 18:1	IME 000 000
Tuesday		3	06:00 06:00 06:00	END T 18:0 18:0 18:0	TIME 000 000 000
Monday Tuesday Wednesday Thursday		5	06:00 06:00 06:00	END 1 18:0 18:0 18:0 18:0 18:0	IME 000 000 000 000

Monitoring deduplication, compression and performance

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

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.

