



SANnet[®] II 200 FC Release Notes

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SANnet II 200 FC Release Notes

This document contains important information about the SANnet[®] II 200 FC array that was not available at the time the product documentation was published. Read this document so that you are aware of issues or requirements that can impact the installation and operation of the SANnet II 200 FC array.

If you install the current 4.14 firmware on controllers running version 3.2x firmware, the same procedures are involved, and the same information is contained in the firmware package. If you install the current 4.14 firmware on controllers running version 4.1x firmware, the upgrade is simple and the complex procedures are not required. The README file contained in the firmware package provides instructions for both circumstances.

The 4.14 README file can be downloaded from:

<http://www.dothill.com/support/downloads.htm>

- See “New Features in This Release” on page 1 for a description of the new features.
- See “Upgrading to Software Version 4.11 and Controller Firmware Version 4.14” on page 7 for information about downloading and installing the firmware package that contains the README file and other supplemental information.

New Features in This Release

This release provides an upgrade to RAID controller firmware 4.14, SanNet II SANscape 4.11, and SanNet II Command-Line Interface (CLI) 2.11. It incorporates fixes to bugs and other known issues.

New SNMP Functionality

Simple Network Management Protocol (SNMP) has been enhanced in RAID controller firmware version 4.14. You can send trap messages through the controller agent using a Management Information Base (MIB) that defines what information can be obtained or changed. SNMP requests are made by the SET and GET messages using an SNMP package, such as NET-SNMP or HP OpenView. Refer to the SANnet II SNMP User's Guide for details on SNMP functionality.

LG Cache Policy is not changed after Controller Fail Over

The firmware along with SANscape/CLI v4.3 returns the cache policy in "show cache" and "View Controller Configuration," which shows the current cache policy.

Important Feature Changes in 4.1x RAID Controller Firmware and 4.11 Software

Table 1 highlights the features that are implemented in all software and in the firmware unless otherwise indicated.

Table 1 New and Enhanced Features

Feature	Description
Default IP address assigned by a DHCP server	By default, each chassis has an IP address if your network uses a Dynamic Host Configuration Protocol (DHCP) server to automatically allocate IP addresses to attached devices. You can then access the IP address through the SanNet II CLI, SanNet II SANscape, or the firmware application. If you do not use a DHCP server, and therefore have no IP address, you can set an IP address through serial connection to the firmware.
Logical Drive Capacity	The firmware allows up to 64 TB per logical drive configuration with sequential optimization and up to 16 TB per logical drive configuration with random optimization. These limits are further modified by available drive sizes and the maximum number of drives allowed per product.
Number of Logical Drives	You can configure up to 32 logical drives per configuration and are limited to a maximum of 32 partitions per logical drive.
Configurable Parameters per Logical Drive	You can configure stripe size and write (cache) policy individually for each logical drive with a maximum LUN limit of 128 LUNs.
Optimization Mode and Stripe Size	The optimization mode now applies to cache Size Change optimization, rather than stripe size. You can now fine-tune performance by setting the most desirable stripe size for each logical drive to best match the application of that logical drive.

Table 1 New and Enhanced Features (*Continued*)

Feature	Description
Media Scan	<p>The media scan feature sequentially checks each physical drive in a selected logical drive, block by block, for bad blocks. If a bad block is encountered, the controller rebuilds the data from the bad block onto a good block if one is available on the physical drive. If no good blocks are available on the physical drive, the controller designates the physical drive “Bad,” generates an event message, and if a spare drive is available, will begin rebuilding data from the bad physical drive onto the spare.</p> <p>The media scan feature generates informational event messages for each drive that is part of a logical drive. The informational event messages are also generated each time a controller is reset or a logical drive is created. During the media scan, the green front-panel LEDs blink for every active drive.</p>
SNMP Traps	Similar to SANnet II SANscape, the controller firmware can now send SNMP traps to an SNMP management console, send email messages, and broadcast events to specified servers, as defined in a text file called agent.ini.
Network Protocol Access	For security reasons, you can restrict the network protocols you want to support, which limits access. Protocol access that can be enabled or disabled includes Telnet, HTTP, HTTPS, FTP, SSH, PriAgentAll, SNMP, DHCP, and ping.
Telnet Inactivity Timeout Time	Set this security measure so that any Telnet connection automatically disconnects after the connection has been idle for a configurable period of time. The current setting is displayed with the menu option.
Online Initialization and Online Expansion	If you enable the online initialization feature, you can use a logical drive while the logical drive is being initialized. Similarly, you can enable the online expansion feature and use a logical drive while it is being expanded with another drive. The completion of the initialization or the expansion, however, takes longer than if you had allowed the processes to complete without use of the logical drives.
Logical and Physical Drive Safeguards	There are new safeguards against improperly combining physical drives of different types in logical drives with accompanying explanatory error messages.
Fault-Management Safeguards	Automatically switch to write-through cache mode based on: <ul style="list-style-type: none">• Low battery level• AC power loss• Fan failure• Power supply failure• High temperature in CPU/Enclosure• Failure of a redundant controller• Single controller configuration• Automatic system shutdown based on critical environmental conditions

Table 1 New and Enhanced Features (*Continued*)

Feature	Description
Ethernet and RS-232 Security	For added security, a password can be supplied for access to the array using a telnet session or tip session. If a password has not been established, pressing the RETURN key allows access to the firmware menu.
CLI Version Information	The <code>sscli about</code> command provides a <code>sscli</code> version 2.11 number with a “built” date and time such as 2005.12.13.10.32, which is year 2005, month 12, day 13, hour and minute 10:32. The build letter provides an additional identifier.
CLI Status Commands	The CLI <code>set led</code> and <code>show led-status</code> commands are supported on SANnet II U320 SCSI, SANnet II 200 FC, SANnet II 200 SATA and SATA SE RAID arrays and JBODs connected to RAID5s.
SMART Feature Enabled by Default	The Self-Monitoring, Analysis and Reporting Technology (SMART) feature is enabled by default in the firmware with the Detect and Clone+Replace option turned on.
Default Configuration Parameter Settings	A number of default settings have changed to reflect various firmware changes. If you are upgrading from 3.2x to 4.1x firmware, these new defaults are applied once you reset NVRAM.

Note – Important data integrity improvements in this release included a substantial performance boost of up to 400% for small-block sequential writes on both RAID1 and RAID5 configurations. Additionally, RAID1 random write I/O performance could be impacted from 10 to 20%; RAID1 and RAID5 small-block sequential reads (typically used in benchmarks only) could be impacted up to 40%.

Bug Fixes

The following sections contain the bugs that were fixed in version 4.14 of SANscape and SANscape CLI. Table 2 shows the fixes to the firmware bugs.

Table 2 Firmware Fixes for 4.14 Release

Bug Number	Description
4394	The Write Through (WT) Trigger feature in the 4.1x firmware will currently switch to WT whenever a battery is not “Fully Charged” instead of a battery failure. This results in a transition to WT whenever a battery is charging generating events and affecting performance. The 4.14 release fixes the bug by triggering WT only upon a battery failure.
4527	The firmware menu can hang if the user attempts to exit the current page by hitting the ESC key multiple times during the “saving NVRAM to disks in progress” pop-up. The 4.14 release fixes the bug by disabling the ESC key during the saving of the NVRAM.
4425	Battery Failure and Battery Back Online events generated during normal temperature. During normal operation, the batteries will be charged periodically. The charging cycle can cause the temperature of the battery module to rise rapidly causing SES to prematurely shutdown the battery charger resulting in the events. The firmware has been changed to compensate for this rapid temperature rise during charging cycles, thereby eliminating the event messages.
4541	SES can generate unexpected events and invalid LED indicators. The SES controller can reset unexpectedly due to errors on the internal I2C bus, resulting in freezing of the drive LEDs, odd patterns on the Front Panel, PS and controller IOM LEDs, and an increased FC link error count on the disk channels. The firmware has been updated to enhance error recovery of the I2C bus and SES reset recover.

SANscape Fixed Bugs

- The SANscape program currently cannot identify a disk drive by flashing disk drive LEDs on the array.
- The download of SAF-TE fw using SANscape interface says it succeeded even though it didn't.
- SANscape displays incorrect information about the status of the enclosure components. The correct information is displayed by the serial console.
- When array is connected to a host server, 'ssagent start' should not give the **Assertion failed: 0, file ../lnk/throw.cc, line 375** failed message.
- When both SANscape and CLI are sending out-of-band requests to the RAID controller at the same time, the RAID controller may return a response intended for one client to the other client. This mis-route response results in a core dump.

- The XML output report has two tags, **jbodsystem** and **jbobaseview**, out of order. This causes the XML parser to fail and makes the JBOD discovery and instrumentation fail.
- The CLI **map/unmap partition** command syntax is inconsistent between the user's guide and the help file and no error messages are given.
- Using the SANscape CLI to perform a parity check on a logical drive assigned to secondary gets error messages.
- The **shutdown logical-drive** command fails with a controller access error.
- Inconsistent information is displayed in the format of CLI **about** command when compared to previous releases.
- When the CLI **show config -x** command is run for the SCSI JBOD, all component information is missing. The SAF-TE version is 1168.
- The **show peripheral-device-status** command in 4.11E firmware reports "Bad" status to Battery (secondary) for the single controller configuration. It should report a "N/A" for the battery status because the secondary controller slot is empty.

Known Issues

- The 320 SCSI array is limited to 16 logical drives each with the capability of mapping a maximum of 128 LUNs. However the firmware permits customers to map more than 128 LUNs.
- **3922 - Cleared SNMP events re-appear after Primary controller failure.**
SNMP traps are replayed from the surviving controller upon a controller failure even if the event log is cleared prior to the failure.

Release Documentation

These release notes supplement the documents shown in the following table.

Table 3 SANnet II FC Array and SANnet II SATA Array Documentation

Title	Part Number
<i>SANnet II 200 FC, SATA, and SATA SE Array Installation, Operation, and Service Manual</i>	83-00003261
<i>SANnet II 200 FC and SATA Array Best Practices Manual</i>	83-00003263
<i>SANnet II Family FRU Installation Guide</i>	83-00002708
<i>SANscape 4.x User's Guide</i>	83-00003431
<i>SANscape 4.x Software Installation Guide</i>	83-00003430
<i>SANscape Alert 4.x User's Guide</i>	83-00003432
<i>SANscape CLI 2.x User's Guide</i>	83-00003433
<i>SANnet II 200 Family Rack Installation Guide for 2U Arrays</i>	83-00002365

Table 3 SANnet II FC Array and SANnet II SATA Array Documentation

Title	Part Number
<i>SANnet II Family Safety, Regulatory, and Compliance Manual</i>	83-00002666
<i>SANnet II Family RAID Firmware 4.1x User's Guide</i>	83-00003435
<i>SANnet II 200 FC, SATA, and SATA SE Array Installation, Operation, and Service Manual</i>	83-00003261
<i>SANnet II SNMP User's Guide</i>	83-00004131

You can download the documents listed in the preceding table (except EOL items) from the following web site:

<http://www.dothill.com/support/productmanuals/index.htm>

Upgrading to Software Version 4.11 and Controller Firmware Version 4.14

The upgrade process includes:

- “Downloading and Installing Software Applications” on page 7
- “Downloading and Installing Firmware” on page 8

Downloading and Installing Software Applications

Before installing the new firmware, you must upgrade the SANscape Agent, SANscape Console, SANscape Alert, and SANnet II Command-Line Interface (CLI) utility.

Because the communication protocol changes from version to version, you must install the SANscape package on all systems that manage the storage when upgrading.

Caution – If different versions of the agent and console co-exist, SANscape is not able to discover previously configured arrays.

To Download the Updated Software

To download the software from the Dot Hill's web site, perform the following steps.

1. Go to:
<http://www.dothill.com/support/downloads.htm>
2. If not previously registered, register.
 - a. On the registration page, enter applicable data in the required fields, and click Submit.

3. Log in.
 - a. Type your user name and Password in the left column, and click Login.
 - b. On the Terms of Use page, read the license agreement, click Yes next to Accept, and click the Continue button.
4. On the software download page, click the link for your array and operating system.
5. In the dialog box that is displayed, specify a destination directory and save the file.

Downloading and Installing Firmware

Firmware for the SANnet II FC array and SANnet II SATA array are available from the Dot Hill website to upgrade firmware for the array controller, PLD firmware, and firmware for the SCSI Enclosure Services (SES) processor. For the SANnet II SATA array, the patch also includes firmware for the SATA Router and the SATA MUX module. Table 4 shows the most recent firmware versions available.

Table 4 Latest Firmware Revisions

SANnet II FC Array
Controller firmware 414B
SES firmware 1080
PLD firmware 1000

To determine the current firmware versions for your array, see:

- “To Determine Your Current Controller Firmware Version” on page 9
- “To Determine Your Current SES and PLD Firmware Versions” on page 9
- “To Determine the Current SATA Router and MUX Firmware Versions” on page 9

For information about installing the firmware, refer to the patch README file provided with the firmware patch.



Caution – Review all procedures and the README for the firmware upgrade prior to upgrading your array. Downgrading back to the 3.xx controller firmware is recommended only for a FRU replacement module. All other downgrades risk loss of all data.

Note – Disk drive firmware is provided through Sun disk firmware patches, which include the required download utility. Sun disk firmware patches are separate from the SANnet II family firmware patches. Do not use the SANnet II CLI or SANnet II SANscape to download disk drive firmware.

To Determine Your Current Controller Firmware Version

To determine your current controller firmware version, use one of the following methods:

- Using the controller's serial or `telnet` interface, select the "view system Information" firmware menu option. The current firmware version is displayed as "Firmware Version."
- In SANnet II SANscape, highlight any component of the desired array, click on the View menu and the View Controller command, and then check the "FW Rev" checkbox.
- Using the CLI, enter the `show inquiry` command.

To Determine Your Current SES and PLD Firmware Versions

To determine your current SES and PLD firmware versions, use the CLI and enter the `show ses` command. The SES version of each controller is displayed in the `Rev` column. The PLD version is displayed in the `PLD` column.

To Determine the Current SATA Router and MUX Firmware Versions

To determine your current SATA multiplexer (MUX) board firmware version using SANnet II CLI, enter the `show sata-mux` command. The MUX version of each board is displayed in the `PC150/Rev` column.

To determine your current SATA router firmware version using SANnet II CLI, enter the `show sata-router` command. The router version is displayed in the `Rev` column.

Technical Support

For late-breaking *Release Notes* and all manuals for this product, go to the SANnet II 200 FC array section at:

<http://www.dothill.com/support/productmanuals/index.htm>

The following information may be required when contacting Technical Support:

- Dot Hill serial number and part number of hardware
- Version of Dot Hill supplied software
- Host computer platform and operating system version
- Description of the problem and any related error messages

Also supply the following information to facilitate our tracking system and improve our response time:

- Customer name
- Company name
- State and country
- Telephone number with area code
- Internet mail address
- Maintenance contract number, if applicable

Placing a Support Call

After obtaining the above information, a support call may be placed by Internet mail, fax, or telephone.

Phone: 1-877-DOT7X24 (877-368-7924)

URL: <http://www.dothill.com/support/index.htm>

Corporate Headquarters Contacts

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For additional sales offices in the U.K., China, Sweden, Germany, France, Israel, and Singapore, refer to:

<http://www.dothill.com/company/offices.htm>