**IBM** Removable Media Storage Solutions
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**IBM has released a firmware update N4Q0 (Half High code N4Q1). This firmware affects all Gen 7 Full High and HH Drives. This update is intended, among other things, to increase overall reliability, improve tape handling, further reduce any possibility of error, and provide continued enhancements to diagnostic capabilities. Firmware fixes since MA70 (Half High code MA71) follow:**

# Fixes That Affect All Drives

**FSC 6000 on an UNLOAD Command**: Improved the error handling when recovered error handling is enabled. The drive would sometimes return GOOD status, even though the unload failed. Pending prior to the unload commands may not be handled correctly.

**Enhanced error recovery algorithms to help reduce FSC 7060/6353 failures**: Modified error recovery procedures (ERPs) to implement conditional use of a different variation of tape tension and retry methods to reduce media related failures.

**LOCATE/SPACE command time out:** Due to a code bug, a reposition timeout could occur when moving to the last record on tape.

**Drive hang during unload on a mid-tape recovery (MTR):** The drive encountered a hardware error during a MTR. Instead of reporting the hardware error (78E3) the drive hung and became unresponsive.

**Improve tape handling during MTR at BOT:** After a power cycle with a tape in the drive, the drive did a MTR (mid tape Recovery) did not completely recovery due to a velocity stall near BOT. A change was made to better control the speed transition as the drive approached BOT.

**UNLOAD command hang after a previous UNLOAD failure:** The drive was unloading and had a hardware failure that caused a fsc 2E0C. Subsequent UNLOAD commands received no return response from the drive.

**Do not allow a read only tape to be initialized:** An LTO 7 drive was able to initialize a new LTO 5 tape (which is supposed to be read only for an LTO 7 drive). This should NOT be allowed. The drive should fail with an FSC 2C3A.

**Drive failed a LOCATE/SPACE with an FSC 7274:** The drive code was using an invalid value as a start position for a locate which caused the failure

**Cartridge load fails with an FSC 2C3E:** When a cartridge is in an invalid state, the drive would fail with a 2C3E. This change allows the customer to reformat the cartridge and correct the invalid state so the cartridge can be reused.

**LLWR diagnostics fail for FSC 5301:** After ejecting an LTO6 cart, the “long loop write-read” (LLWR) diagnostics would fail w/FSC 5301. An incorrect state was used due to the LTO 6 cartridge. Restored the proper state prior to the test.

**Adjust IFC trigger criteria:** Adjusted the thresholds that call IFC (In Field Calibration) to better react to dead tracks and stop writes

**Stuck tape due to tape being pulled out of the cartridge:** The drive did not properly dequeue commands after a previous tape failure when that tape was unloaded. When a second tape was

loaded, these commands were unexpectantly executed with the first tapes parameters, causing the second tape to be pulled out of the cartridge. This caused the drive to fail with a FSC 2E12, and the tape to get stuck

**Remove LP3 pass count as EOL trigger:** The trigger to flag media as EOL based on the LP3 tape passes, was removed. This was requested by multiple customers.

**Drive failed with a FSC 7175/6353 during skimming operation:** The drive did not properly handle the reading of a dataset written at a wrap turn during a suspended append write.

**Drive failed a write append with FSC 7165:** The drive used the wrong estimated LPOS value that caused the drive to fail the write append.

**Drive did not respond to a READ command causing that command to Timeout:** Due to a race condition between drive code components the drive did not respond to a read commend with cause a Command timeout.

# Fixes That Affect Only Certain Drives

## SAS Drives

**SAS loopback diagnostic failed:** A side effect of CMVC 26361 changed the frame structure. Because the size changed the diagnostic would always fail.

## Encryption

**Unexpected reboot may occur:** When reading a combination of encrypted and non-encrypted data near BOP, a drive panic may occur which causes the drive to reboot.

## Worm

**Drive failed with a FSC 6017 on a new WORM tape:** A new WORM tape that had been end point tested at the media manufacturer, should be allowed to write from BOT

**Drive fails with FSC 2C30 to Write on WORM cartridge:** If an uninitialized WORM tape is loaded in a drive and there is no activity, the drive enters sleep mode after 20 min. The drive would then fail a subsequent WRITE with a 2C30

## Library Drives

**LDI: Drive would hang on a Read Buffer for the VPD via LDI:** Due to a recent change in the CM size, the drive would overwrite memory, which caused the drive to hang. The code now checks for the since of the CM and allocated the correct memory size.

**LUN2: Add support for service action 1Eh:** The drive incorrectly implemented service action 00h for the report/set Automation Device Attributes commands. The ADC spec intended this service action to be 1Eh. This duplicates the service action so that both1Eh (so that we are compliant with the spec) and 00h (so we do not break existing libraries) can be used.