



Release Notes for Cisco SN iSCSI Driver for Sun Solaris Version 1.8.9

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These release notes support Cisco Storage Networking iSCSI Driver for Sun Solaris version 1.8.9.

For a list of software caveats that apply to version 1.8.9, see the “[Caveats](#)” section. The caveats are updated for every maintenance version and are located on Cisco.com and the Documentation CD-ROM.

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Introduction

The Cisco Storage Networking iSCSI Driver for Sun Solaris provides a server with the ability to access storage through an IP network. The iSCSI driver uses iSCSI protocol to transport SCSI requests and responses over an IP network between the server and a Cisco SN 5420 Storage Router.

Architecturally, the iSCSI driver combines with the server TCP/IP stack, network drivers, and network interface cards (NICs) to provide the same functions as a SCSI adapter driver with a host bus adapter (HBA).

The iSCSI driver provides a transport for SCSI requests and responses for storage devices; however, instead of providing a transport for directly attached devices, the driver transports the SCSI requests and responses between the server and a Cisco SN 5420 Storage Router via an IP network. The SN 5420 Storage Router, in turn, transports SCSI requests and responses between it and the storage devices attached to it.

Once the iSCSI driver is installed, the server will proceed with a discovery process for iSCSI storage devices as follows:

-
- Step 1** The iSCSI driver requests available iSCSI targets from the storage router.
 - Step 2** The storage router sends available iSCSI target names to the server.
 - Step 3** The server logs into the iSCSI targets.
 - Step 4** The storage router accepts the server login and sends target identifiers.
 - Step 5** The server queries targets for device information.
 - Step 6** Targets respond with device information.
 - Step 7** The server creates table of internal devices.
-

The Cisco Storage Networking iSCSI Driver for Sun Solaris provides IP access to a maximum of eight remote SCSI targets, with each target capable of supporting 32 LUNs. Remote SCSI targets can be accessed through one or more storage routers up to a maximum of eight storage routers.

**Note**

The iSCSI protocol is an IETF-defined protocol for IP storage (ips). For more information about the iSCSI protocol, refer to the IETF standards for IP storage at <http://www.ietf.org>.

System Requirements

This section describes the system requirements for version 1.8.9 and includes the following information:

- [Operating System Requirements, page 3](#)
- [Obtaining the iSCSI Driver, page 4](#)
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Operating System Requirements

The Cisco Storage Networking iSCSI Driver for Sun Solaris runs only on SPARC machines. This driver requires either Solaris version 7 or 8, with all Sun-recommended patches installed for the version being used. The Cisco Storage Network iSCSI Driver for Sun Solaris supports single-processor and multiprocessor machines. For multiprocessor machines the driver supports up to four processors.

Mounting Devices

No iSCSI device can be mounted until after the iSCSI daemon has started and logged into the appropriate iSCSI targets in the SN 5420 storage router. Starting with version 1.8.9, the iSCSI init.d script looks for entries with the “mount at boot” field set to “iscsi” in the `/etc/vfstab` file, and attempts to mount those entries after the iSCSI daemon starts. This allows iSCSI devices to be automatically mounted as early as possible in the boot process.

For example, the following `/etc/vfstab` entries will fsck and mount the two iSCSI devices specified:

#device	device	mount	FS	fsck	mount	mount
#to mount	to fsck	point	type	pass	at boot	options
/dev/dsk/c1t5d0s6	/dev/rdsk/c1t5d0s6	/mnt/t5	ufs	1	iscsi	-
/dev/dsk/c1t6d0s6	/dev/rdsk/c1t6d0s6	/mnt/t6	ufs	1	iscsi	-



Note

Due to network delays, targets may not always become available in the same order. This means that the order in which iSCSI devices are mounted may vary, and may not match the order of the devices listed in `/etc/vfstab`. You should not assume that mounts of iSCSI devices will occur in any particular order.

The “mount at boot” field in `/etc/vfstab` should never be set to “yes” for an iSCSI device, because the standard Solaris boot sequence mounts devices before the network is available. Mounts of iSCSI devices with the “mount at boot” field set to “yes” fail because the iSCSI devices are not available that early in the boot process. If a mount fails, a maintenance shell will start and the Solaris boot process will not complete until the shell is exited. A user at the console must exit from the shell to cause the boot process to complete without the listed devices mounted.

Unmounting Devices

All iSCSI devices must be unmounted before the iSCSI driver stops. If the iSCSI driver stops while iSCSI devices are mounted, buffered writes may not be committed to disk and filesystem corruption may occur. Because Solaris will not unmount devices that are being used by a running process, all processes using the iSCSI devices must be killed before the devices can be unmounted.

The `init.d` script automatically kills all processes using iSCSI devices, unmounts all iSCSI devices, and kills the iSCSI daemon, terminating all connections to iSCSI devices.

Rebooting Solaris

All iSCSI devices should be unmounted prior to a system shutdown.

The Solaris `/usr/sbin/reboot` command should not be used to reboot the system while iSCSI devices are mounted. This reboot command will not execute the iSCSI shutdown script in `/etc/rc0.d`, and file system corruption can occur.

To safely reboot the Solaris system, use the following shutdown command:

```
/usr/sbin/shutdown -i 6
```

Obtaining the iSCSI Driver

The Cisco Storage Networking iSCSI drivers, accompanying readme files, release notes and example configuration files are available for download to the general public and registered users of Cisco.com. Access the appropriate URL, as follows:

Access Type	URL
General public	http://www.cisco.com/cgi-bin/tablebuild.pl/sn5420
Registered Cisco.com users	http://www.cisco.com/cgi-bin/tablebuild.pl/sn5420 (You will be prompted to enter your user name and password.)

In addition, you can check these websites for information about the availability of new drivers, updated drivers, driver compatibility, and other relevant information.



Note

URLs are subject to change without notice. If the URL changes, go to <http://www.cisco.com> and click **Software Center** at **Service & Support**. At Software Center, click **Storage Networking Software**. Then, at Storage Networking Software, click **Cisco SN 5420 Storage Router Software**. If you are a registered Cisco.com user, be sure to log in first.

Upgrading to a New Software Version

To upgrade to a new version of iSCSI driver software, follow these instructions.



Note You must be super-user (root) to install and configure the iSCSI package.

- Step 1** Unmount all iSCSI file systems and stop the old iSCSI driver. To manually stop the iSCSI driver, enter:
- ```
/etc/init.d/iscsi stop
```
- Step 2** Save off the current /etc/NuScsiTcp.conf and /kernel/drv/sd.conf configuration files to another location.
- Step 3** Remove the old iSCSI package.
- ```
pkgrm CSCOiscsi
```
- Step 4** Copy the solaris_iscsi_<ver>.tar.Z file to a working directory, such as /usr/local/NuScsiTcp. Make the directory if it does not exist. If the directory does exist, remove any files from a previous installation. The <ver> is the three digit version, such as 1.8.9. For example:
- ```
mkdir /usr/local/NuScsiTcp
cp /tmp/solaris_iscsi_1.8.9.tar.Z /usr/local/NuScsiTcp
```
- Step 5** Change to the working directory created in Step 4, and untar the file using the tar command. For example:
- ```
cd /usr/local/NuScsiTcp
uncompress solaris_iscsi_1.8.9.tar.Z
tar xvf solaris_iscsi_1.8.9.tar
```
- Your working directory (/usr/local/NuScsiTcp in the examples above) now contains the iSCSI package. The package contains the drivers and associated files.
- Step 6** Add the package.
- ```
cd /usr/local/NuScsiTcp
pkgadd -d . CSCOiscsi
```
- The package installation instructions note that the system must be rebooted. Continue with the following configuration steps before rebooting the system.
- Step 7** Compare the current /etc/NuScsiTcp.conf file to the NuScsiTcp.conf file saved in Step 2. Update it with any new information from the upgrade file, and save it as /etc/NuScsiTcp.conf.
- Step 8** Compare the current /kernel/drv/sd.conf to the sd.conf file saved in Step 2. Update it with any new information from the upgrade file, and save it as /kernel/drv/sd.conf.
- Step 9** Reboot the system to start and reload the iSCSI driver. If you do not want to reboot the machine at this time, use the following command to start the iSCSI devices immediately.
- ```
/etc/init.d/iscsi start
```

Step 10 Rebooting the system in Step 9 should reconfigure devices and load the iSCSI driver. Once the iSCSI daemon starts, execute the commands in [Example 1](#) or [Example 2](#) to reconfigure the SCSI disk devices:

Example 1 *Configure the /devices Directory and Create /dev Entries*

```
drvconfig
disks
```

Example 2 *Solaris Administration Command for /dev and /devices*

```
devfsadm
```

Uninstalling iSCSI Driver Software

To uninstall the iSCSI driver software, follow these instructions:

Step 1 Unmount all iSCSI devices and stop the driver. For example:

```
/etc/init.d/iscsi stop
```

You may want to save the /etc/NuScsiTcp.conf configuration file to another location before proceeding with the removal process.

Step 2 Remove the iSCSI driver. You must have super-user (root) authority to remove the driver.

```
pkgrm CSCOiscsi
```

All configuration files installed by the package will be deleted.

Caveats

Caveats describe unexpected behavior or defects in iSCSI software versions. Severity 1 caveats are the most serious caveats; severity 2 caveats are less serious.

- The “[Open Caveats](#)” section describes open severity 1 and 2 caveats that apply to the current version and may apply to previous versions.
- The “[Resolved Caveats](#)” section describes severity 1 and 2 caveats resolved in this version, but open in previous versions.

Within the sections, the caveats are sorted alphanumerically by caveat number.



Note

If you have an account with Cisco.com, you can use Bug Navigator II to find caveats of any severity for any version. You can reach Bug Navigator II on Cisco.com at Service & Support: http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl.

Open Caveats

There are no severity 1 or 2 caveats open against the iSCSI driver for Sun Solaris version 1.8.9.

Resolved Caveats

- CSCdu33985

The *pkgadd* command requires write access to `/usr/local/bin` to successfully install the Solaris iSCSI device driver version 1.8.8. If `/usr/local/bin` is not writable, the *pkgadd* command fails, the iSCSI daemon is not installed, and the iSCSI “init.d” script fails to work correctly.

Workaround: If `/usr/local/bin` cannot be made writable, manually copy the file `CSCOiscsi/reloc/usr/local/bin/nuscsitcpd` into the desired install directory. Edit all references to `/usr/local/bin/nuscsitcpd` in the script `/etc/init.d/iscsi` to reference the desired install directory.



Note As part of the resolution of this caveat, the iSCSI driver installation procedure was modified to prompt the user to select a base directory for installation purposes. See the iSCSI driver readme file for complete installation instructions.

- CSCdu41043

The Solaris iSCSI driver version 1.8.8 queues SCSI commands received after a TCP connection drop until a new connection to an iSCSI device can be created. Once a new connection is made, it is possible for the driver to alternate sending new and queued SCSI commands to that device. If the SCSI commands are interdependent, such as two writes to the same block on an iSCSI device, re-ordering the commands may result in incorrect results.

Workaround: There is no workaround in version 1.8.8. Upgrade to version 1.8.9, which corrects the problem.

Related Documentation

The following sections describe the related documentation available for the Cisco Storage Networking iSCSI Driver for Sun Solaris version 1.8.9 and the Cisco SN 5420 Storage Router. These documents consist of the iSCSI driver release notes, readme and example configuration files, and the storage router hardware installation and software configuration guides.

The storage router hardware installation and software configuration documentation sets are available as printed manuals or electronic documents. The iSCSI driver readme file and example configuration file are available in electronic format, as part of the software download package. See the [“Obtaining the iSCSI Driver” section on page 4](#) for details.

Release-Specific Documents

This Release Notes document is the only document specific to Cisco Storage Networking iSCSI Driver for Sun Solaris version 1.8.9. It is located on Cisco.com and the Documentation CD-ROM.

Each release of storage router software includes an associated Release Notes document, which is also available as an electronic document on Cisco.com and the Documentation CD-ROM.

Hardware Documents

Refer to the *Cisco SN 5420 Storage Router Hardware Installation Guide* for storage router hardware installation procedures. This document is available as a printed manual. It is also available as an electronic document on Cisco.com and the Documentation CD-ROM.

Software Documents

Refer to the *Cisco SN 5420 Storage Router Software Configuration Guide* for storage router software configuration information and procedures. This document is available as a printed manual. It is also available as an electronic document on Cisco.com and the Documentation CD-ROM.

For documentation on the storage router web-based GUI, refer to the SN 5420 Storage Router web-based GUI online Help system.

Service and Support

For service and support for a product purchased from a reseller, contact the reseller, who offers a wide variety of Cisco service and support programs described in “Service and Support” of Cisco Information Packet shipped with your product.

**Note**

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The following sections explain how to obtain documentation from Cisco Systems.

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<http://www.cisco.com>

Translated documentation is available at the following URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which is shipped with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual subscription.

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http://www.cisco.com/cgi-bin/order/order_root.pl
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Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available through the Cisco TAC: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Inquiries to Cisco TAC are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.

- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Which Cisco TAC resource you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

Cisco TAC Web Site

The Cisco TAC Web Site allows you to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to the following URL:

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

All customers, partners, and resellers who have a valid Cisco services contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to the following URL to register:

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

If you cannot resolve your technical issues by using the Cisco TAC Web Site, and you are a Cisco.com registered user, you can open a case online by using the TAC Case Open tool at the following URL:

<http://www.cisco.com/tac/caseopen>

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses issues that are classified as priority level 1 or priority level 2; these classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer will automatically open a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to the following URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled; for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). In addition, please have available your service agreement number and your product serial number.

This document is to be used in conjunction with the documents listed in the “Related Documentation” section.

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