

IBM LTO-9 Firmware Version PA60 (FH) and PA61 (HH) Release Announcement

October 2022

Preface

This Product Information Bulletin announces the release of IBM LTO-9 firmware update PA60 for full-height (FH) and PA61 for half-height (HH) drives. These updates are intended, among other things, to increase overall reliability, improve tape handling, further reduce any possibility of error, and provide continued enhancements to diagnostic capabilities.

Models Affected

This firmware affects all IBM LTO-9 FH and HH drives.

Upgrade Considerations

All systems running code IBM LTO-9 P381 can be upgraded to LTO-9 PA61



CAUTION: To prevent data corruption, verify that all active backup and recovery jobs to the NEO tape library are completed prior to performing the upgrade.

Downgrades

Downgrades are not supported.

Fixes That Affect All Drives

- **Fix breakage in contents of read buffer ID 08h:** Due to a code bug, the read buffer 08h WWPN field was returning all zeroes. Code was corrected so the drive will return WWPN of requestor correctly.
- **Media optimization improvements:** Added additional improvements to the media optimization process to more accurately characterize all LTO media.
- **Load failed with an FSC 2C40:** If a cartridge fails during a capacity scaling operation, the drive would incorrectly report this as a refurbished cartridge and fail the load with a FSC 2C40.
- **Incorrect FSC's reported against refurbished tapes:** When a refurbished cartridge gets loaded, the drive posted a FSC 5225 & FSC 7234 which was incorrect.
- **Drive failed to send status to a Write command:** Fixed an issue to correctly respond to a Write command while ILEP (Internal Label Encryption Policy) was enabled.
- **Improved Media Optimization reliability:** Changed the media optimization code to better handle invalid servo samples which could cause the Media Optimization to fail with a 2C60.
- **Timeout on READ:** The drive attempted some needless ERPs (Error Recovery Procedures) which caused the READ to timeout.
- **Drive fails WRITE with a FSC 6000:** Due to invalid sensor status, the drive incorrectly thought that it needed to LOAD an already loaded cartridge.
- **Drive fails a LOAD from hold position:** Changed logic to clear previous load variables just before threading a cartridge.

- **Time out on a READ Command:** Drive used an invalid LPOS during an ERP.
- **Write Timeout:** Due to a race condition, the WRITE Command was not ready for the return of a CRC failure, so it hung waiting for status that had already provided by a lower level of code.
- **READ failed with FSC 7226 on a partitioned cartridge:** Changed logic so the Drive would refer to the appropriate value while reading partitioned media.
- **Locate failed with FSC 7220:** Drive reports an error incorrectly while locating to different partition.
- **Locate/Space failed with FSC 6017 due to timeout:** The ERPs for an invalid LPOS were changed to avoid continuing the same recovery action which was not working. The ERP progression was changed so when a first retry fails, the drive will then go to rechuck retry to avoid the timeout.
- **TA31 incorrectly reported:** When a drive failed TDS cartridge calibration with FSC 2C60, it would incorrectly post a TA31.
- **Drive fails WRITE with a FSC 7855:** The drive was having trouble getting the current position on tape during a wrap turn, which caused the drive to time out.
- **Drive fails cartridge formatting at EOD with FSC 6402:** Drive failed the FORMAT command due to an error of a previous operation not being cleared.
- **Drive failed to Locate/Space with FSC 6353:** ERP was added so if an invalid LPOS on the skim was detected, the drive would retry the position with a read.
- **Drive failed with FSC 7060:** Incorrect was tension was being used during an ERP. The tension was changed to nominal to improve recovery chances.
- **Correct DHCP settings:** Changed drive DHCP request option from 60 to "tape_drive".
- **Drive did not eject the cartridge after an MTR:** The low-tension rewind failed during the Mid Tape Recovery (MTR) due to in an invalid LPOS, and the drive to failed with a 4105. Corrected the callback when an invalid LPOS is encountered during a retention rewind.
- **Command failed with FSC 78C1 & 2E13:** Due to a race condition, as the drive was doing a power-down unthread, a command was sent that needed the tape to be reloaded. The drive interrupted the unthread but could not reload the tape and the error was posted. The code was changed to complete the unload and then reload the tape.
- **Drive failed with FSC 78B5 at EOT:** A change was made to better control the band change at very close to physical EOT.
- **Read failed with FSC 6017:** When an unexpected BUFFER_FULL occurred, the drive checked too many data segments which caused mis-detects. Limited the number of segments to check if buffer is full.
- **Drive failed with an incorrect FSC 4105:** The drive incorrectly posted an FSC for recovered operation. The drive should post the correct FSC through the call stack within the drive.
- **READ failed with FSC 7175 at EOW:** Changed the ERP behavior to read to the latest data set write pass at the wrap turn.
- **401D error failure occurred on reading:** Added read retry ERP for this case, to recover from this failure.

Functional Change Requests

- **Implement MAM attribute 1100h for LTO:** Added MAM attribute 1100h for LTO which provides the total tape motion meters for that cartridge.
- **Implement new log page 39h[02h]:** This FCR adds a method to return the SFP For FC Drive from page A2h to the host and library over LUN 0.
- **Implement MAM attribute 1002h.:** Adding parameters to provide MAM attribute User Defined Cartridge ID.

Fixes That Affect Only Certain Drives

Library Drives

- **An sADT frame may have incorrect data if sent during the 100ms delay after Port Login:** Due to a race condition, the drive may only return 1 byte of the required payload during this time.

FC Drives

- **LP 11h[010?h] may wrongly report PIC1 when FC port offline:** Certain offline conditions may report incorrect port status changed to always report PIC=0 when port offline.

SAS Drives

- **The SAS drive may return 18 bytes of the 96 bytes of sense data:** Fixed the length check to ensure the correct number of sense bytes is returned.

Downloads

Firmware update code IBM LTO-9 PA60 (FH) and PA61 (HH) is available for download for supported NEO users. To download IBM LTO-9 firmware, browse to this site:

https://download.overlandtandberg.com/Firmware/Tape_Drives/IBM_LTO9_Drive/

Additional documentation on how to operate, configure, and support your NEO library is available at:

<https://www.overlandtandberg.com/knowledgebase/>