

hp Storageworks Modular Smart Array 1500 cs  
Release Notes

Third Edition (February 2005)

Publication of the third edition of this document coincides with the release of MSA1500 cs 4.94FW and MSA20 1.26FW. It contains late-breaking and supplemental information for the HP Storageworks Modular Smart Array 1500 controller shelf (MSA1500 cs).

Summary of changes included in 4.94 & 1.26:

MSA1500 cs 4.94FW

- Due to parts availability, future controllers will have alternate memory components that are functionally identical to existing components but will require firmware version 4.94. Redundant controllers require matching firmware versions, therefore an upgrade to 4.94 is required.
- Improves performance seen over prior FW
- Resolves intermittent critical lockups during heavy I/O on the same dual channel SCSI I/O module
- Improves interaction with MSA20
- IMPORTANT LIMITATIONS: MSA20 (SATA) behind MSA1500 with RAID 0 or RAID 1+0:
  - a minimum of 4 drives is required per RAID set
  - RAID 0 and RAID 1+0 are NOT supported on windows 64bit servers.
  - For required driver modifications in RAID 0 and RAID 1+0 volumes running Linux, refer to sections III.F of this document.

MSA20 1.26FW

- Fixed an issue that could cause the MSA20 to become inaccessible during heavy I/O operations to the MSA1500.
- Fixed an issue where a power cycle to the MSA20 could cause it to become inaccessible upon the next command from a Smart Array 6x controller.
- Fixed an issue causing the MSA20 to incorrectly report some SATA drive error conditions.

TABLE OF CONTENTS:

=====

I. Notes, Requirements and Issues for all MSA1500 cs Environments

- A. Basic System Requirements
- B. Supported Servers, HBA, Switches and other Hardware Components
- C. Controller Firmware Updates
- D. Supported Configuration Tools
- E. Support for HP StorageWorks 42xx Storage Enclosures
- F. Required Operating System Identification
- G. Requirements for Multi-path (redundant) Configurations
- H. System Power-up Requirements
- I. Removing Standby Controller in Dual-Controller Configurations
- J. Advanced Diagnostics Utility (ADU) Availability
- K. Liquid Crystal Display (LCD) Character Set Identification
- L. Additional Controller Display Messages
- M. Secure Path Software Installations
- N. Multi-path Configurations - Deleting LUNs with the ACU
- O. Display Error - System Insight Manager (SIM) Agent Versions
- P. Display Error - Identification of Failed MSA20 SATA Storage Enclosure

Q. Display Error - MSA Controller Panel - Status Events after Failover

II. Notes and Issues for Windows Environments

- A. Host Bus Adaptor (HBA) Driver Installation
- B. Boot from SAN Support
- C. ProLiant B-class Blade and Intel 64-bit Itanium 2 Server Support
- D. Display Error - Windows Device Manager
- E. Display Error - Command Line Interface (CLI)

III. Notes and Issues for Linux Environments

- A. Host Bus Adaptor (HBA) Driver Installation
- B. Multi-path (redundant) Configurations
- C. Upgrading Linux HBA Drivers in Secure Path Environments
- D. Secure Path 3.0C and QLogic Failover Coexistence
- E. SuSE Linux Enterprise Server 9 (SLES 9) Support
- F. Required Driver Modification for RAID 0 and RAID 1+0 Volumes on MSA20 (SATA) behind MSA1500 ONLY

I. Notes, requirements, and issues for all MSA1500 cs environments

A. Basic system requirements

Host servers booting from the HP Storageworks MSA1500 cs Support Software CD requires a minimum of 256 MB of RAM.

B. Supported servers, HBA, switches, and other hardware components

The MSA1500 cs supports a variety of hardware components, including MSA1500 cs-specific option kits, servers, HBAs, switches, and storage enclosures. For up-to-date information about the MSA1500cs and its supported components, read the MSA1500 cs Compatibility Guide on the Technical Documentation page of the MSA1500 cs web site at <http://www.hp.com/go/msa1500cs>.

C. Controller Firmware Updates

In between manufacturing cycles, new features may be added to the MSA1500 cs firmware or drivers. Occasionally visit the Software, Firmware & Drivers page of the MSA1500 cs web site at <http://www.hp.com/go/msa1500cs> to check for updates that may affect your environment.

The following modules contain firmware that can be updated:  
- MSA Controller

To verify the current firmware versions use Command Line Interface (CLI), Array Configuration Utility (ACU) or read the initial message on the Liquid Crystal Display (LCD).

Important Note: MSA1000 systems and MSA1500 cs systems do not run on the same version of controller firmware. MSA1000 controller option/spare kits must be upgraded to the appropriate MSA1500 cs system firmware to function properly. Refer to the instruction detailed in the first paragraph of this section to obtain the correct MSA1500 cs system firmware.

D. Supported storage configuration tools

- MSA Command Line Interface (CLI)
- HP Array Configuration Utility (ACU)

The CLI is built into the controller firmware and may be used in all operating system environments.

The ACU is a software application that must be installed on a server with access to the MSA1500 cs. Because the ACU is not available for use by all operating systems, read the MSA1500 cs Compatibility Guide to verify whether you can use the ACU in your environment. The Compatibility Guide is available on the Technical Documentation page of the MSA1500 cs web site at <http://www.hp.com/go/msa1500cs>.

Note: Because configuration information is presented differently in the CLI and the ACU, HP recommends using either the ACU or the CLI exclusively for a given server.

#### E. Support for HP Storageworks 42xx Storage Enclosures

HP Storageworks 42xx storage enclosures may be connected to the MSA1500 cs, but must first be upgraded to U320 (MSA30).

For more information about upgrading a 42xx enclosure to an MSA30 enclosure, go to the Options and Upgrades section of the ProLiant Shared Storage web site at: <http://h18004.www1.hp.com/products/servers/proliantstorage/sharedstorage/index.html>

#### F. Required operating system identification

Because the MSA1500 cs can operate in a variety of operating system environments, when installing the MSA1500 cs and configuring the storage, you must identify the operating system (set the host mode or profile type) and restrict access to LUN's presented to each HBA. This is accomplished via Selective Storage Presentation (SSP) in ACU.

Depending on your operating system and preference of user interface, set the host mode in either the Array Configuration Utility (ACU) or the Command Line Interface (CLI). See the HP Array Configuration Utility User Guide or the HP MSA CLI User Guide for detailed instructions.

Note: HP recommends identifying the host mode in the same utility used to configure the storage.

#### G. Requirements for multi-path (redundant) configurations

MSA1500 cs path redundancy requires two isolated Fibre Channel fabrics and the associated hardware and software components in the configuration.

This includes:

- (2) controllers in the MSA1500 cs
- (2) embedded Fibre Channel I/O modules in the MSA1500 cs
- (2) external Fibre Channel switches
- (2) Fibre Channel HBA's in the server
- Multi-pathing software on each server

#### H. Required wait time between powering on storage enclosures and the MSA1500 cs

As documented in the MSA1500 cs Installation Guide, all storage enclosures that are attached to the MSA1500 cs should be

powered on before powering on the MSA1500 cs.

To allow the enclosures enough time to complete their startup routines, wait at least 1 minute after powering on the enclosures before powering on the MSA1500 cs. If the MSA1500 cs is powered on before the storage enclosures or if the enclosures are powered on before the MSA1500 cs without a pause, there is a slight chance that one or both of the MSA1500 cs controllers will not discover the storage enclosures.

If you have recently powered on your storage system and one or both of the MSA1500 cs controllers does not discover a storage enclosure, power cycle the storage enclosure and the MSA1500 cs will re-discover it.

#### I. Removing the Standby Controller in Dual-Controller Configurations

This note concerns dual-controller configurations only. To remove the standby controller during operations and maintenance events:

- From the CLI of the active controller, enter:

CLI> disable standby

- Wait for "204 ARRAY CONTROLLER DISABLED" to be displayed on the front panel of the standby controller.

- Remove the disabled standby controller.

For additional information, go to the HP web site at <http://www.hp.com> and search for Customer Advisory number OE040616\_CW01.

#### J. Advanced Diagnostics Utility (ADU) availability

The ADU version that supports the MSA1500cs is ADU 2.50-4.0 or later.

An updated MSA1000/1500 cs Support Software CD that includes the ADU will soon be available on the MSA1500 cs web site at <http://www.hp.com/go/msa1500cs>.

#### K. Character set definition

Because the LCD panel display supports a limited character set, use only the characters from the following list when assigning names to host computer HBAs, MSA1000 controllers, and storage LUNs:

Uppercase alpha characters:	A-Z	
Lowercase alpha characters:	a-z	
Numeric characters:	0-9	
Special characters:	!	exclamation point
	#	pound
	=	equal
	(	left parenthesis
	)	right parenthesis
	'	apostrophe
	;	semicolon
	,	comma
	.	period
	<space>	

#### L. Additional controller display message

The following controller display message was added after publication of the MSA1000 Controller User Guide:

Message: MSA1500csReleaseNotes8\_03.03.05.txt  
89 INVALID CONFIG  
BOX <x> BAY <y>

Message Type: Error

Description: The specified hard drive and storage enclosure could not be configured. The drive was possibly configured when the enclosure was attached directly to a server.

The drive is marked as "failed" and the offending drive and its associated storage enclosure cannot be accessed by the MSA until corrective action is taken.

Action: The following action removes all previous configuration information and data from the drive. Proceed only after retrieving any valuable data stored on the drive.

Remove power from the offending storage enclosure. Remove all drives from the enclosure. Re-apply power to the storage enclosure and wait for the MSA to discover the enclosure. Re-insert the drives in the enclosure.

#### M. Secure Path software installation

When installing Secure Path, be sure to follow every server reboot prompt that is presented. Failure to acknowledge a server reboot prompt may result in your path redundancy not functioning properly.

Secure Path installation for windows requires at least two reboots during installation:

- Reboot after the file copy from the source media.
- Reboot after the redundancy driver is attached to the configured LUNs.
- If the operating system does not prompt for a second reboot within five minutes after logging in, manually reboot the server.

#### N. Multi-path configurations - deleting LUNs with the ACU

In multi-path configurations, deleting LUNs through the ACU may cause a path failover or cause ACU to display an error message that a hardware failure has occurred.

Use the following steps to delete a LUN in multi-path environments:

1. Using the Disk Management utility, delete the partition that corresponds to the LUN that you want to delete.
2. Using Device Manager, uninstall the corresponding disk drive.
3. Using the ACU, delete the LUN.

#### O. Display error -Systems Insight Manager (SIM) agent versions

As documented in the MSA1500 cs Installation Guide, SIM management agents are provided on and may be installed from the

MSA1500csReleaseNotes8\_03.03.05.txt  
provided CD in the MSA1500cs Support Software Kit.

When using the agents, an incorrect version number may be displayed in the agent browser window. The browser window displays version number 7.0.0.0 when the actual version number is 7.8.0.0.

This is a display error only and may safely be ignored.

P. Display error - identification of a failed MSA20 SATA storage enclosure

If an MSA20 storage enclosure fails, identification information about LUNs or hard drives in that enclosure may be reported incorrectly in the CLI and the ACU.

The enclosure number (box number) is correctly identified, but the drive type and the hard drive bay number may be incorrect.

To identify the correct enclosure, use the box number indicated in the message. Only the bay number is incorrect.

Q. Display error - MSA controller panel - status events after a failover

After a failover event in redundant configurations, old status events that were displayed on the primary MSA1000 controller are displayed as new events on the now active standby MSA1000 controller. Verify the accuracy of the message in the Event Logs and Insight Manager. If the event is not duplicated in the Event Log or in Insight Manager, you may safely ignore these messages.

## II. Notes and issues for windows environments

### A. Host Bus Adapter (HBA) driver installation

When installing or updating HBA drivers, you must use the driver installers that are provided on the MSA1500 cs Support Software CD or on the MSA1500 cs web site. If you install a driver provided from the manufacturer or use the windows "Upgrade Driver" option of Device Manager, your MSA1500 cs configuration will not be supported and will not perform as intended.

The MSA1500 cs Support Software CD is included in the shipping carton with the MSA1500 cs, and a copy of the MSA1500 cs Support Software CD can also be downloaded from Software, Firmware & Drivers page of the MSA1500 cs web site at <http://www.hp.com/go/msa1500cs>.

Note: Always be sure to check the website for the latest versions available.

When installing or updating HBA drivers in a Windows environment, HP recommends using the automatic driver installation utility on the MSA1500 cs Support Software CD or on the MSA1500 cs web site.

Although HP recommends using the automatic driver installation utility on the MSA1500 cs Support Software CD or the MSA1500 cs web site to install the drivers for the HBA on your server, if you do need to install an HBA driver manually:

1. Determine the component package for your HBA.
  - a. Insert the MSA1500 cs Support Software CD into the CD-ROM drive of the server.
  - b. Navigate to the \rdp\windows directory on the CD.
  - c. View the directory for the file for your HBA.
2. Execute the following command from the command console:

```
CPXXXXXX/M/F
```

where:

XXXXXX = the component package filename, such as  
cp003937.exe

/M = install the additional MSA1500 cs support files of  
cpqfcac.sys and cpqc8sw.inf

/F = install the drivers, even if the an MSA1500 cs is not  
detected

Example command for environments using the FCA-2101 HBA:  
CP003937.EXE/M/F

#### B. Boot from SAN support

If you are implementing a boot from SAN configuration on your MSA1500 cs, HP and Microsoft recommend creating a pagefile that is located on disks internal to the server. For more information, see the Microsoft support web site.

#### C. ProLiant B-class blade and Intel 64-bit Intel Itanium 2 server support

Before connecting the MSA1500 cs to a ProLiant B-class blade or an Intel Itanium 64-bit server, read the release notes for the latest support and configuration information. These notes are available on the Technical Documentation page of the MSA1000 web site at <http://www.hp.com/go/msa1000>.

#### D. Display error - Windows Device Manager - controller shown as an unknown device

If windows Device Manager reports the following message, the MSA1000 Windows Device Manager entry was not installed correctly:

```
?Unknown devices "MSA1000 SCSI Array Device"  
System Devices: "compaq MSA1000"
```

To correct this display error, run the HBA driver installation again. If you manually installed the drivers, reinstall with the MSA1500 cs attached or be sure to use the /F switch on the command line.

#### E. Display error - CLI - world wide Node Name

If the MSA1500 cs was configured using the ACU, the CLI may incorrectly report that the world wide Node Name has the same value as the World Wide Port Name. Because the MSA1500 cs bases LUN access restrictions on the WWPN only, you may safely ignore this issue.

### III. Notes and Issues for Linux environments

#### A. Host Bus Adapter (HBA) driver installation

The HBA driver kit distributed on the MSA 1500 cs Software CD

MSA1500csReleaseNotes8\_03.03.05.txt  
supports the following HBAs:

FCA2214 (x86 only)  
FCA2214DC (x86 only)  
A6826A (ia64 only)

The HBA driver kit distributed on the MSA 1500 cs Software CD supports the following Linux distributions:

Red Hat Advanced Server 2.1, i386, ia64  
Red Hat Enterprise Linux 3, i386, ia64  
SuSE Linux Enterprise Server 8 (SP3 or higher), i386, ia64

The following HBA driver installation instructions are supported on 32-bit (i386) and 64-bit (IA64) Linux distributions:

1. Mount the MSA 1500 cs Software Support CD on the server
2. Navigate to the /RDP/Linux directory on the CD
3. Copy the driver tarball from the CD to a suitable temporary directory on the server (for example):
  - a) mkdir /tmp/hbadriver
  - b) cp <cd>/RDP/Linux/hp\_qla2x00src-7.01.01-12.linux.rpm \ /tmp/hbadriver
4. Un-tar the driver tarball:
  - a) cd /tmp/hbadriver
  - b) tar -xvzf hp\_qla2x00src-7.01.01-12.linux.rpm
5. Run the INSTALL script that was extracted in Step 4: ./INSTALL

Note: Step 5 requires the Linux kernel source files to be installed on the server. If site-specific security requirements do not allow kernel source files to exist on the server, instructions for performing an 'off-line' driver build are outlined in the README file created in Step 4.

#### B. Multi-path (redundant) configurations

After adding additional LUNs, you must reboot the server to correctly address the new storage and have Secure Path protection applied to them.

#### C. Upgrading Linux Host Bus Adapter (HBA) driver in Secure Path environments

Do not manually remove or reinstall the FCA2214/FCA2214 DC or the A6826A HBA driver or any platform kit while Secure Path is loaded. Secure Path must be uninstalled prior to upgrading the HBA driver and reinstalled following the driver upgrade.

#### D. Secure Path 3.0C and QLogic Failover Coexistence

Secure Path 3.0C and QLogic failover coexistence within an unzoned SAN is not currently supported. Servers and storage using Secure Path 3.0C must be isolated (zoned) from Servers and storage using QLogic failover.

#### E. SuSE Linux Enterprise Server 9 (SLES 9) Support

SLES 9 is now supported. The latest HBA drivers supporting SLES 9 are available from the web site at <http://www.hp.com/go/san>.

When running SLES 9, version 7.20-19 or higher of the Array Configuration Utility (ACU) is required.



MSA20

F. Required Driver Modification for RAID 0 and RAID 1+0 Volumes only on (SATA) behind MSA1500:

No modifications are required unless using SLES 9 and/or the 8.00.00-22 QLogic driver. If you are using SLES9 and/or the 8.00.00-22, then RAID 0 and RAID 1+0 are not supported unless the maximum transfer size is limited in the driver by taking the following action:

- 1) Obtain and un-tar the HBA driver package:  
tar -xvzf hp\_qla2x00-2004-10-19.tar.gz
- 2) Install the QLogic HBA drivers from the source RPM file: rpm -Uvh hpqla2x00src-8.00.00-22.linux.rpm
- 3) Change directory to the location of the QLogic source files: cd /opt/hp/src/hp\_qla2x00src/qla2xxx-8.00.00
- 4) Edit the file qla\_os.c and change the value of the variable '.max\_sectors':  
original value -> .max\_sectors 0xffff  
change to... -> .max\_sectors 0x0400
- 5) Rebuild the driver (requires kernel source files to be installed):  
cd /opt/hp/src/hp\_qla2x00src/  
./build\_driver
- 6) Unload and reload the driver to ensure new driver is in active:  
rmmmod qla2300  
modprobe qla2300

-----  
Modular Smart Array 1500 cs Release Notes  
First Edition June 2004

Copyright 2004 Hewlett-Packard Development Company, L.P.  
Hewlett-Packard Company makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness

for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material. This document contains proprietary information, which is protected by copyright. No part of this document may be photocopied, reproduced, or translated into another language without the prior written consent of

Hewlett-Packard. The information contained in this document is subject to change without notice. Compaq Computer Corporation is a wholly-owned subsidiary of

Page 8

MSA1500cs ReleaseNotes

Hewlett-Packard Company. Microsoft, MS-DOS, MS Windows, Windows, and Windows NT are U.S. registered trademarks of Microsoft Corporation. Hewlett-Packard Company shall not be liable for technical or editorial errors or omissions contained herein. The information is provided "as is" without warranty of any kind and is subject to change without notice. The warranties for Hewlett-Packard Company products are set forth in the express limited warranty statements for such products. Nothing herein should be construed as constituting an additional warranty.