

DELL™ PowerVault™ DL Backup-to-Disk Appliance Powered by CommVault™ Simpana™

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 CommVault™ Simpana™ offers one of the industry's only fully integrated backup-to-disk solution with software factory installed. Dell and CommVault 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.

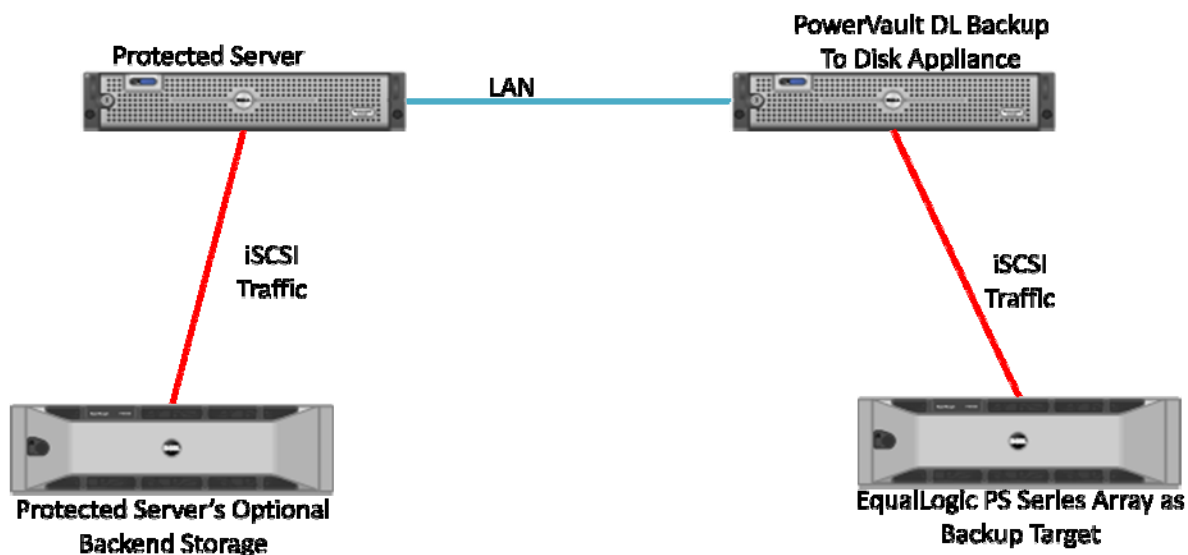
In addition, Dell's storage product portfolio includes the EqualLogic™ PS Series Arrays which combines with the DL Backup to Disk Appliance to provide a complete backup solution. The EqualLogic PS Series delivers a self-managing storage array that provides enterprise class features using industry-standard 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 Simpana media agent. This document also provides instructions on how to configure a protected server for Simpana with data that resides on an EqualLogic PS Series Array.

NOTE: If one or more protected servers and the DL Backup to Disk are members of the same EqualLogic Group, ensure the DL Backup to Disk appliance 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 in to 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
	CommVault™ Simpana™	8.0 SP3 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
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.

Warning: When configuring a Deduplication Storage Policy, the Deduplication Database (DDB) should NOT reside on the EqualLogic PS Series Array, or on the internal OS drives. For performance reasons, the DDB should reside on direct attached storage other than the OS drives.

Technical Resources

The following table lists additional documentation available for reference.

Vendor	Document or Resource Title	Location
CommVault	CommVault Simpana 8.0.0 Books Online	documentation.commvault.com/dell/
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 CommVault Simpana 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

Configuring a Dell™ EqualLogic™ PS Series Array as a Backup Target for CommVault™ Simpana™

- Backing up data on the Protected Server's EqualLogic backend storage (optional)

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
 - CHAP (Challenge Handshake Authentication Protocol)
 - IP Address
 - 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.

The screenshot displays the Dell EqualLogic Group Manager web interface. The browser address bar shows <http://192.168.200.100/>. The user is logged in as 'grpadmin' on 3/12/10 at 4:17:32 PM. The main content area is titled 'Volume B2d-LUN-2' and has tabs for 'Access', 'Snapshots', 'Replication', 'Collections', 'Schedules', and 'Connections'. The 'Access' tab is active, showing an 'Access Control List' for 'iSCSI access to the volume: restricted' with 'Access type: read write, not shared'. A table lists two ACL entries, both for 'volume & snapshots' with a CHAP user of '*'. The first entry is for IP address 192.168.200.220 with an iSCSI initiator of '*'. The second entry is for IP address 192.168.200.221 with an iSCSI initiator of '*'. A red box highlights the 'Access' tab and the table. Below the table is a text box: 'Select access control record from the list to display details'. The left sidebar shows a navigation tree with 'Volumes' expanded to 'B2d-LUN-2'. The bottom status bar shows 'No outstanding alarms' and 'Internet | Protected Mode: Off'.

Applies to	CHAP user	IP address	iSCSI initiator	
volume & snapshots	*	192.168.200.220	*	Add
volume & snapshots	*	192.168.200.221	*	Modify Delete

Figure 1: ACL Entries for the EqualLogic Volumes

Configuring iSCSI settings on the DL Backup to Disk appliance

- Install all components of the EqualLogic Host Integration Toolkit (HIT Kit) on the DL Backup to Disk appliance
 - 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.
 - 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.
 - 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.
 - Once the HIT Kit is installed, a reboot of the DL Backup to Disk Appliance is required.
- Once the DL Backup to Disk Appliance has rebooted, Click **Start-> All Programs -> Dell -> EqualLogic -> Remote Setup Wizard**.
 - Click **“Configure this computer to access a PS Series SAN”**. Add an entry with the EqualLogic Group name and the Group IP address.
 - If the SAN array was setup with CHAP authentication, then enter the CHAP logon information as well.
 - 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 -> Control Panel -> 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.
- Click **“Log On”**, and select **“Automatically restore this connection when the computer starts”** and **“Enable multi-path”**. (Refer to Fig 2)
- 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.
- Click **Start -> Administrative Tools -> iSCSI initiator**. 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 the CommServe.
- The volumes will now be available for creating Simpana Magnetic Libraries. (For more information on how to configure Libraries & drives, please refer to the **“Library and Drive Configuration - How To”** section in the CommVault Books Online documentation)

- Backup-to-Disk & Deduplication Storage Policies can then be configured for these Magnetic Libraries (For more information on how to configure Storage Policies, please refer to the “Storage Policies” section in the CommVault Books Online documentation)

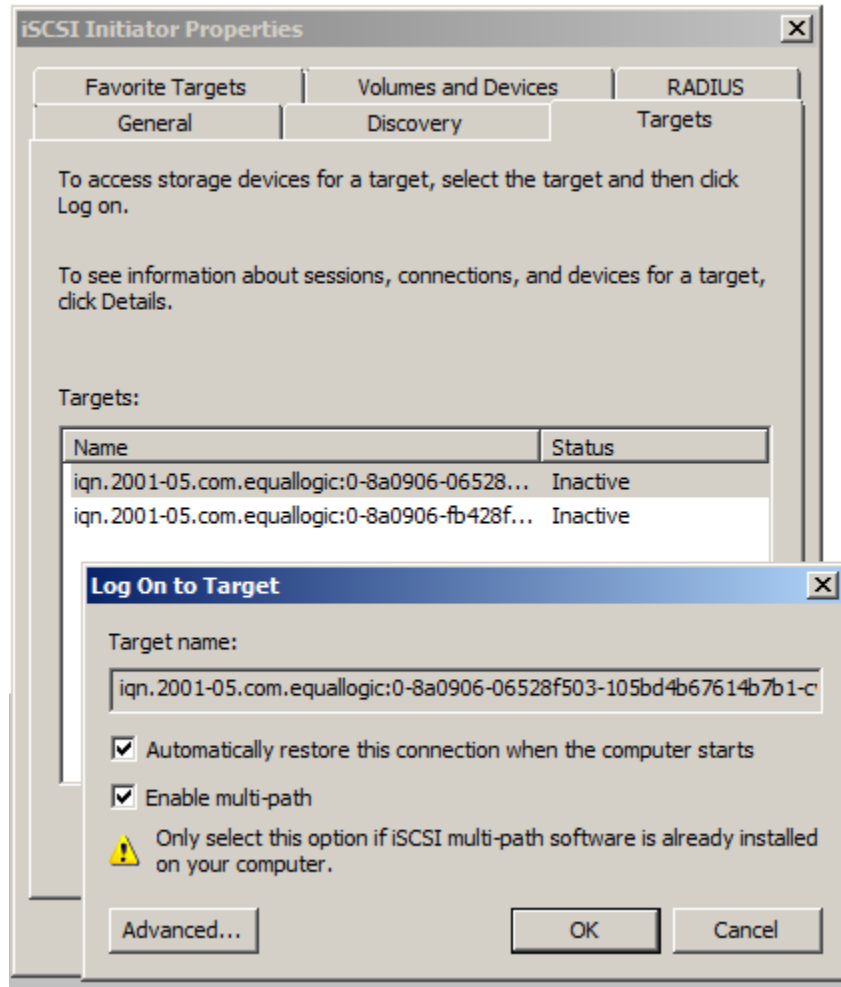


Figure 2: Logging on to the EqualLogic Targets

Backing up data on a Protected Server's EqualLogic backend storage

If data to be backed up on the protected server resides on an EqualLogic Volume, then the following steps need to be performed in order to ensure proper snapshots during the backup.

- Launch a web browser. Navigate to the Group IP address and bring up the EqualLogic Group Manager GUI
- Navigate to Group Configuration -> VDS/VSS.
- Create ACL entries to grant VDS/VSS permissions to the protected server (See Figure 3)

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- Once this ACL entry is created, on the protected server, a new entry with the suffix 'vss-control' will be present in the list of targets in the Targets tab of the iSCSI initiator properties.
- For each volume on which the data that needs to be protected resides, ensure there is sufficient Snapshot Reserve free space. The amount of Snapshot Reserve space required will depend on the Snapshot Retention Policy of the volume and how the volume is actually used. The default Snapshot Reserve space setting is 100% of volume reserve. See Figure 4.

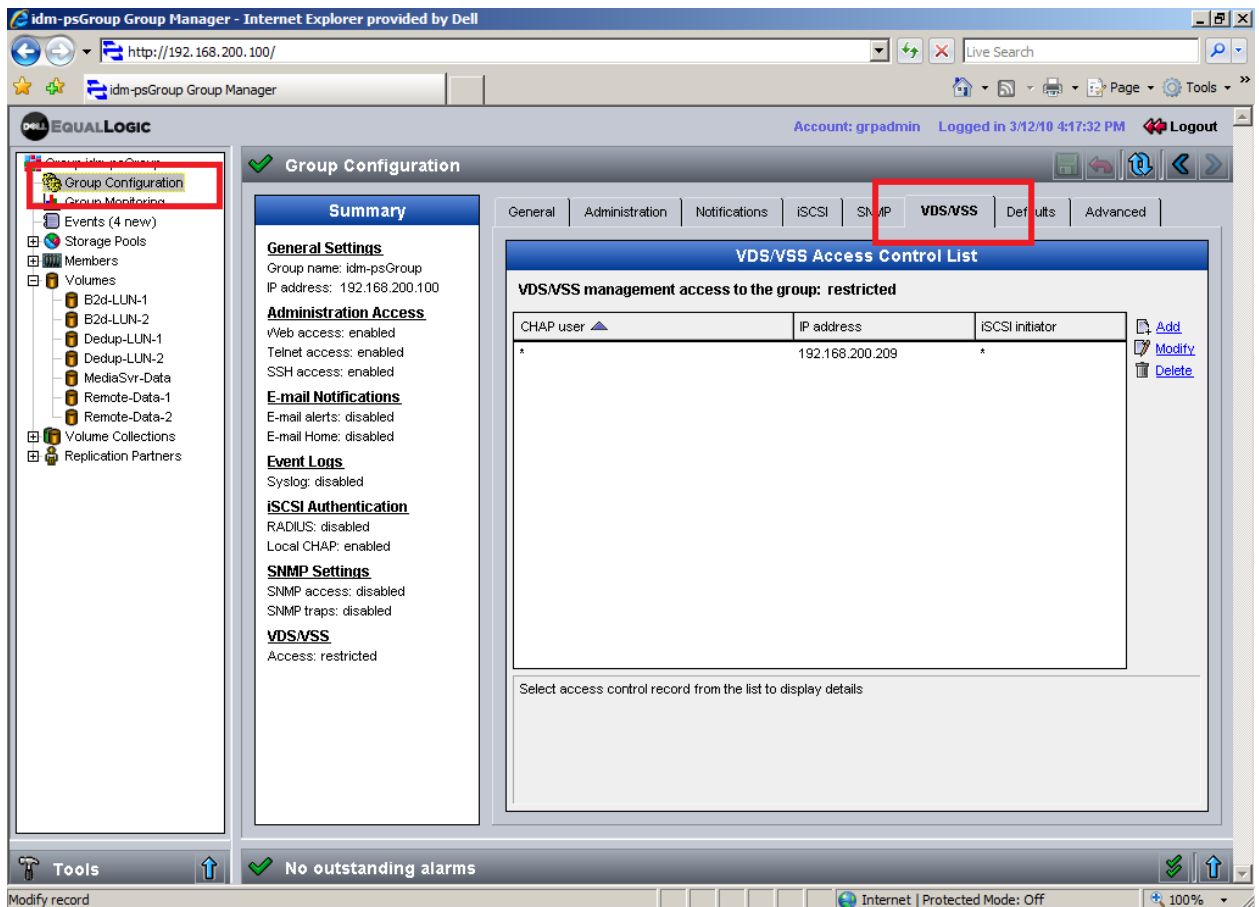


Figure 3: VDS/VSS Access in Group Configuration

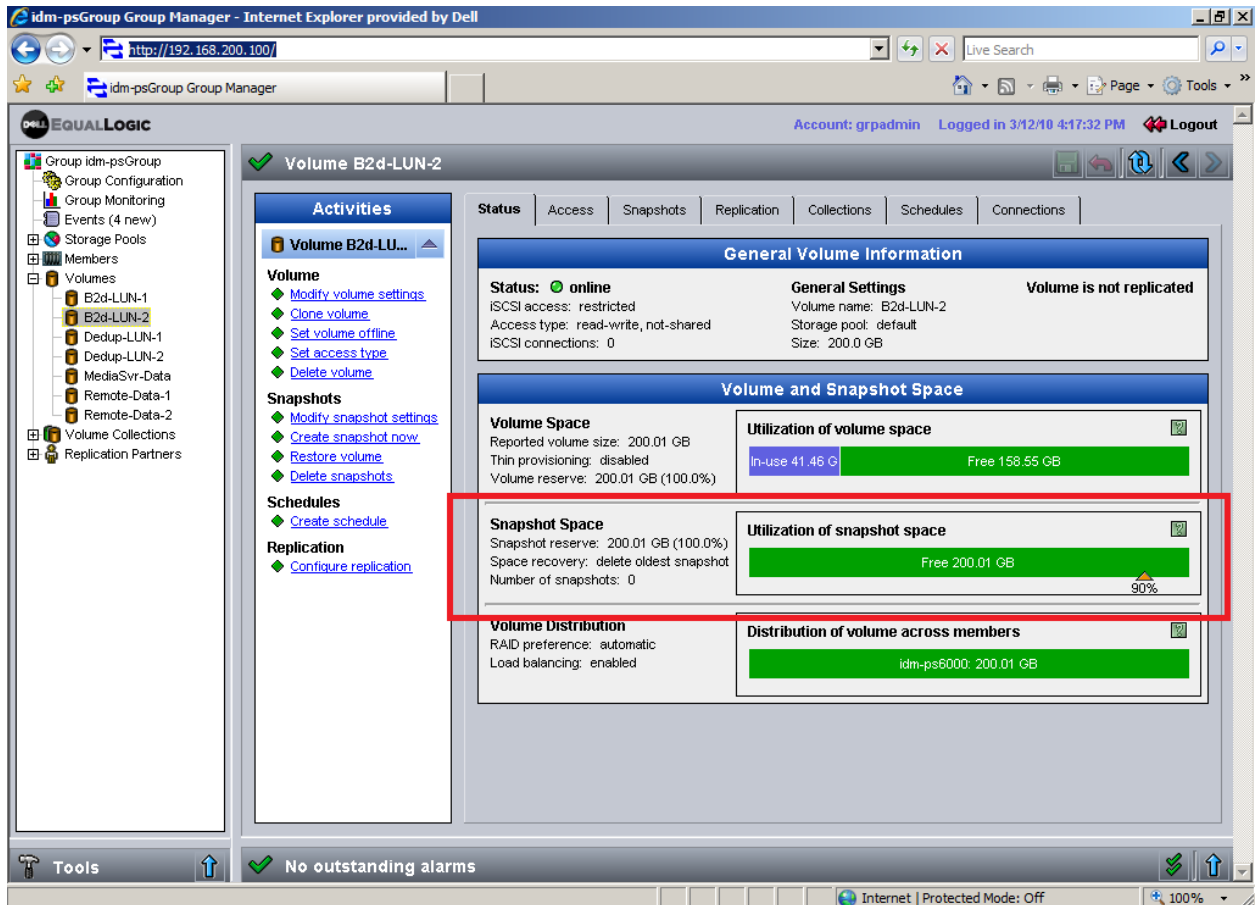


Figure 4: Snapshot Reserve Space for a Volume

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 CommVault Simpana and the EqualLogic PS Series array.