



# Cisco MDS 9000 Family Release Notes for Cisco MDS SAN-OS Release 2.1(3)

**Release Date:** August 22, 2006

**Text Part Number:** OL-7411-07 F0

This document describes the caveats and limitations for switches in the Cisco MDS 9000 Family. Use this document in conjunction with documents listed in the “[Related Documentation](#)” section on page 23.



**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/hw/ps4159/ps4358/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/hw/ps4159/ps4358/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	08/22/2006	Created release notes
B0	09/05/2006	Added DDTs <a href="#">CSCsd78967</a> and <a href="#">CSCse88606</a> .
C0	09/13/2006	Added DDTs <a href="#">CSCsf21970</a>
D0	11/15/2006	Added DDTs <a href="#">CSCin95789</a> , <a href="#">CSCsd81137</a> , <a href="#">CSCse22145</a> , <a href="#">CSCse41442</a> , <a href="#">CSCse70275</a> , <a href="#">CSCse71420</a> , <a href="#">CSCsf96043</a> , <a href="#">CSCsg12020</a> , and <a href="#">CSCsg15392</a> .
E0	02/23/2007	Added DDTs <a href="#">CSCsd92433</a> , <a href="#">CSCse99087</a> , <a href="#">CSCsg03171</a> , <a href="#">CSCsg62359</a> , and <a href="#">CSCsh27840</a> .
F0	04/04/2007	Added DDTs <a href="#">CSCsd41578</a> .  Added the section “ <a href="#">Performing a Disruptive Upgrade on a Single Supervisor MDS Family Switch</a> ”.



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## Introduction

The Cisco MDS 9000 Family of Multilayer Directors and Fabric Switches provide industry-leading availability, scalability, security, and management, allowing you to deploy high performance storage-area networks with lowest total cost of ownership. Layering a rich set of intelligent features onto a high performance, protocol agnostic switch fabric, the Cisco MDS 9000 Family addresses the stringent requirements of large data center storage environments: uncompromising high availability, security, scalability, ease of management, and seamless integration of new technologies.

The Cisco MDS 9000 Family SAN-OS is the underlying system software that powers the Cisco MDS 9500 series, 9200 series, and 9100 series multilayer switches. The Cisco SAN-OS provides intelligent networking features such as multiprotocol and multitransport integration, virtual SANs (VSANs), advanced security, sophisticated debug analysis tools, and unified SAN management.

## System Requirements

This section describes the system requirements for Cisco MDS SAN-OS Release 2.1(3) and includes the following topics:

- [Components Supported, page 2](#)
- [Determining the Software Version, page 5](#)

## Components Supported

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



**Note** To use the Cisco Storage Services Enabler package, Cisco MDS SAN-OS Release 1.3(5) or later must be installed on the MDS switch.

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

Component	Part Number	Description	Applicable Product
Software	N/A	MDS 9500 Supervisor/Fabric-I, SAN-OS software.	MDS 9500 Series only
	N/A	MDS 9216 Supervisor/Fabric-I, SAN-OS software.	MDS 9200 Series only
	N/A	MDS 9100 Supervisor/Fabric-I, SAN-OS software.	MDS 9100 Series only
License	M9500ENT1K9	Enterprise package.	MDS 9500 Series
	M9200ENT1K9	Enterprise package.	MDS 9200 Series
	M9100ENT1K9	Enterprise package.	MDS 9100 Series
	M9500FIC1K9	Mainframe package.	MDS 9500 Series
	M9200FIC1K9	Mainframe package.	MDS 9200 Series
	M9100FIC1K9	Mainframe package.	MDS 9100 Series
	M9500FMS1K9	Fabric Manager Server package.	MDS 9500 Series
	M9200FMS1K9	Fabric Manager Server package.	MDS 9200 Series
	M9100FMS1K9	Fabric Manager Server package.	MDS 9100 Series
	M9500EXT1K9	SAN Extension over IP package for IPS-8 module.	MDS 9500 Series
	M9200EXT1K9	SAN Extension over IP package for IPS-8 module.	MDS 9200 Series
	M9500EXT14K9	SAN Extension over IP package for IPS-4 module.	MDS 9500 Series
	M9200EXT14K9	SAN Extension over IP package for IPS-4 module.	MDS 9200 Series
	M9500EXT12K9	SAN Extension over IP package for MPS 14+2 module.	MDS 9500 Series
	M9200EXT12K9	SAN Extension over IP package for MPS 14+2 module.	MDS 9200 Series
	M9500SSE1K9	Storage Services Enabler package.	MDS 9500 Series with ASM or SSM
M9200SSE1K9	Storage Services Enabler package.	MDS 9200 Series with ASM or SSM	

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

Component	Part Number	Description	Applicable Product
Chassis	DS-C9509	MDS 9509 director, base configuration (9-slot modular chassis includes 7 slots for switching modules and 2 slots for supervisor modules—SFPs <sup>1</sup> sold separately).	MDS 9509 only
	DS-C9506	MDS 9506 director (6-slot modular chassis includes 4 slots for switching modules and 2 slots for supervisor modules—SFPs sold separately).	MDS 9506 only
	DS-C9216-K9	MDS 9216 16-port semi-modular fabric switch (includes 16 1-Gbps/2-Gbps Fibre Channel ports, power supply, and expansion slot—SFPs sold separately).	MDS 9216 only
	DS-C9216A-K9	MDS 9216A 16-port semi-modular fabric switch (includes 16 1-Gbps/2-Gbps Fibre Channel ports, power supply, and expansion slot—SFPs sold separately).	MDS 9216A only
	DS-C9216i-K9	MDS 9216i 16-port semi-modular fabric switch (includes 14 1-Gbps/2-Gbps Fibre Channel ports, 2 Gigabit Ethernet ports, power supply, and expansion slot—SFPs sold separately).	MDS 9216i only
	DS-C9140-K9	MDS 9140 fixed configuration (non-modular) fabric switch (includes 8 full rate ports and 32 host-optimized ports).	MDS 9140 only
	DS-C9120-K9	MDS 9120 fixed configuration, non-modular, fabric switch (includes 4 full rate ports and 16 host-optimized ports).	MDS 9120 only
Supervisor modules	DS-X9530-SF1-K9	MDS 9500 Supervisor/Fabric-I, module.	MDS 9500 Series only
Switching modules	DS-X9016	MDS 9000 16-port 1-Gbps/2-Gbps Fibre Channel module (SFPs sold separately).	MDS 9500 Series and 9200 Series
	DS-X9032	MDS 9000 32-port 1-Gbps/2-Gbps Fibre Channel module (SFPs sold separately).	
Services modules	DS-X9308-SMIP	8-port Gigabit Ethernet IP Storage Services module.	
	DS-X9304-SMIP	4-port Gigabit Ethernet IP Storage Services module.	
	DS-X9032-SSM	MDS 9000 32-port 1-Gbps/2-Gbps Fibre Channel Storage Services Module (SSM).	
	DS-X9560-SMC	Caching Services Module (CSM).	
	DS-X9302-14K9	14-port Fibre Channel/2-port Gigabit Ethernet Multiprotocol Services (MPS-14/2) module.	
LC-type fiber-optic SFP	DS-SFP-FC-2G-SW	2-Gbps/1-Gbps Fibre Channel — short wavelength SFP.	MDS 9000 Family
	DS-SFP-FC-2G-LW	2-Gbps/1-Gbps Fibre Channel — long wavelength SFP.	
	DS-SFP-FCGE-SW	1-Gbps Ethernet and 1-Gbps/2-Gbps Fibre Channel—short wavelength SFP.	
	DS-SFP-FCGE-LW	1-Gbps Ethernet and 1-Gbps/2-Gbps Fibre Channel — long wavelength SFP.	
	DS-SFP-GE-T	1-Gbps Ethernet SFP	

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

Component	Part Number	Description	Applicable Product
CWDM <sup>2</sup>	DS-CWDM-xxxx	Gigabit Ethernet and 1-Gbps/2-Gbps Fibre Channel SFP LC interface xxxx nm, where xxxx = 1470, 1490, 1510, 1530, 1550, 1570, 1590, or 1610 nm.	MDS 9000 Family
	DS-CWDM-MUX-4	Add/drop multiplexer for four CWDM wavelengths.	
	DS-CWDM-MUX-8	Add/drop multiplexer for eight CWDM wavelengths.	
	DS-CWDMCHASSIS	Two slot chassis for CWDM add/drop multiplexer(s).	
Power supplies	DS-CAC-2500W	2500-W AC power supply.	MDS 9509 only
	DS-CDC-2500W	2500-W DC power supply.	
	DS-CAC-4000W-US	4000-W AC power supply for US (cable attached).	
	DS-CAC-4000W-INT	4000-W AC power supply international (cable attached).	
	DS-CAC-1900W	1900-W AC power supply.	MDS 9506 only
	DS-CDC-1900W	1900-W DC power supply.	
	DS-CAC-845W	845-W AC power supply.	MDS 9200 Series only
	DS-CAC-300W	300-W <sup>3</sup> AC power supply.	MDS 9100 Series only
CompactFlash	MEM-MDS-FLD512M	MDS 9500 supervisor CompactFlash disk, 512 MB.	MDS 9500 Series only
Port analyzer adapter	DS-PAA-2	A standalone Fibre Channel-to-Ethernet adapter that allows for simple, transparent analysis of Fibre Channel traffic in a switched fabric.	MDS 9000 Family
CD-ROM	M90FM-CD-212=	MDS 9000 Management Software and Documentation CD-ROM, spare.	MDS 9000 Family

1. SFP = small form-factor pluggable
2. CWDM = coarse wavelength division multiplexing
3. W = Watt

## Determining the Software Version



### Note

We strongly recommend that you use the latest available software release supported by your vendor for all Cisco MDS 9000 Family products.

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

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

# Upgrading Your Cisco MDS SAN-OS Software Image

The Cisco MDS SAN-OS software is designed for mission-critical high availability environments. To realize the benefits of nondisruptive upgrades on the Cisco MDS 9500 Directors, we highly recommend that you install dual supervisor modules.

You can nondisruptively upgrade to Cisco MDS SAN-OS Release 2.1(3) from any SAN-OS software release beginning with Release 1.3(x). If you are running an older version of the SAN-OS, first upgrade to Release 1.3(x), and then upgrade to Release 2.1(3).



## Note

If you are upgrading to Cisco MDS SAN-OS 2.1(3) from any prior SAN-OS software release, you should issue the **copy running-config startup-config** command immediately after you upgrade to Release 2.1(3) and before you issue any other commands.

When downgrading from Cisco MDS SAN-OS Release 2.1(3) to Release 1.3(x), you might need to disable new features in Release 2.1(3) for a nondisruptive downgrade. Issuing the **install all** command from the CLI, or using Fabric Manager to perform the downgrade, enables the compatibility check. The check indicates if the upgrade can happen nondisruptively or disruptively depending on the current configuration of your switch and the reason.

Compatibility check is done:

Module	bootable	Impact	Install-type	Reason
1	yes	non-disruptive	rolling	
2	yes	disruptive	rolling	Hitless upgrade is not supported
3	yes	disruptive	rolling	Hitless upgrade is not supported
4	yes	non-disruptive	rolling	
5	yes	non-disruptive	reset	
6	yes	non-disruptive	reset	

At a minimum, you need to disable the default device alias distribution feature using the **no device-alias distribute** command in global configuration mode. The **show incompatibility system bootflash:1.3(x)\_filename** command determines which additional features need to be disabled.

If you are upgrading from Cisco MDS SAN-OS Release 2.1(1x) to any image later than Release 2.1(2) and have IVR enabled, review CSCei88345 in the *Cisco MDS 9000 Family Release notes for Cisco MDS SAN-OS Release 2.1(2b)* for upgrade instructions.



## Note

Refer to the “Determining Software Compatibility” section of the *Cisco MDS 9000 Family Configuration Guide* for more details.

## Performing a Disruptive Upgrade on a Single Supervisor MDS Family Switch

Cisco MDS SAN-OS software upgrades are disruptive on the following single supervisor Cisco MDS Family switches:

- MDS 9120 switch
- MDS 9140 switch
- MDS 9216i switch

If you are performing an upgrade on one of those switches, you should follow the nondisruptive upgrade path listed in this section, even though the upgrade is disruptive. Following the nondisruptive upgrade path ensures that the binary startup configuration remains intact.

If you do not follow the upgrade path, the binary startup configuration is deleted because it is not compatible with the new image, and the ASCII startup configuration file is applied when the switch comes up with the new upgraded image. When the ASCII startup configuration file is applied, there may be errors. Because of this, we recommend that you follow the nondisruptive upgrade path.



Note

If you would like to request a copy of the source code under the terms of either GPL or LGPL, please send an e-mail to [mds-software-disclosure@cisco.com](mailto:mds-software-disclosure@cisco.com).

## New Features in Cisco MDS SAN-OS Release 2.1(3)

There are no new features available for this release.

## Limitations and Restrictions

This section lists the limitations and restrictions for this release.

### VSNF Compatibility

For the latest VSNF compatibility information, refer to the [Cisco MDS SAN-OS Release Compatibility Matrix for VERITAS Storage Foundation for Networks Software](#).

### iSCSI Proxy Initiators

No more than 250 iSCSI proxy initiator sessions can be active on an IPS port.

## 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 Caveats and Resolved Caveats Reference

DDTS Number	Software Release (Open or Resolved)	
	2.1(2e)	2.1(3)
<b>Severity 2</b>		
<a href="#">CSCeh73149</a>	O	O
<a href="#">CSCeh92604</a>	O	O
<a href="#">CSCei18830</a>	O	O
<a href="#">CSCei19822</a>	O	O
<a href="#">CSCsc75056</a>	O	O
<a href="#">CSCsc76467</a>	O	O

**Table 3** Open Caveats and Resolved Caveats Reference (continued)

DDTS Number	Software Release (Open or Resolved)	
	2.1(2e)	2.1(3)
CSCsd41578	O	O
CSCsd45429	O	O
CSCsd47064	O	O
CSCsd78967	O	O
CSCsd79954	O	O
CSCsd95862	O	R
CSCse65400	O	R
CSCse89151	O	O
CSCsh27840	O	O
<b>Severity 3</b>		
CSCef56229	O	O
CSCeg27584	O	O
CSCeh33548	O	O
CSCeh41099	O	O
CSCeh75500	O	O
CSCeh88814	O	O
CSCei32317	O	O
CSCei57342	O	O
CSCei58652	O	O
CSCei71686	O	O
CSCei86399	O	O
CSCin95686	O	O
CSCin95789	O	O
CSCsb89732	O	O
CSCsc09732	O	O
CSCsc20106	O	O
CSCsc33788	O	O
CSCsc40012	O	O
CSCsc48919	O	O
CSCsc60283	O	O
CSCsc72994	O	O
CSCsc93936	O	O
CSCsc97070	O	O
CSCsd07246	O	O
CSCsd12831	O	O

**Table 3** *Open Caveats and Resolved Caveats Reference (continued)*

DDTS Number	Software Release (Open or Resolved)	
	2.1(2e)	2.1(3)
CSCsd22920	O	O
CSCsd25790	O	O
CSCsd30165	O	O
CSCsd34882	O	O
CSCsd53429	O	O
CSCsd58774	O	O
CSCsd60578	O	O
CSCsd70927	O	O
CSCsd72822	O	O
CSCsd73494	O	O
CSCsd75284	O	O
CSCsd76429	O	O
CSCsd79938	O	O
CSCsd81137	O	O
CSCsd81725	O	O
CSCsd82449	O	O
CSCsd89872	O	O
CSCsd92429	O	O
CSCsd94019	O	O
CSCsd94718	O	O
CSCsd93011	O	O
CSCse14032	O	O
CSCse22145	O	O
CSCse41442	O	O
CSCse70275	O	O
CSCse71420	O	O
CSCse84811	O	O
CSCse88606	O	O
CSCse99087	O	O
CSCsf21970	O	O
CSCsf96043	O	O
CSCsg03171	O	O
CSCsg12020	O	O
CSCsg15392	O	O
CSCsg62359	O	O

Table 3 Open Caveats and Resolved Caveats Reference (continued)

DDTS Number	Software Release (Open or Resolved)	
		2.1(2e)
<b>Severity 6</b>		
<a href="#">CSCsd92433</a>	O	O

## Resolved Caveats

- CSCsd95862  
**Symptom:** Cisco MDS 9100 Series switches and the 9216i switch do not handle counter roll-over appropriately and might reset after being up for 497 days. The MPS-14/2 modules are also susceptible and could be reset by the supervisor.  
**Workaround:** None. This issue has been resolved.
- CSCse65400  
**Symptom:** If a module reloads or reinitializes on its own because of an error, and the port channel has one of its member ports on this module, in rare cases, the peer port of this member port will not forward traffic after the module comes back up.  
**Workaround:** None. This issue has been resolved.

## Open Caveats

- CSCeh73149  
**Symptom:** The VSAN suspend/resume operations facilitate network level reconfiguration and are not often used. The operations should not be used on a SANTap related VSAN.  
**Workaround:** If VSAN suspend/resume operations must be used, first unprovision SANTap prior to using VSAN suspend/resume.
- CSCeh92604  
**Symptom:** Enabling IVR NAT on the same switch where write acceleration is enabled over a PortChannel with multiple FCIP links might result in frames not transferring from the source to the destination.  
**Workaround:** Do not have all of the following on the same switch:
  - IVR NAT enabled
  - PortChannel of multiple FCIP links that can potentially carry IVR NAT traffic
  - FCIP write acceleration enabled

However, any two of the above three configurations are supported on the same switch.



**Note** IVR in non-NAT mode can be configured with FCIP PortChannels and FCIP write acceleration on the same switch.

- CSCei18830

**Symptom:** Removing zones from an active zone set may generate a system message that the zone activation has failed because of an Accept Change Authorization (ACA) failure.

**Workaround:** None required. The IVR retries the activation and eventually the zone set activation succeeds.

- CSCei19822

**Symptom:** An active IVR zone set on the local switch is not propagated when the commit session contains any other configuration changes.

**Workaround:** For Cisco SAN-OS Release 2.1(2) and later, perform an implicit commit without any changes. In the case of a merge failure and the IVR zone set is not active on remote switches but is active on a local switch, issue an implicit commit from the local switch to propagate the active zone set to the remote switches.

For releases prior to Release 2.1(2), the workaround is different. Add either a dummy member to an existing zone or add a dummy zone with dummy members to the currently active IVR zone set, and then reactivate the IVR zone set. Then issue the commit command, which will propagate the active zone set to other switches.

- CSCsc75056

**Symptom:** Installing an invalid license file may cause an MDS switch to reload.

**Workaround:** Recover the switch from the console port. Then request another license file from Cisco. Install the unaltered license file.




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**Note** Do not edit or modify an MDS license file as this makes the file invalid.

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- CSCsc76467

**Symptom:** The IPFC manager fails when it receives an FARP packet for a nonexistent VSAN interface. This situation may occur when a host bus adapter (HBA) on a host directly registers as an IPFC interface.

**Workaround:** None.

- CSCsd41578

**Symptom:** When a port continuously flaps, the Fibre Channel Name Server may crash and cause a supervisor switchover.

**Workaround:** Use a different port or check the host bus adapter (HBA) port.

- CSCsd45429

**Symptom:** When performing a switchover, upgrade, or downgrade, logs may be incorrectly synced between supervisor modules. As a consequence, the syslog process is left with some inconsistencies that may cause one or more of the following symptoms:

- A process may fail while displaying logs for a **show logging** command. After three failures of the syslog process, the switch forces a switchover.
- Certain small sections of the log may appear out of order, either preceded by or followed by broken log lines, or both. For example, a few lines referring to 2006 Jan 17 may appear embedded between other log lines that refer to 2006 Jan 20, with a broken line before and after the entry.

- Null characters (ASCII code 0) may appear in the log. These characters cause empty lines to be displayed when using the `show logging` command and appreciably slow down the log output over slow console connections.

**Workaround:** Clear the logs immediately after performing a switchover, upgrade, or downgrade by issuing the following command as soon as the switchover, upgrade, or downgrade successfully completes:

```
switch# clear logging logfile
```




---

**Note** When you execute the `clear logging logfile` command, old logs are lost. If you need to keep a copy of the old logs, redirect the output of the `show logging` command to a file before the switchover, upgrade, or downgrade to copy the output to a safe location.

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- CSCsd47064

**Symptom:** The Forwarding Information Base (FIB) process may fail if an IVR zone set push from the Fabric Manager fails because of an SNMP timeout and various switches send conflicting active IVR zone sets.

**Workaround:** There are two ways to address the problem:

- Examine the output of the `show interface mgmt 0` command to see if there is a duplex mismatch that may cause an SNMP timeout.
- Use the `ivr distribute` command to enable Cisco Fabric Services (CFS) distribution for IVR zone or zone sets and the topology through Inter-Switch Links (ISLs).

- CSCsd78967

**Symptom:** If you remove a port from a port channel or shutdown a member port of a port-channel, the ConnUnitPortStatus/State trap is not sent.

**Workaround:** None.

- CSCsd79954

**Symptom:** A VSAN that is connected to a McDATA switch with interop mode 1 participates in IVR. The VSAN has devices that are zoned for IVR with a device with domain IDs not within the 97 to 127 range. A loss of connectivity between the hosts and storage devices that are zoned for IVR and the devices in a normal zone might occur.

**Workaround:** None.

- CSCec31365

**Symptom:** When IVR is enabled, the Fabric-Device Management Interface information is not transferred across VSANs for IVR devices.

**Workaround:** None.

- CSCse89151

**Symptom:** If you have more than 800 zones in an active zoneset for a single VSAN, your MDS 9000 switch might reload if you move from basic zoning to enhanced zoning and then read the active zoneset information.

**Workaround:** Lower the number of zones in an active zoneset for a single VSAN to less than 800.

- CSCsh27840

**Symptom:** While using an FCIP link for remote SPAN, it is possible that the FCIP link may flap.

**Workaround:** Do not use FCIP links for Remote SPAN.

- CSCef56229

**Symptom:** If an iSCSI initiator is configured differently on multiple switches, iSNS might report more targets to the initiator than the initiator can access. An iSCSI initiator would get a target error if it attempts to establish a connection.

**Workaround:** None.

- CSCeg27584

**Symptom:** Creating a role that has the VSAN policy “deny” requires an Enterprise License on the switch. If such a role is created on a switch that does not have the license, the switch exhibits different behavior when distribution is turned on as compared with distribution is turned off, as follows:

- If distribution is turned off, creation of the role is rejected.
- If distribution is turned on, creation of the role succeeds but the VSAN policy continues to be “permit.”

**Workaround:** None.

- CSCeh33548

**Symptom:** Tape devices can only be accessed over an FCIP tunnel in a PortChannel with write acceleration enabled if SID/DID based load balancing is used in the VSANs.

**Workaround:** Disable write acceleration or enable SID/DID based load balancing in the VSANs if you have tape device traffic going over an FCIP tunnel in a PortChannel.

- CSCeh41099

**Symptom:** Protocol and port numbers specified in an IP-ACL assigned to an IPsec profile (crypto map) are ignored. In an interop between Microsoft's iSCSI initiator with IPsec encryption with Cisco MDS 9000 Series switches, if IPsec is configured in the Microsoft iSCSI initiator (also the IPsec/IKE initiator), the host IPsec implementation sends the following IPsec policy:

```
source IP - Host IP, dest IP - MDS IP,
source port - any, dest port - 3260 (iSCSI), protocol - 6 (TCP).
```

Upon receiving this policy, the protocol and port numbers are ignored and only the IP addresses for the IPsec policy are used. Thus, although iSCSI traffic is encrypted, non-iSCSI traffic (such as ICMP ping) sent by the Microsoft host in clear text is dropped in the MDS port.

**Workaround:** None.

- CSCeh75500

**Symptom:** A device that interfaces with SANTap may request SANTap to create a session for an ITL that was previously requested, and ITL checking is not robust.

**Workaround:** Have the device validate the ITL and ensure that it does not send a request for a duplicate ITL.

- CSCeh88814

**Symptom:** When SANTap is unprovisioned, the control virtual target (CVT) object is not getting cleaned up on the supervisor module.

**Workaround:** To ensure that cleanup occurs, first issue the **no santap module slot-number appl-vsan vsan-id** command to clean up the CVT, and then unprovision SANTap.

- CSCei32317
 

**Symptom:** When configuring a remote SPAN (RSPAN), the Fibre Channel tunnel does not come up if it goes through more than one hop.

**Workaround:** Configure the Fibre Channel tunnel explicit-path option and list every IP hop between the source and destination.
- CSCei57342
 

**Symptom:** If a link is isolated because of a fabric-binding database mismatch, a reactivation of the corrected fabric-binding database may not initialize the ports.

**Workaround:** Use the **shutdown/no shutdown** command sequence to manually disable then enable the link.
- CSCei58652
 

**Symptom:** When a reconfigure fabric (RCF) frames occurs on a VSAN, the ports may be left in a state where the fabric binding is incorrect.

**Workaround:** None.
- CSCei71686
 

**Symptom:** If iSCSI is enabled before FCIP, then the **qos** command that is configurable under an FCIP interface is not available as an option. The reverse is true, as well. If FCIP is enabled first, then the **qos** command is not an option for iSCSI interfaces.

**Workaround:** None. .
- CSCei86399
 

**Symptom:** A TACACS+ key that includes the less than (<) and greater than (>) characters fails when copied to an ftp server and then copied back to the MDS switch.

**Workaround:** None. This issue has been resolved.
- CSCin95686
 

**Symptom:** The RRD graph in the Performance Manager does not refresh on a web client opened in Mozilla or Netscape.

**Workaround:** Do not use a proxy server or the browser's Refresh button.
- CSCin95789
 

**Symptom:** When you configure Cisco Traffic Analyzer to capture traffic on one or more interfaces on a Windows platform, the configuration web page might not show that the interface has been selected for traffic capture even though traffic capture on that interface is enabled.

**Workaround:** Check the logs to clarify that the correct interface has been selected.
- CSCsb89732
 

**Symptom:** After an upgrade from SAN-OS Release 1.3(2a) to any release lower than SAN-OS Release 3.0(1), you may see errors like the following in the syslog file:

```
2005 Sep 15 17:36:55 coral %SYSMGR-3-CFGWRITE_SRVFAILED: Service "fcc" failed to store
its configuration (error-id 0xFFFFFFFF).
2005 Sep 15 17:36:56 coral %SYSMGR-2-CFGWRITE_ABORTED: Configuration copy aborted.
2005 Sep 15 17:36:59 coral %SYSMGR-3-CFGWRITE_FAILED: Configuration copy failed
(error-id 0x401E0000).
2005 Sep 15 17:37:43 coral %SYSMGR-3-CFGWRITE_SRVFAILED: Service "fcc" failed to store
its configuration (error-id 0xFFFFFFFF).
2005 Sep 15 17:37:44 coral %SYSMGR-2-CFGWRITE_ABORTED: Configuration copy aborted.
2005 Sep 15 17:37:47 coral %SYSMGR-3-CFGWRITE_FAILED: Configuration copy failed
(error-id 0x401E0000).
```

```

2005 Sep 15 17:38:31 coral %SYSMGR-3-CFGWRITE_SRVFAILED: Service "fcc" failed to store
its configuration (error-id 0xFFFFFFFF) .
2005 Sep 15 17:38:32 coral %SYSMGR-2-CFGWRITE_ABORTED: Configuration copy aborted.
2005 Sep 15 17:38:35 coral %SYSMGR-3-CFGWRITE_FAILED: Configuration copy failed
(error-id 0x401E0000) .

```

**Workaround:** After the upgrade, issue the **copy running-config startup-config** command *before* issuing the **show startup-config** command.

If you have already encountered this issue, perform a stateful switchover, then issue the **copy running-config startup-config** command.

- CSCsc09732

**Symptom:** If there is a port software failure at the same time as a configuration change for an FCIP interface, the configuration change can fail and subsequent configuration and **show** commands will fail for that FCIP interface.

**Workaround:** None.

- CSCsc20106

**Symptom:** On a Cisco MDS 9020 Fabric Switch, Fabric Manager displays a 4-Gbps Inter-Switch Link (ISL) as a 3-Gbps ISL.

**Workaround:** None.

- CSCsc33788

**Symptom:** In rare circumstances, after you issue the **install all** command to upgrade an MDS switch, the upgrade may fail because the installer process fails. When this occurs, you may see a message like the following:

```

%CALLHOME-2-EVENT: SW_CRASH alert for service: installer
The installer failed to respond for 10 times. Exiting ...
Unable to send exit to installer. Return code -1

```

If you upgrade from 1.3(x) to 2.1 or from 2.0(x) to 2.1 and the upgrade fails, and if after the upgrade failure the supervisor modules are running the new software version, but some modules are running the older software version, then the next attempt to execute the **install all** command will trigger this problem.

You should not encounter this problem if you upgrade from 2.1 to a higher version.

**Workaround:** There are two ways to address this issue:

- To non-disruptively upgrade all modules that are running the older software version, issue the **install module module-number image** command.
- To disruptively upgrade the modules, issue the **reload module module-number force-dnld** command, or reinstall the module.

- CSCsc40012

**Symptom:** If you use Telnet or SSH to access an MDS switch, TACACS+ authentication with the domain\username format does not work.

**Workaround:** Use username@domain-name.xxx.com for TACACS+ authentication over Telnet or SSH.

- CSCsc48919

**Symptom:** When a data path on a Storage Service Module (SSM) is congested, diagnostic frames that are delivered as best effort may be dropped. The Online Health Management System (OHMS) may bring down a Fibre Channel port on an SSM when congestion occurs and declare the port as failed.

**Workaround:** To work around this issue, enter the following command:

```
switch(config)# no system health module ssm-module-number loopback failure-action
```

- CSCsc60283

**Symptom:** In rare circumstances, an MDS 9000 Family switch may start displaying the following error messages in the log, several times per second:

```
%KERN-1-SYSTEM_MSG: eepr0100: wait_for_cmd_done timeout 0x801249d2 0xf0!
```

When this situation occurs, Telnet access through the mgmt0 interface is impossible.

**Workaround:** Access the switch through the console port.

- CSCsc72994

**Symptom:** If a user does not have a Fabric Manager Server (FMS) license, a demo or trial license counter for enhanced FMS features starts even when FMS enhanced features are not configured. You might see the following message:

```
%LICMGR-3-LOG_LIC_NO_LIC: No license(s) present for feature FM_SERVER_PKG.  
Application(s) shutdown in 119 days.
```

This might occur after upgrading to Cisco SAN-OS 2.1(2x). FMS status becomes InUse although none of its features were or are actually used. This starts the 120 day evaluation period counter for FMS enhanced features.




---

**Note** This does not have any impact on using the Fabric Manager or Device Manager for managing the switch for basic feature operations.

---

**Workaround:** Install a Fabric Manager Server license.

- CSCsc93936

**Symptom:** When you attempt to copy a running configuration or startup configuration to a tftp server in a single step, the operation fails.

**Workaround:** Copy the configuration in two steps:

```
switch# copy running-config volatile:  
switch# copy volatile: tftp:
```

- CSCsc97070

**Symptom:** The port software might fail if more than 250 iSCSI sessions are present on an IPS port configured for proxy initiator mode.

**Workaround:** Configure no more than 250 iSCSI sessions on an IPS port with proxy initiator mode configured.

- CSCsd07246

**Symptom:** Following a successful login by a host, the **show interface** command lists an interface as “isolated due to port loopback.” In Fabric Manager, the Device Manager shows the same information about the interface.

**Workaround:** None.

- CSCsd12831

**Symptom:** You may be unable to add or delete a specific user name through the command-line interface, while you can add or delete other user names with no problem. The user name in question does not display in the output of a **show user-account** command; even so, it cannot be added or deleted.

In this situation, you may see an error like the following:

```
username <username> password 0 <passwd>
Internal CLI error: Success error in messaging
Authentication token manipulation error
could not change password for user:<username>
no username <username>
user not present
{could not delete user <username>}
```

**Workaround:** Open a case with Cisco TAC. There are no steps you can take to correct this problem

- CSCsd22920

**Symptom:** If the SNMP server location is configured with an empty value, then a subsequent **show running-config** command will only show one character for the SNMP server contact. If the SNMP server location is changed, then the **show running-config** command will show the number of characters in the SNMP server location plus one for the SNMP server contact.

**Workaround:** The string length of the configured SNMP location should be greater than or equal to the string length of the SNMP contact.

To make the string length for the SNMP location more or equal to the string length of the configured SNMP contact, a user can do one of the following:

- Configure the SNMP location and SNMP contact with the same string length.
- Add additional blank space in the SNMP location configuration.

- CSCsd25790

**Symptom:** If an internal reconfiguration occurs on an MDS switch, the message that is sent to the log is the same message that is sent when external reconfigure fabric (RCF) frames are sent from the principal switch.

**Workaround:** None.

- CSCsd30165

**Symptom:** On an MDS 9500 Series switch running Cisco SAN-OS Release 2.1(1b), the output of the **show version** command shows the wrong value for the last reset, but this does not cause any operational problems on the switch. The output may look like the following:

```
kernel uptime is 137 days 3 hours 49 minute(s) 32 second(s)
Last reset at -447213060 usecs after Sun Mar 18 05:59:15 2018
Reason: Not defined
System version:      Service: $"H
```

**Workaround:** None.

- CSCsd34882

**Symptom:** The SAN-OS software creates syslog message after a configuration change through the command-line interface. The syslog message looks like this:

```
Vatican# 2006 Feb 8 09:00:33 Vatican %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configuring console
from pts/1 (dhcp-peg3-v130-144-254-7-182.cisco.com)
```

Using the Fabric Manager to make the same configuration change does not result in the same syslog message:

```
Vatican# 2006 Feb 8 09:00:56 Vatican %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Int erface
fc1/5 is down (Administratively down)
```

**Workaround:**None.

- CSCsd53429

**Symptom:** After you enter the **ivr zone name** command to configure a zone, the switch displays a message that may be misleading:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ivr zone name abc
fabric is locked for configuration. Please commit after configuration is done.
switch(config-ivr-zone)#
```

The displayed message has been changed:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ivr zone name abc
fabric is now locked for configuration. Please 'commit' configuration when done.
switch(config-ivr-zone)#
```

**Workaround:** None.

- CSCsd58774

**Symptom:** The following configuration causes excessive data collisions and reduced throughput on the management port of an MDS switch Supervisor 1 module:

Management port configuration — Speed:100 Mbps, Duplex: Full  
Switch port configuration — Speed: 100 Mbps, Duplex: Full

Resulting mode on management port — Speed: 100 Mbps, Duplex: Half  
Resulting mode on switch port — Speed: 100 Mbps, Duplex: Full

**Workaround:** Because an MDS switch always autonegotiates the duplex mode and defaults to half duplex if the autonegotiation fails, you should configure the ports as follows:

Management port configuration — Speed: 100 Mbps, Duplex: Auto  
Switch port configuration — Speed: Auto, Duplex: Auto

Resulting mode on MDS — Speed: 100 Mbps, Duplex: Full  
Resulting mode on switch port — Speed: 100 Mbps, Duplex: Full

- CSCsd60578

**Symptom:** A problem in Fibre Channel write acceleration on the Storage Services Module exhibited itself as a 10% to 15% performance drop once SCSI flows were established in both directions in relation to a SCSI initiator SCSI target pair.

This issue is applicable only in configurations where a bidirectional SCSI flow is established for a given SCSI initiator SCSI target pair. In other words, for a SCSI flow in one direction, a given node in a SCSI initiator SCSI target pair acts as SCSI initiator, and for the SCSI flow in the other direction, the same node acts as a SCSI target.

**Workaround.** None.

- CSCsd70927

**Symptom:** Report collection in the Fabric Manager's Performance Manager stops after 48 hours. The data from the 48 hours is saved, but the connection to the database appears to be lost.

**Workaround:** None.

- CSCsd72822

**Symptom:** If a switch has multiple SSMs with the SCSI flow feature enabled, an SSM may fail to come up when you perform an upgrade or reload.

**Workaround:** Before attempting to upgrade or reload an SSM, remove SCSI flow provisioning. Once the SSM comes back up, enable SCSI flow provisioning again.

Follow these steps:

1. Issue the following command to remove the provisioning:

```
switch(config)# no ssm enable feature scsi-flow force module module-number
```

2. Issue the following command to upgrade the SSM:

```
switch# install all system bootflash:m9500-sflek9-mz.2.1.2d.bin kickstart
bootflash:m9500-sflek9-kickstart-mz.2.1.2d.bin ssi
bootflash:m9000-ek9-ssi-mz.2.1.2j.bin
```

3. Issue the following command to reenble the SCSI flow feature when the SSM comes back online:

```
switch(config)# ssm enable feature scsi-flow module module-number
```

4. If the **ssm enable feature scsi-flow module** command fails, verify that the SSM is online using the following command:

```
switch# show module
```

5. Once the SSM is online, issue the following command:

```
switch# reload module module-number
```

6. Repeat Step 3 to reenble the SCSI flow feature.




---

**Note** The **force** option should be used only in Step 1.

---

- CSCsd73494

**Symptom:** If an iSCSI port receives protocol data units (PDUs) for a write command after it has been aborted by a task management function (TMF), the buffers for these PDUs may be freed twice and this can lead to a port software failure on the iSCSI port.

**Workaround:** None.

- CSCsd75284

**Symptom:** When multiple tape drives are exposed to a switch over one target port, they appear as multiple LUNs behind the single target port. In this type of configuration, the FCIP link may occasionally get out of sync during error recovery, which may cause the FCIP link to flap.

**Workaround:** While there is no workaround that can prevent this situation from occurring, you can disable tape acceleration for this type of configuration. The write acceleration feature continues to provide some acceleration over the FCIP link.

- CSCsd76429

**Symptom:** FCIP tape acceleration causes a flap in the FCIP link when it receives duplicate CHECK CONDITION status frames from a tape device.

**Workaround:** Because there is no workaround when the tape drive is functioning in this manner, we recommend that you turn off FCIP tape acceleration.

- CSCsd79938

**Symptom:** After using the **ip access-group** command to configure an access list for the mgmt interface and saving the running configuration to the startup configuration, the **ip access-group** command is not present following a reboot of the running configuration. However, the command is in the startup configuration, and the access list is still in the configuration, but is not applied to the mgmt interface.

**Workaround:** Reconfigure the command or issue a **copy startup-config running-config** command to put the command back in place.

- CSCsd81137

**Symptom:** Duplicate entries within an FC alias might cause an ISL isolation between your MDS 9000 switch and a Brocade switch.

**Workaround:** Remove duplicate entries from the Brocade switch and the link will come up.

- CSCsd81725

**Symptom:** If many iSCSI initiators issue writes with immediate or unsolicited data to the iSCSI interface, the result may be a buffer congestion condition that may in turn lead to a B2B credit issue on the FC ports. This may cause these ports to flap.

**Workaround:** Disable immediate and unsolicited data on the iSCSI initiators.

- CSCsd82449

**Symptom:** Mode 1 FCIP compression performance degrades if the Fibre Channel frames received are 1 KB in size.

**Workaround:** None.

- CSCsd89872

**Symptom:** When using Cisco MDS SAN-OS Release 2.1(2e) or earlier to configure PortChannels, the following message may be displayed:

```
Last membership update failed: port-channel: required service is not responding
(err_id 0x402B No port
```

If this issue occurs, any attempt to delete the PortChannel will fail and no additional operations can be performed on that specific PortChannel that gave the error.

**Workaround:** Upgrade from Cisco SAN-OS Release 2.1(2e) or earlier to Release 3.0(2a) to prevent the problem from occurring. If the problem has already occurred, an upgrade to Release 3.0(2a) will not correct the problem. Issue the **write erase** command and reboot the system to correct this problem.

- CSCsd92429

**Symptom:** The output from the **show tech-support details** command contains the following error message:

```
`show system internal xbar internal all`
*** cmd parse error ***
```

**Workaround:** To obtain logs for the xbar manager, issue the following commands:

```
show system internal xbar internal event-history module slot
show system internal xbar internal event-history sync slot
show system internal xbar internal event-history msgs
show system internal xbar internal event-history errors
```

- CSCsd94019

**Symptom:** In Fabric Manager, the Device Alias sort function does not work correctly.

**Workaround:** None.

- CSCsd94718

**Symptom:** In Fabric Manager, the local zone database is not synchronized.

**Workaround:** None.

- CSCsd93011

**Symptom:** When upgrading to Cisco SAN-OS Release 3.0(1) from an earlier version, the upgrade might fail if there is not enough empty space in the bootflash of the standby supervisor module. The module must be able to hold the kickstart image, the system image, and the SSI image, even though the SSI image does not need to be copied to the standby supervisor module. The upgrade process uses the size of the SSI image to calculate the space required to sync the software images onto the standby supervisor module. The SSI image might be counted as many times as there are Storage Services Modules (SSMs) in the system.

The SSI image is counted for an SSM if any of the following conditions are met:

- If the SSI image has been configured in bootvar for the SSM.
- If the SSI bootvar is specified on the command line when the install all command is issued.
- If the SSI bootvar is manually preset, rather than specified on the command line.

**Workaround:** Make sure there is enough empty space in the bootflash of the standby supervisor module. The module must be able to hold the kickstart image, the system image, and the SSI image, even though the SSI image does not need to be copied to the standby supervisor module (as explained in the Symptom).

- CSCse14032

**Symptom:** The ISNS server process terminates when ISNS-SERVER is enabled on a switch that has more than 100 iSCSI initiators.

**Workaround:** None.

- CSCse22145

**Symptom:** CFS coordinated distribution events are not logged in the syslogs.

**Workaround:** Use the **show cfs internal session-history name** command to see the coordinated distribution events that are logged.

- CSCse41442

**Symptom:** Issuing the **show zone member fcid** command on your Cisco MDS 9000 switch might not display the zones with that member FC ID.

**Workaround:** Configure zone membership by using either pWWN, pWWN + LUN, FC ID, or FC ID + LUN.

- CSCse70275

**Symptom:** The Qlogic 2460 HBA fails to remote boot when it connects to a VT instantiated by SANTap on the SSM because the Qlogic 2460 BIOS sends a test ready unit with an invalid command reference number (CRN) and task attribute field. This same HBA can boot when SANTap and the SSM are not part of the configuration.

**Workaround:** Use the Qlogic 2340 HBA.

- CSCse71420

**Symptom:** If you have multiple switches with IVR, and there is a mismatch of IVR VSAN topology and IVR zones which were corrected later, you might get an error message in the logs  
%FSPF-3-IPC\_PROC\_ERR: Error in processing IPC message : Opcode = 68, Error code = 401a0013

**Workaround:** None.

- CSCse84811

**Symptom:** In a system with autcreate PortChannel configured, if there are multiple link flaps or configuration changes on a PortChannel, the PortChannel Manager process memory might run out causing the PortChannel Manager process to crash.

**Workaround:** Issue the **write erase** command and reload the switch.

- CSCse88606

**Symptom:** Setting a value higher than 4 for the maximum number of times a packet is retransmitted before TCP closes the connection might product unexpected results. This would occur during a link FCIP tunnel recovery after a short downtime.

**Workaround:** Configure the TCP maximum retransmissions to values between 1 and 4 only.

- CSCse99087

**Symptom:** A user called snmp-user can successfully log into an MDS switch through the CLI, but cannot log in through Fabric Manager or Device Manager. The login attempt fails with this error:  
SNMP: Unknown username

**Workaround:** None.

- CSCsf21970

**Symptom:** If you issue immediate, back-to-back commands to delete and then create FCIP interfaces, the internal port service might crash.

**Workaround:** Wait 5 seconds between the delete and the following create command for a given FCIP interface.

- CSCsf96043

**Symptom:** No alerts are issued for FCS errors on the sup-fc0 port even though it might affect Fibre Channel communication.

**Workaround:** None.

- CSCsg03171

**Symptom:** The dynamic port VSAN membership (DPVM) failed after the number of F ports exceeded 64 and a port flap occurred.

**Workaround:** Keep the number of F ports in a switch below 64.

- CSCsg12020

**Symptom:** If your switch is up for a long period of time, such as more than 100 days, zone set activation in Fabric Manager might not reflect the latest results and active-local differences may still be shown.

**Workaround:** Close and reopen Fabric Manager with the "Accelerate Discovery" option unchecked. This reflects the latest change, but might need to be done after every change.

- CSCsg15392

**Symptom:** If a Generation 1 module has any port that is administratively up, but operationally down when you upgrade from SAN-OS Release 2.x to either Release 3.0(1) or Release 3.0(2x), you might experience traffic disruption on that module.

**Workaround:** Use the **shutdown** command to shut all the ports operationally down and administratively up on all the Generation 1 modules before upgrading from SAN-OS Release 2.x to Release SAN-OS 3.0(x) or Release 3.0(2x). After the upgrade is complete, the ports can be brought to an administratively up state using the **no shutdown** command.

- CSCsg62359

**Symptom:** If a user attempts to log in using TACACS+ authentication to an MDS switch or an SSH server configured on the switch, the login might fail if password-authentication is the first login method the user tries.

**Workaround:** Use the keyboard-interactive method as the first login method for SSH.

- CSCsd92433

**Symptom:** Additional information is needed from the **show tech-support** command.

**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 SAN-OS Documentation Locator at:

[http://www.cisco.com/en/US/products/ps5989/products\\_documentation\\_roadmap09186a00804500c1.html](http://www.cisco.com/en/US/products/ps5989/products_documentation_roadmap09186a00804500c1.html).

For information on IBM TotalStorage SAN Volume Controller Storage Software for the Cisco MDS 9000 Family, refer to the IBM TotalStorage Support website:

<http://www.ibm.com/storage/support/2062-2300/>

## Release Notes

- Cisco MDS 9000 Family Release Notes for Cisco MDS SAN-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 SAN-OS Hardware and Software Compatibility Information*
- *Cisco MDS 9000 Family Interoperability Support Matrix*
- *Cisco MDS SAN-OS Release Compatibility Matrix for IBM SAN Volume Controller Software for Cisco MDS 9000*
- *Cisco MDS SAN-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 9500 Series Hardware Installation Guide*
- *Cisco MDS 9200 Series Hardware Installation Guide*
- *Cisco MDS 9216 Switch 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*

## Command-Line Interface

- *Cisco MDS 9000 Family Software Upgrade and Downgrade Guide*
- *Cisco MDS 9000 Family CLI Quick Configuration Guide*
- *Cisco MDS 9000 Family 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*

## 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*

## Installation and Configuration Note

- *Cisco MDS 9000 Family SSM Configuration Note*
- *Cisco MDS 9000 Family Port Analyzer Adapter Installation and Configuration Note*

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## Obtaining Documentation

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### Cisco.com

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From this site, you will find information about how to:

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- For Emergencies only—[security-alert@cisco.com](mailto:security-alert@cisco.com)

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For Nonemergencies—[psirt@cisco.com](mailto:psirt@cisco.com)

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



Tip

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We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.x through 9.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT at the aforementioned e-mail addresses or phone numbers before sending any sensitive material to find other means of encrypting the data.

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## Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

## Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>



### Note

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

## Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is down, or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired, while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

## Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco offerings. To order and find out more about the Cisco Product Quick Reference Guide, go to this URL:

<http://www.cisco.com/go/guide>

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

<http://www.cisco.com/go/marketplace/>

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

<http://www.cisco.com/packet>

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

or view the digital edition at this URL:

<http://ciscoiq.texterity.com/ciscoiq/sample/>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

<http://www.cisco.com/ipj>

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

<http://www.cisco.com/en/US/products/index.html>

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

<http://www.cisco.com/discuss/networking>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>

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