Hardware Compatibility List (HCL) for Veritas Storage Foundation™ & High Availability Solutions 5.1, 5.1 DDI_Q4_2012 for Windows®

Arrays

Vendor	Model	3rd Party Multipathing Support	Dynamic MultiPathing (DMP) Device Specific Module (DSM) Supportability Details						Notes
			DMP Mode	Fibre Channel Support	iSCSI Support	SAS Support	Windows Server 2003 Support	Windows Server 2008 Support	
3PAR	E-Class, S-Class		A/A, AP/C	■			■	■	See Note 3
Dell	EqualLogic PS5000 series		A/A, AP/C		■		■	■	See Note 27
EMC	CLARiiON AX series	PowerPath 5.3	A/PC	■	■		■	■	See Notes 1, 5
EMC	CLARiiON CX series	PowerPath 5.3	A/PC	■			■	■	See Notes 1, 5
EMC	CLARiiON CX3 series	PowerPath 5.3	A/PC	■	■		■	■	See Notes 1, 5
EMC	CLARiiON CX4 series	PowerPath 5.3	A/PC	■	■		■	■	See Notes 1, 5
EMC	Symmetrix 3000 series	PowerPath 5.3	A/A, AP/C	■			■	■	See Notes 1, 4
EMC	Symmetrix 8000 series	PowerPath 5.3	A/A, AP/C	■			■	■	See Notes 1, 2, 3, 4
EMC	Symmetrix DMX series	PowerPath 5.3	A/A, AP/C	■			■	■	See Notes 2, 3, 4
EMC	Symmetrix VMAX series	PowerPath 5.3	A/A, AP/C	■			■	■	See Notes 2, 3, 4
Fujitsu	ETERNUS DX400 series		A/A, AP/C	■			■	■	See Notes 2, 3
Fujitsu	ETERNUS DX60/DX80/DX90 series		A/A, AP/C	■			■	■	See Notes 2, 3
Fujitsu	ETERNUS DX8000 series		A/A, AP/C	■			■	■	See Notes 2, 3
Fujitsu	ETERNUS VS850	SDD DSM 2.4.2.1-2	A/A, AP/C	■			■	■	See Notes 1, 2, 3, 25, 30
Fujitsu	ETERNUS2000 series		A/A, AP/C	■			■	■	See Notes 2, 3
Fujitsu	ETERNUS4000 series (excludes Models 80 and 100)		A/A, AP/C	■			■	■	See Notes 2, 3
Fujitsu	ETERNUS6000 series		A/A, AP/C	■			■	■	See Notes 2, 3
Fujitsu	ETERNUS8000 series		A/A, AP/C	■			■	■	See Notes 2, 3
Hitachi	AMS/WMS series	HDLM 6.0	AP/C	■			■	■	See Notes 1, 6, 7
Hitachi	Lightning 9900V series (9900 & 9900V)	HDLM 6.0	A/A, AP/C	■			■	■	See Notes 1, 2, 3, 10
Hitachi	SANRISE2000 (SANRISE2200 and SANRISE2800)	HDLM 6.0	A/A, AP/C	■			■	■	See Notes 1, 2, 3, 10
Hitachi	SANRISE9900V (SANRISE9970V and SANRISE9980V)	HDLM 6.0	A/A, AP/C	■			■	■	See Notes 1, 3, 10

Vendor	Model	Software	Mode						Notes
Hitachi	SMS/AMS2000 series	HDLM 6.0	A/A,AP/C	■	■		■	■	See Notes 6, 31
Hitachi	Thunder 9500V series	HDLM 6.0	AP/C	■			■	■	See Notes 1, 8, 11
Hitachi	USP/NSC series	HDLM 6.0	A/A, AP/C	■			■	■	See Notes 1, 2, 3, 9
Hitachi	USPV/USPVM	HDLM 6.0	A/A, AP/C	■			■	■	See Notes 1
Hitachi	VSP		A/A, AP/C	■			■	■	See Notes 2, 3
HP	2000 G2 series		A/A	■	■	■	■	■	See Notes 2, 3
HP	EVA GL 3000/5000	HP MPIO 3.0.2	AA, AP/C	■			■	■	See Notes 2, 3
HP	EVA4000/6000/8000	HP MPIO 3.0.2	A/A, AP/C	■			■	■	See Notes 2, 3
HP	EVA4000/6000/8000		AP/C		■		■	■	See Note 14, 27
HP	EVA4100/6100/8100	HP MPIO 3.0.2	A/A, AP/C	■			■	■	See Notes 2, 3
HP	EVA4100/6100/8100		AP/C		■		■	■	See Note 14, 27
HP	EVA4400/6400/8400	HP MPIO 3.0.2	A/A, AP/C	■			■	■	See Notes 2, 3
HP	MSA1000		A/A	■			■	■	See Notes 2, 3, 12, 13
HP	MSA1500		A/A	■			■	■	See Notes 2, 3, 12, 13
HP	MSA2000fc series		A/A	■			■	■	See Notes 2, 3
HP	MSA2012i		A/A		■		■	■	See Notes 2, 3
HP	MSA2012sa		A/A			■	■	■	See Notes 2, 3
HP	MSA2212i		A/A		■		■	■	See Notes 2, 3
HP	MSA2212sa		A/A			■	■	■	See Notes 2, 3
HP	Proliant DL380 G5 Storage Server		A/A, AP/C		■		■	■	See Note 27
HP	XP10000/12000		A/A, AP/C	■			■	■	See Notes 2, 3
HP	XP128/1024		A/A, AP/C	■			■	■	See Notes 2, 3
HP	XP20000/24000		A/A, AP/C	■			■	■	See Notes 2, 3
HP	XP48		A/A, AP/C	■			■	■	See Notes 2, 3
HP	XP512		A/A, AP/C	■			■	■	See Notes 2, 3
Huawei	S5000 series		A/P	■			■	■	See Note 28
IBM	ESS 750/800 series	SDD DSM 2.4	A/A, AP/C	■			■		See Notes 1, 2, 3, 16, 30
IBM	Storwize series	SDD DSM 2.4	A/A, AP/C	■			■	■	See Notes 1, 2, 3, 25, 30, 32
IBM	System Storage DS3200 series		AP/C	■	■	■	■	■	See Notes 2, 3, 17
IBM	System Storage DS3500 series		AP/C	■	■		■	■	See Notes 2, 3, 17
IBM	System Storage DS5000 series		AP/C	■			■	■	See Notes 2, 3, 17
IBM	System Storage DS6000 series	SDD DSM 2.4	AP/C	■			■	■	See Note 1, 30
IBM	System Storage DS8000 series	SDD DSM 2.4	A/A, AP/C	■			■	■	See Notes 1, 2, 3, 30
IBM	System Storage N series		A/A, AP/C	■	■		■	■	See Notes 3, 15 18, 19, 27
IBM	System Storage XIV series		A/A	■			■	■	See Note 29
IBM	TotalStorage DS4000 series		AP/C	■			■	■	See Notes 17, 24
NetApp	FAS2000/FAS900/FAS200 series		A/A, AP/C	■	■		■	■	See Notes 2, 3, 18, 19, 27
NetApp	FAS3000/V3000 series		A/A, AP/C	■	■		■	■	See Notes 2, 3, 18, 19, 27
NetApp	FAS6000/V6000 series		A/A, AP/C	■	■		■	■	See Notes 2, 3, 18, 19, 27
NetApp	GF series		A/A, AP/C	■	■		■	■	See Notes 2, 3, 18, 19, 27
NetApp	NearStore R100		A/A, AP/C	■	■		■	■	See Notes 2, 3, 18, 19, 27
Nihon Unisys	SANARENA 2200	HDLM 6.0	A/A, AP/C	■			■	■	See Notes 1, 10
Nihon Unisys	SANARENA 2800	HDLM 6.0	A/A, AP/C	■			■	■	See Notes 1, 10
Oracle	Axiom series		AP/C	■			■	■	
Oracle	Storage 6580/6780 series		AP/C	■			■	■	
Oracle	StorageTek 2500 series		AP/C	■	■	■	■	■	See Note 26
Oracle	StorageTek 6140 array		AP/C	■			■	■	See Note 20
Oracle	StorageTek 9900 series	HDLM 6.0	A/A, AP/C	■			■	■	See Notes 1, 3, 10
Oracle	StorageTek 9990V system	HDLM 6.0	A/A, AP/C	■			■	■	See Notes 1, 3, 9
StorageTek	FlexLine 200/300 series		AP/C	■			■	■	See Notes 17, 21

Vendor	Model		Type					Notes
Sun	StorageTek 6130		AP/C	■		■	■	See Note 20
Sun	StorageTek 6540							See Note 20
Xiotech	Emprise 5000		A/A	■		■	■	

Host Bus Adapters

All Fibre Channel and iSCSI HBAs supported by Operating System and Storage Array Manufacturer's are supported unless otherwise explicitly stated. Please check the Microsoft Windows Catalog and Storage Array Manufacturer's Hardware Compatibility Support Matrices for required Bios/Firmware and driver versions for the HBAs. Any HBAs not supported or that require specific configuration parameters within a Storage Foundation and High Availability Solutions 5.1 for Windows environment are explicitly listed below.

Vendor	Model	Type	Not Supported	Supported with Configuration Exceptions	Notes
Egenera	Control BladeTM ES	Fibre Channel		■	
Microsoft	iSCSI Software Initiator	iSCSI - Software		■	See Note 23

Fibre Channel Switches

All Fibre Channel switches supported by Operating System and Storage Array Manufacturer's are supported unless otherwise explicitly stated. Please check the Microsoft Windows Catalog, Storage Array Manufacturer and Switch Manufacturer's Hardware Compatibility Support Matrices for required firmware and compatibility of switches. Any switches not supported or that require specific configuration parameters within a Storage Foundation and High Availability Solutions 5.1 for Windows environment are explicitly listed below.

Vendor	Model	Not Supported	Supported with Configuration Exceptions	Notes
There are no unsupported or specific switch configuration exceptions for Storage Foundation and High Availability Solutions 5.1 for Windows.				

General Supportability Statements

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™ 5.1 for Windows® and Veritas Storage Foundation HA 5.1 for Windows® (SFW plus Veritas Cluster Server 5.1 for Windows®). 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® Clustering (Microsoft Cluster Services on Windows Server 2003 and Windows Server Failover Clustering on Windows Server 2008).

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 MPIO Device Specific Modules (DSMs). For third party multipathing products only the versions listed on the HCL are fully testing and supported. 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.

Configurations using Veritas Cluster Server (VCS) or Microsoft Cluster Server (MSCS) or Windows Server Failover Clustering (WSFC) that are not on the Veritas HCL list are provided "commercially reasonable effort" support based on the Microsoft Windows Catalog. Commercially reasonable 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.

Configurations should follow storage configuration best practices set forth by the hardware manufacturer in addition to those provided by Symantec. Symantec provided storage configuration best practices for zoning in a Storage Foundation for Windows environment are at http://library.veritas.com/docs/293014.

All storage configurations shown in this HCL were tested with drivers and firmware supported by the storage array vendors. See the storage array vendor's recommendation for the driver and firmware levels, or contact the vendor for specific drivers and firmware supported, as well as the vendor's support for the stated Symantec products.

Veritas DMP with MPIO Device Specific Modules (DSMs) support:
 - Veritas Storage Foundation 5.1 for Windows - Dynamic Multi-pathing (DMP) supports multi-pathing via Device Specific Modules integrated with the MPIO framework, Veritas Dynamic Multi-pathing Array Support Libraries (ASL) are retired from support within Veritas Storage Foundation 5.1 for Windows Dynamic Multi-pathing (DMP).
 - Supported with Windows Server 2003 and Windows Server 2008 (32-bit, x64 & IA64) operating systems
 - Supported with FC Storport Miniport drivers, iSCSI HBAs, Microsoft iSCSI Software Initiator
 - Basic disks are supported provided SCSI-3 registry support is not enabled in the DMP DSM or set for the entire system in the Veritas Enterprise Administrator Control Panel's system wide SCSI reservation setting
 - If SCSI-3 registry is enabled in a DMP DSM for an attached array or set for the entire system any existing basic disks should be upgraded to dynamic disks before placing them under DMP control.
 - Boot from SAN is supported with Dynamic and Basic disks provided customers follow Microsoft's Boot from SAN recommendations
 - Boot and Data Volumes are supported on the same bus/HBA's for cluster and non-clustered servers
 - Veritas DMP MPIO DSMs are not supported with Windows 2000, FC Port drivers or FC SCSI Miniport drivers
 - Arrays listed in the HCL are also supported with the Microsoft DSM (MSDSM) in configurations where it coexists with Veritas Storage Foundation for Windows, as long as the array satisfies Microsoft's requirements for support, including being supported for use with MSDSM by the array vendor.

DMP Modes are A/A = Active/Active and AP/C = Active/Passive Concurrent. Active/Active.
Active/Active DMP mode is supported with clustering (VCS, MSCS, WSFC) with SCSI-3 enabled storage arrays and MPIO Device Specific Modules (DSMs). See Note 3 for details on enabling SCSI-3 PGR on a host for a specific array.

Detailed Supportability Notes

Note 1: The 3rd party multi-pathing support noted for this array or array family should be compatible, but has not been explicitly tested by Symantec with this particular array or array family at this time.

Note 2: Array requirements to support Active/Active DMP DSM in a cluster (VCS/MSCS/WSFC)
 - 3PAR arrays:
   - InServ E200, S400, S800. Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required FW.
 - EMC arrays:
   - EMC Symmetrix 8000 series requires FW 5568.67 or higher
   - EMC Symmetrix DMX series requires FW 5670.73 or higher
   - EMC Symmetrix VMAX series: Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required FW.
   - EMC VPLEX array: Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required FW.
 - Fujitsu arrays
   - Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required FW.
 - Hitachi arrays:
   - Hitachi Network Storage Controller (NSC) model 55 requires FW 50-05-22-00/00 or higher
   - Hitachi Lightning 9900V series requires FW 01-19-83-00/00 or higher
   - Hitachi 9900V Lightning series requires FW 21-10-13-00/00 or higher
   - Hitachi USP models 100, 600, and 1000 requires FW 50-05-22-00/00 or higher
   - Hitachi VSP array requires FW 70-01-04-00/00 or higher
   - Hitachi SANRISE2000 series: Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required FW.
 - HP arrays:
   - HP P9500 Disk Array requires FW 70-01-04-00/00 or higher
   - HP XP 10000/12000 requires FW 50-01-40-00/00 or higher
   - HP XP128/XP1024 requires FW 21-09-15 or higher
   - HP Enterprise Virtual Array EVA4000/6000/8000 requires FW 5030 or higher
   - HP Enterprise Virtual Array EVA4100/6100/8100 requires FW 5030 or higher
   - HP Enterprise Virtual Array EVA GL 3000/5000 requires FW 4.004 or higher
   - HP MSA, P6000 EVA series: Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required FW.
 - IBM arrays:
   - IBM ESS 750/800 series requires FW 2.3.2.71 or higher
   - IBM System Storage DS6000 series requires FW 6.1.600.46 or higher
   - IBM System Storage DS8000 series requires FW 6.1.600.46 or higher
   - IBM System Storage N series requires ONTAP v7.0.2 or higher
   - IBM Storwize, DS3200, DS3500, DS5000, and XIV series: Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required FW.

IBM StorM20, DS4200, DS6000, DS8000, and XP series. Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required FW.
- Oracle arrays:
  - Sun Axiom 300/500, and StorEdge series (StoreEdge SE9910, SE9960, SE9970V, SE9980V and SE9990). Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required FW.
- Network Appliance arrays:
  - All require NetApp ONTAP v7.0.2 or higher

Detailed Supportability Notes continued

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

You must enable SCSI-3 PGR before using the Active/Active DMP setting for MPIO DSMs in Clustering (VCS/MSCS/WSFC) 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.
Also ensure that your storage array meets the requirements to utillize SCSI3-PGR and has been enabled for SCSI3-PGR.

   For storage array type:
     - EMC Symmetrix 3000 series
     - 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:
     - Hitachi USP models 100, 600, and 1100
     - USP-V, USP-VM
     - Hitachi Network Storage Controller (NSC) (NSC55)
     - Hitachi Adaptable Modular Storage (AMS) (AMS200 and AMS500)
     - Hitachi Workgroup Modular Storage (WMS) (WMS100)
     - Hitachi Lightning 9900V series (9900 and 9900V)
     - SANRISE2000 (SANRISE2200 and SANRISE2800)
     - SANRISE9900V (SANRISE9970V and SANRISE9980V)
     - Unisys SANArena 2200 series (SANArena 2200 and 2800)
     - 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

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    --------------------------------------------------------------
For storage array type:
   - Network Appliance FAS200/FAS2000/FAS900 series
   - Network Appliance FAS6000/V6000 series
   - Network Appliance FAS3000 series (FAS3020, FAS3050)
   - Network Appliance NearStore R100
   - NetApp GF series (GF980c,GF960c,V3050c,V3020c,GF270c, v6030, V6070)
   - IBM System Storage N series
 Use:
   - EnableSupportSCSI3Netapp.reg to enable SCSI-3 PGR
   - DisableSupportSCSI3Netapp.reg to disable SCSI-3 PGR
    --------------------------------------------------------------
For storage array type:
  - HP Enterprise Virtual Array EVA4x00, EVA6x00, EVA8x00
  - HP Enterprise Virtual Array EVA3000, EVA5000
 Use:
   - EnableSupportSCSI3HPEVA.reg to enable SCSI-3 PGR
   - DisableSupportSCSI3HPEVA.reg to disable SCSI-3 PGR
```

Note 3 continued:
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    --------------------------------------------------------------
For storage array type:
   - HP XP10000/XP12000/XP20000/XP24000 Disk arrays
   - HP XP128/XP512/XP1024
 Use:
   - EnableSupportSCSI3HPXP.reg to enable SCSI-3 PGR
   - DisableSupportSCSI3HPXP.reg to disable SCSI-3 PGR
    --------------------------------------------------------------
For storage array type:
   - IBM System Storage DS8000 series
   - IBM System Storage DS3400
   - IBM System Storage SAN Volume Controller
 Use:
   - EnableSupportSCSI3IBMDS.reg to enable SCSI-3 PGR
   - DisableSupportSCSI3IBMDS.reg to disable SCSI-3 PGR
    --------------------------------------------------------------
For storage array type:
   - IBM ESS 750/800 series
 Use:
   - EnableSupportSCSI3Ibm.reg to enable SCSI-3 PGR
   - DisableSupportSCSI3Ibm.reg to disable SCSI-3 PGR
    --------------------------------------------------------------
For storage array type:
   - 3PAR E200, S400, S800
 Use:
   - EnableSupportSCSI3v3paraa.reg to enable SCSI-3 PGR
   - DisableSupportSCSI3v3paraa.reg to disable SCSI-3 PGR
    --------------------------------------------------------------
```

Note 4: 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, DMX-3 and DMX-4 arrays.

Note 5: EMC CLARiiON CX series arrays supported include the CX200, CX300, CX400, CX500, CX600 and CX700. EMC CLARiiON CX-3 Ultrascale series arrays supported include the CX3-10, CX3-20, CX3-40 and CX3-80 arrays. EMC CLARiiON AX series arrays supported include the AX100 and AX150. VERITAS DMP MPIO DSM supports only EMC and Dell Failover Mode 1. EMC VNX series arrays are supported with block mode

Note 6: Support of the Hitachi SMS/Adaptable Modular Storage (AMS) series includes the following specific models: SMS100, SMS110, AMS200, AMS500, AMS1000, AMS2100, AMS 2300, AMS2500.

Note 7: Support of the Hitachi Workgroup Modular Storage (WMS) series includes the following specific models: WMS100.

Note 8: Hitachi Thunder 9500V series array (9520V, 9530V, 9570V, 9580V and 9585V) support also applies to the Hitachi SANRISE 9500V series and the Nihon Unisys Unisys SANArena 1500 series.

Note 9: Hitachi USP models 100, 600 & 1100 also applies to the SUN StorEdge SE9990 series.

Note 10: Hitachi Lightning 9900V series array (9910 and 9960) support also applies to the Hitachi SANRISE2000 series (SANRISE2200 and SANRISE2800), the Nihon Unisys 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 11: 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 12: For the HP Enterprise Virtual Arrays (EVA3000, EVA5000) and the HP Modular Storage Arrays (MSA1000, MSA1500), Active/Active array firmware is required. Contact your local HP representative for more information.

Note 13: At the time of the 5.1 release, SCSI-3 support for the HP MSA 1000/1500 has not been fully qualified by Symantec. Therefore, SCSI3 support cannot be used and must be disabled in the system registry when an HP MSA 1000/1500 array, by itself or in combination with other arrays, is connected to a host. For DMP DSM support the HP MSA arrays must be set to use the 'Windows' profile within the MSA array configuration.

Note 14: When utilizing the HP EVA arrays with SFW DMP, iSCSI is supported when used with the HP EVA iSCSI Connectivity Option. However, Active/Active Load Balancing algorithms are not supported in this configuration because SCSI-3 Persistent Reservation is not supported with the EVA iSCSI Connectivity Option at this point in time. Therefore, SCSI-3 support cannot be used and must be disabled in the system registry or system wide in the Veritas Enterprise Administrator Control Panel System Settings when the EVA iSCSI Connectivity Option, by itself or in combination with other arrays, is connected to a host.

Note 15: IBM System Storage N3000, N5000, N6000, and N7000 series arrays.
Cross Reference to NetApp Models
- IBM System Storage N3300 = NetApp FAS2020, FAS2020c
- IBM System Storage N3400 = NetApp FAS2040, FAS2040c
- IBM System Storage N3600 = NetApp FAS2050, FAS2050c
- IBM System Storage N3700 = NetApp FAS270, FAS270c and GF270c
- IBM System Storage N5200 = NetApp FAS3020, FAS3020c, V3020 and V3020c
- IBM System Storage N5300 = NetApp FAS3040, FAS3040c, V3040 and V3040c
- IBM System Storage N5500 = NetApp FAS3050, FAS3050c, V3050 and V3050c
- IBM System Storage N5600 = NetApp FAS3070, FAS3070c, V3070 and V3070c
- IBM System Storage N6040 = NetApp FAS3140, FAS3140c, V3140 and V3140c
- IBM System Storage N6060 = NetApp FAS3160, FAS3160c, V3160 and V3160c
- IBM System Storage N6070 = NetApp FAS3170, FAS3170c, V3170 and V3170c
- IBM System Storage N6210 = NetApp FAS3210, FAS3210c, V3210 and V3210c
- IBM System Storage N6240 = NetApp FAS3240, FAS3240c, V3240 and V3240c
- IBM System Storage N6270 = NetApp FAS3270, FAS3270c, V3270 and V3270c
- IBM System Storage N7600 = NetApp FAS 6030, FAS6030c, V6030, V6030c
- IBM System Storage N7700 = NetApp FAS 6040, FAS6040c, V6040, V6040c
- IBM System Storage N7800 = NetApp FAS 6070, FAS6070c, V6070, V6070c
- IBM System Storage N7900 = NetApp FAS 6080, FAS6080c, V6080, V6080c
- IBM System Storage N7550T = NetApp FAS 6210, FAS6210c, V6210, V6210c
- IBM System Storage N7750T = NetApp FAS 6240, FAS6240c, V6240, V6240c
- IBM System Storage N7950T = NetApp FAS 6280, FAS6280c, V6280, V6280c

Note 16: DMP DSM does not support the IBM ESS 800 and ESS 750 on Windows Server 2008 because IBM does not support these models on Windows Server 2008. For questions regarding support of TotalStorage™ ESS on Windows operating system versions please check the IBM Compatibility Matrices or check with your IBM Support Representative.

Note 17: 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 18: If Network Appliance SnapDrive and SnapManager applications are being used, then you must use Veritas Cluster Server 5.1 for Windows. These applications do not support Windows dynamic disks at this time. Due to this NetApp application limitation Storage Foundation for Windows and Storage Foundation HA for Windows cannot be used with NetApp arrays if these applications are installed.

Note 19: When utilizing NetApp storage, the SCSI setting in the Control Panel in Veritas Enterprise Administrator must be set to SCSI-3.

Note 20: 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 21: DMP DSM is only supported for StorageTek FlexLine 380 of FlexLine 200/300 series.

Note 23: The Microsoft iSCSI Software Initiator is supported on any Ethernet NIC card that is supported by the Microsoft iSCSI Software Initiator. For Windows 2003, Microsoft iSCSI initiator version of 2.07 has been tested at the time of the release. In general The Microsoft iSCSI initiator version listed on the HCL has been tested and qualified at the time of the SFW/HA release. However, Symantec will support customers utilizing a newer version. Check with Microsoft on the most current and supported release of the iSCSI 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 24: DMP DSM - support is available for the DS4200, DS4300, DS4500, DS4700 and DS4800 Arrays.	
Note 25: When utilizing SDD DSM 2.2.0.0-11 with SFWHA, the following known issue will occur: After simultaneously rebooting all nodes that are a part of a VCS Service Group, the VMDG agent resources will fault during online when the nodes attempt to automatically online the VCS Service Group. The following configuration and operational practice should be followed: Leave the VCS AutoStartList attribute for the VCS Service Group empty. When simultaneously rebooting all systems part of a VCS Service Group, administratively online the Service Group.	
Note 26: SUN 2500 series include SUN 2510, SUN 2530 and SUN 2540	
Note 27: There is a known problem of IO hang sometimes when a NIC port is disabled on the Switch. Also, it is recommended to use 2 NICs for private heartbeat and 1 public mix use or client only use for MSCS environments due to a known issue when Private NICs are used for private heartbeat and other types of traffic.	
Note 28: The full company name is "Huawei Technologies Co. Ltd." S5000 series: V1500, V1800, S2100, S2300, S2300E, S2600, S5100, S5300, S5500, S5600, S6800E S5000T series: S2600T, S5500T, S3900-M100, S3900-M200, S3900-M300, S5600T, S5900-M100, S5900-M200, S5800T, S6800T, S6900-M100, Dorado2100 VIS series: VIS6000	
Note 29: To obtain Clustering support with IBM System Storage XIV, a minimum Firmware level of 10.0.1.c is required.	
Note 30: IBM SDD Version 2.4.2.0-1 is not supported, there are known issues of Blue screen (BSOD) during use of this version of the driver.	
Note 31: SMS does not support Thin Provisioning.	
Note 32: Storwize series include SANVC(2145), and Storwize V7000.	

Revision History

V1.0 August 4, 2008: Storage Foundation & High Availability Solutions for Windows 5.1 General Availability	
V1.1 October 24, 2008: Specific supported DS4000 models added. Note 16 applies to ESS800/750 only	
V1.2 October 31, 2008: Added note 25 for IBM SVC SDD DSM	
V1.3 Jan 16th, 2009: DDI-1 Supported Arrays added.	
V1.4 May 26th, 2009: DDI-2 Supported Arrays added.	
V1.5 July 19th, 2009: Adjusted Fujitsu Eternus series name to Fujitsu ETERNUS, added ETERNUS DX60/DX80. Also added iSCSI support for MSA2012 and MSA2312. Removed Note22 for Hitachi AMS arrays as it was not applicable. Note 22 was "Disabling both paths at the same time may cause the cluster service groups to not failover to the other node when using Storage Foundation HA for Windows with these arrays. Do not change the Product ID (PID) of these arrays as this is one of the fields that Symantec software uses to identify and claim the array." Added PowerPath 5.3 Support, HDLM 6.0 support	
V1.6 Oct 18th, 2009: Clarified support for Xiotech, Emprise 5000 support added for Xiotech	
V1.7 Mar 5th, 2010: Added FUJITSU DX90.	
V1.8 July 15th, 2010: Added support for HDLM 6.3	
V1.9 Oct 26th, 2010: Added support for Fujitsu ETERNUS VS850 Arrays	
V1.10 Dec 1st, 2010: Added IBM SDD footnotes for Fujitsu ETERNUS VS850 Arrays	
V1.11 Jan 20th, 2011: Added support for HP P9500 Arrays	
V1.12 Jul 7th, 2011: Added EMC VNX series array	
V1.13 Aug 24th, 2011: Added Fujitsu ETERNUS DX60 S2, DX80 S2, DX90 S2 and Fujitsu ETERNUS DX400 S2 array. Updated Note 2 for Fujitsu array	
V1.14 Jan 23rd, 2012: Added DDI_Q4_2011 support. A41Updated 3PAR E-Class, S-Class, HP 3PAR F-Class, T-Class, Huawei Symantec Oceanspace S5000 series, S5000T series, VIS series array support. Added HP 3PAR P10000 Systems, Dell PowerVault MD3200/MD3200i series, EMC VPLEX, HP P6000 EVA series, IBM DS3500, DS4950, DS5020, Nexsan E-series Systems array support. Updated TPD DSM SDD DSM to 2.4. Added iSCSI support to CLARiiON arrays.	
V1.15 May 3rd, 2012: Added IBM Storwize V7000 array	
V1.16 May 31st, 2012: Updated Huawei vendor and array models naming.	
V1.17 Nov 22nd, 2012: Sync up model naming with other releases. Note 32.	
V1.18 Jan 14nd, 2013: Update Hitachi USP/NSC to Hitachi USP/NSC series, Update Oracle Sun StorageTek 6540 array to Sun StorageTek 6540. Remove Huawei Symantec Oceanspace, S5000T series, VIS series, HP P9500 arrays, HP 3PAR F-Class, T-Class, HP 3PAR P10000 Systems, Dell PowerVault MD3200/MD3200i series, EMC VPLEX, EMC VNX series, HP P6000 EVA series, IBM DS3500, DS4950, DS5020, Nexsan E-series Systems array support.	