DELL™ PowerVault™ DL Backup-to-Disk Appliance Powered by Symantec™ Backup Exec™

Configuring the Dell™ EqualLogic™ PS Series Array as a Backup Target

A Dell Technical White Paper

by

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Executive Summary

IT managers are concerned that traditional backup methods aren't keeping up with the needs of the business.   Existing backup and recovery operations often fail due to media management issues and human error associated with legacy tape backup methods. As data continues to explode within corporate environments, IT is having trouble meeting backup windows with standard tape-based solutions. Advancements in technology and price reductions have made it possible to use disk-to-disk based backup and recovery methods to improve the speed and reliability of backup and restore operations. The Dell™ PowerVault™ DL Backup to Disk Appliance – Powered by Symantec™ Backup Exec™ offers one of the industry's only fully integrated backup-to-disk solutions with software factory installed. Dell and Symantec have co-developed this offering to give you easier management capabilities of the backup-to-disk environment. It's an ideal way for any IT department to achieve faster, more reliable backups and restores.

In addition, Dell's storage product portfolio includes the EqualLogic™ PS Series Arrays which combines with the DL Backup to Disk Appliance to provide a complete backup solution. The EqualLogic PS Series delivers a self-managing storage array that provides enterprise class features using industry-standard Ethernet SAN connectivity and the iSCSI standard protocol. The result is an ideal consolidated storage solution.

Combining the DL Backup to Disk Appliance and the EqualLogic PS Series Arrays -- finally, an affordable backup to disk with consolidated storage solution that delivers a simple solution that provides an excellent return on investment.

Introduction

This document explains how to configure a Dell™ EqualLogic™ PS Series Array as a backup target for the DL Backup to Disk Appliance functioning as a Symantec™ Backup Exec Media Server.

NOTE: If the EqualLogic Volume(s) of one or more protected servers and the DL Backup to Disk Appliance reside on arrays that are members of the same EqualLogic Group, ensure the DL Backup to Disk Appliance's backup target volumes reside in a separate Storage Pool from the protected servers.
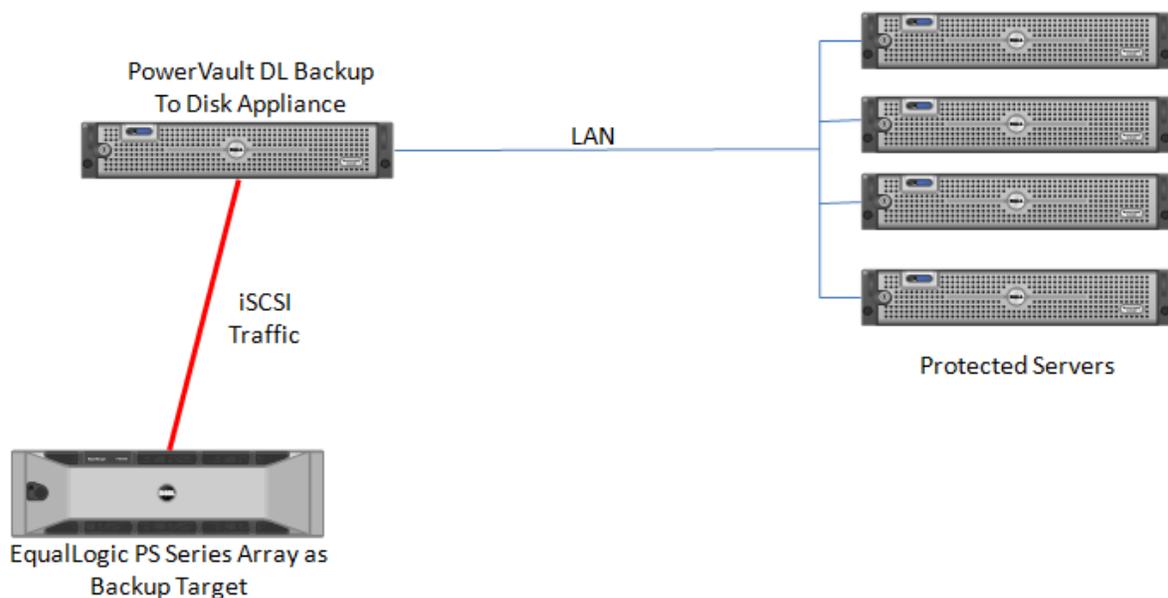
Prerequisites

This paper assumes that the DL Backup to Disk Appliance has already been configured and that the desired volumes on the EqualLogic PS Series Array have already been created and made available to the DL Backup to Disk Appliance by a SAN Administrator.

The following table lists the minimum software versions required to support an EqualLogic PS Series Array as a backup target. The EqualLogic resources are available on the Customer Support site at support.dell.com/EqualLogic by logging into the Dell EqualLogic Customer User Account.

Hardware Component	Software Component	Version
Dell™ PowerVault™ DL Backup to Disk Appliance	Microsoft® Windows® Server 2008 Standard x64 Edition	Service Pack 2 or later
	Symantec™ Backup Exec	2010 or later
Dell™ EqualLogic™ PS6000 Series Array	PS Series Firmware	V 4.3.4 or later
	Host Integration Toolkit (HIT Kit)	V3.3.1 (64-bit) or later
Dell™ EqualLogic™ PS6500 Series Array	PS Series Firmware	V 4.3.4 or later
	Host Integration Toolkit (HIT Kit)	V3.3.1 (64-bit) or later
Broadcom 5709C NetXtreme II GigE	Firmware	5.0.12 or higher
	Driver	14.1.5 or higher
Dell™ EqualLogic™ PS6510 Series Array	PS Series Firmware	V 4.3.4 or later
	Host Integration Toolkit (HIT Kit)	V3.3.1 (64-bit) or later
Broadcom 57710 10Gbase-T Single Port NIC	Firmware	5.0.12 or higher
	Driver	14.1.5 or higher

Warning: The storage provisioning and monitoring features of the DL Backup to Disk Appliance can fail when connecting an EqualLogic PS Series Array as a backup target if these prerequisites are not met.

Note: Dell does not recommend placing the Deduplication Storage Folder (DSF) on the SAN. The DSF and the associated Database should reside on a dedicated direct attached virtual disk on the DL Backup to Disk Appliance.

Technical Resources

The following table lists additional documentation available for reference.

Vendor	Document or Resource Title	Location
Symantec	Symantec Backup Exec 2010 Administrator's Guide	backupexec.com/compatibility/
Dell EqualLogic	Configuring and Deploying the Dell EqualLogic™ Multipath I/O Device Specific Module (DSM) in a PS Series SAN	equallogic.com/resourcecenter/
Dell EqualLogic	Deploying Windows Server 2008 with PS Series SANs	equallogic.com/resourcecenter/
Dell	Dell PowerVault DL Backup to Disk Appliance Powered by Symantec Backup Exec User Guide	support.dell.com/manuals

Configuration Settings

The process for adding an EqualLogic PS Series Array as a backup target includes the following:

- Exposing the EqualLogic volumes to the DL Backup to Disk Appliance
- Configuring iSCSI settings on the DL Backup to Disk Appliance

Exposing the EqualLogic volumes to the DL Backup to Disk Appliance

This section explains the steps required to enable iSCSI access to the EqualLogic Volumes from the DL Backup to Disk appliance. These steps may require assistance from your SAN Administrator.

- Launch a web browser. Navigate to the Group IP address and bring up the **EqualLogic Group Manager GUI**.
- Create an **Access Control List** (ACL) entry for each volume that the DL Backup to Disk appliance will be accessing. (Refer to Figure 1 for IP address based access to volumes) The ACL can be configured using one or more of the following authentication methods
  - o CHAP (Challenge Handshake Authentication Protocol)
  - o IP Address
  - o iSCSI Initiator

For more information, please refer to the *Configuring and Deploying the Dell EqualLogic™ Multipath I/O Device Specific Module (DSM) in a PS Series SAN* whitepaper.
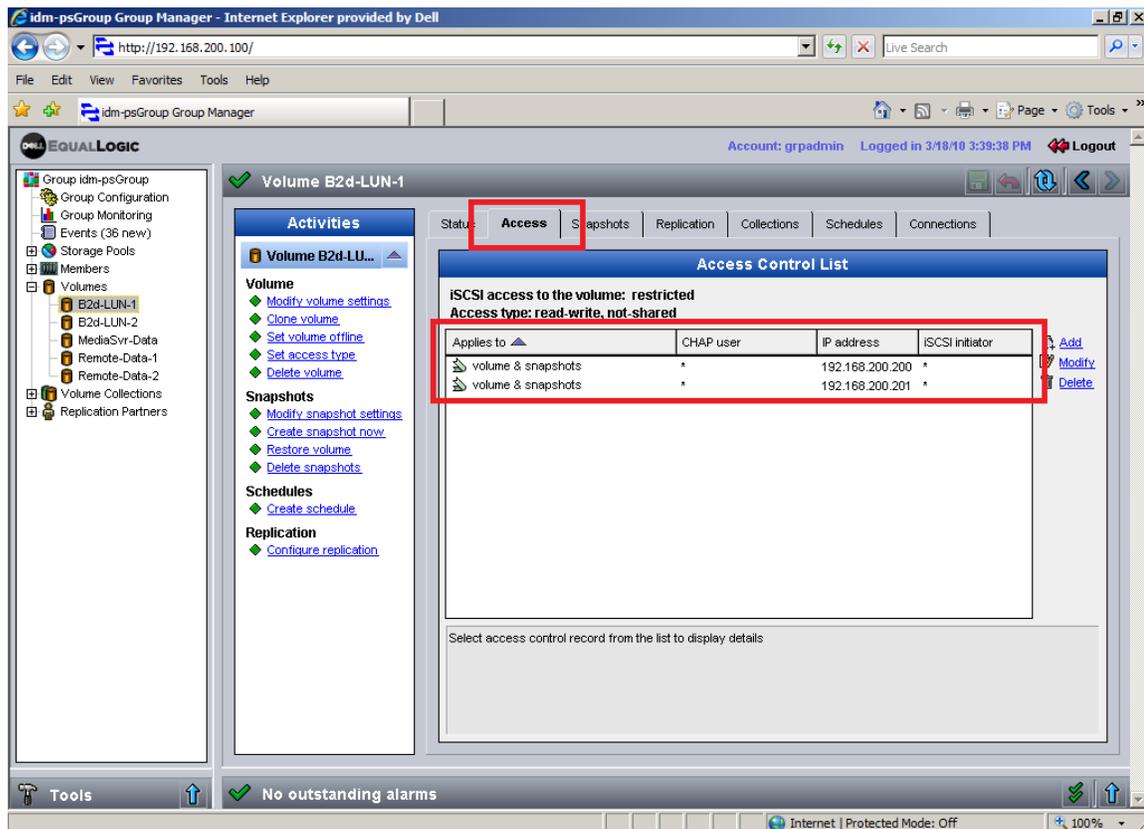
Figure 1: ACL Entries for the EqualLogic Volumes

Configuring iSCSI settings on the DL Backup to Disk appliance

- Launch the EqualLogic Host Integration Toolkit (HIT Kit) on the DL Backup to Disk appliance and select the **Custom Installation** option.
- At the "**Select Components**" section, select the Remote Setup Wizard and the MultiPath I/O DSM components. The Volume Shadow Copy Service Provider, ASM/ME Command Line Interface, Auto-Snapshot Manager and the Virtual Disk Service (VDS) provider components are not required when configuring the EqualLogic PS Series Array as a backup target. Refer to Figure 2.
    - o If the iSCSI initiator service is not running, the HIT Kit will prompt the user to start the service and enable iSCSI traffic through the firewall or request permission to do so automatically.
    - o If not already configured, the MPIO component of the HIT Kit will prompt the user to configure the firewall to allow echo requests (pings) or request permission to do so automatically.
    - o If not already installed, the HIT Kit will prompt the user to install the Microsoft Multipath I/O feature or request permission to do so automatically.
    - o Once the HIT Kit components are installed, a reboot of the DL Backup to Disk Appliance is required.
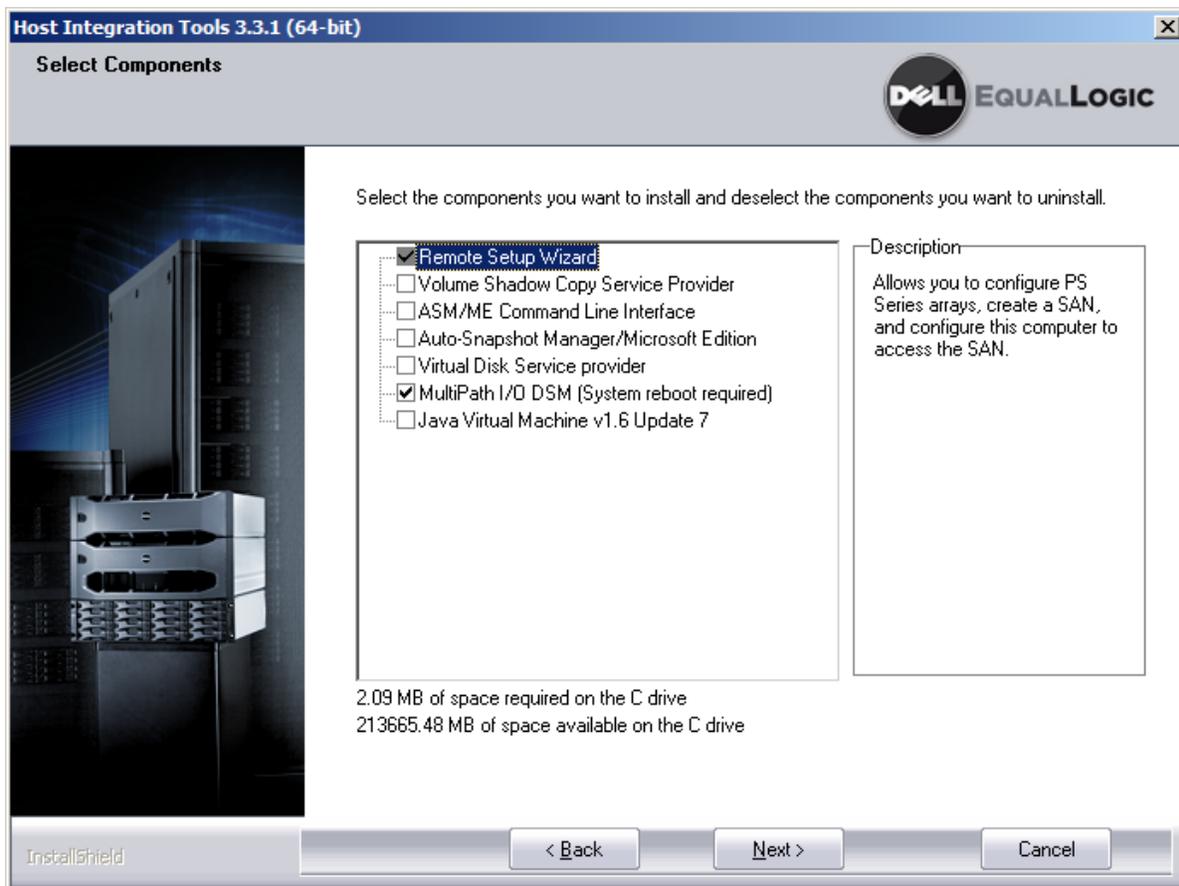
Figure 2: Installing the Host Integration Toolkit (HIT Kit) components

- Once the DL Backup to Disk Appliance has rebooted, Click **Start**-> **All Programs** -> **Dell** -> **EqualLogic** -> **Remote Setup Wizard**.
  - o Click "**Configure this computer to access a PS Series SAN**". Add an entry with the EqualLogic Group name and the Group IP address.
  - o If the SAN array was setup with CHAP authentication, then enter the CHAP logon information as well.
  - o Click "**Configure MPIO settings for this computer**". Configure the MPIO settings and the subnets to be included for /excluded from MPIO. (For more information on configuring MPIO, please refer to the *Configuring and Deploying the Dell EqualLogic™ Multipath I/O Device Specific Module (DSM) in a PS Series SAN* whitepaper)
- Click on **Start** -> **Administrative Tools** -> **iSCSI Initiator**. The iSCSI Initiator properties dialogue box appears.
- Click on the **Discovery** tab. The IP Address of the EqualLogic Group should now be included in the list of **Target Portals**.
- Click on **Targets** tab and click **Refresh**. This will populate the iSCSI targets available to the DL Backup to Disk Appliance.
- Select the desired target and click "**Log On**". Select "**Automatically restore this connection when the computer starts**" and "**Enable Multi Path**".   (Refer to Figure 3)
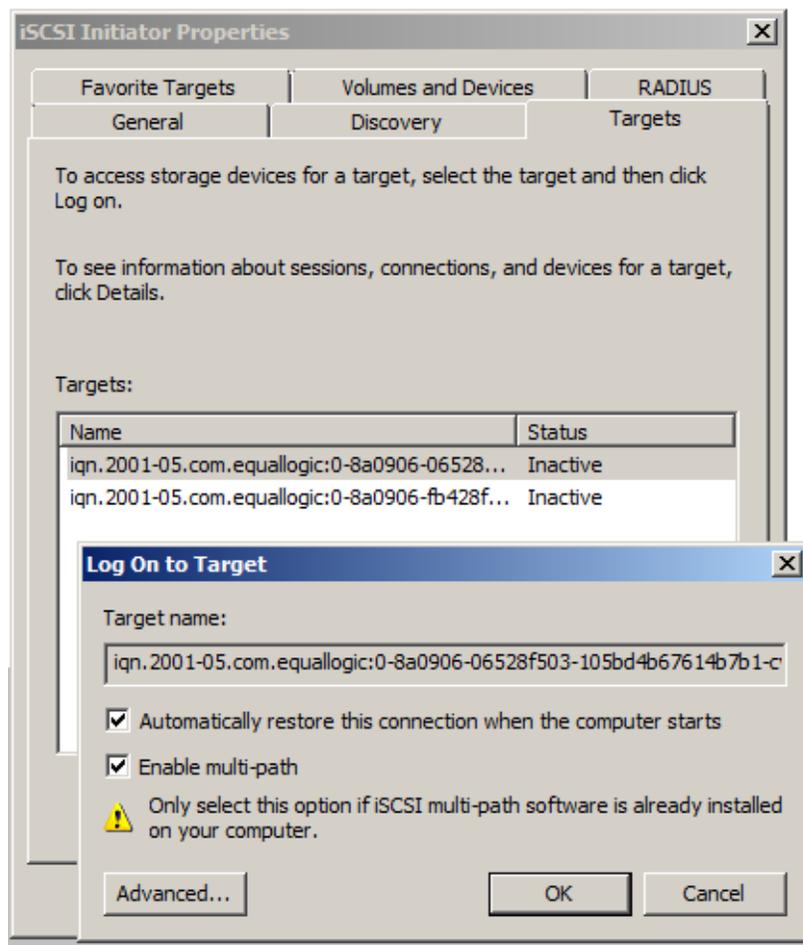
Figure 3: Logging on to the EqualLogic Targets

- Click **Start** -> **Administrative Tools** -> **Server Manager** -> **Storage** -> **Disk Management**. The Volume is listed as an available disk. Initialize the disk as a **GPT**. (GPT disks use the GUID partition table and allows for volume sizes of greater than the 2TB limitation of MBR disks)
- Create a **Simple Volume** on the disk
- Assign a drive letter to the volume.
- Quick Format the volume.
- Repeat this process for each EqualLogic Volume that the DL Backup to Disk Appliance will use as an ISCSI backup target.
- Return to the **iSCSI initiator** Dialog box. Click on the **Volumes & Devices** tab.
- Click on the **AutoConfigure** button. This will add all the Drive Letters/ Mount points for the EqualLogic Volumes to the list of 'Volumes & Devices' This is to ensure that after a reboot, the EqualLogic volumes will be available to Backup Exec.
- The volumes will now be available for creating Backup-to-Disk folders in Backup Exec 2010. This can be accomplished by using the **Configure Devices Assistant** wizard in the Devices tab. (For more information on this, refer to the "About the Configure Devices Assistant" section in the Symantec Backup Exec 2010 Administrator's Guide)

Known Issues

Issue: If the EqualLogic Volume is mounted as a Mount Point on the C:\ drive of the media server, and a backup of the C:\ drive is run with default settings with the EqualLogic VSS Hardware Provider installed, the job will report as "Complete with Exceptions" and the job log will report an error during VSS Snapshot phase.

Description: Backup Exec views the EqualLogic Volume and will try to utilize the EqualLogic VSS Hardware Provider to perform the snapshot. However the snapshot fails because not all the data actually resides on the EqualLogic Array.

Solution: To work around this, Backup Exec can be set to manually use the Microsoft Software Shadow Copy Provider that is native to Windows Server 2008. Open the Properties of the Backup Job in the Job Setup tab of the Backup Exec Console. Click on **Settings** -> **Advanced Open File**. Click "**Use Advanced Open File Option**", select the "**Microsoft Volume Shadow Copy Service (Windows 2003 and later)**" radio button, and select "**System – Use Microsoft Software Shadow Copy Provider**" from the dropdown menu. Once the settings are selected, click on Apply or OK.

Issue: An alert is displayed in the Backup Exec console saying "The device \Device\HardDiskX\DRX is not ready for access yet".

Description: A Windows event is generated when a NIC failover occurs on systems configured for MPIO. The associated Backup Exec alert can appear up to 20 minutes after the failover occurs. This alert can be safely ignored.

Issue: The storage space available on the EqualLogic Volumes will not contribute to the "Available Disk Storage" numbers in the PowerVault DL Backup to Disk Appliance Console.

Description: The PowerVault DL Backup to Disk Appliance Console reports available space of direct attached storage only.

Solution: Use the EqualLogic Group Manager GUI to view the available space of SAN attached storage.

Conclusions

The need to recover data will continue to be a focus of IT departments. Files are lost, viruses take down infrastructures, disk drives fail and natural disasters happen. Data may be lost or damaged for good as a result. In order to be prepared, Dell provides a simple and complete storage solution with the PowerVault DL Backup to Disk Appliance – Powered by Symantec Backup Exec and the EqualLogic PS Series array.