Interoperability Matrix for Cisco Nexus and MDS 9000 Products

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Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

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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 chapters:

Audience

To use this installation guide, you need to be familiar with electronic circuitry and wiring practices, and preferably be an electronic or electromechanical technician.

Document Conventions

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.

Warnings use the following conventions:

Warning 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. Statement 1071.

Related Documentation

The documentation set for the Cisco MDS 9000 Series Switches includes the following documents.

Release Notes

http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-release-notes-list.html

Regulatory Compliance and Safety Information

http://www.cisco.com/c/en/us/td/docs/switches/datacenter/mds9000/hw/regulatory/compliance/RCSI.html

Compatibility Information

http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-device-support-tables-list.html

Installation and Upgrade

http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-installation-guides-list.html

Configuration

http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-installation-and-configuration-guides-list.html

CLI

http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/products-command-reference-list.html

Troubleshooting and Reference

http://www.cisco.com/c/en/us/support/storage-networking/mds-9000-nx-os-san-os-software/tsd-products-support-troubleshoot-and-alerts.html

To find a document online, use the Cisco MDS NX-OS Documentation Locator at:

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

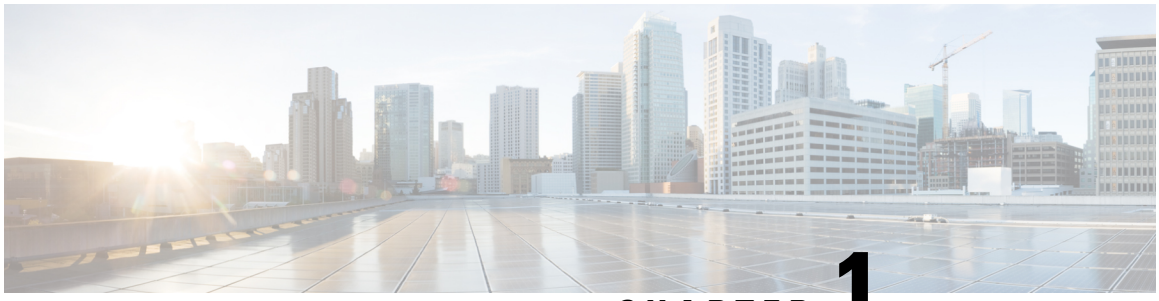
Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at Cisco Profile Manager.
- To get the business impact you're looking for with the technologies that matter, visit Cisco Services.
- To submit a service request, visit Cisco Support.
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit Cisco DevNet.
- 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.

Preface



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: 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 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: 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 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(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 9396V switch	9.4(2a), 9.4(1a), 9.4(1)
Cisco MDS 9250i switch	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(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 and Nexus Switches	Cisco NX-OS Releases
Cisco MDS 9148S and 9396S[3] switches	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(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 9148v and 9124v switches	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 MDS and Nexus Switches	Cisco NX-OS Releases
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_Adapters.2C_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]	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	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 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 5100, 5100H, 5200, 5200H, 5500, 5500H, 5600, 5600H	FC, NVMe/FC, FICON	Yes	—	Yes	Yes
	Virtual Storage Platform G1000G1500F1500	FC, FCoE, FICON	Yes	—	Yes	Yes
	Virtual Storage Platform 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 1060 2050 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 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 DoradoV6 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 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, Cisco UCS 6300 Series Fabric Interconnects, Cisco UCS 6400 Series Fabric Interconnects Cisco UCS 6536 Fabric Interconnect Cisco UCS 9108 100G Intelligent Fabric Module	FC, FCoE, NVMe/FC	MDS NX-OS 7.x and above from 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 for 7.x		NX-OS 7.x and above from 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 for 7.x	All HBA/CNA/Operating Systems and UCS release products.http://www.cisco.com/c/en/us/support/serv

Vendor	Model	Protocol	Cisco MDS 9xxx	Cisco Nexus 5xxx/2xxx	Cisco Nexus 7xxx	HBA/CNA/Operating Systems and UCS-M Version
				NX-OS 6.0(2)N1(1) and above from 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 for 6.x NX-OS 7.0(1)N1(1) and above from Table 1: Cisco NX-OS Releases Supported on Cisco MDS 9000 Series Switches, Cisco Nexus 9000		

Vendor	Model	Protocol	Cisco MDS 9xxx	Cisco Nexus 5xxx/2xxx	Cisco Nexus 7xxx	HBA/CNA/Operating Systems and UCS-M Version
				Series Switches, Cisco Nexus 7000 Series Switches, and Cisco Nexus 5000 Series Switches for 7.x		

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 Cisco MDS 9396S Cisco MDS 9396T[9] Cisco MDS 9220i[10], Cisco MDS 9250i Cisco MDS 9132T Cisco MDS 9148S Cisco MDS 9148T[11] Cisco MDS 9148V[12] Cisco MDS 9124V[13] Cisco Nexus 56xx Cisco Nexus 93180YC-FX Cisco Nexus 93360YC-FX2	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: 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 for 8.x	NX-OS 7.3(3)N1(1) and above from 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 for 7.x	NX-OS 7.0(3)I7(3) and above from 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 for 7.x
	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: 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 for 8.x	NX-OS 7.3(3)N1(1) and above from 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 for 7.x	NX-OS 7.0(3)I7(3) and above from 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 for 7.x
	Cisco	VIC 14xx				

Cisco MDS and Nexus Switches	Vendor	HBA Model	Operating System	Cisco MDS 9xxx	Cisco Nexus 5xxx	Cisco Nexus 9xxx
			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: 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 for 8.x	NX-OS 7.3(3)N1(1) and above from 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 for 7.x	NX-OS 7.0(3)I7(3) and above from 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 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		

Vendor	Model	Protocol	Cisco MDS 9xxx	Cisco Nexus 7xxx	Cisco Nexus 5xxx	HBA/CNA	Operating System
Tegile Systems	IntelliFlash Storage Array Family[14]	FC	Cisco MDS NX-OS Release 6.2(9) and above	—		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
					NX-OS 6.0(2)x(x) and above from 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 for 6.x NX-OS 7.0(5)x(x) and above from 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		

Vendor	Model	Protocol	Cisco MDS 9xxx	Cisco Nexus 7xxx	Cisco Nexus 5xxx	HBA/CNA	Operating System
					Switches for 7.x		
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: 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 for 7.x	Qlogic 2600 Series Qlogic 2500 Series	Windows 2012 R2, SP1 Solaris 11 RHEL 7.2 ESX 6.0

Vendor	Model	Protocol	Cisco MDS 9xxx	Cisco Nexus 7xxx	Cisco Nexus 5xxx	HBA/CNA	Operating System
Vexata	VX-100F	FC	Cisco MDS NX-OS Release 8.2(1) and later from 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 for 8.x	—	—	Qlogic 2500 Series Qlogic 2600 Series Qlogic 2700 Series Emulex 12000 Emulex 16000 Emulex 32000 CISCO VIC122x CISCO VIC 128x	Windows2012 R2,SP1 RHEL 7 SuSE 12 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

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	—	—
	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

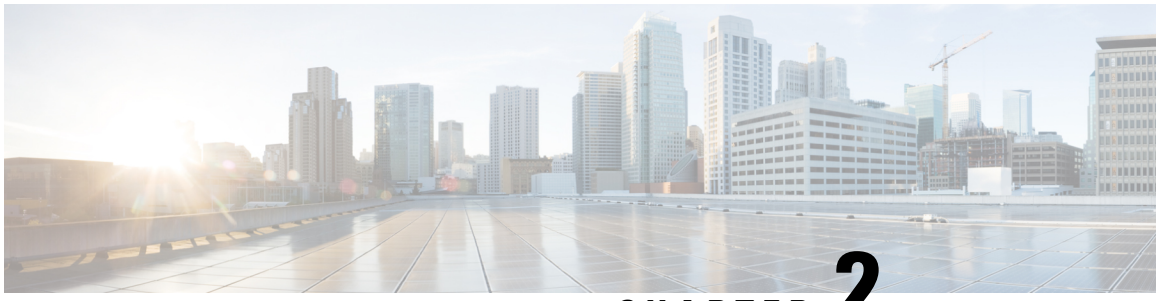
Part Number	Description	Required OS	Supported Platforms	Comments
DS-8G-ZR	SFP+, 8/4/2/1 Gbps FC/FICON, 1550nm, SM, DDM, 23dB, 80km	6.2(19) and later 8.2(1) and later	Cisco MDS 9148S Cisco MDS 9250i Cisco MDS 9396S Cisco MDS 24/10 Port SAN Extension Module Cisco MDS 9700 48-Port 16-Gbps Fibre Channel Switching Module Cisco MDS 48 Port 32 Gbps Fibre Channel Switching Module Cisco MDS 9132T Cisco MDS 9148T and MDS 9396T Cisco MDS 9220i	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			
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 8.2(1) and later	Cisco MDS 9148S Cisco MDS 9250i Cisco MDS 9396S 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 Cisco MDS 48 Port 64 Gbps Fibre Channel Switching Module Cisco MDS 9124V and MDS 9148V 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). 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			
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 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	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 Release9.3(1) 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	Table 14: Transferring Data Greater Than 2TB LUN from Existing EMC CX4 to New EMC VNX-5300
	Table 15: Transferring data from Existing CLARiiON 600 to New CLARiiON 700
	Table 16: Transferring data from Existing CLARiiON 600 to New DMX 3000
	Table 17: Transferring data from Existing Symmetrix-5 to New DMX 3000
	Table 18: Transferring Data from Existing Symmetrix 8430 to new HDS USPV
	Table 19: Transferring Data from Existing DMX-3 to new CLARiiON 600
	Table 20: Transferring Data from Existing DMX-3 to new CLARiiON 600, then from this CLARiiON 600 back to DMX-3
	Table 21: Under VCS control, transferring Data from Existing DMX-3 to new DMX-3
	Table 22: Under HACMP control, transferring Data from Existing DMX-3 to new DMX-3
	Table 23: Under MSCS control, transferring Data from Existing DMX-3 to new DMX-3
	Table 24: Transferring Data from Existing DMX-3 to new DMX-3
	Table 25: Transferring Data from Existing DMX-3 to IBM SVC
	Table 26: Under Sun Cluster control, transferring Data from Existing DMX-3 to new DMX-3
	Table 27: Transferring Data from Existing DMX-1000 to new DMX-3
	Table 28: Transferring Data from Existing EMC CX700 to new DMX-3
	Table 29: Transferring Data from Existing Oracle STK D280 to new DMX-3
	Table 30: Transferring Data from Existing DMX-1000 to new EMC CX4
	Table 31: Transferring Data from Existing DMX-3 to new EMC CX4
	Table 32: Transferring Data from Existing EMC CX700 to new EMC CX4
	Table 33: Transferring Data from Existing Oracle STK D280 to new EMC CX4
	Table 34: Transferring Data from Existing EMC DMX-3 to new EMC DMX-3
	Table 35: Transferring Data from Existing Compellent storage to new EMC DMX-3
	Table 36: Transferring Data from Existing DMX3 to new EMC DMX-3

Software Partner	Storage Array
IBM	Table 37: Transferring data from Existing FAStT to New DS4500
	Table 38: Transferring data from Existing ESS 2105 model 800 to New DS8000
	Table 39: Transferring data from Existing HP EVA 4000 to New IBM DS8100
	Table 40: Transferring data from Existing HP XP12000 to New IBM DS8100
	Table 41: Transferring data from Existing IBM 2105 800 (ESS Shark) to New NetApp FAS3050
	Table 42: Under VMware ESX environment, transferring data from Existing FAStT900 to New IBM DS4500
	Table 43: Under MSCS, transferring data from Existing HDS 9585v to New IBM DS8100
	Table 44: Transferring Data from Existing IBM N7900 to New NetApp Fas3050
	Table 45: Transferring Data from Existing IBM DS 8000 to New NetApp Fas3050
HP	Table 46: Transferring data from Existing EVA 5000 to New EVA 4000/ 8000
	Table 47: Transferring data from Existing EVA 5000 to New XP12000
	Table 48: Under Oracle RAC environment, transferring data from Existing HP EVA 4000 to New HP EVA 4000
	Table 49: Transferring data from Existing XP1024 to New XP12000
HDS	Table 50: Transferring data from Existing HDS9585 to New HDS9970v
	Table 51: Transferring data from Existing HDS9585 to New TagmaStore
	Table 52: Transferring data from Existing HDS9000 to New TagmaStore
	Table 53: Under MSCS and Veritas Volume Manager, transferring data from existing 9970V to new CLARiiON700
	Table 54: Transferring data from Existing HDS9200 to New HDS USPV
NetApp	Table 55: Transferring data from Existing FAS940C to New FAS940C
SUN	Table 56: Transferring data from Existing StorageTek 9985V to New Storage Tek 9990V
	Table 57: Transferring data from Existing Storage Tek 9900V to New Storage Tek 9990V
Compellent	Table 58: 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 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 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 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 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 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 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 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 MDS 9222i 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 PowerPath	VxVm	SSM MDS 9222i 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 MDS 9222i 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 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 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 MDS 9222i 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] MDS 9222i 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 MDS 9222i 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 MDS 9222i MSM 18/4
VMware ESX (sanboot)	4.1	**QLogic** : QLA2342 **Emulex** : LPe11002-M4	6.1.0.8	VMware native	VMware native	
VMware ESXi (sanboot)	5.0	**QLogic** : QLA2342 **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 MDS 9222i 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 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 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 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 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 MDS 9222i 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 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 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 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 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 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 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 MDS 9222i 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 MDS 9222i 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 Emulex: LPe11002	MPIO	WIndows Native	MDS 9222i 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+ 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	Emulex: LPE11002-M4	Veritas DMP	VxVm	SSM MDS 9222i 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 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 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 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	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 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 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 MDS 9222i 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 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 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 Linux RH 4.0	QLogic: QLA2432	VMware Native	VMware Native	SSM MDS 9222i MSM 18/4
VMware ESX	ESX server 3.0.1 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 MDS 9222i 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 MDS 9222i 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 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 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 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 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 Oracle Clusterware 11gR1	Emulex:LPe11002-M4	Emulex Multipulse HP Multipulse	LVM2	SSM MDS 9222i 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 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 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 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 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 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 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 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 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 MDS 9222i 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 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 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 MDS 9222i 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 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 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 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 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 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	Table 60: Veritas NetBackup

Software Partner	Data Center Backup Application
EMC	Table 61: Legato Networker
HP	Table 62: HP Data Protector
BakBone Software	Table 63: NetVault
IBM	Table 64: 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, 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	

[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 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 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 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 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 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) 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 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 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

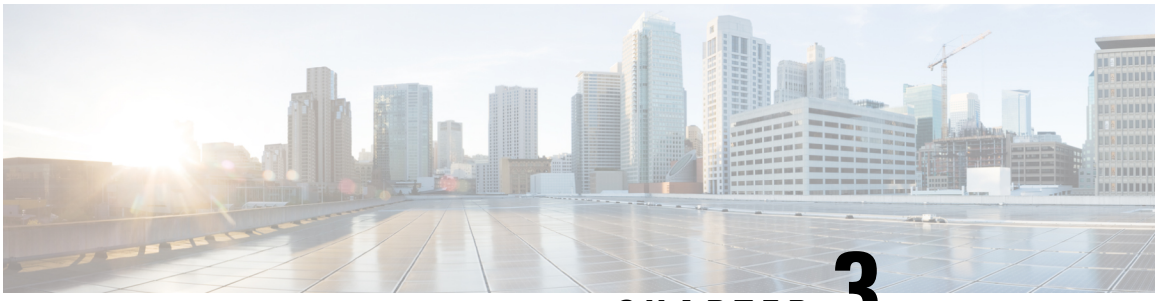
For information about Write Acceleration see the Cisco MDS 9000 Series I/O Accelerator Configuration Guide.

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 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 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 (InterOp Mode), MDS 9000 Series

Switch Vendor	Switch Models	Firmware Version	Cisco MDS NX-OS Train	Cisco MDS NX-OS Qualified Versions	Cisco MDS InterOp Mode
Brocade	5100	7.1.x and earlier releases	6.2.x	6.2(1), 6.2(3)	3
	8510		7.x	7.3(0)D1(1)	
	5300		8.x	8.1(1), 8.2(1), 8.3(1), 8.4(1a)	
	6510				

Table 73: Switch Interoperability Matrix (InterOp Mode), Nexus 5000, and Nexus 9000 Series

Switch Vendor	Switch Models	Firmware Version	Cisco Nexus 5000 and 9000 OS Train	Cisco NX-OS Qualified Versions	Cisco Nexus 9000 InterOp Mode
Brocade	5300 and 6510	7.x and later releases	9.3.5	9.3.5	3

Table 74: 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), 8.4.(2f)	
			9.x	9.4(1), 9.4(1a)	

Table 75: 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 and 9.x	8.1(1), 8.2(1), 8.3(1), 8.4(1a), 9.2(1a), 9.4(1a), 9.4(2a)	

Table 76: 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 77: 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 78: 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