

## Deploying Symantec Backup Exec 2014 with Dell PS Series Arrays

Configuration and management recommendations and best practices

Dell Engineering May 2015

A Dell Best Practices Guide

### Revisions

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## Acknowledgements

Authored by: Daniel J. Curran

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### Preface

Dell<sup>™</sup> PS Series arrays optimize resources by automating performance and network load balancing. Additionally, PS Series arrays offer all-inclusive array management software, host software, and firmware updates at no additional cost.

#### Audience

The information in this guide is intended for technology professionals interested in using Dell PS Series storage in a Microsoft<sup>®</sup> Windows<sup>®</sup> environment. It is also intended for administrators that have or will be deploying Symantec<sup>™</sup> Backup Exec<sup>™</sup> 2014 and are interested in using the VSS and offhost function with Dell PS Series storage.

To learn more about Dell PS Series products and new releases being planned, visit Dell TechCenter at <u>http://en.community.dell.com/techcenter/storage/w/wiki/2660.equallogic-technical-content</u>. This site provides articles, demos, online discussions, technical documentation, and more details about the benefits of the PS Series product family.

An updated list of SAN components that have been tested by Dell is available in the <u>Dell Storage</u> <u>Compatibility Matrix</u>.

**Current customers**: You may not be running the latest versions of the tools and software listed above. If you are under valid warranty or support agreements for your PS Series array, you are entitled to obtain the latest updates and new releases as they become available.

# Introduction to Symantec Backup Exec 2014 and PS Series storage

This document describes how to use Symantec Backup Exec 2014 for Windows Server® with Dell PS Series storage arrays to back up and restore NTFS volumes, Microsoft Exchange® email, and Microsoft SharePoint® data. The procedures use Microsoft Volume Shadow Copy Service (VSS), the Dell Host Integration Tools (HIT) kit for Microsoft, and Symantec Backup Exec 2014 to create point-in-time copies of data called shadow copies or snapshots.

**Note:** The HIT kit installs and configures several components, including the Remote Setup Wizard, VSS and VDS Provider Services.

This report shows how to use the same products to offload backup and restore operations from the remote host with transportable snapshots. Moving the backup from the remote host to the backup (media) host increases backup performance and reduces backup windows while freeing remote host resources.

**Note:** PS Series arrays can be used with traditional VSS (non-offhost) backup operations and require no special configuration.

Symantec Backup Exec 2014 for Windows Server provides comprehensive data protection for Windows, and supports the following features:

- Support for VSS and hardware-based snapshots
- Advanced Open File Option (AOFO)
- Advanced Disk-based Backup Option (ADBO)
- Deduplication Option

1

- Automated data lifecycle management for disk-based storage
- Granular Recovery Technology (GRT) for Exchange 2013 and SharePoint 2013
- Integration with Microsoft Hyper-V® and VMware vSphere®, including physical-to-virtual conversions

PS Series storage arrays are designed to deliver the benefits of consolidated storage in an intelligent iSCSI storage area network (SAN) that provides highly-available and scalable storage to backup and recovery servers and clients running Symantec Backup Exec. The iSCSI SAN, called a PS Series group, consists of one or more arrays connected to an IP network. As your storage needs grow, simply add more arrays to the group; capacity and performance increase linearly and on demand.

Key features for a PS Series SAN include:

- Easy setup
- Redundant, hot-swappable hardware
- Highly scalable, virtualized storage
- Integrated, self-managing software
- Automatic RAID configuration and management
- High-end features like snapshots and replication
- Auto-Stat Disk Monitoring System
- Automatic data and network I/O load balancing

A PS Series volume is seen on the network as an iSCSI target and can be accessed by an iSCSI initiator installed on a host. This storage can play two roles in backup operations:

- Store the application data that will be backed up. For example, you can create volumes to store Exchange databases.
- Act as backup media (instead of tape) for storing the backed up data. For example, you can create volumes to store the backup of an Exchange database.

With the HIT kit installed, a PS Series SAN can also:

- Serve as a VSS provider to Windows
- Serve as a VDS provider to Windows
- Support Microsoft Multipath I/O



## Common backup and recovery configurations

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Symantec Backup Exec 2014 can be used in a variety of backup and recovery configurations, including LAN backup and recovery, SAN backup and recovery, backup and recovery media, backup to disk and restore from disk operations, and backup to tape and restore from tape operations.

**LAN backup and recovery:** A centralized backup server (Backup Exec server) runs the backup software and backs up other servers (backup clients) by using software agents. The data movement is over a LAN.

**SAN backup and recovery:** A centralized backup server (Backup Exec server) runs the backup software and backs up other servers (backup clients) by using software agents. The data movement is over a SAN.

Although PS Series storage arrays can be used in a LAN backup and recovery configuration, the more likely configuration is to use a PS Series SAN with Symantec Backup Exec 2014. Backing up using a SAN can improve backup performance because all data movement is through the SAN. In addition, technologies such as backup-to-disk and VSS off-host are best implemented using a SAN.

This Technical Report focuses on the SAN backup and recovery configuration in Figure 1. In the SAN configuration described in this Technical Report, the **backup server** (Backup Exec server) runs the backup software and schedules, and it runs the backup jobs. The **backup clients** run backup agent software residing on the servers that run the applications (for example, Exchange, SharePoint or host file systems) that you want to back up. In some cases, the backup server can also act as a backup client when backing up its own data. All backed up data resides on a PS Series group including the disk backup media for storing the backed up data.



Figure 1 SAN backup and recovery configuration

**Backup and recovery media:** Backup media refers to the device that stores backed up data. Backup media can be fixed, such as disk, or removable, such as tape. Symantec Backup Exec 2014 supports backup to tape, as well as backup to disk, and PS Series arrays are ideally suited for disk backup media.

Traditionally, tape has been the backup media of choice, because tapes can be easily transported to a separate facility for storage, and retrieved in the event of a disaster. However, disk backup media is becoming more commonplace because it improves backup performance, provides online recovery capabilities, and supports the use of advanced operations such as snapshot-based backups.

**Backup to disk and restore from disk operations:** In a backup to disk scenario, not only is the data backed up and stored in a volume on a PS Series group, another volume on a PS Series group serves as the backup media to enable disk-based backups. This document describes how use the Backup Exec Storage Provisioning Option (SPO) to configure a virtual disk mapped to a PS Series volume; a quick way to create backup media on a PS Series group.

Environments using Windows Server and the HIT kit can use the Microsoft Volume Shadow Copy Service (VSS) to create snapshots of application data that is used as the source of a backup.

It is important that when performing virtual disk backups that a copy of data is stored away from primary data. This can be accomplished by maintaining tape backups stored at a remote location, or by replicating data to a remote location.

**Backup to tape and restore from tape operations:** Data stored in a PS Series volume can be backed up using any of the traditional disk-to-tape (D2T) backup methods. Simply follow the Symantec Backup Exec recommended procedures for your environment.

You can also backup to tape using VSS, by following the instructions in the backup-to-disk sections of this report and selecting tape for the backup device (backup media).

#### 2.1 VSS snapshots and backup

Snapshots (also called shadow copies) are point-in-time copies of data. A snapshot enables you to quickly copy data at the disk volume level. This volume copy can then be used as the source for backup operations. Snapshot creation does not disrupt access to the volume. The copy is created, typically in a few seconds, and maintained in disk storage (for example, in a PS Series group), providing high performance and low space utilization.

When using snapshots to backup data, the snapshot capability must be integrated with the backup application, the applications and file systems to be backed up, and the storage devices. Historically, this integration has required using custom scripts, which are difficult to create and maintain for proper operation over time. These requirements have severely restricted the adoption of snapshot-based backups.

Microsoft has a technology in Windows Server called Volume Shadow Copy Service (VSS). VSS provides a framework for creating snapshots that integrates VSS-aware disk storage (for example, PS Series arrays), applications (for example, Exchange or SharePoint), and operating system drivers, delivering a turn-key backup solution to IT departments without the need for scripting.

There are three required components in the VSS framework as illustrated in Figure 2.

**VSS writer (1)**: A business application (such as a database application, e-mail, or file system) that prepares the application for snapshot creation or data restoration (for example, by flushing buffers, switching logs, etc.). Hyper-V, NTFS, Exchange, SharePoint, and SQL are examples of VSS writers.

**VSS requestor (2):** Requests the creation of snapshots, typically for backup operations. Symantec Backup Exec 2014 supports VSS and can be used as a VSS requestor.

**VSS provider (3)**: The mechanism that actually creates and maintains the snapshot in the storage hardware. For example, the HIT kit installs a VSS provider that can create snapshots in a PS Series group.



Figure 2 VSS framework

- 1. VSS writer integrated with the application, which prepares the application for the backup or restore operation.
- 2. VSS requestor is usually a backup application that requests the creation of shadow copies and provides an interface for backing up and restoring data. Backup Exec functions as a requestor.
- 3. VSS provider is installed with HIT for Microsoft and interacts directly with the PS Series group.

This illustrates how to use the HIT kit for Windows (VSS provider) with Symantec Backup Exec 2014 (VSS requester) to backup and restore Hyper-V, NTFS, Exchange, SQL, and SharePoint applications (VSS writers) providing an end-to-end backup and restore solution.

A snapshot provides a stable copy of volume data for backups. There are three types of VSS snapshots: Local software-based, Local hardware-based and Transportable (offhost) hardware-based.

**Local software-based VSS snapshots:** The backup application is responsible for creating and storing the snapshot of a backup client volume. Then, the backup client mounts the snapshot, and the backup server backs up the snapshot.

**Local hardware-based VSS snapshots:** The backup application requests that the storage hardware create and store the snapshot of a backup client volume. Then, the backup client mounts the snapshot, and the backup server backs up the snapshot.



Local snapshot operations typically work as shown in Figure 3.

Figure 3 Local snapshot operations.

- 1. The backup application either creates and stores a snapshot of the backup client volume, or it requests that the storage hardware (PS Series group) creates and stores the snapshot.
- 2. The backup client mounts the snapshot and the backup server backs up the snapshot.
- 3. The snapshot may be deleted after the backup is complete.

**Transportable (offhost) hardware-based VSS snapshots:** The backup application requests that the storage hardware create and store the snapshot of a backup client's volume. Then, the backup server mounts the snapshot and backs up the snapshot. This moves (offloads) backup processing from the backup client and moves it to the backup server (offhost).



Transportable (offhost) snapshot operations typically work as shown in Figure 4.

Figure 4 VSS Transportable snapshot operations

- 1. The backup application requests that the storage hardware (PS Series group) create and store a snapshot of the backup client volume.
- 2. The backup server mounts and backs up the snapshot.
- 3. The snapshot may be deleted after the backup is complete.



## 3 Exchange backup levels

Symantec Backup Exec 2014 supports many levels of backup for Microsoft Exchange 2010 and 2013. Two of the basics are:

- Individual databases network backup / database availability groups (DAG) network backup.
- Snapshot and offhost backups of DAG or individual database(s). The backup software gives you the option of backing up each Exchange mailbox database or complete Information Store to backup media.

**Note:** Each backup level has its advantages and disadvantages. This report focuses on leveraging the VSS capabilities of Symantec Backup Exec 2014 with ADBO, using the offhost function in backing up the Exchange Information Store and NTFS files.



## 4 SharePoint backup levels

Symantec Backup Exec 2014 supports many levels of backup for Microsoft SharePoint 2010 and 2013. A few of these are:

- Web applications and their associated databases
- Sites and subsites. Individual objects and their versions can be restored from full database backups
- Individual documents and any pictures that are contained in libraries
- Configuration databases that contain all of the configuration information for the entire SharePoint Server farm. Use caution when you restore this database. Any changes that you make to the farm topology before you restore from the backup are lost. The configuration database can be restored only to its original location.

**Note**: Each backup level has its advantages and disadvantages. This report focuses on leveraging the VSS capabilities of Symantec Backup Exec 2014 with GRT and enabled farm-level backups.



## 5 Symantec application agents, and ADBO

Backup Exec 2014 includes agents for backing up a number of database applications, including Microsoft Exchange, and SharePoint/SQL Server.

For transportable snapshots, Backup Exec 2014 supports the Advanced Disk-based Backup Option (ADBO). ADBO allows offhost backup using PS Series arrays with Backup Exec 2014 for Windows Servers on the Backup Exec server (also known as the backup server) that is doing the backup.

If you plan to back up Exchange or SharePoint/SQL Server using VSS, the relevant agents must be installed on the Backup Exec server that is doing the backup, along with having a current version of the Agent for Windows on the application server.

For more information on ADBO or the application agents, see the <u>Symantec Backup Exec 2014</u> <u>Administrator's Guide</u>.

#### 5.1 Deploying Symantec Backup Exec 2014

The following sections describe how to backup and restore NTFS volumes, Exchange e-mail, and SharePoint farm items using Symantec Backup Exec 2014, a PS Series group, and the HIT kit.

The procedures focus on the use of VSS and transportable snapshots. However, traditional backup and recovery methods and vendor-specific backup techniques that do not support transportable snapshots can also be used to back up the data residing on PS Series volumes.

See the Backup Exec 2014 documentation for application installation and configuration details. See the PS Series *QuickStart* or *Group Administration* manual for information about setting up a group and volumes. See the Auto-Snapshot Manager *Installation and Administration* manual for detailed requirements and installation information. Also, appendix B has PS Series storage and Host Integration Tools step-by-step instructions.

#### 5.2 Basic steps

This section provides an overview of the basic steps for backup and recovery operations using a PS Series iSCSI SAN. Refer to the specified sections for detailed information.

- 1. Set up the PS Series group and create the following volumes:
  - Backup client volumes that will contain the application data to be backed up for each volume, create one or more access control records that allow the backup client access to the volumes. Be sure to reserve snapshot space for each client volume. In addition, for each volume, create one or more access control records that allow the backup server snapshot only access to the volumes.
  - One or more backup volumes for the disk backup media for each volume, create one or more access control records that allow the backup server access to the volumes.

See PS Series group requirements in this document for more information.

If your SAN is composed of multiple PS Series arrays, consider creating multiple pools of storage and segregating application data storage from backup data storage. See the *PS Series Firmware Group Administration* manual for more information.

For more information on Dell Host Integration Tools for Microsoft, please refer to the *Dell EqualLogic Host Integration Tools/Microsoft Edition - Installation and User's Guide – Version 4.7.1* and the *Dell EqualLogic Host Integration Tools for Microsoft Windows – Release Notes – Version 4.7.1* at eqlsupport.dell.com (requires login).

Log in, or click Create Account to request a new support account.

Properly configure the SAN network for best performance. See the document, <u>Windows Server</u> 2012 NIC Optimization and Best Practices with EqualLogic SAN, for more information.

- 2. Ensure that the backup server (Backup Exec server) and backup clients (remote servers) meet the requirements described in "Backup server requirements" in this document.
  - a. On the backup server, install Windows Server 2012 or later along with the required hot fixes and service packs, and an iSCSI initiator if required. You can use an available hardware iSCSI initiator, or the OS software initiator. Use the HIT kit to install Remote Setup Wizard, VSS and VDS Provider Services on the backup server, configure the server to detect storage group targets, and install the PS Series MPIO Device Specific Module.

Configure one or more virtual disks for disk backup media. Optionally, you can create a storage device pool for disk backup media. Create persistent connections to the backup volumes for the disk backup media. Initialize the volumes, align disk sectors, and format the new disks. Ensure that the backup server can access the VSS control volume. Then install the Symantec Backup Exec software and the Symantec application-specific agents.

On each backup client, install Windows Server 2012 or later, the required hot fixes and service packs. Persistently connect to the backup client volumes. Also from the Backup Server create persistent snapshot-only connections to the volumes to be backed up (allows Backup Exec server access to application volumes).

- b. Initialize the volumes, and format the new disks. Install the HIT kit on the backup client. Ensure that the backup client can access the VSS control volume. Install the applications (for example, SharePoint or Exchange) and configure the applications to use the new disks.
- 3. Perform these tasks on the backup server:
  - a. Launch the Symantec Backup Exec Administration Console.
  - b. Create one or more virtual disks for disk backup media. Optionally, you can create storage device pools for disk backup media.
  - c. Install the Symantec Backup Exec Remote Agent for Windows Servers from the backup server to any clients where you will back up NTFS volumes or application data.

#### 5.3 PS Series group requirements

PS Series group requirements are as follows:

• One or more backup client volumes that will contain the data to be backed up

Be sure to reserve snapshot space for each volume. For each backup client volume, create one or more access control records to allow the backup client access to the volume. If you will be creating transportable snapshots, you must also create one or more access control records to allow the backup server snapshot-only access to these volumes.

Before creating volumes, be sure to fully understand the individual application requirements (for example, e-mail, database, or file system), so you can allocate a sufficient amount of storage space to each volume. Note that volumes can be expanded easily online.

• One or more backup volumes for the disk backup media. (Not required if you are only backing up to tape.) The volume size depends on the frequency and amount of data to be backed up. /

Also, for each backup volume, create one or more access control records that will allow the backup server access to the volume.

• VSS control volume. The Host Integration Tools for Windows automatically creates this volume.

Note: Dell PS Series Storage and Host tools step by step instructions are in appendix B.

See the PS Series *Quick Start* or the *Group Administration* manual for information about creating a group, volumes, and access control records.

See the Host Integration Tools for Microsoft Windows *User Guide and Release Notes* manual for installation information and additional requirements.

In addition, it is recommended that you consult the *Network Connection and Performance Guidelines* on <u>eqlsupport.dell.com</u> (requires login) for information about how to improve network performance when using a PS Series SAN.

#### 5.4 Backup server requirements

There are two types of servers involved in backup and recovery operations: Backup server and Backup client.

**Backup server** (Symantec uses the term Backup Exec server): The backup server schedules, catalogs, and runs the backup and restore jobs.

**Backup client** (Symantec uses the term remote server): A backup client hosts the file system and application data (for example, NTFS file system or Exchange or SharePoint data) that you want to back up and, through software agent, provides the backup server with access to the data.

#### Note: The backup server can also act as a backup client when backing up its own data.

See the Symantec Backup Exec 2014 documentation for detailed information about backup server and backup client hardware and software requirements.

For this paper, the backup server (Backup Exec server) requires the following:

- Microsoft Windows Server 2012 with latest Hotfixes and subsequent service packs
- Symantec Backup Exec 2014 R2 for Windows Servers (or later) and the latest Hotfixes
- Symantec Backup Exec Advanced Open File Option (AOFO)
- Symantec Backup Exec Advanced Disk-based Backup Option (ADBO)
- Symantec Backup Exec Granular Recovery Technology (GRT)
- Symantec Backup Exec Microsoft Exchange Agent
- Symantec Backup Exec Microsoft SharePoint Agent
- Microsoft Exchange Management Tools for Microsoft Exchange Server (in order to detect Exchange servers through the Backup Exec Data Discovery feature supporting checksum and GRT)
- Microsoft iSCSI Software Initiator included with Windows 2008 or later and turned on as part of the Host Integration Tools for Windows installation
- Host Integration Tools for Windows Version 4.7.1 or later (VSS provider). Use the Host Integration Tools kit to install Remote Setup Wizard, VSS and VDS Provider Services on the server, configure the server to detect storage group targets, and install PS Series MPIO Device Specific Module

**Note:** All client servers must be running the same version of Host Integration Tools for Windows as the backup server.

- For each backup volume for disk backup media:
  - Persistently connect the server to the volume (Figure 5)
  - If you want to use multipath I/O, set up redundant paths between servers and storage. See the PS Series Multipath I/O DSM for Windows *Installation and Administration* manual for information (Figure 5)
  - Initialize and format the new disk (Figure 5)
  - Point the backup application to use the new volume for a backup virtual disk, as described in *Creating disk backup media* (Figure 8)
  - VSS control volume. The Host Integration Tools for Windows automatically creates this volume.
- Consult the *Network Connection Guidelines* at <u>eqlsupport.dell.com</u> (requires login) for information about improving network performance between PS Series storage arrays and servers.

EqualLogic	: Gro	up Manager						<u>grpadmin</u>   Logge	ed in 3/23.	/15 12:4	18 PM
🥛 Volumes 🛛 🔳	-	🗸 Volume BUmedia4					2	8	C		0
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Figure 5 Persistently connect the server to the volume

			erues		
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Targets	Discovery	Favorite Targe	ts	Volumes and Devic	e
Quick Connect -					
To discover and DNS name of th	d log on to a target ne target and then o	using a basic connec :lick Quick Connect.	tion, type t	he IP address or	
Target:				Quick Connect	
Discovered tarc	jets				
-				Refresh	
				Status	~
l3a7ed55104-b	umedia4			Inactive	=
d668184bb0e-(	wjuesxprod1			Inactive	
	Co	nnect To Targe	t	X	
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Target name	*:	_			
Target name om.equallog	); iic:0-1cb196-4fa5e5	521-c108fd3a7ed55	5104-bumed	ia4	
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 Figure 6
 Set up redundant paths between server and storage



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Disks										
Storage Pools	Number	Virtual Disk	Status	Capacity	Unallocated	Partition	Read Only	Clustered	Subsystem	Bus Type
Shares	⊿ BUE	Exec14 (6)								
iSCSI	3	BUmedia2	Online	750 GB	0.00 B	GPT			tekmktlab	iSCSI
	4		Offline	4.00 KB	4.00 KB	Unknown	$\checkmark$			iSCSI
	2	BUmedia	Online	250 GB	0.00 B	GPT			tekmktlab	iSCSI
	0		Online	50.0 GB	0.00 B	MBR				ATA
	1	BUmedia3	Online	350 GB	0.00 B	GPT			tekmktlab	iSCSI
	5	BUmedia4	Online	200 GB	200 GB	Unknown		New V	Volume	CSI
								Bring	Online	
		shed on 2/22/	2015 1.12.02	DM	Ш			Take	Offline	>
	Last reire	sneu off 3/23/	2013-1:13:02	L. 1A1				Initial	ize	
								Reset	Disk	



2	New Volu	ime Wizard – 🗖 🗙
Confirm selection	<b>NS</b>	an are the correct settings, and then click Create
Server and Disk Size Drive Letter or Folder File System Settings Confirmation	VOLUME LOCATION Server: Subsystem: Virtual disk: Disk:	BUExec14 tekmktlab-10Gb BUmedia4 Disk 5
	VOLUME PROPERTIES Volume size: Drive letter or folder: Volume label:	200 GB R:\ BUmedia4
	FILE SYSTEM SETTINGS File system: Short file name creation: Allocation unit size:	NTFS Disabled 64.0 KB
		< Previous Next > Create Cancel

Figure 8 New volume

#### 5.5 Backup client requirements

Each backup client (or remote server) requires the following:

- Microsoft Windows Server 2012 with latest Hotfix and service pack
- Microsoft Exchange Server 2013 with latest Hotfix and service pack (only for Exchange install)
- Microsoft SharePoint Server 2013 with latest Hotfix and service pack (only for SharePoint install)
- Microsoft SQL Server 2012 with latest Hotfix and service pack (only for SQL install). Symantec Backup Exec Advanced Open File Option (lets you use snapshot technology to capture any files that are open when a backup runs)
- Symantec Backup Exec Remote Agent for Window Servers
- Symantec Backup Exec Advanced Disk-based Backup Option (ADBO)
- Symantec Backup Exec Granular Recovery Technology (GRT)
- Host Integration Tools for Windows Version 4.7.1 or later (VSS provider). Use the HIT kit to install Remote Setup Wizard, VSS and VDS Provider Services on the server, configure the server to detect storage group targets, and install the PS Series MPIO Device Specific Module.
- For each client volume that will be backed up:
  - Persistently connect the server to the volume.
  - Persistently connect (snap shot only) the backup server to the volume.
  - If you want to use multipath I/O, set up redundant paths between servers and storage. See the EqualLogic Multipath I/O DSM for Windows *Installation and Administration* manual for information.
  - Initialize the volume.
  - Format the new disk.
  - Point the client application to use the new disk.
  - VSS control volume. The Host Integration Tools for Windows automatically creates this volume.

Consult the *Network Connection Guidelines* at <u>eqlsupport.dell.com</u> (requires login) for information about improving network performance between PS Series storage arrays and servers.

See the Symantec Backup Exec documentation for more information on backup server and backup client hardware and software requirements, including the requirements for VSS. As application data grows and storage capacity needs increase, the environment must accommodate changes without affecting users. Storage used in an Exchange Server environment must be highly scalable to accommodate not only growing numbers of users, but also the ever-growing amount of data each user needs to store.

Modular PS Series storage arrays provide easy, online scalability.

## Launching the Backup Administration Console

6

The Symantec Backup Administration Console is run on the backup server and is used to identify backup devices, configure backup and restore jobs, monitor job progress, and restore data.

To launch the Administration Console on the backup server, click: **Start > Backup Exec 2014**, or right-click and add shortcut to task bar, then click shortcut.

The Backup Exec Administration Console appears (Figure 9). You can deploy remote agents, create devices pools, create media sets, create backup and restore jobs, and monitor jobs.

You can also use the **Backup Exec Button** to install Backup Exec software on the backup clients. For example, after clicking the **Backup Exec Button**, click **Installation and Licensing**, then click **Install agents and Backup Exec servers on other servers**. Refer to the Backup Exec 2014 for Windows Servers *Administrators Guide* for instructions on installing the correct Agent for your specific environment.



Figure 9 Backup Exec administration console

## 7 Creating disk backup media

To perform a disk-to-disk backup or a disk-to-disk-to-tape backup, you must configure the backup volumes you set up in *PS Series group requirements* as disk backup media.

Backup Exec allows you to backup data to a virtual disk which maps to a *PS Series* volume. Alternately, you can set up a device pool, which is a group of storage devices (for example, *virtual disks*) that can be used as disk backup media.

To create disk backup media, follow these steps on the backup server:

- 1. Be sure the backup server meets the requirements and recommendations in sections 5.4, "Backup server requirements," and 5.5, "Backup client requirements."
- 2. In the Backup Exec tabs, click Storage. Backup Exec should display the new volume (New virtual disk) as a virtual disk that is available for configuration but has not yet been configured and will display the icon with a question mark. If the New volume is not displayed, press [F5] or right-click the screen and select refresh. Right-click the new, not-configured disk and select Configure Virtual Disk. (Figure 10), Backup Exec will run through the process of configuring the disk. When it is complete, the icon will change and the status will change to online.

8	Symantec	Backup Exec™ 2014		_ <b>D</b> X
Home Backup and Restore	Job Monitor Storage	2 Reports		
Standard     Tree     Pause       □ Compact     □ List     □ Disable       Filter +     ○ Offline     0	Configure Troubleshoot Delete Storage	Inventory Inventory and Catalog now	Blink Unblink Configure Virtual Disk	tore
Views State	Configure	Storage Operations	Storage Array Operations Mee	lia Operations
	P	All Storage		Virtual disk 0004 details 🜩
Name 🔺	State	Storage Type Active	Alerts Storage Trending	Capacity
▼ Storage array 0001	Online	Storage array		
Deduplication disk storage 0001	Online	Deduplicatio	Not enough statistical in	for 582 MB use
Virtual disk 0002	Online	Virtual disk	Not enough statistical in	for 87 GB used
Virtual disk 0003	Online	Virtual disk	Not enough statistical in	for 137 MB use
Virtual disk 0004	Not configured	Virtual disk	Not enough statistical in	for 200
	Configure Storage			
	Pause			
	Disable			
	Offline			
	Backup Exec Diagnostics			
	Delete	Delete		
	Inventory and Catalog now			
	Inventory	Þ		
	Configure Virtual Disk			
	Blink Contigure a virtual d	lisk on a storage array for use v	with Backup Exec.	
	Detaile			
	Сору	Ctrl+C		

Figure 10 New virtual disk

24



After you create and configure a virtual disk, it will appear online under the **Storage** Tab. Repeat this step as needed to create another virtual disk from another backup volume you created.

- 3. To create an optional storage device pool, under the **Storage tab**, click **Configure Storage**.
- 4. The type of storage dialog box (Figure 11) appears. Select **Storage Pools**. Then click **Next**. The type of pool will be displayed. Select **Storage device pool**, then click **Next** (Figure 12).

(å	Configure storage on BUEXEC14
Whic	h type of storage do you want to configure?
2	Disk-based storage Local or remote disk storage, disk cartridge devices, deduplication disk storage, storage arrays, virtual disks, and legacy backup-to disk folders may be available to configure.
æ	Network storage OpenStorage devices, NDMP servers, and remote media agents for Linux may be available to configure.
	Tape storage Installing tape drivers, replacing or adding hot-swappable storage devices, configuring robotic library partitions, and configuring barcode rules are tasks that may be available.
	Storage pools Storage device pools and Backup Exec server pools may be available to configure.
What are	the different types of storage? Cancel

Figure 11 Type of storage



Figure 12 Type of pool

5. Enter a name and description to use for the storage device pool. Figure 13 shows a storage device pool named *storage device pool 0001*. Click **Next**.

CA .	Configure storage on BUEXEC14
What na pool?	ame and description do you want to use for the storage device
Name:	Storage device pool 0001
Description:	
	< Back Next > Cancel

Figure 13 Storage pool name

6. Enter the type of storage device to create. Select **Disk storage** and click **Next** (Figure 14).

Configure storage on BUEXEC14
What type of storage device pool do you want to create?
Storage device pool type: 🥥 Disk storage 🔻
< Back Next > Cancel

Figure 14 Type of storage device pool



7. Choose the storage device(s) to add to the storage device pool, then click **Next** (Figure 15).



Figure 15 Add devices

8. The Storage configuration summary is displayed (Figure 16). Review then click **Finish**.

<u>ă</u>	Configure storage on BUEXEC14			x
Storage configuration sur	mmary			
Storage category Storage pools				~
Storage type				~
Name and description for the storage de Name:	vice pool Storage device pool 0001			~
Description:				<u>^</u>
Storage device pool	Disk storage			~
Storage devices added to the storage dev Virtual disk 0003 Virtual disk 0004	vice pool			~
	< Back F	inish	Cancel	

Figure 16 Storage configuration summary

9. When you are returned to **Storage**, **All Storage**, a new All Storage Pools group is displayed with the new Storage device pool 0001 listed (Figure 17).



Figure 17 Storage device pool 0001



## Creating an off-host backup job for NTFS volume(s)

To back up an NTFS volume to disk using VSS, follow these steps on the backup server:

1. In the Backup Exec tool bar, click the **Backup and Restore tab**, and then in the selection pane, right click the server to backup and choose **Backup to Disk** (Figure 18).

**Note:** If this volume(s) is on a virtual machine, Backup Exec presents a warning that the recommended method for backing up a virtual machine is to select it from the virtual host view in order to use GRT. However, if you are backing up application data such as Exchange or SharePoint on iSCSI in the guest volumes, then you can safely ignore that warning. All data in this paper is stored on Dell PS Series arrays and presented as iSCSI volume(s) to the respective virtual machine(s). In this case, GRT will work with the volumes as noted in this paper.

Standar	Home Home ct Sort and Filter +	Back Tree	cup and l Groups	Restore Restore Backup	Job Mor Job Cone-Time Backup + Back	nitor Edit Backups	Storage Backup Calendar	Reports	earch Create Disaster Recovery Disk	Convert to Virtual •	Add	Remove Update	Hold Job Queue	Run Next Backup Now	Delete Selected Resource Credentials	-
_	_	-	_	_	_	_	_	_	_	_	-	_	Servers	_	_	
_		Server				Active Al	erts	Status A		La	st 7 Days	of Backup Jobs	Last Backup		Next Backup	
Groups	E a muana		EQLDC0	1.HVEXCH	I.COM			Never ba	cked up	C	e Fr Sa S	Su Mo Tu We Tr	- · · · · ·			
All se	arvers and applic ervers	D	EQLEXC	AS.HVEXO	н.сом			Never ba	cked up		∝ Fr Sa !	Su Mo Tu We Tr	-			
Ret	ired Servers		SQL1SP	13.HVEXC	н.сом			Never ba	cked up		∉ Fr Sa t	Su Mo Tu We Th	-			
O ser	vers		WEESP1	3.HV							•					
		10			Backup					•	Bac	ck Up to Deduplicati	ion Disk Storage			
		- 10	10.124.5	.28	Edit Backup	05					Bac	ck Up to Deduplicati	ion Disk Storage	and then Conv	ert to Virtual Machine	
		h	APP1SP	13.H	Hold Job Q	ueue					Bad	ck Up to Deduplicati	ion Disk Storage	and Simultane	ously Convert to Virtua	l Machine
					Run Next B	ackup No	w				Back Up to Disk					
		U	BUExec1	4.H\	Restore			production       Image: Second Create Disaster Recovery Dark	Bac	ck Up to Disk and th	en Convert to V	irtual Machine				
			DAG01.	IVEX	Search						Back Up to Disk and Simultaneously Convert to Virtual Machine					
		42		_	Convert to	Vietural M	achine from	Doint In Tim			Create a Synthetic Backup					
			EQLEXM	B1.H	Convert to virtual Machine from Point In Time			142	Create a New Backup Using the Settings from an Existing Backup							

Figure 18 Backup job properties - selecting an NTFS file system

 Specify the file system to back up. Under Backup Definition Properties in the left-most panel, to the right of Test/Edit Credentials, click Edit (Figure 19). The Backup Selections window appears (Figure 20). To backup data on any backup client that is running an agent, expand Resources and then expand a client to display all available remote objects. Select the NTFS objects to back up, then click OK.

8	Backup De	finition	Properties	_ <b>D</b> X
Name: Description:	WFESP13.HVEXCH.COM Backup	00025		
• 📲 WI	FESP13		浸 Bao	ckup
Partially selec	cted		🤒 Full	۲
Not selected			Job name:	WFESP13.HVEXCH.COM Backup 00025-Full
🔛 C:			Schedule:	Unscheduled
System S Microsoft	tate t SharePoint Resources		Storage:	Storage device pool 0001
			Keep for:	2 Weeks
Те	est/Edit Credentials Edit			Add Stage 🔻 Edit
Help				OK Cancel

Figure 19 Backup Definition Properties – device and media

4	WFESP13.HVEXCH.COM Backup 00027	WFES	P13.HVEXCH.COM		Simplifie	d Disaster Recov	ery: OFF 🍥
	WFESP13.HVEXCH.COM	Browse	Selection Details				
		- <b>Z</b>	WFESP13.HVEXCH.COM	Name	Size 84 Bytes	Туре	Modified Tin 3/26/2015
		•	G:     G:     SRECYCLE.BIN	exch2013 prere	2.08 KB 1.60 KB		6/13/2013 6/12/2013
			Data      Documents	Exchange Server.	. 188 Bytes 87 Bytes		1/15/2014 9/17/2013
			Image: Imag	Move Active Ma	. 181 Bytes 824 Bytes		8/26/2013 6/14/2013
		•	<ul> <li>U D VSS</li> <li>System State</li> </ul>	Product Activati	1.52 KB 672 Bytes		1/25/2013 9/6/2013 1
		•	🧾 🏰 Microsoft SharePoint R	rename db.txt	889 Bytes 514 Bytes		8/7/2013 1
				Restore-Mailbox.	. 529 Bytes		10/1/2013
				Self Signed Cert.	. 626 Bytes		6/14/2010
				setup Exch.txt	376 Bytes . 66 Bytes		10/7/2013 7/1/2013 2
				🗹 🗋 sp tips.txt	120 Bytes		7/23/2013
	🛖 😑 🛓 🔻	<	III >	< III			>

Figure 20 Backup Selections window



3. On the Backup Definition Properties page in the right-most panel, click Edit (Figure 19). This job used a full backup job; select Create without schedule in the Full job template, and click the x beside the Incremental job template to delete it (Figure 21). Specify the backup storage for the objects you selected in step 2. In the left-most panel of the Backup Options window, select Storage, then click on the down arrow beside Storage in the center panel and select Virtual disk 0002 or any Storage device pool or virtual disk (Figure 22).

8	Backup Options	
Schedule Storage Network Notification Test Run	Add a Backup Job  Add a Backup Job  Backup Exec uses the default backup job settings to create new backup jobs. You can change the settings as needed.	
Verify Advanced Open File Advanced Disk-based Backup Security Pre/Post Commands Files and Folders Exclusions	Schedule: Create without a schedule Submit job on hold	
	Job template name: Incremental Type a name that describes this job template. The name is used to create the default job name.	

Figure 21 Select Full job and delete Incremental

8		Backup Options		×
Schedule Storage Network Notification Test Run	Priority: Mediu	for all backup jobs in this backup definition: m 💌		
Venty Advanced Open File Advanced Disk-based Backup Security	Storage: Keep for:	Any disk storage (0 devices are in this pool)  Storage Pools  Any disk storage (0 devices are in this pool)  Any virtual disk storage (3 devices are in this pool)	•	
Pre/Post Commands Files and Folders	Encryption type:	Image: Storage device pool 0001 (2 devices are in this pool)           BUEXEC14           Image: Deduplication disk storage 0001 (202 GB free)           Image: Storage array 0001           Image: Virtual disk 0002 (663 GB free)           Image: Virtual disk 0003 (350 GB free)           Image: Virtual disk 0004 (200 GB free)           Image: Virtual disk 0004 (200 GB free)		



4. To create transportable snapshots, use the Advanced Disk-based Backup option in the left-most panel of the Backup Options window. The Backup Options – Advanced Disk-based Backup window (Figure 23) appears. Select Use offhost backup to move backup processing from remote computer to Backup Exec server. It is recommended to select Fail the backup job if selections do not support offhost backups.



Figure 23 Backup Options – Advanced Disk-based Backup

**Note:** For more on transportable snapshots, see "About the Offhost Backup Feature" section in the *Symantec Backup Exec 2014 Administrator's Guide*.

For transportable snapshots, in the left-most panel of the Backup Options window, select **Advanced Open File**. The Backup Options – Advanced Open File options window shown in Figure 24 appears. It is okay to leave the default Snapshot provider at **Automatic**, Backup Exec has always correctly picked the PS Series hardware provider. You can also choose a hardware provider as shown in Figure 24. Click **OK** when done and then **OK** again to finish. This will appear in the **Jobs** list under the **Job Monitor** tab.



Figure 24 Backup job properties – Advanced Open File options



5. To start the backup job immediately from the **Job Monitor** > **Jobs** section, right click the job and select **Run Now**.

Alternately, you can schedule the job, from the **Job Monitor** > **Jobs** section, right click the job and select **Edit**. In the **Backup Definition Properties** page in the right-most panel, click **Edit**. In the left-most panel of the Backup Options window, select **Schedule**, in the center panel select **Schedule** and then click the down arrow beside Storage and the schedule dialog box shown in Figure 25 appears.

8	Backup Options	x
Schedule Storage Network Notification Test Run Verify Advanced Open File Advanced Disk-based Backup Security Pre/Post Commands Files and Folders	Backup Options         Image: Solution         Image: Solution         Type a name that describes this job template. The name is used to create the default job name.         Job name:         WFESP13.HVEXCH.COM Backup 00026-Full         Schedule:         Image: Recurrence:         Every 1         Image: Recurrence:         Every 1         Image: Recurrence:         Image: Recurrence Pattern         Image: Hours         Image: Recurrence Pattern         Image: Recurrence Pattern <th></th>	
	Ontions	~

Figure 25 Backup Job Properties – Schedule

6. Select your **Recurrence Pattern** where you can set backup schedule options. Click **OK**, then **OK** again to create and activate the schedule.

7. Monitor the backup job. You can monitor both running and scheduled jobs. In the Backup Exec tool bar, click the **Job Monitor** tab. The **Backup Job Monitoring and Status** window (Figure 26) appears.

8							Symant	ec Backup	Exec™ 2014	1						_ <b>_</b> ×
8,	😭 Home	Backup	and Resto	Job Monitor	Storage Report	ts										
Compact	Sort and Filter •	List C	Backup alendar	Restore backup sets created by this job	Edit Delete Cancel	Priority Run Now	Hold Te	st Job Jn Activity	View Job History	Run View Now Job Lo	Delete V	/iew Job Erro History Handl	r Duplicate	Verify Edit Backup		
	Views	В	ackups	Restores		Job	s					Job History	,			
				_	_			Jobs - 1 I	item				_	_		_
Name 🔺				Server	Storage	Job T	/pe S	tate	Job Statu	5			Byte Cou	nt Start Tim	e	Schedule
Full b	SP13.HVEXCH ackup	I.COM Bac	kup 00031	WFESP13.H	VE 🚨 Virtual disk 00	02 Back	up du	Scheduled	🕒 Sche	duled				4/3/2015	11:00:00 PM	Every 1 week on (Friday) at 11:00 PM
<						Ш										>
_						,	Job	Histories -	. 53 items				_			
Name		Server			Storage	Job Type	Job Status	Per	ce Start Tim	e End	Time 🔻	Elapsed Time	Byte Count	Job Rate	Error Dedug	o Selections
WFESP	13.HVEXCH.C	WFESP	13.HVEXCH.	COM	Virtual disk 0002	Backup	🗟 Successfu	1 1	00% 3/30/20 9:33:07	15 3/3 AM 9:33	0/2015 3:30 AM	00:00:23	13.6 KB	0.00 MB/min		\\WFESP13.HVEXCH.C

Figure 26 Job Monitor

8. To get the status of jobs, right-click a job in the **Job History** panel and then select **view job log**. Click the **Job History** tab (Figure 27) and then click **Expand All**, scroll down to review history of the selected job. Click the **Job Log** tab and then click **Expand All**, scroll down and locate the server name and ensure that the job is using the Microsoft Shadow Copy Service and the PS Series VSS provider (Figure 28).

	Job Log	_ □
🖗 <del>年</del> Job History 🛛 Job Log	5 of 5 job logs	⇒ ♦
Job History for \	NFESP13.HVEXCH.COM Backup 00026-Full	^
	Expand All Colla	apse All
WFESP13.HVEXCH.	COM Backup 00026-Full	
Job name Job type Job status Job log Server name Device name Target name Media set name <u>All Media Used</u> B2D000072	: WFESP13.HVEXCH.COM Backup 00026-Full : Backup : Successful : C:\Program Files\Symantec\Backup Exec\Data\BEX_BUEXEC14_00152 : BUEXEC14 : Virtual disk 0002 : Virtual disk 0002 : Internal Disk Images	.xml
- Job Summary I	nformation	~
	Save As Print	Find
		Class



	Job Log	
₩ ←	5 of 5 job logs	⇒ ♦
Job History Job Lo	g	
		_ ^
- Server -	WFESP13.HVEXCH.COM	
Backup Ex	ec server is running Backup Exec version 14.1.1786.1103 with SP-2,HF-227745.	
Agent for W SP-2,HF-227	indows(WFESP13.HVEXCH.COM) is running Backup Exec version 14.1.1786.1103 with '745.	
ADBO: The J up using off	Novanced Disk-based Backup Option was selected for this job. Data is being backed host backup.	
ADBO: Offho Shadow Co	st backup started for resource: "\\WFESP13.HVEXCH.COM\G:". Microsoft Volume by Service (VSS) used for snapshot.	
ADBO: Office	ist technology used by VSS for volume G: - Dell EqualLogic VSS HW Provider (Version	
Network da	itrol connection is established between 127.0.0.1:62283 <> 127.0.0.1:10000 ca connection is established between 127.0.0.1:62350 <> 127.0.0.1:62349	
Set Inf	ormation - \\?\Volume{02c6d8de-d6b2-11e4-93fe-00155d0c1d28}	
- Back	ip Set Information	~

Figure 28 Job Log – Symantec ADBO with VSS and Auto-Snapshot Manager



# Creating an off-host backup job for Microsoft Exchange 2013

Follow Microsoft Exchange Server 2013 installation instructions to install the application and configure it to use the PS Series volumes that will be backed up. For more information, see the document, <u>Deploying</u> <u>Microsoft Exchange Server 2013 with Dell EqualLogic PS Series Arrays</u>.

Before proceeding with this section, read "Snapshot and offhost backups with the Exchange Agent" in the *Symantec Backup Exec 2014 Administrator's Guide*.

**Note:** Review the section, <u>Creating an Off-Host Backup Job for NTFS Volume(s)</u> in this paper for navigation steps required when working with backup definitions.

Follow the steps below on the backup server to back up Exchange using the Advanced Disk-based Backup Option (ADBO) offhost:

- 1. In the **Backup Exec** toolbar, click the **Backup and Restore tab**, and in the **Selection** pane, rightclick the server to backup and choose **Backup to Disk**.
- 2. Specify the Exchange data that you want to back up. Under **Backup Definition Properties** in the left-most panel and to the right of **Test/Edit Credentials**, click **Edit** (Figure 29).



Figure 29 Specify the Exchange data

9


3. In the **Backup Selections** window (Figure 30), under the **Exchange DAG01**, expand **Microsoft Information Store**, select the database(s) you want to back up, then click **OK**.

8		Backup Selections	_ <b>□</b> ×
	■ DAG01.HVEXCH.COM Backup 00032 ① DAG01.HVEXCH.COM	DAG01.HVEXCH.COM Browse Selection Details ✓ C ♥ DAG01.HVEXCH.COM ✓ C ♥ Microsoft Information ✓ MDB1 ✓ MDB2 → MDB3 → MDB4	

Figure 30 Backup Selections – selecting Exchange database(s)

- 4. On the **Backup Definition Properties** page in the right-most panel and to the right of **Add Stage**, click **Edit** (Figure 29).
- 5. For this example job, use a full backup job. Select **create without schedule** in the Full job template under **Schedule** and click the **x** next to the Incremental job template to delete it.
- 6. Specify the backup storage for the objects selected in step 2. In the left-most panel of the **Backup Options** window, select **Storage**, click the down arrow next to **Storage** in the center panel, and select **Virtual disk 0002 or any available Storage device pool or virtual disk**.
- To create transportable snapshots, use the ADBO. In the left-most panel of the Backup Options window, select Advanced Disk-based Backup. The Backup Options > Advanced Disk-based Backup options window appears.
- 8. Select **Use offhost backup to move backup processing from remote computer to Backup Exec server**. It is recommended to select **Fail the backup job** if selections do not support offhost backups (Figure 31).



Figure 31 Advanced Disk-based Backup options

**Note:** For more information on transportable snapshots, see the section, "About the Offhost Backup Feature" in the <u>Symantec Backup Exec 2014 Administrator's Guide</u>.

For transportable snapshots, in the left-most panel of the **Backup Options** window, select **Advanced Open File**. The **Backup Options > Advanced Open File options** window appears. This example uses the defaults including **Automatic** for the Snapshot provider. Backup Exec has correctly picked the EqualLogic hardware provider. You can also choose the hardware provider as shown in Figure 32.

8	Backup Options	
Schedule Storage	Advanced Open File options	
Notification Test Run Verify	Image: Stapshot         Image: Use snapshot technology         Image: The snapshot settings apply to all backup selections, including file system and application selections.	
Advanced Open File Advanced Disk-based Backup Security Pre/Post Commands	Snapshot provider:       Automatic - Allow VSS to select the snapshot provider <ul> <li>Automatic - Allow VSS to select the snapshot provider</li> <li>System - Use Microsoft Software Shadow Copy Provider</li> <li>Enable checkpoi</li> <li>Hardware - Use technology provided by hardware manufacturer</li> </ul>	
Files and Folders		

Figure 32 Backup job properties - Advanced Open File options

- 9. Specify the Exchange options. In the left-most panel of the **Backup Options** window, select **Microsoft Exchange**. The **Backup Options > Microsoft Exchange options** window appears.
- 10. Choose the desired options (Figure 33), click **OK**, and then click **OK** again to finish. This job will be listed in **Jobs** under the **Job Monitor** tab.

**Note:** You can enable the Backup Exec Granular Recovery Technology (GRT) option for offhost backups of Exchange resources. When you select the GRT option for a backup, Backup Exec collects additional information for the catalog. This information lets you restore individual mailboxes, mail messages, and public folders from Information Store backups.

8	Backup Options
Schedule Storage Network Notification Test Run Verify Delayed Catalog Advanced Onen File	<ul> <li>Microsoft Exchange options</li> <li>Perform a consistency check before the backup when using Microsoft Volume Shadow Copy Service (VSS) snapshot provider</li> <li>Continue with the backup if the consistency check fails</li> <li>High Availability Server (Exchange 2007 or Later):</li> <li>Back up from the passive copy and if not available, try the active copy (recommended)</li> </ul>
Advanced Disk-based Backup Security Pre/Post Commands Microsoft Exchange	Full         Backup method:       Full - Back up databases and logs (truncate logs)         Image: Use Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual mailboxes, mail messages, and public folders from Information Store backups

Figure 33 Backup Options – Microsoft Exchange options

11. To start the backup job immediately, from the **Job Monitor** > **Jobs** section, right-click the job and select **Run Now**.

Alternately, you can schedule the job. In **Properties > Frequency**, select **Schedule**. The Backup Job Properties **>** Schedule window appears.



- 12. Select **Run according to schedule** to display the Backup Job Scheduling dialog box where you can set the options for the backup schedule. Click **OK** to create and activate the schedule. Click **Edit Schedule Details** if you need to make further changes to the schedule.
- 13. You can monitor both running and scheduled jobs. In the Backup Exec toolbar, click **Job Monitor** to open the Backup Job Monitoring and Status window (Figure 34).

8										Syn	nantec	Backu	ip Exec™	2014	ļ.												- 🗆 X
8,	A Home	Backu	up and Res	tore Job Monito	r Sto	rage	Reports																			/	
Compact	Sort and Filter •	Tree List	Backup Calendar	Restore backup sets created by this job	Edit	X Delete	Ø Cancel	Priority	Run Now	Hold	Test Run	Job Activi	View Jo ty Histor	b	Run Now	View Job Log	X Delete	View Jo Histor	b Err y Hand	or E	ouplicate	e Verify	Edit Backu	p			
	Views		Backups	Restores					Jobs									Jo	b Histo	ry							
	_	_	_		_	_	_	_			Jo	obs - 2	ltems			_		_	_			_	_				
Name 🔺				Server		Storage			Job Typ	e	Stat	e	Job	Status	s						Byte Co	ount	Start	Time			Schedule
🔸 🤫 WFE	SP13.HVEXCH	I.COM B	3ackup 0003	WFESP13	HVE	🚄 Virtua	l disk 000	2	Backup	,	Sch	eduled	9	Sched	duled								4/3/	2015 1	11:00:0	0 PM	Every 1 week on (Friday) at 11:00 PM
DAG	01.HVEXCH.C	OM Bac	kup 00032	DAG01.H	VEXC	🖪 Virtua	l disk 000	2	Backup	)	Act	ive		Active	e: Queu	ed			00:	:00:05	0 Bytes 0.00 M	s B/min	4/3/	2015 1	12:35:3	0 PM	Run Now & Every 1 week on (Friday) a
<								Ш																			>

Figure 34 Monitor both running and scheduled jobs

14. To view the status of jobs, right-click a job in the **Job History** panel, then select **view job log** (Figure 35).

8					Symantec Back	up Exec	™ 2014		
Home Backup and	Restore Job Monito	r Stor	age Reports		_		_		
Compact Sort and Filter •	Restore backup sets created by this job	Edit	Delete Cancel Priority	Run H Now	Hold Test Jol Run Activ	b View vity Histo	Job Dob ory Now Job Log	Delete Vie Hi	w Job I story Ha
Views Backup	os Restores			Jobs					Job Hist
		_		_	Jobs - i	2 Items		_	
Name 🔺	Server	St	torage	Job Type	State	Jo	ob Status		
• WFESP13.HVEXCH.COM Backup 0	0031 WFESP13	8.HVE 🧯	Virtual disk 0002	Backup	Scheduled	d (	🕒 Scheduled		
PORT Pull backup     Full backup	32 DAG01.H	IVEXC (	Virtual disk 0002	Backup	Scheduled	J (	Scheduled		
<									
	_		_		Job Historie	s - 58 it	ems		
Name	S	erver			Storage	Job Type	Job Status	Perce	Start Tim
Catalog 00010 of DAG01.HVEXCH.CC	OM Backup 00032-Full	DAG01.HVE	XCH.COM		Virtual disk 0002	Catalog	Successful	100%	4/3/2015 11:02:22
DAG01.HVEXCH.COM Backup 00022	Delete	Delete	сн.сом		Virtual disk 0002	Backup	Successful	100%	4/3/2015
WFESP13.HVEXCH.COM Backup 0	Run Now		EXCH.COM		Virtual disk 0002	Backup	Successful	100%	4/3/2015
Catalog 00009 of DAG01 HVEXCH	View Job Loa								11.00.01
	View Job H View the jo	b log for th provides c	ne selected job history. detailed iob information is	torage and	media information	iob optio	ins file statistics and iob	completion	status. 20
CAG01.HVEXCH.COM Backup 000	Error Handling	9 provides e	сн.сом	torege und	Virtual disk 0002	Backup	Successful	100%	12:35:30
WFESP13.HVEXCH.COM Backup 0	Duplicate Verify		хсн.сом		Virtual disk 0002	Backup	Successful	100%	3/30/201 9:33:07 A
WFESP13.HVEXCH.COM Backup 0	Edit Backup		EXCH.COM		Virtual disk 0002	Backup	Successful	100%	3/30/201 9:32:17 /
STATESP13.HVEXCH.COM Backup 0	Сору	Ctrl+C	EXCHOOM		Virtual disk 0002	Rachun	🕼 Successful	100%	3/30/201
Figure 35 Select View Jo	b Log								

15. Click the **Job History** tab (Figure 36), click **Expand All**, and scroll down to review history of the selected job.



Figure 36 Job History – completed Exchange backup job

16. Click the **Job Log** tab, click **Expand All**, scroll down and locate the server name, and ensure that the job is using the **Microsoft Shadow Copy Service** and the **EqualLogic VSS** provider (Figure 37).

**Note:** Figure 37 shows that Backup Exec (VSS Requester) told the PS Series group (VSS Provider) to create snapshots of the Exchange data. Next, Backup Exec connected to the volumes (mounted) so it could do the Full backup. It also shows that Backup Exec Granular Recovery Technology (GRT) option was used.

	Job Log	
		5 5 D
	1 of 1 job logs	
Job History	ob Log	
	-,	
ADBO: up usin ADBO: Store(M The foil The sni 4.7.1). ADBO: Store(M The sni 4.7.1). ADBO: ADBO:	The Advanced Disk-based Backup Option was selected for this job. Data is being backed goffhost backup. Offhost backup started for resource: "\\DAG01.HVEXCH.COM\Microsoft Information IDB1". Microsoft Volume Shadow Copy Service (VSS) used for snapshot. owing volumes are dependent on resource: "H:" . apshot technology used by VSS for volume H: - Dell EqualLogic VSS HW Provider (Version Offhost backup started for resource: "\\DAG01.HVEXCH.COM\Microsoft Information IDB2". Microsoft Volume Shadow Copy Service (VSS) used for snapshot. owing volumes are dependent on resource: "K:" . apshot technology used by VSS for volume K: - Dell EqualLogic VSS HW Provider (Version Offhost backup import of volumes to the Backup Exec server is finished. Offhost backup metadata collected successfully.	
- Se	t Information - \\DAG01.HVEXCH.COM\Microsoft Information Store\MDB1 Cackup Set Information	
Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba B	mily Name: "Media created 4/3/2015 12:35:30 PM" ckup of "\\DAG01.HVEXCH.COM\Microsoft Information Store\MDB1" ckup set #1 on storage media #1 ckup set description: "" ckup Method: Full - Back up databases and logs (truncate logs) srosoft Exchange Server Agent: Started e option to enable the restore of individual items from the database backup was lected for this backup.	
Backu	p started on 4/3/2015 at 12:36:37 PM.	
Backu	p started on 4/3/2015 at 12:36:37 PM.	
Backu Med GRT \BEI The	p started on 4/3/2015 at 12:36:37 PM. ackup Set Detail Information ia Label: IMG000024 backup set folder: \\?\Volume{8784a55e-1474-4245-be99-80aa9f628949} Data\IMG000024 consistency check of the snapshot for the Microsoft Exchange database Database successful.	

Figure 37 PS Series Group Manager GUI - Job Log



# 10 Creating a VSS backup job for Microsoft SharePoint 2013

Follow the Microsoft SharePoint 2013 installation instructions to install the application and configure it to use PS Series volumes. For more information, see the following document: <u>Deploying SharePoint 2013</u> <u>Using a Dell EqualLogic PS Series iSCSI SAN.</u>

Before proceeding with this section, review "Using Snapshot Technology with the SharePoint Agent" in the *Symantec Backup Exec 2014 Administrator's Guide*.

Follow the steps below on the backup server to back up SharePoint using VSS.

- 1. In the **Backup Exec** toolbar, click the **Backup and Restore tab**, and in the **Selection** pane, rightclick the SharePoint server to back up and choose **Backup to Disk**.
- 2. Specify the SharePoint farm to back up. Under **Backup Definition Properties** in the left-most panel and to the right of **Test/Edit Credentials**, click **Edit** (Figure 38).

8	Backup De	finition I	Properties 📃 🗖 🗙
Name:	SP13 Farm Backup 00013		
	.3 Farm		Rackup
Fully selecter	ed  Constant of the second sec		SP13 Farm Backup 00013-Full
(宗 InfoPat (宗 Microso (宗 Service	h Forms Services oft SharePoint Foundation Web Ap s		Schedule: Unscheduled Storage: Virtual disk 0002
লি Shared লি WSS_A	Services dministration Test/Edit Credentials		Keep for:     2 Years       Add Stage     Edit
Help			OK Cancel

Figure 38 Backup Definition Properties



3. The **Backup Selections** window appears (Figure 39). Under the SharePoint farm, expand the farm name, select or de-select the item to back up, and click **OK**. For this example, all farm content was backed up.



Figure 39 Backup Selections – selecting SharePoint farm

**Note:** You can enable the Backup Exec Granular Recovery Technology (GRT) option for backups of SharePoint resources. When you select the GRT option for a backup, Backup Exec collects additional information for the catalog. This information lets you restore individual documents, images, sites, and subsites as well as lists and list items from backups.

- 4. Specify the backup storage for the objects selected in step 2. In the left-most panel of the **Backup Options** window, select **Storage**, click the down arrow next to **Storage** in the center panel, and select **Virtual disk 0002 or any Storage device pool or virtual disk**.
- 5. For transportable snapshots, in the left-most panel of the Backup Options window, select Advanced Open File. The Backup Options > Advanced Open File options window appears. This example uses the defaults including Automatic for Snapshot provider. Backup Exec has correctly picked the EqualLogic hardware provider. You also can choose Hardware provider as shown in Figure 40.

8	Backup Options	_ □
Schedule Storage	Advanced Open File options	
Notification Test Run Verify	Use snapshot     If you have a start of the start of	
Advanced Open File Advanced Disk-based Backup Security Pre/Post Commands	Snapshot provider:       Automatic - Allow VSS to select the snapshot provider <ul> <li>Automatic - Allow VSS to select the snapshot provider</li> <li>System - Use Microsoft Software Shadow Copy Provider</li> <li>Enable checkpoi</li> <li>Hardware - Use technology provided by hardware manufacturer</li> </ul>	
Files and Folders		

Figure 40 Backup Options – Advanced Open File options

 Specify the SharePoint options. In the left-most panel of the Backup Options window, under Settings, select Microsoft SharePoint. The Backup Options > Microsoft SharePoint options window shown in Figure 41 appears. For this example, Full backup was selected and the Granular Recovery Technology (GRT) option was checked.

8	Backup Options
Schedule	
Storage	Service Microsoft SharePoint options
Network	Perform a consistency check before the backup of any Microsoft SQL databases used by Microsoft SharePoint
Notification	Continue with the backup if the consistency check fails
Test Run	
Verify	
Delayed Catalog	Full
Advanced Open File	Backup method: Full - Back up databases
Advanced Disk-based Backup	☑ Use Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual items from the database backup
Security	
Pre/Post Commands	
Microsoft SharePoint	

Figure 41 Backup Options – Microsoft SharePoint options

7. To start the backup job immediately from the **Job Monitor / Jobs** section, right-click the job and select **Run Now**.

Alternately, you can schedule the job. In **Properties > Frequency**, select **Schedule**. The Backup Options > Schedule window appears. Select **Run according to schedule** to display the Backup Job Scheduling dialog box where you can set the options for the backup schedule. Click **OK** to create and activate the schedule. Click **Edit Schedule Details** if you need to make further changes to the schedule.

 You can monitor both running and scheduled jobs. In the Backup Exec toolbar, click Job Monitor. The Backup Job Monitoring and Status window appears. Right-click a backup job in the Current Jobs or Job History panel and select Properties to display the Job History window (Figure 42).

2		Job Log	_ <b>_</b> ×
	k 🗢	1 of 2 job logs	⇒ ♦1
	Job History Job Log		
	Job History for S	SP13 Farm Backup 00013-Full	^
		Expa	and All Collapse All
	SP13 Farm Backup (	DO013-Full	
	Job name Job type	: SP13 Farm Backup 00013-Full : Backup	
	Job status	: Successful	
	Job log	: C:\Program Files\Symantec\Backup Exec\Data\BEX_1	BUEXEC14_00177.xml
	Server name	. DUEAECI4	
	Device name	: Virtual disk 0002	
	Device name Target name	: Virtual disk 0002 : Virtual disk 0002	

Figure 42 Job History – completed SharePoint backup job

9. Click the **Job Log** tab, scroll down, and ensure that the job is using Granular Recovery Technology (GRT) (Figure 43).

2	Job Log	-		x
	1 of 1 job logs	Ę		]
	Job History Job Log		^	
	+ Server - SQL1SP13			
	+ Server - WFESP13			
	+ Server - APP1SP13			
	+ Job Operation - Verify			
(	The backup selection '\?\Volume{20c870b4-f8e2-4d4f-9f15-f6354e03af80}\BEData\IMG000001' ha been successfully processed for Granular Recovery Technology (GRT) The backup selection '\?\Volume{20c870b4-f8e2-4d4f-9f15-f6354e03af80}\BEData\IMG000002' ha been successfully processed for Granular Recovery Technology (GRT) The backup selection '\?\Volume{20c870b4-f8e2-4d4f-9f15-f6354e03af80}\BEData\IMG000003' ha been successfully processed for Granular Recovery Technology (GRT)	s s s		
	- Job Completion Status			
	Completed status: Successful		~	
<u> </u>				

Figure 43 Backup – Job Log

# 11 Restoring NTFS files from an offhost backup

To restore NTFS files from a backup, follow these steps on the backup server:

- 1. On the **Backup and Restore** tab, in the list of servers or on the **Job Monitor** tab, right-click a server that has been backed up and click **Restore**.
- 2. Follow the **Restore Wizard** to restore the data. In the left-most panel, select from the backup job selections by expanding the date and selecting the folders. Then, from the right panel, navigate to select the files to restore (Figure 44).

6	Restore Wiza	rd			x
What files and folders do you	want to restore?				
Show backups from: 3/16/2015 to: 4	/16/2015			Test/Edit Creden	tials
Resource view Details view			1	1	
✓ WFESP13.HVEXCH.COM	Name	Size	Туре 📥	Modified Time	4
▼ [] @ G:	desktop.ini	84 Bytes		3/26/2015 8:03:13 AM	
→ Z 🗠 4/10/2015 11:00:29 PM (Offh	exch2013 prere	2.08 KB		6/13/2013 12:14:18 PM	
Documents	exch2013 prere	1.60 KB		6/12/2013 9:52:22 AM	
P 4/3/2015 11:00:28 PM (Office ) 2/20/2015 0:22:27 AM (Office)	Exchange Server.	. 188 Bytes		1/15/2014 9:13:31 AM	
F 3/30/2013 9:33:27 AM (Offic	link_1.txt	87 Bytes		9/17/2013 7:38:36 AM	
	Move Active Ma.	. 181 Bytes		8/26/2013 11:47:41 AM	
	prereq link.txt	824 Bytes		6/14/2013 9:41:58 AM	
	Product Activati	1.52 KB		1/25/2013 2:21:25 PM	
	registerwsswrite	672 Bytes		9/6/2013 1:51:51 PM	
	V irename db.txt	889 Bytes		8/7/2013 12:02:31 PM	
	Restore-Mailbox.	514 Bytes		9/4/2013 1:38:31 PM	
	Restore-Mailbox.	529 Bytes		10/1/2013 1:46:05 PM	
	Restore-Mailbox.	100 Bytes		6/24/2010 2:41:04 PM	
	Self Signed Cert	626 Bytes		6/14/2013 9:42:47 AM	
	📃 🗋 setup Exch.txt	376 Bytes		10/7/2013 10:24:36 AM	
	SharePoint 2013.	. 66 Bytes		7/1/2013 2:24:47 PM	
	🗹 🗋 sp tips.txt	120 Bytes		7/23/2013 9:56:35 AM	
<	<	Ш			>
			< Back	Next > Canc	el

Figure 44 Restore Wizard – selecting the restore source

3. Select the restore destination. By default, the restore operation will restore to the original location of the files (Figure 45).

🖏 Restore Wizard		_ □	x
Where do you want to restore the data?			
To the original location			
○ To a different location			
Drive:			
Example: \\server\drive:			
Path:		Browse	
Example: \path			
Server logon account: System Logon Account	-	Add/Edi	t
Note: If you restore files from a volume that has Windows deduplication, Backup Exec places the files on the dis deduplicated. Ensure that you have enough disk space to restore the non-deduplicated data before you run a re information see: https://www.symantec.com/docs/TECH204775	c as nor store jo	n- ob. For mor	e
Note: During a redirected restore, you may not be able to restore some file system attributes from the original c information about how Backup Exec treats the file system attributes for different types of file systems, see: https:// www.symantec.com/docs/TECH205960	ata. Foi ://	r more	
/ Microsoft Virtual Hard Disk (Windows Server 2008 R2 or later)			
Create a Virtual Hard Disk for redirected data			
Oreate a different Microsoft Virtual Hard Disk for each backup set that is restored			
O Create a single Microsoft Virtual Hard Disk that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged files and folders from all redirected back that contains the merged	kup set	ts	_
VHD file name:			

Figure 45 Restore destination

- 4. Click **Next** as the wizard walks through the restored data security screen, operating features, and tasks to perform before and/or after the restore screen. On the final screen the wizard requests the job name and schedule. For this example, defaults on all screens were chosen, including the default name and **Run now** for the schedule. Click **Next** at the end of each screen, review the restore summary screen, and click **Finish**.
- You can monitor both running and scheduled jobs. In the Backup Exec tool bar, click Job Monitor. The Backup Job Monitoring and Status window appears. Right-click a backup job in the Current Jobs or Job History panel and select Properties to display the Job History window. Verify the restored files.

# 12 Restoring Microsoft Exchange 2013 from an offhost backup

With the Backup Exec 2014 Granular Recovery Technology (GRT) option for offhost backups of Exchange resources, you can restore individual mailboxes, mail messages, and public folders from Information Store or Storage Group backups.

Before proceeding with this section, review the <u>Symantec Backup Exec 2014 Administrator's Guide</u>.

To restore an Exchange Information Store or mail items, follow these steps on the backup server:

- 1. On the **Backup and Restore** tab, in the list of servers or on the **Job Monitor** tab, right-click a server (DAG) that has been backed up and click **Restore**.
- 2. The **Restore Wizard** displays several restore options (Figure 46). Because this example used GRT in the backup, **Microsoft Exchange mailbox items** was selected. Click **Next** as the wizard walks through the restore screens.

5	Restore Wizard	_	x
	What do you want to restore?		
	Microsoft Exchange Server databases or storage groups Restore entire Microsoft Exchange Server database.		
	Restore individual mailbox items such as calendar, contact, and message items.		
	Microsoft Exchange mailbox items located through Search Search for individual mailbox items such as calendar, contact, and message items, and restore selected items.		
Fic	ure 46 Restore Wizard – Exchange restore choices		

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3. In the left-most panel of the next screen, select from the backup job selections by expanding the date and selecting the folders. From the right panel, navigate further to select the file(s) to restore (Figure 47) and click **Next**.

B	Restore Wiz	ard						
Which mailboxes or items do you want to restore?								
Show backups from: 3/17/2015	4/17/2015		Test/Edit Credentials					
Resource View Details View								
- Z 📲 DAG01.HVEXCH.COM	Name	Size Type	Modified Time					
👻 🖉 🥵 Microsoft Information Store	📃 🖂 <no subject=""> &lt;</no>	I 1.00 KB	10/7/2013 10:15:41 AM					
👻 🖉 🚳 MDB1	📃 屋 <no subject=""> &lt;</no>	I 1.00 KB	10/7/2013 10:15:41 AM					
👻 🖉 🐏 4/10/2015 11:02:03 Pf	📃 屋 <no subject=""> &lt;</no>	I 1.00 KB	10/7/2013 10:15:41 AM					
👻 🗾 🌆 Database	📃 屋 <no subject=""> &lt;</no>	I 1.00 KB	10/7/2013 10:15:41 AM					
👻 🖉 🍋 test1a [test1a]	📃 🖂 <no subject=""> &lt;</no>	I 1.04 KB	2/5/2014 5:38:17 PM					
🕨 📃 🧰 Calendar	📃 🖂 <no subject=""> &lt;</no>	I 9.92 KB	2/7/2014 12:59:57 AM					
Contacts	📃 🖂 <no subject=""> &lt;</no>	I 1.36 KB	8/8/2013 8:47:35 AM					
Conversati	📃 🖂 FW: 1st email	11.8 KB	8/8/2013 8:49:35 AM					
Deleted Ite	🗌 🖂 hello	7.10 KB	8/7/2013 3:54:47 PM					
► Drafts =	🗌 🖂 Hello	9.95 KB	10/7/2013 10:05:55 AM					
	🔲 🖂 hello 020614	9.03 KB	2/6/2014 9:14:35 AM					
Journal	🗌 🖂 hello 100913	9.30 KB	10/9/2013 3:49:00 PM					
Junk Email	M hello world 2	10.2 KB	8/8/2013 8:54:45 AM					
Inotes	🗌 🖂 New mail01	11.1 KB	2/6/2014 9:25:38 AM					
	🔲 🖂 RE: 1st email	13.0 KB	10/1/2013 1:52:50 PM					
Sent Items	📃 🖂 RE: 1st email	12.9 KB	8/8/2013 8:49:38 AM					
	🗌 🖂 sub01	9.77 KB	2/6/2014 9:30:05 AM					
▶ ■ <b>%</b> 4/3/2015 11:01:42 PM	🗌 🖂 todays test01	9.31 KB	10/7/2013 10:13:03 AM					
4/3/2015 12:36:37 PM	todays test02	9.88 KB	10/7/2013 10:17:30 AM					
▶ 3 MDB2								
		111	2					

Figure 47 Selecting the Exchange restore source

- 4. Select the restore destination from the **Where do you want to restore the items** screen. When restoring, there are a few options. The first option is the default and will restore to the original location. The second option is to restore to a different location. This example used the defaults (original location). Select **Next**.
- 5. In the How do you want to restore the items screen, there are two choices: Recreate user accounts and mailboxes if they do not already exist on the destination server, and Overwrite existing mail messages and folders. This example used the defaults (all unchecked). Select Next.
- 6. The next wizard screen asks what tasks to perform before and/or after the restore. Leave this blank and select **Next.**
- On the final screen, the wizard requests the job name and schedule. This example used the defaults on all screens including leaving the default name and **run now** for the schedule. Click **Next**, review the restore summary screen, and click **Finish** (Figure 48).



8. You can monitor both running and scheduled jobs. In the Backup Exec toolbar, click **Job Monitor**. The Backup Job Monitoring and Status window appears. Right-click a backup job in the **Current Jobs** or **Job History** panel and select **Properties** to display the Job History window.

Rest	ore Wizard 📃 🗖
Restore Summary	
Data to restore	
Restore:	Microsoft Exchange
Type of data	
Type:	Microsoft Exchange mailbox items
Selections	:
MDB1 Include - Database\test1a [test1a]\Top of Informatio	n Store\Inbox\hello world 2
Location to restore to	:
To the original location:	Yes
Mailbox, message, and folder restore	
Recreate user accounts and mailboxes if they do not already exist on the destination server:	No
Overwrite existing mail messages and folders:	No
Additional tasks	:
Pre and post commands:	No pre- or post-commands are configured
Notifications:	No recipients have been selected for notification when th job completes
Job name and schedule	
Name:	DAG01.HVEXCH.COM Restore 00033
Schedule:	Run Now
Submit job on hold:	No
	< Back Finish Cancel

Figure 48 Restore summary

#### 9. Verify the restored Exchange items (Figure 49).

Job Histories - 71 Items							
Name	Server	Storage	Job Type	Job Status	Perce Start Time		
DAG01.HVEXCH.COM Restore 00033	DAG01.HVEXCH.COM	Virtual disk 0002	Restore	Successful	100% 4/16/2015 12:11:09 PM		

#### Figure 49 Job status is Successful

# 13 Restoring Microsoft SharePoint data from a VSS backup

To restore Microsoft SharePoint data from a VSS backup, follow these steps on the backup server:

- 1. On the **Backup and Restore** tab, in the list of servers or on the **Job Monitor** tab, right-click a server (farm) that has been backed up and click **Restore**.
- When the Restore Wizard screen appears, click Next. The next screen lists a choice of restore options (Figure 50). Because this example uses GRT in the backup, select SharePoint individual items. Click Next as the wizard walks through the restore screens.

Ь	Restore Wizard
	What do you want to restore?
	CharePoint individual items
	Restore individual documents, images, sites, subsites, lists, and list items.
	<b>SharePoint web applications or portal sites</b> Restore SharePoint web applications or portal sites and their associated content.
	Restore SharePoint farm components Restore SharePoint components such as configuration databases, service applications, shared service providers, or other components.
	Microsoft SharePoint items located through Search Search for individual items, such as documents, sites, and list items, and restore selected items.
	< Back Next > Cancel

Figure 50 SharePoint restore options



3. In the left-most panel of the next screen, select from the backup job selections by expanding the date and selecting the folders. From the right panel, navigate to select the file(s) to restore (Figure 51) and click **Next**.

ع ا	Restore Wiza	rd		_ <b>_</b> ×					
Which individual items do	you want to re	store?							
Show backups from: 3/17/2015 to: 4/17/2015 Test/Edit Credentials									
Resource View Details View	-								
👻 🖉 🍓 SP13 Farm	Name	Size	Туре 🔺	Modified Time					
👻 🖉 🦙 Microsoft SharePoint Foundat	🗌 🗀 Forms	24.9 KB	File Folder	4/22/2009 7:24:48 PM					
▼ Z 🦷 SP13	Application+f	17.4 KB		4/10/2015 7:39:12 AM					
→ 🖉 🧠 4/15/2015 8:15:38 AM	confidentiality	. 15.7 KB		4/10/2015 11:45:34 AM					
	✓ 🗋 w4form2012	107 KB		4/10/2015 11:45:47 AM					
▼ V U /SILES/HK ► □ □ □ FormServerTem	✓ 🗋 w9form2012	84.4 KB		4/10/2015 7:37:07 AM					
► Tomserverien									
→ □ □ □ □ □ □ □ □									
Image: A state of the state									
► 🖊 🖨 Shared Docume									
🕨 🔲 🚞 SiteAssets									
🕨 🔲 🚞 SitePages									
🕨 🔲 🗀 Style Library									
▶ 📃 🥫 /sites/Sales									
▶ 🛄 🍓 4/10/2015 8:00:09 AN									
▶ 🛄 🍓 4/9/2015 2:25:58 PM									
× +	•								
			< Pack	Next > Cancel					
			< Back	Next > Cancel					

Figure 51 Selecting SharePoint items to restore

- 4. On the **Where do you want to restore the items?** screen, select the restore destination. When restoring, you have a few options. The first option is the default and will restore to the original location. The second option is to restore to a site with corresponding site options, and the third option is to restore to a path. This example used the defaults (original location). Click **Next**.
- 5. The next screen asks how to maintain versioning and security for restored data. This example used the **restore over existing items** option. Click **Next**.
- 6. The next wizard screen asks what tasks to perform before and/or after the restore. This example left this blank. Click **Next**.

7. On the final screen, the wizard requests the job name and schedule to use. This example used the defaults on all screens, including leaving the default name and using **run now** for the schedule. Click **Next**, then review the restore summary screen and click **Finish** (Figure 52).

nestore v	Vizard
Restore Summary	
Data to restore	*
Restore:	Microsoft SharePoint Server data
Type of data	*
Type:	SharePoint individual items
Selections	*
SQLSP1\SharePoint_Config\Microsoft SharePoint Foundation Include - WSS_Content_HR\/sites/HR\Shared Documents Include - WSS_Content_HR\/sites/HR\Shared Documents	<u>Web Application\SP13</u> \w4form2012.pdf \w9form2012.pdf
Location to restore to	*
Restore to original location:	Yes
Versioning and permissions	\$
If versioning is enabled at the destination:	Restore over existing items
If versioning is not enabled at the destination:	Restore over existing items
Restore only the most recent version of an item:	No
Restore security information and file system permissions:	Yes
Additional tasks	*
Pre and post commands:	No pre- or post-commands are configured
Notifications:	No recipients have been selected for notification when the job completes
Job name and schedule	*
Name:	SP13 Farm Restore 00035
Schedule:	Run Now
	No

Figure 52 SharePoint restore summary

 You can monitor both running and scheduled jobs. In the Backup Exec toolbar, click Job Monitor. The Backup Job Monitoring and Status window appears. Right-click a backup job in the Current Jobs or Job History panel and select Properties to display the Job History window. 9. Verify the restored database (Figure 53).

۲ II	11				
	Job Histories	72 Items	_	_	
Name	Server	Storage	Job Type	Job Status	Perce S
SP13 Farm Restore 00035	SP13 Farm	Virtual disk 0003	Restore	2 Successful	100%

Figure 53 Job Histories – Successful status



# 14 Summary

With Symantec Backup Exec 2014 and PS Series storage arrays from Dell, you can backup and restore local and remote NTFS volumes, Exchange email, and SharePoint data. In addition, the VSS capabilities of Backup Exec 2014 and the PS Series Host Integration Tools for Microsoft allows you to create an integrated, scalable, high-performing, and highly-reliable backup and recovery solution for Microsoft environments.



# A Configuration details

Vendor	Model	Software revision
Microsoft	Windows Server 2012	6.2.9200
Microsoft	SQL Server 2012	11.0.3128.0
Microsoft	SharePoint 2013	15.0.4420.1017
Microsoft	Microsoft Exchange Server 2013	
Dell Host Integration Tools for Microsoft		4.7.1*
Dell PS Series Firmware		7.0.3*

Table 1Software and firmware used in this paper

\* For a complete version support list see the Host Integration Tools for Microsoft release notes on <u>http://eqlsupport.dell.com</u> (requires login).



# B Creating a volume in a PS Series group

You can create volumes to access storage space in a pool, and modify volume size and attributes on demand.

- 1. In the lower-left pane of the Group Manager, click Volumes.
- 2. In the **Activities** pane, click **Create Volume**.

								L L	- • ×
tekmktiab-IUGb - EqualLo 🗴									
← → C 🖌 🗋 10.124.2	2.30								☆ =
anne 🔁 tekmistisk 100k - E									
Apps 😋 textriction - toob - t									
EqualLogic Gr	roup Manager						<u>grpadmin</u>   Logged	in 4/16/15 1:51	I PM   <u>Log out</u>
🥛 Volumes 🔲 🖛	🗸 Volumes					2		G 🔇	<b>) ?</b>
📑 Group tekmktlab-10Gb									*
🗊 🗐 Volumes	Activities	Volumes							
Volume Collections	😝 Volumes 🛛 🔺	Total volumes	155					Rec	overy bip. (em
I Custom Snapshot Collections	Administration	Online volumes							Court Mile Court
	Create volume	Volumes not shown.	7						
	Create volume folder		-						
	Manage recovery bin		-						
	Charlenne 2042D	Volume	▲ Status	Storage	Reported	Replication	SyncRep	Number of	ISCSI
	e volume 2012R 🛋	A 2012R2 text	• ••···	poor	SIZE 4 TE	partner	status	snapsnots	connections
	Volume	2012R2-lest	<ul> <li>online</li> </ul>	default	1 TE	none			1
	Clope	Adwork-cling	<ul> <li>online</li> </ul>	default	20.01.GE	none		3	1
	Set offline	Adworks-cldb	online	default	20.01 GE	none		3	5
	Set access type	app1-H	online	default	30 GE	none			)
	Delete volume	ASMVETR01	online	SSD-SAS	2 TE	none	in sync		)
	Move volume	etarhel64	online	default	10 GE	none			1
A.T.	Folder	📒 betarhel65	🔵 online	default	10 GE	none			1
🚟 Group	Move to another folder	betasles113	online	default	10 GE	none			1
8	Remove from folder	📒 BUmedia	🔵 online	default	250 GE	none		1	)
U Volumes	Access	📒 BUmedia2	online	default	750 GE	none		1	)
See Replication	Add access policy group	😝 BUmedia3	🔵 online	default	350.01 GE	none		1	)
	Add access policy	😝 BUmedia4	🔘 online	default	200.01 GE	none			)
😸 Monitoring	Manage access point	E CF2K8Defrag	😑 online	SSD-SAS	500.01 GE	none		1	0
	Snanshots	CF2K8TRIM	😑 online	default	9.77 GE	none			)
S 🔊 📐 🚍	1	C 0704100007	<b>•</b> •		05.05				• •
Tools 🖬	Alarms 🛞 0 🛕 1	💡 0 🕴 Operat	ions 🔆 (	0 🗟 0	•			*	0 🖬

Figure 54 Group Manager



- 3. Specify the **General properties** and **Storage pool** assignment:
  - a. Provide a Name and Description (optional) for the volume.
  - b. Select the storage pool to be used for the volume.
  - c. Click Next.

		Create volum	e		×
1 - Volume Settings					?
> 1 - General	General properties				
2	* N <u>ame:</u> volume1 Description: volume to be	used by Microsoft Windows S	erver 2012		
4	Folder				
5	Storage pool assignme	ent			
	Storage pool	Capacity	Free	Drives	Pool encryption
	efault	84.72 TB	41.72 TB	SAS HDD	None
	© SSD-SAS	19.24 TB	10.2 TB	mixed HDD and SSD	None
			Back	<u>N</u> ext Skip to	end Cancel

Figure 55 Volume Settings – General properties

- 4. Specify Volume space and Snapshot space:
  - a. In the **Volume size** field, enter the desired volume size.
  - b. To optionally enable thin provisioning, select **Thin provisioned volume**. Use the sliders in the **Reported volume size** section to adjust settings. You can enable or disable thin provisioning on a volume at any time.
  - c. In the **Snapshot space** section, enter the desired percentage of the volume to be used for snapshots.
  - d. Click Next.

	C	reate volume		×
2 - Space				?
1 - General 🛛 🖋	Volume space			
> 2 - Space	* Volume <u>si</u> ze: 5 GB▼ (max	<. 15 TB) below to adjust settings)		
3	Snapshot space			
4	Snapshot reserve (% of volume reserve)	: 100		
5	🗧 Reported volume size 5.01 GB			2
	Free 525 MI	Unreserve	ed 4.5 GB	
	10%		60%	100%
	SEstimated changes in storage po	ol default		12
	Storage pool default	Current	New	Change
	Volume reserve	26.5 TB	26.5 TB	525 MB
	Snapshot reserve	5.63 TB	5.63 TB	525 MB
	Replication reserve	886.85 GB	886.85 GB	0 MB
	Delegated space	10 TB	10 TB	0 MB
	Free pool space	41.72 TB	41.72 TB	-1.03 GB
	Available for borrowilly	40.23 10	40.23 16	
		B	ack <u>N</u> ext	Skip to end Cancel

Figure 56 Volume settings – Space

PS Series groups use access control records to prevent unauthorized computer access to iSCSI targets (volumes or snapshots). To log in to a volume or snapshot, the server iSCSI initiator must comply with conditions specified in the access control record. For additional information on access control records, refer to the *Dell EqualLogic Group Manager Administrator's Manual* at eqlsupport.dell.com (requires login).

5. To enable multiple initiators to access the volume, as in a cluster configuration, optionally click to select **Allow simultaneous connections from initiators with different IQNs.** 

6. Specify one or more of the options listed in Table 2 and click **Next**.

Option	Description
Authenticate using CHAP user name	Restricts access to computers that supply the specified CHAP user name and its associated password (or secret). The credentials must match a local CHAP account or a CHAP account on an external RADIUS server.
Limit access by IP address	Restricts access to iSCSI initiators that match the specified IP address.
Limit access to iSCSI Initiator name	Restricts access to iSCSI initiators that match the specified name.
Copy access controls from another volume	Copies the access controls setup on another volume. For example, SQL or SharePoint where lots of volumes are being created with the same access controls.

Table 2Volume settings – iSCSI Access

Figure 57 shows restricted access to iSCSI initiators by specified IP address, copied from another volume.

Create volume									
3 - Define iSCSI access poi	nts			?					
1 - General     ✓       2 - Space     ✓       > 3 - ISCSI access       4       5	What kind of access type do you want for this  Cogy access controls from another volume  Select or define access control policies  Define one or more basic access points Nong (do not allow access)  Select the volume from which to copy access  Yolumes:  Volume  spt13sql2-leg01  spt13sql2-templob  spt03sql2-templog  spconfig-log  SoL  SoL01-BU  sql02-data  sql02-hr-db  Do you want to allow simultaneous access to  Vies	volume?  controls  Multiple access No	Access controls: ISCSI access: restricted Access policy groups: None Access policies: None Basic access points: 1. IP=10.10.12.107, 2. IP=10.10.12.108, n one ISCSI initiator?						
	® №			. ]					
		Back	<u>N</u> ext <u>Skip to end</u> Ca	ncei					

Figure 57 Volume settings – restrict access to iSCSI initiators

7. Review the summary and click **Finish**.

	Create volume X
4 - Summary	?
1 - General 🛛 🖌	General settings
2 - Space 🗸	Storage pool
3 - iSCSI access 🛛 🗸	Sector size
> 4 - Summary	Snapshot settings         Snapshot reserve         In-use space varning limt 90%         Space recovery        delete oldest snapshot         ISCSI access         ISCSI access         ISCSI access         ISCSI access         ISCSI access
	Back Hext Einish Cancel

Figure 58 Volume settings – Summary

If you create a thin provisioned volume, you will be presented with a screen as shown in Figure 59, letting you know that snapshot space borrowing will be enabled unless you choose to un-check snapshot space borrowing. Click **OK** to finish.

4 - Summary       Ceneral settings Volume name       volume1 Storage pool       default Storage pool       Corx         2 - Space       Storage pool       default Storage pool       Storage pool       default Storage pool       Corx         3 - ISCSI access       Sector size       5 GB Sector size       Storage pool       Storage pool       Corx         > 4 - Summary       Create volume       ×       Velene volume       ×         Velene you create a volume with this provisioning, snapshot space borrowing will also be enabled, unless you specify otherwise.       Velene you create a volume with this provisioning will also be enabled, unless you specify otherwise.       Velene you create a solume with this provisioning will also be enabled, unless you specify otherwise.         Velene you create a volume with this provisioning will also be enabled, unless you specify otherwise.       Velene you create a solume with this provisioning will also be enabled, unless you specify otherwise.         Velene you create a volume is poilter to the write       Velene you create a solume with this provisioning will also be enabled, unless you specify otherwise.         Velene you create a volume is poilter to the write       Velene you create a solume with this provisioning will also be used by the you create a volume is poilter to the write         Velene you create a volume is poilter to the write       Velene you create a volume is poilter to the write         Velene you create a volume is poilter to the write       Velene you create a volume i		Create volume	x
1. ceneral       Ceneral settings       Corve         2. Space       Volume name	4 - Summary		?
	1 - General       2 - Space       3 - ISCSI access       > 4 - Summary	General settings         Volume name       volume1         Storage pool       default         Size       5 GB         Sector size       512 bytes         Description       volume to be used by Microsoft Windows Server 2012         Snapshot settings       Create volume         V       When you create a volume with thin provisioning, snapshot space borrowing will also be enabled, unless you specify otherwise.         Image: Corrow snapshot space as needed       OK         Cancel       Help	Γοργ
Back Mext Einish Cancel		Back Next Finish	Cancel

Figure 59 Borrow snapshot space

### B.1 Configuring CHAP

- 1. Access the Group Manager.
- 2. Click Group Configuration.
- 3. Click the **iSCSI** tab to manage CHAP accounts (Figure 60).

EqualLogic (	Group Man	ager				9	<u>arpadmin</u>   Logged in 4/20.	/15 8:49 AM   <u>Log out</u>
📰 Group 🛛 🔳 🔻	🗸 Grou	p Configuration				<u>@</u>	8 🕥 😋	S 🔊 ?
<ul> <li>Group tekniktiba 1860</li> <li>** Group Contiguation</li> <li>** Group Contiguation</li> <li>** Group Pools</li> <li>** → Members</li> </ul>	Summ General Group na P addres Access Veb acc Tehet ac SSN acco Ide times Session 1 Email Me Email Me Email Me Systag ISCS accord Systag	ary Settings me	General         Administration         Neutricat           ISCSI Authentication         Initiator authentication         Initiator authentication           Initiator authentication         Preside RADUS suberticaton for SCSI reil         Ragues enting           Enable logal authentication and check local         RAgues enting           ISCSI Discovery         ISNS servers (in order of preference)	Inne SCSI Target Inter Diser na first Passwe See Moddfy ⊗ Dekte ↓ Up	Access Policies SHMP authentication me: r2H68hp; ma: HHGH+j26 Mode Filter Prevent unsuthorized hosts from when selected, initiators can only di	VDS/VSS Defaulte	Updates Advanced	4 
	SNMP ac SNMP tra	SNMP accessenabled SNMP trapsdisabled	Local CHAP Account					(?)
	VDS/VS	<u>s</u>					🔾 Add	Modify 🔀 Delete
	Access	restricted	Local CHAP user A Pa	ssword	Status		Account owner	
			🚑 chapasm 🛛 🖁	q\$&77qpesaaz	enabled		grpadmin	
			🙀 chapuser H	dee.r/dbeeaaz	enabled		grpadmin	

Figure 60 Group Manager – CHAP configuration

4. Click to **VDS/VSS** tab to manage VDS and VSS access to the group. You must enable an existing CHAP user to access the PS Series group using VDS and VSS.

EqualLogic Gr	oup Manager			groadr	<u>nin</u>   Logged in 4/20/15 8:49 AM   <u>Log out</u>
Group ≣ ▼	Group Configuration	Conocal Advantation	Nel/Gentiana 16/61 Accord Delinian CUMD		S S S 8
tel—sg Group Configuration (B—S Strage Pools (B—SS Annotation (B) (B—SS Annotation (B)) (B) (B) (B) (B) (B) (B) (B) (B) (B) (B)	General Settings Group name	VDS/VSS Access Contro VDS/VSS access: restricted No access policy groups ③ No access policies ③ Add	Add	vusivos peradiks opu	atos Advalicou
	Idle timeoutdisabled Session bannerdisabled	Basic access points (4): CHAP account chanuser	A ISCSI initiator	IP addresses	💿 New 🖉 Modify 💥 Delete
	Email Notifications Email alertsdisabled Email Homedisabled	eqisan sqichap chapasm	* * *	****	
	Event Logs Systig				

Figure 61 Group Manager – VDS/VSS configuration

For additional information on configuring CHAP on the PS Series Group, see the *Dell EqualLogic Group Manager Administrator's Manual* at <u>eqlsupport.dell.com</u> (login required).

## B.2 Host Integration Tools for Microsoft

Host Integration Tools (HIT) for Microsoft simplify the configuration and administration of Dell PS Series storage arrays on Windows computers.

For additional information on HIT for Microsoft, including operating system support and PS Series product compatibility, refer to the *Dell EqualLogic Host Integration Tools for Microsoft Installation and User's Guide* at <u>eqlsupport.dell.com</u> (login required).

Table 3 lists the application and service components included with HIT for Microsoft:

Component	Description
Remote Setup Wizard	Enables you to initialize a PS Series SAN array and set up or expand a PS Series group. An alternate command-line interface (RSWCLI) can also be used from the Windows command prompt,
PowerShell Tools	Enables you to manage one or many PS Series groups through a comprehensive set of PowerShell cmdlets.
Volume Rethinning Tools	Enables you to perform rethinning and optional defragmentation operations on one or more volumes.
Dell EqualLogic HPC iSCSI Provider	Allows the Microsoft High Performance Computing (HPC) service to provision volumes and deploy compute nodes on PS Series SANs. This service is only available on systems running Windows HPC Server 2008 R2 or later.
Multipath I/O Device Specific Module (MPIO/DSM)	Windows Service: EHCM Service Supports multipathing. This is a driver module that works in conjunction with the Microsoft MPIO driver. This feature dynamically balances your iSCSI SAN traffic load over multiple network paths between the computer and the PS Series group. This requires multiple iSCSI Host Bus Adapters to use this feature.
Auto-Snapshot Manager / Microsoft Edition (ASM/ME)	Windows Service: EqlASMAgent Enables you to create and manage Smart Copies (snapshots, clones, and replicas). An alternate command-line interface (ASMCLI) facilitates custom operations and scripting.
VSS Provider	Windows Services: EqlReqService, EqlVss Supports VSS management of application-consistent Smart Copies.
Virtual Disk Service (VDS) Provider	Windows Service: EqlVdsHwPrv Enables you to use Microsoft VDS and Microsoft Storage Manager for SANs to create and manage volumes in a PS Series group.
SMP	Windows Service: EQLSMPHost Enables you to manage PS Series storage through native Windows storage interfaces such as PowerShell cmdlets, File Services UI in Windows Server 2012, and WMI.

Table 3 HIT for Microsoft components



There are multiple methods that you can use to install HIT for Microsoft on a host, including through PowerShell and ASM/ME. For first-time installations, you are first required to perform a manual installation. After that, you can easily install HIT for Microsoft on any number of hosts using the remote installation process from the ASM/ME GUI or through PowerShell.

### B.3 Perform a manual installation of HIT for Microsoft

- 1. Download the Host Integration Tools for Microsoft at http://eqlsupport.dell.com (requires login).
- 2. Double-click **Setup64.exe** or **Setup.exe**, or right-click and chose **Open**.
- 3. The InstallShield Wizard installs the Host Integration Tools on your computer. To continue, click **Next**.
- 4. Accept the terms in the license agreement and click Next.
- 5. Click **Next** to install to the default folder, or click **Change** to install to different folder.
- 6. Choose the setup type that best suits your needs:
  - a. Selecting **Complete** will install all program features listed in Table 4. For components such as Multipath I/O and Volume Rethinning, Windows may require a reboot.
  - b. Selecting **Custom** will allow you to choose which program features you want installed and where they will be installed.
- 7. Click Install to begin the installation.
- 8. Click Finish to exit the wizard.

In addition to installing the software components, the installation process automatically performs the following tasks so that HIT for Microsoft can run properly:

- Automatically start the Microsoft iSCSI Initiator Service
- To enable Multipath IO (MPIO) to function properly:
  - The Windows Firewall is configured allow ICMP echo requests
  - Automatically configure and starts the Microsoft Multi-Path Bus Driver service
- Install required Microsoft .NET components
- Install required Visual C++ redistributable components
- Create MSI logs directory at %appdata%\EqualLogic\Logs

### B.4 Configuring PS Series group access in ASM/ME

You can use ASM/ME to configure access to multiple PS Series groups.

- 1. Click **Settings** in the Navigation Area of ASM/ME (Figure 62).
- 2. Holding down the **Ctrl** key on your keyboard, click to multi-select the servers you want to apply the settings to.
- 3. In the left panel, select **PS Group Access** to view and modify the current settings.
- 4. To add a new PS Series group, click Add PS Group and provide the PS group name and group IP.

- 5. To modify settings for a PS Series group, in the PS Group Access window, select the PS group and configure the following settings:
  - a. VDS/VSS access: Specify VDS/VSS CHAP credentials
  - b. Smart Copy access: Specify CHAP credentials
  - c. PowerShell/SMP Access:
    - i. Enter the PS group management IP address (this is the group IP address, unless the group has a management network configured).
    - ii. Enter the PS group username and password. The user name can be an account configured on the group or a domain account.
    - iii. Optionally, check the box to enable Single Sign-On (SSO) to use Active Directory Domain credentials. To use SSO, the PS Series group must be running a minimum of PS Series Firmware Version 6.0 and must be configured to allow SSO. For more information on configuring the PS group for SSO, refer to the *Dell EqualLogic Group Manager Administrator's Manual* at <u>eqlsupport.dell.com</u> (requires login).



6. Click Save to apply the settings to the selected hosts.



### B.5 Connecting to a PS Series volume from Windows

The Microsoft iSCSI Initiator enables you to connect a Windows computer to PS Series iSCSI storage through the server network adapters. Connecting to volumes with the Microsoft iSCSI Initiator will cause iSCSI SAN disks to appear as if they are locally attached to the server.

- 1. Launch iSCSI Initiator from Windows.
- 2. In the **Discovery** tab, click **Discover Portal (**Figure 63).

iSCSI Initiator Properties										
RADIUS Configuration Targets Discovery Fav	Dell EqualLogic MPIO									
Target portals The system will look for <u>T</u> argets on followin Address Port Ac	Refresh IP address									
To add a target portal, click Discover Porta To remove a target portal, select the adde then click Remove.	To add a target portal, click Discover Portal.     Discover Portal       To remove a target portal, select the address above and then click Remove.     Remove									
ISN5 servers The system is registered on the following j Name	SNS servers:	Refresh								
To add an iSNS server, click Add Server. To remove an iSNS server, select the serv	To add an ISNS server, click Add Server.									
More about Discovery and ISNS										
	ОК	Cancel Apply								

Figure 63 iSCSI Initiator Properties

- 3. If required, specify the PS Series group that you want to add.
  - a. In the **IP address or DNS name** field, enter the IP address or DNS name of the PS Series group (Figure 64).
  - b. In the Port field, enter the network port number (default is 3260).
  - c. To enable CHAP authentication, click **Advanced** and configure the required settings.
  - d. Click OK.

Discover Target Portal										
Enter the IP address or DNS name and port number of the portal you want to add.										
To change the default settings of the discovery of the target portal, click the Advanced button.										
IP address or DNS name:         Port: (Default is 3260.)           10.10.6.50         3260										
Advanced OK Cancel										

Figure 64 Discover Target Portal

- 4. Discover all volumes that the server has access to:
  - a. Click the **Targets** tab, and then click **Refresh.** A list of discovered volumes is displayed (Figure 65).
  - b. Click to select the desired volume and click **Connect.**

RADIUS	Cor	nfiguration		🕇 Dell Eq	ualLogic Mi	PIO
Targets	Discovery	Favorite	Targets	Volu	imes and D	evices)
Quick Connect To discover an DNS name of ti	d log on to a targe he target and the	et using a basic co n click Quick Conr	onnection, t <sub>i</sub> iect.	ype the IF	address o	or
Target:				Q	uick Conne	ect
Discovered targ	gets				Defrect	L.
				Shahur	Refresi	
0-1cb196-110	-5e5521-d358fd41	3eda55354-volum	e01	Inactive		^
::0-8a0906-09 ::0-8a0906-0b	f258209-d75a0fa 85d4409-8f11e5fa	560a4fd24-skyne ab4e50475-skyne	t-highball tvol3	Inactive Inactive		=
::0-8a0906-40 ::0-8a0906-47 ::0-8a0906-78 ::0-8a0906-7e	9bba009-fa58bae 54b6c09-f4b1ac5& b5d4409-d869248 05d4409-86d0000	643751083-sql20 a7784ee5a-skyne 36c7950461-asmv )000a4d5a9-vss-(	12prod-log ettemplates vetr01 control	Inactive Inactive Inactive Connecte	ed	~
<						>
To connect usii click Connect.	ng advanced optic	ons, select a targ	et and then		Connec	t
then click Disco	onnect.	at, selett trie tarç	jec anu		Disconne	ect
For target prop select the targ	perties, including o et and click Proper	configuration of s rties.	essions,		Properties	5
For configurati the target and	on of devices asso then click Devices	ociated with a tar 5.	get, select		Devices.	

Figure 65 Discover iSCSI targets



- 5. Connect to the target (Figure 66):
  - a. To make the system automatically attempt to restore the connection to the volume upon reboot, click **Add this connection to the list of Favorite Targets**.
  - b. Click Enable multi-path and click OK.



Figure 66 Connect to iSCSI Target

#### B.6 Making a PS Series volume available to Windows

After you have connected to the iSCSI target, you can make the volume available to Windows so that it can be used to store data:

6. To launch the **Server Manager** console in Windows Server 2012, from the **Task** drop-down menu, select **Rescan Storage** (Figure 67).

h								Server Mar	nager								
${ { \bisol {\bisol {\bisol { \bisol { \bisol { \bisol {\bisol {\bisol {\bisol {\bisol {\bisol {\bisol {\bisol {\bisol {\bissle {\bissle \bissle {\bissle {\bissle {\bissle {\bissle \bissle \bissle {\bissle \bissle \bis$	Server M	anage	r ∙ File a	ind Sto	rage S	ervices '	· Volun	nes ∙ Di	sks			• (#	9   🏲	Manage	Tools	View	Help
III	Servers		<b>DISKS</b> All disks   11 tota	d												TASKS	-
1 -	Volumes	Filter			م (		•									Nev	/ Volume
<u>ii</u> :	Disks					0 0										Res	an Storage
i B 🕨	Storage Pools	Numb	er Virtual Disk	Status	Capacity	Unallocated	Partition	Read Only	Clustered	Subsystem	Bus Type	Name				Keti	esh
		3	sql1-data	Online	35.0 GB	0.00 B	GPT			tekmktlab	iSCSI	EQLOGIC 100E-00 Mu					^
		⊿ s	P13SQL2 (6)														
		2	sql2-H	Online	45.0 GB	0.00 B	GPT			tekmktlab	iSCSI	EQLOGIC 100E-00 Mu					
		1	sql2-log	Online	25.0 GB	0.00 B	GPT			tekmktlab	iSCSI	EQLOGIC 100E-00 Mu					
		4		Offline	4.00 KB	4.00 KB	Unknown	$\checkmark$			iSCSI	EQLOGIC 100E-00 Mu					
		0		Online	65.0 GB	0.00 B	MBR				ATA	Virtual HD ATA Device					=
		3	sql2-data	Online	35.0 GB	0.00 B	GPT			tekmktlab	iSCSI	EQLOGIC 100E-00 Mu					=
		5	volume01	Offline	20.0 GB	20.0 GB	Unknown	1		tekmktlab	iSCSI	EQLOGIC 100E-00 Mu					× I

Figure 67 Rescan Storage



$\mathbf{E}$	∋ - Server №	lanager	► File a	nd Stor	age Se	ervices <b>'</b>	• Volun	nes ► Di	isks
ī	Servers Volumes	Filter	<b>SKS</b> disks   11 total		ρ		•		
	Disks Storage Pools	Number	Virtual Disk	Status	Capacity	Unallocated	Partition	Read Only	Clustered
		3 ▲ SP1	sql1-data 3SOL2 (6)	Online	35.0 GB	0.00 B	GPT		
		2	sql2-H sql2-log	Online Online	45.0 GB 25.0 GB	0.00 B 0.00 B	GPT GPT		
		4 0		Offline Online	4.00 KB 65.0 GB	4.00 KB 0.00 B	Unknown MBR	$\checkmark$	
		3 5	sql2-data volume01	Online Offline	35.0 GB	0.00 B	GPT Unknown	<b>√</b>	
		Last refre	shed on 4/20/	2015 2:20:38	Bring	Online			
		<b>VOLUME</b> Related Vo	S lumes   0 total		Reset	Disk			TASKS 🔻

7. To bring the new disk online, right-click the disk and select **Bring Online** (Figure 68).

Figure 68 Bring Online

8. You must initialize a disk before Disk Manager can access it. Right-click the disk and select **New Volume**.

$\mathbf{E}$	∋ • •• Volum	es 🕨 Dis	sks			
ii ii	Servers Volumes Disks	Filter	I <b>ISKS</b> II disks   11 total		) م	∎ <b>•</b> ®
	Storage Pools	Number SP 2 1 4 0 3	Virtual Disk sqr: outu 13SQL2 (6) sql2-H sql2-log sol2-data	Status Online Online Offline Online Online	45.0 GB 25.0 GB 4.00 KB 65.0 GB 35.0 GB	Unallocated 0.00 B 0.00 B 4.00 KB 0.00 B 0.00 B
		5 Last refr VOLUM	volume01 reshed on 4/21/	<b>Online</b>	20.0 GR New Volume Bring Online Take Offline Initialize Reset Disk	20.0 GB

Figure 69 New Volume

9. Select the disk and click **Next**.

Before You Begin	Server:						
Server and Disk	Provision to	St	atus	Cluster R	tole	Destination	
Size	AGLISTENER	0	Online Unknown		n 	Resource Group	
	SP13SQL1	0	nline	Cluster N	lode	Local	
	SP13SQL2	0	nline	Cluster Node		e Local	
	WINCLUSTER	0	Online Cluster Name		vame	Ciuster Available Storage	
	Disk:					Refresh	Rescan
	Disk	Virtual Disk	Capacity	Free Space	Subsyste	m	
	Disk 5	volume01	20.0 GB	20.0 GB	tekmktla	b-10Gb	

Figure 70 New Volume Wizard

10. Specify the volume size and click **Next**.

	Ν	lew Volum	e Wizard			_ □	x
Specify the size o	f the volume	)					
Before You Begin Server and Disk Size Drive Letter or Folder File System Settings Confirmation Results	Available Capacity: Minimum size: Volume size:	20.0 GB 8.00 MB 20.0	GB V				
			< Previous	Next >	Create	Cance	!
Figure 71 Specify	volume size						



Optionally, assign a drive letter or path and click **Next**.

2	New Volume Wizard
Assign to a drive Before You Begin Server and Disk Size Drive Letter or Folder File System Settings Confirmation Results	New Volume Wizard    etter or folder     Select whether to assign the volume to a drive letter or a folder. When you assign a volume to a folder, the volume appears as a folder within a drive, such as D\UserData.   Assign to:   Drive letter:   The following folder:   Don't assign to a drive letter or folder.
	< Previous Next > Create Cancel

Figure 72 Assign drive letter or path

11. Format the partition by specifying **File System Settings > Allocation unit size** and **Volume label**, and click **Next**.

<b>b</b>	New Volume Wizard 📃 🗖 🗙					
Select file system	settings					
Before You Begin	File system:	NTFS	•			
Server and Disk	Allocation unit size:	64K	•			
Size Drive Letter or Folder	Volume label:	Volume01				
File System Settings	Generate short file	names (not recommended)				
Confirmation	Short file names (8	characters with 3-character exter	sions) are required for som	e 16-bit		
Results	applications running	applications running on client computers, but make file operations slower.				
		< Previous Ne	xt > Create	Cancel		

Figure 73 File System Settings



12. Review the settings and click **Create** (Figure 74).

P	New Volu	me Wizard 📃 🗖 🗙
Confirm selections Before You Begin Server and Disk Size Drive Letter or Folder File System Settings Confirmation Results	S Confirm that the followin VOLUME LOCATION Server: Subsystem: Virtual disk: Disk: Free space: VOLUME PROPERTIES Volume size: Drive letter or folder: Volume label: FILE SYSTEM SETTINGS File system: Short file name creation: Allocation unit size:	g are the correct settings, and then click Create. SP13SQL2 tekmktlab-10Gb volume01 Disk 5 20.0 GB E:\ Volume01 NTFS Disabled 64.0 KB
		< Previous Next > Create Cancel

Figure 74 Confirming selections in the New Volume Wizard

The volume is now available to Windows and is ready to store data.


# C Additional resources

### C.1 Technical support and customer service

Offering online and telephone-based support and service options, Dell support service can answer your questions about PS Series arrays, groups, volumes, array software, and host software. Availability varies by country and product, and some services might not be available in your area.

Visit <u>Dell.com/support</u> or call 800-945-3355 (United States and Canada).

For international support of Dell PS Series products, visit <a href="http://www.dell.com/support/contents/us/en/555/article/Product-Support/Dell-Subsidiaries/equallogic">http://www.dell.com/support/contents/us/en/555/article/Product-Support/Dell-Subsidiaries/equallogic</a>

**Note:** If you do not have access to an Internet connection, contact information is printed on your invoice, packing slip, bill, or Dell product catalog.

#### C.2 Dell online services

Learn more about Dell products and services using this procedure:

- 1. Visit Dell.com or the URL specified in any Dell product information.
- 2. Use the locale menu or click on the link that specifies your country or region.

## C.3 Dell PS Series storage solutions

To learn more about current and upcoming Dell PS Series solutions, visit the Dell TechCenter site: <u>http://delltechcenter.com/page/EqualLogic</u>. Here you can find articles, demos, online discussions, technical documentation, and more details about the PS Series product family.

# C.4 Related documentation

Table 4 lists the referenced or recommended publications related to this document.

Vendor	Document
Dell	EqualLogic Configuration Guide v15.2
Dell	Deploying Microsoft Exchange Server 2013 with Dell EqualLogic PS Series Arrays
Dell	Using Dell EqualLogic Storage with Microsoft Windows Server 2012
Dell	Deploying SharePoint 2013 Using a Dell EqualLogic PS Series iSCSI SAN
Dell	Using Microsoft SQL Server with Dell EqualLogic PS Series Arrays
Microsoft	Release notes for Exchange 2013
Microsoft	High availability and site resilience
Microsoft	Planning for high availability and site resilience
Microsoft	Exchange 2013 storage configuration options

 Table 4
 Referenced or recommended documents

