# Interoperability Matrix for Cisco Nexus and MDS 9000 Products

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# Preface

This preface describes the audience, organization of, and conventions used in the Cisco MDS 9000 Series Configuration Guides. It also provides information on how to obtain related documentation, and contains the following sections:



## Audience

This publication is for network administrators who install, configure, and maintain Cisco MDS 9000 Series Switches.

## Document Conventions

Command descriptions use these conventions:

| Convention | Description |
|---|---|
| **bold** | Bold text indicates the commands and keywords that you enter literally as shown. |
| *Italic* | Italic text indicates arguments for which the user supplies the values. |
| [x] | Square brackets enclose an optional element (keyword or argument). |
| [x \| y] | Square brackets enclosing keywords or arguments separated by a vertical bar indicate an optional choice. |
| {x \| y} | Braces enclosing keywords or arguments separated by a vertical bar indicate a required choice. |

| Convention | Description |
|---|---|
| [x {y \| z}] | Nested set of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element. |
| `variable` | Indicates a variable for which you supply values, in context where italics cannot be used. |
| string | A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks. |

Examples use these conventions:

| Convention | Description |
|---|---|
| `screen font` | Terminal sessions and information the switch displays are in screen font. |
| **`boldface screen font`** | Information you must enter is in boldface screen font. |
| *italic screen font* | Arguments for which you supply values are in italic screen font. |
| < > | Nonprinting characters, such as passwords, are in angle brackets. |
| [ ] | Default responses to system prompts are in square brackets. |
| !, # | An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line. |

This document uses the following conventions:

**Note** Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.

**Caution** Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

**Warning** IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

# Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, please send your comments to mds-docfeedback@cisco.com. We appreciate your feedback.

# Related Documentation

The entire Cisco MDS 9000 Series switches documentation set is available at the following URL:

https://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/series.html

Documentation Roadmap

https://www.cisco.com/c/en/us/td/docs/storage/san_switches/mds9000/roadmaps/rel90.html

# Communications, Services, and Additional Information

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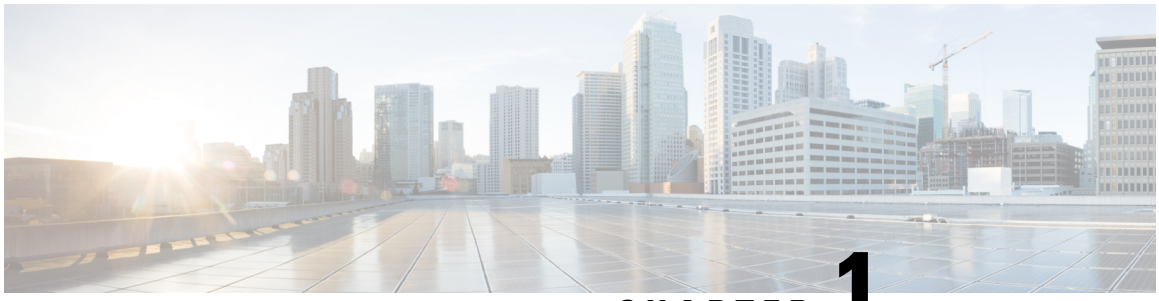
- To obtain general networking, training, and certification titles, visit Cisco Press.
- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

### Cisco Bug Search Tool

Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.



CHAPTER 1

# Storage Interoperability Matrix

This chapter includes the following topics:



## Cisco Nexus 9000/7000/5000 Series Switches and Cisco MDS 9000 Series Switches

Table 1 lists the Cisco NX-OS software releases that support Cisco MDS 9000 Series switches, Cisco Nexus 9000 Series switches, Cisco Nexus 7000 Series switches, Cisco Nexus 5000 Series switches. For Cisco MDS products, we recommend that customers refer to the Recommended Releases for Cisco MDS 9000 Series Switches document for NX-OS release for both new and existing deployments.

The switches listed in Table 1 support the disk and tape storage products and the CNA and HBA devices listed in Table 2, Table 3, and Table 7.

***Table 1: Cisco NX-OS Releases Supported on Cisco MDS 9000 Series Switches, Cisco Nexus 9000 Series Switches, Cisco Nexus 7000 Series Switches, and Cisco Nexus 5000 Series Switches***

| Cisco MDS and Nexus Switches | Cisco NX-OS Releases |
|---|---|
| Cisco MDS 9706[1], 9710, and 9718[2] switches | 9.4(3b), 9.4(3a), 9.4(3), 9.4(2a), 9.4(1a), 9.4(1) |
| | 9.3(2a), 9.3(2), 9.3(1) |
| | 9.2(2), 9.2(1a), 9.2(1) |
| | 8.5(1) |
| | 8.4(2f), 8.4(2e), 8.4(2d), 8.4(2c), 8.4(2b), 8.4(2a), 8.4(2), 8.4(1a), 8.4(1) |
| | 8.3(2), 8.3(1) |
| | 8.2(2), 8.2(1) |
| | 8.1(1b), 8.1(1a), 8.1(1) |
| | 7.3(1)DY(1), 7.3(0)DY(1), 7.3(1)D1(1), 7.3(0)D1(1) |

| Cisco MDS and Nexus Switches | Cisco NX-OS Releases |
|---|---|
| Cisco MDS 9396V switch | 9.4(3b), 9.4(3a), 9.4(3), 9.4(2a), 9.4(1a), 9.4(1) |
| Cisco MDS 9250i switch | 9.4(3b), 9.4(3a), 9.4(3), 9.4(2a), 9.4(1a), 9.4(1) |
| | 9.3(2a), 9.3(2), 9.3(1) |
| | 9.2(1a) |
| | 8.5(1) |
| | 8.4(2f), 8.4(2e), 8.4(2d), 8.4(2c), 8.4(2b), 8.4(2a), 8.4(2), 8.4(1a), 8.4(1) |
| | 8.3(2), 8.3(1) |
| | 8.2(2), 8.2(1) |
| | 8.1(1b), 8.1(1a), 8.1(1) |
| | 7.3(1)DY(1), 7.3(0)DY(1), 7.3(1)D1(1), 7.3(0)D1(1) |
| Cisco MDS 9220i switch | 9.4(3b), 9.4(3a), 9.4(3), 9.4(2a), 9.4(1a), 9.4(1) |
| | 9.3(2a), 9.3(2), 9.3(1) |
| | 9.2(2), 9.2(1a), 9.2(1) |
| | 8.5(1) |
| Cisco MDS 9148S and 9396S[3] switches | 9.4(3b), 9.4(3a), 9.4(3), 9.4(2a), 9.4(1a), 9.4(1) |
| | 9.3(2a), 9.3(2), 9.3(1) |
| | 9.2(1a) |
| | 8.5(1) |
| | 8.4(2f), 8.4(2e), 8.4(2d), 8.4(2c), 8.4(2b), 8.4(2a), 8.4(2) |
| | 8.3(2), 8.3(1) |
| | 8.2(2), 8.2(1) |
| | 8.1(1b), 8.1(1a), 8.1(1) |
| | 7.3(1)DY(1), 7.3(0)DY(1), 7.3(1)D1(1), 7.3(0)D1(1) |
| Cisco MDS 9132T, 9148T[4], and 9396T[5] switches | 9.4(3b), 9.4(3a), 9.4(3), 9.4(2a), 9.4(1a), 9.4(1) |
| | 9.3(2a), 9.3(2), 9.3(1) |
| | 9.2(2), 9.2(1a), 9.2(1) |
| | 8.5(1) |
| | 8.4(2f), 8.4(2e), 8.4(2d), 8.4(2c), 8.4(2b), 8.4(2a), 8.4(2), 8.4(1a), 8.4(1) |
| | 8.3(2), 8.3(1) |
| | 8.2(2), 8.2(1) |

| Cisco MDS and Nexus Switches | Cisco NX-OS Releases |
|---|---|
| Cisco MDS 9148v and 9124v switches | 9.4(3b), 9.4(3a), 9.4(3), 9.4(2a), 9.4(1a), 9.4(1) |
| | 9.3(2a), 9.3(2), 9.3(1) |
| Cisco Nexus 9300[6] Series | 10.3(3)F, 10.3(2)F, 10.3(1)F |
| | 10.2(4)M, 10.2(3)F, 10.2(2) F, 10.2(1) F |
| | 10.1(2), 10.1(1) |
| | 9.3(12), 9.3(11), 9.3(10), 9.3(9), 9.3(8), 9.3(7), 9.3(6), 9.3(5), 9.3(4), 9.3(3), 9.3(2), 9.3(1) |
| | 9.2(3), 9.2(2), 9.2(1) |
| | 7.0(3)I4(1), 7.0(3)I7(3) |
| Cisco Nexus 7000 and 7700 Series switches | 8.4(8), 8.4(7), 8.4(6a), 8.4(5), 8.4(4a), 8.4(3), 8.4(2), 8.4(1) |
| | 8.3(2), 8.3(1) |
| | 8.2(10), 8.2(9), 8.2(8), 8.2(7), 8.2(6), 8.2(5), 8.2(4), 8.2(3), 8.2(2), 8.2(1) |
| | 8.1(1) |
| | 8.(0)1 |
| | 7.3(9)D1(1), 7.3(8)D1(1), 7.3(7)D1(1), 7.3(6)D1(1), 7.3(5)D1(1), 7.3(4)D1(1), 7.3(3)D1(1), 7.3(2)D1(1), 7.3(1)D1(1), 7.3(0)DX(1), 7.3(0)D1(1) |
| | 7.2(2)D1(2), 7.2(2)D1(1), 7.2(2)D1(2), 7.2(2)D1(1), 7.2(1)D1(1), 7.2(0)D1(1) |
| Cisco Nexus 5500 and 5600 Series | 7.3(13)N1(1), 7.3(12)N1(1), 7.3(11)N1(1), 7.3(10)N1(1), 7.3(9)N1(1), 7.3(8)N1(1), 7.3(7)N1(1b), 7.3(7)N1(1a), 7.3(7)N1(1), 7.3(6)N1(1), 7.3(5)N1(1), 7.3(4)N1(1), 7.3(3)N1(1), 7.3(2)N1(1), 7.3(1)N1(1), 7.3(0)N1(1) |
| | 7.2(1)N1(1), 7.2(0)N1(1) |
| | 7.1(5)N1(1), 7.1(4)N1(1), 7.1(3)N1(2), 7.1(3)N1(1), 7.1(2)N1(1), 7.1(1)N1(1), 7.1(0)N1(1b), 7.1(0)N1(1a) |
| | 7.0(8)N1(1), 7.0(7)N1(1), 7.0(6)N1(1), 7.0(5)N1(1a), 7.0(5)N1(1), 7.0(4)N1(1), 7.0(3)N1(1), 7.0(2)N1(1), 7.0(1)N1(1) |

1 Cisco MDS 9706 is supported only from Cisco MDS NX-OS Release 6.2(9) and later releases.
2 Cisco MDS 9718 is supported only from Cisco MDS NX-OS Release 7.3(0)D1(1) and later releases.
3 Cisco MDS 9396S is supported only from Cisco MDS NX-OS Release 6.2(13) and later releases.
4 Cisco MDS 9148T switch is supported only from Cisco MDS NX-OS Release 8.3(1) and later releases.
5 Cisco MDS 9396T switch is supported only from Cisco MDS NX-OS Release 8.3(1) and later releases.
6 The Cisco NPV feature support requires Cisco MDS NX-OS Release 7.0(3)I7(3) and later releases.

# OSM Information

More configuration information for host, target, switch, or optical equipment may be available on the OSM web site.

For HBA or CNA driver and firmware version and storage firmware version, see the following OSM websites to obtain their latest support matrix.

- Dell EMC—See the Dell EMC Interoperability support matrices. Refer to this matrix for comprehensive list of the latest supported Dell EMC storage arrays.
  https://www.delltechnologies.com/en-us/products/interoperability/elab.htm
- Hitachi Vantara—See the Product Interoperability Documentation:
  https://support.hitachivantara.com/en/answers/interoperability.html
- HPE—See the HPE Single Point of Connectivity Knowledge (SPOCK) website :
  https://www.hpe.com/storage/spock
- IBM—See http://www-03.ibm.com/systems/support/storage/ssic/interoperability.wss
- NetApp—See the Interoperability Matrix Tool (IMT): http://support.netapp.com/matrix/
- Pure Storage—See https://support.purestorage.com/FlashArray/Getting_Started_with_FlashArray/Compatibility_Matrix#Network_Adapters2C_HBAs_and_Switches

The following table provides details on HBA, CNA, and Operating System support.

**Note** In the following table, while choosing an adapter (CNA or HBA) of your interest, refer the adapter Release Notes first to check which operating system drivers are available and then choose from the Operating Systems column. Refer Table 5 for NVMe over FC support Matrix.

In the following “Software Support Matrix” tables:

- The term, “Yes” indicates the supported release versions.
- The “—” symbol indicates the unsupported release versions.

*Table 2: HBA, CNA, and Operating System Support*

| Vendor | HBA/CNA Model | Operating Systems | Version/ Patch | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx | Cisco Nexus 2xxx |
|---|---|---|---|---|---|---|---|---|---|
| Cisco | VIC 1225, VIC 1225T, VIC 1227, VIC1227T, VIC 1240, VIC 1280, VIC 1285, VIC 1340, VIC 1380, VIC 1385, VIC 1455, VIC 1495, VIC 15000 | Windows 2012 | All | FCoE | Yes | Yes | Yes | Yes | Yes |
| | | Windows 2016 | All | | Yes | Yes | Yes | Yes | Yes |
| | | Windows 2019 | All | | Yes | Yes | Yes | Yes | Yes |
| | | Windows 2022 | All | | Yes | Yes | — | — | — |
| | | Red Hat 7.x | All | | Yes | Yes | Yes | Yes | Yes |
| | | Red Hat 8.x | All | | Yes | Yes | Yes | Yes | Yes |
| | | SUSE 11 | All | | Yes | Yes | Yes | Yes | Yes |
| | | SUSE 12 | All | | Yes | Yes | Yes | Yes | Yes |
| | | SUSE 15 | All | | Yes | Yes | Yes | Yes | Yes |
| | | VMware ESX 6.x, 7.x, 8.x | All | | Yes | Yes | Yes | Yes | Yes |

| Vendor | HBA/CNA Model | Operating Systems | Version/ Patch | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx | Cisco Nexus 2xxx |
|---|---|---|---|---|---|---|---|---|---|
| Emulex[7] | LPe38000 Series HBA, LPe37000 Series HBA, LPe36000 Series HBA, LPe35000 Series HBA, LPe32000 Series HBA, LPe31000 Series HBA, LPe16000 Series HBA, LPe1250 Series HBA, LPe12000 Series HBA | Windows 2012 | All | FC | Yes | — | — | — | — |
| | | Windows 2016 | All | | Yes | Yes | — | Yes | — |
| | | Windows 2019 | All | | Yes | Yes | — | Yes | — |
| | | Windows 2022 | All | | Yes | Yes | — | — | — |
| | | Red Hat 7.x | All | | Yes | Yes | — | Yes | — |
| | | Red Hat 8.x | All | | Yes | Yes | — | Yes | — |
| | | SUSE 12 | All | | Yes | Yes | — | Yes | — |
| | | SUSE 15 | All | | Yes | Yes | — | Yes | — |
| | | Oracle Linux 6Ux (UEK) | All | | Yes | Yes | — | Yes | — |
| | | Oracle Linux 7Ux (UEK) | All | | Yes | Yes | — | Yes | — |
| | | Oracle Linux 8Ux (UEK) | All | | Yes | Yes | — | Yes | — |
| | | VMware ESX 6.x, 7.x, 8.x | All | | Yes | Yes | — | Yes | — |
| | | HP-UX 11.31 IA | All | | Yes | — | — | — | — |
| | | Solaris 11 | All | | Yes | — | — | — | — |
| | OCe 14102 Series CNA, OCe 11102 Series CNA | Windows 2012 | All | FCoE | Yes | Yes | Yes | Yes | Yes |
| | | Windows 2016 | All | | Yes | Yes | Yes | Yes | Yes |
| | | Red Hat 7.x | All | | Yes | Yes | Yes | Yes | Yes |
| | | SUSE 11 | All | | Yes | Yes | Yes | Yes | Yes |
| | | SUSE 12 | All | | Yes | Yes | Yes | Yes | Yes |
| | | VMware ESX 6.x | All | | Yes | Yes | Yes | Yes | Yes |

| Vendor | HBA/CNA Model | Operating Systems | Version/ Patch | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx | Cisco Nexus 2xxx |
|---|---|---|---|---|---|---|---|---|---|
| Qlogic[8] | 2800 Series HBA, 2700 Series HBA, 2600 Series HBA, 2500 Series HBA | Windows 2012 | All | FC | Yes | Yes | — | Yes | — |
| | | Windows 2016 | All | | Yes | Yes | — | Yes | — |
| | | Windows 2019 | All | | Yes | Yes | — | Yes | — |
| | | Windows 2022 | All | | Yes | Yes | — | — | — |
| | | Red Hat 7.x | All | | Yes | Yes | — | Yes | — |
| | | Red Hat 8.x | All | | Yes | Yes | — | Yes | — |
| | | SUSE 11 | All | | Yes | Yes | — | Yes | — |
| | | SUSE 12 | All | | Yes | Yes | — | Yes | — |
| | | SUSE 15 | All | | Yes | Yes | — | Yes | — |
| | | Oracle Linux 6Ux (UEK) | All | | Yes | Yes | — | Yes | — |
| | | Oracle Linux 7Ux (UEK) | All | | Yes | Yes | — | Yes | — |
| | | Oracle Linux 8Ux (UEK) | All | | Yes | Yes | — | Yes | — |
| | | VMware ESX 6.x, 7.x, 8.x | All | | Yes | Yes | — | Yes | — |
| | | HP-UX 11.31 IA | All | | Yes | — | — | — | — |
| | | AIX 7.x | All | | Yes | Yes | — | Yes | — |
| | 8400 Series CNA, 8300 Series CNA, 8200 Series CNA | Windows 2012 | All | FCoE | Yes | Yes | Yes | Yes | Yes |
| | | Windows 2016 | All | | Yes | Yes | Yes | Yes | Yes |
| | | Red Hat 7.x | All | | Yes | Yes | Yes | Yes | Yes |
| | | SUSE 11 | All | | Yes | Yes | Yes | Yes | Yes |
| | | SUSE 12 | All | | Yes | Yes | Yes | Yes | Yes |
| | | VMware ESX 6.x | All | | Yes | Yes | Yes | Yes | Yes |
| | QL41262 CNA, QL45462 CNA | Windows 2019 | All | | Yes | Yes | — | — | — |
| | | SLES 15 | All | | Yes | Yes | — | — | — |
| | | Red Hat 8.x | All | | Yes | Yes | — | — | — |

| Vendor | HBA/CNA Model | Operating Systems | Version/ Patch | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx | Cisco Nexus 2xxx |
|---|---|---|---|---|---|---|---|---|---|
| ATTO | CTFC-322E | Windows 2016 | All | FC | Yes | — | — | — | — |
| | | Red Hat 7.x | All | | Yes | — | — | — | — |
| | | SUSE 12 | All | | Yes | — | — | — | — |
| | | VMware ESX 6.x | All | | Yes | — | — | — | — |

[7] For Emulex adapter support with VIOS, IBMi, or AIX check IBM SSIC at http://www-03.ibm.com/systems/support/storage/ssic/interoperability.wss.

[8] For Qlogic adapter support with VIOS, IBMi, or AIX check IBM SSIC at http://www-03.ibm.com/systems/support/storage/ssic/interoperability.wss.

**Note** For information on OEM-branded Fibre Channel Host Bus Adapters from Broadcom and Marvell, see https://www.broadcom.com/ or www.marvell.com, and refer to the Cross Reference guides for the equivalent part or model numbers.

The following table provides details on Disk Storage support.

*Table 3: Disk Storage Support Matrix*

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx |
|---|---|---|---|---|---|---|
| IBM | DS8700, DS8800, DS8900 | FC, FICON | Yes | — | — | Yes |
| | DS8900 | | Yes | — | — | Yes |
| | XIV Gen 3 | | Yes | — | — | Yes |
| | FlashSystem 840/V840 | FC, FCoE | Yes | Yes | — | Yes |
| | SAN Volume Controller (SVC) | | Yes | Yes | Yes | Yes |
| | FlashSystem 900, 9000, 9100 | FC, FCoE, NVMe/FC | Yes | | — | Yes |
| | FlashSystem 5000, 7200, 9200 | | Yes | Yes | — | Yes |
| | Storwize 5100, 7000 | | Yes | Yes | — | Yes |
| | FlashSystem 7300, 9500 | FC, NVMe/FC | Yes | Yes | — | Yes |
| | FlashSystem A9000 | FC | Yes | | — | Yes |

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx |
|---|---|---|---|---|---|---|
| Dell EMC | VMAX Family | FC, FCoE, FICON | Yes | — | — | — |
| | VNX and VNXe Family | FC, FCoE | Yes | Yes | Yes | Yes |
| | XtremIO | FC | Yes | Yes | Yes | Yes |
| | DDR670 | | Yes | — | — | Yes |
| | VPLEX | | Yes | — | — | Yes |
| | Unity Family | | Yes | — | — | Yes |
| | PowerStore Family | FC, NVMe/FC | Yes | Yes | — | Yes |
| | PowerMAX | FC, NVMe/FC, FICON | Yes | Yes | — | Yes |
| | SC Series | FC | Yes | Yes | — | Yes |

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx |
|---|---|---|---|---|---|---|
| Hitachi Vantara | Virtual Storage Platform (VSP) 5100, 5100H, 5200, 5200H, 5500, 5500H, 5600, 5600H | FC, NVMe/FC, FICON | Yes | — | Yes | Yes |
| | Virtual Storage Platform (VSP) One Block 24, 26, 28, 26 QLC | FC, NVMe/FC | Yes | — | — | — |
| | Virtual Storage Platform (VSP) G1000G1500F1500 | FC, FCoE, FICON | Yes | — | Yes | Yes |
| | Virtual Storage Platform (VSP) E990, E790, E790H, E590, E590H, E1090, E1090H, G900, G800, G700, G600, G400, G370, G200, F900, F800, F700, F600, F400, F370, F350 | FC | Yes | — | Yes | Yes |

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx |
|---|---|---|---|---|---|---|
| HPE | P9500 | FC, FCoE | Yes | Yes | Yes | Yes |
| | 3PAR StoreServ 7000 8000 9000 10000 20000 | | Yes | Yes | Yes | Yes |
| | Primera 600 Storage | FC | Yes | — | — | Yes |
| | Alletra 6000, 9000 | | Yes | — | — | — |
| | MSA 1050 2050 2052 2060 | | Yes | Yes | — | Yes |
| | XP7, XP8 | FC, FICON | Yes | — | — | Yes |
| | Nimble Storage CS Series | FC | Yes | Yes | — | Yes |
| | Nimble Storage AFA Series | | Yes | Yes | — | Yes |
| NetApp | AFF A-Series/C-Series | FC, FCoE, NVMe/FC | Yes | Yes | Yes | Yes |
| | FAS2000 | FC, FCoE | Yes | Yes | Yes | Yes |
| | FAS3000 | | Yes | Yes | Yes | Yes |
| | FAS6000 | | Yes | Yes | Yes | Yes |
| | FAS8000 | FC, FCoE, NVMe/FC | Yes | Yes | Yes | Yes |
| | FAS9000 | | Yes | Yes | Yes | Yes |
| | EF280, E2800 | FC | Yes | — | — | Yes |
| | EF570, EF600, E5700 | FC, NVMe/FC | Yes | — | — | Yes |

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx |
|---|---|---|---|---|---|---|
| Pure Storage | FA-400 Series | FC | Yes | Yes | — | Yes |
| | FlashArray//M Series | | Yes | Yes | — | Yes |
| | FlashArray//X Series | FC, NVMe/FC | Yes | Yes | — | — |
| | FlashArray//XL Series | | Yes | Yes | — | — |
| | FlashArray//C Series | | Yes | Yes | — | — |
| | FlashArray//E Series | | Yes | Yes | — | — |

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx |
|---|---|---|---|---|---|---|
| Huawei | OceanStor F/V3 series<br>2100V3/2200, V3/2600, V3/2600F, V3/2800, V3/5300, V3/5500, V3/5500F, V3/5600, V3/5600F, V3/5800, V3/5800F, V3/6800, V3/6800F, V3/6900, V3/18500, V3/18500F, V3/18800, V3/18800F V3 | FC, FCoE, NVMe/FC | Yes | Yes | — | Yes |
| | OceanStor DoradoV3 series<br>Dorado 3000 V3/5000 V3/6000 V3/18000 V3 | | Yes | Yes | — | Yes |
| | | | Yes | Yes | — | Yes |

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx |
|---|---|---|---|---|---|---|
| | OceanStor K/F/V5 series<br>2600 V5/2800 V5/5100K V5/5200K V5/5300 V5/5300F V5/5300K V5/5500K V5/5500 V5/5500F V5/5600 V5/5600F V5/<br>5800 V5/5800F V5/6800 V5/6800F V5/18500 V5/18500F V5/18800 V5/18800F V5<br>2810 V5/5110 V5/5110F V5/5110 V5 Enhanced/5110F V5 Enhanced/5210 V5/5210F V5/5210 V5 Enhanced/5210F V5 Enhanced/5310 V5/5310F V5/5510 V5/5510F V5/5610 V5/5610F V5/<br>5810 V5/5810F V5/6810 V5/6810F V5/18510 V5/18510F V5/18810 V5/18810F | | | | | |

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx |
|---|---|---|---|---|---|---|
| | V5 | | | | | |
| | OceanStor DoradoV6 series<br>Dorado 3000 V6/5000 V6/6000 V6/8000 V6/18000 V6<br>/5300 V6/5500 V6/5600 V6/5800 V6/6800 V6/18500 V6/18800 V6/18800K V6 | | Yes | Yes | — | Yes |
| | OceanStor A series<br>OceanStor A310/A800 | | — | Yes | — | Yes |
| | OceanStor Dorado V7 series<br>Dorado 5000 6000 8000 18000<br>5000 6000 8000 18000 | | Yes | Yes | — | Yes |

The following table provides details on Cisco UCS-B Series Fabric Interconnect support.

*Table 4: Cisco UCS-B and X Series Fabric Interconnect Support Matrix*

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 5xxx/2xxx | Cisco Nexus 7xxx | HBA/CNA/Operating Systems and UCS-M Version |
|---|---|---|---|---|---|---|
| Cisco | Cisco UCS 6200 Series Fabric Interconnects,<br>Cisco UCS 6300 Series Fabric Interconnects,<br>Cisco UCS 6400 Series Fabric Interconnects<br>Cisco UCS 6536 Fabric Interconnect<br>Cisco UCS 9108 100G Intelligent Fabric Module | FC, FCoE, NVMe/FC | MDS NX-OS 7.x and above from Table 1 for 7.x | NX-OS 6.0(2)N1(1) and above from Table 1 for 6.x<br>NX-OS 7.0(1)N1(1) and above from Table 1 for 7.x | NX-OS 7.x and above from Table 1 for 7.x | All HBA/CNA/Operating Systems and UCS releases list products.http://www.cisco.com/c/en/us/support/servers-u |

The following table provides details on NVMe over FC and FCoE support matrix.

**Note** Refer to Storage Vendors Matrix support documents for end to end NVMe/FC support details.

*Table 5: NVMe over FC and FCoE Support Matrix*

| Cisco MDS and Nexus Switches | Vendor | HBA Model | Operating System | Cisco MDS 9xxx | Cisco Nexus 5xxx | Cisco Nexus 9xxx |
|---|---|---|---|---|---|---|
| Cisco MDS 97xx<br>Cisco MDS 9396S<br>Cisco MDS 9396T[9]<br>Cisco MDS 9220i[10],<br>Cisco MDS 9250i<br>Cisco MDS 9132T<br>Cisco MDS 9148S<br>Cisco MDS 9148T[11]<br>Cisco MDS 9148V[12]<br>Cisco MDS 9124V[13]<br>Cisco Nexus 56xx<br>Cisco Nexus 93180YC-FX<br>Cisco Nexus 93360YC-FX2 | Emulex | LPe 32000,<br>LPe 35000<br>LPe 36000 | Windows Server 2016<br>Windows Server 2019<br>SLES 12 SP4<br>SLES 15<br>RHEL 7.6 and above<br>RHEL 8.0 and above<br>OL 8.2 (UEK)<br>ESXi 7.0 | MDS NX-OS 8.2(1) and above from Table 1 for 8.x | NX-OS 7.3(3)N1(1) and above from Table 1 for 7.x | NX-OS 7.0(3)I7(3) and above from Table 1 for 7.x |
| | QLogic | QLE 2700, QLE 2600 | SLES 12 SP4<br>SLES 15<br>RHEL 7.6<br>RHEL 8.0 | MDS NX-OS 8.2(1) and above from Table 1 for 8.x | NX-OS 7.3(3)N1(1) and above from Table 1 for 7.x | NX-OS 7.0(3)I7(3) and above from Table 1 for 7.x |
| | Cisco | VIC 14xx | RHEL 8.1<br>SLES 12 SP3<br>SLES 15 SP1 and above<br>ESX 6.x and 7.x | MDS NX-OS 8.2(1) and above from Table 1 for 8.x | NX-OS 7.3(3)N1(1) and above from Table 1 for 7.x | NX-OS 7.0(3)I7(3) and above from Table 1 for 7.x |

[9] Cisco MDS 9396T switch requires Cisco MDS NX-OS Release 8.3(1) and later.
[10] Cisco MDS 9220i switch requires Cisco MDS NX-OS Release 8.5(1) and later.
[11] Cisco MDS 9148T switch requires Cisco MDS NX-OS Release 8.3(1) and later.
[12] Cisco MDS 9148v switches requires Cisco MDS NX-OS Release 9.3(1) and later.
[13] Cisco MDS 9124v switches requires Cisco MDS NX-OS Release 9.3(1) and later.

The following table provides details on Storage array support based on vendor self-certification.

*Table 6: Storage Array Support based on Vendor Self-certification*

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx | HBA/CNA | Operating System |
|---|---|---|---|---|---|---|---|
| Fujitsu | FUJITSU Storage ETERNUS DX60 Sx, DX100 Sx, DX200 Sx, DX500 Sx, DX600 Sx, DX900 Sx, DX200F, AF150 Sx, AF250, AF250 Sx, AF650, AF650 Sx | FC | Yes | — | Yes | Table 2 | Table 2 |
| | FUJITSU Storage ETERNUS DX8700 S3, DX8900 S3, DX8900 S4 | | Yes | — | — | | |
| | FUJITSU Storage ETERNUS DX60 S2, DX80 S2, DX90 S2 | | Yes | — | Yes | | |
| | FUJITSU Storage ETERNUS DX400 S2 Series, DX8000 S2 Series | | Yes | — | Yes | | |
| | FUJITSU Storage ETERNUS DX60, DX80, DX90 | | Yes | — | Yes | | |
| | | | Yes | — | Yes | | |

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx | HBA/CNA | Operating System |
|---|---|---|---|---|---|---|---|
| | FUJITSU Storage ETERNUS DX400 Series | | | | | | |
| | FUJITSU Storage ETERNUS DX8000 Series | | Yes | — | Yes | | |
| | FUJITSU Storage ETERNUS 2000, 4000, 8000 | | Yes | — | Yes | | |
| | FUJITSU Storage ETERNUS DX100 S3, DX200 S3, DX500 S3, DX600 S3 | FCOE | — | — | Yes | | |
| | FUJITSU Storage ETERNUS DX80 S2, DX90 S2 | | — | — | Yes | | |
| | FUJITSU Storage ETERNUS DX400 S2 Series | | — | — | Yes | | |
| | FUJITSU Storage ETERNUS DX8000 S2 Series | | — | — | Yes | | |
| | FUJITSU Storage ETERNUS AX Series | FC, FCoE, NVMe/FC | Yes | Yes | Yes | | |
| | | FC, FCoE | Yes | Yes | Yes | | |

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx | HBA/CNA | Operating System |
|---|---|---|---|---|---|---|---|
| | FUJITSU Storage ETERNUS HX2000 Series | | | | | | |
| | FUJITSU Storage ETERNUS HX6000 Series | FC, FCoE, NVMe/FC | Yes | Yes | Yes | | |
| | FUJITSU Storage ETERNUS HB1000 Series, HB2000 Series | FC | Yes | — | Yes | | |
| | FUJITSU Storage ETERNUS AB Series, HB5000 Series | FC, NVMe/FC | Yes | — | Yes | | |
| Tegile Systems | IntelliFlash Storage Array Family[14] | FC | Cisco MDS NX-OS Release 6.2(9) and above | — | NX-OS 6.0(2)x(x) and above from Table 1 for 6.x<br>NX-OS 7.0(5)x(x) and above from Table 1 for 7.x | Qlogic 2500 Series<br>Emulex 12000<br>CISCO VICM81KR<br>CISCO VIC122x<br>CISCO VIC128x<br>CISCO VIC13xx | Windows2012 R2,SP1<br>RHEL 6.5<br>ESXi 5.5,5.1<br>ESX 5.0 |

| Vendor | Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx | HBA/CNA | Operating System |
|---|---|---|---|---|---|---|---|
| Infinidat | InfiniBox F-Series | FC | Cisco MDS NX-OS Release 6.2(9) and above | — | Yes | Qlogic 2600 Series<br>Qlogic 2700 Series<br>LPE16000 Series<br>LPE35000 Series | Windows 2016<br>Windows 2019<br>RHEL 7.9<br>RHEL 8.2<br>ESXi 6.7U3 |
| Kaminario | K2 All Flash Array | FC | Cisco MDS NX-OS Release 6.2(9) and above | — | NX-OS 7.3(0)N1(1) and above from Table 1 for 7.x | Qlogic 2600 Series<br>Qlogic 2500 Series | Windows2012 R2, SP1<br>Solaris 11<br>RHEL 7.2<br>ESX 6.0 |
| Vexata | VX-100F | FC | Cisco MDS NX-OS Release 8.2(1) and later from Table 1 for 8.x | — | — | Qlogic 2500 Series<br>Qlogic 2600 Series<br>Qlogic 2700 Series<br>Emulex 12000<br>Emulex 16000<br>Emulex 32000<br>CISCO VIC122x<br>CISCO VIC 128x | Windows2012 R2,SP1<br>RHEL 7<br>SuSE 12<br>ESXi 5.5, ESX 6.5 |

[14] 8G FC only.

The following table provides details on Tape Storage support.

*Table 7: Tape Storage Support Matrix*

| Vendor | Library/Drive Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx |
|---|---|---|---|---|---|
| Oracle/STK | SL3000(Library) | FC | Yes | — | Yes |
| | SL500 (Library) | | Yes | — | Yes |
| | SL150(Library) | | Yes | — | Yes |
| | L700(Library) | | Yes | — | Yes |
| | L180(Library) | | Yes | — | Yes |
| | VTLplus | | Yes | — | Yes |
| | STK-9840-C | | Yes | — | Yes |
| | STK-9840-D | | Yes | — | Yes |
| | STK-9940-B | | Yes | — | Yes |
| | STK-T10K-A | | Yes | — | Yes |
| | STK-T10K-B | | Yes | — | Yes |
| | STK-T10K-C | | Yes | — | Yes |
| | STK-T 10K-D | FC/FCoE | Yes | Yes | Yes |
| | HP LTO5 | FC | Yes | — | Yes |
| | HP LTO6 | | Yes | — | Yes |
| | IBM LTO5 | | Yes | — | Yes |
| | IBM LTO6 | | Yes | — | Yes |
| | IBM LTO7 | | Yes | — | Yes |
| | HP HH LTO5 | | Yes | — | Yes |
| | HP HH LTO6 | | Yes | — | Yes |
| | IBM HH LTO6 | | Yes | — | Yes |
| | IBM HH LTO7 | | Yes | — | Yes |
| HPE | LTO3 | FC | Yes | — | Yes |
| | LTO4 | | Yes | — | Yes |
| | LTO5 | | Yes | — | Yes |
| | LTO5HH | | Yes | — | Yes |
| | LTO6HH | | Yes | — | Yes |
| | LTO6 | | Yes | — | Yes |
| | LTO7 | | Yes | — | Yes |
| | LTO8 | | Yes | — | — |
| | LTO9 | | Yes | — | — |

| Vendor | Library/Drive Model | Protocol | Cisco MDS 9xxx | Cisco Nexus 7xxx | Cisco Nexus 5xxx |
|---|---|---|---|---|---|
| IBM | 3584 (Library) | FC | Yes | — | Yes |
| | 3592-EO5 | | Yes | — | — |
| | 3952 – E08 | | Yes | — | — |
| | 3952 – E06 | | Yes | — | — |
| | LTO3 | | Yes | — | Yes |
| | LTO4 | | Yes | — | Yes |
| | LTO5 | | Yes | — | Yes |
| | LTO6 | | Yes | — | Yes |
| | LTO7 | | Yes | — | Yes |
| | LTO8 | | Yes | — | — |
| | LTO9 | | Yes | — | — |
| | LTO10 | | Yes | — | — |
| | TS4300 (Library) | | Yes | — | — |
| Quantum | I500 (Library) | FC | Yes | — | Yes |
| | HP LTO5 | | Yes | — | Yes |
| | HP LTO6 | | Yes | — | Yes |
| | IBM LTO5 | | Yes | — | Yes |
| | IBM LTO6 | | Yes | — | Yes |
| Spectralogic | T50e (Library) | FC | Yes | — | — |
| | IBM HHLTO6 | | Yes | — | — |

The following table provides details on recommended iSCSI initiators.

***Table 8: Recommended iSCSI initiators***

| iSCSI Initiators |
|---|
| Open iSCSI 2.0-873.29.el6 |
| Microsoft iSCSI Initiator 6.2.9200.16813, 6.1.7601.18386 and 6.3.9600.17090 |

The following table provides details on Dense Wavelength-Division Multiplexing (DWDM) support. The products have been through system verification tests.

Cisco supports all WDM networking systems that are compliant with Fibre Channel standards for distance extension and are expected to work with Cisco MDS 9000 Series switches.

*Table 9: DWDM Support*

| Vendor | Type | Data Rate (Gbps) | MDS Model |
|---|---|---|---|
| Cisco | ONS 15454, NCS 2000 | 4, 8, 10, 16, 32 | MDS 9xxx |
| ADVA | FSP2000, FSP3000 | | |

Contact the WDM vendors for specific configuration guidelines or version recommendations.

**Recommendations**:

- FEC on Cisco MDS 9000 Series switches should be disabled on 16 Gbps links.
- Ensure that enough buffer credits are configured on MDS ports to cover the distance for the specific frame size.
- Use logical link bundling via port channels across DWDM links even in case of different path lengths. The superior technology of port channels to any other logical bundling solution in the industry makes this possible and provides the benefit of higher reliability without impacting FSPF routing decisions.
- Check with your DWDM vendor for specific configurations and setting, specifically for NOS/LOS propagation.
- Enable port-tracking on Cisco MDS 9000 Series switches.

The following table provides details on Non-Cisco Transceiver Support support.

**Note** For the Part Numbers, xxxx refers to notation for frequency data. For full product description, see http://www.smartoptics.com/products/cisco-collection/.

*Table 10: Non-Cisco Transceiver Support of 8G SFP for the vendor Smartoptics*

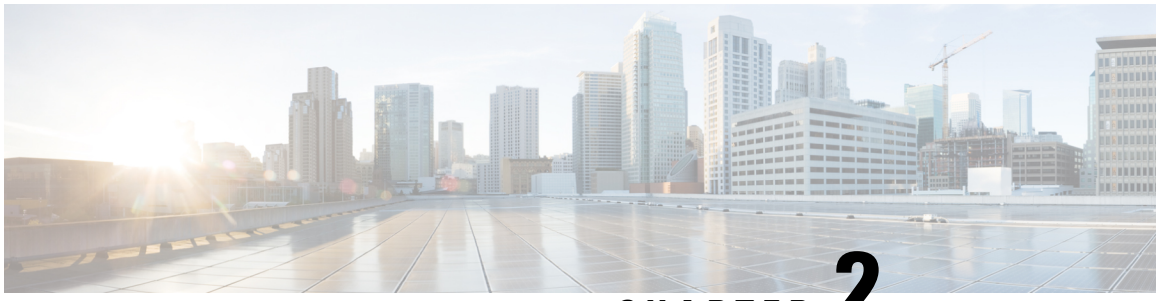
| Part Number | Description | Required OS | Supported Platforms | Comments |
|---|---|---|---|---|
| DS-8G-ZR | SFP+, 8/4/2/1 Gbps FC/FICON, 1550nm, SM, DDM, 23dB, 80km | 6.2(19) and later<br>8.2(1) and later | Cisco MDS 9148S<br>Cisco MDS 9250i<br>Cisco MDS 9396S<br>Cisco MDS 24/10 Port SAN Extension Module<br>Cisco MDS 9700 48-Port 16-Gbps Fibre Channel Switching Module<br>Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module<br>Cisco MDS 9132T<br>Cisco MDS 9148T and MDS 9396T<br>Cisco MDS 9220i | Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module is supported starting from Cisco MDS NX-OS Release 8.2(1).<br>The Cisco MDS 9132T switch is supported starting from Cisco MDS NX-OS Release 8.2(1).<br>The Cisco MDS 9148T and MDS 9396T switches are supported starting from Cisco MDS NX-OS Release 8.3(1).<br>The Cisco MDS 9220i switch is supported starting from Cisco MDS NX-OS Release 8.5(1). |
| DS-8G-ZR-Cxx | SFP+, 8/4/2/1 Gbps FC/FICON, CWDM, SM, DDM, 23dB, 70km | | | |
| DS-8G-ZR-Dxxxx | SFP+, 8/4/2/1 Gbps FC/FICON, DWDM, SM, DDM, 23dB, 80km | | | |

*Table 11: Non-Cisco Transceiver Support of 16G SFP and the vendor Smartoptics*

| Part Number | Description | Required OS | Supported Platforms | Comments |
|---|---|---|---|---|
| DS-16G-ER | SFP+, 16/8/4 Gbps FC/FICON, 1550nm, SM, DDM, 13dB, 40km | 6.2(19) and later<br>8.2(1) and later | Cisco MDS 9148S<br>Cisco MDS 9250i<br>Cisco MDS 9396S<br>Cisco MDS 24/10 Port SAN Extension Module<br>Cisco MDS 9700 48-Port 16-Gbps Fibre Channel Switching Module<br>Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module<br>Cisco MDS 9132T<br>Cisco MDS 9148T and MDS 9396T<br>Cisco MDS 9220i<br>Cisco MDS 48 Port 64 Gbps Fibre Channel Switching Module<br>Cisco MDS 9124V and MDS 9148V<br>Cisco MDS 9396V | Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module is supported starting from Cisco MDS NX-OS Release 8.2(1).<br>The Cisco MDS 9132T switch is supported starting from Cisco MDS NX-OS Release 8.2(1).<br>The Cisco MDS 9148T and MDS 9396T switches are supported starting from Cisco MDS NX-OS Release 8.3(1).<br>The Cisco MDS 9220i switch is supported starting from Cisco MDS NX-OS Release 8.5(1).<br>The Cisco MDS 48 Port 64 Gbps Fibre Channel Switching Module is supported from Cisco MDS NX-OS Release 9.2(1).<br>The Cisco MDS 9124V, and MDS 9148V switches are supported from Cisco MDS NX-OS Release 9.3(1)<br>The MDS 9396V switch is supported from Cisco MDS NX-OS Release 9.4(1) |
| DS-16G-ER-Cxx | SFP+, 16/8/4 Gbps FC/FICON, CWDM, SM, DDM, 13dB, 40km | | | |
| DS-16G-ER-Dxxxx | SFP+, 16/8/4 Gbps FC/FICON, DWDM, SM, DDM, 13dB, 40km | | | |

*Table 12: Non-Cisco Transceiver Support of 32G SFP for the vendor Smartoptics*

| Part Number | Description | Required OS | Supported Platforms | Comments |
|---|---|---|---|---|
| DS-32G-IR-Dxxxx | SFP28, 8/16/32G FC, DWDM 100GHz, DDM, 7dB, 10km | 8.4(1a) and later | Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module<br>Cisco MDS 9132T<br>Cisco MDS 9148T and MDS 9396T<br>Cisco MDS 9220i<br>Cisco MDS 48 Port 64 Gbps Fibre Channel Switching Module<br>Cisco MDS 9124V and MDS 9148V<br>Cisco MDS 9396V | The Cisco MDS 9220i switch is supported starting from Cisco MDS NX-OS Release 8.5(1).<br>The Cisco MDS 48 Port 64 Gbps Fibre Channel Switching Module is supported from Cisco MDS NX-OS Release 9.2(1).<br>The Cisco MDS 9124V, and MDS 9148V switches are supported from Cisco MDS NX-OS Release9.3(1)<br>The MDS 9396V switch is supported from Cisco MDS NX-OS Release 9.4(1) |



CHAPTER 2

# Fabric Services Interoperability Matrix

This chapter lists Cisco fabric applications supported by the SSM module and tested by Cisco's Solution-Interoperability Engineering group (iLAB) to ensure seamless installation at the end-user data center.



# Data Mobility Manager (DMM)

**Note** The following matrices includes configurations tested and certified by Cisco Quality Assurance labs. For more information on the configurations that are listed and that are not listed in this section including the NX-OS and SSI versions, contact your local Cisco representative. Method 3 configuration is not supported on MDS9222i.

*Table 13: Data Mobility Manager*

| Software Partner | Storage Array |
|---|---|
| EMC | Transferring Data Greater Than 2TB LUN from Existing EMC CX4 to New EMC VNX-5300 |
| | Transferring data from Existing CLARiiON 600 to New CLARiiON 700 |
| | Transferring data from Existing CLARiiON 600 to New DMX 3000 |
| | Transferring data from Existing Symmetrix-5 to New DMX 3000 |
| | Transferring Data from Existing Symmetrix 8430 to new HDS USPV |
| | Transferring Data from Existing DMX-3 to new CLARiiON 600 |
| | Transferring Data from Existing DMX-3 to new CLARiiON 600, then from this CLARiiON 600 back to DMX-3 |
| | Under VCS control, transferring Data from Existing DMX-3 to new DMX-3 |
| | Under HACMP control, transferring Data from Existing DMX-3 to new DMX-3 |
| | Under MSCS control, transferring Data from Existing DMX-3 to new DMX-3 |
| | Transferring Data from Existing DMX-3 to new DMX-3 |
| | Transferring Data from Existing DMX-3 to IBM SVC |
| | Under Sun Cluster control, transferring Data from Existing DMX-3 to new DMX-3 |
| | Transferring Data from Existing DMX-1000 to new DMX-3 |
| | Transferring Data from Existing EMC CX700 to new DMX-3 |
| | Transferring Data from Existing Oracle STK D280 to new DMX-3 |
| | Transferring Data from Existing DMX-1000 to new EMC CX4 |
| | Transferring Data from Existing DMX-3 to new EMC CX4 |
| | Transferring Data from Existing EMC CX700 to new EMC CX4 |
| | Transferring Data from Existing Oracle STK D280 to new EMC CX4 |
| | Transferring Data from Existing EMC DMX-3 to new EMC DMX-3 |
| | Transferring Data from Existing Compellent storage to new EMC DMX-3 |
| | Transferring Data from Existing DMX3 to new EMC DMX-3 |

| Software Partner | Storage Array |
|---|---|
| IBM | Transferring data from Existing FAStT to New DS4500 |
| | Transferring data from Existing ESS 2105 model 800 to New DS8000 |
| | Transferring data from Existing HP EVA 4000 to New IBM DS8100 |
| | Transferring data from Existing HP XP12000 to New IBM DS8100 |
| | Transferring data from Existing IBM 2105 800 (ESS Shark) to New NetApp FAS3050 |
| | Under VMware ESX environment, transferring data from Existing FAStT900 to New IBM DS4500 |
| | Under MSCS, transferring data from Existing HDS 9585v to New IBM DS8100 |
| | Tansferring Data from Existing IBM N7900 to New NetApp Fas3050 |
| | Tansferring Data from Existing IBM DS 8000 to New NetApp Fas3050 |
| HP | Transferring data from Existing EVA 5000 to New EVA 4000/ 8000 |
| | Transferring data from Existing EVA 5000 to New XP12000 |
| | Under Oracle RAC environment, transferring data from Existing HP EVA 4000 to New HP EVA 4000 |
| | Transferring data from Existing XP1024 to New XP12000 |
| HDS | Transferring data from Existing HDS9585 to New HDS9970v |
| | Transferring data from Existing HDS9585 to New TagmaStore |
| | Transferring data from Existing HDS9000 to New TagmaStore |
| | Under MSCS and Veritas Volume Manager, transferring data from existing 9970V to new CLARiiON700 |
| | Transferring data from Existing HDS9200 to New HDS USPV |
| NetApp | Transferring data from Existing FAS940C to New FAS940C |
| SUN | Transferring data from Existing StorageTek 9985V to New Storage Tek 9990V |
| | Transferring data from Existing Storage Tek 9900V to New Storage Tek 9990V |
| Compellent | Transferring data from existing EMC DMX-3 to new Compellent storage |

# EMC

**Note** 2TB LUN support available after NX-OS Release 6.2(3).

*Table 14: Transferring Data Greater Than 2TB LUN from Existing EMC CX4 to New EMC VNX-5300*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2008 Server R2 | SP2 | QLogic: QLE2562 | MPIO | Windows Native | MDS 9222i<br>MSM 18/4 |
| Enterprise Linux | Red Hat 5 x86_64 | | Native | | |

*Table 15: Transferring data from Existing CLARiiON 600 to New CLARiiON 700*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 R2 | SP1 | QLogic: QLE2462 | PowerPath | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | QLogic: QLE2462 | PowerPath | LVM | |
| | | Emulex: LPe11002 | | | |
| | AS 4.0 | QLogic: QLE2462 | Device Mapper | LVM2 | |
| | | Emulex: LPe11002-M4 | PowerPath | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | PowerPath | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | PowerPath | | |
| AIX | 5.3 | IBM: 03N5014 | PowerPath | LVM | |

*Table 16: Transferring data from Existing CLARiiON 600 to New DMX 3000*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 R2 | SP1, SP2 | QLogic: QLE2462 | PowerPath | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | Emulex: LPe11002-M4 | PowerPath | LVM | |
| | AS 4.0 | QLogic: QLE2462 | PowerPath | LVM2 | |
| | | Emulex: LPe11002-M4 | Device Mapper | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | PowerPath | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | PowerPath | | |
| AIX | 5.3 | IBM: 03N5014 | PowerPath | LVM | |

*Table 17: Transferring data from Existing Symmetrix-5 to New DMX 3000*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | PowerPath | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | QLogic: QLE2462 | PowerPath | LVM | |
| | | Emulex: LPe11002-M4 | | | |
| | AS 4.0 | QLogic: QLE2462 | PowerPath | LVM2 | |
| | | Emulex: LPe11002-M4 | Device Mapper | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | PowerPath | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | PowerPath | | |
| AIX | 5.3 | IBM: 03N5014 | PowerPath | LVM | |

*Table 18: Transferring Data from Existing Symmetrix 8430 to new HDS USPV*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 R2 | SP2 | QLogic: QLE2462 | PowerPath | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Linux RedHat | AS 4.0 | Emulex: LPe11002-M4 | PowerPath | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| AIX | 5.3 | IBM: 03N5014 | PowerPath | LVM | |

*Table 19: Transferring Data from Existing DMX-3 to new CLARiiON 600*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Solaris | 8 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP<br>PowerPath | VxVm | SSM<br>MDS 9222i<br>MSM 18/4 |

*Table 20: Transferring Data from Existing DMX-3 to new CLARiiON 600, then from this CLARiiON 600 back to DMX-3*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 R2 | SP2 | QLogic: QLE2462 | PowerPath | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| AIX | 5.3 | IBM: 03N5014 | MPIO | LVM | |

For VCS, the following cutover procedure need to be followed:

1. When ready for cutover first stop all application traffic from all cluster nodes
2. Wait for migration to reach 100% (This step can be eliminated once the issue is fixed in a future release)
3. Shutdown VCS
4. Click **Finish** in DMM GUI
5. After completing, change zoning and cutover to NS (Follow the general procedure from this step)

*Table 21: Under VCS control, transferring Data from Existing DMX-3 to new DMX-3*

| Operating Systems | OS Version | VCS version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|---|
| Solaris | 10 | 5.0 w/IO fencing | Emulex: LPE11002-M4 | Veritas DMP | VxVm | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | 5.0 w/out IO fencing | | | | |
| | | 4.1 w/ IO fencing | | PowerPath 4.5.1 | | |
| | | 4.1 w/out IO fencing | | | | |

*Table 22: Under HACMP control, transferring Data from Existing DMX-3 to new DMX-3*

| Operating Systems | OS Version | HACMP version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|---|
| AIX | 5.3 | 5.4 | IBM: 03N5014 | Power Path 5.1 | LVM | SSM<br>MDS 9222i<br>MSM 18/4 |

*Table 23: Under MSCS control, transferring Data from Existing DMX-3 to new DMX-3*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Windows2003 R2 | SP2 | Emulex: LPE11002-M4 | PowerPath 5.1 | native | SSM[15]<br>MDS 9222i<br>MSM 18/4 |

[15] DMM Method 3 and DMM Storage Type Job are not supported with MSCS.

*Table 24: Transferring Data from Existing DMX-3 to new DMX-3*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Windows 2000 Advanced Server | SP4 | Emulex: LPE11002-M4 | PowerPath 4.5.2 | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Windows 2003 R2 | SP2 | | PowerPath 5.1 | | |
| Windows 2000 Server | SP4 | QLogic: QLE2462 | Powerpath 5.1 | | |
| Windows 2000 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Wndows 2003 Server | SP2 | | Powerpath 5.3 | | |
| Windows 2003 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Windows 2008 Server R2 | | | PowerPath 5.3 | | |
| Windows 2008 Failover Server | | | | | |

*Table 25: Transferring Data from Existing DMX-3 to IBM SVC*

| Operating Systems | OS Version | Host Bus Adapter | SVC Version | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|---|
| AIX | 5.3 | IBM: 03N5014 | 4.1.0.566 | MPIO | LVM | SSM<br>MDS 9222i<br>MSM 18/4 |
| VMware ESX (sanboot) | 4.1 | **QLogic** : QLA2342<br>**Emulex** : LPe11002-M4 | 6.1.0.8 | VMware native | VMware native | |
| VMware ESXi (sanboot) | 5.0 | **QLogic** : QLA2342<br>**Emulex** : LPe11002-M4 | 6.1.0.8 | VMware native | VMware native | |

*Table 26: Under Sun Cluster control, transferring Data from Existing DMX-3 to new DMX-3*

| Operating Systems | OS Version | Sun Cluster Ver | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|---|
| Solaris | 10 | 3.2 | Emulex: LPe11002-M4 | MPXIO | SVM | SSM<br>MDS 9222i<br>MSM 18/4 |

*Table 27: Transferring Data from Existing DMX-1000 to new DMX-3*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Windows 2000 Server | SP4 | QLogic: QLE 2462 | PowerPath 5.1 | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Windows 2000 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Windows 2003 Server | SP2 | | PowerPath 5.3 | | |
| Windows 2008 Server R2 | | | PowerPath 5.2 | | |
| Windows 2008 Failover Server | | | PowerPath 5.3 | | |

*Table 28: Transferring Data from Existing EMC CX700 to new DMX-3*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Windows 2000 Server | SP4 | QLogic: QLE 2462 | PowerPath 5.1 | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Windows 2000 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Windows 2003 Server | SP2 | | PowerPath 5.3 | | |
| Windows 2003 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Windows 2008 Server R2 | | | PowerPath 5.3 | | |
| Windows 2008 Failover Server | | | | | |

*Table 29: Transferring Data from Existing Oracle STK D280 to new DMX-3*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Windows 2000 Server | SP4 | QLogic: QLE 2462 | RDAC 9.1.32.30 | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Windows 2000 Advanced Server Cluster | | | | | |
| Windows 2003 Server | SP2 | | | | |
| Windows 2003 Advanced Server Cluster | | | | | |

*Table 30: Transferring Data from Existing DMX-1000 to new EMC CX4*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Windows 2000 Server | SP4 | QLogic: QLE 2462 | PowerPath 5.1 | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Windows 2000 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Windows 2003 Server | SP2 | | PowerPath 5.3 | | |
| Windows 2003 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Windows 2008 Failover Server | | | PowerPath 5.3 | | |

*Table 31: Transferring Data from Existing DMX-3 to new EMC CX4*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Windows 2000 Server | SP4 | QLogic: QLE 2462 | PowerPath 5.1 | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Windows 2000 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Windows 2003 Server | SP2 | | PowerPath 5.3 | | |
| Windows 2003 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Windows 2008 Server R2 | | | PowerPath 5.3 | | |
| Windows 2008 Failover Server | | | | | |

*Table 32: Transferring Data from Existing EMC CX700 to new EMC CX4*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Windows 2000 Server | SP4 | QLogic: QLE 2462 | PowerPath 5.1 | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Windows 2000 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Windows 2003 Server | SP2 | | PowerPath 5.3 | | |
| Windows 2003 Advanced Server Cluster | | | PowerPath 5.2 | | |
| Windows 2008 Server R2 | | | PowerPath 5.3 | | |
| Windows 2008 Failover Server | | | | | |

*Table 33: Transferring Data from Existing Oracle STK D280 to new EMC CX4*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Windows 2000 Server | SP4 | QLogic: QLE 2462 | RDAC 9.1.32.30 | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Windows 2000 Advanced Server Cluster | | | | | |
| Windows 2003 Server | SP2 | | | | |
| Windows 2003 Advanced Server Cluster | | | | | |

*Table 34: Transferring Data from Existing EMC DMX-3 to new EMC DMX-3*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Tru64 Unix | 5.1b | HP: KGPSA-CA | Native | LSM | SSM<br>MDS 9222i<br>MSM 18/4 |
| Open VMS | 7.3-1 | | | | |

*Table 35: Transferring Data from Existing Compellent storage to new EMC DMX-3*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| Windows 2003 | Server SP2 | QLogic: QLE 2462<br>Emulex: LPe11002 | MPIO | WIndows Native | MDS 9222i<br>MSM 18/4 |

*Table 36: Transferring Data from Existing DMX3 to new EMC DMX-3*

| Operating Systems | OS Version | Covergent Network Adapter | Multipath App. | Volume Manager | Switch H//W |
|---|---|---|---|---|---|
| UCS 1.1.1+<br>Windows 2008 | Server | Cisco: M71KR-Q | PowerPath 5.3 | WIndows Native | MDS 9222i<br>MSM 18/4 |

# IBM

| Operating Systems | OS Version | VCS version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|---|
| Solaris | 10 | 5.0 w/IO fencing | Emulex: LPE11002-M4 | Veritas DMP | VxVm | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | 5.0 w/out IO fencing | | | | |

*Table 37: Transferring data from Existing FAStT to New DS4500*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | RDAC | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | QLogic: QLA2342 | RDAC | LVM | |
| | AS 4.0 | QLogic: QLA2342 | Device Mapper | LVM2 | |
| | | Emulex: LPe11002-M4 | RDAC | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | RDAC | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | RDAC | | |
| AIX | 5.3 | IBM: 03N5014 | RDAC | LVM | |

*Table 38: Transferring data from Existing ESS 2105 model 800 to New DS8000*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLA2342 | SDD | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | Emulex: LPe11002-M4 | SDD | LVM | |
| | AS 4.0 | Emulex: LPe11002-M4 | Device Mapper | LVM2 | |
| | | | SDD | | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | SDD | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | SDD | | |
| AIX | 5.3 | IBM: 03N5014 | SDD | LVM | |

*Table 39: Transferring data from Existing HP EVA 4000 to New IBM DS8100*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP2 | QLogic: QLE2462 | MPIO | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| AIX | 5.3 | IBM: 03N5014 | HP MPIO / AIX MPIO | LVM | |

*Table 40: Transferring data from Existing HP XP12000 to New IBM DS8100*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP2 | QLogic: QLE2462 | MPIO | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |

*Table 41: Transferring data from Existing IBM 2105 800 (ESS Shark) to New NetApp FAS3050*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| AIX | 5.3 | IBM: 10N9824 | SDD PCM 2.2.0.0 | LVM | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | IBM: 10N9824 | SDD 1.7.2.0 | | |
| | | IBM: 03N5014 | SDD PCM 2.2.0.0 | | |
| | | QLogic: QLA234200P4295 | SDD PCM 2.2.0.0 | | |

*Table 42: Under VMware ESX environment, transferring data from Existing FAStT900 to New IBM DS4500*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| VMware ESX | ESX Server 3.0.1<br>Linux RH 4.0 | QLogic: QLA2432 | VMware Native | VMware Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| VMware ESX | ESX server 3.0.1<br>Windows 2003 Server | QLogic: QLA2432 | VMware Native | VMware Native | |

*Table 43: Under MSCS, transferring data from Existing HDS 9585v to New IBM DS8100*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP2 | QLogic: QLE2462 | HDLM | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |

*Table 44: Transferring Data from Existing IBM N7900 to New NetApp Fas3050*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | N/A | Windows Native | SSM<br>MDS 9222i<br>MSM-18/4 |
| Linux Red Hat | AS 3.0 | **QLogic:** QLE2462 | N/A | LVM2 | |

*Table 45: Transferring Data from Existing IBM DS 8000 to New NetApp Fas3050*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| AIX | 5.3 | **IBM** : 03N5014 | SDD PCM 2.2.2.0 | LVM | |
| AIX | 5.3 | **QLogic:** QLA234200P4295 | SDD PCM 2.2.2.0 | LVM | |

# HP

*Table 46: Transferring data from Existing EVA 5000 to New EVA 4000/ 8000*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | SecurePath | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | Emulex: LPe11002-M4 | SecurePath | LVM | |
| | AS 4.0 | QLogic: QLE2462 | QL Failover | LVM2 | |
| | | Emulex: LPe11002-M4 | Device Mapper | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | MPXIO | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | SecurePath | | |
| AIX | 5.3 | IBM: 03N5014 | SecurePath | LVM | |

*Table 47: Transferring data from Existing EVA 5000 to New XP12000*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | MPIO | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | QLogic: QLE2462 | QL Failover | LVM | |
| | AS 4.0 | QLogic: QLE2462 | QL Failover | LVM2 | |
| | | Emulex: LPe1102-M4 | Multipulse | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | MPXIO | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | SecurePath | | |
| AIX | 5.3 | IBM: 03N5014 | SecurePath | LVM | |

*Table 48: Under Oracle RAC environment, transferring data from Existing HP EVA 4000 to New HP EVA 4000*

| Operating Systems | OS Version | Oracle RAC/ Clusterware | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|---|
| Linux RedHat | AS 4.0 | Oracle DB 11g R1<br>Oracle Clusterware<br>11gR1 | Emulex:LPe11002-M4 | Emulex Multipulse<br>HP Multipulse | LVM2 | SSM<br>MDS 9222i<br>MSM 18/4 |

*Table 49: Transferring data from Existing XP1024 to New XP12000*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | MPIO | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | QLogic: QLE2462 | QL Failover | LVM | |
| | AS 4.0 | QLogic: QLE2462 | QL Failover | LVM2 | |
| | | Emulex: LPe1102-M4 | Multipulse | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | MPXIO | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | SecurePath | | |
| AIX | 5.3 | IBM: 03N5014 | SecurePath | LVM | |

# HDS

*Table 50: Transferring data from Existing HDS9585 to New HDS9970v*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | HDLM | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | QLogic: QLE2462 | HDLM | LVM | |
| | AS 4.0 | QLogic: QLE2462 | HDLM | LVM2 | |
| | | Emulex: LPe1102-M4 | Device Mapper | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | HDLM | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | HDLM | | |
| AIX | 5.3 | IBM: 03N5014 | HDLM | LVM | |

*Table 51: Transferring data from Existing HDS9585 to New TagmaStore*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | HDLM | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | Emulex: LPe11002-M4 | HDLM | LVM | |
| | AS 4.0 | QLogic: QLE2462 | HDLM | LVM2 | |
| | | Emulex: LPe1102-M4 | Device Mapper | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | HDLM | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | HDLM | | |
| AIX | 5.3 | IBM: 03N5014 | HDLM | LVM | |

*Table 52: Transferring data from Existing HDS9000 to New TagmaStore*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | HDLM | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | QLogic: QLE2462 | HDLM | LVM | |
| | AS 4.0 | QLogic: QLE2462 | HDLM | LVM2 | |
| | | Emulex: LPe1102-M4 | Device Mapper | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | HDLM | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | HDLM | | |
| AIX | 5.3 | IBM: 03N5014 | HDLM | LVM | |

*Table 53: Under MSCS and Veritas Volume Manager, transferring data from existing 9970V to new CLARiiON700*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 Cluster | SP2 | Emulex | Veritas Volume Manager 4.3 M1 for MSCS | Veritas Volume Manager 4.3 M1 for MSCS[16] | SSM<br>MDS 9222i<br>MSM 18/4 |

[16] The VFS for MSCS supports active/passive mode only, so the active path has to be selected as the only path for DMM to do migration. Any failover with this path requires the DMM job to be re-created.

*Table 54: Transferring data from Existing HDS9200 to New HDS USPV*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | HDLM | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Linux RedHat | AS 4.0 | QLogic: QLE2462 | HDLM | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| AIX | 5.3 | IBM: 03N5014 | HDLM | LVM | |

# NetApp

*Table 55: Transferring data from Existing FAS940C to New FAS940C*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | — | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| Linux RedHat | AS 3.0 | QLogic: QLE2462 | — | LVM2 | |

# SUN

*Table 56: Transferring data from Existing StorageTek 9985V to New Storage Tek 9990V*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | HDLM | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | Emulex: LPe11002-M4 | HDLM | LVM | |
| | AS 4.0 | QLogic: QLE2462 | HDLM | LVM2 | |
| | | Emulex: LPe1102-M4 | Device Mapper | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | HDLM | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | HDLM | | |
| AIX | 5.3 | IBM: 03N5014 | HDLM | LVM | |

*Table 57: Transferring data from Existing Storage Tek 9900V to New Storage Tek 9990V*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | SP1 | QLogic: QLE2462 | HDLM | Windows Native | SSM<br>MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |
| Linux RedHat | AS 3.0 | QLogic: QLE2462 | HDLM | LVM | |
| | AS 4.0 | QLogic: QLE2462 | HDLM | LVM2 | |
| | | Emulex: LPe1102-M4 | Device Mapper | LVM2 | |
| Solaris | 10 | Emulex: LPe11002-M4 (Leadville) | Veritas DMP | VxVm | |
| | | | HDLM | | |
| HPUX | 11iv2 | HP: AB378-60101 | HP PVLinks | LVM | |
| | | | HDLM | | |
| AIX | 5.3 | IBM: 03N5014 | HDLM | LVM | |

# Compellent

*Table 58: Transferring data from existing EMC DMX-3 to new Compellent storage*

| Operating Systems | OS Version | Host Bus Adapter | Multipath App. | Volume Manager | Switch H/W |
|---|---|---|---|---|---|
| Windows 2003 | Server SP2 | QLogic: QLE2462 | PowerPath 5.2 | Windows Native | MDS 9222i<br>MSM 18/4 |
| | | Emulex: LPe11002-M4 | | | |

# Storage Media Encryption for Tape (SME-Tape)

The following matrices include configurations tested and certified by Cisco Quality Assurance Labs. For configurations other than listed below, contact your local Cisco representative.

*Table 59: Storage Media Encryption for Tape*

| Software Partner | Data Center Backup Application |
|---|---|
| Symantec | Veritas NetBackup |

| Software Partner | Data Center Backup Application |
|---|---|
| EMC | Legato Networker |
| HP | HP Data Protector |
| BakBone Software | NetVault |
| IBM | Tivoli Storage Manager (TSM) |

# Symantec

*Table 60: Veritas NetBackup*

| Operating Systems | NetBackup Version | Tape Library Model | Tape Drives & Emulated Libraries Supported | Switch H/W |
|---|---|---|---|---|
| Windows 2000 (SP4)[17] | 5.1 | Sun/STK L180 | STK 9840C, IBM LTO-2 | SSN-16, MDS 9222i |
| | | HP Standalone Tape Drive | MSL 6060 | |
| | 6.0 | Sun/STK L180 | HP LTO-2 | |
| | | Sun/STK L700e | STK T10k, IBM LTO-3, IBM LTO-2, HP LTO-3 | |
| | | Sun/STK L8500 | HP LTO-2, HP LTO-3,<br>IBM LTO-2, IBM LTO-3 | |
| | | EMC CDL 4400 | ADIC i2k SDLT320<br>Sun/STK SL500 IBM LTO-3 | |
| | | Quantum ADIC Scalar i2000 | IBM LTO-3 | |
| | | IBM Standalone Tape Drive | IBM 3592 | |

| Operating Systems | NetBackup Version | Tape Library Model | Tape Drives & Emulated Libraries Supported | Switch H/W |
|---|---|---|---|---|
| Windows 2003 (SP1) | 5.1 | Sun/STK L180 | IBM LTO-2, STK 9840C | SSN-16<br>MDS 9222i<br>MSM-18/4 |
| | | Sun/STK L700e | STK T10k, HP LTO-3,<br>IBM LTO-3 | |
| | | HP Stainable Tape Drive | HP MSL 6060 | |
| | 6.0 | Sun/STK L180 | HP LTO-2 | |
| | | Sun/STK L700e | STK T10k, HP LTO-3,<br>IBM LTO-2, IBM LTO-3 | |
| | | Sun/STK L8500 | HP LTO-2, HP LTO-3<br>IBM LTO-2 | |
| | | Quantum ADIC Scalar i2000 | IBM LTO-3 | |
| | | EMC CDL 4400 | ADIC i2k SDLT320,<br>Sun/STK SL500 IBM LTO-3 | |
| | | IBM Standalone Tape Drive | IBM 3592 | |
| Solaris 8 | 5.1 | Sun/STK L180 | HP LTO-2, STK 9840C, IBM LTO-2 | SSN-16<br>MDS 9222i<br>MSM-18/4 |
| | | Sun/STK L700e | HP LTO-3, STK T10k<br>IBM LTO-3 | |
| | 6.0 | Sun/STK L8500 | HP LTO-2, HP LTO-3,<br>IBM LTO-2, IBM LTO-3, SDLT 600 | |

| Operating Systems | NetBackup Version | Tape Library Model | Tape Drives & Emulated Libraries Supported | Switch H/W |
|---|---|---|---|---|
| Solaris 10 | 5.1 | Sun/STK L180 | HP LTO2, STK 9840C | SSN-16<br>MDS 9222i<br>MSM-18/4 |
| | 6.0 | Quantum ADIC Scalar i2000 | IBM LTO-3 | |
| | | Sun/STK L700e | STK T10k, IBM LTO-2, IBM LTO-3, STK 9940B | |
| | | Sun/STK SL500 | HP LTO-4 | |
| | | Sun/STK L700 | IBM LTO-4 | |
| | | Sun/STK L8500 | HP LTO-3, HP LTO-2,<br>STK T10k, IBM LTO-2, IBM LTO-3,<br>SDLT 600 | |
| | | EMC CDL 4400 | ADIC i2k SDLT 320<br>Sun/STK SL500 IBM LTO-3 | |
| | | IBM 3584 | IBM LTO-2 | |
| | | IBM Stand Alone Tape | IBM 3592 | |
| | | SpectraLogic T120 | IBM LTO-2, IBM LTO-3 | |
| AIX 5.3 | 6.0 | Sun/STK L700e | IBM LTO-2, IBM LTO-3, HP LTO-3, STK T10k | SSN-16<br>MDS 9222i<br>MSM-18/4 |
| | | EMC CDL 4400 | Sun/STK SL500 IBM LTO-3 | |

[17] Windows 2000 operating system is supported on SAN-OS 3.3(1c) code version only.

# EMC

*Table 61: Legato Networker*

| Operating Systems | Networker Version | Tape Library Model | Tape Drives & Emulated Libraries Supported | Switch H/W |
|---|---|---|---|---|
| Windows 2000 (SP4)[18] | 7.2.1 | Sun/STK L180 | HP LTO-3, IBM LTO-2, IBM LTO-3 | SSN-16<br>MDS 9222i<br>MSM-18/4 |
| | | Quantum ADIC Scalar i2000 | IBM LTO-3 | |
| | | EMC CDL 4400 | ADIC i2k SDLT320<br>Sun/STK SL500 IBM LTO-3 | |
| | 7.3.2 | Sun/STK L180 | HP LTO-2, IBM LTO-2 | |
| | | Sun/STK L700e | STK T10k | |
| | | Sun/STK L8500 | IBM LTO-2, IBM LTO-3 | |
| | | IBM Standalone Tape Drive | IBM 3592, HP MSL 6060 | |

| Operating Systems | Networker Version | Tape Library Model | Tape Drives & Emulated Libraries Supported | Switch H/W |
|---|---|---|---|---|
| Windows 2003 (SP1) | 7.2.1 | Sun/STK L700e | IBM LTO-2, STK 9840C | SSN-16<br>MDS 9222i<br>MSM-18/4 |
| | | Quantum ADIC Scalar i2000 | STK T10k, HP LTO-3,<br>IBM LTO-3 | |
| | | EMC CDL 4400 | ADIC i2k SDLT320<br>Sun/STK SL500 IBM LTO-3 | |
| | 7.3.2 | Sun/STK L180 | HP LTO-2 | |
| | | Sun/STK L700e | STK T10k, HP LTO-3,<br>IBM LTO-2, IBM LTO-3 | |
| | | Sun/STK L8500 | HP LTO-2, HP LTO-3<br>IBM LTO-2 | |
| | | IBM Standalone Tape Drive | IBM 3592, HP MSL 6060 | |
| | 7.4 | Sun/STK SL500 | HP LTO-4 | |
| | | Sun/STK L700 | IBM LTO-4 | |
| | | Sun/STK L8500 | HP LTO-2 | |
| Solaris 8 | 7.2.1 | Sun/STK L700e | IBM LTO-3 | SSN-16<br>MDS 9222i<br>MSM-18/4 |
| | 7.3.2 | Sun/STK L700 | IBM LTO-3 | |

| Operating Systems | Networker Version | Tape Library Model | Tape Drives & Emulated Libraries Supported | Switch H/W |
|---|---|---|---|---|
| Solaris 10 | 7.2.1 | Sun/STK L700e | HP LTO-3, IBM LTO-2, IBM LTO-3 | SSN-16<br>MDS 9222i<br>MSM-18/4 |
| | 7.3.2 | Sun/STK L700e | STK T10k | |
| | | Sun/STK L180 | HP LTO2, STK 9840C, IBM LTO-2 | |
| | | Quantum ADIC Scalar i2000 | IBM LTO-3 | |
| | | Sun/STK L8500 | IBM LTO-3, SDLT 600 | |
| | | EMC CDL 4400 | ADIC i2k SDLT 320<br>Sun/STK SL500 IBM LTO-3 | |
| | | IBM Stand Alone Tape | IBM 3592 | |
| AIX 5.3 | 7.2.1 | Sun/STK L700e | IBM LTO-2, IBM LTO-3, HP LTO-3 | SSN-16<br>MDS 9222i<br>MSM-18/4 |
| | 7.3.2 | Sun/STK L700e | STK T10k | |
| | | EMC CDL 4400 | Sun/STK SL500 IBM LTO-3 | |
| | | IBM Standalone Tape Drives | IBM 3592 | |
| HP-UX 11i (ia64) | 7.3.2 | Sun/STK L700 | IBM LTO-3 | SSN-16, MDS 9222i<br>MSM-18/4 |

[18] Windows 2000 operating system is supported on SAN-OS 3.3(1c) code version only

# HP

*Table 62: HP Data Protector*

| Operating Systems | Data Protector | Tape Library Model | Tape Drives & Emu |
|---|---|---|---|
| Linux RedHat (version 4.0)<br>Linux SUSE (SLES 9.0) | 6.0 | ESL 322e | HP LTO-2 |
| | | MSL 2024 | HP LTO-3 |
| | | VLS 6105 | HP LTO-2, HP LT |
| | | ESL E-series | HP LTO-3 |
| | | MSL 6030 | Quantum SDLT 60 |
| | | EML E-series | HP LTO-4 |
| | | MSL 8096 | HP LTO-4 |
| Windows 2003 (Enterprise) | 6.0 | ESL 322e | HP LTO-2 |
| | | MSL 2024 | HP LTO-3 |
| | | VLS 6105 | HP LTO-2, HP LT |
| | | ESL E-series | HP LTO-3 |
| | | MSL 6030 | Quantum SDLT 60 |
| | | EML E-series | HP LTO-4 |
| | | MSL 8096 | HP LTO-4 |
| HP-UX 11iv3 | 6.0 | HP ESL 322e | HP LTO-2 |
| | 5.5 | HP ESL 322e | HP LTO-2, HP LT |
| | | SUN/STK 8500 | HP LTO-2, HP LT |
| | | EMC CDL 4400 | SL500 HP LTO-3 |

# BakBone Software

*Table 63: NetVault*

| Operating Systems | NetVault | Tape Library Model | Tape Drives & |
|---|---|---|---|
| Linux RHEL V4 | 8.0 | Sun/STK L180 | HP LTO-2, IBM |
| | | Stand Alone drive | HP LTO-4 |
| | 8.2 | Sun/STK L180 | HP LTO-3, IBM |
| Linux RHEL V5 | 8.2 | | |
| Linux RHEL V6 | 8.6.1 | Sun SL3000 | IBM LTO-5 |
| | | Sun SL500 | IBM LTO5, HP |
| NetApp FAS Series | 8.0 (NDMP) | Sun/STK L180 | HP LTO-2, IBM |
| | 8.2 (NDMP) | | HP LTO-3, IBM |
| | 8.0 (NDMP) | Stand Alone drive | HP LTO-4 |
| EMC CDL Series | 8.2 (NDMP) | Sun/STK L180 | IBM LTO-3, IB |
| | | Sun/STK SL500 | |

# IBM

*Table 64: Tivoli Storage Manager (TSM)*

| Operating Systems | TSM Version | Tape Library Model | Tape Drives & Emu |
|---|---|---|---|
| Windows 200010 (SP4)[19] | 5.4.0 | IBM Stand-Alone Tape | IBM LTO-2, IBM |
| Windows 2003 (SP2) | 5.4.0 | IBM Stand-Alone Tape | IBM LTO-2, IBM |
| Linux RH AS 4 U2 kernel 2.6.9.22 | 5.4.0 | IBM Stand-Alone Tape | IBM LTO-2, IBM |
| AIX 5.3 | 5.4.0 | SUN/STK 8500 | HP LTO-2 |
| | | SUN/STK SL500 | HP LTO-3, IBM L |
| | | IBM Stand-Alone Tape | IBM TS1120, IBM |
| | | EMC CDL SL500 | IBM LTO-2, IBM |
| | | SUN/STK L700 | IBM LTO-2, IBM |
| | | SUN/STK L180 | IBM LTO-2 |
| | | IBM 3584 | IBM LTO-2 |
| | | Quantum ADIC Scalar i2000 | IBM LTO-3 |
| | | EMC CDL 4400 | IBM LTO-3 |
| | | EMC CDL 4400 | SL500-IBM LTO- |
| | 5.4.2 | SUN/STK SL500 | HP LTO-4 |
| | | SUN/STK L700 | IBM LTO-4 |
| | 5.5.1 | SpectraLogic T120 | IBM LTO-2, LTO- |

[19] Windows 2000 operating system is supported on SAN-OS 3.3(1c) code version only.

# Storage Media Encryption for Disk

**Note** Storage Media Encryption for Disk (SME-Disk) reached End of Life on March 10, 2013. For more information, see the EoL announcement (EOL9051) at this URL: http://www.cisco.com/en/US/prod/collateral/ps4159/ps6409/ps6028/eol__C51-727124.html

Cisco is no longer accepting requests to qualify new arrays.

# EMC

*Table 65: EMC CX4-480 (FLARE v04.30.000.5.511)*

| Operating System | OS Version | HBA | HBA Driver | Multipath Application | Failover Mode |
|---|---|---|---|---|---|
| Windows Server 2003 | SP2 | Qlogic QLE 2462 | 9.1.8.25 | PowerPath 5.5 | Failover Mode: 4 |
| AIX | 5300-12 | IBM FC 1905, 5758, 5760, 5761<br>PN 03N5014 | Native OS driver | PowerPath 5.1.0 | Failover Mode: 1 |

*Table 66: EMC Clarion CX700 (FLARE v02.16.700.5.010)*

| Operating System | OS Version | HBA | HBA/CNA Driver | Multipath Application | Failover Mode |
|---|---|---|---|---|---|
| Windows Server 2003 | SP2 | Qlogic QLE 2462 | 9.1.8.25 | PowerPath 5.5 | Failover Mode: 1 |
| AIX | 5300-12 | IBM FC 1905, 5758, 5760, 5761<br>PN 03N5014 | Native OS driver | PowerPath 5.1.0 | Failover Mode: 1 |
| Red Hat | 5.5 | Cisco M71KR-E | 1.3(1n) | PowerPath 5.5 | Failover Mode: 1 |

*Table 67: EMC VNX-5300 (v05.31.000.5.008)*

| Operating System | OS Version | HBA | HBA/CNA Driver | Multipath Application | Failover Mode |
|---|---|---|---|---|---|
| Red Hat | 5.5 | Cisco M71KR-E | 1.3(1n) | PowerPath 5.5 | Failover Mode: 1 |

*Table 68: NetApp FAS940(6.5.6)*

| Operating System | OS Version | HBA | HBA/CNA Driver | Multipath Application | Failover Mode |
|---|---|---|---|---|---|
| Red Hat | 5.5 | Cisco M71KR-E | 1.3(1n) | Native | Load-balance |

*Table 69: HDS 9585v*

| Operating System | OS Version | HBA | HBA/CNA Driver | Multipath Application | Failover Mode |
|---|---|---|---|---|---|
| Windows Server 2008 Datacenter | SP2 | Cisco M71KR-Q | 1.3(1n) | MPIO | |

# FC-IP SAN Extension

The Cisco MDS 9250i switch, the 24/10 Port SAN Extension Module, the MSM-18/4, and SSN-16 modules support Auto, Mode1 and Mode2 compression modes. All of these modes internally use the hardware compression engine of the module. By default, Auto mode is enabled. Mode2 uses a larger batch size for compression than Auto mode, which results in higher compression throughput. However, Mode2 incurs a small latency because of the compression throughput. For the deployments where aggressive throughput is most important, Mode2 should be used. Mode1 gives the better compression ratio when compared to all other modes. For the deployments where compression ratio is most important, Mode1 should be used. Auto mode is similar to Mode2 with respect to the algorithm used for compression except that the batching is not done in Auto mode.

**Note** For more information on module and version support, see *Cisco MDS 9000 Series IP Services Configuration Guide*.

***Table 70: SAN Extension InterOp Support Matrix***

| Cisco MDS Modules/Switches | IPSEC | FCIP-WA | HW Compression —Auto | HW Compression —Mode1 | HW Compression —Mode2 | FCIP-TA |
|---|---|---|---|---|---|---|
| 9220i | Yes | Yes | Yes | Yes | Yes | Yes |
| 24/10 Port SAN Extension Module | Yes | Yes | Yes | Yes | Yes | Yes |
| 9250i | Yes | Yes | Yes | Yes | Yes | Yes |
| SSN-16 | Yes | Yes | Yes | Yes | Yes | Yes[20] |
| 9222i/18+4 | Yes | Yes | Yes | Yes | Yes | Yes |

[20] Only Veritas NetBackup and IBM TSM backup applications are supported.

# IOA/FCIP Write Acceleration

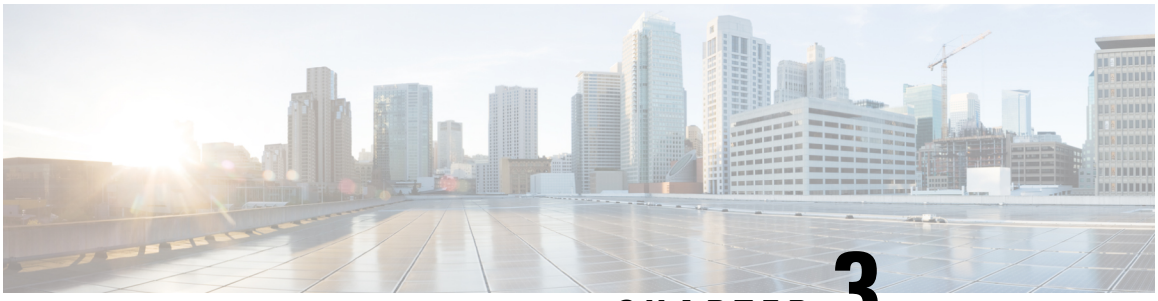
For information about Write Acceleration see the Cisco MDS 9000 Series I/O Accelerator Configuration Guide.

The following table lists SCSI write initiators tested by Cisco with NX-OS IOA/FCIP Write Acceleration. This includes initiators in array to array replication.

***Table 71: IOA/FCIP Write Acceleration Support***

| Vendor | Array | Replication Application |
|---|---|---|
| T10 Standard SCSI write(6) | All | All |
| T10 Standard SCSI write(10) | All | All |

| Vendor | Array | Replication Application |
|---|---|---|
| Hitachi | Virtual Storage Platform G1000/G1500/F1500<br>E570, E590, E990,<br>5100, 5100H, 5500, 5500H,<br>G200, G350, G400, G600, G700, G800, G900<br>F350, F370, F400, F600, F700, F800, F900 | TrueCopy |
| Dell EMC | VMAX All Flash<br>VMAX 10K<br>VMAX3<br>PowerMax 2000, 8000 | SRDF |



CHAPTER 3

# Switch Interoperability Matrix

This chapter lists the devices tested by Cisco Solution-Interoperability Engineering group (iLAB) for switch interoperability and lists firmware versions and software versions.

This matrix is created based on the configurations that Cisco has successfully tested. If some configuration is not listed in this document, it does not mean that they do not work. It only means that the configuration was not officially tested by Cisco. Cisco TAC supports only the Cisco qualified configurations. For more information, contact your local Cisco representative.



# Switch Interoperability Matrix

The switch Interoperability test was performed per the Fibre Channel Methodologies for Interconnect (FC-MI) Technical Report version 1.92 which describes common methodologies for facilitating interoperability in a heterogeneous switch SAN environment.

**Note** For information on switch interoperability that is not covered in this document, contact your local Cisco representative. When topology and functional requirements are made explicit, Cisco can propose adequate implementations to make a multivendor environment possible. Depending on your requirements, switch interoperability may or may not be required.

**Note** If a major version is qualified, then all the qualified versions must also work for the switch. Also, a desired combination of a Cisco NX-OS software version and a Brocade switch may not appear in this section. In such scenarios, contact your local Cisco representative for more information.

**Note** From FOS version 7.x, only interop mode 3 is supported.

**Note** All Cisco data center switches including MDS, Nexus platforms, and UCS FI are interoperable among each other at all code levels released on Cisco website. If there is any feature specific code level recommendation for a release, we publish the information in Release Notes and product configuration guides.

*Table 72: Switch Interoperability Matrix (NPV Mode), MDS 9000 Series*

| Switch Vendor | Switch Models | Firmware Version | Cisco MDS NX-OS Train | Cisco MDS NX-OS Qualified Versions | Cisco Configuration Mode |
|---|---|---|---|---|---|
| Brocade | All switch models | 7.x and later releases | 6.2.x | 6.2(1), 6.2(3) | NPV |
| | | | 8.x | 8.1(1), 8.2(1), 8.3(1), 8.4(1a) | |
| | | | 9.x | 9.4(1) | |

*Table 73: Switch Interoperability Matrix (NPIV Feature), MDS 9000 Series*

| Switch Vendor | Switch Models | Firmware Version | Cisco MDS NX-OS Train | Cisco MDS NX-OS Qualified Versions | Cisco Switch Feature |
|---|---|---|---|---|---|
| Brocade (Access Gateway Mode) | All switch models | 7.x and later releases | 6.2.x | 6.2(1), 6.2(3) | NPIV |
| | | | 8.x | 8.1(1), 8.2(1), 8.3(1), 8.4(1a) | |

*Table 74: Switch Interoperability Matrix (NPV Mode), Nexus 5000 Series*

| Switch Vendor | Switch Models | Firmware Version | Cisco Nexus 5000 OS Train | Cisco NX-OS Qualified Versions | Cisco Configuration Mode |
|---|---|---|---|---|---|
| Brocade | All switch models | 7.x and later releases | 7.x | 7.0(1)N1(1)<br>7.1(1)N1(1)<br>7.3(2)N1(1)<br>7.0(7)N1(1)<br>7.1(4)N1(1) | NPV |

*Table 75: Switch Interoperability Matrix (NPV Mode), Nexus 9000 Series*

| Switch Vendor | Switch Models | Firmware Version | Cisco Nexus 9000 OS Train | Cisco NX-OS Qualified Versions | Cisco Configuration Mode |
|---|---|---|---|---|---|
| Brocade | All switch models | 7.x and later releases | 7.x and later releases | 9.3.5 | NPV |

**Note** Brocade switch in Access gateway (AG) Mode connected to Cisco MDS switch with NPIV enabled is certified, and vice versa. Brocade AG mode is equivalent to Cisco NPV mode and Brocade switch with NPIV feature enabled is equivalent to Cisco switch with NPIV feature enabled.

*Table 76: Switch Interoperability Matrix (NPIV Feature), MDS 9000 Series*

| Switch Vendor | Switch Models | Firmware Version | Cisco Nexus 9000 OS Train | Cisco NX-OS Qualified Versions | Cisco Switch Feature |
|---|---|---|---|---|---|
| HPE[21] | HPE Virtual Connects. | 1.0.x and later releases | 6.2.x | 6.2(23), 6.2(25), 6.2(27), 6.2(29), 6.2(31) | NPIV |
| | | | 7.x | 7.0(1)N1(1) or later releases | |

[21] For detailed information, see https://h20272.www2.hpe.com/spock/utility/document.aspx?docurl=Shared%20Documents/hw/switches/C-Series_FC_Switch_Connectivity_Stream.pdf.

Switch Interoperability Matrix