



# Dell EqualLogic PS4000E

The Dell™ EqualLogic™ PS4000 Series of virtualized iSCSI SAN arrays are designed to bring enterprise-class features, intelligence, automation and reliability to remote or branch office, departmental and small-to-medium business (SMB) storage deployments.

The PS4000 Series addresses branch office and SMB storage needs with simplified administration, rapid deployment and an affordable price, while providing a full set of enterprise-class data protection and management features, solid performance, scalability and fault-tolerance. With up to 16 SATA disk drives per modular array, the PS4000E delivers outstanding capacity value for an entry into midrange enterprise storage. To grow storage capacity and performance for remote office needs, two PS4000 arrays can be combined in a SAN group. To further scale out the SAN, EqualLogic PS6000 arrays can be added seamlessly without sacrificing the initial investment in PS4000 arrays.

## Exceptional ease of use

All PS Series storage arrays include SAN configuration features and capabilities that sense network connections, automatically build RAID sets, and conduct system health checks to help ensure that all components are fully functional. The PS4000E is designed to be installed, configured, and serving storage in less than one hour. To improve enterprise-wide storage management, Dell has a family of Data Management services to help you make the most of your storage and backup environment. We offer services that allow you to optimize, manage, implement and maintain your storage infrastructure, helping to reduce the risk associated with ineffective data management, and providing adequate data protection in a cost effective manner.

## Modular design with enterprise reliability

EqualLogic PS Series arrays are based on a virtualized modular storage architecture that enables IT managers to purchase only the storage they need, when they need it — to help prevent both underutilization and over-provisioning. Using innovative data movement technology, all EqualLogic PS Series arrays within a SAN work together to automatically manage data, load balance across all resources, and expand to meet growing storage needs.

The EqualLogic SAN line is designed to meet and exceed the rugged requirements of the enterprise data center and remote office. The PS4000E includes fault tolerance capabilities through fully redundant and hot-swappable components—optional dual-controllers, dual fan trays, dual power supplies, and disk drives with hot spares.

## Feature-rich software portfolio without additional cost

With built-in storage features once available only to top-tier data centers, the PS4000E enables best practice storage for remote or branch office and departmental deployments. The EqualLogic PS Series arrays include the following software with no additional software licensing fees:

### Dell EqualLogic Firmware version 5.0

EqualLogic Firmware is a full-function SAN operating system that provides the following features:

**Management** | Roles-Based Administration • Volume Management • Dell EqualLogic Group Manager CLI and GUI

**Data Protection, availability and recovery** | Auto-Replication, Multi-Site • Instant Volume Restore • Multi-Path I/O<sup>1</sup> • Multi-Volume, Writeable Snapshots • Snapshot and Auto-Replication Scheduler • Volume Cloning • Thin Clones • Volume Consistency Sets

**Storage Virtualization** | Non-disruptive array addition and removal • Automatic Load Balancing • Automatic or Manual Storage Tiering • Complete SAN Virtualization • Online Data and Volume Movement • Automatic load balancing of volumes across RAID types • Storage Pools • Thin Provisioning • SAN Data Copy Offload • SAN Zero Offload and Scalable Lock Management for VMware®

**Maintenance** | Auto-Stat Disk Monitoring System • E-mail Home • Enclosure Monitoring System • Detailed Historical Performance Monitoring

## Dell EqualLogic Host Software

EqualLogic Host Software extends the functionality of the array based software enabling cooperation with the host. The following titles are made available with your EqualLogic array purchase.

**Dell EqualLogic Remote Setup Wizard** | Step-by-step user interface that simplifies traditionally tedious setup and maintenance tasks

**Dell EqualLogic Host Software for Windows** | Auto Snapshot Manager/Microsoft® Edition<sup>1</sup> • EqualLogic Multipath I/O Device Specific Module<sup>1</sup> • EqualLogic Volume Shadow Copy Service (VSS) and Virtual Disk Service (VDS) Provider Services<sup>1</sup>

**Dell EqualLogic Host Software for VMware** | EqualLogic Auto-Snapshot Manager/VMware® Edition<sup>1</sup> • EqualLogic Multipath Extension Module for VMware® ESX<sup>1</sup> • EqualLogic Storage Adapter for VMware® Site Recovery Manager<sup>1</sup>

**Dell EqualLogic SAN Headquarters<sup>1</sup> (SAN HQ)** | Monitoring and analysis tool that provides centralized access to detailed performance and event data

## Flexibility with low cost of ownership

EqualLogic PS Series arrays represent a breakthrough in storage economics, from purchase and setup to operation and upgrades. Unlike traditional SANs, the EqualLogic PS Series includes software and applications expected from an enterprise-level SAN at no extra cost. The PS Series scales on-demand — and online — allowing storage growth without disrupting applications. As a result, EqualLogic PS4000E arrays provide exceptional flexibility at a low total cost of ownership.

Whether consolidating a direct-attached storage (DAS) infrastructure, migrating data from an existing SAN or NAS system, streamlining data protection processes, or simply adding storage capacity, the EqualLogic PS Series from Dell offers a family of proven, high-performance, self-managing storage arrays. The PS4000 line is designed to meet the requirements of today's SMB, remote site, and departmental environments. The EqualLogic PS6000 Series is fully compatible with the PS4000 line and is well suited for large-scale, critical datacenter deployments.

Feature	Dell™ EqualLogic™ PS4000E	
<b>Product Configurations</b>		
Storage Controllers	Base Model: Single controller with 2 GB battery-backed memory. Only available in eight (8) drive option. High Availability Model: Dual controllers with a total of 4 GB battery-backed memory Battery-backed memory provides up to 72 hours of data protection	
Hard Disk Drives	Sixteen (16) SATA hot-pluggable hard disk drives (Eight (8) drive configuration available. Please contact your Dell Sales Representative for details.)	
Drive Capacities	7,200 RPM SATA II drives available in 250 GB <sup>1</sup> , 500 GB <sup>1</sup> , 1 TB <sup>1</sup> or 2 TB <sup>1</sup>	
System Capacities	From 4 TB <sup>1</sup> Minimum to 32 TB <sup>1</sup> Maximum	
<b>Technical Highlights</b>		
Volumes	Up to 256	
Snapshots	128 per volume / up to 2,048 total per group	
Volume Connections Per PS4000 Series Group	Up to 256 per pool / 512 per group	
Host Protocol	Any standards-compliant iSCSI initiator	
Operating Systems Supported	Windows® 2000 Server, Windows Server® 2003, Windows Server® 2008, including Hyper-V™, Windows Vista®, Windows Server® 2008 R2 including Hyper-V™, Windows XP®, Red Hat® Enterprise Linux®, SUSE® Linux® Enterprise, Sun™ Solaris™, IBM® AIX®, HP-UX, Mac OS® X, VMware® ESX Server 3 / 3.5 / 4 / 4.1, ESXi 3.5 / 4 / 4.1, Citrix® XenServer™, Novell® NetWare®	
RAID Support	RAID 5, RAID 6, RAID 10, and RAID 50	
Network Interfaces	Two (2) GbE copper, One (1) 10/100 copper (optional management network only) per controller	
TCP Network Support	IPv4, IPv6 core support	
Expansion Option	Can be combined with other EqualLogic PS Series arrays in the same SAN group, online. A maximum of two (2) PS4000 arrays can be in a group. For more details, please see the release notes.	
Reliability	Optional redundant, hot-swappable controllers; power supplies / cooling fans, and hot-swappable disks Individual disk drive slot power control	
Enclosure Monitoring System	Automatic spare configuration and utilization SMART Automatic bad block replacement Auto-Stat Disk Monitoring System (ADMS) to monitor health of data on disk drives	
Management Interfaces	SAN Headquarters multi-group performance and event monitoring tool Serial console Ability to configure a separate management network	SNMP, telnet, SSH, HTTP, Web (SSL), host scripting Multi-administrator support
Security	CHAP authentication Access control for iSCSI Access control for management interfaces including RADIUS support	
Notification Methods	SNMP traps, e-mail, syslog	
Power	AC voltage: 100-240 VAC ±10% single phase Power consumption: 450 VA, 530 Peak VA (operating maximum) Heat dissipation: 1,550 BTU per hour (maximum)	Frequency: 47-63 Hz Power factor: 0.98 (minimum) Power supplies: Dual 440W dc
Environmental	Temperature range: 5 to 35°C / 41 to 95°F Storage temperature: -20 to 60°C / -22 to 140°F Altitude: -70 to 3,048 m operational / -305 to 12,192 m non-operational Relative humidity: 20 to 80% non-condensing operational / 5 to 95% non-condensing non-operational Shock: 5 g 10 ms ½ sine operational / 30 g 10 ms ½ sine non-operational Vibration: Random .21 grms @ 5-500Hz operational / Random 1.04 grms 2-200Hz non-operational Acoustics: Sound Power Operating: <5.8 db LpA @ 20°C Air Quality: Airborne contaminant level of G2 or lower as defined by ISA-S71.04-1985	
Physical	Height: 13 cm / 5.12 in / 3 EIA units Width: 48.26 cm / 19.0 in / 1EC Rack Compliant Depth: 55.1 cm / 21.7 in Weight: 36 kg / 79.6 lb (maximum configuration)	
Dell Basic and Optional Support Services	<b>1-Year Dell Basic Service*</b> : Included with all EqualLogic purchases. For a period of one year – telephone support services during local business hours excluding local national holidays; service parts shipped via next business day freight method or the next most expedited shipping available in the locality; access to software/firmware updates. <b>Dell ProSupport for IT or End-Users with NBD or 4 Hour Onsite Options**</b> : Direct access to Dell experts, 7x24x365 phone support, collaborative hardware and software support, escalation support, global Command Center management and monitoring, how-to application and configuration assistance (Dell ProSupport for End-Users only). <b>Additional Dell ProSupport** Options include</b> : Keep your Hard Drive (KYHD), Mission Critical, and Dell ProSupport for IT with Enterprise-Wide Contract.	
Optional Dell IT Consulting Services	<b>Data Management Consulting from Dell**</b> offers a comprehensive suite of assessment, design and implementation services to help customers get the most from their EqualLogic PS Series product, covering data management, application performance, data protection and cost of ownership. Dell consultants can provide practical, action-oriented plans, to help deliver specific, predictable and measurable outcomes through high-impact, short duration projects.	

<sup>1</sup>For a complete list of supported operating systems, please visit [www.dell.com/equallogic/swsupport](http://www.dell.com/equallogic/swsupport)

<sup>1</sup>GB means 1 billion bytes and TB equals 1 trillion bytes; actual capacity varies with preloaded material and operating environment and will be less.

<sup>2</sup>2 TB drives available August 2010. TB equals 1 trillion bytes; actual capacity varies with preloaded material and operating environment and will be less.

\*For a copy of the EqualLogic Limited Warranty and Dell's Basic Service Description write Dell Inc., Attn: Customer Service, 300 Innovative Way, Suite 301, Nashua, NH 03062 USA or see [www.dell.com/warranty](http://www.dell.com/warranty) and [www.dell.com/servicecontracts](http://www.dell.com/servicecontracts)

\*\*Availability and terms of Dell Services vary by region. For more information, visit [www.dell.com/servicesdescriptions](http://www.dell.com/servicesdescriptions)

Simplify your storage at [Dell.com/PSseries](http://Dell.com/PSseries)

