



Release Notes

Product	Scalar® i500 i8.2.2.1
Supported Web Browsers (Remote Web Client)	<ul style="list-style-type: none">• Microsoft® Internet Explorer 8.0 and 9.0• Mozilla Firefox™ 16 and later versions
Date	May 2014

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Purpose of This Release

The Scalar i500 i8.2.2.1 (646G.GS002) release includes new features and enhancements that extend its capabilities. These release notes describe these new features and enhancements, as well as currently known issues. These notes also provide tape drive and auxiliary firmware compatibility information. Visit <http://www.quantum.com> for additional information about Scalar i500.

New Features and Enhancements

Scalar i500 i8.2.2.1 (646G.GS002) includes the following new features and enhancements introduced in Scalar i500 i8.2.2.1.

- Implemented bug fixes.

General Usage Notes

The following are important items not covered in the [Known Issues](#) section of this document.

- **Internet Browser "Back" Button** — The library Web client does not support using the Internet browser "back" buttons. Instead, use the **Back** and **Cancel** buttons provided in the user interface.
- **Internet Browser Menus** — The Web browser may intermittently fail to display menus properly. Alternatively, some elements on a few of the pages may obscure some menu items when viewing in Internet Explorer.
- **Library Configuration Changes Upon Downgrade** — After a firmware downgrade, library configuration (partition names, slot counts, I/E station slot count, etc.) may change. With each successive firmware release, new features are supported and represented in the current configuration file that may not be backward-compatible to previous releases. A necessary part of firmware downgrade is to automatically reset the unit to the default configuration. The library must be reconfigured to the user-defined settings when the firmware downgrade is complete.
- **Upgrading Library Firmware** — When planning to upgrade library firmware, upgrade drive firmware first before upgrading the library firmware. If you are planning to downgrade the library firmware, downgrade the drive firmware first before downgrading the library firmware.
- **SNMP MIB** — SNMP MIB walks on large library configurations (like a 41U) may time out at 5 seconds, but will pass at 10 seconds. When performing an SNMP MIB walk, make sure that your utility retrieves MIB information using a timeout of at least 10 seconds.

- **EDLM and StorNext Partitions** — Library partitions configured for EDLM and the StorNext Application Programming Interface (SNAPI) plug-in need to configure the partition Media Barcode Format to “Standard” (report media barcode label without the media identifier) so that any library-initiated media copy operations can succeed.
- **Changing the time or time zone by more than 2 hours** — If you change the time or time zone on the library by more than 2 hours from its current setting, it is recommended that you reboot the library. There are timers in the library firmware that are not updated by the time change and can cause unexpected behavior if large time changes occur without restarting the library.
- **Planning a Drive Firmware Upgrade** — When updating IBM LTO-6 drive firmware, the update process can take at least 2 hours to complete. Do not stop or interrupt the firmware upgrade process; plan your firmware upgrade accordingly.
- **Cookie Placement for Login** — The library Web client places a cookie on the user’s computer to provide the last user’s credentials upon login. The cookie only collects the user’s credentials to facilitate login, and does not collect any other user data.
- **Heartbleed Security Update** — This firmware release addresses the National Institute of Standards and Technology’s (NIST) National Vulnerability Database Vulnerability Summary for CVE-2014-0160 (see web.nvd.nist.gov/view/vuln/detail?vulnId=CVE-2014-0160) with an updated, non-vulnerable OpenSSL software component. Any library configuration that uses web client access in Hypertext Transfer Protocol Secure (HTTPS) mode, or has enabled SMI-S support, could have been vulnerable to the “Heartbleed” bug if the library actually encountered a malicious attack. Since secure library communication certificates may have been retrieved during such an attack, new communication certificates have been provided with this version of library firmware. As a result of such change, any security exceptions that may have been set up using the web client do not apply anymore; an “untrusted site” warning message will be encountered after the firmware installation is complete, requiring the security exception to be configured again.

Security Scanners

Tenable Network Security® Nessus® version 5.2.5 security scanner was run against the library firmware and found no critical issues.

Compatibility and Support

This section provides information on firmware and software compatibility.

Encryption Key Management Tape Drive and Media Support

The library supports the following encryption systems:

Encryption System	Supported Tape Drives	Supported Media
Quantum Encryption Key Manager (Q-EKM)	IBM LTO-4 FC IBM LTO-4 SAS IBM LTO-5 FC IBM LTO-5 SAS IBM LTO-6 FC IBM LTO-6 SAS Note: You must be running Q-EKM version 2.0 (or higher) to support IBM LTO-5 or LTO-6 tape drives.	LTO-4, LTO-5, and LTO-6 tape cartridges only
Tivoli Key Lifecycle Manager (TKLM)	IBM LTO-4 FC IBM LTO-4 SAS IBM LTO-5 FC IBM LTO-5 SAS IBM LTO-6 FC IBM LTO-6 SAS Note: Encryption key management is supported via the IBM proprietary protocol (IPP) and not the KMIP communication protocol.	LTO-4, LTO-5, and LTO-6 tape cartridges only
Scalar Key Manager (SKM)	HP LTO-4 FC HP LTO-4 SAS HP LTO-5 FC HP LTO-5 SAS HP LTO-6 FC IBM LTO-5 FC IBM LTO-5 SAS IBM LTO-6 FC IBM LTO-6 SAS	LTO-4, LTO-5, and LTO-6 tape cartridges only

* The Key Management Interoperability Protocol (KMIP®) is a specification developed by OASIS®. Its function is to standardize communication between enterprise key management systems and encryption systems. The Scalar i500 library provides a KMIP version 1.2 compliant encryption solution.

Encryption System	Supported Tape Drives	Supported Media
KMIP-compliant key managers*	HP LTO-4 FC HP LTO-4 SAS HP LTO-5 FC HP LTO-5 SAS HP LTO-6 FC IBM LTO-5 FC IBM LTO-5 SAS IBM LTO-6 FC IBM LTO-6 SAS	LTO-4, LTO-5, and LTO-6 tape cartridges only

* The Key Management Interoperability Protocol (KMIP®) is a specification developed by OASIS®. Its function is to standardize communication between enterprise key management systems and encryption systems. The Scalar i500 library provides a KMIP version 1.2 compliant encryption solution.

Firmware Compatibility

The following table provides information about tape drive firmware compatibility with Scalar i500® i8.2.2.1 (646G.GS002). This information is current as of the publication date of these release notes. For the most recent firmware versions, check www.quantum.com. For the most up to date information on Quantum Global Services, please visit: www.quantum.com/support.

Drive Type	Firmware Version
HP LTO-4 FC	H64Z
HP LTO-4 SAS	A65Z
HP LTO-5 FC	I6CZ
HP LTO-5 SAS	X6AZ
HP LTO-6 FC	J3LZ
HP LTO-6 SAS	O3IZ
IBM LTO-2 FC	A4N0
IBM LTO-2 SCSI	A4N0
IBM LTO-3 FC	93GM
IBM LTO-3 SCSI	93GM
IBM LTO-4 FC	C7QH*
IBM LTO-4 SAS	C7QH*
IBM LTO-4 SCSI	C7QH*
IBM LTO-5 FC	D8D4
IBM LTO-5 SAS	D8D4

Drive Type	Firmware Version
IBM LTO-6 FC	D8E4
IBM LTO-6 SAS	D8E4

* Due to security features, you cannot downgrade the IBM LTO-4 drive firmware to versions prior to 82FB without following specific instructions. If you must downgrade, contact Quantum Support for assistance.

Software Compatibility

To view a list of backup software packages which have been tested for interoperability with the Scalar i500® i8.2.2.1 (646G.GS002), see the Quantum Software Compatibility Guide at <http://www.quantum.com/swcompguide.aspx>.

Resolved Issues

This release of Scalar i500® i8.2.2.1 (646G.GS002) firmware resolved the following issues.

Change Request Number	Service Request Number	Description	Solution
51819		The Web client Log Viewer page contains a security flaw which exposes security vulnerabilities in the library.	The Log Viewer page has been updated to close the security vulnerabilities.

Known Issues

This release of Scalar i500® i8.2.2.1 (646G.GS002) firmware has the following known issues.

Change Request Number	Service Request Number	Description	Workaround
18328		When Fibre Channel (FC) port 2 is selected to be the active port in a host port failover configuration, the active port can switch to the default setting, port 1, following a reboot.	Reconfigure the host port failover settings so that the intended port is the active port.
22967		When upgrading a library with a Model 2 robot to firmware version 570G, the library may generate RAS ticket T124 - Robotics Hardware Error - RCB .	Explanation: The problem has been fixed in code versions 570G and later, but because the problem resides in previous code versions, you may encounter this issue when upgrading from a previous version to version 570G. Workaround: Leave the library powered on for 20 minutes after the ticket was posted to allow the picker to recover. If you open a library door or power cycle the library during this time, the picker may become inoperable and require replacement.
25651		If a tape drive firmware update fails when using a firmware update method other than autoleveling, the library may incorrectly generate RAS ticket T112 - Invalid Tape Drive Firmware Image in addition to correctly generating RAS ticket T109 - Tape Drive Firmware Update Failure .	Ignore T112, and follow the resolution steps for T109.
25964	SR1070246	If a library is upgraded and fails to initialize upon reboot, the snapshot name will be incorrect.	Snapshot information is correct other than the name. Correct the hardware issue that is causing library not to initialize.
27092		Occasionally the FC I/O blade serial number is reported incorrectly on the Tools - FC I/O Blade Information screen (Tools > FC I/O Blade Info).	If the serial number ends with invalid characters, ignore the invalid characters. The rest of the serial number is correct.
28047		Cleaning counts are reported inconsistently when cleaning tape is used in tape drives from multiple vendors.	The problem only occurs if you use the same cleaning tape in both IBM and HP tape drives because each vendor reports cleaning count differently.
28408		IBM LTO-5 FC drives failed firmware upgrade on a library that had an FC I/O blade installed. Some of the drives that failed the upgrade were connected to the FC I/O blade.	Try the firmware upgrade operation again.

Change Request Number	Service Request Number	Description	Workaround
29140		E-mailing Advanced Reports via the Web client fails to complete. This only happens when you first "save" the report and then immediately try to "e-mail" the report using the Save and E-mail buttons in the report viewer.	There are two workarounds. Either: <ul style="list-style-type: none"> • E-mail the report before saving it. or • Once you save the report, leave the report viewer page and go to another page in the Web client. Return to the report viewer page and then click the E-mail button to e-mail the report.
29297	SR1148738	Picker issues cause the operator panel to remain in the "working" state.	Log on to the Web client, capture a snapshot, and contact Quantum Support for assistance.
31724		Cannot change drive topology setting after disabling data path failover.	Refresh the web browser page before attempting to change topology.
32239		EKM Path Diagnostics fails when you change the DNS host name of a primary or secondary EKM server (Setup > Encryption > System Configuration). This occurs when changing the DNS host name to another host name, or when changing an IP address to a DNS host name.	After you change the host name, restart the library.
32278		If both FC I/O blades and Ethernet Expansion blades are in the library, when you perform an operation that reboots all installed FC I/O blades, it will also reset all installed Ethernet Expansion blades. The EE blade reset may generate a RAS ticket T177 - EEB lost Ethernet/CAN connectivity .	Close the EEB RAS ticket. Verify that no other related RAS tickets were generated.
32352		Changing the library's internal IP address in the midst of a host-initiated backup/restore operation may cause the backup to fail.	Do not change the library's internal IP address during backup/restore operations. It is recommended practice to reboot the library after changing the internal IP address. Additionally, you may receive RAS tickets for loss of drive communication if you change the internal IP address. If this occurs, resolve any related RAS tickets, and then reboot the library.

Change Request Number	Service Request Number	Description	Workaround
37926		After restoring to a previous release version and then upgrading to i8, the following RAS messages were generated: <ul style="list-style-type: none"> • T084 - Missing Cleaning Tape • T085 - Unknown Cartridge In Cleaning Slot 	Export all cleaning tapes and re-import them back into configured cleaning slots.
41384		On library firmware upgrades it is possible to see ticket T074 – Drive Sled Auto-Leveling Failure .	Close RAS ticket T074 – Drive Sled Auto-Leveling Failure . Power cycle the library.
50737		Using an invalid cleaning tape for Automatic Cleaning does not generate errors on the library.	Verify that only valid cleaning tapes are used for cleaning operations.
48262/ 40715		After upgrading the library from version i8.1.1 to i8.2, the library may display an error when accessing pages from the Web client menu.	Reboot the library.
51267		IBM LTO drives do not encrypt media properly when using Tivoli Storage Manager 7.1.	Set the Tivoli Storage Manager 7.1 devclass lto DRIVEENCRYPTION option to "EXTERNAL".
48787		HP Data Protector 7.01 with IBM LTO-5 or LTO-6 drives encounters errors during basic read/write operations (backup or format) when Library Managed Encryption (LME) is enabled with SKM or KMIP.	<ul style="list-style-type: none"> • Disable SKM and KMIP on partitions with IBM LTO-5 and LTO-6 drives. or • Use HP LTO-5 or LTO-6 drives if SKM or KMIP is required.
48947		In partitions containing IBM LTO-5 and/or LTO-6 drives where Library Managed Encryption is enabled and writing encrypted data is performed, and then Library Managed Encryption is disabled and writing non-encrypted data performed; at this point, if the Library Managed Encryption is re-enabled again for the same partition, data written thereafter on any media will not be encrypted.	Enable Library Managed Encryption on the partition, then power cycle the drives in the partition before writing data to the media. Select Tools > Diagnostics , then when the library enters Diagnostics mode, select Drives > Drive Test > Drive Reset .

Firmware Versions

The table below lists firmware code for the last several releases.

Release	Scalar i500 Library Firmware	Board Support Package (BSP)	UDS Firmware	Fibre-Channel I/O Blade Firmware
i8.2.2.1	646G.GS002	8.37	776Q.GU001 with 430A.GU001 boot	5.12.01.33
i8.2.1.1	643G.GS002	8.32	745Q.GU007 with 430A.GU001 boot	5.12.01.33
i8.2	640G.GS007	8.32	745Q.GU007 with 430A.GU001 boot	5.12.01.33
i8.1.2	636G.GS003	8.14	740Q.GU033 with 430A.GU001 boot	5.12.01.33
i8.1.1	635G.GS005	8.13	740Q.GU033 with 430A.GU001 boot	5.12.01.33
i8	630G.GS003	8.09	740Q.GU033 with 430A.GU001 boot	5.12.01.33
i7.3	620G.GS010	7.90	723Q.GU024 with 430A.GU001 boot	5.12.01.08
i7.2	607G.GS004	7.66	713Q.GU004 with 430A.GU001 boot	5.10.08.07
i7	600G.GS004	7.42	710Q.GU012 with 430A.GU001 boot	5.10.08.07
i6.1	585G.GS003	6.86	655Q.GU005 with 430A.GU001 boot	5.10.02.01
i6	580G.GS003	6.80	650Q.GU014 with 430A.GU001 boot	5.10.02.01
i5.1	571G.GS002	6.73	630Q.GU008 with 430A.GU001 boot	5.09.05.01
i5	570G.GS025	6.73	630Q.GU008 with 430A.GU001 boot	5.09.05.01
i4	520G.GS003	6.66	610Q.GU005 with 430A.GU001 boot	5.08.08.01
i3.1	500G.GS004	6.53	591Q.GU004 with 430A.GU001 boot	5.08.02.01
i3	500G.GS002	6.52	590Q.GU001 with 430A.GU001 boot	5.08.02.01

Release	Scalar i500 Library Firmware	Board Support Package (BSP)	UDS Firmware	Fibre-Channel I/O Blade Firmware
SP4.2	420G.GS005	6.42	570Q.GU002 with 430A.GU001 boot	5.07.11.01
	420G.GS006	6.42	570Q.GU002 with 430A.GU001 boot	5.07.11.02
SP4	410G.GS007	6.39	550A.GU003 with 430A.GU001 boot	5.07.09.01
i2	400G.GS010	6.32	530A.GU004 with 430A.GU001 boot	5.07.05.04

Documentation

Documentation pertaining to this product is located at:

<http://www.quantum.com/ServiceandSupport/SoftwareandDocumentationDownloads/SI500/Index.aspx#Documentation>

Document Number	Document Title
6-01733-05	Scalar i500 Site Planning Guide
6-01210-06	Scalar i500 User's Guide
6-01741-04	Scalar i500 Getting Started Guide
6-67926-01	Scalar i500 Repackaging Instructions
6-01370-10	Scalar i500 Basic SNMP Reference Guide
6-00423-13	Quantum Intelligent Libraries SCSI Reference Guide
6-01317-10	Quantum Intelligent Libraries SMI-S Reference Guide
6-01739-08	Scalar i500 Library Firmware Upgrade Instructions
6-01740-07	Scalar i500 Tape Drive Firmware Upgrade Instructions
6-01844-03	Library Service Utility Installation Instructions
6-00618-11	System, Safety, and Regulatory Information Guide

Documentation pertaining to the StorNext AEL500 product is located at:

<http://www.quantum.com/ServiceandSupport/SoftwareandDocumentationDownloads/AEL500/Index.aspx>

Document Number	Document Title
6-67853-01	StorNext AEL500 Mini Essentials Guide

Contacting Quantum

More information about this product is available on the Service and Support website at <http://www.quantum.com/ServiceandSupport/Index.aspx>. The Service and Support Website contains a collection of information, including answers to frequently asked questions (FAQs). You can also access software, firmware, and drivers through this site.

For further assistance, or if training is desired, contact the Quantum Customer Support Center:

United States	1-800-284-5101 (toll free) +1-720-249-5700
EMEA	+800-7826-8888 (toll free) +49-6131-3241-1164
APAC	+800-7826-8887 (toll free) +603-7953-3010

For worldwide support:

<http://www.quantum.com/ServiceandSupport/Index.aspx>
