Scalar i500
i7.3 Features Update

Providing an overview of the new features contained in the i7.3 firmware release.
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Introduction

This *Scalar i500 i7.3 Features Update* document provides information on the new features in the i7.3 firmware, and links to the following video tutorials:

- Installing and Configuring EDLM
- Enabling KMIP
- Installing the SNAPI Client Plug-In
- Creating EDLM Policies for Standard Partitions and Interpreting Results

This document is a companion training resource to the *Scalar i500 i7.3 User’s Guide Addendum*. It is not intended to replace any of the Scalar i500 product documentation.

What Are the New Features?

The following features are now available with the i7.3 firmware release:

- Extended Data Life Management (EDLM)
- Key Management Interoperability Protocol (KMIP)
- SNAPI client plug-in
  
  This is an optional feature for StorNext customers who wish to manage EDLM functionality with StorNext Storage Manager.

Extended Data Life Management (EDLM)

Extended Data Lifecycle Management (EDLM) provides data protection and integrity checking by scanning tape cartridges, providing results, and allowing users to migrate data off of bad or suspect tapes. EDLM lets you run manual scans on any tape cartridge at any time; it also performs automatic scans, according to schedules and policies that you set up.

To use EDLM, you must set up one or more dedicated partitions to be used for scanning. These are called *library managed partitions*, because they are not accessible by hosts. Scanning takes place using "EDLM scanning drives," which are different from regular tape drives and must be purchased from Quantum. You cannot use regular tape drives to perform EDLM scans.

EDLM Details

- The EDLM feature requires an Extended Data Lifecycle Management license to be installed on the library. One EDLM license covers the entire library.
- Administrator privileges are required for configuring EDLM and running manual tests.
- At least one library managed partition is required for media scans.
- You can scan cartridges manually at any time. You can also set up automatic media scanning policies by partition, where each partition has its own set of media scanning and action policies.
- All tape cartridge types (data, cleaning, diagnostic, and firmware update) can be scanned manually, but **only data cartridges can be scanned automatically.**
For more details about EDLM features, see the *Scalar i500 i7.3 User’s Guide Addendum*.

**The EDLM Library Managed Partition**

All tape drives in the EDLM library managed partition must be “EDLM scanning drives” (not standard tape drives), and must be purchased from Quantum. EDLM scanning drives are HP LTO-4 or HP LTO-5 Fibre Channel tape drives. A library can have both LTO-4 and LTO-5 EDLM scanning drives in the same EDLM library managed partition, and it can have multiple EDLM library managed partitions. EDLM library managed partitions support any number of EDLM scanning drives (within the normal support of the physical library).

Other important EDLM information includes:

- All of the EDLM scanning drives in the EDLM library managed partition **must be connected to a Fibre Channel I/O blade**. Each FC I/O blade supports up to four tape drives, and you can use multiple FC I/O blades. Quantum recommends that the FC I/O blade(s) used for EDLM scanning drives have only EDLM scanning drives attached (although this is not required). We also recommend that the blades be channel zoned or host mapped to prevent host access to the EDLM partitions. Otherwise, the host will have access to the EDLM drives, which can cause problems.
- Tape drives in the EDLM library managed partition will be used only for EDLM scanning.
- The EDLM library managed partition is composed of unlicensed slots. If the size of the EDLM partition exceeds the number of unlicensed slots, the partition will be composed of both unlicensed and licensed slots, or of all licensed slots. Remember that any designated licensed slots take away from the total number of slots available in the library, and that, because EDLM partitions cannot contain storage or cleaning tapes, it is best practice to keep all slots in an EDLM partitions unlicensed.
- Normal library drive cleaning policies apply to the drives in the library managed partition.
- If you use library managed encryption and plan to use the EDLM partition to scan encrypted tapes, you must configure this partition for library managed encryption, so that it can request the correct encryption keys from the encryption key servers. For more information, see the “Installing and Configuring EDLM” section below, and the *Scalar i500 User’s Guide i7.3 Addendum*.

**EDLM Installation, Configuration, and Test Results**

Watch the [Installing and Configuring EDLM](#) and [Creating EDLM Policies for Standard Partitions and Interpreting Results](#) video tutorials, and then answer the review questions that follow, to test your understanding.
Review Questions

Question 1
True or false: The drive you configure for EDLM must be specifically set up to scan suspect tapes; it cannot be used for any other library operations. (check answer)

Question 2
True or false: It is REQUIRED that the FC I/O blade(s) used for EDLM scanning drives have only EDLM scanning drives attached. (check answer)

Question 3
True or false: The FC I/O blade(s) should NOT be connected to a host. (check answer)

Question 4
Which of the following LTO manufacturers and drive generations support EDLM scanning? (check answer)
- IBM LTO-4 and LTO-5 drives
- HP LTO-4 and HP LTO-5 drives
- HP LTO-5 drives only
- IBM LTO-5 drives only

Key Management Interoperability Protocol (KMIP)

The capabilities and configuration of the Scalar i500 encryption systems have changed. A Key Management Interoperability Protocol (KMIP) compliant key manager has been added, in addition to the previous support for Q-EKM and SKM.

KMIP is a specification developed to standardize communication between enterprise key management systems and encryption systems. The Scalar i500 now provides KMIP version 1.0 compliant encryption, which is supported with HP LTO-4 and HP LTO-5 tape drives.

IMPORTANT: KMIP is only supported in environments that use SafeNet® KeySecure servers. KMIP Version 6.0.0 build 28 has been tested with the i7.3 version of the library firmware.

Details about the Scalar i500 KMIP-compliant implementation include:
- To enable KMIP, an Encryption Key Management license must installed on the library.
- At least two KMIP-compliant encryption key servers are required for failover purposes. A total of 10 KMIP-compliant encryption key servers are allowed, for maximum failover capability.
- When using KMIP in conjunction with EDLM, the EDLM partition must be enabled for encryption before standard partitions are enabled for encryption.
Enabling KMIP

Watch the Enabling KMIP video tutorial, and then answer the review questions below to test your understanding.

Enable KMIP on your HP LTO-4 and LTO-5 drives.

Review Questions

Question 5
True or false: KMIP partitions must contain only HP LTO-4 and/or LTO-5 tape drives. (check answer)

Question 6
True or false: For KMIP Key Manager, SSL is always enabled, because the library actually uses Transport Layer Security (TLS), which is more secure than SSL, to communicate with the encryption servers. (check answer)

Question 7
True or false: When Automatic EKM Path Diagnostics is enabled (as it is by default), the library will throw a RAS ticket unless both encryption key servers are connected to the library and are functioning properly. (check answer)

Question 8
In the Key Server IP Address or Host Name text boxes, the port number must match the configured port number on the KMIP key manager server, which is usually: (check answer)

- 03801
- 443
- 6000
- 9003

Question 9
True or false: When enabling KMIP, you must install Transport Layer Security (TLS) communication certificates with valid dates on the library in order for the library to communicate securely with the attached EKM servers. (check answer)
True or false: You can select individual tapes for encryption – you don’t have to select an entire partition. (check answer)

**StorNext AEL500 Archive Overview**

The StorNext AEL (Archive-Enabled Library) 500 Archive is a single-product offering that combines StorNext Storage Manager and the Scalar i500 to create an archive-enabled solution.

The StorNext side includes StorNext Storage Manager with special slot-based licensing, and the SNAPI module. The Scalar i500 side includes a 14U or 23U Scalar i500 library, 3 HP LTO-5 FC standard drives, 1 EDLM drive and blade, an EDLM license, and the SNAPI client plug-in.

The SAEL500 library (with the SNAPI Client Plug-In) combines with EDLM to create an integrated solution in which the SAEL500 can serve as a backup target, and can also communicate with the Storage Manager server. This two-way communication is unique to the StorNext AEL Archive solutions.

**IMPORTANT**: Customers who do not have StorNext, and existing StorNext File System Only customers, can purchase an AEL 500. However, customers who already own a Scalar i500 and Storage Manager cannot purchase slot-based expansion for their existing deployments.

**SAEL500 Library Configuration Options**

Customers can purchase an SAEL500 library in either of two base unit configurations:

- 14U library with 41 activated slots and 92 inactive slots
- 23U with 133 activated slots and 92 inactive slots

Customers can upgrade all base units to a maximum of 409 total slots.

The SAEL500 library requires that you install the SNAPI client plug-in in order for StorNext to “see” the library, as discussed below.

**SNAPI Plug-in**

When you have StorNext Storage Manager managing your partitions, you can use it in conjunction with the EDLM feature to automatically copy data off of bad or suspect tapes, or to trigger media scans.

In order to use StorNext for these purposes, you must first install the StorNext Application Programming Interface (SNAPI) client plug-in on the library, and then configure the library to communicate with StorNext Storage Manager. The SNAPI client plug-in is a licensable feature available for purchase from Quantum. The SNAPI Client Plug-In can be installed on SAEL500 libraries as well as regular Scalar i500 libraries.

**Installing and Configuring the SNAPI Client Plug-In**

Watch the Installing and Configuring the SNAPI Client Plug-In video tutorial, then answer the review question below to test your understanding.
Enable StorNext to manage EDLM policies on your AEL500 library or Scalar i500 library by installing the SNAPI Client Plug-In

**Review Question**

**Question 11**
Under which of the following circumstances is installing the SNAPI plug-in required? (check answer)

- With the download of the newest i7.3 firmware upgrade.
- When you’re using StorNext Storage Manager to manage your partitions.
- Any time you want to run an EDLM partition scan.
- It isn’t required under any circumstances.
Answers to Review Questions

**Answer 1**
True. The drive you configure for EDLM must be set up only for scanning suspect tapes; it cannot be used for any other library operations.  < Back to question

**Answer 2**
False. It is RECOMMENDED, not required, that the FC I/O blade(s) used for EDLM scanning drives have only EDLM scanning drives attached.  < Back to question

**Answer 3**
True. It is recommended that the FC I/O blade(s) NOT be connected to a host. Otherwise the host would be able to see the drives.  < Back to question

**Answer 4**
HP LTO-4 and LTO-5 drives are support EDLM scans.  < Back to question

**Answer 5**
True. KMIP partitions must contain only HP LTO-4 and/or LTO-5 tape drives.  < Back to question

**Answer 6**
True. Because the library uses TLS for encryption, the SSL feature on the Setup > Encryption System Configuration screen is always enabled.  < Back to question

**Answer 7**
True. The Automatic EKM Path Diagnostics feature is enabled by default, so that the library will check both key server connectivity and functionality and throw a RAS ticket if any problem is detected.  < Back to question

**Answer 8**
In the Key Server IP Address or Host Name text boxes, the port number must match the configured port number on the KMIP key manager server, which is usually 9003.  < Back to question

**Answer 9**
True. KMIP require TLS certificates for secure communication with EKM servers.  < Back to question
Answer 10
False. You cannot select individual tapes for encryption – you must encrypt the entire partition. < Back to question

Answer 11
A SNAPi plug-in installation is required only when you’re using StorNext Storage Manager to manage your partitions. < Back to question