

Send documentation comments to mdsfeedback-doc@cisco.com



Cisco MDS 9000 Family Release Notes for Storage Services Interface Image Release 4.1(1b)

Release Date: October 12, 2008

Text Part Number: OL-17791-02 B0

This document describes the caveats and limitations for the Storage Service Interface (SSI) software for the various Cisco MDS Services Module (SSM, MSM-18/4, and MDS 9222i module). Use this document in conjunction with the documents listed in the [“Related Documentation”](#) section on page 9.



Note

Release notes are sometimes updated with new information on restrictions and caveats. Refer to the following website for the most recent version of the *Cisco MDS 9000 Family Release Notes*:
http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html

[Table 1](#) shows the on-line change history for this document.

Table 1 **Online History Change**

Revision	Date	Description
A0	10/12/08	Created release notes.
B0	02/03/2009	Added “Deleting SANTap Configurations Required Before Downgrade” to the Limitations section.

Contents

This document includes the following sections:

- [Introduction](#), page 2
- [System Requirements](#), page 2
- If SSMs are present in a Cisco MDS 9000 Family switch, these upgrades may be performed as required:, page 7
- [New Features](#), page 7



Americas Headquarters:

Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

© 2008 Cisco Systems, Inc. All rights reserved.

[Send documentation comments to mdsfeedback-doc@cisco.com](mailto:mdsfeedback-doc@cisco.com)

- [Limitations, page 8](#)
- [Compatibility Matrix, page 8](#)
- [Caveats, page 8](#)
- [Related Documentation, page 9](#)
- [Obtaining Documentation, Obtaining Support, and Security Guidelines, page 12](#)

Introduction

The SSI interface provides the following features:

- Network-based volume management (EMC Invista, Incipient iNSP)
- Network-assisted storage applications using SANTap
- Fibre Channel Write Acceleration (FC-WA) and SCSI flow statistics
- Network-Accelerated Serverless Backup (NASB)
- Data Mobility Manager (DMM)
- Secure Data Erase



Note

As of NX-OS Release 4.1(1b), SAN-OS has been changed to NX-OS. References to SAN-OS releases before 4.1(1b) still apply.

System Requirements

This section describes the system requirements for Cisco MDS NX-OS Release 4.1(1b) and includes the following topics:

- [Components Supported, page 2](#)
- [Determining the Software Version, page 7](#)

Components Supported

[Table 2](#) lists the software and hardware components supported by the Cisco MDS 9000 Family.

Table 2 Cisco MDS 9000 Family Supported Software and Hardware Components

Component	Part Number	Description	Applicable Product
Software	M95S2K9-4.1.1b	MDS 9500 Supervisor/Fabric-2, NX-OS software.	MDS 9500 Series only
	M92S2K9-4.1.1b	MDS 9222 Supervisor/Fabric-2, NX-OS software.	MDS 9200 Series only
	M92S1K9-4.1.1b	MDS 9216 Supervisor/Fabric-I, NX-OS software.	MDS 9216i only
	M91S2K9-4.1.1b	MDS 9100 Supervisor/Fabric-2, NX-OS software.	MDS 9100 Series only

Send documentation comments to mdsfeedback-doc@cisco.com

Table 2 *Cisco MDS 9000 Family Supported Software and Hardware Components (continued)*

Component	Part Number	Description	Applicable Product
SSI Interface	SSI-M9K9-411b	Storage Services Interface for NX-OS Release 4.1(1b)	MDS 9000 Family
Licenses	M9500SSE184K9	Storage Services Enabler License for one MSM-18/4 module	MDS 9500 Series only
	M9222ISSE1K9	Storage Services Enabler License	MDS 9222i Switch only
	M9200SSE184K9	Storage Services Enabler License for one MSM-18/4 module	MDS 9200 Series only
	M95DMM184K9	Data Mobility Manager License for one MSM-18/4 module	MDS 9500 Series only
	M9222IDMMK9	Data Mobility Manager License for Cisco MDS 9222i	MDS 9222i Switch
Licenses (continued)	M92DMM184K9	Data Mobility Manager License for one MSM-18/4 module	MDS 9200 Series only
	M95DMM184TSK9	Data Mobility Manager for one MSM-18/4 module — Time limited to 180 days only	MDS 9500 Series only
	M9222IDMMTSK9	Data Mobility Manager — Time limited to 180 days only	MDS 9222i Switch only
	M92DMM184TSK9	Data Mobility Manager for one MSM-18/4 module — Time limited to 180 days only	MDS 9200 Series only
Chassis	DS-C9513	Cisco MDS 9513 Multilayer Director (13-slot multilayer director with 2 slots for Supervisor-2 modules, with 11 slots available for switching modules — SFPs sold separately)	MDS 9513 Switch
	DS-C9509	Cisco MDS 9509 Multilayer Director (9-slot multilayer director with 2 slots for Supervisor modules, with 7 slots available for switching modules — SFPs sold separately)	MDS 9509 Switch
	DS-C9506	Cisco MDS 9506 Multilayer Director (6-slot multilayer director with 2 slots for Supervisor modules, with 4 slots available for switching modules — SFPs sold separately)	MDS 9506 Switch
	DS-C9222i-K9	Cisco MDS 9222i Multilayer Fabric Switch (3-rack-unit (3RU) semimodular multilayer fabric switch with 18 4-Gbps Fibre Channel ports, 4 Gigabit Ethernet ports, and a modular expansion slot for Cisco MDS 9000 Family Switching and Services modules)	MDS 9222i Switch
	DS-C9216i-K9	Cisco MDS 9216i Multilayer Fabric Switch (3RU semi-modular multilayer fabric switch with 14 2-Gbps Fibre Channel ports, 2 Gigabit Ethernet ports, and a modular expansion slot for Cisco MDS 9000 Family Switching and Services modules)	MDS 9216i Switch
	DS-C9134-K9	Cisco MDS 9134 34-Port Multilayer Fabric Switch (1RU fixed-configuration multilayer fabric switch with 32 4-Gbps and 2 10-Gbps Fibre Channel ports)	MDS 9134 Switch
	DS-C9124-K9	Cisco MDS 9124 24-Port Multilayer Fabric Switch (1RU fixed-configuration multilayer fabric switch with 24 4-Gbps Fibre Channel ports)	MDS 9124 Switch

[Send documentation comments to mdsfeedback-doc@cisco.com](mailto:mdsfeedback-doc@cisco.com)

Table 2 Cisco MDS 9000 Family Supported Software and Hardware Components (continued)

Component	Part Number	Description	Applicable Product
Supervisor Modules	DS-X9530-SF2-K9	Cisco MDS 9500 Series Supervisor-2 Module	MDS 9500 Series
Switching Modules	DS-X9016	Cisco MDS 9000 16-Port Fibre Channel Switching Module with Small Form-Factor Pluggable (SFP) LC (16-port, 2-Gbps Fibre Channel switching module with SFP LC connectors for Cisco MDS 9216i and Cisco MDS 9500 Series)	MDS 9500 Series MDS 9216i Switch
	DS-X9032	Cisco MDS 9000 32-Port 2-Gbps Fibre Channel Switching Module with SFP LC connectors	MDS 9500 Series MDS 9216i Switch
	DS-X9112	Cisco MDS 9000 12-port 4-Gbps Fibre Channel Switching Module with SFP LC connectors	MDS 9500 Series MDS 9200 Series
	DS-X9124	Cisco 24-port 4-Gbps Fibre Channel Switching Module with SFP LC connectors	MDS 9500 Series MDS 9200 Series
	DS-X9148	Cisco MDS 9000 48-port 4-Gbps Fibre Channel Switching Module with SFP LC	MDS 9500 Series Mds 9200 Series
	DS-X9704	Cisco MDS 9000 Family 4-Port 10-Gbps Fibre Channel Switching Module with SFP LC	MDS 9500 Series Mds 9200 Series
	DS-X9224-96K9	Cisco MDS 9000 24-Port 8-Gbps Fibre Channel Switching Module with SFP and SFP+ LC connectors	MDS 9500 Series
	DS-X9248-96K9	Cisco MDS 9000 48-Port 8-Gbps Fibre Channel Switching Module with SFP and SFP+ LC connectors	MDS 9500 Series
	DS-X9248-48K9	Cisco MDS 9000 4/44-Port Host-Optimized 8-Gbps Fibre Channel Switching Module with SFP and SFP+ LC connectors	MDS 9500 Series MDS 9222i Switch
Services Modules	DS-X9304-18K9	Cisco MDS 9000 18/4-Port Multiprotocol Services Module (MSM)— 18-port, 4-Gbps Fibre Channel plus 4-port Gigabit Ethernet IP services and switching module with SFP LC connectors	MDS 9500 Series MDS 9200 Series
	DS-X9302-14K9	Cisco MDS 9000 14/2-Port Multiprotocol Services Module — 14-port, 2-Gbps Fibre Channel plus 2-port Gigabit Ethernet IP services and switching module with SFP LC connectors	MDS 9500 Series MDs 9216i Switch
	DS-X9032-SSM	Cisco MDS 9000 32-Port Storage Services Module — 32-port, 2-Gbps storage services module with SFP LC connectors	MDS 9500 Series MDs 9200 Series
External crossbar module	DS-13SLT-FAB1	Cisco MDS 9513 Switching Fabric1 Module	MDS 9513 Switch
	DS-13SLT-FAB2	Cisco MDS 9513 Switching Fabric2 Module	MDS 9513 Switch

Send documentation comments to mdsfeedback-doc@cisco.com

Table 2 Cisco MDS 9000 Family Supported Software and Hardware Components (continued)

Component	Part Number	Description	Applicable Product
Optics	DS-X2-FC10G-SR	X2 SC optics, 10-Gbps Fibre Channel for short reach	MDS 9500 Series MDS 9200 Series
	DS-X2-FC10G-LR	X2 SC optics, 10-Gbps Fibre Channel for long reach (10 km)	MDS 9500 Series MDS 9200 Series
	DS-X2-FC10G-ER	X2 SC optics, 10-Gbps Fibre Channel for extended reach (40 km)	MDS 9500 Series MDS 9200 Series
	DS-X2-FC10G-CX4	X2 SC optics, 10-Gbps Fibre Channel over copper	MDS 9500 Series MDS 9200 Series
	DS-X2-E10G-SR	X2 SC optics, 10-Gbps Ethernet for short reach	MDS 9500 Series MDS 9200 Series
LC-type fiber-optic SFP	DS-SFP-FC8G-SW	SFP+ optics (LC type) for 2-, 4-, or 8-Gbps Fibre Channel for shortwave mode	MDS DS-X9200 Series switching modules
	DS-SFP-FC8G-LW	SFP+ optics (LC type) for 2-, 4-, or 8-Gbps Fibre Channel for longwave mode; supports distances up to 10 km	MDS DS-X9200 Series switching modules
	DS-SFP-FC4G-SW	SFP optics (LC type) for 1-, 2-, or 4-Gbps Fibre Channel for shortwave mode	MDS 9124 and DS-X9100 Series switching modules
	DS-SFP-FC4G-MR	SFP optics (LC type) for 1-, 2-, or 4-Gbps Fibre Channel for longwave mode; supports distances up to 4 km	MDS 9124 and DS-X9100 Series switching modules
	DS-SFP-FC4G-LW	SFP optics (LC type) for 1-, 2-, or 4-Gbps Fibre Channel for longwave mode; supports distances up to 10 km	MDS 9124 and DS-X9100 Series switching modules
	DS-SFP-FC-2G-SW	SFP optics (LC type) for 1- or 2-Gbps Fibre Channel for shortwave mode; not supported for use in 4-Gbps-capable ports	MDS 9000 Series
	DS-SFP-FC-2G-LW	SFP optics (LC type) for 1- or 2-Gbps Fibre Channel for longwave mode for Cisco MDS 9500, MDS 9200, and MDS 9100 Series; not supported for use in 4-Gbps-capable ports	MDS 9000 Series
	DS-SFP-FCGE-SW	SFP optics (LC type) for 1-Gbps Ethernet and 1- or 2-Gbps Fibre Channel for shortwave mode; not supported for use in 4-Gbps-capable ports	MDS 9000 Series
	DS-SFP-FCGE-LW	SFP optics (LC type) for 1-Gbps Ethernet and 1- or 2-Gbps Fibre Channel for longwave mode; not supported for use in 4-Gbps-capable ports	MDS 9000 Series
	DS-SFP-GE-T	SFP (RJ-45 connector) for Gigabit Ethernet over copper	MDS 9000 Series

[Send documentation comments to mdsfeedback-doc@cisco.com](mailto:mdsfeedback-doc@cisco.com)

Table 2 Cisco MDS 9000 Family Supported Software and Hardware Components (continued)

Component	Part Number	Description	Applicable Product
Cisco Coarse Wavelength-Division Multiplexing (CWDM)	DS-CWDM-xxxx	CWDM Gigabit Ethernet and 1- or 2-Gbps Fibre Channel SFP LC type, where product number xxxx = 1470, 1490, 1510, 1530, 1550, 1570, 1590, or 1610 nm	MDS 9000 Family
	DS-CWDM4Gxxxx	CWDM 4-Gbps Fibre Channel SFP LC type, where product number xxxx = 1470, 1490, 1510, 1530, 1550, 1570, 1590, or 1610 nm	MDS 9000 Family
Dense Wavelength-Division Multiplexing (DWDM)	DWDM-X2-xx.xx	DWDM X2 SC optics for 10-Gbps Fibre Channel connectivity to an existing Ethernet DWDM infrastructure, with 15xx.xx nm wavelength, where xx.xx = 60.61, 59.79, 58.98, 58.17, 56.55, 55.75, 54.94, 54.13, 52.52, 51.72, 50.92, 50.12, 48.51, 47.72, 46.92, 46.12, 44.53, 43.73, 42.94, 42.14, 40.56, 39.77, 38.98, 38.19, 36.61, 35.82, 35.04, 34.25, 32.68, 31.90, 31.12, or 30.33	MDS 9500 Series MDS 9200 Series
	DWDM-SFP-xxxx	DWDM Gigabit Ethernet and 1- or 2-Gbps Fibre Channel SFP LC type, where product number xxxx = 3033, 3112, 3190, 3268, 3425, 3504, 3582, 3661, 3819, 3898, 3977, 4056, 4214, 4294, 4373, 4453, 4612, 4692, 4772, 4851, 5012, 5092, 5172, 5252, 5413, 5494, 5575, 5655, 5817, 5898, 5979, or 6061nm	MDS 9000 Family
Add/Drop Multiplexer (ADM)	DS-CWDMOADM4A	4-channel CWDM optical ADM (OADM) module (Cisco CWDM 1470, 1490, 1510, or 1530 NM Add/Drop Module)	MDS 9000 Family
	DS-CWDMOADM4B	4-channel CWDM OADM module (Cisco CWDM 1550, 1570, 1590, or 1610 NM Add/Drop Module)	MDS 9000 Family
	DS-CWDM-MUX8A	ADM for 8 CWDM wavelengths	MDS 9000 Family
CWDM Multiplexer Chassis	DS-CWDMCHASSIS	2-slot chassis for CWDM ADMs	MDS 9000 Family
Power Supplies	DS-CAC-300W	300W AC power supply	MDS 9100 Series
	DS-C24-300AC	300W AC power supply	MDS 9124 Switch
	DS-CAC-845W	845W AC power supply for Cisco MDS 9200 Series	MDS9200 Series
	DS-CAC-3000W	3000W AC power supply for Cisco MDS 9509	MDS 9509 Switch
	DS-CAC-6000W	6000W AC power supply for Cisco MDS 9513	MDS 9513 Switch
	DS-CAC-1900W	1900W AC power supply for Cisco MDS 9506	MDS 9506 Switch
CompactFlash	MEM-MDS-FLD512M	External 512-MB CompactFlash memory for supervisor module	MDS 9500 Series
Port Analyzer Adapter	DS-PAA-2, DS-PAA	A standalone Fibre Channel-to-Ethernet adapter that allows for simple, transparent analysis of Fibre Channel traffic in a switched fabric	MDS 9000 Family
Smart Card Reader	DS-SCR-K9	Storage Media Encryption (SME) Smart Card Reader	MDS 9000 Family

Send documentation comments to mdsfeedback-doc@cisco.com

Table 2 Cisco MDS 9000 Family Supported Software and Hardware Components (continued)

Component	Part Number	Description	Applicable Product
Smart Card	DS-SC-K9	SME Smart Card	MDS 9000 Family
CD-ROM	M90FM-CD-441	Cisco MDS 9000 Management Software and Documentation CD-ROM for Cisco MDS 9000 NX-OS Software Release 4.1(1b)	MDS 9000 Family

Determining the Software Version



Note

Use the latest available software release supported by your vendor for all Cisco MDS 9000 Family products.

To determine the version of the Cisco NX-OS software currently running on a Cisco MDS 9000 Family switch using the CLI, log into the switch and enter the **show version** command.

To determine the version of the Cisco NX-OS software currently running on a Cisco MDS 9000 Family switch using the Fabric Manager, from the Switches tab in the information pane, locate the switch using the IP address, logical name, or WWN, and then check its version in the Release column.

Downloading Software

To download the latest Cisco software, access the Software Center at this URL:

<http://www.cisco.com/public/sw-center>



Note

If you would like to request code to be provided under the terms of either GNU General Public License (GPL) or the GNU Lesser General Public License (LGPL), contact mds-software-disclosure@cisco.com.

If SSMs are present in a Cisco MDS 9000 Family switch, these upgrades may be performed as required:

- Upgrading a previously provided package
- Upgrading the SAN-OS image
- Reformatting the SSM add-on image

If you need additional information about installing or upgrading the SSM, refer to the [Cisco MDS 9000 Family Storage Services Module Software Installation and Upgrade Guide](#).

New Features

This section describes the new features introduced in this release. For more information about the features listed, see the documentation set listed in the “[Related Documentation](#)” section on page 9.

The SSI release 4.1(1b) image is compatible with the Cisco MDS NX-OS Release 4.1(1b) image.

There are no new features in this release.

[Send documentation comments to mdsfeedback-doc@cisco.com](mailto:mdsfeedback-doc@cisco.com)

Limitations

This section lists limitations or restrictions associated with this release.

Configuring SSM Ports in Auto Mode

Starting with Cisco MDS SAN-OS Release 3.0(1), the SSM front panel ports can no longer be configured in auto mode. Because auto mode is the default for releases prior to Release 3.0(1), you should modify the configuration of the ports before upgrading the SAN-OS software image to NX-OS Release 4.1(1b) to avoid any traffic disruption.

For information on how to reconfigure the SSM ports, refer to the “Reconfiguring SSM Ports Before Upgrading to NX-OS Release 4.1(1b)” section of the [Cisco MDS 9000 Family Release Notes for Cisco MDS NX-OS Release 4.1\(1b\)](#).

Deleting SANTap Configurations Required Before Downgrade

If you are running Cisco MDS NX-OS Release 4.1(1b) in combination with the SSI 4.1(1b) image and you wish to downgrade to Cisco SAN-OS Release 3.3(2) and an SSI 3.2(3*) image, you must delete all SANTap configurations prior to the downgrade. Downgrading without completely deleting the SANTap configurations is not supported.

Compatibility Matrix

Before upgrading your SSI image, refer to the [Cisco MDS NX-OS Release Compatibility Matrix for Storage Service Interface Images](#), and to Table 11 in the [MDS 9000 Family Release Notes for NX-OS Release 4.1\(1b\)](#). Use Table 11 to determine your nondisruptive upgrade path to Cisco MDS NX-OS Release 4.1(1b).

Caveats

This section lists the open and resolved caveats for this release. Use [Table 3](#) to determine the status of a particular caveat. In the table, “O” indicates an open caveat and “R” indicates a resolved caveat.

Table 3 *Open and Resolved Caveats for Cisco MDS SSI Release 4.1(1b)*

DDTS Number	Status
Severity 3	
CSCsr97735	O
CSCsu00136	O

Open Caveats

- [CSCsr97735](#)

Send documentation comments to mdsfeedback-doc@cisco.com

Symptom: The command **install module ssi-image** is not supported for SSM and MSM modules in 4.1(1b). But the command **install ssi ssi-image** is supported on SSM modules only, this command should be used for SSM upgrade.

Workaround: None.

- CSCsu00136

Symptom: In certain conditions, the SSI image downgrade from 4.1(1b) to 3.3(1a) may fail. This occurs because of a failure in service Resource Manager in the 3.3(1a) SSI image, and causes a reload of the modules. This issue affects the MSM modules.

Workaround: None.

Related Documentation

The documentation set for the Cisco MDS 9000 Family includes the following documents. To find a document online, use the Cisco MDS NX-OS Documentation Locator at:

http://www.cisco.com/en/US/docs/storage/san_switches/mds9000/roadmaps/doclocator.htm

Release Notes

- *Cisco MDS 9000 Family Release Notes for Cisco MDS NX-OS Releases*
- *Cisco MDS 9000 Family Release Notes for Storage Services Interface Images*
- *Cisco MDS 9000 Family Release Notes for Cisco MDS SVC Releases*
- *Cisco MDS 9000 Family Release Notes for Cisco MDS 9000 EPLD Images*

Compatibility Information

- *Cisco MDS 9000 NX-OS Hardware and Software Compatibility Information*
- *Cisco MDS 9000 Family Interoperability Support Matrix*
- *Cisco MDS Storage Services Module Interoperability Support Matrix*
- *Cisco MDS NX-OS Release Compatibility Matrix for IBM SAN Volume Controller Software for Cisco MDS 9000*
- *Cisco MDS NX-OS Release Compatibility Matrix for Storage Service Interface Images*

Regulatory Compliance and Safety Information

- *Regulatory Compliance and Safety Information for the Cisco MDS 9000 Family*

Hardware Installation

- *Cisco MDS 9124 Multilayer Fabric Switch Quick Start Guide*
- *Cisco MDS 9500 Series Hardware Installation Guide*

[Send documentation comments to mdsfeedback-doc@cisco.com](mailto:mdsfeedback-doc@cisco.com)

- *Cisco MDS 9200 Series Hardware Installation Guide*
- *Cisco MDS 9100 Series Hardware Installation Guide*
- *Cisco MDS 9020 Fabric Switch Hardware Installation Guide*

Cisco Fabric Manager

- *Cisco MDS 9000 Family Fabric Manager Quick Configuration Guide*
- *Cisco MDS 9000 Family Fabric Manager Configuration Guide*
- *Cisco MDS 9000 Fabric Manager Online Help*
- *Cisco MDS 9000 Fabric Manager Web Services Online Help*
- *Cisco MDS 9000 Family Fabric Manager Database Schema*

Command-Line Interface

- *Cisco MDS 9000 Family Software Upgrade and Downgrade Guide*
- *Cisco MDS 9000 Family Storage Services Module Software Installation and Upgrade Guide*
- *Cisco MDS 9000 Family CLI Quick Configuration Guide*
- *Cisco MDS 9000 Family CLI Configuration Guide*
- *Cisco MDS 9000 Family Command Reference*
- *Cisco MDS 9000 Family Quick Command Reference*
- *Cisco MDS 9020 Fabric Switch Configuration Guide and Command Reference*
- *Cisco MDS 9000 Family SAN Volume Controller Configuration Guide*

Intelligent Storage Networking Services Configuration Guides

- *Cisco MDS 9000 Family Data Mobility Manager Configuration Guide*
- *Cisco MDS 9000 Family Storage Media Encryption Configuration Guide*
- *Cisco MDS 9000 Family Secure Erase Configuration Guide - For Cisco MDS 9500 and 9200 Series*

Troubleshooting and Reference

- *Cisco MDS 9000 Family Troubleshooting Guide*
- *Cisco MDS 9000 Family MIB Quick Reference*
- *Cisco MDS 9020 Fabric Switch MIB Quick Reference*
- *Cisco MDS 9000 Family SMI-S Programming Reference*
- *Cisco MDS 9000 Family System Messages Reference*
- *Cisco MDS 9020 Fabric Switch System Messages Reference*

Send documentation comments to mdsfeedback-doc@cisco.com

Installation and Configuration Note

- *Cisco MDS 9000 Family SSM Configuration Note*
- *Cisco MDS 9000 Family Port Analyzer Adapter Installation and Configuration Note*
- *Cisco 10-Gigabit Fibre Channel X2 Transceiver Module Installation Note*

Send documentation comments to mdsfeedback-doc@cisco.com

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New* in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

This document is to be used in conjunction with the documents listed in the “[Related Documentation](#)” section.

CCDE, CCENT, Cisco Eos, Cisco Lumin, Cisco Nexus, Cisco StadiumVision, Cisco TelePresence, Cisco WebEx, the Cisco logo, DCE, and Welcome to the Human Network are trademarks; Changing the Way We Work, Live, Play, and Learn and Cisco Store are service marks; and Access Registrar, Aironet, AsyncOS, Bringing the Meeting To You, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, CCVP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Collaboration Without Limitation, EtherFast, EtherSwitch, Event Center, Fast Step, Follow Me Browsing, FormShare, GigaDrive, HomeLink, Internet Quotient, IOS, iPhone, iQuick Study, IronPort, the IronPort logo, LightStream, Linksys, MediaTone, MeetingPlace, MeetingPlace Chime Sound, MGX, Networkers, Networking Academy, Network Registrar, PCNow, PIX, PowerPanels, ProConnect, ScriptShare, SenderBase, SMARTnet, Spectrum Expert, StackWise, The Fastest Way to Increase Your Internet Quotient, TransPath, WebEx, and the WebEx logo are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0809R)

Copyright © 2008 Cisco Systems, Inc. All rights reserved.