



Interoperability Matrix for Cisco Nexus and MDS 9000 Products

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 Switch Interoperability Matrix 67



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, on page v](#)
- [Document Conventions, on page v](#)
- [Documentation Feedback, on page vii](#)
- [Related Documentation, on page vii](#)
- [Communications, Services, and Additional Information, on page vii](#)

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.
<i>Italic</i>	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.
<i>variable</i>	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
<code>screen font</code>	Terminal sessions and information the switch displays are in screen font.
boldface screen font	Information you must enter is in boldface screen font.
<i>italic screen font</i>	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

- To receive timely, relevant information from Cisco, sign up at [Cisco Profile Manager](#).
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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

New and Changed Information

The following tables summarize the new and changed information in this document, and shows the releases in which each feature is supported. Your software release might not support all the features in this document. For the latest caveats and feature information, see the Bug Search Tool at <https://bst.cloudapps.cisco.com/bugsearch> and the release notes for your software release.

- [Change Summary, on page 1](#)

Change Summary

Table 1: Feature History for Interoperability Matrix

Date	Description	Where Documented
May 6, 2026	Added Interoperability information for ADTRAN/ADVA for FSP3000	Storage Interoperability Matrix, on page 3
March 4, 2026	Updated Interoperability Matrix for Release 9.4(5)	—
August 8, 2025	Updated Interoperability Matrix for Release 9.4(4)	—



CHAPTER 2

Storage Interoperability Matrix

This chapter includes the following topics:

- [Cisco Nexus 9000/7000/5000 Series Switches and Cisco MDS 9000 Series Switches, on page 3](#)
- [OSM Information, on page 5](#)

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 2: 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(5), 9.4(4), 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(5), 9.4(3b), 9.4(3a), 9.4(3), 9.4(2a), 9.4(1a), 9.4(1)
Cisco MDS 9250i switch	9.4(5), 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)
Cisco MDS 9220i switch	9.4(5), 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(5), 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)
Cisco MDS 9132T, 9148T ⁴ , and 9396T ⁵ switches	9.4(5), 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)

Cisco MDS and Nexus Switches	Cisco NX-OS Releases
Cisco MDS 9148v and 9124v switches	9.4(5), 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/FishArray/Getting_Started_with_FishArray/Compatibility_Matrix/#Network_Adapters_C_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 3: 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,	Windows 2012	All	FCoE	Yes	Yes	Yes	Yes	Yes
	VIC 1225T,	Windows 2016	All		Yes	Yes	Yes	Yes	Yes
	VIC 1227,	Windows 2019	All		Yes	Yes	Yes	Yes	Yes
	VIC1227T,	Windows 2022	All		Yes	Yes	—	—	—
	VIC 1240,	Red Hat 7.x, 8.x	All		Yes	Yes	Yes	Yes	Yes
	VIC 1280,	SUSE 11	All		Yes	Yes	Yes	Yes	Yes
	VIC 1285,	SUSE 12	All		Yes	Yes	Yes	Yes	Yes
	VIC 1340,	SUSE 15	All		Yes	Yes	Yes	Yes	Yes
	VIC 1380,	VMware ESX 6.x, 7.x, 8.x	All		Yes	Yes	Yes	Yes	Yes
	VIC 1385,								
	VIC 1455,								
	VIC 1495,								
	VIC 15000								

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,	Windows 2012	All	FC	Yes	—	—	—	—		
		Windows 2016	All		Yes	Yes	—	Yes	—		
	LPe37000 Series HBA,	Windows 2019	All		Yes	Yes	—	Yes	—		
		Windows 2022	All		Yes	Yes	—	—	—		
	LPe36000 Series HBA,	Windows 2025	All		Yes	Yes	—	—	—		
		Red Hat 7.x, 8.x, 9.x, 10.x	All		Yes	Yes	—	Yes	—		
	LPe35000 Series HBA,	SUSE 12	All		Yes	Yes	—	Yes	—		
		SUSE 15	All		Yes	Yes	—	Yes	—		
	LPe32000 Series HBA,	Oracle Linux 6Ux (UEK)	All		Yes	Yes	—	Yes	—		
		Oracle Linux 7Ux (UEK)	All		Yes	Yes	—	Yes	—		
	LPe31000 Series HBA,	Oracle Linux 8Ux (UEK)	All		Yes	Yes	—	Yes	—		
		VMware ESX 6.x, 7.x, 8.x, 9.x	All		Yes	Yes	—	Yes	—		
	LPe16000 Series HBA,	HP-UX 11.31 IA	All		Yes	—	—	—	—		
		Solaris 11	All		Yes	—	—	—	—		
	LPe1250 Series HBA, LPe12000 Series HBA	OCe 14102 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	
OCe 11102 Series CNA		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	—	—	—
		Windows 2025	All		Yes	Yes	—	—	—
		Red Hat 7.x, 8.x, 9.x, 10.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
			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 4: 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 7000/7000/7000		Yes	Yes	Yes	Yes
	Primera 600 Storage	FC	Yes	—	—	Yes
	Alletra 6000, 9000		Yes	—	—	—
	MSA 1000/1000/1000		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 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 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 2600 V5/2800 V5/5100K V5/5200K V5/5300 V5/5300F V5/5300K V5/5500K V5/5500 V5/5500F V5/5600 V5/5600F V5/ 5800 V5/5800F V5/6800 V5/6800F V5/18500 V5/18500F V5/18800 V5/18800F V5 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/ 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 Dorado V6 series Dorado 3000 V6/5000 V6/6000 V6/8000 V6/18000 V6/5300 V6/5500 V6/5600 V6/5800 V6/6800 V6/18500 V6/18800 V6/18800K V6		Yes	Yes	—	Yes
	OceanStor A series OceanStor A310/A800		—	Yes	—	Yes
	OceanStor Dorado V7 series Dorado 5000/6000/8000/18000 5000/6000/8000/18000		Yes	Yes	—	Yes

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

Table 5: 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,	FC, FCoE, NVMeFC	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 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-ut
	Cisco UCS 6300 Series Fabric Interconnects,					
	Cisco UCS 6400 Series Fabric Interconnects					
	Cisco UCS 6536 Fabric Interconnect					
	Cisco UCS 9108 100G Intelligent Fabric Module					

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 6: 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 Cisco MDS 9396S Cisco MDS 9396T ⁹ Cisco MDS 9220i ¹⁰ , Cisco MDS 9250i Cisco MDS 9132T Cisco MDS 9148S	Emulex	LPe 32000, LPe 35000 LPe 36000	Windows Server 2016 Windows Server 2019 SLES 12 SP4 SLES 15 RHEL 7.6 and above RHEL 8.0 and above OL 8.2 (UEK) 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
Cisco MDS 9148T ¹¹ Cisco MDS 9148V ¹²	QLogic	QLE 2700, QLE 2600	SLES 12 SP4 SLES 15 RHEL 7.6 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 MDS 9124V ¹³ Cisco MDS 9396v ¹⁴ Cisco Nexus 56xx Cisco Nexus 93180YC-FX Cisco Nexus 93360YC-FX2	Cisco	VIC 14xx	RHEL 8.1 SLES 12 SP3 SLES 15 SP1 and above 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.

¹⁴ Cisco MDS 9124v switches requires Cisco MDS NX-OS Release 9.4(1) and later.

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

Table 7: 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 ¹⁵	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 NX-OS 7.0(5)x(x) and above from Table 1 for 7.x	Qlogic 2500 Series Emulex 12000 CISCO VICM81KR CISCO VIC122x CISCO VIC128x CISCO VIC13xx	Windows2012 R2,SP1 RHEL 6.5 ESXi 5.5,5.1 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 Qlogic 2700 Series LPE16000 Series LPE35000 Series	Windows 2016 Windows 2019 RHEL 7.9 RHEL 8.2 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 Qlogic 2500 Series	Windows 2012 R2, SP1 Solaris 11 RHEL 7.2 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 Qlogic 2600 Series Qlogic 2700 Series Emulex 12000 Emulex 16000 Emulex 32000 CISCO VIC122x CISCO VIC 128x	Windows 2012 R2, SP1 RHEL 7 SuSE 12 ESXi 5.5, ESX 6.5

¹⁵ 8G FC only.

The following table provides details on Tape Storage support.

Table 8: 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
	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 9: Recommended iSCSI initiators

iSCSI Initiators
Open iSCSI 2.0-873.29.e16
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 10: DWDM Support

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



Note Extended link-initialization times, even greater than 1 hour, may occur at 32G speed when using Cisco MDS 32G capable Fibre Channel interfaces with ADVA FSP 3000 ports with Clock Data Recovery(CDR). Links operate normally once established. Customers experiencing this behavior should contact Cisco TAC for recommended configuration guidance. This problem does not occur on Cisco MDS 64G capable Fibre Channel interfaces.

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 11: 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 8.2(1) and later	Cisco MDS 9148S	Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module is supported starting from Cisco MDS NX-OS Release 8.2(1). The Cisco MDS 9132T switch is supported starting from Cisco MDS NX-OS Release 8.2(1). The Cisco MDS 9148T and MDS 9396T switches are supported starting from Cisco MDS NX-OS Release 8.3(1). 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		Cisco MDS 9250i Cisco MDS 9396S	
DS-8G-ZR-Dxxxx	SFP+, 8/4/2/1 Gbps FC/FICON, DWDM, SM, DDM, 23dB, 80km		Cisco MDS 24/10 Port SAN Extension Module Cisco MDS 9700 48-Port 16-Gbps Fibre Channel Switching Module Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module Cisco MDS 9132T Cisco MDS 9148T and MDS 9396T Cisco MDS 9220i	

Table 12: 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	Cisco MDS 9148S Cisco MDS 9250i	Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module is supported starting from Cisco MDS NX-OS Release 8.2(1). The Cisco MDS 9132T switch is supported starting from Cisco MDS NX-OS Release 8.2(1). The Cisco MDS 9148T and MDS 9396T switches are supported starting from Cisco MDS NX-OS Release 8.3(1). The Cisco MDS 9220i switch is supported starting from Cisco MDS NX-OS Release 8.5(1). The Cisco MDS 48 Port 64 Gbps Fibre Channel Switching Module is supported from Cisco MDS NX-OS Release 9.2(1). The Cisco MDS 9124V, and MDS 9148V switches are supported from Cisco MDS NX-OS Release 9.3(1). 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	8.2(1) and later	Cisco MDS 9396S Cisco MDS 24/10 Port SAN Extension Module	
DS-16G-ER-Dxxxx	SFP+, 16/8/4 Gbps FC/FICON, DWDM, SM, DDM, 13dB, 40km		Cisco MDS 9700 48-Port 16-Gbps Fibre Channel Switching Module Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module Cisco MDS 9132T Cisco MDS 9148T and MDS 9396T Cisco MDS 9220i Cisco MDS 48 Port 64 Gbps Fibre Channel Switching Module Cisco MDS 9124V and MDS 9148V Cisco MDS 9396V	

Table 13: 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	<p>Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module</p> <p>Cisco MDS 9132T</p> <p>Cisco MDS 9148T and MDS 9396T</p> <p>Cisco MDS 9220i</p> <p>Cisco MDS 48 Port 64 Gbps Fibre Channel Switching Module</p> <p>Cisco MDS 9124V and MDS 9148V</p> <p>Cisco MDS 9396V</p>	<p>The Cisco MDS 9220i switch is supported starting from Cisco MDS NX-OS Release 8.5(1).</p> <p>The Cisco MDS 48 Port 64 Gbps Fibre Channel Switching Module is supported from Cisco MDS NX-OS Release 9.2(1).</p> <p>The Cisco MDS 9124V, and MDS 9148V switches are supported from Cisco MDS NX-OS Release 9.3(1)</p> <p>The MDS 9396V switch is supported from Cisco MDS NX-OS Release 9.4(1)</p>



CHAPTER 3

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 \(DMM\)](#), on page 31
- [Storage Media Encryption for Tape \(SME-Tape\)](#), on page 53
- [Storage Media Encryption for Disk](#), on page 62
- [FC-IP SAN Extension](#), on page 64
- [IOA/FCIP Write Acceleration](#), on page 64

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 14: 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
	Transferring Data from Existing IBM N7900 to New NetApp Fas3050
	Transferring 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 15: 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 MSM 18/4
Enterprise Linux	Red Hat 5 x86_64		Native		

Table 16: 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 MDS 9222i 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 PVLlinks	LVM	
			PowerPath		
AIX	5.3	IBM: 03N5014	PowerPath	LVM	

Table 17: 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 MDS 9222i 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 PVLlinks	LVM	
			PowerPath		
AIX	5.3	IBM: 03N5014	PowerPath	LVM	

Table 18: 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 MDS 9222i 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 PVLlinks	LVM	
			PowerPath		
AIX	5.3	IBM: 03N5014	PowerPath	LVM	

Table 19: 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 MDS 9222i
Linux RedHat	AS 4.0	Emulex: LPe11002-M4	PowerPath	LVM2	MSM 18/4
Solaris	10	Emulex: LPe11002-M4 (Leadville)	Veritas DMP	VxVm	
HPUX	11iv2	HP: AB378-60101	HP PVLlinks	LVM	
AIX	5.3	IBM: 03N5014	PowerPath	LVM	

Table 20: 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 PowerPath	VxVm	SSM MDS 9222i MSM 18/4

Table 21: 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 MDS 9222i
AIX	5.3	IBM: 03N5014	MPIO	LVM	MSM 18/4

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 22: 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 MDS 9222i 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 23: 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 MDS 9222i MSM 18/4

Table 24: 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 ¹⁶ MDS 9222i MSM 18/4

¹⁶ DMM Method 3 and DMM Storage Type Job are not supported with MSCS.

Table 25: 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 MDS 9222i
Windows 2003 R2	SP2		PowerPath 5.1		
Windows 2000 Server	SP4	QLogic: QLE2462	Powerpath 5.1	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 26: 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
VMware ESX (sanboot)	4.1	QLogic : QLA2342 Emulex : LPe11002-M4	6.1.0.8	VMware native	VMware native	MDS 9222i MSM 18/4
VMware ESXi (sanboot)	5.0	QLogic : QLA2342 Emulex : LPe11002-M4	6.1.0.8	VMware native	VMware native	

Table 27: 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 MDS 9222i MSM 18/4

Table 28: 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 MDS 9222i 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 29: 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 MDS 9222i 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 30: 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 MDS 9222i MSM 18/4
Windows 2000 Advanced Server Cluster					
Windows 2003 Server	SP2				
Windows 2003 Advanced Server Cluster					

Table 31: 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 MDS 9222i 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 32: 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
Windows 2000 Advanced Server Cluster			PowerPath 5.2		MDS 9222i
Windows 2003 Server	SP2		PowerPath 5.3		MSM 18/4
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 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
Windows 2000 Advanced Server Cluster			PowerPath 5.2		MDS 9222i
Windows 2003 Server	SP2		PowerPath 5.3		MSM 18/4
Windows 2003 Advanced Server Cluster			PowerPath 5.2		
Windows 2008 Server R2			PowerPath 5.3		
Windows 2008 Failover Server					

Table 34: 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
Windows 2000 Advanced Server Cluster					MDS 9222i
Windows 2003 Server	SP2				MSM 18/4
Windows 2003 Advanced Server Cluster					

Table 35: 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
Open VMS	7.3-1				MDS 9222i
					MSM 18/4

Table 36: 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 Emulex: LPe11002	MPIO	Windows Native	MDS 9222i MSM 18/4

Table 37: 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+ Windows 2008	Server	Cisco: M71KR-Q	PowerPath 5.3	Windows Native	MDS 9222i 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 5.0 w/out IO fencing	Emulex: LPE11002-M4	Veritas DMP	VxVm	SSM MDS 9222i MSM 18/4

Table 38: Transferring data from Existing FASiT 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 MDS 9222i 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 PVLlinks	LVM	
			RDAC		
AIX	5.3	IBM: 03N5014	RDAC	LVM	

Table 39: 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 MDS 9222i MSM 18/4
		Emulex: LPe11002-M4			
Linux RedHat	AS 3.0	Emulex: LPe11002-M4	SDD	LVM	
	AS 4.0	Emulex: LPe11002-M4	Device Mapper SDD	LVM2	
Solaris	10	Emulex: LPe11002-M4 (Leadville)	Veritas DMP	VxVm	
			SDD		
HPUX	11iv2	HP: AB378-60101	HP PVLlinks	LVM	
			SDD		
AIX	5.3	IBM: 03N5014	SDD	LVM	

Table 40: 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 MDS 9222i MSM 18/4
Solaris	10	Emulex: LPe11002-M4 (Leadville)	Veritas DMP	VxVm	
AIX	5.3	IBM: 03N5014	HP MPIO / AIX MPIO	LVM	

Table 41: 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
Solaris	10	Emulex: LPe11002-M4 (Leadville)	Veritas DMP	VxVm	MDS 9222i MSM 18/4

Table 42: 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 MDS 9222i 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 43: Under VMware ESX environment, transferring data from Existing FASt900 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	QLogic: QLA2432	VMware Native	VMware Native	SSM MDS 9222i MSM 18/4
	Linux RH 4.0				
VMware ESX	ESX server 3.0.1 Windows 2003 Server	QLogic: QLA2432	VMware Native	VMware Native	

Table 44: 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 MDS 9222i MSM 18/4

Table 45: 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
Linux Red Hat	AS 3.0	QLogic: QLE2462	N/A	LVM2	MDS 9222i MSM-18/4

Table 46: 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 47: 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 MDS 9222i 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 PVLlinks	LVM	
			SecurePath		
AIX	5.3	IBM: 03N5014	SecurePath	LVM	

Table 48: 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 MDS 9222i 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 PVLlinks	LVM	
			SecurePath		
AIX	5.3	IBM: 03N5014	SecurePath	LVM	

Table 49: 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 Oracle Clusterware 11gR1	Emulex:LPe11002-M4	Emulex Multipulse HP Multipulse	LVM2	SSM MDS 9222i MSM 18/4

Table 50: 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 MDS 9222i 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 PVLlinks	LVM	
			SecurePath		
AIX	5.3	IBM: 03N5014	SecurePath	LVM	

HDS

Table 51: 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 MDS 9222i 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 PVLlinks	LVM	
			HDLM		
AIX	5.3	IBM: 03N5014	HDLM	LVM	

Table 52: 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 MDS 9222i 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 PVLlinks	LVM	
			HDLM		
AIX	5.3	IBM: 03N5014	HDLM	LVM	

Table 53: 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 MDS 9222i 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 PVLlinks	LVM	
			HDLM		
AIX	5.3	IBM: 03N5014	HDLM	LVM	

Table 54: 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 ¹⁷	SSM MDS 9222i MSM 18/4

¹⁷ 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 55: 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 MDS 9222i 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 PVLlinks	LVM	
AIX	5.3	IBM: 03N5014	HDLM	LVM	

NetApp

Table 56: 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 MDS 9222i MSM 18/4
Linux RedHat	AS 3.0	QLogic: QLE2462	—	LVM2	

SUN

Table 57: 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 MDS 9222i 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 PVLlinks	LVM	
			HDLM		
AIX	5.3	IBM: 03N5014	HDLM	LVM	

Table 58: 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 MDS 9222i 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 PVLlinks	LVM	
			HDLM		
AIX	5.3	IBM: 03N5014	HDLM	LVM	

Compellent

Table 59: 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 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 60: 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 61: Veritas NetBackup

Operating Systems	NetBackup Version	Tape Library Model	Tape Drives & Emulated Libraries Supported	Switch H/W
Windows 2000 (SP4) ¹⁸	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, IBM LTO-2, IBM LTO-3	
		EMC CDL 4400	ADIC i2k SDLT320 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 MDS 9222i MSM-18/4
		Sun/STK L700e	STK T10k, HP LTO-3, 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, IBM LTO-2, IBM LTO-3	
		Sun/STK L8500	HP LTO-2, HP LTO-3 IBM LTO-2	
		Quantum ADIC Scalar i2000	IBM LTO-3	
		EMC CDL 4400	ADIC i2k SDLT320, 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 MDS 9222i MSM-18/4
		Sun/STK L700e	HP LTO-3, STK T10k IBM LTO-3	
	6.0	Sun/STK L8500	HP LTO-2, HP LTO-3, 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 MDS 9222i 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, STK T10k, IBM LTO-2, IBM LTO-3, SDLT 600	
		EMC CDL 4400	ADIC i2k SDLT 320 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 MDS 9222i MSM-18/4
		EMC CDL 4400	Sun/STK SL500 IBM LTO-3	

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

EMC

Table 62: Legato Networker

Operating Systems	Networker Version	Tape Library Model	Tape Drives & Emulated Libraries Supported	Switch H/W
Windows 2000 (SP4) ¹⁹	7.2.1	Sun/STK L180	HP LTO-3, IBM LTO-2, IBM LTO-3	SSN-16 MDS 9222i MSM-18/4
		Quantum ADIC Scalar i2000	IBM LTO-3	
		EMC CDL 4400	ADIC i2k SDLT320 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 MDS 9222i MSM-18/4
		Quantum ADIC Scalar i2000	STK T10k, HP LTO-3, IBM LTO-3	
		EMC CDL 4400	ADIC i2k SDLT320 Sun/STK SL500 IBM LTO-3	
	7.3.2	Sun/STK L180	HP LTO-2	
		Sun/STK L700e	STK T10k, HP LTO-3, IBM LTO-2, IBM LTO-3	
		Sun/STK L8500	HP LTO-2, HP LTO-3 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 MDS 9222i 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 MDS 9222i
	7.3.2	Sun/STK L700e	STK T10k	MSM-18/4
		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 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 MDS 9222i
	7.3.2	Sun/STK L700e	STK T10k	MSM-18/4
		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 MSM-18/4

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

HP

Table 63: HP Data Protector

Operating Systems	Data Protector	Tape Library Model	Tape Drives & Emu
Linux RedHat (version 4.0) 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 64: 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
Linux RHEL V5	8.2	Sun/STK L180	HP LTO-3, IBM
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, IBM
		Sun/STK SL500	

IBM

Table 65: Tivoli Storage Manager (TSM)

Operating Systems	TSM Version	Tape Library Model	Tape Drives & Emu
Windows 200010 (SP4) ²⁰	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-	

²⁰ 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 66: 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 PN 03N5014	Native OS driver	PowerPath 5.1.0	Failover Mode: 1

Table 67: 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 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 68: 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 69: 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 70: 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 71: SAN Extension InterOp Support Matrix

Cisco MDS Modules/Switches	PSEC	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 ²¹
9222i/18+4	Yes	Yes	Yes	Yes	Yes	Yes

²¹ 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 72: 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 E570, E590, E990, 5100, 5100H, 5500, 5500H, G200, G350, G400, G600, G700, G800, G900 F350, F370, F400, F600, F700, F800, F900	TrueCopy
Dell EMC	VMAX All Flash VMAX 10K VMAX3 PowerMax 2000, 8000	SRDF



CHAPTER 4

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, on page 67](#)

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 73: 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 74: 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, 9.x	8.1(1), 8.2(1), 8.3(1), 8.4(1a), 9.4(3b)	

Table 75: 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) 7.1(1)N1(1) 7.3(2)N1(1) 7.0(7)N1(1) 7.1(4)N1(1)	NPV

Table 76: 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 77: 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 ²²	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	

²² For detailed information, see https://h20272.www2.hp.com/spock/utility/document.aspx?docurl=Shared%20Documents/hw/switches/C-Series_FC_Switch_Connectivity_Stream.pdf.

