



Release Notes for Cisco iSCSI Driver Version 2.2.1 for Microsoft Windows NT

March 21, 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 2.2.1 for Microsoft Windows NT.

For a list of software caveats that apply to version 2.2.1, see the “[Caveats](#)” section. The caveats are updated for every maintenance version and are located on Cisco.com and the Documentation CD-ROM.

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Introduction

The iSCSI Driver for Microsoft Windows NT 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 5400 Series system.

Architecturally, the iSCSI driver combines with the 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 5400 Series system via an IP network. The SN 5400 Series system, in turn, transports SCSI requests and responses between it and the storage devices attached to it.

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

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- Step 1 The iSCSI driver requests available iSCSI targets from the SN 5400 Series system.
 - Step 2 The SN 5400 Series system sends available iSCSI target names to the IP host.
 - Step 3 The IP host logs into the iSCSI targets.
 - Step 4 The SN 5400 Series system accepts the IP host login and sends target identifiers.
 - Step 5 The IP host queries targets for device information.
 - Step 6 Targets respond with device information.
 - Step 7 The IP host creates a table of internal devices.
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The iSCSI Driver for Microsoft Windows NT provides IP access to a maximum of eight remote SCSI targets, with each target capable of supporting 255 LUNs. Remote SCSI targets can be accessed through one or more SN 5400 Series systems up to a maximum of eight SN 5400 Series systems.

**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 2.2.1 and includes the following information:

- [Operating System Requirements, page 3](#)
- [SN 5400 Series System Software Requirements, page 3](#)

Operating System Requirements

- The iSCSI Driver for Microsoft Windows NT requires Microsoft Windows NT Workstation or Server (including Windows NT Server - Enterprise Edition, and Windows NT Server - Terminal Server Edition) version 4.0 with service pack 6a or later and Microsoft hotfix Q319420. This hotfix does not appear on the Microsoft hotfix website; you must specifically request it.



Note If you are running Microsoft Windows NT version 4.0 without a service pack or with a service pack less than 6a, you must upgrade to service pack 6a and apply Microsoft hotfix Q319420.

To obtain the hotfix, call Microsoft customer support at 1-800-936-4900 (or any Microsoft customer support phone number) and request the hotfix for Knowledge Base (KB) article Q319420. You will be asked to supply an e-mail address. You will receive an e-mail message with a link to an FTP site where you can download the hotfix. The e-mail message will also contain a password that you will be prompted to enter when you open the hotfix file.

For additional information about the hotfix, access the Microsoft website at <http://www.microsoft.com> and follow the support link to view KB article Q319420.

- The iSCSI Driver for Microsoft Windows NT can be run on the Japanese language-version of Microsoft Windows NT Server or Workstation. The required version, service pack and hotfix information is the same as previously described.
- The iSCSI Driver for Microsoft Windows NT supports both uniprocessors and multi-processors.
- 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.
- If you are using a 3Com Gigabit Ethernet Server network interface card, the minimum supported revision level is “B” (3C985B-SX). Using a card with a lower revision level will decrease performance.



Note This driver will not work with computers running Microsoft Windows 2000.

SN 5400 Series System Software Requirements

The iSCSI Driver for Microsoft Windows NT version 2.2.1 can connect to a Cisco SN 5400 Series system running software release 2.1.1 or later; this driver cannot connect to a Cisco SN 5420 Storage Router running software release 1.1.x.

Installation Notes

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

- [Obtaining the iSCSI Driver and Updated SN 5400 Series System Software, page 4](#)
- [Determining the iSCSI Driver Version, page 5](#)
- [Installing iSCSI Driver Software, page 5](#)
- [Upgrading to a New Version, page 5](#)
- [Uninstalling iSCSI Driver Software, page 6](#)

Obtaining the iSCSI Driver and Updated SN 5400 Series System Software

Registered Cisco.com users can download the most current SN 5400 Series system software, Cisco iSCSI drivers, readme files, release notes and example configuration files 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:

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- 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:

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- 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.
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Determining the iSCSI Driver Version

To determine the version of the iSCSI driver software installed on the IP host, open Control Panel and double-click the iSCSI Config icon. The lower left corner of the dialog box shows the version number of the iSCSI Config program and the title bar shows the operating system it is intended for. Click **Status** to show the version information of the iSCSI driver on the top line.

You can also verify version information by checking the file versions of these files:

- iscsi.sys
- iscsicfg.cpl

Follow these steps:

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- Step 1** Use Windows Explorer to navigate to the c:\winnt\system32\drivers directory.
 - Step 2** Right-click the file iscsi.sys and then click **Properties** from the shortcut menu. The Properties dialog box displays.
 - Step 3** Click the **Version** tab. The file version information displays in the File version field.
 - Step 4** Navigate to the c:\winnt\system32\ directory.
 - Step 5** Right-click the file iscsicfg.cpl and then click **Properties** from the shortcut menu. The Properties dialog box displays.
 - Step 6** Click the **Version** tab. The file version information display in the File version field. The file version information should be the same in both files.
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Installing iSCSI Driver Software

Refer to the readme file that accompanies the iSCSI driver (in the downloaded driver archive file) for complete installation and configuration procedures.

Upgrading to a New Version

If you are installing the iSCSI driver software from a floppy disk or a CD-ROM, be sure that the driver files are in the root directory. If you are installing the iSCSI driver software from a hard drive, the files can be located in a directory anywhere on the hard drive.

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

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- Step 1** Log on to the computer as a user with administrator privileges.
 - Step 2** Open Control Panel and double-click the SCSI Adapters icon. The **SCSI Adapters** dialog box opens.
 - Step 3** Close Control Panel. Control Panel must be closed to ensure that all the driver files will be appropriately updated. If Control Panel is open during the remaining steps in the upgrade process, certain driver files cannot be correctly updated.
 - Step 4** At the SCSI Adapters dialog box, click the **Drivers** tab.
 - Step 5** Click **Add**.
 - Step 6** At the Install Driver dialog box, click **Have Disk**. The Install From Disk dialog box opens.

- Step 7** At the Install From Disk dialog box, select the source location for the driver files from the **Copy manufacturer's file from** list and click **OK**. Clicking OK opens another Install Driver dialog box.
- Step 8** At the Install Driver dialog box opened in the previous step, select **Iscsi Driver** and click **OK**.

**Note**

If you are installing a new version of the driver over an existing one, and you are not certain that Control Panel was closed in Step 2, you must manually copy the newer version of the `iscsicfg.cpl` file from the installation source to the `c:\winnt\system32` directory. If you manually copy the newer version of the `iscsicfg.cpl` file over the older one, make sure that Control Panel is closed.

See the readme file for additional information about installing and configuring the iSCSI driver software.

Uninstalling iSCSI Driver Software

To uninstall iSCSI driver software, follow these instructions:

- Step 1** Log on to the computer as a user with administrator privileges.
- Step 2** Open Control Panel and double-click the **SCSI Adapters** icon. The SCSI Adapters dialog box opens.
- Step 3** Click the **Drivers** tab and select the iSCSI driver (Iscsi Driver).
- Step 4** Click **Remove** and **OK**.
- Step 5** Restart the computer. If you want to reinstall the driver after removing it, you must restart the server first.

New and Changed Information

The iSCSI driver uses Microsoft Windows NT network services to connect to iSCSI remote target nodes that are defined using the iSCSI control panel applet. The iSCSI driver version 2.2.1 supports two configurations, *normal boot* and *early boot*.

When configured for normal boot, Microsoft Windows NT networking is not available at the time the OS boots up, so the actual iSCSI targets and devices cannot be seen at that time. The iSCSI driver conceals this from the OS by feeding back saved SCSI Inquiry data.

Because only the saved Inquiry data is returned until the OS can access the actual devices, the OS knows nothing else about those devices, and it cannot assign DOS drive letters automatically. The iSCSI driver assigns the drive letters for the OS by using configuration information retrieved from the Registry.

When configured for early boot, the iSCSI driver makes sure that the networking services are operational even before it initializes itself during the OS boot process. Therefore, it is able to connect to the actual iSCSI targets and it is able to respond to the SCSI Inquiry commands sent by the OS. When configured for early boot, the iSCSI driver does not need to use the saved SCSI Inquiry data.

The iSCSI driver will not allow the OS to communicate with the devices at startup until all of the remote target IP addresses have responded.

See the readme file for additional information about configuring the iSCSI driver software for normal boot or early boot.

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.

This document describes open and resolved severity 1 and 2 caveats and selected caveats of other severities:

- The “[Open Caveats](#)” section lists open caveats that apply to the current version and may apply to previous versions.
- The “[Resolved Caveats](#)” section list 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

- CSCdt82378

This problem occurs when a Microsoft Windows NT server is attached to LSI RAID via a Cisco SN 5420 Storage Router, and the server has both the iSCSI and RDAC drivers installed. RDAC is LSI's dual path failover driver. When the server is running both drivers, the NT Disk Administrator will see redundant paths to each LSI RAID disk when the Windows NT server is rebooted.

Workaround: Use the LSI “hot_add” utility to save boot information, instead of using the iSCSI driver’s “save boot info” button. Perform the following steps:

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- Step 1** Clear boot information using the iSCSI Control Panel applet.
 - Step 2** Reboot the Windows NT host.
 - Step 3** Run the LSI “hot_add” utility.
 - Step 4** Run the LSI “SM7devices” utility and verify that the correct number of disks appear, as well as 2 UTM (access) LUNs. If no disks appear, run the “hot_add” utility again. If redundant disks appear, return to Step 1 and repeat this procedure.
 - Step 5** Run Windows NT Disk Administrator and assign drive letters to the LSI disks.
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Resolved Caveats

- CSCdx86674

If multiple HA failovers occur during high SCSI traffic on the iSCSI connection to a low-end Microsoft Windows NT server, users may experience delayed iSCSI TCP connections. “Multiple failovers” is defined as one failover every ten seconds.

The problem is due to a stall in the OS function used to create registry keys. The stall occurs because I/O operations are being performed on the iSCSI disk at the same time the registry key creation function is being called. The registry key creation is used as a safeguard to make sure all iSCSI driver registry keys are present.

Workaround: None. This problem is resolved in iSCSI driver version 2.2.1.

Related Documentation

The following sections describe the related documentation available for the iSCSI Driver version 2.2.1 for Microsoft Windows NT and the Cisco SN 5400 Series systems. These documents consist of the iSCSI driver release notes, readme and example configuration files, and the SN 5400 Series system hardware installation and software configuration guides.

The SN 5400 Series system 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 SN 5400 Series System Software”](#) section on page 4 for details.

Release-Specific Documents

This Release Notes document is the only document specific to iSCSI Driver version 2.2.1 for Microsoft Windows NT. It is located on Cisco.com and the Documentation CD-ROM.

Each release of SN 5400 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 Series system hardware installation guide for hardware installation procedures. The *Cisco SN 5420 Storage Router Hardware Installation Guide* provides hardware installation procedures for SN 5420 Storage Routers. 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 Series system software configuration guide for software configuration information. The *Cisco SN 5420 Storage Router Software Configuration Guide Release 2.1* provides configuration information for SN 5420 Storage Routers. The *Cisco SN 5428 Storage Router Software Configuration Guide Release 2.2* (or later) provides configuration information for the SN 5428 Storage Routers. The *Cisco SN 5428-2 Storage Router Software Configuration Guide Release 3.2* (or later) provides configuration information for the SN 5428-2 Storage Router. 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:

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- 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.
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Obtaining Documentation

These 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 this URL:

<http://www.cisco.com>

Translated documentation is available at 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 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

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/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 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. In the Cisco Documentation home page, click the **Fax** or **Email** option in the “Leave Feedback” section at the bottom of the page.

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

You can submit your comments by mail by using the response card behind the front cover of your document or by writing 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 online 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 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

If you want to obtain customized information and service, you can self-register on Cisco.com. To access Cisco.com, go to this URL:

<http://www.cisco.com>

Technical Assistance Center

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

Cisco TAC inquiries 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.

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

Cisco TAC Web Site

You can use the Cisco TAC Web Site 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 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 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 this URL to register:

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

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

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

If you have Internet access, we recommend that you open P3 and P4 cases through the Cisco TAC Web Site.

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 level of 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 monthly periodical that provides industry professionals with the latest information about the field of networking. You can access *Packet* magazine at this URL:

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

- *iQ Magazine* is the Cisco monthly periodical that provides business leaders and decision makers with the latest information about the networking industry. 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 the design, development, and operation of 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, with current offerings in network training listed at this URL:

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

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



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