

Backup Hyper-V Virtual Machine Using VSS Provider on DPM 2012

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Qsan Technology, Inc.

2F., No.23, Lane 583, Ruiguang Rd. Neihu Dist., Taipei 114 Taiwan, R.O.C.

Tel: +886-2-7720-2118 Fax: +886-2-7720-0295

Email: sales@Qsan.com.tw Website: <u>www.QsanTechnology.com</u>



Introduction

This document introduces how to backup the Virtual Machine on standalone Hyper-V server or CVS (Cluster Shared Volumes) on Hyper-V cluster on Data Protection Manager (DPM) which is a component of Microsoft System Center 2012.

Environment

Host OS	Windows Server 2008 R2
DPM	DPM 2012 RC in System Center 2012 RC
HW VSS provider	Qsan Hardware VSS provider 1.0
Installer	Qsan Storage Service 2.0.2
Qsan System	Qsan F300Q-D316
Firmware	2.2.1

Diagram

The diagram of the standalone Hyper-V server:





The diagram of the two-node Hyper-V cluster:



Configuration

Install DPM 2012 on Backup Server

The DPM 2012 can be downloaded here, <u>http://technet.microsoft.com/en-us/evalcenter/hh505660.aspx?ocid=otc-f-corp-jtc-DPR&wt.mc id=TEC 103 1 33</u>. You don't have to connect the backup server to the Qsan storage for backup the VM stored on the Qsan F300Q. For more information about the system requirements to install the DPM 2012, you can find it here, <u>http://technet.microsoft.com/en-us/library/hh757829.aspx</u>.



About the MPIO Support

The Multipath I/O is natively supported in Windows Server 2008. Although the MIPO driver is also available in the Qsan Storage Service installer, we strongly recommend using the Multipath I/O in the Windows Server 2008 instead of the Qsan MPIO driver.

Install the Qsan VSS Hardware Provider

It's necessary to install the Qsan VSS hardware provider for the Hyper-V server. The Qsan VSS hardware provider is included in the Qsan Storage Service installer.

 Run the Qsan Storage Service installer on the Hyper-V server which you want to backup with the DPM. It's enough to install the Volume Shadow Copy Service (VSS). The Multipath I/O driver (MPIO) won't be selected in Windows Server 2008. The QVolume Shadow Copy application is a small client tool used to test whether the VSS is installed properly or not, it is optional.

🙀 QSAN Storage Ser	vices Setup				
Custom Setup Select the way you	ı want features to be insta	lled.			Qsan contraker
Click the icons in th	e tree below to change the	e way	features	will be installed.	
Volume Multipa QVolur	Shadow Copy Service (VS th I/O Driver (MPIO) ne Shadow Copy Applicatio	is) n			
	R		This feal hard driv	ture requires OKB or ve.	n your
•	[۲			
				В	rowse
Reset	Disk Usage		Back	Next	Cancel

 A reboot is necessary after the installation. To check whether the Qsan VSS hardware provider is installed properly, you can use the command "vssadmin list providers" in command prompt to list providers on the host.





👞 Administrator: Command Prompt	_ 🗆 ×
Microsoft Windows [Version 6.1.7600]	A
Copyright (c) 2009 Microsoft Corporation. All rights reserved.	
C:\Users\administrator.MASAKO>vssadmin list providers	
vssadmin 1.1 - Volume Shadow Copy Service administrative command-line tool	
(C) Copyright 2001-2005 Microsoft Corp.	
Provider name: 'Qsan USS Hardware Provider'	
Provider type: Hardware	
Provider Id: {4156a7d3-ebd5-4f51-8585-64957d6c9338}	
Version: 1.0	
Provider name: 'Microsoft Software Shadow Copy provider 1.0'	
Provider type: System	
Provider Id: {b5946137-7b9f-4925-af80-51abd60b20d5}	
Version: 1.0.0.7	

Backup the VM on Standalone Hyper-V Server

1. The drive letter e:\ is a volume on the Qsan F300Q. The VM has been created on the volume to support the backup with Qsan VSS hardware provider on DPM.

New Virtual Machine Wize	ard ne and Location
Before You Begin Specify Name and Location Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	Choose a name and location for this virtual machine. The name is displayed in Hyper-V Manager. We recommendentify this virtual machine, such as the name of the gues Name: VMonF300Q Vou can create a folder or use an existing folder to store 1 folder, the virtual machine is stored in the default folder c ✓ Store the virtual machine in a different location Location: E:\Hyper-V\
Before You Begin Specify Name and Location Assign Memory Configure Networking Connect Virtual Hard Disk	A virtual machine requires storage so that you can install an storage now or configure it later by modifying the virtual ma Create a virtual hard disk

Size:

O Lise an existing virtual bard disk.

40 GB (Maximum: 2040 GB)

 \mathbf{k}

Summary



 On the DPM server, create a new protection group to backup the VM on the standalone Hyper-V server by selecting the VM in the Available members list.

💿 Create New Protection Group					
Select Group Members. Select the data that you want to protect.					
Steps: Velcome Select protection group type Select group members Select data protection method Select short-term goals Choose consistency check options Summary Status	To choose the data to protect, select the check boxes in the Available structure, and clear the check box of the folder. If you do not see the data source you want to protect in the tree below Unsupported configurations Available members Available members DPMcluster (Cluster) DPMcluster (Cluster) DPMcl				

3. After the protection group is created, the DPM will start the backup automatically.

∎f	🗏 🎦 🕕 Protection Group: Protection Group 2 (Total members: 1)			
	🗏 🖥 Computer: node2.masako.ad.tw			
	🗟 \Backup Using Saved State\VMonF300Q	Microsoft Hyper-V 🕕 Replica creation in progress		
		\searrow		

4. When the backup job is running, you can see a snapshot which has been taken with empty name on the Qsan F300Q. (Figure 1) And then it is mounted automatically on the standalone Hyper-V server. (Figure 2). When the backup job is done, the snapshot will be deleted automatically.

Physical disk RAID group Virtual disk Snapshot Logical unit									
Linked snapshot for VD: - test6 - 💌 Show size unit as: (GB) 💌									
	No.	Name	Used(GB)	Status	Health	Exposure	Right	#LUN	Created time
OP	1		0	N/A	Good	Yes	Read-write	1	Fri Mar 16 10:54:11 2012

(Figure 1)

Caller Contraction Contractico	New Volume (E:) 30.00 GB NTFS Healthy (Primary Partition)	
Disk 7 Basic 30.00 GB Online	New Yolume 30.00 GB NTF5 Healthy (Primary Partition)	

(Figure 2)

Backup the VM in CSV on Hyper-V Cluster

1. Two volumes from the Qsan F300Q are mounted as the CSVs in this case.

(Cluster Shared Volumes				
	Summary of Cluster	Shared Volumes			
	Storage:	Total Capacity:			
	2 Total Disks - 2 online	Total: 29.99 GB			
		Free Space: 28.16 GB			
		Percent Free: 93.9%			
	Disk	Status	Current Owner		
	🖃 ਦ Cluster Disk 3	🕥 Online	node1		
	C:\ClusterStorage\Volume1	File System: NTFS	10 GB (82.5% free)	
	🖃 ਦ Cluster Disk 4	🕥 Online	node1		
	C:\ClusterStorage\Volume2	File System: NTFS	20 GB (99.6% free)	

 Create a new VM named VM1 on the Hyper-V cluster and set the store location to the first CSV.

🎦 New Virtual Machine Wiza	🏚 New Virtual Machine Wizard				
Specify Name and Location					
Before You Begin	Choose a name and location for this virtual machine.				
Specify Name and Location	The name is displayed in Hyper-V Manager. We recommend that y				
Assign Memory	identify this virtual machine, such as the name of the guest opera				
Configure Networking	Name: VM1				
Connect Virtual Hard Disk	You can create a folder or use an existing folder to store the virtu				
Installation Options	folder, the virtual machine is stored in the default folder configure				
Summary	Store the virtual machine in a different location				
	Location: C:\ClusterStorage\Volume1\				
	If you plan to take snapshots of this virtual machine, select space. Snapshots include virtual machine data and may req				



🏚 New Virtual Machine Wiza	ኪ New Virtual Machine Wizard					
Connect Virt	ual Hard Disk					
Before You Begin Specify Name and Location Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	A virtual machine requires storage so that you can install an operating storage now or configure it later by modifying the virtual machine's pro- Create a virtual hard disk Name: VM1.vhd Location: C:\ClusterStorage\Volume1\VM1\ Size: Id GB (Maximum: 2040 GB)					

And then create the second VM named VM2 on the Hyper-V cluster and set the store location to the second CSV.

3. Create a new protection group on DPM server to backup these two VMs.

💿 Create New Protection Group					
Select Group Members. Select the data that you want to protect.					
Steps: Welcome Select protection group type Select group members Select data protection method Select short-term goals Choose consistency check options Summary Status	To choose the data to protect, select the check directory structure, and clear the check box of the If you do not see the data source you want to price configurations. Unsupported configurations Available members Available members DPMcluster (Cluster) Available Storage Cluster Group Cluster Grou				

4. The same step as the standalone Hyper-V server, a snapshot will be taken on the Qsan F300Q when the backup is running on DPM server. And it is mounted on the cluster node which the VM is running on.

Summary

Using the Qsan hardware VSS provider, it can prevent the VM being in "redirected I/O mode" while running the backup job from DPM server to the other VM which is running on different Hyper-V cluster node in the same CSV. For more information about the protection for CSV on DPM



server, please check the documentation from Microsoft, <u>http://technet.microsoft.com/en-us/library/ff634189.aspx</u>.

Applies To

- All Qsan Series with VSS supported.
- Qsan Storage Service 2.0.2

Reference

- Download Microsoft Private Cloud Evaluation Software http://technet.microsoft.com/en-us/evalcenter/hh505660.aspx?ocid=otc-f-corp-jtc-DPR&wt.mc_id=TEC_103_1_33
- System requirements
 <u>http://technet.microsoft.com/en-us/library/hh757829.aspx</u>
- Understanding Protection for CSV
 <u>http://technet.microsoft.com/en-us/library/ff634189.aspx</u>