Release Notes for Cisco iSCSI Driver Version 3.2.1 for Linux

May 30, 2003

Note 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.

These release notes support Cisco iSCSI Driver version 3.2.1 for Linux.

For a list of software caveats that apply to version 3.2.1, see the "Caveats" section. The caveats are updated for every maintenance version and are located on Cisco.com and the Documentation CD-ROM.

Contents

These Release Notes describe the following topics:

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Introduction

The Cisco iSCSI Driver for Linux provides an IP host with the ability to access storage through an IP network. The iSCSI driver uses the iSCSI protocol to transport SCSI requests and responses over an IP network between the IP host and a Cisco SN 5400 or MDS 9000 Series system.

Architecturally, the iSCSI driver combines with the IP host's TCP/IP stack, network drivers, and network interface cards (NICs) to provide the same functions as a SCSI or 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 5400 or MDS 9000 Series system via an IP network. The SN 5400 or MDS 9000 Series system, in turn, transports SCSI requests and responses between it and the storage devices attached to it.

Once the iSCSI driver is installed and started, the host proceeds with a discovery process for storage devices.

A more technical description of the driver's design and its features can be found in the readme file that accompanies the iSCSI driver in the downloaded driver archive file.

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 3.2.1 and includes the following information:

Operating System Requirements

- This driver requires a Linux kernel version 2.4.16 or later, running on an Intel IA32 (80386, 80486, Pentium) or equivalent, processor. Compilation requires that the kernel header files match the kernel version you want to use the driver with. Once compiled, the objects and executables can be moved to another host running the same level of the operating system.
- If you are running a kernel binary compiled for you by a Linux vendor, the iSCSI driver must be compiled against the source code distributed by the Linux vendor, without any modifications. The process of compiling a custom kernel from source makes modifications to the files in the kernel source tree, and an iSCSI driver compiled against a modified kernel source tree may not run on a kernel binary distributed by the Linux vendor.

  If you have already made changes to the kernel source tree and you wish to run the iSCSI driver on one of the vendor's kernel binaries, you will need to reinstall the kernel source code provided by the Linux vendor.
- The driver supports single-processor and multiprocessor machines.

- To ensure the best performance for iSCSI drivers, the extended windowing feature of TCP should be enabled on all IP hosts connecting to the SN 5400 Series system. In general, a larger window size enhances SN 5400 Series system performance.
- The receive and transmit flow control feature of the Gigabit Ethernet driver should be enabled on all IP hosts connecting to the SN 5400 Series system.
- Linux kernels released after January 11, 2003 may or may not work with this driver, depending on what changes have been made to the kernel's SCSI midlayer code. See the readme file for additional information about known problems with specific versions Linux kernel code.

Note Additional information about Linux kernel issues can be found in the Linux Kernel HOWTO document at http://www.linux.org/docs/.

SN 5400 Series System Software Requirements

The iSCSI Driver version 3.2.1 for Linux is interoperable with a Cisco SN 5400 Series system running software release 3.2.1 or later. This version of the driver is not interoperable with a Cisco SN 5400 Series system running software release 2.5.x or earlier.

MDS 9000 Series System Software Requirements

The iSCSI Driver version 3.2.1 for Linux is interoperable with a Cisco MDS 9000 Series system running SAN-OS Release 1.1(1) or later.

New and Changed Information

- Support for two-way CHAP (Challenge Handshake Authentication Protocol) authentication—Provides for two way authentication between the target and the initiator. The authentication feature on the SN 5400 system must be enabled to use this feature.
- Target portal failover—Enables the iSCSI driver to attempt to connect to a target using the next available IP address if an existing target connection fails. A "preferred portal" can also be specified.
- Multipath I/O software support—Allows third-party multipath I/O software applications to be used in conjunction with the iSCSI driver.
- Dynamic reconfiguration—Allows configuration changes to be made to the iSCSI driver without having to stop it or without having to reboot the system.
- The iSCSI driver now supports Red Hat Linux 9.0.
- Prior to version 3.2.1, the iSCSI driver used the file /var/iscsi/bindings instead of /etc/iscsi.bindings. The first time you start the new driver version, it will change the location and the name of the bindings file to /etc/iscsi.bindings.
- Prior to version 3.2.1, the iSCSI driver installation saved the /etc/iscsi.conf file as /etc/iscsi.conf.new. Starting with version 3.2.1, the iSCSI driver installation saves the /etc/iscsi.conf file as /etc/iscsi.conf.<version>.

See the readme file for additional information about all new features.

Installation Notes

This section describes how to obtain iSCSI driver software and upgrade an existing iSCSI driver installation, and includes the following information:

Downloading the iSCSI Driver

Registered Cisco.com users can download the most current SN 5400 Series system software, Cisco iSCSI drivers, readme files and release notes from Cisco.com. In addition, information about driver compatibility and other relevant driver information is available on Cisco.com. You can access software and related information by following these instructions:

Step 1 At http://www.cisco.com, log in to Cisco.com. Click **Technical Support** and **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.

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 the instructions on that and any subsequent web pages to download the software.

Step 5 To install and configure storage router software, see the appropriate 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.

Configuration guides and release notes are available online. You can access online documentation by following these instructions:

Step 1 At http://www.cisco.com, click **Products & Services** and **Storage Networking Products**.

Step 2 At the Cisco Storage Networking Products web page, click **Cisco SN 5400 Series Storage Routers**.

Step 3 At the Cisco SN 5400 Series Storage Routers web page, click **Technical Documentation**. On the Technical Documentation web page, choose the appropriate link for documentation, release notes, or other related information.

Installing, Upgrading and Uninstalling iSCSI Driver Software

For complete procedures to install and configure, upgrade, or uninstall iSCSI driver software, refer to the readme file that accompanies the iSCSI driver (in the downloaded driver archive file).

Limitations and Restrictions

The Cisco iSCSI driver for Linux no longer supports a Linux kernel version 2.2.x. The iSCSI driver requires a 2.4.x Linux kernel version.

Caveats

Caveats describe unexpected behavior or defects in the 3.2.1 version of the driver. Severity 1 caveats are the most serious caveats; severity 2 caveats are less serious.

There are no open or resolved severity 1 or 2 caveats for the iSCSI Driver version 3.2.1 for Linux.

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.

Troubleshooting

Cisco iSCSI driver troubleshooting information is available on the Cisco.com web site.

You can access troubleshooting information by following these instructions:

Step 1 At http://www.cisco.com, log in to Cisco.com. Click **Products & Services**, and select **Storage Networking Software** from the menu.

Step 2 At the Cisco Storage Networking Software web page, click **Cisco iSCSI Drivers**, and then click **Technical Documentation**.

Step 3 At the Technical Documentation web page, click the **Tech Notes** link.

Step 4 At the Tech Notes page, click the appropriate link for your iSCSI driver.

You can access iSCSI driver FAQs by following these instructions:

Step 1 At http://www.cisco.com, log in to Cisco.com. Click **Products & Services**, and select **Storage Networking Software** from the menu.

Step 2 At the Cisco Storage Networking Software web page, click **Cisco iSCSI Drivers**, and then click **Product Literature**.

Step 3 At the Product Literature web page, click the **Q&A** link.

Step 4 At the Q&A page, click the appropriate link for your iSCSI driver.

Related Documentation

The following sections describe the related documentation available for the iSCSI Driver version 3.2.1 for Linux, and the Cisco SN 5400 and MDS 9000 Series systems. These documents consist of the iSCSI driver release notes and readme file, and the SN 5400 and MDS 9000 Series system hardware installation and software configuration guides.

The SN 5400 and MDS 9000 Series system hardware installation and software configuration documentation sets are available as printed manuals or electronic documents. The iSCSI driver readme file is available in electronic format, as part of the software download package. See the "Downloading the iSCSI Driver" section on page 4 for details.

Release-Specific Documents

This Release Notes document is the only document specific to iSCSI Driver version 3.2.1 for Linux. It is located on Cisco.com and the Documentation CD-ROM.

Each release of SN 5400 and MDS 9000 Series system 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 appropriate SN 5400 or MDS 9000 Series system hardware installation guide for hardware installation procedures. The *Cisco SN 5428 Storage Router Hardware Installation Guide* provides hardware installation procedures for SN 5428 Storage Routers. The *Cisco SN 5428-2 Storage Router Hardware Installation Guide* provides hardware installation procedures for SN 5428-2 Storage Routers. These documents are available as printed manuals. They are also available as electronic documents on Cisco.com and the Documentation CD-ROM

Software Documents

Refer to the appropriate SN 5400 or MDS 9000 Series system software configuration guide for software configuration information. The *Cisco SN 5428 Storage Router Software Configuration Guide Release 3.2* (or later) provides configuration information for SN 5428 Storage Routers. The *Cisco SN 5428-2 Storage Router Software Configuration Guide Release 3.2* (or later) provides configuration information for SN 5428-2 Storage Routers. These documents are available as printed manuals. They are also available as electronic documents on Cisco.com and the Documentation CD-ROM.

For documentation on the SN 5400 Series system web-based GUI, refer to the SN 5400 Series system 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 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.

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 5400 Series system 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:

Step 1 At http://www.cisco.com, log in to Cisco.com. Click **Technical Support**, and select **Hardware Support** from the menu.

Step 2 At the Hardware Support web page, click **Storage Networking Devices** from the Hardware Support menu on the left side of the page.

Step 3 At the Storage Networking Devices web page, click the appropriate link for your system. For example, click the **SN 5428 Storage Routers** link.

Step 4 Click the **Troubleshooting** link, and then click the appropriate links for information about installing, configuring, and troubleshooting SN 5400 Series system software and iSCSI drivers.

Obtaining Documentation

Cisco provides several ways to obtain documentation, technical assistance, and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

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

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

International Cisco websites can be accessed from this 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 may have shipped with your product. The Documentation CD-ROM is updated regularly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual or quarterly subscription.

Registered Cisco.com users can order a single Documentation CD-ROM (product number DOC-CONDOCCD=) through the Cisco Ordering tool:

http://www.cisco.com/en/US/partner/ordering/ordering_place_order_ordering_tool_launch.html

All users can order monthly or quarterly subscriptions through the online Subscription Store:

http://www.cisco.com/go/subscription

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:

  http://www.cisco.com/en/US/partner/ordering/index.shtml

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can submit comments electronically on Cisco.com. On the Cisco Documentation home page, click **Feedback** at the top of the page.

You can e-mail your comments to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

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

We appreciate your comments.

Obtaining Technical Assistance

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

Cisco.com

Cisco.com offers a suite of interactive, networked services that let you access Cisco information, networking solutions, services, programs, and resources at any time, from anywhere in the world.

Cisco.com provides a broad range of features and services to help you with these tasks:

- 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

To obtain customized information and service, you can self-register on Cisco.com at this URL:

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

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: the Cisco TAC website and the Cisco TAC Escalation Center. The type of support that you choose depends on the priority of the problem and the conditions stated in service contracts, when applicable.

We categorize Cisco TAC inquiries according to urgency:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration. There is little or no impact to your business operations.
- Priority level 3 (P3)—Operational performance of the network is impaired, but most business operations remain functional. You and Cisco are willing to commit resources during normal business hours to restore service to satisfactory levels.
- Priority level 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively impacted by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.
- Priority level 1 (P1)—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.

Cisco TAC Website

The Cisco TAC website provides online documents and tools to help troubleshoot and resolve technical issues with Cisco products and technologies. To access the Cisco TAC website, go to this URL:

http://www.cisco.com/tac

All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC website. Some services on the Cisco TAC website require 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 this URL to register:

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

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC website, you can open a case online at this URL:

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

If you have Internet access, we recommend that you open P3 and P4 cases online so that you can fully describe the situation and attach any necessary files.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. 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 automatically opens a case.

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

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

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

Obtaining Additional Publications and Information

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

- The *Cisco Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the *Cisco Product Catalog* at this URL:

  http://www.cisco.com/en/US/products/products_catalog_links_launch.html

- Cisco Press publishes a wide range of networking publications. Cisco suggests these titles for new and experienced users: *Internetworking Terms and Acronyms Dictionary, Internetworking Technology Handbook, Internetworking Troubleshooting Guide,* and the *Internetworking Design Guide.* For current Cisco Press titles and other information, go to Cisco Press online at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access *Packet* magazine at this URL:

  http://www.cisco.com/go/packet

- iQ Magazine is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:

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

- 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/en/US/about/ac123/ac147/about_cisco_the_internet_protocol_journal.html

- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:

  http://www.cisco.com/en/US/learning/le31/learning_recommended_training_list.html

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