

Media Lifecycle Management Best Practices



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Media Lifecycle Management (MLM) is a proactive tape management tool that tracks, manages and reports on all facets of tape usage and health status from creation to retirement. MLM reduces tape related errors eliminating unscheduled downtime due to media problems and increasing the reliability of your backup and archive applications.

Best Practices

Choose a retirement guideline When implementing MLM, decide at implementation on the criteria to be used when determining when to retire a cartridge. Spectra suggests using the Media Lifecycle Management health icon (Figure 1), visible on the MLM Reports screen and on the Details screen to assess the overall health of individual tapes.

Use only MLM-enabled media and cleaning cartridges in MLM-compatible libraries and tape drives. For the most accurate tracking, do not import your MLM-enabled media into non-Spectra Logic libraries or drive generations lower than LTO-4. The cartridge MAM or MLM database will not be updated with information about usage in those locations.

Use only Spectra Certified Media with MLM support (both data and cleaning cartridges) in the library. The library uses information in the MLM database to monitor the health of the media in the library. For MLM-enabled media, the detailed health reports let you determine whether a particular data cartridge is past its useful threshold or determine whether a particular cartridge is experiencing high errors rates or retries. For MLM-enabled cleaning cartridges, you are notified when a cartridge is approaching the end of its useful life. Although MLM tracks the general health of media that is not MLM-enabled, detailed health information is not available for this media.

Do not routinely share LTO-4 media between LTO-4 and LTO-5 drives. The algorithm used to determine media health in LTO-5 drives differs from the one used for LTO-4 drives. As a result, when LTO-4 media that was previously used in an LTO-4 drive is used in an LTO-5 drive, the reported media health will initially appear to be different from what was reported by the LTO-4 drive. When the media is consistently loaded into LTO-5 drives, the health score becomes more accurate during subsequent load/unloads as current usage statistics are updated and used in the tape's health scoring. To maintain consistent media health statistics for your LTO-4 media, Spectra Logic recommends that you do not routinely share LTO-4 media between LTO-4 and LTO-5 drives.

Always operate the library with Media Lifecycle Management enabled. If you disable and then re-enable Media Lifecycle Management, any loads, reads, writes, errors, and any other tape related events that occur while MLM is disabled are not recorded in the MLM database.

Enable load count alerts. Load count alerts, used in combination with the media health icon, let you monitor the health of individual tapes. Tapes with low load counts, but with a yellow or red health icon

are vulnerable to high errors rates or retries. For higher levels of notification, configure a threshold for the maximum number of times a data cartridge can be loaded before an alert is generated (Figure 2). When the number of loads exceeds this threshold, MLM will generate a system message listing the barcode of the tape. You can also enable an alert to notify you when the load count recorded on the cartridge MAM differs from the load count stored in the MLM database but none of the other data has changed. This type of discrepancy can indicate that the tape has been loaded into a non-Spectra Logic library. Use this alert as a security feature to let you know when a tape was removed and loaded into a drive in a different library.

Regularly back up your MLM database. Determine how frequently to export the MLM database for storage. You can save the MLM database to a USB drive or email it to a previously configured mail recipient. The database can be loaded back into the library in the event of an error. Backing up the MLM database produces a point-in-time snapshot of the database. Based on the number of tapes you routinely import into and export from the library, determine how frequently backups are needed to ensure that you can easily restore the MLM database.

Enable non-MLM media alerts. Alerts for non-MLM-enabled media notify you when a cartridge that is not MLM-enabled is loaded into a tape drive.



Figure 1

Media Lifecycle Management Settings

Enable Media Lifecycle Management

Enable Alerts for Non-Certified Media

Enable Alerts for Load Count Discrepancies

Minimum Cleaning Passes Before Warning

Maximum Tape Loads Before Warning

Figure 2

Data Integrity Verification:

Data Integrity Verification is comprised of three levels for data integrity assurance:

- MLM PreScan ensures data is written to a healthy tape.
- MLM QuickScan provides a fast verification that written data is viable and can be read.
- MLM PostScan re-verifies that an archive or backup tape is healthy and does not require migration to another tape.

PreScan - MLM PreScan is a background process that provides verification for LTO data tapes using an LTO-4 or LTO-5 tape drive to perform a basic functionality test and health check on each imported tape. This feature uses available drives in the partition, rather than Global Spare drives. The PreScan feature is enabled as part of the partition creation process, and generates system messages as possible error conditions are detected (for example, a broken leader or a media error). The messages indicate that the error condition was detected by the PreScan process and not during normal operation.

QuickScan – MLM QuickScan verifies restorability of data on media from the beginning of tape through one track of the media or to the end of recorded data, whichever comes first. QuickScan is supported on MLM-capable LTO-5 drives. This type of scan uses available drives within the specified partition to perform the verification tests, and can cause minor delays in your normal operations.

QuickScan using Global Spare - A version of QuickScan that uses available Global Spare drives. Just like MLM QuickScan this option verifies data integrity through one full pass (track) on the media or to the

end of recorded data, whichever comes first using a Global Spare drive and does not cause delays in your normal operations. QuickScan using Global Spare is supported on MLM-capable LTO-5 drives.

PostScan - is a background process that performs a readability verification test to verify data integrity on existing media in the MLM database using an LTO-4 or LTO-5 tape drive. You can choose to perform this function either automatically or manually, and can set the scanning frequency and options. (Fig.5 and Fig. 6) This scan verifies that there are no media errors on the tape by reading the entire length of the tape up to the end of the recorded data (EOD). It should be noted that although PostScan reads the data on the tape, it does not process this data into a usable form. It simply verifies that it can read the data from the tape

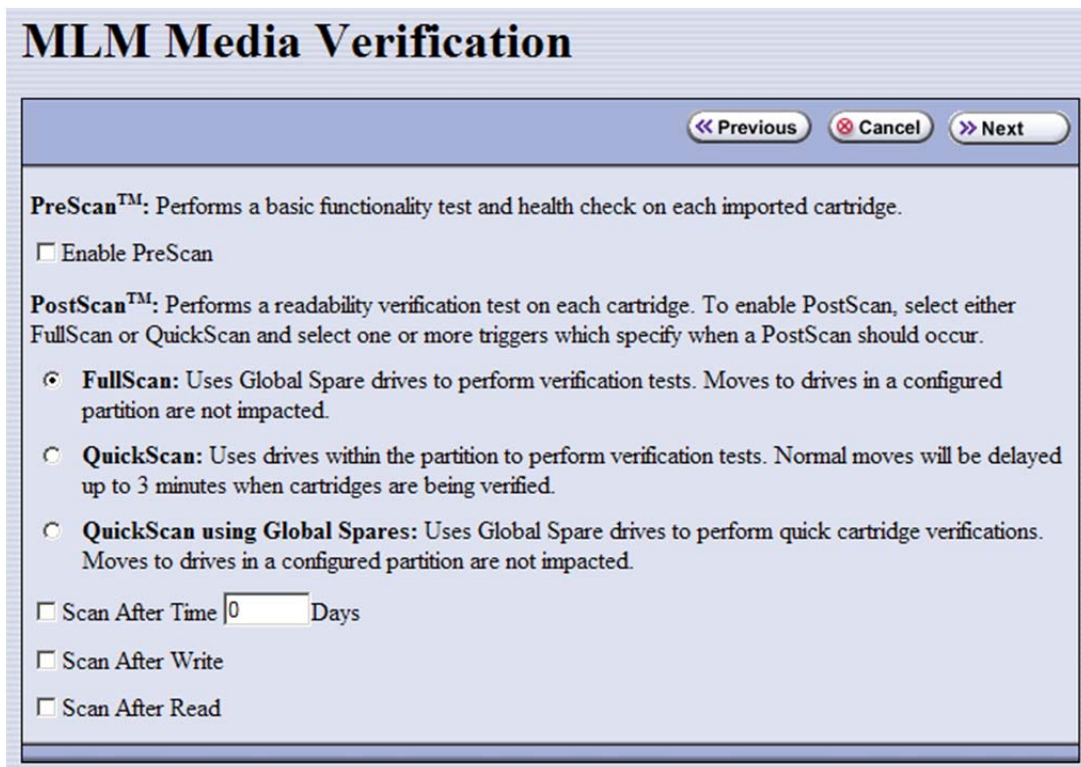



Figure 4

Media Lifecycle Management Tools

>> Discover Media	Media discovery is not required - all media have been identified.
>> Manual PostScan	Manual PostScan™
>> Delete Records	Delete exported media MLM records
>> Download MLM DB	Download the MLM Database in comma separated value (CSV) form

Figure 5



Media Lifecycle Management

▶ Maintenance

PostScan™ Blackout Periods

Specified in hours of the day (to unset day, set both Start and Stop to 0)

Sunday:	Start	0 ▼	Stop	0 ▼
Monday:	Start	0 ▼	Stop	0 ▼
Tuesday:	Start	0 ▼	Stop	0 ▼
Wednesday:	Start	0 ▼	Stop	0 ▼
Thursday:	Start	0 ▼	Stop	0 ▼
Friday:	Start	0 ▼	Stop	0 ▼
Saturday:	Start	0 ▼	Stop	0 ▼

>> Save

Figure 6