Scalar i500 i5 Addendum

Purpose of This Document

This Addendum describes new features and functional changes for the i5 release. These changes are not included in the existing *Scalar i500 User's Guide*. The sections that follow discuss all of these changes.

Advanced Reporting Updates

- The on-screen Drive Resource Utilization and Media Integrity Analysis reports contain both a chart and a data table. The data table for both reports displays a maximum of 1,000 rows of data, even if the data file contains more records. (The data table is not limited to the last 7 days, as currently stated in the User's Guide.) The chart, however, displays information for the entire range selected. To view all of the data, you need to save or e-mail the data file.
- Media Security Notifications (see Media Security Notifications on page 6).

Automatically Creating Partitions – Changes

When automatically creating partitions, either via the Setup Wizard or the automatic partition creation screens on the web client or operator panel, the default number of partitions created is the number of distinct tape drive interface/vendor combinations of the tape drives that are not currently assigned to a partition. Previously, you could create fewer partitions than the default. Now, the default is the minimum number of partitions you can create. On the Setup Wizard, you may also choose to create zero partitions and instead create them later using the web client or operator panel.

Cleaning Media Handling Improvements

Cleaning Cartridges — The preferred method of labeling a cleaning cartridge is to have **CLN** or **CLNU** as the prefix on the label. Any cartridge detected with a **CLN** or **CLNU** prefix will be considered a universal cleaning cartridge, regardless of any media identification extension. Cartridges containing a media identification of **C1**, **C2**, **C3**, **C4**, **C5**, and **CU** will be considered cleaning cartridges and will be tracked and treated as if the media label contained the prefix **CLN** or **CLNU**.

Cleaning Count — The cleaning count is the number of times a cleaning cartridge has been used to clean a tape drive. Knowing this can help you decide when to replace a cleaning cartridge. The cleaning count is now listed in two locations:

- Library Configuration Report (from the web client, select **Reports > Library Configuration**)
- The Export Cleaning Media screen (from the web client, select **Operations > Cleaning Media > Export**)

Ethernet Port Settings

A new setting has been added to the operator panel. The **Setup > Network Mgmt > Port settings** function allows you to configure the autonegotiate mode, speed, and duplex parameters on the Ethernet port.

Host Port Failover Note

Configuring Fibre Channel Host Port Failover (only applies if a Fibre Channel I/O blade is installed) — The current feature implementation does not support arbitrated loop or target/initiator mode. Also, ports on the 4 Gb FC I/O blade used for failover must connect to the same SAN fabric.

Importing Unassigned Media

Media is considered unassigned when it is placed into the I/E station and not assigned to a partition. With Manual Cartridge Assignment enabled (default), when you place cartridges into the I/E station and close the door, the local operator panel displays a window asking you to assign the cartridge(s) to a partition. If you cancel out of the screen and do not assign the media to any partition, the cartridges remain unassigned.

Alternatively, with Manual Cartridge Assignment disabled (operator panel, **Tools > System Settings**), the screen asking you to assign cartridges to a partition does not appear and the cartridges in the I/E station remain unassigned until moved or imported into a partition.

In previous firmware releases, you could only import unassigned media into the library if Manual Cartridge Assignment was disabled. Now, even if Manual Cartridge Assignment is enabled, you can import unassigned media into the library via the remote web client. This applies to both regular media and cleaning media.

> **Note:** Whether manual cartridge assignment is enabled or disabled, when importing cartridges via the remote web client, all unassigned cartridges in the I/E station will be assigned to the selected partition. However, only the cartridges you select will actually be moved into the library storage slots. The non-selected cartridges will remain in the I/E station assigned to that partition until you import or move them into that partition. To import a previously assigned cartridge into a different partition, you must first remove that cartridge from the I/E station, place it in a different I/E station slot, and then import it into the desired partition.

Differences in what you can see and do depending on manual cartridge assignment status:

Manual Cartridge Assignment	Cartridge Assignment in I/E Station	Importing Unassigned Media	Library Configuration Report
ON (default)	You are asked to assign cartridges to a partition immediately upon placing them in the I/E station. You may "cancel" out of this window without assigning them to a partition.	From operator panel: **NO** From web client: **YES**	Unassigned cartridges are not visible.
OFF	You are not asked to assign cartridges to a partition and the cartridges remain unassigned.	From operator panel: **YES** From web client: **YES**	Unassigned cartridges are visible.

Media Security Notifications

Media Security Notifications is a new feature of the Scalar i500 that enables you to be notified if media is removed from the library without the administrators' knowledge or without direction from the backup application. For example, if someone opens the front door of the library and takes a piece of media, the Scalar i500 can notify the administrator which tape was taken, when it was taken, and in what fashion.

> **Note:** This feature is only available if the Advanced Reporting license is installed on the library.

You can configure the library to collect any or all of the following information. By default, the library collects nothing and the log is empty. You must select each item you want the library to collect.

- Unexpected Removal Detection After Power-up and Reboot Only
- Unexpected Removal Detection During Library Operation
- Expected Removal Detection From I/E Slots During Library Operation

The log file contains the following information:

- Date and time of media removal
- Tape cartridge barcode
- Type of removal (expected or unexpected)
- Slot location coordinates (of the slot from which the tape cartridge is missing)
- Slot type (IE, storage, or cleaning)

The log only lists media that have been completely removed from the library. It does not list media that move from one location to another within the library.

When the log file reaches its maximum size, the oldest information is deleted as new information is added. This may affect how much historical data you can access.

To configure what information gets tracked in the log file, from the Web client menu select: **Setup > Notifications > Advanced Reporting > Media Security**.

To view, save, or e-mail the report from the library Web client, select **Reports > Log Viewer.** Select **Media Security Log** from the list and click **Next**.

Mixing Tape Drive Vendor and Generation Types Within Partitions

When you automatically create partitions, tape drives with different vendor types are placed in different partitions. If you manually create partitions, you can mix tape drive types as follows.

- For non-encrypted partitions and for partitions that use Application Managed Encryption (AME) key management:
  - HP LTO-4 and IBM LTO-4 drives can be mixed.
  - Different media generations can also be mixed.
- For partitions enabled for Library Managed Encryption (LME) key management:
  - These partitions must contain only LTO-4 tape drives.
  - These partitions must contain either all IBM or all HP tape drives.

QKM — Encryption Key Management Support for HP LTO-4 Tape Drives

Previous versions of the library only supported library managed encryption on IBM LTO-4 tape drives, using Quantum Encryption Key Manager (Q-EKM). Q-EKM functionality on the library has not changed, except that now you may not mix tape drive vendor types in partitions configured for library managed encryption.

The library now supports encryption key management on HP LTO-4 Fibre Channel and SAS tape drives with an additional key manager, Quantum Key Manager (QKM) Appliance. This key management solution includes two servers (one primary, one for failover). Each QKM server is equipped with two RAID 1 mirrored hard disk drives to provide redundancy in case one hard disk drive fails.

Note: The QKM Appliance works only with HP LTO-4 tape drives, and Q-EKM works only with IBM LTO-4 tape drives. These two key management solutions from Quantum are not interoperable, and the Scalar i500 library does not support mixing these two key managers within an environment.

Once the QKM servers are set up, most QKM functions occur automatically without user action required. QKM provides some key management capability through the library web client. These functions are:

- Importing and exporting encryption keys (**Tools > QKM Management > Encryption Key > Import/Export**).
- Importing and exporting encryption key certificates (**Tools > QKM Management > Encryption Certificate > Import/Export**).
- Viewing the primary and secondary QKM server logs (**Tools > QKM Management > Retrieve QKM Logs).**
- Viewing the QKM Encryption Key Import Warning Log (**Reports > Log Viewer**)

If you have purchased the QKM Appliance, see the *Quantum Key Manager User's Guide* for additional details. If you have not purchased the QKM Appliance, contact your local Quantum sales representative or reseller to learn more.

Quantum Vision™ Functionality Improvements

The Scalar i500 i5 release greatly increases the amount of library status and configuration information that is passed to the Quantum Vision™ software.

Note:	Users must upgrade to Vision software version 3.0 to take advantage of this additional information.

Quantum Vision management software provides industry-leading administration and helps users make informed decisions about their growing backup needs. Vision™ software saves users time and increases data security by giving users centralized, global monitoring and reporting for all their Quantum DXi Series disk systems and Quantum tape libraries. More Quantum Vision information can be found at: http://www.quantum.com/products/Software/quantumvision/Index.aspx.

SAS Cabling Guidelines

The LTO-4 SAS drives in the Scalar i500 use an SFF-8088 type connector.

Each SAS tape drive should be connected directly to a SAS host bus adapter (HBA) using one SAS cable.

Quantum does not support the use of SAS expander devices or cables at this time.

SNMP Support

The library supports SNMP v1, v2c, and v3. You can set the library to report SNMP traps using either v1 or v2 (v1 is the default). The timeout for all SNMP requests to the library must be at 10 seconds or greater (command line parameter-t).

Unlabeled Media Detection

At bootup and other times the library performs an inventory of all slots and media. If a slot contains media with an unreadable barcode label (for example, the label is missing, torn, or marked up), the scanner cannot identify it, so the library normally reports the slot as empty.

With the Unlabeled Media Detection feature, you can configure the library to detect and report which slots contain media with unreadable barcodes. Since cartridges with unreadable barcodes will not work for some library functions, knowing which labels are bad enables you to replace them with good ones as soon as possible.

When you enable Unlabeled Media Detection, the calibration sensor re-scans slots identified as empty in the inventory to see if a cartridge is physically in the slot. If so, the library reports the cartridge as having an unreadable barcode.

> **Note:** The library always re-scans "empty" slots in the top and bottom rows of the library, even if you don't enable the Unlabeled Media Detection feature. This is because occasionally a small or poorly placed label cannot be read by the barcode scanner in those two rows. The calibration sensor re-scans the bottom row, and the picker physically checks the top row because the calibration sensor cannot reach it.
>
> "Bottom row" here means the bottommost available row as indicated in the library configuration report.

This feature is disabled by default. When enabled, the following occurs:

- The re-scan may take up to several minutes to complete.
- The library configuration report indicates media with unreadable barcodes by displaying a red triangle in the corner of the slot.
- The library user interface lists **No_Label** as the barcode for all cartridges with unreadable labels.
- The library posts a RAS ticket (T143) when an unreadable barcode label is detected. As long as that ticket remains open, no more T143 tickets will be issued, even if more unreadable barcode labels are found.
- An unreadable barcode label is re-scanned every time the cartridge moves to a new location to check if it is readable in the new location.

To enable the library to report unreadable barcodes:

1. Access the **System Settings** page as follows:
   - On the Web client, select **Setup > System Settings**.
   - On the operator panel, press **Tools > System Settings**.

2 Select one of the following from the **Unlabeled Media Detection** list:

Selection	Action
None (default) **Note:** On the operator panel, deselect the Unlabeled Media Detection checkbox.	Performs the standard inventory only. Includes a re-scan of the top and bottom rows only.
I/E **Note:** On the operator panel, select the Unlabeled Media Detection checkbox, then select I/E.	Re-scans all slots in the I/E station that were identified as empty in the standard inventory. If media is detected, it is assumed to have an unreadable barcode.
All **Note:** On the operator panel, select the Unlabeled Media Detection checkbox, then select All.	Re-scans all slots in the library that were identified as empty in the standard inventory. If media is detected, it is assumed to have an unreadable barcode.

3 Click **Apply**.