



Release Notes for Cisco iSCSI Driver Version 2.1.2 for IBM AIX 4.3.3

October 11, 2002



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 2.1.2 for IBM AIX 4.3.3. This is the first release of the Cisco iSCSI driver for IBM AIX 4.3.3 to support iSCSI draft 8; there is no Cisco iSCSI Driver version 2.1.1 for IBM AIX 4.3.3.

For a list of software caveats that apply to version 2.1.2, 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 iSCSI Driver for AIX 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 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 SCSI routing instances in the SN 5400 Series systems listed in the configuration file `/etc/iscsi.conf`, in the order that they appear.
 - Step 2** Each SN 5400 Series system sends available iSCSI target names and addresses to the iSCSI driver.
 - Step 3** The iSCSI discovery daemon looks up each discovered target in the `/etc/iscsi_bindings` file. If an entry exists in the file for a target, the corresponding AIX target ID is assigned to the target; if no entry exists for a target, the smallest available AIX target ID is assigned and an entry is written to the `/etc/iscsi_bindings` file. The iSCSI driver logs into the first 64 iSCSI targets it discovers, ignoring any remaining targets.
 - Step 4** The SN 5400 Series system accepts the login and sends target identifiers.
 - Step 5** The AIX IP host queries targets for device information.
 - Step 6** Targets respond with device information.
 - Step 7** The AIX IP host configures devices and creates an internal table of iSCSI devices.
-

The Cisco iSCSI Driver for AIX provides IP access to a maximum of 64 remote SCSI targets, with each target capable of supporting 256 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>.

System Requirements

This section describes the system requirements for version 2.1.2 and includes the following information:

- [Operating System Requirements, page 3](#)
- [SN 5400 Series System Software Requirements, page 5](#)

Operating System Requirements

- This driver requires an IP host running the IBM AIX 4.3.3 operating system. (IBM recommends that all AIX 4.3.3 system be upgraded to AIX 4.3.3 Maintenance Level 10.)
- 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.
- 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 significantly decrease performance.

Creating Logical Volumes and Mounting Filesystems

- If iSCSI disks are part of logical volume groups, ensure that the logical volume groups are not automatically activated at system reboot. When logical volume groups are automatically activated, the activation occurs before the network is configured and the iSCSI disks are discovered.
- If filesystems are installed on iSCSI devices, ensure that the filesystems are not automatically mounted at system restart. When filesystems are automatically mounted, the action occurs before the network is configured and the iSCSI devices are discovered. List the iSCSI partitions in the `/etc/filesystems.iscsi` file. The “init” scripts will automatically mount and unmount these partitions.
- If you have layered mounts, ensure that the top-level filesystem is placed first in the `/etc/filesystems.iscsi` file. For example, if you configure two filesystems, `iscsi1` and `iscsi1/iscsi2`, ensure that the entry for `iscsi1` in the `/etc/filesystems.iscsi` file precedes the entry for `iscsi1/iscsi2`.

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.

Stop all applications using the iSCSI filesystems and run the iSCSI shutdown script (`/etc/iscsi.clean rem`). The iSCSI shutdown script will try to unmount filesystems listed in `/etc/filesystems.iscsi`.



Caution

If the iSCSI filesystems are in use when the iSCSI shutdown script is run, the script will fail. The applications using the filesystems must be stopped and the script must be run again. Filesystems not listed in `/etc/filesystems.iscsi` will not be automatically unmounted.

Persistent Target Bindings

Persistent target binding ensures that an AIX SCSI target always maps to the same physical storage device across system restarts. The iSCSI daemon stores bindings of iSCSI target iSCSI Names (or WWUIs) to AIX target IDs in the file `/etc/iscsi_bindings`.

If the file does not exist, it will be created when the iSCSI driver starts.

For more information about the `iscsi-bindings` file and persistent target binding, see the iSCSI driver readme file and the `iscsi_bindings` file man page. To read the man page:

```
man iscsi_bindings
```

Device Attributes

Changes to iSCSI device attributes are not retained over a system reboot or iSCSI driver restart. You must restore the desired iSCSI device attributes.

Activating LUNs

The iSCSI driver automatically activates LUNs on all discovered targets. If a target is dynamically added to a SCSI routing instance to which the iSCSI driver has established a connection, then the driver detects the new target and activates the LUNs. If LUNs are dynamically added to an existing target on a SCSI routing instance to which the iSCSI driver has established a connection, the driver does not automatically activate the new LUNs. The LUNs must be manually activated, using the `/usr/bin/iscsiactlun` utility.

For additional information about the `iscsiactlun` utility, see the readme file.

Enabling Reserve Proxy Feature

If the Cisco iSCSI Driver for AIX connects to a SCSI routing instance running in an SN 5400 Series system configured for high availability, the SCSI routing instance must be configured with the reserve proxy feature enabled.

Use the following CLI command on the SN 5400 Series system to enable this feature:

```
scsirouter name reserveproxy enable passthru no
```

If a failover occurs and the reserve proxy feature is not enabled, the AIX host's applications may fail with a "reservation conflict" message.

See the appropriate SN 5400 Series system *Storage Router Software Configuration Guide* for complete command syntax and details.



Note

When the reserve proxy feature is enabled, IP host clustering may fail to function as expected.

Log Messages

The iSCSI Driver for AIX consists of components in the AIX kernel and user level utility, and all log messages are sent to syslog. Message destinations are based on the `syslogd` configuration for the AIX host. Messages from the iSCSI Driver for AIX can be received at the following facilities:

- kern
- user (iscsiactlun)
- daemon (iscsid)

For example, the following entries in `/etc/syslog.conf` send all kernel message to the console and send all user messages to `/usr/admin/ras/iscsi.log`:

```
kern.debug /dev/console
user.debug /usr/adm/ras/iscsi.log
```

SN 5400 Series System Software Requirements

The iSCSI Driver version 2.1.2 for IBM AIX 4.3.3 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 5](#)
- [Upgrading from Version 1.8.1, page 6](#)
- [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:

-
- 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>, under Technical Documentation, click **Technical Documentation on Cisco Connection Online**.
 - Step 2** At the Cisco Documentation web page, under Cisco Product Documentation, click **Storage Networking Products**.
 - Step 3** At the Storage Networking Products documentation web page, click the appropriate links to access the appropriate documentation.
-

Upgrading from Version 1.8.1

To upgrade to iSCSI driver version 2.1.2 for IBM AIX 4.3.3 from version 1.8.1, follow these instructions. You must have super-user (root) authority to upgrade the iSCSI driver.

-
- Step 1** Stop all applications using iSCSI devices. (The iSCSI shutdown script invoked in the following step will fail if it finds a device in use.)
- Step 2** Unmount all iSCSI filesystems and stop the iSCSI driver by running the iSCSI shutdown script. For example:
- ```
/etc/iscsi.clean rem
```
- Step 3** Use SMIT to remove the driver, or remove the driver manually. For example:
- ```
installp -u iscsi.rte
```
- The `/etc/iscsi.conf` file is saved as `/etc/iscsi.conf.SAVE`. The `/etc/filesystems.iscsi` file is saved as `/etc/filesystems.iscsi.SAVE`. (These files are not used when the iSCSI driver version 2.1.2 is installed. The user must manually add entries to the `/etc/filesystems.iscsi` file that is created when the new driver is installed.)
- Step 4** (Optional) If you added an entry to the `/etc/rc.shutdown` script to invoke `/etc/iscsi.clean` shutdown, remove that entry.
- Step 5** Follow the instructions in the readme file to use SMIT to install the new iSCSI driver software package.
-

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

Uninstalling iSCSI Driver Software

To uninstall the iSCSI driver software, follow these instructions:

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- Step 1** Stop all applications using iSCSI devices. (The iSCSI shutdown script invoked in the following step will fail if it finds a device in use.)
- Step 2** Unmount all iSCSI filesystems and stop the iSCSI driver by running the iSCSI shutdown script. For example:
- ```
/etc/iscsi.clean rem
```
- Step 3** Use SMIT to remove the driver, or remove the driver manually. For example:
- ```
installp -u iscsi.rte
```
- The `/etc/iscsi.conf` file is saved as `/etc/iscsi.conf.SAVE`. The `/etc/filesystems.iscsi` file is saved as `/etc/filesystems.iscsi.SAVE`.
- Step 4** (Optional) If you added an entry to the `/etc/rc.shutdown` script to invoke `/etc/iscsi.clean` shutdown, remove that entry.
-

Caveats

Caveats describe unexpected behavior or defects in iSCSI driver 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

There are no severity 1 or 2 caveats open against the iSCSI driver version 2.1.2. 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.

Resolved Caveats

- CSCdx09913

If the `/etc/iscsi.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 AIX 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.

Related Documentation

The following sections describe the related documentation available for the iSCSI Driver version 2.1.2 for IBM AIX 4.3.3 and the Cisco SN 5400 Series system. 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 5 for details.

Release-Specific Documents

This release notes document is the only document specific to iSCSI Driver version 2.1.2 for IBM AIX 4.3.3. 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. 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* provides configuration information for SN 5428 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.

For example, you can access Cisco SN 5420 “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.
 - Step 3** At the Storage Networking Devices web page, click the appropriate link for your system. For example, click the **SN 5420 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.

This document is to be used in conjunction with the documents listed in the [“Related Documentation”](#) section.



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