



# Release Notes for Cisco iSCSI Driver for HP-UX Version 1.8.1

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April 22, 2002



Note

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You can find the most current documentation on Cisco.com. This set of electronic documents may contain updates and modifications made after the hard-copy documents were printed.

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These release notes support Cisco iSCSI Driver for HP-UX version 1.8.1.

For a list of software caveats that apply to version 1.8.1, see the “[Open Caveats](#)” section. The caveats are updated for every maintenance version and are located on Cisco.com and the Documentation CD-ROM.

## Contents

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# Introduction

The Cisco iSCSI Driver for HP-UX provides an IP host 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 IP host and a Cisco SN 5420 Storage Router.

Architecturally, the iSCSI driver combines with the IP host TCP/IP stack, network drivers, and network interface cards (NICs) to provide the same functions as a SCSI or a Fibre Channel 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 IP host 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, a discovery process for iSCSI storage devices will proceed as follows:

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- 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 iSCSI driver.
  - Step 3 The iSCSI driver logs into the iSCSI targets.
  - Step 4 The storage router accepts the server login and sends target identifiers.
  - Step 5 The iSCSI driver queries targets for device information.
  - Step 6 Targets respond with device information.
  - Step 7 The iSCSI driver creates a table of internal devices.
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The Cisco iSCSI Driver for HP-UX provides IP access to a maximum of eight remote SCSI targets, with each target capable of supporting eight LUNs.

**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>.

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## System Requirements

This section describes the system requirements for version 1.8.1 and includes the following information:

- [Operating System Requirements, page 3](#)
- [SN 5420 Storage Router Software Requirements, page 4](#)
- [Obtaining the iSCSI Driver and Updated Storage Router Software, page 4](#)
- [Uninstalling iSCSI Driver Software, page 5](#)

## Operating System Requirements

The Cisco iSCSI Driver for HP-UX requires an HP computer running HP-UX 10.20.

Compiling the driver requires some include files from the kernel; the appropriate “kernel-headers” package must be installed on the compiling host. Once compiled, the iSCSI driver object and executable code can be moved to another host running the same level of the HP-UX operating system.

The driver supports single-processor and multiprocessor machines. For multiprocessor machines the driver supports up to four processors.

## Mounting Filesystems

Filesystems must be created on iSCSI devices before doing a mount operation. Use the HP-UX “nugetdevs” command to identify iSCSI devices on the system.

Once filesystems have been created on the iSCSI devices, they can be configured to be mounted automatically during system reboot or when the iSCSI services are manually started. The iSCSI start script (/sbin/rc2.d/S890iscsi) looks for entries in the /etc/fstab.iscsi file and attempts to mount those entries after the iSCSI daemon starts. This allows the iSCSI devices to be automatically mounted as early as possible in the boot process.

If the iSCSI services are manually started (using /sbin/init.d/NuScsiTcp start), the iSCSI start script attempts to automatically mount the filesystems specified in the /etc/fstab.iscsi file.



**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/fstab.iscsi. You should not assume that mounts of iSCSI devices will occur in any particular order.

## Unmounting Filesystems

All filesystems on iSCSI devices must be unmounted before the iSCSI driver is stopped. If the iSCSI driver stops while iSCSI devices are mounted, buffered writes may not be committed to disk and filesystem corruption may occur.

HP-UX will not unmount filesystems that are being used by a running process. Before the filesystems can be unmounted, all processes using the iSCSI devices must be killed.

During system shutdown, the iSCSI stop script (/etc/rc1.d/K310iscsi) is called from the system shutdown procedure. The iSCSI stop script looks for entries in /etc/fstab.iscsi and unmounts the filesystems.

## Rebooting HP-UX

All accesses to iSCSI devices should be stopped and all iSCSI devices should be unmounted prior to a system shutdown.

The HP-UX /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 /sbin/rc1.d, and file system corruption can occur.

To safely reboot the HP-UX system, use the following shutdown command:

```
/usr/sbin/shutdown -r -y
```

## SN 5420 Storage Router Software Requirements

The iSCSI Driver for HP-UX version 1.8.1 can connect to a Cisco SN 5420 Storage Router running software release 1.1.x; this driver cannot connect to a Cisco SN 5420 Storage Router running software release 2.1.x.

**Note**

If the iSCSI Driver for HP-UX version 1.8.1 connects to an SN 5420 Storage Router running software release 1.1.8, LUNs may intermittently appear offline to the IP host when SCSI routing instances are stopped and restarted. If this occurs, retry the LUN discovery/activation process on the IP host. For more details about this situation, access Cisco.com as described in the section “Cisco.com” at the end of this document and reference SN 5420 caveat CSCdx23526.

## Obtaining the iSCSI Driver and Updated Storage Router Software

From time to time, Cisco releases updated versions of storage router software and iSCSI drivers. Updated versions of storage router software and the Cisco iSCSI drivers, accompanying readme files, release notes and example configuration file are available for download.

If you are a registered Cisco.com user, you can download storage router software and iSCSI drivers. If you are a non-registered Cisco.com user, you can download only iSCSI drivers.

You can access software by following these instructions:

- Step 1** At <http://www.cisco.com> (or <http://www.cisco.com/login/cisco/>, if you are a registered Cisco.com user and logged in), under **Service & Support**, click **Software Center**.
- Step 2** At the Software Center web page, under **Software Products & Downloads**, click **Storage Networking Software**.
- Step 3** At the Storage Networking Software web page, click the appropriate link for your software. For example, click **Cisco SN 5420 Storage Router Software** for SN 5420 software.
- Step 4** At the software download web page, click the file that you want to download. Another software download web page will be displayed with detailed information about the download file and Cisco's Software License Agreement. Follow instructions on that page to download the software.
- Step 5** To install and configure storage router software, see the appropriate SN 5420 Storage Router software configuration guide and release notes. To install and configure an iSCSI driver, see the readme file that accompanies the iSCSI driver (in the downloaded driver archive file) and the appropriate release notes.

## Uninstalling iSCSI Driver Software

To uninstall the iSCSI driver software, follow these instructions. You must have super-user (root) authority to remove the iSCSI driver.

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- Step 1** Stop all applications using iSCSI devices, unmount all iSCSI filesystems and manually stop the iSCSI driver. For example:
- ```
/sbin/init.d/NuScsiTcp stop
```
- Step 2** Use SAM to remove the iSCSI driver, or remove the driver manually. The removal procedure compiles a new kernel that will not include the iSCSI driver. For example:
- ```
swremove ISCSI
```
- Step 3** Reboot the HP-UX system.
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## Open Caveats

This document lists caveats for Cisco iSCSI Driver for HP-UX version 1.8.1. Caveats describe unexpected behavior or defects in iSCSI software versions. Severity 1 caveats are the most serious caveats; severity 2 caveats are less serious.

This document describes open severity 1 and 2 caveats and selected caveats of other severities. For a more complete list of caveats against this release, access Cisco.com as described in the section “Cisco.com” at the end of this document.



### 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](http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl).

- CSCdx14423

If the `/etc/NuScsiTcp.conf` file contains IP addresses for multiple SCSI routing instances, only the first entry is used. The remaining entries are ignored.

Workaround: Configure a single SCSI routing instance to support the required targets for the HP-UX iSCSI driver. The SCSI routing instance can be configured in an SN 5420 Storage Router that is configured either in a cluster or as a stand-alone storage router.

- CSCdx25596

If connectivity to an iSCSI target is lost for more than five minutes while I/O is being issued to it, read or write failures may occur, the system may panic, or volume groups may become deactivated.

Connectivity loss may be caused by events such as cable removal, SCSI routing instance configuration changes, stopping a SCSI routing instance, or powering down an SN 5420 Storage Router.

If volume groups are deactivated, the `syslog` contains messages similar to the following:

```
LVM: Failed to recover a link to PV 0 in vg[4]!
SLVM: in lv_analyze_intrusive_test_results, Error: 0x16
```

Workaround: Stop all applications and unmount filesystems before doing anything that will cause long term loss of iSCSI target availability. When the targets become available, reactivate volume groups if necessary. In the following example, the volume group `vg01` is reactivated:

```
vgchange -a y vg01
```

If necessary, run “fsck” before remounting the filesystem.

## Related Documentation

The following sections describe the related documentation available for the Cisco iSCSI Driver for HP-UX version 1.8.1 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 and Updated Storage Router Software”](#) section on page 4 for details.

## Release-Specific Documents

This Release Notes document is the only document specific to Cisco iSCSI Driver for HP-UX version 1.8.1. 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 Release 1.1*, 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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If you purchased your product from a reseller, you can access Cisco.com as a guest. Cisco.com is Cisco Systems’ primary real-time support channel. Your reseller offers programs that include direct access to Cisco.com services.

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For service and support for a product purchased directly from Cisco, use Cisco.com.

## Software Configuration Tips on the Cisco TAC Home Page

A variety of Cisco SN 5420 Storage Router software and iSCSI driver installation, configuration and usage tips are available on the Cisco Technical Assistance Center (TAC) Web Site.

You can access “tech tips” by following these instructions:

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- Step 1** At <http://www.cisco.com> (or <http://www.cisco.com/login/cisco/>, if you are a registered Cisco.com user and logged in), under **Products & Technologies**, select **Routers** from the drop-down list.
  - Step 2** At the Cisco Routers web page, under **Cisco SN 5420 Storage Router Software**, click **Product Support**.
  - Step 3** At the Cisco SN 5420 Storage Router Product Support web page, click the appropriate links for additional information about installing and configuring SN 5420 Storage Router software and iSCSI drivers.
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## Obtaining Documentation

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

### World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following URL:

<http://www.cisco.com>

Translated documentation is available at the following URL:

[http://www.cisco.com/public/countries\\_languages.shtml](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.

## Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:  
[http://www.cisco.com/cgi-bin/order/order\\_root.pl](http://www.cisco.com/cgi-bin/order/order_root.pl)
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:  
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco corporate headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

## Documentation Feedback

If you are reading Cisco product documentation on Cisco.com, you can submit technical comments electronically. Click the **Fax** or **Email** option under the “Leave Feedback” at the bottom of the Cisco Documentation home page.

You can e-mail your comments to [bug-doc@cisco.com](mailto:bug-doc@cisco.com).

To submit your comments by mail, use the response card behind the front cover of your document, or write to the following address:

Cisco Systems  
Attn: Document Resource Connection  
170 West Tasman Drive  
San Jose, CA 95134-9883

We appreciate your comments.

## Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools by using the Cisco Technical Assistance Center (TAC) Web Site. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC Web Site.

## Cisco.com

Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information, networking solutions, services, programs, and resources at any time, from anywhere in the world.

Cisco.com is a highly integrated Internet application and a powerful, easy-to-use tool that provides a broad range of features and services to help you to

- Streamline business processes and improve productivity
- Resolve technical issues with online support
- Download and test software packages
- Order Cisco learning materials and merchandise
- Register for online skill assessment, training, and certification programs

You can self-register on Cisco.com to obtain customized information and service. To access Cisco.com, go to the following URL:

<http://www.cisco.com>

## 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, 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.

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



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