

IBM LTO-9 Firmware Version Q9E0 (FH) and Q9E1 (HH) Release Announcement

February 2024

Preface

IBM LTO-9 firmware update Q9E0 for full-height (FH) and Q9E1 for half-height (HH) drives. These updates since versions Q3F4 (FH) and Q3F5 (HH) 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 prior firmware versions can be upgraded to firmware version Q9E0 for FH and Q9E1 for HH drives.



CAUTION:

To prevent data corruption, verify that all active backup and recovery jobs to the LTO drive are completed prior to performing the upgrade.

Downgrades

Downgrades are not supported.

Fixes That Affect All Drives

- **Ethernet port may hang.** A race condition in a window of about 2s long may happen, where a link up followed by ethernet hardware memory accesses may happen when dram power saving is active. This results in a hard hang of the internal memory bus requiring a power cycle of the drive.
- **Drive hanged during a WRITE.** The drive was unable to find the validity criteria for certain detection processes, leading to incorrect results or errors during the detection phase. Code has been updated to include a data repair step before proceeding with the PERM operation.
- **Drive fails with FSC 7234.** The current entropy sampling rate is causing a higher chance of entropy health test failures for some drives. The sampling rate was changed to a more optimal rate value.
- **Drive Panic during an error burst.** Fixes a drive hang which could occur due to an improperly initialized memory segment during error recovery.
- **Drive Panic at EOD wrap turn.** Due to a race condition the drive panicked on a recovered servo error at a wrap turn during an EOD write.
- **Drive cannot read CM-less cartridge.** The code has been revised to distinguish between cartridges with unreadable CM data and refurbished tapes.

- **Drive fails a READ.** This change enforces a format specification requirement and may surface an FSC 7122 write perm to avoid possible future read failures.
- **Drive failed a READ with FSC 7076.** The recovery process was prematurely terminated due to the reporting of an unexpected Return Code. A code modification has been implemented to change the behavior of the ERP process.
- **Drive failed a READ with FSC 7060.** READ ERPs were improved to help recover from certain READ errors in a localized area.
- **Improve lateral position recovery.** TDrive failed to obtain the lateral position (lpos). Logic has changed so the drive could keep the lateral position retries process long enough to ensure a successful lpos recovery.
- **Add write fence condition.** The code has been updated to include a condition that checks if the CM Control Page is blank. If it is, write operations are prohibited, preventing writes to the tape without proper TDS calibration.
- **ERP improvements to address FSC 7060 read failures.** A series of changes have been added to improve the performance of the Read Error Recovery Procedure under TDS, ensuring more reliable and accurate operation.
- **Improve load time.** A code modification has been applied to introduce threading during CM data reading. This improvement allows for concurrent execution of CM reading tasks, resulting in faster load times and a more efficient loading process.
- **Drive fails a LOCATE with FSC 6350.** The code has been modified to improve the handling of segment status when consecutive space operations encounter missing filemarks.
- **Drive did not always perform a low-tension rewind from the EOT.** Due to a race condition the drive did not always do a full low-tension rewind on an unload.

Fixes That Affect Only Certain Drives

FC Drives

- **Drive hang during turbo READ on FC Drive.** If FC transfer errors happen during status, the drive may hang while in READ Turbo mode posting FSC 1055.

Downloads

Firmware update code IBM LTO-9 Q9E0 (FH) and Q9E1 (HH) is available for [download](#) for supported users with active software entitlement agreements.

Additional documentation on how to operate, configure, and support your NEO library is available at our [Knowledge Base](#).