IBM CUSTOMER INSTALLATION INSTRUCTIONS

FBM 18P7117
FBM 18P7164

FBM. Update IBM 3583 Tape Drive Firmware using SCSI or a Field Microcode Replacement (FMR) tape.

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SSD - Tucson

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Before Installation

1.0 Machines Affected:

These FBM's affect the following IBM products:

- IBM 3583 model L18
- IBM 3583 model L36
- IBM 3583 model L72

when the tape drives in these products have firmware version below 25D4.

The contents of this FBM are as follows:

- 18P7117 - FBM (ECAXXX)
  - 19P6184 - 1 FMR tape - with drive firmware (25D4)
  - 18P7118 - Installation Instructions
- 18P7164 - FBM (ECAXXX)
  - 19P6167 - 1 DISKETTE - with drive firmware (25D4)
  - 19P6181 - 1 CD - with drive firmware (25D4)
  - 18P7118 - Installation Instructions

2.0 Purpose and Description

Note: Provided with these instructions is media containing drive firmware at the version recommended for all 3583 machines. IBM recommends that you visit the LTO web site at **http://www.ibm.com/storage/lto** periodically to ensure your machines are always at the latest available version, and that you download the latest version and install it on your machine if they are not. You will find the firmware versions in the Technical Support section of the web site.

Listed below are the release or fix notes for the 25D4 version of drive firmware.

Fixes incorporated into firmware release 25D4 from 1550:

Most fixes are the result of IBM internal testing and are categorized below. Problems reported by drive users are listed individually.

Defect/Error Processing 24 fixes
Reporting 13 fixes
Multi Initiator 6 fixes
Wrap Change operation 7 fixes
Support for new DRAM 1 change

1. This code version adds support for a new DRAM on the drive card. Drives with this new DRAM require this support, so never downlevel any drive that originally came with drive firmware version 25D4 or higher to any version of drive firmware lower than 25D4.
2. Drive returns Check Condition if it receives CDB which has a non 0 in the LUN# field. Change not to check LUN field in CDB.
3. 16E0 firmware had a problem that occasionally resulted in corrupted CM and incorrect WRITE PASS values. Later firmware versions could still have a problem reading the tapes that had this original problem since we read ahead and might see an old dataset beyond EOD with a write pass value that could hang the drive. Checking is added to deal with this odd event appropriately.
4. If read request length is nearly 16MB, the residual length is not correct. Corrected the code so that it added an offset into residual length.
5. Conversion rule for serial number reporting between SCSI Inquiry and label on the drive was requested. Modified conversion rule for the serial number in SCSI Inquiry. The returned serial number will be consistent with

the label on drive. The change in reporting methodology only effects new drives.

6. Drive did not handle invalid parameter list for Log Sense command. Firmware changed to return Check Condition with proper sense.
7. Default setting for Data Set Separator detection criteria was the same for READ operation as for WRITE operation. The criteria should be less stringent for the read operation. Change the setting of READ criteria to be less than WRITE.
8. A bug in the firmware caused a single-character display "A" error to occur when trying to locate to a very large record that spans several recorded datasets. The error window occurs when one or more small records and the beginning of a very large record occur in the same-recorded dataset.
9. Firmware fix **to avoid unintended overwrite condition that may occur when** appending data using certain software applications: If a tape had been written so that an "end of data mark" is at the beginning or end of tape, and an application appends new data after a SCSI read command rather than a SCSI space or locate command, a potential **unintended** data overwrite condition can occur. Note: This problem has **not been observed** with Veritas NetBackup or Veritas Backup Exec.
10. Interrupted read transfer causes misposition. Firmware version 1CS0 correctly reported good status when a read data transfer was interrupted by a SCSI bus error, or a SCSI command from another host. This results in the wrong length of data being sent to the host, repeated data sent to the host, or, if a write command was issued after the read, could result in overwriting data on tape.
11. The maximum REQ/ACK offset was lowered from 0x1F to 0x0F to resolve timing problems seen in cases of long SCSI buses or slow host bus adapters
12. Improved servo error handling at beginning and end of tape
13. Firmware has improved read recovery to prevent unintentional rewind.
14. Check for cartridge loaded and CM data present before servicing request for capacity log data
15. Added EOP bit in Read Position support
16. Enhancement to handle CM corruption
17. Drive invalidation of buffered data to force a physical read retry
18. New function for midtape recovery performance.
19. Fix to clear the internal logged error when it finds the target. "Maint Status Good" will be returned for all "drive offline" commands
20. Drive no longer hangs after a request for 0xD0 page
21. Added support for "tape System Area Write Failure" Tape Alert (52)
22. Added power on time to log page 0x0C
23. Added Universal Cleaning Cartridge Support
24. Read Buffer command with buffer ID 7 now returns the last 10 commands and Initiator ID, command execution status and associated sense data (if any).
25. Firmware now optimized for handling SCSI bus integrity problems
26. Fixed error recovery procedure hang during locate.
27. Fixed long delay (>45 seconds) on first load after power on.
28. Improved handling of medium error 03/3B/00 (sequential positioning error) during write.
29. No Tape Alert reported for expired cleaning cartridge.
30. Incorrect Volser reported in sense data.
31. Space filemark for condition when read operation attempts to read over EOD
32. Firmware error (SCD "3") reported on Space operation

33. Fixed problem that occasionally left CM (Cartridge Memory) in an open state and reported a "6" on the single character display. Problem was introduced in firmware version 1550.
34. Improved the synchronization of data during compression optimization. Failure to maintain proper synchronization could result in lost or incorrect data that is undetected by a user.
35. SCSI hang during read operation.
36. Additional checking circuit for detection of error condition in the case of overlength or underlength reads.
37. Possible locate problem due to an incorrect memory pointer

3.0 Installation Time (Average)

Total time for the drive firmware update will be approximately 1 hour for a 3583 with up to 6 drives.

Installation

4.0 Details Of Installation - 3583 only

4.1 Determine the Drive Firmware Version - 3583 only

Attention: Before you continue, make sure that no tape cartridge is in the drive, and that the host server is not using the 3583.

To determine the version of drive code using the 3583 display, select **Status** and then select **Drives**.

- If the drive firmware version is lower than 25D4 (such as firmware version 22UD) then you should install the new drive firmware included with this kit. Go to 4.2, “Update Drive Firmware - 3583 Only” on page 6.
- If the drive firmware is already at 25D4 or higher do not continue with these instructions - the drive firmware has already been updated.

Note: In most cases the host server provides alternate methods of determining the Inquiry information - including the code version - of attached SCSI devices. These methods (such as TapeUtil or NTUtil) may be used if you are familiar with them, but they are not covered in these instructions.

4.2 Update Drive Firmware - 3583 Only

Attention: When updating drive firmware, do not power-off the 3583 Library until after the update is complete or the drives may become unusable.

To update code using SCSI, go to 4.2.1, “Update Drive Firmware using SCSI - 3583 Only.”

To update code using an FMR tape, go to 4.2.2, “Update Drive Firmware using an FMR tape - 3583 Only” on page 7.

4.2.1 Update Drive Firmware using SCSI - 3583 Only

Use the following information to assist you in downloading drive firmware from your server (host system) over the SCSI bus using the device drivers and utilities supplied by IBM.

For instructions on using the IBM device drivers and utilities (NTUTIL or TAPEUTIL), refer to the *IBM Ultrium Device Drivers Installation and User's Guide* that was shipped with the library. For the latest version of the User's Guide, visit the web at http://www.ibm.com/storage/lto.

For additional instructions on using NTUTIL and TAPEUTIL to update firmware over the SCSI bus, visit the web at http://www.ibm.com/storage/lto, then do the following:

- Under **Related Information**
  - Click on: **LTO Support**.
- Under **Products**
  - Choose the: **3583 Ultrium Scalable Tape Library**.
- Under **Downloads**
  - Click on **Firmware**.
- Click on **IBM 3583 Ultrium Scalable Tape Library Firmware**.
- Under **Downloadable Files**
  - Click on **Updating IBM Ultrium Tape Device Firmware (FMR)**.
  - Follow the instruction provided on the web page.

Note: It may be necessary to disable or remove a device driver supplied with a commercial backup application before using the device driver and utilities supplied by IBM. Refer to the *IBM Ultrium Device Drivers Installation and User's Guide* and the documentation provided with your backup application software to determine if there are conflicts.

After installing new firmware, verify the installation by using the inquiry command available on the utilities menu of your server, or by using the front panel of the 3583 (see section 4.1, “Determine the Drive Firmware Version - 3583 only” on page 5).

Note: Some backup application software packages will not reflect the firmware change until the registry is refreshed by rebooting the server.

4.2.2 Update Drive Firmware using an FMR tape - 3583 Only

__ 1. Locate the FMR tape provided with this kit. Do not load it into the tape drive at this time, but have it ready to load later in this procedure.

__ 2. Make sure that the host application is not using the library or tape drive.

__ 3. Make sure that no tape cartridges are in the drives.

__ 4. To install the new firmware image using the FMR tape, select **Command** → **Drives** → **Firmware Update**.

__ 5. Open the I/O station.

__ 6. Place the FMR tape into the top slot of the I/O station.

__ 7. Close the I/O station. The library executes the TEACH and INVENTORY procedures.

__ 8. Select **OK**. The Select Drives Dialog displays.

__ 9. Use **Select** to select one drive to be updated.

Note: The current library firmware does not allow multiple drive selection. You must select only one drive at a time for this procedure. If more than one drive is selected, use **Unselect** until only one drive is selected.

__ 10. When your drive selection is complete, select OK. The Firmware-Update Dialog displays.

The picker takes the FMR tape out of the I/O station and places it into the selected drive. The drive updates the firmware and unloads the FMR tape. The picker removes the FMR tape from the drive and returns it to the I/O station. If you are updating more than one drive the picker places the FMR tape into each drive that you selected. When the migration is completed the picker returns the FMR tape to the I/O station.

__ 11. Verify that the firmware update completed successfully by checking the drive firmware version as described in 4.1, “Determine the Drive Firmware Version - 3583 only” on page 5.

- If the drive firmware version is 25D4 or higher, the firmware update completed successfully.
- If the drive firmware version is still lower than 25D4, the firmware update failed. Retry the firmware update. If the error continues, contact your IBM Service representative.

__ 12. If you have more drives to update, repeat this procedure until all drives have been updated.