Quest

Setting Up Quest[®] QoreStor™ with Veeam[®] Backup & Replication[™]

Technical White Paper

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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 Veeam® Backup & Replication™ Updated – February 17, 2023

Contents

Configuring QoreStor as a CIFS/NFS Repository	6
Creating a CIFS container for use with Veeam	6
Adding the QoreStor CIFS container as a repository in Veeam	8
Creating a NFS container for use with Veeam	14
Adding the QoreStor NFS container as a repository in Veeam	16
Configuring Rapid CIFS for Veeam	21
Windows prerequisites	22
Installing Rapid CIFS on a Veeam Windows Proxy	22
Creating a backup job with the QoreStor system as target	25
Setting up QoreStor system replication	31
Creating a CIFS/NFS replication session	31
Restoring from the replication target	33
Using QoreStor as a Veeam Scale-Out Capacity Tier via Object Container(S3) .	39
Creating an Object Container(S3) in QoreStor	40
Adding the QoreStor Object Container(S3) as a repository in Veeam	42
Adding the Object Container(S3) as a capacity tier to a Scale-Out repository	49
Using Instant Recovery with QoreStor	52
Instant Recovery with ESX	52
Enabling Instant Recovery with ESX	52
Performing Instant Recovery for ESX	53
Instant Recovery with Hyper-V Server	58
Enabling Instant Recovery with Hyper-V	58
Performing Instant Recovery for Hyper-V	58
Finalizing Instant Recovery	64
Migrating VM to production	64
Terminating the Instant VM Recovery Session	64
QoreStor and Veeam Fast Clone for Hyper-V 2016 backups or Data Copy	65
Requirements of Fast Clone	65

Setting Up Quest® QoreStor™ with Veeam® Backup & Replication™ Contents

Configuring a new Fast Clone Repository	66
Reconfiguring an Existing QoreStor Repository for Fast Clone	68
	70
Performance Tier	70
Setting up Performance Tier with QoreStor	71
Optimizing Performance Tier via Sync Always option	73
Cloud/Archive Tier	74
Cloud Tier	74
Important Considerations for Cloud Tier with Veeam	74
Setting up Cloud Tier	76
Archive Tier	79
Important Considerations for Cloud Tier with Veeam	79
Setting up Archive Tier	79
Setting up the QoreStor system cleaner	82
Monitoring deduplication, compression and performance	84

Executive Summary

This paper provides information about how to set up Quest[®] QoreStor[™] as a backup target for Veeam[®] Backup & Replication[™] software.

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

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

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NOTE: The QoreStor and Veeam screenshots used in this document may vary slightly, depending on the QoreStor and Veeam versions you are using.

Configuring QoreStor as a CIFS/NFS Repository

1

Creating a CIFS container for use with Veeam

1 Select the Containers tab, then click Add container.



2 Enter a container Name, select a Storage Group, or leave the DefaultGroup option selected, and select NAS (NFS, CIFS) from the Protocol dropdown menu. Click Next.

Add Container	
DefaultGroup	•
NAS (NFS, CIFS)	•
Cancel	Prev Next

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

Add Container	
Auto	
Select All	
CIFS	

4 Fill in the CIFS Client Access options if needed then click Next.



- **NOTE:** For improved security, Quest recommends adding IP addresses for only Veeam servers/proxies.
- 5 On this page, the Recycle Bin feature may be enabled, please check the user guide for more information. Click **next**.

Recycle Bin	
Cancel Prev Next	

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



Adding the QoreStor CIFS container as a repository in Veeam

CAUTION: To maximize the QoreStor and Veeam deduplication savings and performance, Quest recommends using the <u>exact</u> settings in this guide for all the data being backed up.

The backup data will change format completely when backup settings are changed. Hence, to get accurate savings numbers, all the data should be backed up with the same settings.

- 1 Open the Veeam Backup & Replication console.
- 2 If using Veeam 9.5 U3 or lower, select the dropdown Menu and click General Options.
- 3 Check the **Enable parallel processing** option in the I/O Control tab and click **OK**. This option will be missing in Veeam 9.5 U4 and higher as it's automatically enabled by default.

Options	×
I/O Control E-mail Settings SNMP Settings Notifications History	
Enable parallel processing Makes backup, replication and restore jobs process multiple virtu virtual machines in parallel, rather than sequentially.	al disks and
Enable storage latency control	
Define desired primary storage latency limits to ensure running jo impact storage availability to production workloads.	bs do not
Stop assigning new tasks to datastore at:	20 🗘 ms
Throttle I/O of existing tasks at:	30 🔶 ms
Set custom thresholds on individual datastores	Configure
OK Cancel	Apply

4 In the Backup Infrastructure section, right-click Backup Repositories, and select Add Backup Repository.

	VEEAM BACKUP AND REPLICATION						
Add Edit Remove Repository Repository Repository Manage Repository	grøde						
BACKUP INFRASTRUCTURE	Q Type in an object nat	ne to search for	×				
Backup Proxies	NAME 🕹	TYPE	HOST	PATH	CAPACITY	FREE	DESCRIPTION
Backup Providence Add Backup Repository	Default Backup Rep	Windows	DMA-server1.te	C:\Backup	599.7 GB 7.8 TB	79.7 GB	Created by Veeam Backup Created by DMA-SERVER1) Administrator at 3/2/2
WAN Accelerators Wan Accelerators Arrive provides ForeBack and Application Groups Application Groups Manage derives Manage derives Manage derives Manage derives							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

5 Enter a name for the QoreStor container repository and click **Next**.

	Edit Backup Repository	x
Name Type in a name and	i description for this backup repository.	
Name Type Share Repository vPower NFS Review Apply	Name: source Description: Created by RAMATEJA-W12-V6VAdministrator at 3/24/2015 9:53 AM.	
	< Previous Next> Finish Cance	1

6 Select Shared folder as the type of backup repository, and click Next.

	New Backup Repository
Choose typ	e of backup repository you want to create.
Name Type Server Repository vPower NFS Review Apply	 Microsoft Windows server (recommended) Microsoft Windows server with internal or directly attached storage. Data mover process running directly on the server allows for improved backup efficiency, especially over slow links. Linux server (recommended) Linux server allows for more efficient backups, especially over slow links. Shared folder CIFS (SMB) share. When backing up over slow links, we recommend that you specify a gateway server located in the same site with the shared folder.
	Deduplicating storage appliance Advanced integration with EMC Data Domain, ExaGrid and HP StoreOnce. For basic integration, use the Shared folder option above. < <u>Previous</u> < <u>Previous</u> Email Cancel

7 In the **Shared folder** field, enter the QoreStor container share UNC path (or TCP/IP address to replace hostname), select the **Gateway Server**, and click **Next**.

	Edit Backup Repository
	Share Type in UNC path to share (mapped drives are not supported), specify share access credentials and how backup jobs should write data to this share.
Name Type Share Repositor vPower N Review Apply	Shared folder: M10.250.241.229\source Browse This share requires access credentials: Manage accounts Cateway server: Automatic selection The following server: This server V Use this option to improve performance and reliability of backup to a NAS located in a remote site.
	< <u>Previous</u> <u>Finish</u> Cancel

8 Customize the repository settings by clicking **Advanced**.

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- **i NOTE:** Please check the QoreStor Interoperability Guide for the maximum concurrent jobs supported for CIFS/NFS. The maximum concurrent tasks also depend upon the number of CPU cores of Veeam Servers or proxies.
- 9 Check the Decompress backup data blocks before storing and Align backup file data blocks options:

NOTE: Deselecting the Decompress backup data blocks before storing or the Align backup files data blocks option can negatively impact your overall storage savings and performance. It is especially not recommended to switch these settings after data has been written to QoreStor.



Warning: It is not recommended to change the setting for option Align backup file data blocks after backups are taken as it will impact the deduplication savings for future backups.

10 Check the Use Per-VM Backup Files option and click OK:

The Per-VM backup file option causes a per-restore point backup file to be created. In other words, this causes each VM's restore point to be placed in a dedicated backup file.

	New Backup Repository	x
Reposito Type in p	Storage Compatibility Settings	
Name Server Repository Mount Server Review Apply	 Align backup file data block: Aliows to achieve better deduplication ratio on deduplicating storage devices leveraging constant block size deduplication. Increases the backup size when backing up to raw disk storage. Compression storage data blocks before storing W data is compressed by backup proxy according to the backup job compression straing allow for achieving tetre deduplication ratio on nost deduplicating storage appliances at the cost of backup performance. This repository is backed by rotated hard drives Backup jobs pointing to this repository will telerate the disappearance of previous backup files to rating inservated hard drives, and track backup repository location ratios on the heavy inserted hard drives, and track backup repository location ratios on the backup files provide backup files the provide backup files may improve performance with storage devices benefiting for multiple I/O streams. This is the recommended setting when backting item devices benefiting for multiple I/O streams. This is the recommended setting when backing his to rate data backup item data backup files to provide backup files to prove the storage devices benefiting for multiple I/O streams. This is the recommended setting when backup files to provide backup files the data backup files to provide backup files the data backup files to prove the storage appliances. 	e overall performance, the following settings:
	Click Advanced to customize repository settings	Advanced
	< Previous Next > Fi	nish Cancel

Warning: Make sure to enable the Enable parallel data processing option in step 3 if using Veeam 9.5 U3 or below

NOTE: This enables multiple write streams within a single job with parallel processing enabled. Enabling multiple streams dramatically improves overall job backup performance. So it is recommended to use per-VM backup files options for better backup throughput.

11 Click Next.

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12 If you wish to use the Instant Recovery feature, enable the vPower NFS setting.



Setting Up Quest® QoreStor™ with Veeam® Backup & Replication™ Configuring QoreStor as a CIFS/NFS Repository 13 On the review page, verify the settings, and click **Next** to apply changes.

	Edit Bac	kup Repository	×
Please review	w the settings, and click Next to continu	e.	
Name Type Share Repository vPower NFS	Backup repository properties: Repository type: Mount host: Account: Backup folder: Write throughput: Max parallel tasks:	CIFS This server Administrator \\10.250.241.229\source Not limited 4	
Review			
Apply	The following components wi Installer vPower NFS	il be processed on server This server already exists already exists	
	Import existing backups a	suformatically stem index	
		< Previous Next > Finish Ca	ncel

14 Click Finish.

	Edit Backup Repository	
Please wait	while backup repository is created and saved in configuration. This may take a few minutes	
Name	Log	
Type Share Repository vPower NFS Review	Message CRegistering client RAMATEJA-W12-V6 for package vPower NFS Discovering installed packages All required packages have been successfully installed Creating server configuration Reconfiguring vPower NFS service Creating configuration database records for installed packages Creating database records for repository Creating database records for repository Creating backup repository has been added successfully	Duration
Apply		
	< Previous Next > Finish	Cancel

Creating an NFS container for use with Veeam

1 Select the **Containers** tab, then click **Add container**.

Quest QoreStor		\$	$\hat{\Box}$ admin ~
II Dashboard	Containers (0)	Version	System Status
Containers		6.0.0.670	🗸 Healthy
😫 Local Storage 🛛 🗸 🗸			
🗅 Cloud Tier			
Replications		$\mathbf{\cap}$	
🖬 System 🗸 🗸		U	
Q Diagnostics	No Con	tainers Available	
A Users			
🛱 Events		ad Container	

2 Enter a container **Name**, select a **Storage Group** or leave the **DefaultGroup** option selected, and select **NAS** (**NFS**, **CIFS**) from the **Protocol** dropdown menu. Click **Next**.



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



4 Fill in the NFS Client Access options if need then click Next.



- **NOTE:** For improved security, Quest recommends adding IP addresses for only Veeam servers/proxies
- 5 On this page, the Recycle Bin feature may be enabled, please check the user guide for more information. Click **Next**.



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



Adding the QoreStor NFS container as a repository in Veeam

i NOTE: The Veeam Server is supported on Windows only. To configure an NFS container from QoreStor as a backup repository a Linux server where the NFS container would be mounted is required.

CAUTION: To maximize the QoreStor and Veeam deduplication savings and performance, Quest recommends using the <u>exact</u> settings in this guide for all the data being backed up.

The backup data will change format completely when backup settings are changed. Hence, to get accurate savings numbers, all the data should be backed up with the same settings.

- 1 Open the Veeam Backup & Replication console.
- 2 If using Veeam 9.5 U3 or lower, select the dropdown Menu and click General Options
- 3 Check the **Enable parallel processing** option in the I/O Control tab and click **OK**. This option will be missing in Veeam 9.5 U4 and higher as it's automatically enabled by default.
- 4 In the Backup Infrastructure section, right-click Backup Repositories, and select Add Backup Repository.

Щ =- н					VEEAM BACKUP AND REPLICATION -								
Add Repository Mar BACKUP IN Bac Bac Bac Bac Sca Sca Sca Sca Sca Sca Sca Sca Sca S	Edit Repository nage Reposit FRASTRUCT kup Proxies kup Proxies N Accelerator vice providers eBackup	ACKUP REPO Remove Repository JURE	SITORY Rescan Repository Repository.	Upgrade ols	Type in an object na WE↓ Default Backup Rep source	me to search for TYPE Windows CIFS	HOST DMA-server1.te	PATH C\Backup \\10.250.241.23	CAPACITY 599.7 68 7.8 TB	FREE 79.7 GB 6.0 TB	DESCRIPTION Created by Veeam Backup Created by DMA-SERVERT\Administrator at 3/2/2		
▲ (會 Mar ▲ (會 Mar ▷ (會 \ ■ 1	Application on Virtual Labs naged servers VMware vSph Microsoft Wini	ere dows											

5 Enter a name for the QoreStor container repository and click Next.

	Edit Backup Repository
Type in a name and	I description for this backup repository.
Name Type Share Repository vPower NFS Review Apply	Name: source Description: Created by RAMATEJA-W12-V6VAdministrator at 9/24/2015 9:53 AM.
	< Previous Next > Finish Cancel

6 Select Linux Server (recommended) as the type of backup repository, then click Next

Name	O Microsoft Windows server (recommended)
lype	Microsoft Windows server with internal or directly attached storage. Data mover process running directly on the server allows for improved backup efficiency, especially over slow links.
erver	Unux server (recommended)
epository	Linux server with internal, directly attached, or mounted NFS storage. Data mover process running directly on the server allows for more efficient backups, especially over slow links.
Power NFS	
leview ppły	 Shared toker CIFS (SMB) share. When backing up over slow links, we recommend that you specify a gateway server located in the same site with the shared folder.
	O Deduplicating storage appliance
	Advanced integration with EMC Data Domain, ExaGrid and HP StoreOnce. For basic integration, use the Shared folder option above.

7 Add the New Repository server (Linux) or select the server from the list if added already.

		New Backup Rep	oository		×
Choose server ba	cking your repository.	You can select server fr	om the list of managed servers ad	ided to the co	nsole.
Name	Repository serv	er:			
Туре	10.250.213.24	[Created by DMA-SERV	ER1VAdministrator at 3/22/2016	5:56.AM ¥	Add New
Server	Path	•	Capacity	Free	Populate
Repository					
Mount Server					
Review					
Apply					
		<	Previous Next >	Finish	Cancel

8 Mount the QoreStor NFS Container onto a Linux Server.

i

[root@r320-sys-41	~]#	mkdir	/m	nt/ni	fs	
[root@r320-sys-41	~]#	mount	-t	nfs	6300-07:/containers/sample	/mnt/nfs
[root@r320-sys-41	~]#					

9 Enter the container mount path. Then customize the repository settings by clicking the **Advanced** button.

	New Backup Repository
Repository Type in path to the	folder where backup files should be stored, and set repository load control options.
Name Type Server Repository	Location Path to folder: //m///tid Expansive Free space:
vPower NFS Review Apply	Load control Running too many concurrent jobs against the same repository reduces overall performance, and may cause storage I/D operations to timeout. Control repository saturation with the following Limit maximum concurrent tasks to: Limit combined data rate to: MB/s
	Click Advanced to customize repository settings Advanced
	< Previous Next > Finish Cancel

NOTE: Please check the QoreStor Interoperability Guide for the maximum concurrent jobs supported for CIFS/NFS. The maximum concurrent tasks also depend upon the number of CPU cores of Veeam Servers or proxies.

10 Check the **Decompress backup data blocks before storing** and **Align backup file data blocks** options:

NOTE: Deselecting the Decompress backup data blocks before storing or the Align backup files data blocks option can negatively impact your overall storage savings and performance. It is especially not recommended to switch these settings after data has been written to QoreStor.

	Edit Backup Repository	X
Repository Type in path to the	e folder where backup files should be stored, and set repository load control options.	_
Name	Storage Compatibility Settings ×	
Type Server	Align backup file data blocks Allows to achieve better deduplication ratio on deduplicating storage devices leveraging constant block size deduplication. Increases the backup size when backing up to raw disk storage.	Browse
Repository	Decompress backup data blocks before storing	
Mount Server Review	VM data is compressed by backup proxy according to the backup job compression settings to minimize LAN traffic. Uncompressing the data before storing allows for achieving better deduplication ratio on most deduplicating storage appliances at the cost of backup performance.	erformance,
	This repository is backed by rotated hard drives	ing settings.
Apply	Backup jobs pointing to this repository will tolerate the disappearance of previous backup files by creating new full backup, clean up backup files no longer under retention on the newly inserted hard drives, and track backup repository location across unintended drive letter changes.	
	✓ Use per-VM backup files	
	Per-VM backup files may improve performance with storage devices benefiting from multiple I/O streams. This is the recommended setting when backing up to deduplicating storage appliances.	
	OK Cancel	Advanced
	< Previous Next > Finish	Cancel

Warning: It is not recommended to change the setting for option Align backup file data blocks after backups are taken as it will impact the deduplication savings for future backups.

11 Check the Use Per-VM Backup Files option and Click OK:

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The Per-VM backup file option causes a per-restore point backup file to be created. In other words, this causes each VM's restore point to be placed in a dedicated backup file.

	New Backup Repository	x
Reposito Type in p	Storage Compatibility Settings	
Name Server Repository Mount Server	✓ Align backup file data blocks Allows to achieve better deduplication ratio on deduplicating storage devices leveraging constart block size deduplication. Increases the backup size when backing up to raw disk storage. ✓ Decompress backup data blocks before storing VM data is compressed by backup proxy according to the backup job compression settings to minimize LAN traffic. Uncompressing the data before storing allows for achieving better deduplication ratio on most deduplicating	Browse Populate
Review Apply	torage appliances at the cost of backup performance. This repository is backed by rotated hard drives Backup jobs pointing to this repository will tolerate the disappearance of previous backup files by creating hard hard drives, and track backup repository location across unintended drive letter changes. Veper+VM backup files Per-VM backup files Per-VM backup files Per-VM backup files OK Cancel	e overall performance, • the following settings:
	Click Advanced to customize repository settings	Advanced
	< Previous Next >	inish Cancel

Warning: Make sure to enable the Enable parallel data processing option in step 3 if using Veeam 9.5 U3 or below

NOTE: This enables multiple write streams within a single job with parallel processing enabled. Enabling multiple streams dramatically improves overall job backup performance. So it is recommended to use per-VM backup files options for better backup throughput.

12 Click Next.

i

13 Optionally, if you wish to use the Instant Recovery feature, enable the vPower NFS service setting.

	New Backup Repository	x
Mount Server Specify a server to backup files, enabli	mount backups to for Re-level restores. vPower NFS service allows for running virtual machines directly advanced functionality such as Instant VM Recovery, SueBackup and Dn-Demand Sandbox.	from
Name Type Server	Mount server: DMA-server1.testad ocarina.local (Backup server) ✓ Enable VPower NFS service on the mount server (seconsended) Specify VPower NFS write cache location on the mount server. Make sure the selected volume	.
Mount Server	nai enough nee dax, space available to store changed dax, blocks of instanty recovered VHS. Folder: Crivesamdala Browse.	J
Apply		
	Click Ports to change NFS server and backup mount listener ports	
	< Previous Next> Finish Cancel	

14 On the review page, verify the settings, and click **Next** to apply changes.

	New	Backup Repository	×
Review Please revie	w the settings, and click Next to cor	tinue.	
Name	Backup repository proper	ties:	
Tune	Repository type:	Linux	
Type	Mount host	DMA-server1.testad.ocarina.local	
Server	Account	root	
Repository	Backup folder:	/mnt/vecam	
Marrad Canada	Write throughput:	Not limited	
Mount Server	Max parallel tasks:	4	
Review	The following component	ts will be processed on server DMA-server1.testad.ocarina.locat	
Apply	Transport	already exists	
	vPower NFS	already exists	
	Mount Server	already exists	
	Import existing backs	ps automatically	
	Import guest fi	le system index	
		< Previous Next > Finish	Cancel

15 Click Finish.

Please wait w	Edit Backup Repository	
Name Type Share Repository vPower NFS Review	Log: Message Registering client RAMATEJA-W12-V6 for package vPower NFS Discovering installed packages All required packages have been successfully installed Detecting server configuration Reconfiguring vPower NFS service Creating configuration database records for installed packages Creating database records for repository Reckup repository bas been added successfully	Duration
Apply	< Previous Next > Finish	Cancel

Configuring Rapid CIFS for Veeam

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

Windows prerequisites

- The Media Agent OS must be the 64-bit version of Windows 2008 R2, 2012/R2, 2016, or 2019.
- **NOTE:** For the accelerator to work properly, the backup traffic must go directly to the QoreStor system. For Veeam, you should install RDCIFS on the Veeam Proxy pushing the data. Install location can depend on the transport mode used. For network mode, it is installed on the Veeam server itself. For HotAdd mode it needs to be installed on the HotAdd proxy in the virtual environment. For SAN mode it needs to be installed on the Veeam Server/Proxy which has direct access to the SAN storage. For Off-Host it needs to be installed on the Veeam Proxy pushing the data, for On-host it should be installed on the Hyper-V server or cluster being backed up.

Installing Rapid CIFS on a Veeam Windows Proxy

The Secure Connect feature is a set of client and server components that creates a secure channel for QoreStor communication with WAN-connected clients that is also resilient to WAN outages. This is generally only suggested for use over WAN.

Follow these steps to install Rapid CIFS.

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



5 Read and accept the license agreement to proceed. Click Next when ready.

🙀 Quest Rapid CIFS Filter Driver - Setup Wizard		x
License Agreement Please read the following license agreement carefully.	Quest	t
Software Transaction Agreement PLEASE READ THIS AGREEMENT CAREFULLY BEFORE USING THIS PRO DOWNLOADING, INSTALLING OR USING THIS PRODUCT, YOU ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT. FOR ORDERS PLA THE UNITED STATES OF AMERICA, PLEASE GO TO <u>shttp://quest.com</u> TO VIEW THE APPLICABLE VERSION OF THIS AGREEMENT FOR YOUR DO NOT AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT APPLICABLE VERSION OF THIS AGREEMENT FOR YOUR REGION, DO N INSTALL OR USE THIS PRODUCT. IF YOU HAVE A SIGNED AGREEMENT THAT IS SPECIFICALLY REFERENCED IN AN ORDER THAT IS EXECUTED AND PROVIDER. THEN THAT SIGNED AGREEMENT WILL SUPERSEDE TH	DDUCT. BY AND AGREE TO CED OUTSIDE (legal/sta.aspx> REGION. IF YOU T OR THE OT DOWNLOAD, WITH PROVIDER D BETWEEN YOU IIS AGREEMENT.	~
 <u>■ accept the terms in the license agreement</u> <u>I do not accept the terms in the license agreement</u> 	<u>P</u> rint	
InstallShield < <u>B</u> adk <u>N</u> ext >	Cancel	

6 If installing with secure connections for WAN use check the securely connect box. Click Next.

🙀 Quest Rapid CIFS Filter Driver - Setup Wizard	x					
Configure Secure Connect	Quest					
Secure Connect feature ensures backups to QoreStor are complete, despite slow and unreliable WAN connections. Secure Connect sets up a Secure Reliable connection between the local client using TLS v. 1.2 using 256-bit encryption that has auto reconnection capabilities to ensure backups complete successfully. Ensure a user is created on QoreStor that has secure connect privileges enabled to complete the configuration.						
When selecting this option further configuration is required at the next step of the installation. Secure Connect will not function without the configuration. The configuration settings can be changed at any time after the installation with usage of the "Repair" option of this installer.						
Install a secure connection						
InstallShield	Next > Cancel					

a If installing with a secure connection insert the **IP/FQDN**. The **Display Name** field will autopopulate from the **IP/FQDN** field. The default **username** and **password** are *backup_user* and *St0r@ge!* (With a zero in place of the letter O).

Configure Sec	cure Connect
This configuration	on is used to setup secure connection to QoreStor server. CIUESU
IP/FQDN - Ente	r a real IP address or FQDN of the remote QoreStor server.
Display name - (QoreStor will us	Create a name to refer to the QoreStor server. All secured connections to e this name. It must not match the real hostname of the QoreStor machine!
Username/Pass	word - Enter username and password for QoreStor user with CIFS role.
IP/FQDN:	QoreStor
Display name:	QoreStor-SC
Display name: User name:	QoreStor-SC backup_user
Display name: User name: Password:	QoreStor-SC backup_user
Display name: User name: Password: Without this cor All fields are rec	QoreStor-SC backup_user •••••••• figuration secured connection to any QoreStor SMB share cannot be created. pured.

NOTE: When accessing the share from this server use the **Display Name** when accessing the share to leverage Secure connect. I.E //QoreStor-SC/share

Use the normal IP/FQDN to access WITHOUT a secure connection.

7 Click Next.

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Confirm installation	Quest
The installer is ready to install Quest Rapid CIFS F	Filter Driver on your computer.
Click "Next" to start the installation.	
istallShield	
< E	Back Next > Cancel

8 After the installation finishes click **Finish**. You can optionally verify that the "**rdcifsfd**" driver is loaded automatically; this can be checked by using the command **fltmc**.

A	dministrator: Comma	nd Prompt		- D X
Microsoft Windows [Version 6. (c) 2012 Microsoft Corporation	.2.9200] on. All rights res	erved.		^
C:\Users\Administrator>fltmc				
Filter Name	Num Instances	Altitude	Frame	
rdcifsfd luafv npsvctrig	1 1 1	301600 135000 46000	0 0 0	
C:\Users\Administrator>_				
				~

Creating a backup job with the QoreStor system as a target

1 On the **Backup & Replication** menu, go to **Jobs** > **Backup**, and right-click **Backup** to create a new backup job.

20						1 BACKUP AND REPL	ICATION		
HOME	VIEW								
↓	🛃 🛋 🖎	1	7 🚔						
	- VM	-							
Backup Replication	Backup VM File	Restore In	mport Failover						
Job Job	Copy Copy Copy	Dester	ackup Plan						
Primary Jobs	Auxiliary Jobs	Restor	re Fallover Plar	15					
BACKUP & REPLICAT	ION	Q	Type in an object.	name to search for		×			
			• • • •						
🗟 Instant Reco	verv (1)	NAM	ME 🕹	TYPE	OBJECTS	STATUS	LAST RESULT	NEXT RUN	TARGET
⊿ %as Jobs		荷。	sourcebackup	VMware Back	1	Stonned	Success	<pre><not scheduled=""></not></pre>	source
4⊟ Back		+9+ -	F						
A Backup	Backup								
⊥ Disk									
A B Last 24 hours									
- Depreder Extraction	n								
	0								
Success									

2 Provide the backup job name and click **Next.**

	New Backup Job
Name Type in a name and	description for this backup job.
Name	Name:
Virtual Machines	sourcebackup
Storage	Created by DMA-SERVER1\Administrator at 3/2/2016 1:17 AM.
Guest Processing	
Schedule	
Summary	
	<pre></pre>

3 Select one or more virtual machines, data stores, resource pools, vApps, SCVMM clusters, etc. for backup.

	Add Objects	x
Virtual Mac Select virtual as you add n Name Virtual Machines Storage Guest Processing Schedule Summary	Select objects: Select objects: Constraints and Clusters Constraints and Clusters	Add Remove Exclusions Up Down Recalculate Total size: 0.0 KB
	Add Cance	l ish Cancel

4 Select the QoreStor container share as the Backup Repository for this job and click Advanced.

	New Backup Job
Storage Specify processing job and customize a	proxy server to be used for source data retrieval, backup repository to store the backup files produced by this dvanced job settings if required.
Name Virtual Machines	Backup proxy: Automatic selection Choose
Storage	Backup repository: source (Created by DMA-SERVER1\Administrator at 3/2/2016 1:09 AM.)
Guest Processing	6.0 TB free of 7.8 TB Map backup
Schedule	Retention policy
Summary	Restore points to keep on disk: 14 文 🕦
	Configure secondary destinations for this job
	Copy backups produced by this job to another backup repository, or to tape. Best practices recommend maintaining at least 2 backups of production data, with one of them being off-site.
	Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other settings.
	< Previous Next> Finish Cancel

5 On the **Backup** tab, make sure **Incremental** and **Create active full backups periodically** are selected. Set the active full schedule to whatever is needed.

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NOTE: It is recommended to enable Active Full backups once a week with a Veeam Ready Archive QoreStor instance. The active full backup produces a full backup of a VM just as if it was running for the first time. The Synthetic full backup option is only suggested to be used with a Veeam Ready Repository QoreStor instance due to read performance requirements during the synthetic operation.

	Advanced Settings	x
Storage Specify pro job and cu	Backup Maintenance Storage Notifications vSphere Integration	up files produced by this
Name Virtual Machines	Reverse incremental (slower) Increments are injected into the full backup file, so that the latest backup file is always a full backup of the most recent VM state.	Choose
Storage	Increments are saved into new files dependent on previous files in the chain. Best for backup targets with poor random I/D performance.	×
Guest Processing	Create synthetic full backups periodically Days	ckup
Schedule	Create on: Saturday	
Summary	Transform previous backup chains into rollbacks Converts previous incremental backup chain into rollbacks for the newly created full backup file.	
	Active full backup Create active full backups periodically Monthly on: First Monday Months Weekly on selected days: Days	Best practices em being off-site.
	Saturday	🔅 Advanced
	Save As Default OK Cancel	Cancel

Warning: For information on configuring Fast Clone options for Hyper-V 2016 ReFS VM's please review the Fast Clone section of this document

Warning: Veeam generally recommends against very long retention combined with infrequent active or synthetic full backups. Generally speaking a full should be run at least once a month but contacting Veeam for their recommendation is suggested.

- 6 On the Storage tab, do the following:
 - a Under Deduplication, select Enable inline data deduplication.
 - **b** Under Compression, set the Level to Dedupe-Friendly.
 - **c** Under Storage optimizations, set Optimization to Local target (large blocks).

Advanced	l Settings						×
Backup	Maintenance	Storage	Notifications	vSphere	Integration	Scripts	
Data r	eduction ——						
\checkmark	Enable inline d	lata dedup	lication (recom	mended)			
	Exclude swap f	ile blocks	(recommende	d)			
\checkmark	Exclude delete	d file blocl	s (recomment	led)			
Co	mpression leve	l:					
De	edupe-friendly						\sim
Rei ext	commended co ernal WAN acco	mpression elerators.	n level for dedu	plicating s	torage applia	nces and	
Sto	irage ontimizati	ion:				_	- I
Lo	ocal target (larg	e blocks)					~
Rei dei	quired for proce dupe ratio and I	essing sou largest inc	rce machines v remental backı	/ith disks l: Ips.	arger than 10	OTB. Lowes	t
Encry	ption						
	Enable backup	file encry	ption				
	Password:					A.1.1	- 1
					~	Ааа	
			N	lanage pa:	sswords		
Save As	Default				ОК	Canc	el

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 $\mathbf{\Lambda}$

NOTE: For the best balance between backup performance and deduplication savings it is recommended to choose these options for all of the backup jobs written to QoreStor.

Normally, Quest recommends turning off encryption, compression, and deduplication in all data management applications. However, with Veeam, Quest recommends enabling deduplication. This is because Veeam runs deduplication at larger block sizes, and deduplication of these large blocks does not heavily impact QoreStor duplication results. In addition, this reduces network bandwidth utilization when Veeam sends data to the QoreStor system, this benefits the backup performance overall.

7 Enable any optional settings required by your workflow and click Next.

	New Backup Job	×
Guest Proces Choose guest	ssing DS processing options available for running VMs.	
Name Virtual Machines	Enable application-aware processing Quiesces applications using Microsoft VSS to ensure transactional consistency, per transaction logs processing, and prepares application-specific VSS restore procedu	forms re.
Storage	Customize application handling options for individual VMs and applications	Applications.
Guest Processing	Enable guest file system indexing Creates catalog of guest files to enable browsing, searching and 1-click restores of Indexing is optional, and is not required to perform instant file level recoveries.	individual files.
Schedule	Customize advanced guest file system indexing options for individual VMs	Indexing
Summary	Guest OS credentials	
	×	Add
	Manage accounts	
	Customize guest OS credentials for individual VMs and operating systems	Credentials.
	Guest interaction proxy:	
	Automatic selection	Choose
		Test Now
	< Previous Next > Finish	Cancel

 $8 \quad \text{Schedule the backup and click } Create.$

New Backup Job							
Schedule Specify the job scheduling options. If you do not set the schedule, the job will need to be controlled manually.							
Name	Bun the job automatically						
Virtual Machines	Daily at this time: 10:00 PM 文 Everyday V Days						
Storage	O Monthly at this time: 10:00 PM ♀ Fourth ∨ Saturday ∨ Months						
Guest Processing	O Pgriodically every: 1 V Hours V Schedule						
Schedule	After this job: volis1 (Created by TESTAD\administrator at 2/17/2015 4:05 AM.) v						
Summary	Automatic retry Image: Sector Processing: Image: Sector Processing:						
	< PreviousErrish Cancel						

9 Click Finish.

New Backup Job					
Summary The job's settings h	ave been saved successfully. Click Finish to exit the wizard.				
Name Virtual Machines Storage Guest Processing Schedule Summary	Summaty: Name: sourcebackup Target Path: \\10.250.241.229\source Type: VMware Backup Source items: dma-rhel7-v1 (10.250.240.226) Command line to start the job on backup server: "C\Program Files\Veeam\Backup and Replication\Backup\Veeam.Backup.Manager.exe" backup 1d1b8598-c4a7-41a0-b942-13e59ac6554d				
	Run the job when I click Finish				
	< Previous Next > Finish Cancel				

10 To Run the Backup manually, right-click the backup job configured and select Start.

题 JOB TOOLS					VEEAM	BACKUP AND REPLIC	ATION	
E + HOME VIEW JOB								
Start Stop Retry Active Full Job Control Details	Edit Clone Disable Delete Manage Job							
BACKUP & REPLICATION	Q Type in an object nam	e to search fo	or		×			
Instant Recovery (1)	NAME 🕹	TYPE		OBJECTS	STATUS	LAST RESULT	NEXT RUN	TARGET
4 🍇 Jobs	🔅 sourcebackup	VMware I	资 :	Start	Stopped	Success	<not scheduled=""></not>	source
a Backup			缩。	Stop				
Backups Disk			癫F	Retry				
 Last 24 hours 			籥 4	Active Full				
🐴 Running (1)			lili - S	Statistics				
🔯 Success			E F	Report				
			[Disable	_			
			÷ (Clone				
			i 🐩	Delete				
			🔁 E	Edit				

Setting up QoreStor system replication

NOTE: For the steps in this procedure, assume QS1 is the replication source QoreStor system, and QS2 is the replication target QoreStor system. '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 **Replications** Tab. Click the **Add replication** button.



4 Select the source Container for Replication and click Next.



5 Select the Encryption type for the Source Container and click Next.



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



7 Specify any **Bandwidth Limitations** needed in MBps, and leave 0 for unlimited bandwidth. Click **Next**.



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

Add replication ×
Source container
Source Local Container source
Encryption
Algorithm AES 256
Limits
Bandwidth Limit [MBps] Unlimited
Target
Source Remote
Container target
User admin
Password *******
Remote Machine Address qspl-6300-47.systest.ocarina.local
Cancel Prev Finish

9 Check replication is added successfully and confirm the replication details.

Restoring from the replication target

- **i** NOTE: Before restoring from the target QoreStor system, make sure that the replication session state is INSYNC on the QoreStor system GUI Replication menu. Stop or Delete the replication session, and make sure that the target QoreStor system container has the CIFS/NFS connection(s) enabled.
- 1 Add the target QoreStor system container to the Veeam repository. For instructions, see the above sections Creating a CIFS container for use with Veeam or Creating an NFS container for use with Veeam.
- 2 Update all backup jobs that use the source QoreStor system container as a repository and change them to use the target QoreStor container as the backup repository.
- 3 Under **Backup & Replication**, click **Restore** to create a restore job. Select the appropriate restore from the backup option.

Backup Replication Job Primary Jobs Auxiliary Jobs	tore Backup Restore Failover Plan						
BACKUP & REPLICATION	Q Type in an object nam	e to search for		×			
Jobs	NAME 4	TYPE	OBJECTS	STATUS	LAST RESULT	NEXT RUN	TARGET
A Backups	🕸 sourcebackup			Restore Wiza	rd		× rce
≚ Disk ▲ 🔂 Last 24 hours 😰 Success		Restore Option What would you	n s like to do?				A
		 Instant Instant Tentin VM F VM f Gues Gues Applia 	Restore from bar VM (including regist and dats les (VMDK, VMX) titles (Windows) titles (other OS) cation items	skup ration	Failover Planned Failback Guest fil Guest fil Applicat	Restore from replica to replica failover to production es (Windows) es (other OS) ion items	
BACKUP & REPLICATION					< Back	Next > Cance	1
BACKUP INFRASTRUCTURE							
FILES							

4	Click Add VM	l and select From bac	kup . Select the	VM to be restored	and click Add.

	Backups Br	owser		×		x
Select virtual machine:					ontainara from liva	
Job name	Last restore point	VM count	Restore points cour	nt	privalmens from live	
sourcebackup	3/2/2016 1:25:54 AM less than a day ago (1:2	1	1			
	isse than a day ago (1.2		2		<u> </u>	
			2			- I
					Add VM	-
					Point	-
					Hemove	_
					sh Cancel	
			3			
in - Type in an object n	ame to search for			Q		
			Add	Cancel		

5 Select the **Restore Mode** and click **Next**.

	Full VM Restore Wizard
Restore Mode Specify whether sel	ected VMs should be restored back to the original location, or to a new location or with different settings.
Virtual Machines Restore Mode	 Restore to the original location Quickly initiate restore of selected VMs to the original location, and with the original name and settings. This option minimizes the chance of user input error.
Host Resource Pool	Restore to a new location, or with different settings Customize restored VM location, and change its settings. The wizard will automatically populate all controls with the original VM settings as the default settings.
Datastore	Pick proxy to use
Folder	
Network	
Reason	_
Summary	Restore VM tags Select this option to restore VM tags that were assigned to the VM when backup was taken. Quick rollback (restore changed blocks only) Allows for quick VM recovery in case of guest OS software problem, or user error. Do not use this option when recovering from disaster caused by hardware or storage issue, or power loss.
	< Previous Next > Finish Cancel

6 Provide the Host details as per requirement and click **Next**.

Full VM Restore Wizard								
Host By default, original host is selected as restore destination for each VM. You can change host by selecting desired VM and clicking Host. Use multi-select (Ctrl-click and Shift-click) to select multiple VMs at once.								
Virtual Machines	VM location:							
Restore Mode	Name	Host	3 25					
Host		10.200.210						
Resource Pool								
Datastore								
Folder								
Network								
Reason								
Summary								
	Select multiple VMs and click Host t	o apply changes in bulk.	Host					
		< Previous Next >	Finish Cancel					

7 Select the resource pool and click **Next.**

Full VM Restore Wizard							
Resource Pool By default, original resource pool is selected as restore destination for each VM. You can change resource pool by selecting desired VM and clicking Pool. Use multi-select (Ctrl-click and Shift-click) to select multiple VMs at once.							
Virtual Machines	VM resource pool:						
Restore Mode	Name ma-rhel7-v1	Resource Pool Resources					
Host							
Resource Pool							
Datastore							
Folder							
Network							
Reason							
Summary							
Select multiple VMs and click Pool to apply changes in bulk. Pool							
		< Previous Next > Finit	sh Cancel				

8 Select the data store, and disk type and click **Next.**

Full VM Restore Wizard					
By default, original date clicking Datastore or D	astore and disk type are selected isk Type. Use multi-select (Ctrl-cl	for each \ ick and Sh	/M file. You can change them b iít-click) to select multiple VMs	y selecting desired VM file, and at once.	
Virtual Machines	Files location:				
Restore Mode	File	Size	Datastore	Disk type	
Host	Configuration files	160.0	datastore1 [616.9 GB free] datastore1 [616.9 GB free]	Same as source	
Resource Pool					
Datastore					
Folder					
Network					
Reason					
Summary					
	Select multiple VMs to apply set	tings in bul	k. D	atastore Disk Type	
		< Pr	evious Next >	Finish Cancel	

9 Provide the new name for the restored VM and click **Next.**

	Full VM Restore Wizard	X
Folder By default, original VM folder is selected as restore destination for each VM. You can change folder by selecting desired VM and clicking Folder. Use multi-select (Ctrl-click and Shift-click) to select multiple VMs at once.		
Virtual Machines	Change Name	
Hestore Mode Host	Specify how selected VM name should be changed:	a
Resource Pool	Set name to: dma-rhel7-v1	
Datastore	Add prefix:	
Folder	new_	
Network	Add suffix:	
Reason		
Summary	UK Lancel	
	Select multiple VMs to apply settings change in bulk. Name Fold	er
	< Previous Next > Finish Can	cel
10 Select the network location and click Next.

	Full VM Restore Wizard	x
Network By default, restored ' specify how original	/M is connected to the same virtual networks as the origin ocation's networks map to new location's networks.	al VM. If you are restoring to a different location,
Virtual Machines	Network connections:	
Restore Mode	Source	Target
Host	M Network	VM Network
Resource Pool		
Datastore		
Folder		
Network		
Reason		
Summary		
	Select multiple VMs to apply settings change in bulk.	Network Disconnected
	< Previous	Next > Finish Cancel

11 Provide the reason for the restoration.

	Full VM Restore Wizard
Reason Type in the reason for reference.	or performing this restore operation. This information will be logged in the restore sessions history for later
Virtual Machines Restore Mode	Restore reason:
Host	
Resource Pool	
Datastore	
Folder	
Network	
Reason	
Summary	
	Do not show me this page again
	< Previous Next > Finish Cancel

12 Click Finish.

	Full VM Restore Wizard	x
Summary Please review the re corresponding resto	estore settings before continuing. The restore process will being after you click Finish. Navigate to the re session under History node to monitor the progress.	
Virtual Machines Restore Mode Host Resource Pool Datastore Folder Network Reason Summary	Summary: Proxy: Automatic selection Original Vm name: dma-rhel7-v1_restored Restore point: less than a day ago (1:27 AM Wednesday 3/2/2016) Target host: 10.250.213.25 Target resource pool: Resources Target resource pool: Resources Target datastore: datastore1 Network mapping: VM Network -> VM Network	
	✓ Power on VM after restoring	
	< Previous Next > Finish Cance	

13 After the restore job has been created, you can run the job and monitor it from the Backup & Replication menu.

	VM Re	store			x
VM name:	dma-rhel7-v1	Status:	Success		
Restore type:	Full VM Restore	Start time:	3/2/2016 3:19:40 AM		
Initiated by:	DMA-SERVER1\Administrator	End time:	3/2/2016 3:34:04 AM		
Statistics R	eason Parameters Log				
Message				Duration	~
🖉 🛛 Using so	urce proxy VMware Backup Proxy (hotado]			
📀 6 files to restore (160.0 GB)					
🛛 📀 Restoring (datastore1) new_dma-rhel7-v1_restored/dma-rhel7-v1.vmx			0:00:02		
🔜 💙 Restoring	g file dma-rhel7-v1.vmxf (0.4 KB)			0:00:01	
💙 Restoring file dma-rhel7-v1.nvram (8.5 KB)			0:00:01		
🖉 💙 Registeri	ng restored VM on host: 10.250.213.25, p	ool: Resourc	es, folder: Discovere	0:00:17	
🔄 💙 Preparing	g for virtual disks restore			0:00:50	
🙄 Restoring Hard disk 1 (160.0 GB): 24.8 GB restored at 38 MB/s			0:11:08		
📀 Powering on restored VM			0:00:05		
Restore completed successfully				~	
				Close	

Using QoreStor as a Veeam Scale-Out Capacity Tier via Object Container(S3)

Scale-Out Repositories are a Veeam feature that allows you to transition data from one repository to another via policies defined in Veeam. This could be used with the QoreStor performance tier to move data into a slower QoreStor tier or with spindled disk-to-tier initial backups to QoreStor. In this section, we will cover using the new Object Container QoreStor feature to allow Veeam to write via S3 to QoreStor as a scale-out capacity tier.

Scale-Out repositories work by first creating basic repositories. Then you create a scale-out repository adding the initial performance tiers and capacity tiers already added as basic repositories.

Creating an Object Container(S3) in QoreStor

1 From the QoreStor UI select **Containers** then click **Add Container**.



2 Select the Protocol dropdown and set it to Object (S3 Compatible). Click Next.



3 Click Next.



4 Verify the summary is correct and click **Finish**.

Add Container			
ත Container Summary			
Name: ObjectContainer Storage Group: ObjectStorageGroup Protocol: OBJECT			
Connection Summary Protocol Object:			
Encryption: Disabled Quota: Unlimited			
	Cancel	Prev	Finish

5 The Object Container is now created but we need to create a bucket other than the default. Click the **ellipsis** on the container and click **Edit**.



6 On the Object Container page click **Create bucket**.

Quest QoreStor		
III Dashboard	Object Container	
🖻 Containers	Object container	
E Local Storage		
Performance Tier		
Storage Groups		
Cleaner	Create bucket Set user policy	
Cloud Storage ~	Summary	
Archive Tier		Service Status
	https://10.230.98.82:9000	Online
Replications		
🖾 System 🛛 🗠		
Q Diagnostics	Buckets (1)	
A Users	O Search	
🗎 Events		
Management		Object Locking
	default-bucket	Enabled
⊠ Management	Namo default-bucket	Oligiert Lacking Enabled

Setting Up Quest® QoreStor™ with Veeam® Backup & Replication™ Using QoreStor as a Veeam Scale-Out Capacity Tier via Object Container(S3) 7 Name the bucket then click Save.



Adding the QoreStor Object Container(S3) as a repository in Veeam

1 In the Backup Infrastructure section, right-click Backup Repositories, and select Add Backup Repository.



42

3 Click S3 Compatible.

€	Object Storage Select the type of object storage you want to use as a backup repository.
R	S3 Compatible Adds an on-premises object storage system or a cloud object storage provider.
aw	Amazon S3 Adds Amazon cloud object storage. Amazon S3, Amazon S3 Glacier (including Deep Archive) and Amazon Snowball Edge are supported.
C	Google Cloud Storage Adds Google Cloud storage. Both Standard and Nearline storage classes are supported.
Ś	IBM Cloud Object Storage Adds IBM Cloud object storage. S3 compatible versions of both on-premises and IBM Cloud storage offerings are supported.
	Microsoft Azure Blob Storage Adds Microsoft Azure blob storage. All tiers of Azure Blob Storage and Azure Data Box are supported.

4 Define an object storage repository device name then click Next.

New Object Storage Repository	×
Name Type in a name and a	description for this object storage repository.
Name	Name:
Account	Ubject storage repository 2 Description:
Bucket	
Summary	□ Limit concurrent tasks to: 2 ÷ Use this setting to limit the maximum number of tasks that can be processed concurrently in cases when your philot charge is an advanded or cannot been up with the number of ADI request is used by
	multiple object storage offload tasks.
	< Previous Next > Finish Cancel

×

5 Click **Add** on the credentials line.

New Obje	torage Repository	×
R	ccount pecify account to use for connecting to S3 compatible storage system.	
Name	Service point:	
Account	https://hostname:9000 Region:	
Bucket	us-east-1	
Summary	Credentials: Manage cloud accounts	d
	Use the following gateway server:	\sim
	Select a gateway server to proxy access to the object storage system. If no gateway server is specified, all scale-out backup repository extents must have direct network access to the stor system.	age
	< Previous Next > Finish Car	ncel

6 Add the username with the object role in QoreStor in the **Access Key** line. Add the password for that user to the **Secret** line. By default this password is St0r@ge! (The "0" in the password is the numeral zero).

Credential	5			×
	Access key:	backup_user		
	Secret key:	•••••		•
	Description:			
			ок	Cancel

7 Add the QoreStor access information to the **Service Point** line. This is usually https://<hostname>:9000 or https://<ipAddress>:9000 then click **Next**.

New Obje	ct Storage Repository	×
R	Account Specify account to use for connecting to S3 compatible storage system.	
Name	Service point: https://hostname:9000	
Bucket	Region: us-east-1 Credentials:	
Summar	/ Note that the state of the	Add
	Use the following gateway server: R720-40.systest.ocarina.local (Backup server)	~
	Select a gateway server to proxy access to the object storage system. If no gateway serve specified, all scale-out backup repository extents must have direct network access to the system.	r is storage
	< Previous Next > Finish	Cancel

8 If you get a certificate security alert, click **Continue**.



9 On the bucket, page click **Browse...** under the bucket line.

New Object Storage Repository		×
Bucket Specify object storag	je system bucket to use.	
Name Account	Bucket	rowse
Bucket	Folder:	rowse
Summary	Limit object storage consumption to: 10 TB This is a soft limit to help control your object storage spend. If the specified limit is exceed already running backup offload tasks will be allowed to complete, but no new tasks will be Make recent backups: Protects recent backups inform modification or deletion by ransomware, malicious insiders hackers using native object storage capabilities. Object storage must support S3 Object Lo feature.	ed, started. and ck
	< Previous Apply Finish C	Cancel

10 Select the bucket name created in the **Creating an Object Container(S3) in QoreStor** section of this guide. Click **OK**.

Select Bucket		×
Buckets:		
▲ 🕞 Buckets		
G comple		_
(a sample		
	ОК	Cancel

11 Back on the bucket page click Browse... under the folder line

New Object Storage Repository		×
Bucket Specify object storag	je system bucket to use.	
Name	Bucket:	
Account		Browse
Bucket	Folder:	Browse
Summary	Limit object storage consumption to: 10 TB This is a soft limit to help control your object storage spend. If the specified limit is ea already running backup offload tasks will be allowed to complete, but no new tasks v dMake recent backups inform modification or deletion by ransomware, malicious ins hackers using native object storage capabilities. Object storage must support S3 Obje feature.	icceeded, vill be started. iders and ct Lock
	< Previous Apply Finish	Cancel

12 Click **New Folder** and define a folder name.

Select Folder		×
Folders:		
🗟 sample		
New Folder	OK	Cancel

13 Select the newly created folder and click **OK**.

Select Folder		×
Folders:		
🔺 🕞 sample		
😴 New Folder		
New Folder	ОК	Cancel

14 Back on the bucket page click OK.

New Object Storage Repository		×
Bucket Specify object storage	ge system bucket to use.	
Name	Bucket: sample	Browse
Account	Folder	
Bucket	New Folder	Browse
Summary	 Limit object storage consumption to: 10 10	xceeded, vill be started. iders and ct Lock
	< Previous Apply Finish	Cancel

15 Verify the Summary and click Finish.

New Objec	ct Storage Repository	×
R	Summary You can copy the configuration information below for future reference.	
Name Account Bucket Summary	Summary: Dbject storage repository was successfully created. Name: Object storage repository 2 Description: Type: 33-compatible Gateway server: not selected Service point: http://hostname:9000 Region: us-seast-1 Bucket: sample Concurrent tasks limit: unlimited Storage consumption limit: unlimited Recent backups will not be immutable	-
	< Previous Next > Finish Cancel	

Adding the Object Container(S3) as a capacity tier to a Scale-Out repository

1 In the Backup Infrastructure section, right-click Scale-out Repositories, and select Add Scale-out backup repository.

I tom Sale-out Repository Anage Scale-out Repository Manage Scale-out Repository Backup Infrastructure I backup Proxies Backup Proxies Backup Proxies Backup Proxies Backup Proxies Backup Repositories Backup Repositories Scale-out Repository Scale-out Bedos Scale-out Bedos Scale-out Backup repository. Wanage Scale-out Bedos Scale-out Backup repository. Scale-out Bedos Repositories Backup Repositories Scale-out Bedos Repositories Scale-out Backup Repositories Scruce Providers SureBackup Application Groups Virtual Labs SureBackup Application Groups Wirtual Labs SureBackup Provinance Stervers Wirtual Labs SureBackup Provinance Stervers SureBacku	迥 sc	ale-out Repository To	ols			
Add Scale-out Edd Scale-out Reporting Reporting Manage Scale-out Reporting Manage Scale-out Backup reporting Manage Scale-out Reporting Manage Scale-out Backup reporting Manage Scale-out Backu	≣• Home	Scale-out Repository	/			
Backup Infrastructure	Add Scale-out Edit Sc Repository Repo Manage Scale-	cale-out Remove sistory Repository out Repository	Set Access Permissions Manage Settings	Resc Repos Too		
Seckup Provies Backup Repositories CSDE-4300- Calculation Repositories WAN A Rescan Service Providers SureBackup Application Groups Witual Labs Witual Labs Witual Labs Witual Calculation Groups Calculation Groups Performance Ter Pacement Policy Calculation Groups	Backup Infrastructur	e	Q Typ	e in an		
Add scale-out backup repository VAN A Service Providers Service Providers SureBackup Application Groups Virtual Labs Managed Servers Virtual Cabs Managed Servers Virtual Cabs Note Pariamance Tier Placement Policy Capacity Tier Summary Created by SYSTEST dylam at 5/12/2021 11:07 AM. Created by SYSTEST dylam at 5/12/2021 11:07 AM.	🔒 Backup Proxie 📒 Backup Repos 🛼 External Repo:	s itories sitories	Name 🕇 🚮 QSPI	L -4300-		
Service Providers SureBackup Application Groups Virtual Labs Managed Servers WMware VSphere Name Type in a name and description for this scale-out backup repository. Name Performance Tier Placement Policy Capacity Tier Summary Varie Created by SYSTESTIdylanr at 5/12/2021 11:07 AM. Created by SYSTESTIdylanr at 5/12/2021 11:07 AM.	Scale-or Scale-or Scale-or Scale-or WAN A	Add scale-out back Rescan	up repository			
2 Click Next. New Scale-out Backup Repository Nme Performance Tire Pacement Policy Capacity Tire Summary Next Next Next Next Next Next Next Next	Service Provid SureBackup Application Virtual Lab Managed Serv Man	n Groups s vers Sphere				
Name Name: Performance Tire Percription: Placement Policy Capacity Tire Summary Created by SYSTEST\dylam at 5/12/2021 11:07 AM.	2 Click Ne) New Scale-out Backup Repositor	(t. 79				>
Name Name: Performance Tier Description: Placement Policy Created by SYSTEST\dylanr at 5/12/2021 11:07 AM. Capacity Tier Summary	lype in a name and	description for this scale-out b	ackup repository.			
Summary	Name Performance Tier Placement Policy	Scale-out Backup Reposito Description: Created by SYSTEST\dylan	ry 2 ir at 5/12/2021 11:07 AM.			
< Previous Next > Finish Cancel	Summary					
< Previous Next > Finish Cancel						
			< Previous	Next 5	Finish	Cancel

3 Add an existing spindled disk Repository or QoreStor Performance Tier-based Repository to this page. Click Next.

> Setting Up Quest® QoreStor^ with Veeam® Backup & Replication ${}^{\rm TM}$ Using QoreStor as a Veeam Scale-Out Capacity Tier via Object Container(S3)

×

New Scale-out Backup Repositor Performance Tier Select backup reposit	Y tories to use as the landing zone and for the short-term retention.	×
Name	Extents:	Add
Performance Tier Placement Policy	SIQSPL-6300-07_CWF-Veeam-CIFS	Remove
Capacity Tier		
Summary		
	Click Advanced to specify additional scale-out backup repository options.	Advanced
	< Previous Next > Finish	Cancel

4 Set your performance Tier placement policy, setting this depends on the number of performance tier repositories added and the resiliency of the backups required. Please reference Veeam documentation.

New Scale-out Backup Repositor	у	×
Placement Policy Choose a backup file backup job will choose	s placement policy for this performance tier. When more than one extent matches the placement policy extent with the most free disk space available.	6
Name	Data locality	
Performance Tier	All dependent backup files are placed on the same extent. For example, incremental backup files w be stored together with the corresponding full backup file. However, the next full backup file can created on another extent (excent extent backed by a dedunication storage).	∾ill be
Placement Policy	Parfermance	
Capacity Tier Summary	Per to mance Incremental backup files are placed on a different extent from the corresponding full backup file, providing for better backup file transformation performance with raw storage devices. Note that losing an extent with a full backup makes restoring from increments impossible.	
	Specify the placement policy for full and incremental backup files.	
	< Previous Next > Finish Cancel	

5 Select the Extend scale-out backup repository capacity with the object storage checkbox. Select the object storage repository created from the Adding the QoreStor ObjectContainer(S3) as a repository

in the Veeam section of this guide. Set the retention age for the object repository, keep in mind restores will be quicker from the Performance Tier. Click Apply.

DO NOT USE ENCRYPTION

New Scale-out Backup Reposito	ry X
Capacity Tier Specify object storag completely to reduc	je to copy backups to for redundancy and DR purposes. Older backups can be moved to object storage e long-term retention costs while preserving the ability to restore directly from offloaded backups.
Name Performance Tier	 Extend scale-out backup repository capacity with object storage: Object storage repository 2 Add
Placement Policy Capacity Tier Summary	Define time windows when uploading to capacity tier is allowed Window Copy backups to object storage as soon as they are created Create additional copy of your backups for added redundancy by having all backups copied to the capacity tier as soon as they are created on the performance tier. Move backups to object storage as they age out of the operational restore window Reduce your long-term retention costs by moving older backups to object storage completely while preserving the ability to rector directly from offloaded backups. Move backup files older than 14 Image ays (your operational restore window) Override Password: Add
	< Previous Apply Finish Cancel

Warning: Do not configure Encryption in Veeam, this will cause QoreStor savings to be extremely low. Instead, configure the Object Container to use encryption in QoreStor.

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

New Scale-out Backup Repository		×
Sum mary Review the scale-out b	ackup repository settings, and click Finish to exit the wizard.	
Name	Summary:	_
Performance Tier	scale-out backup repository was created successfully.	
Placement Policy		
Capacity Tier		
Summary		
	< Previous Next > Finish Cancel	

Setting Up Quest® QoreStor™ with Veeam® Backup & Replication™ Using QoreStor as a Veeam Scale-Out Capacity Tier via Object Container(S3)

Using Instant Recovery with QoreStor

Veeam's Instant VM Recovery immediately restores a virtual machine (VM) into your production environment by running it directly from the backup file.

Instant VM Recovery uses patented vPower[®] technology to mount a VM image to a production VMware vSphere or Microsoft Hyper-V host directly from a compressed and deduplicated backup file.

By default, all changes to virtual disks that take place while the VM is running, are logged to auxiliary redo logs residing on the NFS server (Veeam backup server or backup repository). These changes are discarded as soon as a restored VM is removed, or merged with the original VM data when VM recovery is finalized, that is when VM is migrated back to production storage.

Veeam vPower NFS service is a Windows service that runs on a windows backup repository server and enables it to act as an NFS server

Instant Recovery with ESX

Enabling Instant Recovery with ESX

- 1 Create a backup job for the required VM as described in Section 3, the only difference is to set the **vPower NFS Datastore** in the **vPower NFS** tab.
- 2 Check the checkbox **Enable vPower NFS Server** option on the **vPower NFS** tab and select the appropriate folder as the NFS Datastore.
- **3** NFS Datastore can also be configured on different Windows servers if required and can be done by selecting dropdown and adding the host along with credentials.

	Edit Backup Repository
Specify vPower NF5 Specify vPower NF functionality such a	'S settings. vPower NFS enables running virtual machines directly from backup files, allowing for advanced s Instant VM Recovery, SureBackup, on-demand sandbox, U-AIR and multi-OS file level restore.
Name Type	vPower NFS ✓ Enable vPower NFS server (recommended) This server
Share Repository	Specify vPower NFS root folder. Write cache will be stored in this folder. Make sure the selected volume has at least 10GB of free disk space available.
vPower NFS Review	Folder: F: Iveeam2 Browse
Арру	
	Click Manage to change vPower NFS management port Manage Click Ports to change vPower NFS service ports Ports
	< Previous Next > Finish Cancel

Performing Instant Recovery for ESX

1 On Veeam Server's console, click the **Restore Wizard** option, then select the **VMware** option and select **Instant VM recovery**.

Restore	Wizard
Restore Options What would you like to do?	
Restore from backup	Restore from replica
 Instant VM recovery 	 Failover to replica
 Entre VM (including registration) 	O Planned failover
O VM hard disks	 Failback to production
VM files (VMDK, VMX)	 Guest files (Windows)
 Guest files (Windows) 	 Guest files (other OS)
 Guest files (other OS) 	 Application items
 Application items 	
	< Back Next > Cancel

2 Select the virtual machine to be recovered and click **Next**.

Instant Recovery				x	
Virtual Machine Choose the virtual ma	chine you want to recover.				
Virtual Machine	VM to recover: dma-rhe	17-v1			
Bestore Point	Job name	Last restore point	VM count	Restore points count	
11000010 F OIL	sourcebackup	3/2/2016 1:25:54 AM	1		
Recovery Mode	dma-rhel7-v1	less than a day ago (1:2		1	
Restore Reason					
Ready to Apply					
Recovery					
	Type in an object i	name to search for			Q
		< Previous	Next >	Finish Can	cel

3 At the **Restore Point** step, select the restore point desired.

	Instant Recovery	x
Restore Point Choose restore point	t you want to recover the selected virtual machine to.	
Virtual Machine	VM name: dma-rhel7-v1 Original host: 10.250.240.226	
Restore Point	VM size: 76.6 GB	
Recovery Mode	Available restore points:	
Restore Reason	Ureated I yer I less than a day ago (1:27 AM Wednesday 3/2/2016) Full	•
Ready to Apply		
Recovery		
	< Previous Next > Finish	Cancel

4 At the Restore Mode step, select Restore to a new location, or with different settings.

	Instant Recovery
Restore Mode	
Virtual Machine Restore Point	 Restore to the original location Quickly initiate restore of selected VMs to the original location, and with the original name and settings. This option minimizes the chance of user input error.
Restore Mode Destination Datastore Restore Reason Ready to Apply Recovery	Restore to a new location, or with different settings Customize restored VM location, and change its settings. The vizard will automatically populate all controls with the original VM settings as the default settings.
	<previous next=""> Finish Cancel</previous>

- 5 At the **Destination** step, select the ESX host on which the VM should be restored instantly. In the **Resource pool** box, select the resource pool to which the restored VM should belong.
- 6 In the $Restored \ VM$ name field, set the desired VM name.

	Instant Recovery
Destination Choose ESX server adjust VM settings fit	to run the recovered virtual machine on. You can choose to power on VM automatically, unless you need to st (such as change VM network).
Virtual Machine Restore Point Recovery Mode	Host: 10.250.213.25 Choose VM folder: Discovered virtual machine Choose
Destination Datastore Restore Reason Ready to Apply Recovery	Restored VM name: dma-rhel7-v1_IR Resource pool: Resource: A Resources VirtualLab
	< Previous Next > Finish Cancel

7 At the **Datastore** tab, leave the **Redirect virtual disk updates option** unchecked. This will let you use Storage vMotion to migrate the VM to production after the VM is recovered from the backup.

	Instant Recovery
By default, virtual di different datastore.	sk changes of recovered VM are stored on vPower NFS server. You can redirect these changes to a This improves I/O performance, but prevents Storage VMotion on vSphere versions prior to vSphere 5.0
Virtual Machine Restore Point Restore Mode Destination Datastore	Redirect vitual disk updates Datastore: Click Choose to pick the datastore Datastore info Datastore info Capacity:
Hestore Heason Ready to Apply Recovery	
	< Previous Next > Finish Cancel

8 In the Ready to Apply screen, enable Connect VM to network and Power on VM automatically.

	Instant Recovery		
Ready to Apply Please review the p	rovided settings.		
Virtual Machine	Instant recovery settings:		
Restore Point Recovery Mode Destination Datastore Restore Reason	VM: Host: Datastore: New VM name: After you click Next, the selected \ To finalize the recovery, use Stora Alternatively, you can perform cold If you, are performing manual record	dma-rhel7-v1, backed up less than a day ago 10.250.213.25 Disabled dma-rhel7-v1_IR // will be instantly recovered into your production environment ge Whotion to move running VM to the production storage. VM migration during your next maintenance window.	
Recovery	Make sure original server original server still running Connect VM to network Power on VM automatically	is powered off. Recovering server into production network with may affect some applications.	, ,
		< Previous Next > Finish Cance	<u> </u>

9 Click Finish to start Instant VM Recovery

	Instant Recovery	×
Recovery Please wait while VM	recovery is performed.	
Virtual Machine	Log:	
Destas Deint	Message	Duration
nestole Folni	Starting VM dma-rhel7-v1_IR recovery	
Becovery Mode	Connecting to host 10.250.213.25	0:00:09
110001019111000	Checking if vPower NFS datastore is mounted on host	0:00:46
Destination	🛇 Locking backup file	
	📀 Publishing VM	0:00:10
Datastore	📀 Updating VM configuration	
Checking free disk space available to vPower NFS server.		
Restore Reason	📀 Registering VM	0:00:46
Daa du ka daa ku	O Powering on VM	0:00:03
neady to Apply	📀 Updating session history	
Becoveru	📀 dma-rhel7-v1_IR has been recovered successfully	
	📀 Waiting for user to start migration	
	< Previous Next > Finish	Cancel

10 Open the vSphere client and make sure that the restored VM is started on the ESX host you selected.

Constant Tennes 2 - 200 Months 2 - 200 Months Constant Tennes Constant Te	d Inertory	Q
A Control And		
Image: Second Process CTRL + ALT + DELETE to log on		
Lecent Tasks Name, Target or Status	tus contains: •	lear ×
Name Torget Santa Details Instactory Venetra Santa II	Completed Time 11/05/2012 7:37:51	
2 Taka 👷 Hans 🛛 2 vCenter Sonver lice		istrator

11 In Veeam Backup & Replication, open the Backup & Replication view, select the Instant Recovery node in the inventory pane, and make sure that the Instant VM Recovery session is available and mounted.

RECOVERY TOOLS TOUS HOME INSTANT VM RECOVERY				VEEAM BACKUP AND	REPLICATION
Migrate to Open VM Stop Production Console Publishing Actions Properties					
BACKUP & REPLICATION	VM NAME	HOST	STATUS	RESTORE POINT	BACKUP NAME
	🛅 dma-rhel7-v1_IR	10.250.213.25	Mounted	3/2/2016 1:27:12 AM	sourcebackup
📳 Instant Recovery (1)					
 Jobs Poskup 					
Backups					
i Disk					
 Last 24 hours 					
😭 Running (1) 🔯 Success					

Setting Up Quest® QoreStor™ with Veeam® Backup & Replication™ Using Instant Recovery with QoreStor

Instant Recovery with Hyper-V Server

Enabling Instant Recovery with Hyper-V

- 1 Create a backup job for the required VM as described in Section 3 and the only difference is to set the **vPower NFS Datastore** in the **vPower NFS** tab as shown in the following screenshot.
- 2 Select Enable vPower NFS Server on the vPower NFS tab.
- **i** .

NOTE: There is no need to provide a folder as an NFS Datastore. In the case of the Hyper-V, cache data is directly stored at the Hyper-V server datastore location.

	Edit Backup Repository
Specify vPower NF5 Specify vPower NF functionality such a	S settings. vPower NFS enables running virtual machines directly from backup files, allowing for advanced I Instant VM Recovery, SureBackup, on-demand sandbox, UAIR and multi-OS file level restore.
Name Type	vPower NFS ☑ Enable vPower NFS server (recommended)
Share	This server V
Repository	Specity vPower NFS root tolder. Write cache will be stored in this tolder. Make sure the selected volume has at least 10GB of free disk space available.
vPower NFS	Folder: F: Ivream2 Browse
Review	
Apply	
	Click Manage to change vPower NFS management port Manage
	Click Ports to change vPower NFS service ports Ports
	< Previous Next > Finish Cancel

Performing Instant Recovery for Hyper-V

1 On the Veeam Backup and Replication console, click the **Restore Wizard**, select **Hyper-V**, and then select the Instant VM recovery.

Restore V	Nizard X
Restore Options What would you like to do?	•
Restore from backup	Restore from replica
Instant VM recovery	 Failover to replica
 Entire VM (including registration) 	O Planned failover
O VM hard disks	 Failback to production
VM files (VMDK, VMX)	 Guest files (Windows)
 Guest files (Windows) 	 Guest files (other OS)
Guest files (other OS)	
 Application items 	
	< Back Next > Cancel

2 Select the virtual machine to be recovered.

	Backups B	rowser		X
Select virtual machine:				
Job name	Last restore point	VM count	Restore points count	
A hyperv	9/30/2015 2:02:59 AM	1		
A hyperv212.175	10/6/2015 9:00:53 PM	1		
⊒ - Type in an object n	ame to search for			Q
			Add Cano	el :

3 Select the desired restore point.

	Insta	nt VM Reco	overy	×
Virtual Machines Select virtual machin erwisonment (contain	es to be restored. You can a ers will be automatically expa	dd individual vi nded to plain li:	tual machines from backup files, or contain R].	ners from live
Virtual Machines	Virtual machines to restore			_
Recovery Mode	D Type in a VM name I	or instant looky	p	
-	Name	Size	Restore point	Add VM
Reason	PRAVIN2K12R2	18.8 GB	9/30/2015 Wednesday 2:05 AM	Point
Summary				Remove
		< Pr	evious Next > Finish	Cancel

4 At the Restore Mode step, select Restore to a new location, or with different settings.

	Instant Recovery	x
Restore Mode		
Virtual Machine	○ Restore to the original location	
Restore Point	Quickly initiate restore of selected VMs to the original location, and with the original name and settings. This option minimizes the chance of user input error.	
Restore Mode	Restore to a new location, or with different settings	
Destination	Customize restored VM location, and change its settings. The wizard will automatically populate all controls with the original VM settings as the default settings.	
Datastore		
Restore Reason		
Ready to Apply		
Recovery		
	< Previous Next > Finish Canc	el

5 Select the Host to which your VM should be recovered.

	Instant V	M Recovery	×
Host Select the host to	o recover VM to.		
Virtual Machines	VM location:	10.0	Cutu
Recovery Mode	PRAVIN2K12R2	10.250.208.73	Lluster Hesource
Host			
Datastore			
Network			
Name			
Reason			
Summary			
	Select multiple VMs and click H	ost to apply changes in bulk.	Host Resource
		< Previous Next >	Finish Cancel

6 In the Datastore step, provide the location to temporarily store the cache data.

	Instant VM Possyan	X
Datastara	Select Folder	
Select the volume	Folders:	1
Virtual Machines Recoverv Mode		
Host		tor.TESTAD\Desktop
Datastore Network		
Name		
Reason		
Summary		
	Type in the path to folder	Path
	New Folder OK Cancel	Finish Cancel

7 After providing the details the screen will look like this:

	Instant VM Re	ecovery	×
Datastore Select the volumes w	here VM configuration and virtual disks	files should be	ultimately restored to.
Virtual Machines	Files location:		
Decourse Made	File	Size	Path
Hecovery mode	PRAVIN2K12R2		AND IN A STATE OF A STATE OF A STATE
Host	Configuration files	10.0 CD	CVUsers\administrator.TESTAD\Desktop\full
Datastore	C THAT INCOME TO BE THE	10.0 015	C. TO SETS TOLD IN BUCKULT LO THE CONTROL OF STRUCT
Network			
Name			
Reason			
Summary			
	Select multiple VMs and click Path to	apply change:	s in bulk. Path
		Previous	Next > Finish Cancel

8 In the **Network** section, select the Virtual Networks map to use with the new VM.

	Instant VM Recove	ery	×
Network Select how virtual	networks map to each other between original and	new VM locations.	
Virtual Machines	Network connections:		
Becovery Mode	Source	Target	
Host	PHAVIN2K12H2 Virtual Switch II	Virtual Switch II	
Datastore			
Network			
Name			
Reason			
Summary			
	Select multiple VMs to apply settings change	in bulk. Network Di	sconnected
	< Previ	ous Next > Finish	Cancel

9 In the **Restored VM name** field, set the desired VM name.

	Instant	VM Recovery	×
Name Specify the new virtu	al machine name, and whether y	vou would like unique identifier preservo	ed.
Virtual Machines	Virtual machines:		
	Name	New Name	VM UUID
Recovery Mode	PRAVIN2K12R2	PRAVIN2K12R2_restored	Create new
Host			
Datastore			
Network			
Name			
Reason			
Summary			
	Select multiple VMs to apply s	ettings change in bulk.	Name VM UUID
		< Previous Next >	Finish Cancel

10 Click Finish to start the recovery.

	Instant VM Recovery
You can copy this	configuration information for the future reference.
Vitual Machines Recovery Mode Host Datastore Network Name Reason Summary	Summary: Driginal VM name: PRAVIN2K12R2 Target VM name: PRAVIN2K12R2_restored Target host: 10.250.208.73
	☑ Power on VM after restoring
	< Previous Ned > Finish Cancel

11 Open Hyper-v Client and make sure that the restored VM is started on the host you selected.



12 In Veeam Backup & Replication, open the **Backup & Replication** view, select **the Instant Recovery** node in the inventory pane, and make sure that the Instant VM Recovery session is available and mounted.

RECOVERY TOOLS E→ HOME INSTANT VM RECOVERY				VEEAM BACKUP AND	REPLICATION
Migrate to Open VM Stop Production Console Publishing Actions Properties					
BACKUP & REPLICATION	VM NAME	HOST	STATUS	RESTORE POINT	BACKUP NAME
	🔓 dma-rhel7-v1_IR	10.250.213.25	Mounted	3/2/2016 1:27:12 AM	sourcebackup
🔒 Instant Recovery (1)					
🔺 🐐 Jobs					
🚛 Backup					
a 📑 Backups					
📥 Disk					
 Last 24 hours 					
📺 Running (1)					
🔯 Success					

Setting Up Quest® QoreStor™ with Veeam® Backup & Replication™ Using Instant Recovery with QoreStor

63

Finalizing Instant Recovery

Migrating VM to a production

For VM migration, you can use VMware Storage vMotion, replicate or copy a VM to production with Veeam Backup & Replication, or use Veeam's Quick Migration. When you migrate the VM to production, the VM data is copied from the backup to production storage. The VM data is pulled from the backup and consolidated with changes made to the VM (redo logs). To migrate the restored VM with Quick Migration:

- 1 Open the Backup & Replication view in Veeam Backup & Replication.
- 2 In the inventory pane, select Instant Recovery.
- 3 In the working area, right-click the name of the recovered VM and select Migrate to production.



Terminating the Instant VM Recovery Session

When you terminate the Instant VM Recovery session, the VM is unpublished from the ESX host, and redo logs are cleared from the vPower NFS datastore. To terminate the current Instant VM recovery session

- 1 Open the Backup & Replication view in Veeam Backup & Replication.
- 2 In the Inventory pane, select Instant Recovery.
- 3 In the working area, right-click the name of the recovered VM and select Stop publishing.

QoreStor and Veeam Fast Clone for Hyper-V 2016 backups or Data Copy

Fast clone allows for synthetic full backups of Hyper-V systems or Data Copy jobs with VMs on the ReFS file system with less read performance impact on the QoreStor system. This is achieved through SMB commands and offloading data block copying of existing data to internal operations on the QoreStor instance. It is recommended to configure a new QoreStor repository rather than use a pre-existing one. This is because the existing repository will need to be removed from Veeam to recognize the Fast Clone feature. To do that all Jobs referencing it will need to be moved to other devices or deleted as well. By creating a new container to add as a repository within the same Storage Group, no savings impact will be noticed.

Requirements of Fast Clone

Fast clone is a combination of a Microsoft ReFS filesystem operation, SMB command, Hyper-V backup, and Veeam operation. When considering Fast Clone for QoreStor the following is required:

- Veeam 9.5 Update 4 or higher is required.
- The Hyper-V server or Data Copy job proxy source is running Microsoft Server 2016.
- The VMs for Data Copy job files need to be housed on ReFS File System. NTFS partitions will not work for Fast Clone operations.
- SMB 3.1.1 is required (This is taken care of by the QoreStor version requirements).
- The Veeam backup repository requires the use of the "Align backup file data blocks" option
 - This option will become automatically selected and greyed out making unchecking the option impossible.
- The QoreStor instance is running 6.0 HF2.
- The QoreStor instance has Fast Clone/SMB offload enabled. This setting is off by default.
- The Veeam Proxy moving the data or the Hyper-V server will need to have the Quest Rapid CIFS driver installed and at version 4.0.3220.1 or newer.

- Any Veeam repositories added before enabling Fast Clone/SMB offload will need to be removed and re-added within Veeam to recognize the newly supported option. This is not required if they are not used with Fast Clone jobs.
- Synthetic full operations will need to be configured for all preexisting Veeam backup or Data Copy jobs.

Configuring a new Fast Clone Repository

In this section, we are going to assume the QoreStor being added is new to Veeam. In the following section, we'll cover additional steps to reconfigure existing QoreStor repositories in Veeam.

- 1 First, we'll need to enable Fast Clone support in the QoreStor instance. This is easily done by logging into the qsservice user via ssh. If this is your first time logging in as the qsservice user please reference the QoreStor Deployment Guide for information. Please note enabling the SMB Offload/Fast Clone feature does restart the QoreStor services which could result in failed backup or data copy jobs.
- 2 Once you've logged in via SSH you'll be greeted by the QoreStor Menu. Select Administration, followed by **QoreStor Advanced Features**, then the **SMB Offload Copy** option.



3 Select the Enable SMB Server Offload Copy Support option, then select Yes followed by Ok.

Enable SMB Server Offload Copy Support	Enable SMB Server Offload Copy Support. This option should only be used with Rapid CIFS-based Vecam Fast Clone backups and will remaine a variation of the CorpSort Services	SMB Server Offload Copy Support Enabled QoreStor needs to be restarted to use the new settings
<ok> <back></back></ok>	Do you want to proceed?	
	KNO>	

4 Wait for the QoreStor services to restart and for the system to become operational again.

5 Install the 4.0.3220.1 or newer Quest Rapid CIFS driver on the Veeam Backup and Replication server as well as any Hyper-V server or Veeam proxy that will be used. Please follow the Installing Rapid CIFS on a Veeam Windows Proxy section for steps to do this.

> Setting Up Quest[®] QoreStor[™] with Veeam[®] Backup & Replication[™] QoreStor and Veeam Fast Clone for Hyper-V 2016 backups or Data Copy

6 Create a new CIFS container and add it to Veeam as a repository by following the Creating a CIFS container for use with Veeam and Adding the QoreStor CIFS container as a repository in Veeam sections of this guide. Ensure the Align backup file data blocks option is checked when adding the repository to Veeam. This will likely be automatically checked and greyed out if Fast Clone support is recognized by Veeam.

Align backup tile data blocks Allows to achieve better deduplication ratio on deduplicating storage devices leveraging constant block size deduplication. Increases the backup size when backing up to raw disk storage.
Decompress backup data blocks before storing VM data is compressed by backup proxy according to the backup job compression settings to minimize LAN traffic. Uncompressing the data before storing allows for achieving better deduplication ratio on most deduplicating storage applicances at the cost of backup performance.
This repository is backed by rotated hard drives Backup jobs pointing to this repository will tolerate the disappearance of previous backup files by creating new full backup, clean up backup files no longer under retention on the newly inserted hard drives, and track backup repository location across unintended drive letter changes.
Use per-VM backup files Per-VM backup files may improve performance with storage devices benefiting from multiple I/O streams. This is the recommended setting when backing up deduplicating storage appliances.

7 Create a new Hyper-V backup or Data Copy job following the Creating a backup job with the QoreStor system as the target section of this guide ensuring to use of the Synthetic full option in the job settings.

Ivanced Settings				
Backup Maintenance Storage Noti	fications	Hyper-V	Scripts	
Backup mode				
Reverse incremental (slower Increments are injected into t file is always a full backup of	r) he full ba the most	ickup file, recent VIV	so that ti 1 state.	he latest backup
 Incremental (recommended Increments are saved into new chain. Best for backup target:) w files de ; with por	pendent o or random	n previo 1/0 perf	us files in the formance.
🗹 Create synthetic full back	ups perio	dically	1	Days
erease one outdrady				
Transform previous b Converts previous in the newly created ful	ackup ch crementa I backup	ains into r I backup c file.	ollbacks :hain int	o rollbacks for
Transform previous b Converts previous in the newly created ful Active full backup	ackup ch crementa I backup	ains into r I backup c file.	ollbacks :hain inti	o rollbacks for
Transform previous b Converts previous in the newly created ful Active full backup Create active full backups per Monthly on: First	ackup ch crementa I backup iodically	ains into r I backup o file. Monday	ollbacks :hain inb	o rollbacks for Months
Transform previous b Converts previous to Converts previous Converts previous Converts previous Converts Conve	ackup ch crementa I backup iodically	ains into r I backup c file. Monday	ollbacks :hain int	o rollbacks for Months Days
Transform previous b Converts previous the newly created ful Active full backup Create active full backups per Monthly on: First Weekly on selected days: Saturday	ackup ch crementa I backup iodically	ains into r I backup c file. Monday	ollbacks :hain int	o rollbacks for Months Days
Transform previous to Converte previous to the newly created ful Create active full backups Create active full backups per Monthly on: First Weekly on selected days: Saturday	ackup ch crementa II backup iodically	ains into r I backup c file. Monday	ollbacks chain into	o rollbacks for Months Days
Transform previous to Converte previous to the newly created ful Active full backups Create active full backups per Monthly on: First Weekly on selected days: Saturday	ackup ch crementa Il backup iodically	ains into r I backup c file. Monday	ollbacks :hain int	o rollbacks for Months Days

8 For the next Synthetic Full, you should see Fast Clone referenced in the job details.

Job progress:		100%				1 of 1 VMs
on progress.			1007			101110
SUMMARY		DATA		STATUS		
Duration:	0:06:15	Processed:	100.0 GB (100%)	Success:	1 0	
Processing rate:	80 MB/s	Read:	9.6 GB	Warnings:	0	
Bottleneck:	Proxy	Transferred:	9.6 GB (1x)	Errors:	0	
THROUGHPUT (AL	L TIME)					
						Speed: 96.2 MB/s
SSA-IOSIM001	STATUS Success	 Iob started at 8 Building VMs list VM size: 100.0 	/26/2016 7:06:53 AM it GB (100.0 GB used)			0:00:04
		Changed block Processing SSA	tracking is enabled -IOSIM001			0:04:20
		All VMs have b	een queued for processin	g		
		Synthetic full be	ackup created successfully	(fast clone)		0:00:58
		O Drivence leattler	eck: Proxy 60% > Netwo	ink 64% > Target 155	¢	
		 Job finished at 	8/26/2016 7:13:09 AM			
		O Job finished at	8/26/2016 7:13:09 AM			
		 Job finished at 	8/26/2016 7:13:09 AM		÷.	

Reconfiguring an Existing QoreStor Repository for Fast Clone

In this section, we'll cover additional steps needed to get an existing QoreStor repository recognized as supporting Fast Clone by Veeam. To achieve this the existing repository will need to be removed and readded to Veeam. This will involve pointing existing jobs to other repositories or deleting them outright.

Warning: This is an advanced operation and should only be attempted by a customer comfortable with the Veeam product. Quest recommends creating a new Repository in the same Storage Group and leaving your existing repository in place rather than following these steps.

- 1 Follow steps 1 5 in the Configuring a new Fast Clone Repository section.
- 2 Perform a manual Veeam configuration DB backup and take a copy of that backup file from the repository
- 3 Clone all existing jobs going to the original repository. Do not edit these jobs to configure them with a backup repository yet.
- 4 Remove all existing Veeam Jobs going to the original repository, in 9.5 U4 this should leave the backup files in place and only remove the job and backup file references from the Veeam configuration database.
- **5** Remove the original repository from Veeam, again in 9.5 U4 this should leave the backup files in place and only remove the job and backup file references from the Veeam configuration database.
- 6 Add the original repository back to Veeam, ensuring to select all advanced storage options suggested in the Adding the QoreStor CIFS container as a repository in Veeam section of this guide. The Align backup file data blocks should be automatically checked and greyed out if Fast Clone support is recognized by Veeam. If not double check all previous steps.



- 7 Run a rescan of the repository once added to Veeam, this may take some time depending on the number of save sets existing in the repository. This will import the existing files into the configuration database and make sure they are restorable.
 - **a** If the backups are still not restorable run a Veeam configuration backup restore using the backup you manually created. This will put your Veeam server back into the state it was before any jobs were cloned or removed.
- 8 Edit your cloned jobs to use the newly re-added repository. Ensure the Synthetic feature is selected in the job advanced options for every cloned job.

Advanced	Settings						×
Backup	Maintenance S	torage	Notificatio	ns H	typer-∀	Scripts	
Backu O	p mode Reverse increm Increments are i file is always a fu	ental (s njected ill backi	lower) into the ful up of the m	back ost re	up file, s cent VM	o that th state.	ie latest backup
۲	Incremental (re Increments are s chain. Best for b	comme aved in ackup t	to new files argets with	depe 200r	ndent or random	previou I/O perfi	is files in the prmance.
L	Create synth Create on: Transfor Convert the new	etic full Saturda m previ Is previ ñy creat	l backups pe y ious backup ous increme red full back	riodi chair ntal b up fil	ns into ro ackup cl	Ilbacks hain into	o rollbacks for
	Create active full	backup	os periodica	ly			
	 Monthly on: 	First		~ 1	Monday	\sim	Months
	Weekly on so Saturday	elected	days:				Days
Save As	Default					ОK	Cancel

9 For the next Synthetic Full, you should see Fast Clone referenced in the job details.

			100%		1 of 1 VMs	
SUMMARY		DATA		STATUS		
Duration:	0:06:15	Processed:	100.0 GB (100%)	Success:	1 0	
Processing rate:	80 MB/s	Read:	9.6 G8	Warnings:	0	
Bottleneck:	Praxy	Transferred:	9.6 GB (1x)	Errors:	0	
THROUGHPUT (AI	ll TIME)					
1000 Providence (1000 Providence)						Speed: 90.2 MB/s
SSA-IOSIM001	© Success	 Job started at 8 Building VMs lis VM size: 100.0 	/26/2016 7:06:53 AM t 58 (100.0 G8 used)			0:00:04
		 Changed block Processing SSA 	tracking is enabled -IOSIM001			0:04:20
		All VMs have be	xen queued for processin	g (tast clone)	-	
		Synthetic full ba	ckup created successfully	(rust cione)		0:00:58
		 Synthetic full ba Load: Source 66 Primary bottles 	ickup created successfully 5% > Proxy 80% > Netwo ack: Proxy	nk 64% > Target 139	6	0:00:58
		 Synthetic full ba Load: Source 66 Primary bottlen Job finished at 1 	ickup created successfully v% > Proxy 80% > Netwo nck: Proxy 8/26/2016 7:13:09 AM	ork 64% > Target 13%	5	0.0058
		 Synthetic full ba Load: Source 60 Primary bottlen Job finished at 1 	ickup created successfully % > Proxy 80% > Netwo eck: Proxy 8/26/2016 7:13:09 AM	nk 64% > Target 139		82000
		 Synthetic full ba Load: Source 60 Primary bottlen Job finished at 3 	uckup created successfully 3% > Proxy 80% > Netwo erck: Proxy 8/26/2016 7:13:09 AM	nik 64% > Target 139	• •	82000

Performance Tier

A Performance Tier allows you to define a set of faster disks as a Storage Group and create a container within that group. This Performance container will always read/write to these faster disks which will allow operations like restores and standard (non-fast clone) synthetic backups to occur quickly. This tier does not stage data off to the standard disks, this is because a restore of synthetic operation reading from the standard disks would still hamper the operation. All data written to the Performance Tier stays within the performance Tier. Because of this, it is recommended to write only specific jobs, which are required to be highly available and are sized to fit within the performance tier size. Please read the QoreStor User Guide for more details about the Performance Tier.

Warning: Please note that once a Performance Tier is added to a system it cannot be easily removed and attempting to do so will most likely result in the destruction of data. Please disable any backup or data copy jobs to the QoreStor system and contact support before attempting removal to find out if this is possible.

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Setting up Performance Tier with QoreStor

In this section, we are not going to cover adding a device, creating a partition, creating an XFS filesystem, or defining a mount point in detail. Please reference the QoreStor Installer Guide for this information.

- 1 We first need to cable and add the disks to the OS level. Once seen as a device in the OS an aligned partition will need to be created, an XFS file system created, and a mount point defined in fstab that includes mount option requirements defined in the QoreStor Installer guide.
- 2 Once a file system path to the high-performance storage is added the next step is to add that path as a performance tier in QoreStor. In the QoreStor UI expand Local Storage and select the



3 Enter the performance tier mount path and click the **Test** button.



4 Click the **Confirm** button.



5 If the path gets the expected performance click Add.

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6 Click Confirm to finish adding the performance Tier, QoreStor services will be restarted



- **7** Once the performance Tier is added you will be logged out. Once logged back in the Performance Tier tab will now list a dashboard for the performance Tier.
- 8 Navigate to the Containers tab and click Add Container.



9 In the Storage Group dropdown, select Performance Tier. Input the container Name and set the Protocol to NAS (NFS, CIFS). Click Next.



10 Follow the rest of the steps listed in the **Creating a CIFS container for use with Veeam** and **Adding the QoreStor CIFS container as a repository in Veeam** sections of this guild to finish configuring your Performance Tier container.
Optimizing Performance Tier via Sync Always option

Veeam suggests enabling sync always on CIFS shares. This share-level option decides whether every write to disk should be followed by a disk synchronization before the write call returns control to the client. Setting this to yes can decrease performance but does add some more resiliency to writes in case of interruption of the QoreStor system before writes were synced to disk. We do not recommend this option in cases where performance is a key factor

1. On the QS system run the following command:

/opt/qorestor/bin/connection --update --name <container name> --type CIFS --options "sync always"=yes

Cloud/Archive Tier

Cloud Tier

Cloud Tier allows per container tiering of deduplicated data to low-cost cloud storage. This enables several potential workflows. Namely the ability to keep longer retention while using less physical space on-site or duplicate archival to the cloud. This is done by establishing a Cloud Tier connection and defining per container policies by which to tier data to the cloud. The policy manager allows for tiering based on time limitations and optionally filtering included and excluded files. It is important to note that individual data blocks will be tiered off not whole backup files. This means if a data block is found frequently over multiple backups it will not necessarily be tiered to the cloud.



Warning: Once a container is configured as Cloud Tier the only way to remove it would be to delete the container or contact Support to fully restore all data blocks from the Cloud. This might involve a read cost from the cloud provider

Warning: It is important to <u>fully</u> consider your Veeam Job configuration and policy configuration when deploying Cloud Tier. Failure to do so could result in unexpected charges from the cloud provider or even failing backup jobs. Please read this section in its entirety as well as check the Cloud Tier section of the QoreStor User Guide.

Important Considerations for Cloud Tier with Veeam

Cloud tiering is achieved by sending deduplicated data blocks to low-cost cloud storage on a cloud provider. These data blocks are identified via a per-container policy manager. The Policy manager options are Idle Time, On-Prem Retention, Include/Exclude Directory paths, and Include/Exclude file types.

- Idle Time before cloud migration Replicates stable data blocks idle for more than the selected number of days/hours to the cloud. After this completes data blocks with be located both On-Premises and on the cloud. All restores will come from the On-Premises data block and not induce any cost. Any attempted modification of files after this idle time will result in access-denied errors. This is why the job type should be considered in Veeam, more on this later in this section.
- **On-Prem Retention Age** After the selected number of days/hours data blocks that have replicated to the cloud will be removed from On-Premises storage. After this, any data reads, such as restore

or <u>synthetic full backups</u>, will be from the Cloud Provider. This can be slower and induce costs from the provider.

- Folder Paths Allows for including or excluding specific paths from cloud tiering replication. Usually, this feature shouldn't be needed with Veeam.
- **File Extensions** Allows for including or excluding specific file types from cloud tiering replication. Usually, this feature shouldn't be needed with Veeam.

In most cases, with Veeam, Only Idle time and On-Prem Retention need to be considered.

Warning: Idle time is especially important to consider with two workflows. Forever Forward Incremental and forward incremental with Synthetic Full Backups.

- Forever Forward Incremental Quest recommends against using Forever Forward Incremental jobs with Cloud Tiering <u>at all</u>. In this workflow, a full backup is taken initially and kept, every backup after this will be incremental. Importantly once retention is met the <u>Original</u> Full Backup file has the older incremental injected into it. This means the oldest file in a backup chain is modified by Veeam. If this first full is determined idle by the policy manager "<u>Idle Time before cloud</u> <u>migration</u>" setting, any attempts at modifying it will fail with access denied errors. Even if the Full backup is excluded from cloud tiering the oldest incremental will be read from the cloud resulting in a charge from the cloud provider.
- Forward Incremental with Synthetic Full Backups Quest recommends considering your Synthetic Full schedule when using this workflow with Cloud Tiering. In this workflow, you schedule a periodic Synthetic operation in your backup job. This can be daily, weekly, or monthly. In this workflow, the initial backup will be a full backup. The following days will be incremental backups until your next scheduled synthetic full backup. During the synthetic full Veeam will read from the most recent Full as well as every incremental after it. All of this data will be written into a new Full backup file. It's important that your "On-Prem Retention Age" setting is longer than your synthetic schedule. If this isn't done the Synthetic operations will result in cloud reads which will result in performance impact and induce cost from the cloud provider.
- Forward Incremental with Active Full backups All new backups will be written into new full or
 incremental backup files. There is no consideration for this backup time and it will work without
 issue with Cloud Tiering.
- Reverse Incremental In this workflow, a full backup is taken initially. Each additional backup will
 be incremental which is then injected directly into the full. After the inject an incremental file is left
 with all the data removed from the full. These files are okay to tier to the cloud without issue. The
 injection means the full backup will be modified every backup instead of a new file created. The
 "Idle Time before cloud migration" setting needs to be longer than your scheduled incremental
 backup frequency. This will likely be easy to achieve since incremental backups typically happen
 frequently. Failure to do so will result in access denied errors.

Setting up Cloud Tier

Before setting up Cloud Tier it's important to gather some information from your cloud provider. If using Azure, you will need your Connection String, this can be found on your Azure portal under your blob storage account. If using AWS, Wasabi, or an S3 Compatible cloud provider you will need your Access Key, Secret Key, Region, and Endpoint setting (if using a cloud emulator). These can be found on your AWS console or from your cloud provider.

1 In the QoreStor UI select the **Cloud Tier** tab then click the **Configure** button.

Quest QoreStor		\bigotimes	¢	admin ~
	Cloud Tier	Version	Syst	em Status
		6.0.0.670	🗸 н	lealthy
🛢 Local Storage 🛛 🗸				
Cloud Tier				
Replications	\sim			
📾 Events				
Management	Cloud Tier has not yet been confi	igured.		
	Configure			

2 For Azure enter your Azure Container name, this will be created automatically in the cloud. Enter your Connection string from the Azure portal and your passphrase. This passphrase is user-defined and used to securely encrypt all files written to the cloud provider. Finally, click Configure.

NOTE: Please note the Azure Container name need to be lower case and some symbols are not allowed. This is a limitation of Azure

Configure Cloud Tier	×
Cloud Provider Azure Blob	
2 Need Help?	
Azure Container blobcontainer	
Cloud Tier Encryption	
Passphrase	
Confirm Passphrase	
	Close Configure

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3 For AWS, Wasabi, or S3 compatible enter your S3 bucket name, and this will be created. Enter your Access Key, Secret Key, Region, and passphrase used to encrypt all data written to the cloud provider.

NOTE: Please note the S3 Bucket name need to be lower case and some symbols are not allowed. This is a limitation of S3

Configure Cloud Tier	×
- Cloud Provider	
AWS S3	
Need Help?	
blobcontainer	
O Default O Custom	
Access Key	
secret Key	
- Region	
Cloud Tier Encryption	
Passphrase	
Confirm Passphrase	

- 4 At this point, Cloud Tier should show as configured and the **Cloud Tier** tab will be populated with statistics. The next step will be to Enable the Cloud Tiering Policy on individual containers.
- 5 Select the **Containers** tab and find or create a container. Click the "Enable Cloud Tiering Policy" hyperlink on this container.

Warning: Once a container is configured as Cloud Tier the only way to remove it would be to delete the container or contact Support to fully restore all data blocks from the Cloud. This might involve a read cost from the cloud provider



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6 Define the Idle tie before cloud migration and On-Prem Retention Age, and click Enable.

Warning: Please reference the <u>Important Considerations for Cloud Tier with Veeam</u> section of this guide before defining idle time and retention age.



7 The container will not show as having Cloud Tiering Policy enabled. Idle data will now automatically tier to the cloud provider.



Archive Tier

Important Considerations for Archive Tier with Veeam

QoreStor's archive tier feature enables QoreStor data to be quickly and easily archived to long-term Amazon S3 Glacier or Amazon S3 Glacier Deep Archive storage. Using Veeam and a supported protocol (Object container(S3), files can be written to a QoreStor container and migrated to your archive tier according to easily defined policies. QoreStor provides a policy engine that allows you to set file age and on-premises retention criteria to be used in identifying which files are most suited for replication to the cloud. Policies are defined at the container level and apply to all files within that container. Using the QoreStor Cloud Policy, you can replicate files based on:

- Idle time replicate stable files idle for more than the selected number of hours.
- File extensions replicate files that match or do not match names in a list of extensions.
- **Regular expressions** include or exclude files based on their match to configured regular expressions.
- File locations replicated files in a list of directories, or all files except those in a list of directories.

Any data that is archived from the QoreStor instance by the archive tier is encrypted with zero knowledge encryption. The encryption keys are solely owned by you. If the encryption keys are placed in the archive tier, a passphrase is used to encrypt those keys and that passphrase is only known to you. For added security, QoreStor obfuscates metadata names such as blockmap and data store objects that are stored in the archive tier.

Data stored in the archive tier is not available for immediate recovery. When recovery is initiated, the data stays in the archive tier while a copy is made in S3 standard storage and kept for an amount of time specified by the **archive_retention_in_warm** parameter. Although recovery times may vary, the general expectations for recovery times are:

- Amazon S3 Glacier storage: 3-5 hours
- Amazon S3 Glacier Deep Archive: within 12 hours

Setting up Archive Tier

Archive Tier is a feature that allows a QoreStor system to tier deduplicated blocks of files to an AWS glacier/deep archive via S3 protocol. 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 archive simultaneously, and finally at what point is it only available in the

cloud. Archive Tier restores are more difficult, careful consideration should be given to how long the data should be available on-prem before configuring the archive tier.

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

Quest QoreStor	
III Dashboard	Archive Tier
🖾 Containers	
😫 Local Storage 🛛 🗸 🗸	
Cloud Storage	
Cloud Tier	\sim
Archive Tier	
Replications	\square
🖬 System 🗸 🗸	
Q Diagnostics	Archive Tier has not vet been configured
A Users	Alchive her has hot yet been conligured.
🖶 Events	Configure
Management	

2. You will have to provide several bits of information from your AWS account including the access key, secret, correct region, ARN role, and select an Archive Service Name. The S3 bucket name will be created and is character limited 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.



 We need to add an Archive 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	
III Dashboard	Containers (2)
Containers	
🖯 Local Storage 🗸 🗸	
	ADJ Collabor
Replications	QSPL-6000-01_CWF-NVBU-RDS /containers/QSPL-6000-01_CWF-NVBU-RDS /rs/nvstore /rs/nvstore
🖬 System 🗸 🗸	Details
Q Diagnostics	Marker Connection Replication Connection Replication
	None V RUS NO RS (V CIFS) NO
🖨 Events	Enable Archive Tiering Policy
Management	DefaultGroup / Edit
	Ø User Access Control
	🛱 Delete

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

Enable Archive Tiering Policy						
Archive Policy						
Idle time before archive migrat 7	ion format days v					
On-Prem Retention Age 90	format days v					
Advanced Options						
Can	cel Enable					

Setting up the QoreStor 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 been completed. Refer to the *QoreStor Series Cleaner Best Practices* white paper for guidance on setting up the cleaner.

1 In the QoreStor system GUI, expand the Local Storage tab then click Cleaner, and finally Edit Schedule.

Quest QoreStor						🐼 🗘 admin 🗸
III Dashboard	Cleaner (Done)					Version System Status
Containers Local Storage						6.0.0.670 V Healthy
Performance Tier	Run Cleaner Edit Schedule					
Storage Groups						
Cleaner						
Cloud Tier	() 1:00 PM - 6:00 PM	(C) 1:00 PM - 6:00 PM	1:00 PM - 6:00 PM	C 1:00 PM - 6:00 PM	(S) 1:00 PM - 6:00 PM	1:00 PM - 6:00 PM

2 Define the schedule and click **Save Schedule**.

Cle	aner (D	one)										Vers 6.0.0	ion 0.670	System Status
R	un Cleaner	Cancel	Save Schedule											
M														
	1:00	PM - 6:00 PM	🗑 🕓 1:00 F	M 6:00 PM	1:00 PM	1 - 6:00 PM 💼	() 1:00 P	M - 6:00 PM 🦷	1:00	PM - 6:00 PM		PM - 6:00 PM 🍵) 1:00 PN	I - 6:00 PM 🍵
		^	~											
La	ist	13	00											
		~	~											
	From:		1:00 PN											
	CI To:		6:00 Ph					Cleaner	Processed					
		Cancel	Set	J							essed Bytes Pro			

3 The new cleaner event is displayed on the **Cleaner** Tab.



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.

