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Hardware Compatibility List (HCL) for Veritas Storage Foundation™ & High Availability Solutions 4.3 for Windows®

Hardware Arrays

Vendor	Array Model	DMP Mode	3rd Party Multipathing	FC Port Drivers	SCSI Miniport	Storport Miniport	iSCSI Support	64-Bit Support	MPIO Support	Notes
EMC	CLARiiON CX Series Arrays	A/P	PowerPath	■	■	■	■	■	■	See Note 10,14,23,34,35,41
EMC	EMC Symmetrix 3000 Series	A/A, AP/C	PowerPath	■	■	■	■	■	■	See Note 2,3,14
EMC	EMC Symmetrix 8000 Series	A/A, AP/C	PowerPath	■	■	■	■	■	■	See Note 2,3,10,14,34,35,41
EMC	EMC Symmetrix DMX Series	A/A, AP/C	PowerPath	■	■	■	■	■	■	See Note 2,3,10,14,34,35,41
Engenio	Engenio Storage Systems (6998, 6998ES, 6994, 6498, 5884, 4884, 2882, 2822)	AP/C		■	■					
Fujitsu	Fujitsu ETERNUS3000 Series, Models 80, 100, 300, 500, 700	No DMP Support	ETERNUSmpd v2.0		■					See Note 19
Hitachi	Hitachi 9200 Freedom Series	AP/C	HDLM 5.4 & 5.7	■	■					See Note 9,16
Hitachi	Hitachi 9500V Thunder Series	AP/C	HDLM 5.4 & 5.7	■	■					See Note 17,18
Hitachi	Hitachi 9900 Lightning Series (9900 & 9900V)	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 6,10,29,34,36,41
Hitachi	Hitachi SANRISE2000 (SANRISE2200 and SANRISE2800)	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 6,10,29,34,36,41
Hitachi	Hitachi SANRISE9900V (SANRISE9970V and SANRISE9980V)	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 6,10,29,34,36,41
Hitachi	Hitachi TagmaStore Universal Storage Platform, Models USP100, USP600, USP1100	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 5, 10,29,34,36,41
Hitachi	Hitachi TagmaStore Network Storage Controller, Model NSC55	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 10,29,34,36,41
Hitachi	Hitachi TagmaStore Adaptable Modular Storage, Models AMS200, AMS500	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 29
Hitachi	Hitachi TagmaStore Workgroup Modular Storage, Model WMS100	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 29
HP	HP StorageWorks EMA15000, EMA12000, RA8000, MA8000	No Support								See Note ,27,40
HP	HP StorageWorks Enterprise Virtual Array EVA4000, EVA6000, EVA8000	A/A, AP/C				■		■	■	See Note 10,34,35,38,41
HP	HP StorageWorks Enterprise Virtual Array EVA3000, EVA5000	AP/C	SecurePath 4.0c	■	■					See Note 13
HP	HP StorageWorks MSA1000, MSA1500	No DMP Support	SecurePath 4.0c	■	■					See Note 13,25
HP	HP StorageWorks XP12000/XP10000 Disk Arrays	A/A, AP/C	SecurePath 4.0c	■	■	■		■	■	See Note 10,13,34,39,41
HP	HP SureStore E Disk Array XP128/XP1024	A/A, AP/C	SecurePath 4.0c	■	■	■		■	■	See Note 10,13,34,39,41
HP	HP SureStore E Disk Array XP48/512	A/A, AP/C		■	■					
HP	HP SureStore E Disk Array XP256	A/A, AP/C		■	■					
IBM	IBM ESS Models E10/E20/F10/F20 (Shark)	A/A, AP/C	SDD 1.6.0.5-3	■	■					See Note 8
IBM	IBM TotalStorage™ DS4000 Series (formerly FASTT Series)	AP/C	RDAC 9.10	■	■					See Note 1,28,30
IBM	IBM TotalStorage™ DS8000 Series	A/A, AP/C	SDD 1.6.0.5-3/1.6.0.7	■	■					See Note 8,42
IBM	IBM TotalStorage™ DS6000 Series	A/A, AP/C	SDD 1.6.0.5-3/1.6.0.7	■	■					See Note 8,42
IBM	IBM TotalStorage™ ESS800/ESS750	A/A, AP/C	SDD 1.6.0.5-3/1.6.0.7	■	■	■		■	■	See Note 8,10,34,35,41,42
IBM	IBM TotalStorage™ SAN Volume Controller	A/A, AP/C	SDD 1.6.0.5-3/1.6.0.7	■	■					See Note 4,42
LSI	LSI E2400/E2600/E4400/E4600/E5600	AP/C	RDAC 9.10	■	■					See Note 1
MTI	MTI Vivant 400	A/A, AP/C		■	■					See Note 7
NEC	NEC iStorage 1000 Series	A/A, AP/C		■	■					See Note 26
NEC	NEC iStorage 2000 Series	A/A, AP/C		■	■					See Note 26
NetApp	Network Appliance F800 Series	A/A, AP/C		■	■	■				See Note 31
NetApp	Network Appliance FAS200 Series (FAS250, FAS270)	A/A, AP/C		■	■	■	■	■	■	See Note 10,31,34,37,41
NetApp	Network Appliance FAS900 Series (FAS920, FAS940, FAS960, FAS980)	A/A, AP/C		■	■	■	■	■	■	See Note 10,31,34,37,41
NetApp	Network Appliance FAS3000 Series (FAS3020, FAS3050)	A/A, AP/C		■	■	■	■	■	■	See Note 10,31,34,37,41
NetApp	Network Appliance NearStore Series	A/A, AP/C		■	■	■	■	■	■	See Note 10,31,34,37,41
NetApp	NetApp V-Series (GF980c,GF960c,V3050c,V3020c,GF270c)	A/A, AP/C		■	■	■	■	■	■	See Note 10,31,34,37,41
Nihon	Nihon Unisys SANArena 2200 Series (SANArena 2200 and 2800)	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 6, 10,29
STK	StorageTek FlexLine 200/300 Series Storage Systems	AP/C	RDAC 9.10	■	■					See Note 1, 21
Sun	Sun StorEdge 6130 Array	AP/C		■	■					See Note 24
Sun	Sun StorEdge SE9900 Series (StorEdge SE9910 and SE9960)	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 6,10,29,34,36,41
Sun	Sun StorEdge SE9900V Series (StorEdge SE9970V and SE9980V)	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 6,10,29,34,36,41
Sun	Sun StorEdge SE9990 Series	A/A, AP/C	HDLM 5.4 & 5.7	■	■	■		■	■	See Note 5,10,29,34,36,41



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Fibre Channel HBA's									
Vendor	HBA Model	Driver	Firmware						Notes
Emulex	LP1050EX	1.11a0	1.90a4/1.91a1						
Emulex	LP1050, LP1050DC, LP10000, LP10000DC	5-2.22a8	1.81a1/1.90a4.1.91a1	■					See Note 22
Emulex	LP1050, LP1050DC, LP10000, LP10000DC	5-5.10a9/a10	1.81a3/1.90a4/1.91a1		■				See Note 10,33
Emulex	LP1050, LP1050DC, LP10000, LP10000DC	1.10a4	1.91a1			■		■	
Emulex	LP8000	5-2.21a8	3.91a3 / 3.93a0	■					
Emulex	LP8000	5-5.20a9	3.91a3 / 3.93a0		■				See Note 22
Emulex	LP952L, LP9002L, LP9002DC, LP9402DC	5-2.22a8	3.91a3 / 3.93a0	■					
Emulex	LP952L, LP9002L, LP9002DC, LP9402DC	5-5.00a10	3.91a3 / 3.93a0		■				See Note 22
Emulex	LP952L, LP9002L, LP9002DC, LP9402DC	1.02a3/1.11a0	3.91a3 / 3.93a0			■		■	See Note 10,33
Emulex	LP982, LP9802, LP9802DC	5-2.22a8	1.81a1/1.90a4/1.91a1	■					
Emulex	LP982, LP9802, LP9802DC	5-5.00a10	1.81a1/1.90a4/1.91a1		■				See Note 22
Emulex	LP982, LP9802, LP9802DC	5-1.02a3	1.90a4/1.91a1			■		■	See Note 10,33
HP	HP BL20p G2/G3 FC Mezzanine Card (ISP2312)	9.0.2.11	1.45		■				
HP	HP BL20p G2/G3 FC Mezzanine Card (ISP2312)	9.0.2.16	1.45			■		■	See Note 10,33
HP	HP BL25p/BL45p Fibre Channel Adapter	9.0.2.11	1.48			■			
HP	HP BL25p/BL45p Fibre Channel Adapter	9.0.2.16	1.48			■		■	See Note 10,33
HP	HP BL30p/BL35p Dual-Port Fibre Channel Adapter	9.0.2.11	1.45		■				
HP	HP BL30p/BL35p Dual-Port Fibre Channel Adapter	9.0.2.16	1.45			■		■	See Note 10,33
HP	HP StorageWorks FCA2101, FCA2355	5-5.10a9/a10	3.91a1		■				
HP	HP StorageWorks FCA2214, FCA2214DC	8.2.0.72/9.0.2.11	1.33/1.45			■		■	
HP	HP StorageWorks FCA2214, FCA2214DC	9.0.0.17	1.43			■		■	See Note 10,33
HP	HP StorageWorks FCA2408, FCA2204, FCA2404, FCA2404DC	5-2.22a8	1.90a4	■					
HP	HP StorageWorks FCA2408, FCA2204, FCA2404, FCA2404DC	5-5.10a9/a10	1.90a4		■				See Note 22
HP	HP StorageWorks FCA2408, FCA2204, FCA2404, FCA2404DC	5-1.02a3	1.90a4			■		■	See Note 10,33
HP	KGPSA-CB (Compaq #176479-B21)	5-5.10a9/a10	3.90a7			■			
HP	LP1050 (A7388A), LP1050DC (A7387A), LP10000	1.10a4	1.91a1			■		■	See Note 10,33
HP	LP1050DC, LP10000, FCA2600	5-2.22a8	1.90a4	■					
HP	LP1050DC, LP10000, FCA2600	5-5.10a9/a10	1.81a3			■			See Note 22
IBM	IBM BladeCenter HS20/LS20 FC Extension Option	9.0.1.63	1.43			■			
IBM	IBM BladeCenter HS40 FC Extension Option	9.0.1.63	1.43			■			
IBM	Netfinity 2103, 2104	8.2.3.63	1.43			■			See Note 20
Qlogic	QLA2200, QLA2202	8.1.5.15	1.83			■			See Note 10
Qlogic	QLA2310, QLA2310F, QLA2310FL	8.2.3.11	1.43			■			See Note 11
Qlogic	QLA2310, QLA2310F, QLA2310FL	9.0.0.17	1.43			■		■	See Note 10,11,33
Qlogic	QLA2340, QLA2342, QLA2344, QLA2340L, QLA2342L	8.2.3.11/9.0.0.12	1.43			■			See Note 12
Qlogic	QLA2340, QLA2342, QLA2344, QLA2340L, QLA2342L	9.0.0.17	1.43			■		■	See Note 10,12,33
iSCSI HBAs									
Vendor	HBA Model	Driver	FW/BIOS						Notes
Qlogic	QLA4010	2.1.0.1	02.00.00.05					■	
Microsoft	Microsoft iSCSI Software Initiator	1.0.5a / 2.0	N/A					■	See Note 32
Fibre Channel Switches									
Vendor	Model	Firmware							Notes
Brocade	Silkworm 12000	4.1.2b							
Brocade	Silkworm 200E	5.0.1b							
Brocade	Silkworm 24000	4.2.0b							
Brocade	Silkworm 2800,2400.2050	2.6.1b							
Brocade	Silkworm 3200, 3800	3.1.1b							
Brocade	Silkworm 3250, 3850	4.2.0b							
Brocade	Silkworm 3900	4.1.2b							
Brocade	Silkworm 4100	4.4.0b							
Brocade	Silkworm 48000	4.2.0b							



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Cisco	Cisco Multilayer Director Switch (MDS9506, MDS9509, MDS9216)	1.3(4a)	
Cisco	Cisco MDS9120/9140 Multilayer Fabric Switches	1.3(4a)	
Connectrix	DS32M2, DS24M2	4.01.02	
Connectrix	ED64M, ED140M	5.01	
EMC	EMC DS-16M2, DS-32M2, DS-24M2	5.01	
EMC	EMC DS32-B2	4.1.2b	
EMC	EMC DS8-B, DS16-B	2.6.1b	
EMC	EMC DS8-B2, DS16-B2	3.1.1b	
EMC	EMC ED12000-B	4.1.2b	
HP	HP StorageWorks SAN Director 2/128	4.4.0b	
HP	HP StorageWorks Core Switch 2/64	4.1.2b	
HP	HP StorageWorks Director 2/64, 2/140, HP Surestore FC 64	5.0.1	
HP	HP StorageWorks Director 4/256 SAN Director	5.0.1d	
HP	HP StorageWorks Edge Switch 2/16, 2/32, 2/24	5.0.1	
HP	HP StorageWorks SAN Switch 2/08EL, 2/16EL	3.1.1b	
HP	HP StorageWorks SAN Switch 2/16N	5.0.1d	
HP	HP StorageWorks SAN Switch 2/32	3.1.1b	
HP	HP StorageWorks SAN Switch 2/8V	5.0.1d	
HP	HP StorageWorks SAN Switch 4/32	4.4.0f / 5.0.1b	
IBM	Cisco MDS9120/9140 Multilayer Fabric Switches (IBM 2061-020/2061-040)	1.3(4a)	
IBM	Cisco MDS9216 Multilayer Fabric Switch (2062-D01)	1.3(4a)	
IBM	Cisco MDS9506 Multilayer Director (2062-D04/T04)	1.3(4a)	
IBM	Cisco MDS9509 Multilayer Director (2062-D07/T07)	1.3(4a)	
IBM	CNT FC/9000-128 Fibre Channel Director (2042-128)	FC3.0.3.2	
IBM	CNT FC/9000-256 Fibre Channel Director (2042-256)	FC3.0.3.2	
IBM	CNT FC/9000-64 Fibre Channel Director (2042-001)	FC3.0.3.2	
IBM	IBM 2005 Model H08/H16 FC Switch (2005-H08/2006-H16)	4.1.2b	
IBM	IBM TotalStorage SAN Director Switch M12 (2109-M12)	4.1.2b	
IBM	IBM TotalStorage SAN Director Switch M14 (2109-M14)	4.3.0b	
IBM	IBM TotalStorage SAN Switch F08/F16 (3524-F08/2109-F16)	3.1.1b	
IBM	IBM TotalStorage SAN Switch F32 (2109-F32)	4.1.2b	
IBM	IBM TotalStorage SAN Switch S08/S16 (2109-S08/2109-S16)	2.6.1b	
IBM	IBM TotalStorage SAN12M-1 (2026-E12)	5.01	
IBM	IBM TotalStorage SAN140M (2027-140)	5.01	
IBM	IBM TotalStorage SAN16B-2 (2005-B16)	5.0.1d	
IBM	IBM TotalStorage SAN24M-1 (2026-224)	5.01	
IBM	IBM TotalStorage SAN256B	5.0.1d	
IBM	IBM TotalStorage SAN32B-2 (2005-B32)	4.4.0	
IBM	IBM TotalStorage SAN32M-1 (2026-232)	5.01	
IBM	McData Intrepid 6064 Director (2023-064)	5.01	
IBM	McData Intrepid 6140 Director (2032-140)	5.01	
IBM	McData Sphereon 3232 Switch (2031-232)	5.01	
IBM	McData Sphereon 4300 Switch (2031-212)	5.01	
IBM	McData Sphereon 4500 Switch (2031-224)	5.01	
CNT	FC9000/64, FC9000/128, FC9000/256	FC3.0.3.2	
McData	Intrepid 10000 Director	06.02.00	
McData	Intrepid 6064, 6140	5.01	
McData	Spheron 3216, 3232, 4300, 4500	5.01	
Qlogic	SANbox2-8, SANbox2-16, SANbox2-64, SAN Connectivity Kit 1000/2000	2.0.0.3	See Note 11
Qlogic	SANbox 5200, 5602	4.0.0.11	See Note 12

Comments: Support is conditional according to the published notes corresponding to the individual device.



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The Veritas Storage Foundations & High Availability Solutions for Windows Hardware Compatibility List (HCL) applies to Fibre Channel and iSCSI based Storage Area Networks.

All hardware configurations listed have been qualified with the following products: Veritas Storage Foundation™ 4.3 for Windows®, Veritas Storage Foundation HA 4.3 for Windows® (VSWF plus Veritas Cluster Server 4.3 for Windows®), Veritas Storage Foundation DR 4.3 for Windows® and Veritas Cluster Server 4.3 for NetApp SnapMirror. The following options are also supported by this HCL list: Veritas Storage Foundation for Windows - Volume Replicator Option, Veritas Storage Foundation for Windows - FlashSnap Option, Veritas Storage Foundation for Windows - Dynamic Multi-pathing Option, Veritas Storage Foundation for Windows - Cluster Option for Microsoft® Cluster Server, Veritas Storage Foundation HA for Windows - Application Agent for Microsoft® Exchange, Veritas Storage Foundation HA for Windows - Database Agents for Microsoft® SQL & Oracle, Veritas Storage Foundation HA for Windows - Hardware Replication Agents for EMC SRDF, IBM PPRC, HDS TrueCopy & EMC MirrorView and Veritas Storage Foundation HA for Windows® - Global Cluster Option.

- Configurations using any multipathing software (Veritas Storage Foundation for Windows - Dynamic Multi-pathing Option (DMP) or third-party) are restricted to the Veritas HCL list. This includes Veritas DMP implementations based upon Veritas Array Support Libraries (ASL's) or MPIO Device Specific Modules (DSM's). For third party multipathing products only the versions listed on the HCL are supported.

- Configurations using Veritas Cluster Server (VCS) or Microsoft Cluster Server (MSCS) that are not on the Veritas HCL list are provided "best effort" support based on the Microsoft Cluster HCL. Best effort support allows for escalations based on unqualified hardware, but if a problem is determined to be hardware specific, the problem is not guaranteed to be resolved. -

- For other configurations, hardware is supported based on the Microsoft Windows Catalog. Check the Microsoft Windows Catalog at <http://www.microsoft.com/windows/catalog/server/> for Microsoft Windows Server qualified equipment. Microsoft lists supported iSCSI equipment separately from the Windows Catalog and the latest Microsoft iSCSI Hardware Compatibility List (HCL) can be found at <http://www.microsoft.com/windowserversystem/storage/technologies/iscsi/default.aspx>

The supported hardware list has been specifically qualified and approved by the Symantec Compatibility Lab (cLAB). Hardware that does not appear on this list is not supported when used with Veritas DMP or any 3rd-party multipathing solution. Employing a multipathing solution with Veritas Storage Foundation for Windows on non-certified hardware can result in unpredictable and possibly data-threatening behavior.

Certified hardware is selected by Symantec Product Management, based on market research and input from the field, including customer feedback. If a customer would like to have their hardware considered for inclusion on this HCL, simply submit your request to your Symantec Sales Representative.

Symantec supports hardware products on this HCL that include virtualization capability, but does not support compatibility issues that can be ascribed to the virtualization feature. Symantec requires any compatibility issue to be reproduced in a non-virtualization environment. If the issue is confirmed to be related to Symantec products, Symantec will support its software at the same level as when that software is not running in conjunction with hardware virtualization products.

Symantec will, of course, cooperate with virtualization vendors, and attempt to assist in the diagnosis of problems found between the virtualization and Symantec products.

The Firmware/Driver columns show the most recent version tested by Symantec and are the minimum levels supported. Newer versions are not always tested but are supported. It may be necessary to downgrade the device firmware/drivers to ensure proper operation while an issue is resolved. Symantec recommends customers select a driver level from our HCL that is also array vendor approved and supported. If they do not coincide then a higher level than specified in the Symantec Storage Foundation & High Availability for Windows HCL can be used with the understanding that it has not been specifically tested by Symantec.

Support for Storport Miniport drivers requires installation of MPIO Device Specific Modules (DSMs) when the Veritas DMP Option is installed. MPIO column in the matrix specifies support using Veritas DMP with MPIO. Support for 3rd Party Multipathing solutions is limited to those products and versions listed.

Veritas DMP with MPIO Device Specific Modules (DSM's) is supported with Windows Server 2003 (32-bit, x64 & IA64), FC Storport Miniport drivers, iSCSI HBAs, Microsoft iSCSI Software Initiator and supports Boot from SAN. Basic disks are supported provided SCSI-3 registry support is not enabled in DMP DSM. If SCSI-3 registry is enabled in a DMP DSM for an attached array any existing basic disks should be upgraded to dynamic disks before placing them under DMP control. Boot and Data Volumes are supported on the same bus/HBA's for non-clustered servers provided customers follow Microsoft's Boot from SAN recommendations. Veritas DMP with MPIO DSMs is not supported with Windows 2000, FC Port drivers, FC SCSI Miniport drivers or Boot/Cluster disks on the same bus/HBA's.

Veritas DMP with Array Support Libraries (ASL's) is supported with Windows 2000, Windows Server 2003 (32-bit only), FC Port drivers, FC SCSI Miniport drivers and iSCSI HBAs, Veritas DMP with ASLs is not supported with Windows Server 2003 (x64 & IA64), FC Storport Miniport drivers, the Microsoft iSCSI Software Initiator, Boot from SAN or Basic Disks. Any existing basic disks should be upgraded to dynamic disks before placing them under DMP (ASL) control.

DMP Modes are A/A = Active/Active and AP/C = Active/Passive Concurrent. Active/Active DMP support with clustering (VCS or MSCS) requires the use of SCSI-3 enabled storage arrays and MPIO Device Specific Modules (DSMs), see Notes 10, 34 and 35 for details.

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Switch Model Number Cross-Reference:

Brocade Silkworm 48000 Switch = IBM TotalStorage SAN Director Switch M48 (2109-M48)
Brocade Silkworm 24000 Switch = IBM 2109-M14 = HP StorageWorks SAN Director 2/128
Brocade Silkworm 12000 Switch = EMC ED12000-B = HP StorageWorks Core Switch 2/64 = IBM 2109-M12
Brocade Silkworm 4100 Switch = HP StorageWorks SAN Switch 4/32
Brocade Silkworm 3900 Switch = EMC DS32-B2 = HP StorageWorks SAN Switch 2/32 = IBM 2109-F32
Brocade Silkworm 3850 Switch = IBM 2005-H16
Brocade Silkworm 3800 Switch = EMC DS16-B2 = HP StorageWorks SAN Switch 2/16EL = IBM 2109-F16
Brocade Silkworm 3250 Switch = IBM 2005-H08
Brocade Silkworm 3200 Switch = EMC DS8-B2 = HP StorageWorks SAN Switch 2/08EL = IBM 3534-F08
Brocade Silkworm 2800 Switch = EMC DS16-B = HP StorageWorks SAN Switch 16 = IBM 2109-S16
Brocade Silkworm 2400 Switch = EMC DS8-B = HP StorageWorks SAN Switch 8 = IBM 2109-S08
McData 4500 Switch = EMC DS24-M2 = HP StorageWorks Edge Switch 2/24 = IBM 2026-224/2031-224
McData 4300 Switch = IBM 2026-E12/2031-212
McData 3232 Switch = EMC DS32-M2 = HP StorageWorks Edge Switch 2/32 = IBM 2027-232/2031-232
McData 3216 Switch = EMC DS16-M2 = HP StorageWorks Edge Switch 2/16
McData ED6064 Switch = EMC ED64M = HP StorageWorks SAN Director 2/64 = HP SureStore FC 64 = IBM 2023-064
McData ED6140 Switch = EMC ED140M = HP StorageWorks Director 2/140 = IBM 2027-140/2032-140
Cisco MDS9120/9140 = IBM 2061-020/2061-040
Cisco MDS9216 = IBM 2062-D01
Cisco MDS9506 = IBM 2062-D04/T04
Cisco MDS9509 = IBM 2062-D07/T07
CNT FC9000-256/128/064 = IBM 2042-256/2042-128/2042-001

Note 1: IMPORTANT: These arrays require additional configuration steps in order to work properly with Veritas Storage Foundation for Windows. Before attempting to use any of these arrays with Veritas Storage Foundation for Windows DMP software, please contact the array hardware manufacturer for additional configuration instructions and updates. Several special settings must be enabled on these arrays to allow compatibility with DMP, including Auto Volume Transfer (AVT), also referred to as Auto Logical Drive Transfer (ADT). Specific firmware levels from the manufacturer for these arrays may also be required.

Note 2: EMC Symmetrix 8000 Series arrays include the 8230, 8430, 8530, 8730 and 8830 arrays. EMC Symmetrix 3000 Series arrays include the 3330, 3430, 3630, 3700, 3830 and 3930 arrays. EMC DMX Series arrays include the DMX800, DMX1000, DMX2000, DMX3000 and DMX-3 arrays.

Note 3: If you are using DMP ASLs, then EMC Symmetrix 3000, 8000, and DMX-Series arrays then there are HBA driver limitations. Emulex HBA's are supported with FC Port Drivers only. Qlogic HBAs are supported provided that you use EMC recommended SCSI miniport drivers and the Microsoft SCSI Port hotfix Q883114. If you are using DMP MPIO DSMs, then the Emulex HBA Storport drivers are supported with the Symmetrix 8000 and DMX series arrays.

Note 4 Support for the IBM SVC is now available for Windows Server 2003 and Windows 2000 using Emulex and Qlogic HBAs.

Note 5: Hitachi TagmaStore USP models 100, 600 & 1100 also applies to the SUN StorEdge SE9990 series.

Note 6: Hitachi 9900 Lightning series array (9910 and 9960) support also applies to the Hitachi SANRISE2000 series (SANRISE2200 and SANRISE2800), the Nihon Unisys SANArena 2000 series (SANArena 2200 and 2800), and the SUN StorEdge SE9900 series (StorEdge SE9910 and SE9960) arrays. Hitachi 9900V Lightning series array (9970V and 9980V) support also applies to the Hitachi SANRISE9900V series (SANRISE9970V and SANRISE9980V), SUN StorEdge SE9900V series (StorEdge SE9970V and SE9980V).

Note 7: Array detected and supported as JBOD using VERITAS DMP Array Support Libraries (ASL's) only. There is no specific array support module for this array

Note 8: IBM Subsystem Device Driver (SDD) v1.6.0.5-3 was tested with IBM ESS750/800, F20, DS8000 and DS6000 arrays and is supported on Windows Server 2003 (x86, x64 or IA64) only.

Note 9: For Veritas DMP support the Report Inquiry Page 83H must be enabled in the Hitachi 9200 Arrays



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Note 10: Windows Server 2003 x64 Edition, Windows Server 2003 64-Bit for Itanium System and FC Storport miniport driver support for the following arrays requires the installation of an updated Veritas DMP DSM Package. This updated DMP DSM Package is available on the Veritas Technical Support site as a 'Device Driver Install Package 3 (DDI3) download, see Technical Note 283360 (<http://seer.support.veritas.com/docs/282360.htm>) for details.

- EMC Symmetrix 8000 Series
- EMC Symmetrix DMX Series
- EMC CLARiiON CX/AX Series
- IBM TotalStorage™ ESS800/ESS750
- Hitachi TagmaStore Universal Storage Platform (USP100, USP600, and USP1100)
- Hitachi TagmaStore Network Storage Controller (NSC55)
- Hitachi 9900 Lightning Series (9900 and 9900V)
- Hitachi SANRISE9900V (SANRISE9970V and SANRISE9980V)
- Hitachi SANRISE2000 (SANRISE2200 and SANRISE2800)
- HP StorageWorks XP 12000 Disk Array
- HP SureStore E Disk Array XP128/XP1024
- HP StorageWorks Enterprise Virtual Array (EVA4000, EVA6000, EVA8000)
- Network Appliance F800 Series
- Network Appliance FAS200 Series (FAS250, FAS270)
- Network Appliance FAS900 Series (FAS920, FAS940, FAS960, FAS980)
- Network Appliance FAS3000 Series (FAS3020, FAS3050)
- Network Appliance NearStore Series
- NetApp V-Series (GF980c, GF960c, V3050c, V3020c, GF270c)
- Nihon Unisys SANArena 2200 Series (SANArena 2200 and 2800)
- Sun StorEdge SE9900 Series (StoreEdge SE9910, SE9960, SE9970V, SE9980V and SE9990)

Note 11: The Qlogic SAN Connectivity Kit 2000 includes a QLogic SANbox2-8 Fibre Channel Switch coupled with four (4) QLogic SANblade HBAs (QLA2310F) and all the necessary accessories including cables, GBICs and management software.

Note 12: The Qlogic SAN Connectivity Kit 3000 includes a QLogic SANbox 5200 Fibre Channel switch coupled with four (4) QLogic SANblade HBAs (QLA2340) and all the necessary accessories including cables, SFPs and SANsurfer software.

Note 13: Also tested with SecurePath 4.0C with HP XP128/1024/12000, EVA5000, EVA3000 and MSA1000/1500 Arrays. HP Securepath supports SFW/HA (VCS) on Windows 2000 only, there is no Securepath support for SFW/HA (VCS) on Windows Server 2003.

Note 14: Also tested EMC PowerPath with EMC DMX Series, EMC Symmetrix 8000, Symmetrix 3000 Series and CLARiiON CX Series Arrays. Please check the EMC Interoperability Support Matrices (<http://www.emc.com/interoperability/index.jsp>) for details on the specific versions of PowerPath supported.

Note 15: NEC iStorage S1000 Series arrays include S100, S1100, S1200 and S1300 arrays.

Note 16: Hitachi 9200 Thunder array support also applies to the Hitachi SANRISE1000 series (SANRISE1100 and SANRISE1200) and the Nihon Unisys SANArena 1000 series (SANArena 1100 and 1200).

Note 17: Hitachi 9500V Thunder series array (9520V, 9530V, 9570V and 9585V) support also applies to the Hitachi SANRISE 9500V series and the Nihon Unisys SANArena 1500 series.

Note 18: During a Hitachi online format of new LUNS, certain SCSI commands are disabled which may temporarily suspend data access. Contact Hitachi for a list of these commands.

Note 19: Support is available for Windows Server 2003 (32-Bit) operating system only. Please see <http://storage-system.fujitsu.com/jp/products/diskarray/eternus3000/photo.html> (Japanese) for more information

Note 20: IBM HBA Cross-Reference: IBM 2103 TotalStorage FASTT FC-2 Host Bus Adapter, Part Number 19K1246 = Qlogic QLA2310. IBM 2104 TotalStorage FASTT FC-2 133 Host Bus Adapter, Part Number 24P0960 = Qlogic QLA2312.

Note 21: StorageTek FlexLine 200/300 Series Storage Systems include the FLX210, FLX240 (formerly OPENstorage D240), FLX280 (formerly OPENstorage D280) and FLX380 models, This support also applies to the BladeCtrlr BC84, B210, B220, B280 and OPENstorage D173, D178 and 9176 models.

Note 22: Emulex Mini-Port driver support applies to Hitachi and HP arrays only.

Note 23: EMC CLARiiON CX Series arrays supported include the CX200, CX300, CX400, CX500, CX600 and CX700. VERITAS DMP supports only EMC and Dell Failover Mode 1.



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Note 24: IMPORTANT: The Sun StorEdge 6130 array requires additional configuration steps in order to work properly with Veritas Storage Foundation for Windows. Before attempting to use the Sun StorEdge 6130 array with Veritas Storage Foundation for Windows DMP software, please contact the array hardware manufacturer for additional configuration instructions and updates. Several special settings must be enabled on these arrays to allow compatibility with DMP. Specific firmware levels from the manufacturer for these arrays may also be required.

Note 25: There is NO support for Veritas Dynamic Multipathing (DMP) at this time with the HP MSA1000.MSA1500 arrays.

Note 26: NEC iStorage S1000 Series arrays include S100, S1100, S1200 and S1300 arrays. NEC iStorage S2000 Series arrays include S2100, S2200, S2300 and S2800 arrays. For SFW40, please obtain a patch to fix incident 107130. Please consult with VERITAS Technical Support.

Note 27: See VERITAS TechNote 277657 (<http://support.veritas.com/docs/277657>) for additional support details for HP/Compaq HSG80 based arrays.

Note 28: IBM TotalStorage Series arrays supported include the DS4100 (formerly FASi100), DS4300 (formerly FASi600), DS4400 (formerly FASi700), DS4500 (formerly FASi900), DS4800 and the FASi200/FASi500 array models.

Note 29: Hitachi HDLM 5.4 and HDLM 5.7 also supported with the Hitachi 9200 Freedom Series, Hitachi 9500V Thunder Series, Hitachi 9900 Lightning Series (9900 & 9900V), Hitachi SANRISE2000 (SANRISE2200 and SANRISE2800), Hitachi SANRISE9900V (SANRISE9970V and SANRISE9980V), Hitachi TagmaStore USP models 100, 600 & 1000, Hitachi TagmaStore Network Storage Controller (NSC55), Hitachi TagmaStore Adaptable Modular Storage, Models AMS200/AMS500, Hitachi TagmaStore Workgroup Modular Storage, Model WMS100, Nihon Unisys SANArena 2200 Series (SANArena 2200 and 2800), Sun StorEdge SE9900 Series (StorEdge SE9910 and SE9960), Sun StorEdge SE9900V Series (StorEdge SE9970V and SE9980V) and Sun StorEdge SE9900V Series model families.

Note 30: IBM RDAC v9.10 also supported with IBM FASi Arrays.

Note 31: Veritas DMP support for NetApp arrays with the Microsoft iSCSI Software Initiator or with the NetApp CFO Option requires the use of the Veritas DMP - MPIO DSM based multipathing.

Note 32: The Microsoft iSCSI Software Initiator is supported on any Ethernet NIC card that is supported by the Microsoft iSCSI Software Initiator. Recommended Microsoft iSCSI Software Initiator setting for adding a new target is to specially select the adapter and port of the NIC configured for the iSCSI connection instead of selecting the default adapter. There is no Veritas DMP support for the Microsoft iSCSI Software Initiator unless an MPIO DSM is available for the specific array.

Note 33: Microsoft QFE 838894, QFE 883646 or later, which update Microsoft's storport.sys file, is required. Contact your Microsoft representative or Microsoft Technical Support to obtain the QFE. If Windows Server 2003 SP1 is used then this Service Pack includes these QFE's. Microsoft has also released an updated Storport storage driver (version 5.2.3790.2497) which is available for Windows Server 2003, see <http://support.microsoft.com/Default.aspx?kbid=903081> for details. It is highly recommended that customers install this updated Storport driver prior to opening any MPIO related support calls.

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Note 34: Array Requirements to Support Active/Active DMP in a Cluster (MSCS/VCS)

- EMC Symmetrix/DMX Arrays
 - EMC Symmetrix 8000 Series requires FW 5568.67 or higher
 - EMC Symmetrix DMX Series requires FW 5670.73 or higher
 - EMC CLARiiON CX Series requires FW 02.19 or higher
- IBM ESS800/750 Arrays
 - IBM TotalStorage™ ESS800/ESS750 requires FW 2.3.2.71 or higher
- Hitachi TagmaStore Arrays
 - Hitachi TagmaStore USP models 100, 600, and 1000 requires FW 50-05-22-00/00 or higher
 - Hitachi TagmaStore Network Storage Controller (NSC55) requires FW 50-05-22-00/00 or higher
 - Hitachi 9900 Lightning Series requires FW 01-19-83-00/00 or higher
 - Hitachi 9900V Lightning Series requires FW 21-10-13-00/00 or higher
- HP StorageWorks XP Arrays
 - HP StorageWorks XP 12000 Disk Array requires FW 50-01-40-00/00 or higher
 - HP SureStore E Disk Array XP128/XP1024 requires FW 21-09-15 or higher
 - HP StorageWorks Enterprise Virtual Array EVA4000, EVA6000, EVA8000 requires FW 5030 or higher

SUN StorEdge Arrays

- Sun StorEdge Series (StoreEdge SE9910, SE9960, SE9970V, SE9980V and SE9990)
- Network Appliance Arrays (all require NetApp ONTAP v7.0.2 or higher)
 - Network Appliance F800 Series
 - Network Appliance FAS200 Series (FAS250, FAS270)
 - Network Appliance FAS900 Series (FAS920, FAS940, FAS960, FAS980)
 - Network Appliance FAS3000 Series (FAS3020, FAS3050)
 - Network Appliance NearStore Series

Note 35: Enabling SCSI-3 PGR on Your Array to Support Active/Active DMP in a Cluster (MSCS/VCS)

You must enable SCSI-3 PGR before using the Active/Active DMP setting for MPIO DSMs in Clustering (MSCS/VCS) environments (SCSI-3 PGR is disabled by default.) The following files are provided on the product CD and in VERITAS DMP DSM Packages to enable or disable SCSI-3 PGR for the type of storage array supported. Run the appropriate .reg for your storage array. A reboot is required after running the appropriate .reg file.

For storage array type:

- EMC Symmetrix 8000 Series
- EMC Symmetrix DMX Series

Use:

- EnableSupportSCSI3Emc.reg to enable SCSI-3 PGR
- DisableSupportSCSI3Emc.reg to disable SCSI-3 PGR

For storage array type:

- IBM TotalStorage™ ESS800/ESS750

Use:

- EnableSupportSCSI3Ibm.reg to enable SCSI-3 PGR
- DisableSupportSCSI3Ibm.reg to disable SCSI-3 PGR

Note: You must ensure that your storage array meets the requirements described in the section above before using the Active/Active setting for MPIO DSMs. Also check to see if your array manufacturer requires any special settings for a LUN to be enabled for SCSI-3 PGR.

Hardware Compatibility List (HCL) for Veritas Storage Foundation™ & High Availability Solutions 4.3 for Windows®**Note 36: Enabling SCSI-3 PGR on Your Array to Support Active/Active DMP in a Cluster (MSCS/VCS)**

You must enable SCSI-3 PGR before using the Active/Active DMP setting for MPIO DSMs in Clustering (MSCS/VCS) environments (SCSI-3 PGR is disabled by default.) The following files are provided on the product CD and in VERITAS DMP DSM Packages to enable or disable SCSI-3 PGR for the type of storage array supported. Run the appropriate .reg for your storage array. A reboot is required after running the appropriate .reg file.

For storage array type:

- Hitachi TagmaStore USP models 100, 600, and 1100
- Hitachi TagmaStore Network Storage Controller (NSC55)
- Hitachi TagmaStore Adaptable Modular Storage (AMS200 and AMS500)
- Hitachi TagmaStore Workgroup Modular Storage (WMS100)
- Hitachi 9900 Lightning Series (9900 and 9900V)
- Sun StorEdge SE9900 Series (StoreEdge SE9910, SE9960, SE9970V, SE9980V and SE9990)

Use:

- EnableSupportSCSI3Hds.reg to enable SCSI-3 PGR
- DisableSupportSCSI3Hds.reg to disable SCSI-3 PGR

Note: You must ensure that your storage array meets the requirements described in the section above before using the Active/Active setting for MPIO DSMs. Also check to see if your array manufacturer requires any special settings for a LUN to be enabled for SCSI-3 PGR.

Note 37: Enabling SCSI-3 PGR on Your Array to Support Active/Active DMP in a Cluster (MSCS/VCS)

You must enable SCSI-3 PGR before using the Active/Active DMP setting for MPIO DSMs in Clustering (MSCS/VCS) environments (SCSI-3 PGR is disabled by default.) The following files are provided on the product CD and in VERITAS DMP DSM Packages to enable or disable SCSI-3 PGR for the type of storage array supported. Run the appropriate .reg for your storage array. A reboot is required after running the appropriate .reg file.

For storage array type:

- Network Appliance F800 Series
- Network Appliance FAS200 Series (FAS250, FAS270)
- Network Appliance FAS900 Series (FAS920, FAS940, FAS960, FAS980)
- Network Appliance FAS3000 Series (FAS3020, FAS3050)
- Network Appliance NearStore Series
- NetApp V-Series (GF980c, GF960c, V3050c, V3020c, GF270c)

Use:

- EnableSupportSCSI3Netapp.reg to enable SCSI-3 PGR
- DisableSupportSCSI3Netapp.reg to disable SCSI-3 PGR

Note: You must ensure that your storage array meets the requirements described in the section above before using the Active/Active setting for MPIO DSMs. Also check to see if your array manufacturer requires any special settings for a LUN to be enabled for SCSI-3 PGR.

Note 38: Enabling SCSI-3 PGR on Your Array to Support Active/Active DMP in a Cluster (MSCS/VCS)

You must enable SCSI-3 PGR before using the Active/Active DMP setting for MPIO DSMs in Clustering (MSCS/VCS) environments (SCSI-3 PGR is disabled by default.) The following files are provided on the product CD and in VERITAS DMP DSM Packages to enable or disable SCSI-3 PGR for the type of storage array supported. Run the appropriate .reg for your storage array. A reboot is required after running the appropriate .reg file.

For storage array type:

- HP StorageWorks Enterprise Virtual Array EVA4000, EVA6000, EVA8000

Use:

- EnableSupportSCSI3HpEVA.reg to enable SCSI-3 PGR
- DisableSupportSCSI3HpEVA.reg to disable SCSI-3 PGR

Note: You must ensure that your storage array meets the requirements described in the section above before using the Active/Active setting for MPIO DSMs. Also check to see if your array manufacturer requires any special settings for a LUN to be enabled for SCSI-3 PGR.



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Note 39: Enabling SCSI-3 PGR on Your Array to Support Active/Active DMP in a Cluster (MSCS/VCS)

You must enable SCSI-3 PGR before using the Active/Active DMP setting for MPIO DSMs in Clustering (MSCS/VCS) environments (SCSI-3 PGR is disabled by default.) The following files are provided on the product CD and in VERITAS DMP DSM Packages to enable or disable SCSI-3 PGR for the type of storage array supported. Run the appropriate .reg for your storage array. A reboot is required after running the appropriate .reg file.

For storage array type:

- HP StorageWorks XP1000/XP12000 Disk Array
- HP SureStore E Disk Array XP128/XP1024

Use:

- EnableSupportSCSI3Hds.reg to enable SCSI-3 PGR
- DisableSupportSCSI3Hds.reg to disable SCSI-3 PGR

Note: You must ensure that your storage array meets the requirements described in the section above before using the Active/Active setting for MPIO DSMs. Also check to see if your array manufacturer requires any special settings for a LUN to be enabled for SCSI-3 PGR.

Note 40: Symantec and HP have jointly agreed to not support the HP HSG80 based arrays with the Veritas Storage Foundation & High Availability Solutions for Windows products. Customers are advised to contact HP regarding their HSG80 Trade-In Program for other array alternatives. If array migration is not possible, a Symantec Support Exception and HP Business Escalation will be required to support your environment. HP HSG80 based arrays include the HP StorageWorks EMA15000, EMA12000, RA8000 and MA8000 arrays.

Note 41: When using SCSI-3 compliant persistent reservations with MPIO Device Specific Modules (DSM's) you may encounter Microsoft Cluster Server (MSCS) fail-over problems. These issues are discussed in the Microsoft KB Article #911030 "A cluster node failover does not work when you use SCSI-3-compliant persistent reservations in Windows Server 2003 SP1" which can be found at <<http://support.microsoft.com/?kbid=911030>>. To resolve these problems immediately, contact Microsoft Product Support Services to obtain their hotfix.

Note 42: Please reference the IBM Flash Notice on use of IBM SDD with Veritas Storage Foundation for Windows at http://www1.ibm.com/support/docview.wss?rs=540&context=ST52G7&dc=D600&uid=ssg1S1002602&loc=en_US&cs=utf-8&lang=en.

HBA Setting Notes

All Emulex HBAs when used with Emulex Port Drivers:

When Dynamic Multipathing (DMP) is used, you must set "UseResetForRetry=0" on the Emulex HBA

All QLogic HBAs when used with VCS or MSCS Clustering

When using QLogic HBA's certain settings on the host adapter are required to enable failover. To change the host adapter settings, do the following:

1. Press Alt+Q to get to the FAST!Util command panel.
2. From the Advanced Adapter Settings menu, press the Down Arrow to highlight LUNs per target; then press Enter. Set the parameters and values:
 - a. Enable LIP reset: YES (Default is NO)

NOTE: The Enable LIP reset parameter controls the behavior of the adapter when Windows tries to do a SCSI bus reset. You must perform a target reset to make cluster failovers work. Use SCSI bus device reset to clear SCSI reservations. The SAN Data Gateway does not support LIP reset, and full login is not necessary after the target reset.

Revision History

V1.0b July 5, 2005: 1st Release.

V1.1a August 25, 2005: Added HP XP10000 and Hitachi TagmaStore AMS200/AMS800/WMS100 array support. Added HP StorageWorks SAN Director 2/128. Clarified HDLM 5.4 array support. Updated HP FCA 22xx/24xx HBA BIOS levels to correct levels. Added 64-Bit, storport driver and SCSI-3 support for multiple array families. Updated the IBM BladeCenter HS20 FC Extension Option listing to include the LS20. Added 'MPIO Support' column for clarity.

V1.2 October 5, 2005: Added Storport Miniport driver support for the HP BL20p G2 Fibre Channel Mezz Adapter, HP BL20p G3 Fibre Channel Adapter, HP BL25p/BL45p Fibre Channel Adapter and HP BL30p/BL35p Dual-Port Fibre Channel Adapter. Removed Emulex HBA "Report Unknown SCSI Devices" setting requirement for all arrays. Removed Emulex HBA "Look for Disappearing Device" setting requirement for IBM arrays. Added Network Appliance FAS3000 Series arrays. Added Storport Miniport driver support to Emulex LP1050/1050DC/10000 HBAs. Added support for IBM Subsystem Device Driver (SDD) v1.6.0.5-3 with IBM ESS750/800, F20 and DS8000 Arrays for Windows Server 2003 (x86, x64 or IA64) only. Corrected Hitachi TagmaStore USP model 1000 reference to model 1100.



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V1.3a December 14, 2006

Hardware Array Changes:

- Added Hitachi TagmaStore Network Storage Controller model NSC55
- Added Fujitsu ETERNUS3000 Series array support
- Added IBM TotalStorage DS6000 Series and DS4800 array support
- Added StorageTek FlexLine FLX380 array support
- Added MPIO, StorPort Miniport and 64-Bit support for Network Appliance arrays
- Added HDLM 5.7 support to all HDS arrays
- Added SCSI-3 support for Network Appliance, HDS 9900/9900V and HP XP128/1024 array families
- Changed NetApp Note to show support with Microsoft iSCSI Software Initiator and NetApp CFO option is now available with new NetApp DMP-MPIO DSM
- Changed IBM SANVC array support to note that support is limited to use with Qlogic HBAs only
- Removed HP EMA15000/EMA12000 array support which is no longer available in the 4.3MP1 release

HBA Changes:

- Added Emulex LP10000DC and LP1050EX HBA support
- Added StorPort Miniport driver support for HP Branded LP1050/LP1050DC/LP10000 HBAs
- Added SCSI Miniport driver support for HP BladeCenter HBAs BL25p, BL45p, BL30p, BL35p and IBM BladeCenter HBAs HS20
- Noted that required Microsoft StorPort QFE's are included with Windows Server 2003 Service Pack 1
- Added Microsoft iSCSI Software Initiator Version 2.0 support
- Added Qlogic HBA settings note for clustered environments
- Added Latest Emulex BIOS to selected Emulex HBA listings

Switch Changes:

- Added Brocade 48000, 4100, 3850 Switch support
- Added Qlogic 5602 Switch support
- Added HP StorageWorks SAN Switch 4/32 support

V1.4a March 10, 2006

Hardware Array Changes:

- Added MPIO, StorPort Miniport and 64-Bit support for EMC CLARiiON CX Series arrays
- Added HP EVA/XL (EVA4000, EVA6000, EVA8000) Array support with MPIO, StorPort Miniport and Windows x86/x64/IA64 support
- Added Symantec/HP support message for HP StorageWorks EMA15000, EMA12000, RA8000, MA8000 arrays
- Added Engenio Storage Systems (6998, 6998ES, 6994, 6498, 5884, 4884, 2882, 2822) array support
- Changed HDS TagmaStorage minimum microcode levels for A/A DMP support with clustering
- Added note to clarify HP SecurePath is not supported with SFWHA (VCS) on Windows Server 2003
- Added NetApp V-Series (GF980c, GF960c, V3050c, V3020c, GF270c) array support
- Added EMC DMX-3 array support

HBA Changes:

- Added Bios v1.90a4 to Emulex LP1050EX HBA's
- Added SCSI Miniport driver support for Emulex LP8000 HBAs

Switch Changes:

- Added support for Brocade Silkworm 200E Switch
- Added support for McData Intrepid 10000 Director Switch
- Added support for HP StorageWorks Director 4/256 SAN Director
- Added support for HP StorageWorks 2/16N SAN Switch
- Added support for HP StorageWorks 2/8V SAN Switch
- Added support for IBM TotalStorage SAN256B SAN Switch
- Added support for IBM TotalStorage SAN16B-2 (2005-B16) Switch

Added Array Virtualization support note.



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V1.5 April 13, 2006

Hardware Array Changes:

- Separated HP XP256 Array to separate line in HCL
- Added XP48 to XP512 Array listing
- IBM SVC support extended to Windows 2000 and Emulex HBA's
- Adjusted Note 33 for EMC CLARiiON and Hitachi TagmeStore Array firmware required with SCSI-3 support
- Added IBM SDD v1.6.0.7 support to IBM arrays along with NOTE 42 refering IBM Flash Notice on this subject

HBA Changes:

- Added SCSI Miniport driver v1.11a0 support for Emulex LP952L, LP9002L, LP9002DC, LP9402DC HBAs
- Added 'IBM BladeCenter HS20/LS20 FC Extension Option' text name back to HCL

Switch Changes:

- None

Other Changes

- Corrected Note 33 discussing StorPort Miniport requirements for Microsoft Windows Server 2003
- Added Note 41 discussing additional requirements for DMP DSM deployments with SCSI-3