

XCubeSAN Series Application Note

Backup VM via Veeam Backup & Replication



QSAN Technology, Inc. www.QSAN.com



Copyright

© Copyright 2017 QSAN Technology, Inc. All rights reserved. No part of this document may be reproduced or transmitted without written permission from QSAN Technology, Inc.

December 2017

This edition applies to QSAN XCubeSAN series. QSAN believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

Trademarks

QSAN, the QSAN logo, XCubeSAN, and QSAN.com are trademarks or registered trademarks of QSAN Technology, Inc.

Microsoft, Windows, Windows Server, and Hyper-V are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.

Linux is a trademark of Linus Torvalds in the United States and/or other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Mac and OS X are trademarks of Apple Inc., registered in the U.S. and other countries.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

VMware, ESXi, and vSphere are registered trademarks or trademarks of VMware, Inc. in the United States and/or other countries.

Citrix and Xen are registered trademarks or trademarks of Citrix Systems, Inc. in the United States and/or other countries.

Veeam and Veeam Backup & Replication are trademarks of Veeam Software.

Other trademarks and trade names used in this document to refer to either the entities claiming the marks and names or their products are the property of their respective owners.



Notices

This XCubeSAN series white paper is applicable to the following XCubeSAN models:

Model Name	Controller Type	Form Factor, Bay Count, and Rack Unit
XS5224D	Dual Controller	LFF 24-disk 4U Chassis
XS3224D	Dual Controller	LFF 24-disk 4U Chassis
XS3224S	Single Controller	LFF 24-disk 4U Chassis
XS1224D	Dual Controller	LFF 24-disk 4U Chassis
XS1224S	Single Controller	LFF 24-disk 4U Chassis

XCubeSAN Storage System 4U 19" Rack Mount Models

XCubeSAN Storage System 3U 19" Rack Mount Models

Model Name	Controller Type	Form Factor, Bay Count, and Rack Unit
XS5216D	Dual Controller	LFF 16-disk 3U Chassis
XS3216D	Dual Controller	LFF 16-disk 3U Chassis
XS3216S	Single Controller	LFF 16-disk 3U Chassis
XS1216D	Dual Controller	LFF 16-disk 3U Chassis
XS1216S	Single Controller	LFF 16-disk 3U Chassis

XCubeSAN Storage System 2U 19" Rack Mount Models

Model Name	Controller Type	Form Factor, Bay Count, and Rack Unit
XS5212D	Dual Controller	LFF 12-disk 2U Chassis
XS5212S	Single Controller	LFF 12-disk 2U Chassis
XS3212D	Dual Controller	LFF 12-disk 2U Chassis
XS3212S	Single Controller	LFF 12-disk 2U Chassis
XS1212D	Dual Controller	LFF 12-disk 2U Chassis
XS1212S	Single Controller	LFF 12-disk 2U Chassis
XS5226D	Dual Controller	SFF 26-disk 2U Chassis
XS5226S	Single Controller	SFF 26-disk 2U Chassis
XS3226D	Dual Controller	SFF 26-disk 2U Chassis
XS3226S	Single Controller	SFF 26-disk 2U Chassis
XS1226D	Dual Controller	SFF 26-disk 2U Chassis



|--|

Information contained in document has been reviewed for accuracy. But it could include typographical errors or technical inaccuracies. Changes are made to the document periodically. These changes will be incorporated in new editions of the publication. QSAN may make improvements or changes in the products. All features, functionality, and product specifications are subject to change without prior notice or obligation. All statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products.

All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.



Table of Contents

loticesi
ackup VM via Veeam Backup & Replication1
Executive Summary1
Audience1
Best Storage Configuration1
Network Configuration and Diagram1
RAID Configuration2
Server Configuration
Network Configuration3
Veeam Installation and License Activation3
Connecting to Hypervisor Server5
Create Backup Job8
Restore the Backup VM to Another Hypervisor Server
Conclusion
Apply To
Reference
ppendix
Related Documents19
Technical Support19



Backup VM via Veeam Backup & Replication

Executive Summary

Veeam Backup & Replication is a powerful, easy-to-use and affordable backup and availability solution. It provides fast, flexible and reliable recovery of virtualized applications and data, bringing VM (virtual machine) backup and replication together in a single software solution. Veeam Backup & Replication delivers award-winning support for VMware vSphere and Microsoft Hyper-V virtual environments. This application note provides technical guidance for backing up VM or its valuable data through Veeam Backup & Replication application along with QSAN XCubeSAN series product.

Audience

This document is applicable for those technical members who are familiar with QSAN products, and for those who are good at network trouble shooting, Windows Server and Unix-Like OS operations, and basic hardware installations.

Please read this document carefully before trying to adjust any parameter on server side. Doing an adjustment with wrong understanding may lead you to get a worse performance experience than ever. If you have any questions about the adjustment, please consult QSAN Technical Support for further assistance.

Best Storage Configuration

Network Configuration and Diagram

We used a quite easy environment which is direct connections between a Windows Server and QSAN XCubeSAN's both controllers to demonstrate the operations with Veeam Backup & Replication application.

CSAN

Dashboard Hardware Monitoring	Controll	er 1								
SYSTEM SETTINGS		Location	Port Name	Status	LAG	VLAN ID	IP Address	Gateway	Jumbo Frame	MAC Address
General Settings	•	Onboard	LAN1 (10Gb)	1 Gb/s	N/A	N/A	10.10.1.101		Disabled	00:13:78:d4:02:2
Management Port	T	Onboard	LAN2 (10Gb)	1 Gb/s	N/A	N/A	192.168.100.2		Disabled	00:13:78:d4:02:2
Power Settings		000000000000000	Periode and Astronomy	and a break of						
Power Settings Notifications Maintenance	Controlle	er 2								
Notifications Maintenance		er 2 Location	Port Name	Status	LAG	VLAN ID	IP Address	Gateway	Jumbo Frame	MAC Address
Notifications			Port Name LAN1 (10Gb)	Status 1 Gb/s	LAG N/A	VLAN ID N/A	IP Address 10.10.1.103	Gateway		MAC Address 00:13:78:d4:02:34

Figure 1 XCubeSAN Network Configuration

The network settings were quite simple as well.



Figure 2 Ne

Network Diagram

RAID Configuration

- Storage
 - Model: XCubeSAN XS5212D
 Memory: 16GB (2 x 8GB in bank 1 & 3) per controller
 Firmware 1.2.2
 HDD: 12 x Seagate Constellation ES, ST500NM0001, 500GB, SAS 6Gb/s
 - HDD Pool: 1 x RAID 6 Pool with 12 x NL-SAS HDDs in Controller 1

CSAN

- HDD Volume: 1 x 100GB in Pool
- LUN Mapping: iSCSI target0 LUN0



INFORMATION:

RAID configuration may vary depending on the real environment on field site, please create RAID pool and volume to be fitted for the environment.

Server Configuration

Network Configuration

Please make sure the connected ports which are used for iSCSI connections have been configured with the same IP segment as the XCubeSAN's controllers side, once the IPs could be pinged it shall be able to be logged in with iSCSI sessions.

As there were two iSCSI sessions in this case, enabling MPIO on the Windows Server side was necessary to make the multipath work.

Veeam Installation and License Activation

Follow the installation wizard of Veeam application and it will guide you to go through and finish the installation step by step, please remember firstly to activate the license to get everything worked as expected.



別	ЈОВ Т	TOOLS				VEEA
≣≁						
\mathbf{T}	Upgrade					
R	Manage Credentials					
R	Manage Passwords			or		
æ	Manage Azure Accounts				OBJECTS	STA
	General Options			Back	1	Sto
.	Users and Roles					
8	Network Traffic Rules					
	Configuration Backup					
	Console +	•				
	Color Theme 🕨					
-R	License					
	Help 🕨					
X	Exit					

Figure 3 License Activation in Veeam



Connecting to Hypervisor Server

1. Click the **Add Server** button on the left-corner on Veeam Backup & Replication application.

闾			SERVER TOOLS	5
≣≁	HOME	VIEW	SERVER	
	Edit Rem Server Sen	ver	can Upgrade	
Add S Adds		er to mana	aged servers.	Type in an object name to see
4 😭	Infrastructu	ire		NAME
Þ	Microso	168.161.93		
Figure	e 4	Add S	Server	

2. Follow the Wizard to complete the process of adding a new Hypervisor Server.

	New VMware Server	x
Specify DNS name o	r IP address of VMware server.	
Name Credentials SSH Connection Summary	DMC	
	< Previous Next > Finish Cance	!

Figure 5 Add Server Wizard Step 1



	New VMware Server
Credentials Select server adminis	strator's credentials. If required, specify additional connection settings including web-service port number.
Name Credentials SSH Connection	Select an account with local administrator privileges on the server you are adding. Use DOMAIN\USER format for domain accounts, or HOST\USER for local accounts. Credentials:
Summary	Default VMware web services port is 443. If connection cannot be established, check for possible port customization in the vCenter Server or ESX(i) server settings. Port: 443
	< Previous Next > Finish Cancel

Figure 6 Add Server Wizard Step 2

	New VMware Server
Credential Select serve	ls er administrator's credentials. If required, specify additional connection settings including web-service port number.
Name	Select an account with local administrator privileges on the server you are adding. Use
Credentials SSH Connection Summary	Credentials Ints. Username root Password: Browse Description: root Toot OK
	Default VMware web services port is 443. If connection cannot be established, check for possible port customization in the vCenter Server or ESX(i) server settings. Port: 443
	< Previous Next > Finish Cancel

Figure 7 Add Server Wizard Step 3



	New VMware Server	x
You can copy the co	nfiguration information below for future reference.	
Name Credentials Summary	Summary: VMware ESXi Server '192.168.176.1' was successfully created. Host info: VMware ESXi 6.5.0 build-4240417 Connection options: User: root Port: 443	
	< Previous Next > Finish Cance	2

Figure 8 Add Server Wizard Step 4

3. A new server is created and is displayed in the left window.

闾		SERVER TOOLS	
≣т но	DME VIE	W SERVER	
Add Edit Server Serve Manage	er Server	Rescan Upgrade	
VIRTUAL MA	CHINES		Q Type in an object nar
	structure Mware vSphe 102,169,16 192,168,17 nerosore Hyp	76.1	NAME 4

Figure 9 A New Server is Created



Create Backup Job

1. In BACKUP & REPLICATION page, click the **Backup Job** button at the left-corner.

習			
E + HOME	VIEW		
Backup Job Prim ry Jobs	Backup VM File Copy Copy Copy Auxiliary Jobs	Restore Import Backup Restore	Failover Plan Failover Plans
BACKUP & REPLICATION		Q Type in an	object name to search for
 Sobs ▷ [NAME 🕹	ТҮРЕ

Figure 10 Create a Backup Job

2. Follow the wizard to finish the process.

	New Backup Job
Name Type in a name and a	description for this backup job.
Name	Name:
Virtual Machines	vmware-veeam test
virtual Machines	Description:
Storage	Created by WIN-K0SMUBH9CET\Administrator at 8/10/2017 1:32 PM.
Guest Processing	
Schedule	
C	
Summary	
	< Previous Next > Finish Cancel

Figure 11 Create a Backup Job Step 1



	Add Objects	X	x
Virtual Machin Select virtual n as you add nev	Select objects: Image: Contract of the second sec	to 🛱 🖥 🛢 🛷	nat automatically changes
Name Virtual Machines	 ▶ = 192.168.161.93 ▲ = 192.168.176.1 ■ 2012R2 		Add Remove
Storage Guest Processing Schedule			Exclusions
Summary			t Up ↓ Down
			Recalculate
	米 - Type in an object name to search for	Q	Total size: 0 B
		Add Cancel	nish Cancel

Figure 12 Create a Backup Job Step 2



TIP:

The storage could be specified according to customer's needs, XCubeSAN's iSCSI volume has been formatted as E: drive, so here we chose E: drive as the backup repository.



3. Run backup job.



Figure 13 Run Backup Job



Restore the Backup VM to Another Hypervisor Server

1. Click the **Backups** item, and select the drive you used to store the backup VM images.

园 王• HOME	
Backup Replication Job Job Primary Jobs	Restore Import Backup Restore Failover Failover Plan
BACKUP & REPLICATION	Q Type in an object name to search for
🖌 🦓 Jobs	JOB NAME 🕇
🚛 Backup	vmware-veeam backup
Backups Bisk Disk Last 24 Hours	🛅 2012R2

Figure 14 Restore the Backup VM Step 1

 Select the backup image that you would like to restore and right-click it; choose the Restore entire VM... item.

回	BACKUP TOOLS	
E- HOME	BACKUP	
Instant VM Recovery vPower BACKUP & REPLICA	e Virtual VM G Disks Files F Restor	Image: Superior of the sector of the sect
A Backups		2012R2
📥 Disk		Instant VM recovery
▷ 🚡 Last 24 Hor	Jrs	Restore entire VM Restore virtual disks Restore VM files Restore guest files Restore to Microsoft Azure Delete from disk

Figure 15 Restore the Backup VM Step 2



3. Select below option at this step.

	Full VM Restore Wizard
Restore Mode Specify whether sele	cted 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 Folder	Pick proxy to use
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

Figure 16 VM Restore Wizard Step 1



4. Choose the destination.

	Select Host	x	x
Host By default, orig clicking Host. U	Select host:	<u>تی</u>	ing desired VM and
Virtual Machines	192.168.161.93		
Restore Mode			
Host			
Resource Pool			
Datastore			
Folder			
Network			
Reason			
Summary			
	Type in an object name to search for	Q	Host
		OK Cancel	Finish Cancel

Figure 17 VM Restore Wizard Step 2



5. Choose the Datastore you want to put the VM into in the destination server

	Select Datastore	×
By default, orig clicking Datasto	Select datastore:	ecting desired VM file, and once.
Virtual Machines	 ▲ ■ 192.168.176.1 ▲ ■ Default policy 	Disk type
Restore Mode Host	vm-data [464.1 GB free]	Same as source
Resource Pool		
Datastore		
Folder		
Network		
Reason		
Summary		
	Type in an object name to search for	astore Disk Type
	OK Cancel	Finish Cancel

Figure 18 VM Restore Wizard Step 3



6. Specify a name for the restoring image as the new VM's name.

	Full VM Restore Wizard	x
	/M folder is selected as restore destination for each VM. You can change folder by s multi-select (Ctrl-click and Shift-click) to select multiple VMs at once.	electing desired VM and
Virtual Machines	VM Folder:	
	Name New Name Folder	
Restore Mode	Change Name 🛛 🗖 vm	
Host	Specify how selected VM name should be changed	
Resource Pool	Set name to:	
Datastore	2012R2-b	
Folder	new_	
Network	Add suffix:	
Reason	_restored	
Summary	OK Cancel	
	Select multiple VMs to apply settings change in bulk.	ne Folder
	< Previous Next > Fin	ish Cancel

Figure 19 VM Restore Wizard Step 4



7. Wait for the restoring job to be finished.

	VM Re	store		x
VM name: 2012R2 Restore type: Full VM Rest Initiated by: WIN-K0SMU		Status: Start time:	In progress (24%) 8/10/2017 2:55:59 PM <u>Cancel restore :</u>	t <u>ask</u>
Statistics Reason Parame	ters Log			
Restore started			6.2 GB / 26.0 G	БB
Objects remaining: Time remaining:	3 of 6 (19.8 GB left) 00:05:40	Resto	re rate: 59 MB/s	
			Close	

Figure 20 VM Restore Wizard Step 5

8. Check the restored files on the destination server.

Navigator	I	🚺 vm-data 🛛 😚 🛱 🥑 🖬 📑 🥥 Actions 🗸
(Back		Getting Started Summary Monitor Configure Pen
Constant of the second se		[vm-data] Q Search S

Figure 21 Check the restored files



9. Remember to register the VM to the server.

Navigator	- #	🗐 vm-data 🛛	🦻 🗟 🕻 🖭	😡 🔯 Actions 🧃
Back		Getting Started	Summary Monito	r Configure P
Image: Constraint of the second s	[vm-data] 2012R2-b			
🗐 datastore1 🗐 VeeamBackup WIN-K0SMUBH9CET		👻 🗐 vm-data	Name	Size
vecanibackap_www-koomobiliseEi		▶ 🧰 .sdd.sf	2012R2.vmsd	0.04
Eason		⊳ = 2012R:	<u>à</u> 2012R2.nvr	8.48
▶ <u>Rick</u>		▶ 🗖 OS	2012R2.vmxf	3.08
		▶ <u></u> 2012R:	📇 2012R2.vmdk	27,262,976.00
		,	🖆 🦸 Register V	/M
			Download from Datastore	
			🗙 Delete File	
			Copy to	
			Move to	
			Rename to	

10. Done.

Conclusion

Veeam Backup & Replication is a popular backup and availability solution. Readers can setup the software along with QSAN XCubeSAN series product easily via this application note.

Apply To

• XCubeSAN XS5200 / XS3200 / XS1200 FW 1.2.2 and later



Reference

Veeam Backup & Replication

• <u>https://www.veeam.com/vm-backup-recovery-replication-software.html</u>



Appendix

Related Documents

There are related documents which can be downloaded from the website.

- All XCubeSAN Documents
- XCubeSAN QIG (Quick Installation Guide)
- <u>XCubeSAN Hardware Owner's Manual</u>
- <u>XCubeSAN Configuration Worksheet</u>
- <u>XCubeSAN SANOS 4.0 User's Manual</u>
- <u>Compatibility Matrix</u>
- White Papers
- <u>Application Notes</u>

Technical Support

Do you have any questions or need help trouble-shooting a problem? Please contact QSAN Support, we will reply to you as soon as possible.

- Via the Web: <u>https://qsan.com/support</u>
- Via Telephone: +886-2-7720-2118 extension 136 (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Skype ID: qsan.support (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summer time: 09:30 - 01:00)
- Via Email: <u>support@qsan.com</u>