

Veritas InfoScale Foundation, Availability, Storage and Enterprise Solutions 7.3, 7.3.1, 7.4, 7.4.1 and 7.4.2 for Windows Hardware Compatibility List

Introduction

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This Hardware Compatibility List (HCL) contains support information for hardware products tested with the following Veritas InfoScale Foundation, Availability, Storage and Enterprise Solutions for Windows product releases and platforms:

- 7.3, 7.3.1, 7.4, 7.4.1 and 7.4.2 for Windows Server 2012, Windows Server 2012 R2, Windows Server 2016 and Windows Server 2019

The list is divided into sections for servers, disk storage arrays, host bus adapters, and switches.

Use the links in the Contents to access the specific sections. All devices are presented by operating system and manufacturer.

This HCL represents the limits of Veritas support for disk storage arrays qualified for use with Veritas InfoScale Foundation, Availability, Storage and Enterprise for Windows products in this list. There are no implied additions or exceptions to the tested or compatible devices on the provided lists.

The information in the Hardware Compatibility List (HCL) for InfoScale products documentation is provided "as is," and all express or implied conditions, representations and warranties, including any implied warranty of merchantability, fitness for a particular purpose or non-infringement, are disclaimed, except to the extent that such disclaimers are held to be legally invalid, Veritas corporation shall not be liable for incidental or consequential damages in connection with the furnishing, performance, or use of this documentation.

The information contained in this HCL documentation is subject to change without notice.

General Notes:

- For support purposes, "Yes", or the instance of any software option in a cell in any of the matrices, indicates Veritas support for the product stack under which it appears. To verify support for a given device, make sure that the manufacturer also shows support for the device in its own HCL.
- Devices are listed by the name and series model number provided by the manufacturer.
- All hardware configurations listed have been qualified with the following products: Veritas InfoScale Foundation, Availability, Storage and Enterprise for Windows. The following options are also supported by this HCL list: Volume Replicator Option, FlashSnap Option, Dynamic Multi-pathing (DMP), Cluster Option for Microsoft Failover Cluster (FOC).
- Configurations using any multi-pathing software (Veritas Dynamic Multi-pathing (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 multi-pathing products only the ones listed on the HCL are fully tested and supported. The supported hardware list has been specifically qualified and approved by the Veritas Compatibility Lab (cLAB). Hardware that does not appear on this list is not supported when used with Veritas DMP or any 3rd-party multi-pathing solution. Employing a multi-pathing solution with Veritas InfoScale products for Windows on non-certified hardware can result in unpredictable and possibly data-threatening behavior. Certified hardware is selected by Veritas 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 Veritas Sales Representative.
- Configurations should follow storage configuration best practices set forth by the hardware manufacturer in addition to those provided by Veritas. Veritas provided storage configuration best practices for zoning in a InfoScale Foundation for Windows environment are at <http://www.veritas.com/docs/TECH54713> .
- InfoScale Foundation, Availability, Storage and Enterprise for Windows 7.3, 7.3.1, 7.4, 7.4.1 and 7.4.2 supports Windows Server 2012 , Windows Server 2012 R2, Windows Server 2016 and Windows Server 2019 with Virtual Fibre Channel configuration.
- Cluster Volume Manager now only supports Microsoft Failover Cluster (FOC) with A/A and A/A-A (ALUA) arrays.

Unified Computing and Blade Platforms

All Unified Computing and Blade Platforms shown here were tested with drivers and firmware supported by the OS and storage manufacturers. Check with these manufacturers for:

- Minimum driver and firmware levels
- Specific driver and firmware support
- Support for the stated Veritas products
- Other functional options

Device Support

Manufacturer	Platform/module	Connection
HP	Virtual Connect Module	FC, 1GbE, 10GbE

Contents

Disk Arrays and Storage Devices	Host Bus Adapters	Switches
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Disk Arrays and Storage Devices

All storage configurations shown here were tested with drivers and firmware supported by the storage array vendors. Check with these vendors for:

- Minimum driver and firmware levels
- Specific driver and firmware support
- Support for the stated Veritas products
- Other functional options

Veritas supports hardware products listed here that include virtualization capability, but Veritas does not support compatibility issues that can be attributed to the virtualization feature. Veritas requires any compatibility issue to be reproduced in a non-virtualization environment. If the issue is confirmed to be related to Veritas products, Veritas will support its software at the same level as when that software is not running with hardware virtualization products. Veritas will cooperate with virtualization vendors, and attempt to assist in the diagnosis of problems found between the virtualization and Veritas products.

If the Device/family column in a table includes a third party multipathing qualifier (i.e. **with PowerPath, with Subsystem Device Driver, with HDLM, or with DS Storage Manager**), it means the storage array supports third party multipathing. If a row does not include a third party Multipathing qualifier, third party multipathing is not supported on that storage array.

Supported third party multi-pathing solutions are: PowerPath, SDD DSM, HDLM, and Storage Manager.

Hardware-specific features like LUN Snapshot or Thin Reclamation are supported only if they are explicitly listed for the devices in the **Advanced Features** column. When a hardware-specific feature is listed, it applies to all product stacks (InfoScale Foundation, Storage and Enterprise).

NOTE: For Active/Active (A/A) arrays, unless stated otherwise, Veritas supports the same Non-Disruptive Upgrade (NDU) operations that the storage vendor supports.

Veritas Dynamic Multi-pathing (DMP) with Multipath I/O (MPIO) Device Specific Modules (DSMs) support:

- Veritas InfoScale Foundation, Storage and Enterprise for Windows
- DMP supports multi-pathing via DSMs integrated with the MPIO framework
- Supported with FC Storport Miniport drivers, iSCSI HBAs, Microsoft iSCSI Software Initiator
- Basic disks are supported with DMP. SCSI-3 support is supported with basic disks
- 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 clustered and non-clustered servers

Arrays listed in the HCL are also supported with the Microsoft DSM (MSDSM) in configurations where it coexists with Veritas InfoScale products for Windows, as long as the array satisfies Microsoft's requirements for support, including being supported for use with MSDSM by the array vendors.

Support Legend

Term	Meaning	Definition
Yes	Supported	"Yes" or any other details imply the device is supported with the features listed, if any.
No	Not supported	"No" or the absence of any details imply the device is not supported for that product.
Advanced Reporting	Advanced Reporting supported	Support reporting Enclosure information and special properties of a LUN discovered by the Device Discovery Layer (DDL) that helps storage administration.
NDU	NDU supported	Support for upgrading firmware/microcode on storage array controllers while applications are running on servers.
Thin Reclamation	Thin Reclamation supported	Support for storage optimization by recovering blocks from deleted files or data. It adds the storage back to the storage thin pool. LUNs supported with thin reclamation are denoted by their Advanced Reporting attribute.

Modes

Term	Meaning	Definition	Supported DSM Load Balance Mode
Active/Active (A/A)	Array supported in Active/Active mode	A/A arrays support simultaneous I/O on all paths.	Fail Over Only (Active/Passive), Round Robin (Active/Active), Round Robin with Subset, Dynamic Least Queue Depth, Weighted Paths, Least Blocks, Balanced Path
Asymmetric Logical Unit Access (ALUA) [1]	Array configured in Active/Active-Asymmetric mode	ALUA arrays support Active-Optimized (AO), Active-Non Optimized (ANO), Standby (Standby) path, and Unavailable states; The multi-pathing driver seeks the most optimized path (AO paths) for the I/O transmission rate.	Fail Over Only (Active/Passive), Round Robin (Active/Active), Dynamic Least Queue Depth, Least Blocks, Balanced Path
Active/Passive-Concurrent (A/P-C)	Array supported in Active/Passive-Concurrent mode	A/P-C arrays support I/O on multiple primary (active) paths, while the secondary (passive) paths are engaged if all primary paths fail.	Fail Over Only (Active/Passive), Round Robin (Active/Active), Dynamic Least Queue Depth, Least Blocks, Balanced Path

1. Denoted as A/A-A

Contents

<u>Dell EMC</u>	<u>Fujitsu</u>	<u>Hewlett Packard Enterprise</u>
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Dell EMC

Device/Family	Mode	Interface	Advanced Features
Celerra series	A/A-A	Fibre Channel	
Celerra series	A/P-C	Fibre Channel	
CLARiiON AX series [1]	A/A-A	Fibre Channel, iSCSI	
CLARiiON AX series [1]	A/P-C	Fibre Channel, iSCSI	
CLARiiON AX series with PowerPath [1]	A/A-A	Fibre Channel, iSCSI	

Dell EMC

Device/Family	Mode	Interface	Advanced Features
CLARiiON AX series with PowerPath [1]	A/P-C	Fibre Channel, iSCSI	
CLARiiON CX4 series	A/A-A	Fibre Channel, iSCSI	Advanced Reporting, Thin Reclamation
CLARiiON CX4 series	A/P-C	Fibre Channel, iSCSI	Advanced Reporting, Thin Reclamation
CLARiiON CX4 series with PowerPath	A/A-A	iSCSI	
CLARiiON CX4 series with PowerPath	A/P-C	Fibre Channel, iSCSI	
EqualLogic PS5000 series [2]	A/A	iSCSI	
EqualLogic PS6000 series	A/A	iSCSI	
PowerMax series [3]	A/A	Fibre Channel	
PowerStore series [4]	A/A-A	Fibre Channel	Advanced Reporting
PowerVault MD32xx Series	A/P-C	iSCSI, SAS	
PowerVault MD36xx Series	A/P-C	Fibre Channel, iSCSI	
PowerVault MD38xx Series [5]	A/P-C	Fibre Channel	
SC Series [6]	A/A	Fibre Channel, iSCSI	
ScaleIO	A/A	Ethernet	Advanced Reporting, Thin Reclamation
Symmetrix DMX series [7] [8]	A/A	Fibre Channel	
Symmetrix DMX series with PowerPath [8]	A/A	Fibre Channel	
Symmetrix VMAX series [9]	A/A	FCoE, Fibre Channel, iSCSI	Advanced Reporting, Thin Reclamation
Symmetrix VMAX series with PowerPath	A/A	Fibre Channel	
Unity series	A/A-A	Fibre Channel	
Unity series with PowerPath	A/A-A	Fibre Channel	
Unity XT series	A/A-A	Fibre Channel, iSCSI	
VMAX3/VMAX All Flash Family series	A/A	Fibre Channel	Thin Reclamation
VMAX3/VMAX All Flash Family series with PowerPath	A/A	Fibre Channel	
VNX series [10]	A/A-A	Fibre Channel, iSCSI	Advanced Reporting, Thin Reclamation
VNX series [10]	A/P-C	Fibre Channel, iSCSI	Advanced Reporting, Thin Reclamation
VNX series with PowerPath	A/A-A	Fibre Channel	
VNX series with PowerPath	A/P-C	Fibre Channel	
VNX2 series [10]	A/A-A	Fibre Channel	Advanced Reporting, Thin Reclamation
VNX2 series with PowerPath	A/A-A	Fibre Channel	
VPLEX [9]	A/A	Fibre Channel	Advanced Reporting
VPLEX with PowerPath	A/A	Fibre Channel	
XtremIO	A/A	FCoE, Fibre Channel, iSCSI	

1. Supports CLARiiON AX4 only.
2. 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 a separate NIC for public-mix use or client-only use in MSCS environments due to a known issue when Private NICs are used for private heartbeat and other types of traffic.
3. PowerMax with PowerPath is supported
4. Dell EMC PowerStore Array Thin Provisioning does not work with InfoScale for Windows. Please refer technote for more details https://www.veritas.com/content/support/en_US/article.100059084
5. Support for this array model is available from InfoScale release 7.2 and later.
6. Supports Storage Center OS (SCOS) software version 6.2.2 and higher.
7. Requires firmware version 5670.73 or higher to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.
8. Supports Symmetrix DMX-3 and Symmetrix DMX-4 only.
9. Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required firmware to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.
10. Supported with block mode storage only.

Fujitsu

Device/Family	Mode	Interface	Advanced Features
ETERNUS DX400/DX500/DX600 series [1] [2] [3] [4]	A/A	Fibre Channel	Thin Reclamation
ETERNUS DX400/DX500/DX600 series [1] [2] [3] [4]	A/A-A	Fibre Channel	Thin Reclamation
ETERNUS DX60/DX80/DX90/DX100/DX200 series [1] [2] [3] [4] [5]	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
ETERNUS DX60/DX80/DX90/DX100/DX200 series [1] [2] [3] [4] [5]	A/A-A	Fibre Channel	Advanced Reporting, Thin Reclamation
ETERNUS DX8000 S3/S4 series [1] [2] [3] [4]	A/A	Fibre Channel	Thin Reclamation
ETERNUS DX8000 S3/S4 series [1] [2] [3] [4]	A/A-A	Fibre Channel	Thin Reclamation
ETERNUS DX8000 series [1] [2] [3] [4]	A/A	Fibre Channel	Thin Reclamation
ETERNUS DX8000 series [1] [2] [3] [4]	A/A-A	Fibre Channel	Thin Reclamation
ETERNUS VS850	A/A-A	Fibre Channel	
ETERNUS VS850 with Subsystem Device Driver	A/A-A	Fibre Channel	
ETERNUS2000 series [3]	A/A	Fibre Channel	
ETERNUS4000 series [3] [4] [6]	A/A	Fibre Channel	Thin Reclamation
ETERNUS8000 series [3] [4]	A/A	Fibre Channel	Thin Reclamation

1. Ensure proper array settings are configured to support this mode.
2. Fujitsu Storage Cluster is not supported.
3. Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required firmware to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.
4. There are known issues with Reclamation, see <http://www.veritas.com/docs/TECH164853> for more details.

- 5. Thin Reclamation is not supported with ETERNUS DX60/DX60 S2/DX80/DX90.
- 6. Excludes ETERNUS4000 models 80 and 100.

Hewlett Packard Enterprise

Device/Family	Mode	Interface	Advanced Features
3PAR F/T-Class, StoreServ 7000/8000/9000/10000/20000 Storage [1] [2] [3]	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
Alletra 5000 Series	A/A-A	Fibre Channel	
Alletra 6000 Series	A/A-A	Fibre Channel	
Alletra 9000 Storage	A/A	Fibre Channel	
MSA 1040 SAN	A/A-A	Fibre Channel	Advanced Reporting
MSA 1060 Storage	A/A-A	Fibre Channel	Advanced Reporting, Thin Reclamation
MSA 2040 SAN	A/A-A	Fibre Channel, iSCSI, SAS	Advanced Reporting
MSA 2050 Storage	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
MSA 2060 Storage	A/A-A	Fibre Channel	Advanced Reporting, Thin Reclamation
MSA P2000	A/A-A	Fibre Channel	
MSA1000	A/A	Fibre Channel	
MSA1500 [2] [4]	A/A	Fibre Channel	
MSA2000fc series [2]	A/A	Fibre Channel	
MSA2012i [2]	A/A	iSCSI	
MSA2012sa [2]	A/A	SAS	
MSA2212i	A/A	iSCSI	
MSA2212sa	A/A	SAS	
P9500 [5]	A/A	Fibre Channel	Thin Reclamation
Primera 600 Storage	A/A	Fibre Channel	
XP7 series	A/A	Fibre Channel	
XP8 series	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
XP8 series	A/A-A	Fibre Channel	Advanced Reporting, Thin Reclamation

1. 3PAR F/T-Class maximum firmware version is 3.1.3; 3PAR StoreServ 7000/10000 minimum firmware version 3.1.2 and StoreServ 8000/20000 minimum firmware version 3.2.2 are required.
2. Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required firmware to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.
3. StoreServ 8000/20000 minimum firmware version 3.2.2 MU1 is required for Thin Reclamation support.
4. Active/Active array firmware is required. Contact your local HP representative for more information.
5. Requires firmware version 70-01-04-00/00 or higher to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.

Hitachi Vantara

Device/Family	Mode	Interface	Advanced Features
HUS 100 series [1]	A/A	Fibre Channel	Advanced Reporting
HUS 100 series with HDLM (Hitachi Dynamic Link Manager)	A/A	Fibre Channel	
HUS VM [1]	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
HUS VM with HDLM (Hitachi Dynamic Link Manager)	A/A	Fibre Channel	
SMS/AMS2000 series [1] [2] [3]	A/A	Fibre Channel, iSCSI	Advanced Reporting, Thin Reclamation
SMS/AMS2000 series with HDLM (Hitachi Dynamic Link Manager) [2]	A/A	Fibre Channel, iSCSI	
USPV/USPVM [1]	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
USPV/USPVM with HDLM (Hitachi Dynamic Link Manager)	A/A	Fibre Channel	
VSP [1] [4]	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
VSP with HDLM (Hitachi Dynamic Link Manager)	A/A	Fibre Channel	
VSP 5000 series	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
VSP E series	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
VSP G series [1]	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
VSP G series with HDLM (Hitachi Dynamic Link Manager)	A/A	Fibre Channel	
VSP Gx00/Fx00 series [1]	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation

1. For EOSL Storage Systems, Please refer Hitachi Vantara Product Life-Cycle Matrix - https://knowledge.hitachivantara.com/Support_Information/More_Info/Product_Life-Cycle_Matrix
2. Excludes SMS100.
3. SMS does not support Thin Provisioning.
4. Requires firmware version 70-01-04-00/00 or higher to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.

Huawei

Device/Family	Mode	Interface	Advanced Features
18000 series [1]	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
OceanStor Series [2] [3]	A/A-A	Fibre Channel, iSCSI	Advanced Reporting, Thin Reclamation
S5000 series	A/P-C	Fibre Channel	NDU
VIS series	A/A	Fibre Channel	Advanced Reporting

1. For Huawei 18000 A/A, MS KB <http://support.microsoft.com/kb/2522766> is required. Check "Prerequisites" of the KB to install MS KB.

2. For OceanStor V3 models, MS KB <<http://support.microsoft.com/kb/2522766>> is required. Check "Prerequisites" of the KB to install MS KB.
3. Thin Reclamation is only supported with OceanStor Series with volumes track aligned to 2048 sectors, the ALUA explicit trespass on Thin LUN is not supported.

IBM

Device/Family	Mode	Interface	Advanced Features
DS3950 [1] [2]	A/P-C	Fibre Channel	
DS3950 with DS Storage Manager	A/P-C	Fibre Channel	
DS5020 [1] [2]	A/P-C	Fibre Channel	Advanced Reporting, NDU
DS5020 with DS Storage Manager	A/P-C	Fibre Channel	
FlashSystem series [3]	A/A	Fibre Channel	Advanced Reporting
Spectrum Virtualize series [2]	A/A-A	Fibre Channel, iSCSI	Advanced Reporting
Spectrum Virtualize series with Subsystem Device Driver	A/A-A	Fibre Channel	
Storwize series [2]	A/A-A	Fibre Channel, iSCSI	Advanced Reporting
Storwize series with Subsystem Device Driver	A/A-A	Fibre Channel	
System Storage DS3000 series [1] [2]	A/P-C	Fibre Channel, iSCSI, SAS	
System Storage DS3500 series [1] [2]	A/P-C	Fibre Channel, iSCSI, SAS	Advanced Reporting
System Storage DS5000 series [1] [2]	A/P-C	Fibre Channel	Advanced Reporting
System Storage DS5000 series with DS Storage Manager	A/P-C	Fibre Channel	
System Storage DS8000 series [4]	A/A	Fibre Channel	Advanced Reporting
System Storage DS8000 series with Subsystem Device Driver	A/A	Fibre Channel	
System Storage N series [5]	A/A-A	Fibre Channel, iSCSI	NDU
System Storage N series [5]	A/P-C	Fibre Channel, iSCSI	NDU
System Storage XIV series [6]	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation

1. IMPORTANT: These arrays require additional configuration steps in order to work properly with Veritas InfoScale Foundation for Windows. Before attempting to use any of these arrays with Veritas InfoScale 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.
2. Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required firmware to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.
3. Supports FlashSystem 840/900 models only.
4. Requires firmware version 6.1.600.46 or higher to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.
5. Requires ONTAP version 7.0.2 or higher to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.
6. To obtain Clustering support with IBM XIV, a minimum Firmware level of 10.0.1.c is required.

Imation

Device/Family	Mode	Interface	Advanced Features
Nexsan E-Series Systems	A/A	Fibre Channel	

Infinidat

Device/Family	Mode	Interface	Advanced Features
InfiniBox F-Series	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation

Intel

Device/Family	Mode	Interface	Advanced Features
DC P3700	A/A	PCIe	Advanced Reporting
SSD 910	A/A	PCIe	Advanced Reporting

Kaminario

Device/Family	Mode	Interface	Advanced Features
K2 [1]	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation

1. Support for this array model is available from InfoScale release 7.3.1 and later.

MacroSAN

Device/Family	Mode	Interface	Advanced Features
MS series	A/A-A	Fibre Channel	Advanced Reporting, Thin Reclamation

Microsoft

Device/Family	Mode	Interface	Advanced Features
Azure	A/A	Fibre Channel	

NetApp

Device/Family	Mode	Interface	Advanced Features
AFF Series [1]	A/A-A	Fibre Channel, iSCSI	NDU
E_SERIES	A/A-A	Fibre Channel	Advanced Reporting
FAS2000/FAS900/FAS200 series [2]	A/A-A	Fibre Channel, iSCSI	NDU
FAS2000/FAS900/FAS200 series	A/P-C	Fibre Channel, iSCSI	NDU
FAS3000/V3000 series [2]	A/A-A	Fibre Channel, iSCSI	Advanced Reporting, NDU
FAS3000/V3000 series	A/P-C	Fibre Channel, iSCSI	NDU
FAS6000/V6000 series [2]	A/A-A	Fibre Channel, iSCSI	NDU
FAS6000/V6000 series	A/P-C	Fibre Channel, iSCSI	NDU
FAS8000/FAS9000 Series [2]	A/A-A	Fibre Channel, iSCSI	
FAS8000/FAS9000 Series	A/P-C	Fibre Channel, iSCSI	

1. A minimum version of ONTAP 8.3 is required to support this array.
2. Supports Clustered Data ONTAP (cDOT) version 8.2.1 or greater with multiple Controller Nodes.

Nexenta

Device/Family	Mode	Interface	Advanced Features
NexentaStor [1]	A/A-A	Fibre Channel	Advanced Reporting

1. Support for this array model is available from InfoScale release 7.3.1 and later.

Nexsan

Device/Family	Mode	Interface	Advanced Features
Beast Systems	A/A	Fibre Channel	Advanced Reporting

NimbleStorage

Device/Family	Mode	Interface	Advanced Features
CS/AF/HF-Series [1]	A/P-C	Fibre Channel	Advanced Reporting, Thin Reclamation

1. Support for this array model is available from InfoScale release 7.3.1 and later.

Oracle

Device/Family	Mode	Interface	Advanced Features
Axiom series [1]	A/A-A	Fibre Channel	Advanced Reporting, NDU
FS1-2 [2]	A/A-A	Fibre Channel	Advanced Reporting
Storage 6580/6780 series	A/P-C	Fibre Channel	NDU
StorageTek 2500 series	A/P-C	Fibre Channel, iSCSI, SAS	
StorageTek 6140 array	A/P-C	Fibre Channel	Advanced Reporting
StorageTek 9900 series	A/A	Fibre Channel	
StorageTek 9900 series with HDLM (Hitachi Dynamic Link Manager)	A/A	Fibre Channel	
StorageTek 9985/9990 series	A/A	Fibre Channel	
StorageTek 9985/9990 series with HDLM (Hitachi Dynamic Link Manager)	A/A	Fibre Channel	
StorageTek 9985V system	A/A	Fibre Channel	
StorageTek 9985V system with HDLM (Hitachi Dynamic Link Manager)	A/A	Fibre Channel	

Oracle

Device/Family	Mode	Interface	Advanced Features
StorageTek 9990V system	A/A	Fibre Channel	
StorageTek 9990V system with HDLM (Hitachi Dynamic Link Manager)	A/A	Fibre Channel	
Sun Storage 6180 array	A/P-C	Fibre Channel	Advanced Reporting, NDU
ZFS Storage Appliance series [3]	A/A-A	Fibre Channel, iSCSI	Advanced Reporting, NDU

1. Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required firmware to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.
2. Support for this array model is available from InfoScale release 7.2 and later.
3. Excludes ZFS Storage ZS4-4.

Pure Storage

Device/Family	Mode	Interface	Advanced Features
FlashArray series	A/A	Fibre Channel	Advanced Reporting, Thin Reclamation
FlashArray series	A/A-A	Fibre Channel	Advanced Reporting, Thin Reclamation

SanDisk

Device/Family	Mode	Interface	Advanced Features
ioDrive	A/A	PCIe	Advanced Reporting, Thin Reclamation
ioDrive2	A/A	PCIe	Advanced Reporting, Thin Reclamation
ioMemory PX600 series	A/A	PCIe	Advanced Reporting, Thin Reclamation
ioMemory SX300 series	A/A	PCIe	Advanced Reporting, Thin Reclamation

StorageTek

Device/Family	Mode	Interface	Advanced Features
FlexLine 200/300 series [1]	A/P-C	Fibre Channel	

1. Support for the StorageTek Flexline 300 series Storage Systems includes the FLX380 array only.

Sun

Device/Family	Mode	Interface	Advanced Features
StorageTek 6130 [1]	A/P-C	Fibre Channel	
StorageTek 6540	A/P-C	Fibre Channel	
StorEdge 9910/9960 [2]	A/A	Fibre Channel	
StorEdge 9910/9960 with HDLM (Hitachi Dynamic Link Manager)	A/A	Fibre Channel	

1. The Sun StorEdge 6130 array requires additional configuration steps in order to work properly with Veritas InfoScale Foundation for Windows. Before attempting to use the Sun StorEdge 6130 array with Veritas InfoScale 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.

2. Please check with Storage Array Manufacturer's Hardware Compatibility Support Matrices for required firmware to support Active/Active DSM mode in a cluster (VCS/MSCS/WSFC) with this array.

Violin Memory

Device/Family	Mode	Interface	Advanced Features
Violin 3000/6000 series	A/A	Fibre Channel	NDU
Violin 3000/6000 series [1]	A/A-A	Fibre Channel	NDU

1. A minimum array firmware version G5.5.1 is required to support ALUA mode.

Device Family Membership

Dell EMC

Device Family	Members
Celerra series	Celerra NS120, Celerra NS40, Celerra NS700
CLARiiON AX series	Celerra NX4, CLARiiON AX100, CLARiiON AX4
CLARiiON CX4 series	CLARiiON CX4 Model 120, CLARiiON CX4 Model 240, CLARiiON CX4 Model 480, CLARiiON CX4 Model 960
EqualLogic PS5000 series	EqualLogic PS5000E, EqualLogic PS5000X, EqualLogic PS5000XV, EqualLogic PS5500E
EqualLogic PS6000 series	EqualLogic PS6000E, EqualLogic PS6000S, EqualLogic PS6000X, EqualLogic PS6000XV, EqualLogic PS6000XVS, EqualLogic PS6010E, EqualLogic PS6010S, EqualLogic PS6010X, EqualLogic PS6010XV, EqualLogic PS6010XVS, EqualLogic PS6100E, EqualLogic PS6100X, EqualLogic PS6100XV, EqualLogic PS6100XV3.5", EqualLogic PS6500E, EqualLogic PS6500X, EqualLogic PS6500XV, EqualLogic PS6510E, EqualLogic PS6510X, EqualLogic PS6600, EqualLogic PX6100S, EqualLogic PX6100XS
PowerMax series	PowerMax 2000, PowerMax 2500, PowerMax 8000, PowerMax 8500
PowerStore series	PowerStore 1000T, PowerStore 1000X, PowerStore 3000T, PowerStore 3000X, PowerStore 5000T, PowerStore 5000X, PowerStore 500T, PowerStore 7000T, PowerStore 7000X, PowerStore 9000T, PowerStore 9000X
PowerVault MD32xx Series	PowerVault MD3200, PowerVault MD3200i, PowerVault MD3220, PowerVault MD3220i
PowerVault MD36xx Series	PowerVault MD3600f, PowerVault MD3600i
PowerVault MD38xx Series	PowerVault MD3800f
SC Series	SC4000, SC4020, SC420F, SC5020, SC5020F, SC7020, SC7020F, SC8000, SC9000, SCv2000, SCv3000
Symmetrix DMX series	Symmetrix DMX 1000, Symmetrix DMX 2000, Symmetrix DMX 3000, Symmetrix DMX 800, Symmetrix DMX-3, Symmetrix DMX-4
Symmetrix VMAX series	Symmetrix VMAX, Symmetrix VMAXe
Unity series	Unity 300, Unity 300F, Unity 350F, Unity 400, Unity 400F, Unity 450F, Unity 500, Unity 500F, Unity 550F, Unity 600, Unity 600F, Unity 650F, Unity VSA
Unity XT series	Unity XT 380, Unity XT 380F, Unity XT 480, Unity XT 480F, Unity XT 680, Unity XT 680F, Unity XT 880, Unity XT 880F
VMAX3/VMAX All Flash Family series	VMAX 100K, VMAX 10K, VMAX 200K, VMAX 20K, VMAX 250F, VMAX 250FX, VMAX 350F, VMAX 400K, VMAX 40K, VMAX 450F, VMAX 450FX, VMAX 850F, VMAX 850FX, VMAX 950F, VMAX 950FX, VMAX3
VNX series	VNX 5100, VNX 5300, VNX 5500, VNX 5700, VNX 7500
VNX2 series	VNX5200, VNX5400, VNX5600, VNX5800, VNX7600, VNX8000

Fujitsu

Device Family	Members
ETERNUS DX400/DX500/DX600 series	ETERNUS AF650, ETERNUS AF650 S2, ETERNUS AF650 S3, ETERNUS DX410, ETERNUS DX410 S2, ETERNUS DX440, ETERNUS DX440 S2, ETERNUS DX500 S3, ETERNUS DX500 S4, ETERNUS DX500 S5, ETERNUS DX600 S3, ETERNUS DX600 S4, ETERNUS DX600 S5
ETERNUS DX60/DX80/DX90/DX100/DX200 series	ETERNUS AF150 S3, ETERNUS AF250, ETERNUS AF250 S2, ETERNUS AF250 S3, ETERNUS DX100 S3, ETERNUS DX100 S4, ETERNUS DX100 S5, ETERNUS DX200 S3, ETERNUS DX200 S4, ETERNUS DX200 S5, ETERNUS DX200F, ETERNUS DX60, ETERNUS DX60 S2, ETERNUS DX60 S3, ETERNUS DX60 S4, ETERNUS DX60 S5, ETERNUS DX80, ETERNUS DX80 S2, ETERNUS DX90, ETERNUS DX90 S2
ETERNUS DX8000 S3/S4 series	ETERNUS DX8700 S3, ETERNUS DX8900 S3, ETERNUS DX8900 S4, ETERNUS DX900 S5
ETERNUS DX8000 series	ETERNUS DX8100, ETERNUS DX8100 S2, ETERNUS DX8400, ETERNUS DX8700, ETERNUS DX8700 S2
ETERNUS2000 series	ETERNUS2000 Model 100, ETERNUS2000 Model 200, ETERNUS2000 Model 50
ETERNUS4000 series	ETERNUS4000 Model 100, ETERNUS4000 Model 300, ETERNUS4000 Model 400, ETERNUS4000 Model 500, ETERNUS4000 Model 600, ETERNUS4000 Model 80
ETERNUS8000 series	ETERNUS8000 Model 1100, ETERNUS8000 Model 1200, ETERNUS8000 Model 2100, ETERNUS8000 Model 2200, ETERNUS8000 Model 700, ETERNUS8000 Model 800, ETERNUS8000 Model 900

Hewlett Packard Enterprise

Device Family	Members
3PAR F/T-Class, StoreServ 7000/8000/9000/10000/20000 Storage	3PAR F200 Storage, 3PAR F400 Storage, 3PAR StoreServ 10400 Storage, 3PAR StoreServ 10800 Storage, 3PAR StoreServ 20450 Storage, 3PAR StoreServ 20450R2 Storage, 3PAR StoreServ 20800 Storage, 3PAR StoreServ 20850 Storage, 3PAR StoreServ 20850R2 Storage, 3PAR StoreServ 7200 Storage, 3PAR StoreServ 7400 Storage, 3PAR StoreServ 7450 Storage, 3PAR StoreServ 8200 Storage, 3PAR StoreServ 8400 Storage, 3PAR StoreServ 8440 Storage, 3PAR StoreServ 8450 Storage, 3PAR StoreServ 9450 Storage, 3PAR T400 Storage, 3PAR T800 Storage
Alletra 5000 Series	Alletra 5010, Alletra 5030, Alletra 5050
Alletra 6000 Series	Alletra 6010, Alletra 6030, Alletra 6050, Alletra 6070, Alletra 6090
Alletra 9000 Storage	Alletra 9060, Alletra 9080
MSA 1060 Storage	MSA 1060 FC
MSA 2050 Storage	MSA 2050 SAN, MSA 2050 SAS, MSA 2052 SAN, MSA 2052 SAS
MSA 2060 Storage	MSA 2060 FC, MSA 2062 FC
MSA2000fc series	MSA2012fc, MSA2212fc
Primera 600 Storage	Primera 630 Storage, Primera 650 Storage, Primera 670 Storage
XP7 series	XP7, XP7 Gen 2
XP8 series	XP8

Hitachi Vantara

Device Family	Members
HUS 100 series	HUS110, HUS130, HUS150
SMS/AMS2000 series	AMS2100, AMS2300, AMS2500, SMS100
USPV/USPVM	USP V, USP VM
VSP 5000 series	VSP 5100, VSP 5100H, VSP 5200, VSP 5200H, VSP 5500, VSP 5500H, VSP 5600, VSP 5600H
VSP E series	VSP E1090, VSP E1090H, VSP E590, VSP E590H, VSP E790, VSP E790H, VSP E990
VSP G series	VSP F1500, VSP G1000, VSP G1500
VSP Gx00/Fx00 series	VSP F350, VSP F370, VSP F400, VSP F600, VSP F700, VSP F800, VSP F900, VSP G130, VSP G150, VSP G200, VSP G350, VSP G370, VSP G400, VSP G600, VSP G700, VSP G800, VSP G900

Huawei

Device Family	Members
18000 series	18500, 18800, 18800F, HVS85T, HVS88T
OceanStor Series	Dorado2100, Dorado2100G2, Dorado5100, OceanStor 18500 V3, OceanStor 18500 V5, OceanStor 18500F V5, OceanStor 18800 V3, OceanStor 18800 V5, OceanStor 18800F V5, OceanStor 2100 V3, OceanStor 2200 V3, OceanStor 2600 V3, OceanStor 5300 V3, OceanStor 5300 V5, OceanStor 5300F V5, OceanStor 5500 V3, OceanStor 5500 V5, OceanStor 5500F V5, OceanStor 5600 V3, OceanStor 5600 V5, OceanStor 5600F V5, OceanStor 5800 V3, OceanStor 5800 V5, OceanStor 5800F V5, OceanStor 6800 V3, OceanStor 6800 V5, OceanStor 6800F V5, OceanStor 6900 V3, OceanStor Dorado 18000 V6, OceanStor Dorado 3000 V6, OceanStor Dorado 5000 V6, OceanStor Dorado 6000 V6, OceanStor Dorado 8000 V6, OceanStor Dorado18000 V3, OceanStor Dorado5000 V3, OceanStor Dorado6000 V3, S2200T, S2600T, S2600T V2, S3900-M100, S3900-M200, S3900-M300, S5500T, S5500T V2, S5600T, S5600T V2, S5800T, S5800T V2, S5900-M100, S5900-M200, S6800T, S6800T V2, S6900-M100
S5000 series	S2100, S2300, S2300E, S2600, S5100, S5300, S5500, S5600, S6800E, V1500, V1800
VIS series	S8000, VIS6000, VIS6000T

IBM

Device Family	Members
FlashSystem series	FlashSystem 710, FlashSystem 820, FlashSystem 840, FlashSystem 900
Spectrum Virtualize series	FlashSystem 5010, FlashSystem 5030, FlashSystem 5100, FlashSystem 5200, FlashSystem 7100, FlashSystem 7200, FlashSystem 7300, FlashSystem 9100, FlashSystem 9200, FlashSystem 9200R, FlashSystem 9500, FlashSystem V9000, SAN Volume Controller, SANVC(2145), Spectrum Virtualize for Public Cloud, Storwize V3500, Storwize V3700, Storwize V5000, Storwize V5010, Storwize V5020, Storwize V5030, Storwize V7000, Storwize V7000 Unified
Storwize series	FlashSystem V9000, SANVC(2145), Storwize V3500, Storwize V3700, Storwize V5000, Storwize V5010, Storwize V5020, Storwize V5030, Storwize V7000, Storwize V7000 Unified
System Storage DS3000 series	DS3200, DS3300, DS3400

IBM

Device Family	Members
System Storage DS3500 series	DCS3700, DS3512, DS3524
System Storage DS5000 series	DS5100, DS5300
System Storage DS8000 series	DS8000, DS8100, DS8300, DS8700, DS8800, DS8870, DS8880
System Storage N series	N3150, N3220, N3240, N3300, N3400, N3600, N3700, N5200, N5300, N5500, N5600, N6040, N6060, N6070, N6210, N6220, N6240, N6250, N6270, N7550T, N7600, N7700, N7750T, N7800, N7900, N7950T
System Storage XIV series	FlashSystem A9000, FlashSystem A9000R, XIV Storage System, XIV Storage System Gen3

Imation

Device Family	Members
Nexsan E-Series Systems	Nexsan E18, Nexsan E48, Nexsan E60

Infinidat

Device Family	Members
InfiniBox F-Series	InfiniBox F2000, InfiniBox F4000, InfiniBox F6000

MacroSAN

Device Family	Members
MS series	MS2500, MS2500G2, MS2500G2-AF, MS3000, MS3000G2, MS3000G2-AF, MS3000G2-AFT, MS3000G2-V4, MS5000, MS5500, MS5500-AF, MS5500E, MS5500E-AF, MS5500G2, MS5500G2-AF, MS5500G2-AFT, MS700-Mach, MS7000, MS7000-AF, MS7000-AFT, MS7000-V4, MS7000G2, MS7000G2-AF, MS7000G2-AFT, MS7000G2-Mach, MS7000G2-V4, MS7020

NetApp

Device Family	Members
AFF Series	AFF 8020, AFF 8040, AFF 8060, AFF 8080EX, AFF A150, AFF A200, AFF A220, AFF A250, AFF A300, AFF A320, AFF A400, AFF A700, AFF A700s, AFF A800, AFF A900, AFF C190, AFF C250, AFF C400, AFF C800, AFF-A150, AFF-A200, AFF-A220, AFF-A250, AFF-A300, AFF-A320, AFF-A400, AFF-A700, AFF-A700s, AFF-A800, AFF-A900, AFF-C250, AFF-C400, AFF-C800
E_SERIES	E2600, E2700, E2800, E5400, E5500, E5600, E5612, E5624, E5660, E5700, EF540, EF550, EF560, EF570
FAS2000/FAS900/FAS200 series	FAS2020, FAS2040, FAS2050, FAS2220, FAS2240-2, FAS2240-4, FAS250, FAS2520, FAS2552, FAS2554, FAS2620, FAS2650, FAS270, FAS2720, FAS2750, FAS500F, FAS920, FAS940, FAS960, FAS980
FAS3000/V3000 series	FAS3020, FAS3040, FAS3050, FAS3070, FAS3140, FAS3160, FAS3170, FAS3210, FAS3220, FAS3240, FAS3250, FAS3270, V3020, V3040, V3050, V3070, V3140, V3160, V3170, V3210, V3220, V3240, V3250, V3270
FAS6000/V6000 series	FAS6030, FAS6040, FAS6070, FAS6080, FAS6210, FAS6220, FAS6240, FAS6250, FAS6280, FAS6290, V6030, V6040, V6070, V6080, V6210, V6220, V6240, V6250, V6280, V6290
FAS8000/FAS9000 Series	FAS8020, FAS8040, FAS8060, FAS8080EX, FAS8200, FAS8300, FAS8700, FAS9000, FAS9500

Nexsan

Device Family	Members
Beast Systems	SASBeast, SATABeast, SATABeast2

NimbleStorage

Device Family	Members
CS/AF/HF-Series	AF1000, AF20, AF3000, AF40, AF5000, AF60, AF7000, AF80, AF9000, CS1000, CS235, CS300, CS3000, CS500, CS5000, CS700, CS7000, HF20, HF40, HF60

Oracle

Device Family	Members
Axiom series	Axiom 300, Axiom 500, Axiom 600
Storage 6580/6780 series	Sun Storage 6580 array, Sun Storage 6780 array
StorageTek 2500 series	StorageTek 2510 array, StorageTek 2530 array, StorageTek 2540 array, Sun Storage 2530-M2 array, Sun Storage 2540-M2 array
StorageTek 9900 series	StorageTek 9970 array, StorageTek 9980 array
StorageTek 9985/9990 series	StorageTek 9985 system, StorageTek 9990 system

Oracle

Device Family	Members
ZFS Storage Appliance series	ZFS Storage 7110, ZFS Storage 7120, ZFS Storage 7210, ZFS Storage 7310, ZFS Storage 7320, ZFS Storage 7410, ZFS Storage 7420, ZFS Storage 7430, ZFS Storage ZS3-2, ZFS Storage ZS3-4, ZFS Storage ZS4-4, ZFS Storage ZS5-2, ZFS Storage ZS5-4

Pure Storage

Device Family	Members
FlashArray series	FA-400, FA-405, FA-420, FA-450, FlashArray //X10, FlashArray //X20, FlashArray //X50, FlashArray //X90, FlashArray//C, FlashArray//m10, FlashArray//m20, FlashArray//m50, FlashArray//m70, FlashArray//X R4, FlashArray//x70, FlashArray//XL, FlashArray//Xr2, FlashArray//Xr3

SanDisk

Device Family	Members
ioMemory PX600 series	ioMemory PX600-1000, ioMemory PX600-1300, ioMemory PX600-2600, ioMemory PX600-5200
ioMemory SX300 series	ioMemory SX300-1300, ioMemory SX300-1600, ioMemory SX300-3200, ioMemory SX300-6400

StorageTek

Device Family	Members
FlexLine 200/300 series	FlexLine FLX280, FlexLine FLX380

Sun

Device Family	Members
StorEdge 9910/9960	StorEdge 9910, StorEdge 9960

Violin Memory

Device Family	Members
Violin 3000/6000 series	3120, 3202, 3205, 3210, 3220, 6212, 6232, 6264, 6606, 6616

Host Bus Adapters

The information presented here does not refer to specific host bus adapter (HBA) models or architectures. Unless stated otherwise, InfoScale Foundation supports all the HBAs that are supported by the Microsoft Windows Server Catalog and storage array manufacturers listed here. InfoScale Foundation includes support for Fibre Channel over Ethernet (FCoE) Converged Network Adapters (CNAs), and iSCSI HBAs. For the required HBA BIOS/firmware and driver versions, see the Microsoft Windows Server Catalog and storage array manufacturers' hardware compatibility support matrices.

The information presented here is only to add exceptions for HBA models that have issues and are therefore not supported by the InfoScale products listed.

For supported iSCSI initiator versions, see the table below.

iSCSI Support

OS	HBA model	iSCSI software initiator version
Microsoft Windows	Microsoft iSCSI Software Initiator [1]	2.08 or above

1. The Microsoft iSCSI Software Initiator is supported on any Ethernet NIC card that is supported by the Microsoft iSCSI Software Initiator. 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, Veritas will support customers utilizing a newer version. Check with Microsoft on the most current and supported release of the iSCSI initiator. When adding a new target to Microsoft's iSCSI Software Initiator, Veritas recommends selecting the adapter and port of the NIC configured for 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.

Switches

The information presented here does not refer to specific switch models or architectures.

Unless stated otherwise, InfoScale Foundation supports all Fibre Channel switches that are supported by the OS and storage array manufacturers listed here. For the required BIOS/firmware and driver versions for the switches, see the operating system and storage array manufacturers' hardware compatibility support matrices.

The information presented here is only to add exceptions for switch models that have issues and are therefore not supported by the InfoScale products listed.