

TapeManager/LibraryManager Release Notes

8.068K

Release 8.068K

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The following changes and corrections have been made to the following software products. Use the TM VERSION command to find your current version of the TapeManager/LibraryManager software and review the changes made since that release. For instructions on how to use a new command or feature refer to one of the following documents; TapeManager Operations Guide, Cartridge Library Installation Guide, or TapeManager/LibraryManager Release Notes.

Release 8.068K (8.068.929)

Warnings

1. On very busy systems, one or more purge requests made via the TM PURGE command may fail with a message like PURGE FAILED – UNIT IS IN USE. Purges are run at a low priority and are given a limited amount of time (2.5 minutes) to complete their task. This is considered normal as the software is optimized to keep drives clear for active requests. If this situation is seen, the chance of it occurring can be reduced by doing one or more of the following, a) do the TM PURGE command when the system is less heavily loaded, b) increase the priority of the purge workers via the PR ODT command, c) decrease the number of purge workers (WORKERS=n) so that there is less contention between them, or d) increasing the IDLE TIME value for the library.
2. The duplicate placement of a tape into the purge queue can lead to unexpected results. Presently, TapeManager does not check for this

condition which can lead to an attempt to purge an in-use tape. TapeManager will reject the purge if the tape is in use, with warning messages displayed. Note that with multiple hosts sharing the same inventory of tapes, this can lead to mis-coordination between hosts with respect to the tape in question.

Corrections

1. A FileManager install where the pack family is "DISK" did not set the SL attributes, mark the code files unrestricted, or make the AI entry. This made the FileManager software non-functional. This has been fixed.
2. If due to license limitations a library ends up with zero slots the TapeLibrary Support process will fault at 12756400. Now if this situation occurs the starting of TapeLibrary Support will stop with a syntax error.
3. If the physical tape for a VTV were purged then the generations accounting failed to account for the VTV, causing a tape that should have been expired to be reported as otherwise. This has been fixed.
4. If a large number of deleted VTV records are present then the RESYNC TO <time> option for multi-host would take inordinately long. This has been fixed.
5. Previously an FA to a stack request would be ignored for the SCRATCHPOOL and FILENAME attributes if those attributes had been supplied in the original request. This has been fixed.
6. When the install program is waiting for a client of the DSISUPPORT library to delink it will now display the AX options available at that time, namely AX OF and AX OK. An OF will cause install to stop waiting and proceed to finish the install. An OK will cause it to retry the wait. Not waiting for the library client to delink may cause DSISUPPORT to not be updated at the time. The library would automatically be updated on the next halt/load, however. For most installs, not updating the DSISUPPORT library is not important as it usually isn't changed. Another display identifies the program that is keeping DSISUPPORT from being updated. Depending on what that program is, it may be necessary to take action so that DSISUPPORT can be updated. If that program is SYSTEM/MARC/COMMANDER then the action to take is to remove the MARC directive by entering DIRECTIVE -TM from the MARC utility window.
7. A library having more than 8192 slots would cause the remote library connection to fail with an array size error. The result was the remote library would never become online and available. This has been fixed.

Enhancements

1. A change has been made to improve the performance of the TM PURGE WHERE and TM PURGE LIBRARY WHERE commands.

Release 8.068J (8.068.021)

Corrections

1. Based on unpredictable timing, the Install program could hang due to "TAPEMANAGER REQUIRED". This has been fixed.
2. When defining multiple macros having names longer than six characters, a fault for "bounds error" could occur when a longer name follows a shorter one. This has been fixed.
3. If a remote library has a different number of slots declared than the local library has declared, the software could fault at 08183000. This has been corrected.
4. The location report was incorrectly including stacked tapes (VTV's). This has been fixed.
5. When a very large number of tape rules are configured, the POLICIES tab would cause a fault in GUI support. This has been fixed.
6. Starting in TM 8.068 modifying a virtual field would fail if the host doing so was not the LASTUSEDHOST for the record in a multi-host environment. This has been fixed.
7. Starting in TM 8.068 a configuration change that tried to remove a movement rule (CONFIG TAPE or CONFIG MOVE) would fail with the error "number expected". This has been fixed.
8. A message from the VTL Agent with invalid formatting could cause a fault in the VTL SUPPORT library with symptoms being an invalid index in one or more VTL DRIVER stacks. This problem has been corrected so invalid messages do not cause a fault.
9. The VTL Vault inventory report could sometimes drop the last tape in the listing. This has been corrected.
10. When the time difference between hosts exceeds the maximum, the message gave the time in the wrong units: seconds were reported as minutes. This has been fixed.
11. Some calculations of GENERATIONS were counting VTVs. This has been fixed.
12. A GUI INTERFACE session that is already running when TM or FM is stopped could DS with an Integer Overflow fault. This has been corrected.
13. The TapeManager install program could fail to set up the named pipes in NXServices if NXServices had not been updated after first installed. This has been corrected.
14. The Report View feature of the GUI would fail trying to open a file that contained a quoted node. This has been corrected.

15. The Database Reorganize tab of the GUI was returning an error when a single host reorganize was requested. This has been corrected.
16. A misspelling in GUIINTERFACE prevented the LABEL option of the stack command from working. This has been corrected.
17. Changes made to movement rules in TM 8.068 could result in the final movement step not expressing the destination location, making the rule ineffective at that step. This would only happen via the TM CONFIG MOVE command, not the TM CONFIG TAPE MOVE command. A change has been made to prevent this and to automatically correct the rules in the rules file as well as the expression of the rule (as in its display in the TM FIND ...:ALL report). To permanently fix the rules in the database, use the TM DB REORGANIZE command. The REORGANIZE report will list all those tapes affected. Alternately, rules can be re-applied which will redo the rules for affected tapes in the database.
18. The LOG/WAITER process, which appears whenever the TapeManager log file is unavailable but particularly when there is no disk space available for the log, could loop endlessly putting messages into the system log. This would be an extremely rare occurrence. This has been fixed.

Enhancements

1. The DEBUG TRACE command has a new capability:
TM DEBUG TRACE +/- <command keyword>

allows the trace to be automatically started and stopped for a particular command. Additionally, the task starting the trace (only) will trace additional information that normally is suppressed.
2. The demonstration software, SOURCE/TMREMOTESPO/ADVANCED, has been improved to provide a command line interface to FileManager using the command prefix "FM".

Release 8.068I (8.068.895)

Corrections

1. Faults in TM or FM code will no longer kill the GUIInterface program. A message will be displayed and the user can continue with the session.
2. A integer overflow fault could occur at 34413400 on a TM PURGE LIBRARY XXX WHERE command. This fault does not occur when the library name is omitted. This has been fixed.
3. Previously in TM 8.068 only, an input tape request that could only be satisfied with an auto unstack operation did not work. A symptom of this is that an error message is produced for an FA TITLE on a library maintenance task. This has been fixed.

4. The Install program has been improved to avoid an occasional problem with the DSISUPPORT system library. Previously, a program that tried to link to the library while an install was in progress could cause the SL DSISUPPORT to be marked "PENDING" by the MCP. This would cause "TAPEMANAGER_INITIALIZE" to fail and make it appear that the install did not succeed. This would happen more commonly when the SYSTEM/TAPEMANAGER/GUIINTERFACE was running.
5. A report requesting the IMAGECOUNT virtual database item would fault with DIVIDEBYZERO. This has been fixed.
6. A formatting error involving four-digit dates in the Activity report has been fixed.

Enhancements

1. The TM DEBUG command has a new option. TM DEBUG LOG will send three reports into the TapeManager log, DEBUG QUEUES, DEBUG PORTS and DEBUG LOCKS, plus reports from TapeManager processes and any process currently executing a TM command that will show where they are in the code. This last is especially useful for analyzing deadlocks and timeouts. The equivalent of DEBUG LOG is done whenever a timeout occurs in remote host communication or in internal messaging.

Release 8.068H (8.068.884)

Corrections

1. The "e" was missing for encrypted tapes in the printed stacked tape directory report. This has been corrected.
2. The GUI was sometimes showing MOVE TO instead of RETURN TO for the return step in a movement rule. This has been corrected.
3. When TapeManager is installed on the family DISK the GUI Interface program might not execute if the users family statement did not include DISK. When installed on DISK the GUI Interface program now specifies its own family statement of DISK=DISK ONLY.
4. Fixed a critical block exit error caused by the VTL driver task not shutting down quickly enough.
5. Previously, a PURGE WHERE command could fail to find all the tapes intended, or could cause an INTEGER OVERFLOW fault at 34406500, depending on the exact form of the WHERE clause. This has been fixed.
6. GUIINTERFACE would fault at 61244000 if TapeManager was installed on DISK. This has been corrected.
7. Previously if a macro identifier, host name, user code or family name given in a command were longer than the seventeen character limit, TapeManager failed to give a syntax error. This could cause a fatal fault or possibly only

- lead to the identifier being truncated. Now TapeManager will give a syntax error when any such given identifier is too long.
8. Previously if the TM CONFIG CONVENTION set the date separator to a period, printed reports and reports to file did not always get the correct character. This has been fixed.
 9. In TM 6.068, a TM MODIFY of a string field could corrupt an adjacent field. Symptoms of this include tapes mysteriously appearing as "in use", bad timestamps or the bar code of VTV being invalid. The problem with MODIFY has been fixed. DSI recommends doing a TM DB REORG to detect and correct these errors. In most cases, if the DB REORG cannot fix the errors, the information can be recovered from the TapeManager log by using the TM REPORT ACTIVITY for that serial number. If uncorrected by hand, these data will self-correct the next time the tape is written.
 10. TapeManager Install was not correctly handling NXServices configuration files if their FRAMESIZE was WORDS. The results were syntax errors when the share and GUI ports were added. This has been corrected.
 11. Previously in TM 8.068 a WHERE clause having a LABEL compare to a string starting with a wildcard could fail to find valid matching database entries. This has been fixed.
 12. A remote host synchronize could hang due to certain timing factors involving remote configuration tracking. To encounter this a host would have to be configured to receive one of the following: RETENTION, MOVEMENT or TAPE. The synchronize would abort five minutes later. This has been fixed.
 13. In TM 8.068 it could take several minutes, or longer, for remote host synchronization to start for TCP/IP connected systems. A change has been made that causes such systems to start synchronizing much faster, typically in seconds.
 14. In TM 8.068 a SEND TM QUIT could cause a fault and a system dump on multi-processor systems, due to issues with MCP interfaces used by TapeManager. A change has been made to avoid these circumstances and eliminate the possibility of such a fault occurring.
 15. A DMDATARECOVERY task where the audit tape request was given an NF response could get a spurious AX OK from TapeManager. This has been fixed.
 16. A TM FIND with a WHERE LABEL part that gives a label of more than 17 characters, all alphanumeric, would cause a BOUNDS ERROR fault. A change has been made to give a syntax error when the string given is longer than the permitted length.

Release 8.068G (8.068.863)

Corrections

1. When TapeManager is waiting for an AX when unable to open the database, a response that was not one of the accepted ones, i.e. OF, DS, RESTORE, would cause a fatal fault, STRING PROTECT. This has been fixed.
2. The code supporting the DELETE MT and DELETE VTV commands was mistakenly dropped in the 8.068E/F releases. These commands are now available again.
3. Previously, it was possible for SYSTEM/TAPEMANAGER/SUPPORT to be DSed for "initiate active task" in rare circumstances while attempting to complete a DB BACKUP. A change has been made to eliminate such a possibility.
4. TapeManager could fail to pass the encryption pass phrase (KEY) to TapeStack for the decrypt process. This has been corrected.
5. When shutting down the VTL Driver(s) could P-DS with Critical Block Exit errors. VTLSUPPORT now makes sure that all VTL Drivers have gone to EOT before exiting.
6. In 8.068F only, some database fields could be set to overlap. For example, the creating mix name could return the value of the location. This has been fixed.
7. Previously, the system command, SEND TM, when used to send commands to TapeManager (as opposed to SEND TM START/STOP/STATUS) could cause a fatal fault for stack overflow. A change has been made to prevent this.

Release 8.068F (8.068.850)

Enhancements

1. The TapeManager GUI has been enhanced to provide support for the TapeStack and Secure TapeManager functions. All TapeManager functions are now supported in the GUI.
2. This release of TapeManager adds support for a new product called FileManager. FileManager provides a file backup, tracking, and restore system for MCP hosts.
3. A change has been made to decrease the messages logged when CSC-A reports that a drive is not available. Part of the change increases the delay between retries for a mount.
4. The REORG report has been improved to include the record id of each line item. Additionally, the summary of changes which previously was available

only in the system displays and the TapeManager log is now included in this report.

5. Auto macros have been improved to permit filtering by task name, job name, user code and access code. The <program id> specification comes after "REPLY TO" and before the message matching. Syntax:

```
<program id> ::=
      |<---- , -----|
      |                |
-----|--- TASKNAME  ---|--|-----|--- <wild card string> ---|---|
      |--- JOBNAME    |  |-- = --|
      |--- USERCODE  ---|
      |--- ACCESSCODE --|
```

When <program id> is given, only tasks meeting all the given specifications are considered for the macro.

6. A timeout has been set for tapes placed in the purge queue by auto purge. After not purging for 15 minutes, the tape is released and its purging state cleared. This is to prevent the purge queue from becoming blocked by a problem tape.

Corrections

1. The TapeManager install program will no longer install the FileManager software by default. A separate program, SYSTEM/FILEMANAGER/INSTALL, has been created to install FileManager.
2. The warning of an expired license would not go away when new keys were installed. This has been corrected.
3. Various minor report fixes have been made. 1) The LIST DIR report will not be misaligned if nulls are in the comment string. The nulls will show as ?. 2) Cleaning tapes will show correctly on FIND reports. 3) Permanent cartridge statistics are no longer reported for VTVs in the FIND :ALL report.
4. The GUIINTERFACE program could fault if TapeManager or FileManager went to EOJ while the GUI was still running. The fault is now prevented.
5. Several issues with the database reorganize have been fixed.
 - A failed database conversion to a new level will not attempt to do a restore.
 - The check for invalid RTVs now uses the STACKTIME instead of CREATED.
 - An empty string for a VTVCOMMENT is now handled properly. The old comment is deleted.
6. The database reorganize will now remove VTVCOMMENT links where the data does not conform to the limits for it. Specifically, the comment must be 20 characters or less and not empty.

7. For a CopyAudit run that restores an audit file from tape TapeManager was not always selecting the correct tape. The selection process has been improved, but since it is not always known what the last audit is on an audit tape it will be possible for the wrong tape to be selected.

Release 8.068E (8.068.834)

Corrections

1. A fault in LOGPROCESSOR, INVALID TARGET @ 21215000 has been fixed.
2. Previously, when configuring file id substitution, the slash was reported as part of the substitution which could lead to the substitution forming an illegal string for the tape label. This has been fixed.
3. Conversion of movement and retention rules from the pre-TM 8.068 form to the extended form did not properly remove empty entries. The effect was that previously deleted rules "came back" with settings in effect, NONE. If one such had a label specification that would logically precede a currently valid one, then it would appear that rules for the valid one were not "working". This has been fixed and the fix includes automatically removing these entries when the database is opened so there is no need for additional corrective action. However, if such cases are found, a re-application of rules may be warranted. The following example does so for the label set, BACK1:

```
TM CONFIG TAPE BACK1:APPLY
```

This reveals an important point with respect to rules that could overlap, i.e. where a label could satisfy either one but only the "more complete" one will be chosen. Example:

```
TM CONFIG TAPE XYZ RETEN 2 DAYS
```

```
TM CONFIG TAPE XY= RETEN 2 DAYS, MOVE AFTER 5 DAYS TO  
OFFSITE
```

All tapes labeled XY= will have equivalent retention rules (2 days), however if the label is XYZ there will be no movement rule. This is because the various rules for a label are, and always have been, treated as inseparable. The syntax which permits all the rules for a given label set to given together helps emphasize that as well as cutting down on the amount of configuration syntax needed.

4. A problem has been fixed where unlabeled tapes were not being correctly ULed when these tapes were being stacked with Unisys TapeStack.
5. If a label substitution applied to a TM STACK command (e.g. TM CONFIG TAPE =/STACKEDTAPE LABEL = #LABELID#MM#DD), the label

substitution would fail with an error, ATTRIBUTE ERROR:OUTTAPE.TITLE INVALID STRING @ (14373900). This has been fixed.

6. The Utility screen, MOVEM, did not work for deleting or viewing movement rules. This has been fixed.
7. For systems using the CSC interface, a change has been made to eliminate the exchange between remote hosts that causes a modify of the LASTUSEDHOST field in the case where it doesn't match the current host. This exchange exists to verify that a tape is not seized by one system while it is in use by another. The CSC interface overrides this protocol.
8. The GUIINTERFACE program could fault at 2434000 with an integer overflow if TapeManager was not running when GUI debugging was requested. This has been corrected.
9. When a new (blank) tape is mounted for the first time it could have retention rules applied that would prevent an SN from working. This has been corrected.
10. Systems that use TapeStack could sometimes end up with a record in the TapeManager database that had nulls for the serial number. This null record sometimes affected reports and stack requests. This change prevents this kind of record from being created. TapeManager databases that already have this record will need to do a TM DB REORGANIZE to eliminate it.
11. In the TM UNSTACK command if the TO SN part was requested the unstack process would ignore that request and unstack to another tape. This has been corrected.
12. Previously a DB REORG would not remove records for VTVs where the referenced RTV was missing or invalid. This has been corrected.
13. Previously, an auto macro with a match template having two consecutive literals would not match an RSVP correctly. This has been fixed.

Release 8.068D (8.068.768)

Corrections

1. Previously, EXPORT rules where the number of days was greater than zero could cause the library service task (LIBRARY/<lib name>) to loop until midnight or longer. This has been fixed.
2. In TM 8.068 (base thru C), the retention form would get the error, "The end of the statement was expected but '=' was found." This has been fixed.
3. In TM 8.068 (base thru C), the TM CONFIG:PRINT or TM CONFIG:FILE <name> command would get a bounds error fault. This has been fixed.
4. In TM 8.068 (base thru C), the following could occur:
 - 1) TM PURGE LIBRARY WHERE would get an integer overflow fault.

- 2) Some AD HOC reports or MOVEMENT reports would be empty. These issues have been fixed.
5. In TM 8.068 (base thru C), *ad hoc* searches involving the SERIALNO or LABEL fields and the comparisons GE and GT would fail to find all records that should be found. This has been fixed.

Release 8.068C (8.068.760)

Corrections

1. In TM 8.068B only, a deadlock could occur that prevents LogProcessor from progressing. The situation requires at least two simultaneous tape jobs starting up against a backdrop of remote tape rules updates coming from another host. Symptoms include inability to complete remote host synchronizing, failure to load tapes and no response to certain TM commands, especially those concerning the tape rules configuration.
2. An error in spelling a mnemonic name was not being caught in a selection expression. This has been fixed.
3. The TM LIST LOCATION report did not show serial numbers in TM 8.068 only. This has been fixed.
4. In TM 8.068B only a TM PURGE or auto purge could leave the drive in HOLD preventing the task from using the tape without operator intervention. This has been fixed.
5. Search optimization did not work on TM PURGE WHERE commands as it should have. This change permits the purge search to be optimized where a key field is used.

Release 8.068B (8.068.752)

Corrections

1. Tape drives that are in use when a tape library is initialized by TapeManager could significantly delay the process. A change has been made to reduce this effect.
2. Default tape rules were not always applied starting in 8.068. This has been fixed.

To fix database entries use a TM MODIFY, such as:

```
TM MOD WHERE CREATED GE 6/8/2009 WITH RETENTION=*,  
MOVERULES=*
```

Release 8.068A (8.068.749)

Corrections

1. When only one tape in a library meets auto purge requirements and more than one job wants that tape, the tape would be selected for both jobs. Ultimately, one job will end up waiting for another tape. A change has been made to prevent this from happening.
2. If TapeManager's debug tracing is in effect, the purge of a tape that's not in the database could result in an "invalid operator" fault. This has been fixed.
3. A MOVE command with a destination of DOOR sent via the SEND TM interface could fault at 22684000. This has been corrected.
4. A COMMENT rule in a tape policy might return a "integer was expected" error. This has been corrected.
5. Tape rules configured AFTER conversion from the 7.067 version did not work if there were wildcard characters in the label id part of the rule. This has been fixed.
6. When remote configuration of tape rules is configured, a pending rules change from another host could cause a stack over flow fault in a library maintenance task. This has been fixed.

Release 8.068 (8.068.732)

Notes

1. All corrections documented through TM 7.067Y are included in the base release for TM 8.068. (See the latter part of this document.) If you are upgrading from a release prior to 7.067Y, you should review the changes made between your current release and 7.067Y as well as reviewing the changes made for 8.068.
2. The database version 3 has been implemented in this release. TM 8.068 will automatically convert older databases of any version to version 3 when first run. TM 7.067W and later releases will automatically convert database version 3 to database version 2. For complete fallback capability an install of TM 7.067W or later is recommended prior to installing TM 8.068.

Enhancements

1. General TapeManager enhancements

- a. A new TapeManager graphical user interface (GUI) has been added to allow control and inquiry to be done directly through a Microsoft Windows program. The program can be installed on any PC connected to an MCP host where TapeManager is installed. Go to the share, TAPEMANAGER, and open "GUI setup.exe" to install TapeManager GUI. The GUI software

is also available on the documentation CD and the DSI support web site. Note: the GUI supports all TapeManager features except the SECURE and TapeStack functions. These will be added in a future release.

- b. The tape policies configuration has been consolidated and enhanced. The new CONFIGURE TAPE combines the CONFIGURE RETENTION and CONFIGURE MOVEMENT into a single command and adds new features as follows.
 - 1) The CONFIGURE TAPE RETENTION command replaces the CONFIGURE RETENTION command. The CONFIGURE RETENTION command syntax will be retained for 2 releases to support migration to the new command syntax. A new retention option has been added, PARENT, that allows a tape to be associated with a parent tape that it will not become expired until the parent tape is expired.
 - 2) The CONFIGURE TAPE MOVEMENT command replaces the CONFIGURE MOVEMENT command. The CONFIGURE MOVEMENT command syntax will be retained for 2 releases to support migration to the new command syntax.
 - 3) The CONFIGURE TAPE LABEL command allows a tape's label to be changed before the tape is created. For example the date or time could be added to the label name specified by the program.
 - 4) The CONFIGURE TAPE SCRATCHPOOL command allows a scratch pool identifier to be assigned to an output tape based on the tape name.
 - 5) The CONFIGURE TAPE COMMENT command allows a comment string to be assigned to a tape based on the tape name.
 - 6) The CONFIGURE TAPE EXPORT command allows for the scheduling of the export (eject) of a tape after its creation. This feature is useful with VTL cartridges to initiate back end processes such as copying to physical tape or replication to another VTL.
- c. The CONFIGURE OPERATIONS command has 2 new options; RETENTION and GENERATIONS.
 - 1) The RETENTION option can be set to either CREATED DATE or UPDATED DATE. Setting OPERATION RETENTION to UPDATED DATE causes TapeManager to calculate a tape's retention from the date of the last update (append) of the tape. The CREATED DATE option (default) calculates retention based on the date the tape was originally created.

- 2) The GENERATIONS option can be either CREATED COUNT or UPDATED COUNT. Setting OPERATION GENERATIONS to UPDATED COUNT causes TapeManager to calculate the number of generations of a tape by the number of updates (appends) to that and related tapes. The CREATED COUNT option (default) calculates generations by the number or related tapes.
- d. The SECURE command has been enhanced to support the GROUPCODE task attribute. E.g.,

TM SECURE MODIFY +GROUP TMMODDERS

In this example, if the task attribute GROUPCODE is TMMODDERS or if TMMODDERS is one of the strings in SUPPLEMENTARYGRPS then the MODIFY command is available to the user.

- e. The GROUPCODE and SUPPLEMENTARYGRPS security attributes are now employed for TapeManager command access via the MARC directive. These attributes are retrieved from the USERDATAFILE based upon the USERCODE supplied by MARC.
- f. A new feature has been added to the LABEL command to allow user generated labels. The TM LABEL WITH <update spec> command creates a temporary tape record which is passed to the LabelManager for a user specified label. The temporary tape record is not stored in the database and is discarded once passed to the LabelManager or if TapeManager is shut down. Data entered in the <update spec> portion of the command may or may not be printed depending on the label printing program. A form has been added to the TapeManager Utility to aid in creating these user labels. EX:

TM LABEL WITH SERIALNO = ABC123 LABEL = MYTAPE
CREATEDDATE = 1/2/2003

- g. The commands, reports, and configurations having to do with tape cartridge cleaning have been removed from TapeManager. These functions have been obsolete for many years as modern tape cartridges can not be cleaned. The tape drive cleaning functions have not been changed.
- h. The number of Purge Workers allowed as set by the WORKERS=n option of the PURGE command is now preserved over restarts of TapeManager.
- i. The TapeManager log file size has been increased from 20000 records to 40000 records before automatic transfer takes place.
- j. For selection and update expressions mnemonic names may now be used for some TapeManager database fields. Ex:

TM FIND WHERE VOLUMETYPE = VTV AND RECORDTYPE NEQ DELETED. See Appendix B of the TapeManager Operations manuals for the various mnemonic names for each field.

- k. The TapeManager database now tracks whether a tape is compressed. The COMPRESSED field is:

COMPRESSED bool [49].[12:1] RW If true then compression was requested when the tape was written or purged.

- l. The UPDATED field has been added to the database to track when a tape has been written (appended) after creation.

UPDATED ts [9] RW The timestamp of the tapes last update (open time).

UPDATEDDATE date [9].[47:16] RW The time portion of the UPDATED database field.

UPDATEDTIME time [9].[31:32] RW The date portion of the UPDATED database field.

- m. The UPDATEDCOUNT field has been added to count the number of times a tape has been written (appended) to. This value will be 1 when the tape is first created and incremented by 1 each time the tape is appended to.

UPDATEDCOUNT int [10].[47:24] RW The number of times the tape has been updated (appended) including its creation.

- n. The LASTUSEDDATE and LASTUSEDTIME database items have been added to allow access to just the date or time portion of the LASTUSED database timestamp.
- o. A new virtual database item has been added called IMAGECOUNT. The IMAGECOUNT item returns an integer value that is the number of duplicate images (including itself) of the tape image represented by the record associated with the virtual item. An image is considered a duplicate if it has the same tape label and creation timestamp. Note: requesting this virtual item can impact the time it takes to respond to a query due to the database reads involved. For query efficiency the item should be placed as close to the end of a query statement as possible.
- p. LOCKS has been added as a debug option. When TapeManager is compiled with LOCKDIAGNOSTICS set, TM DEBUG LOCKS will display all global locks by name with the mix number and name of the holder and contender process (if there is a contender). The line number where the lock was acquired or contended is also displayed.

- q. Hosts with a large number of tape drives declared in its PCD should see a performance improvement in various aspects of TapeManager's usage and monitoring of tape units.
- r. Status of a DB Reorganize is now included in the response to DB STATUS.
- s. TapeManager and LibraryManager now accept TCPIP Version 6 (IPv6) addresses where network addresses are able to be input.

2. TapeManager Multi-host enhancements

- a. Multi-time zone networking is now provided. To activate this feature use the TM SET command: TM SET TIME ZONE ON. None of the time zone features operate otherwise. By default, reports in this mode give the time and date as they were in the creating host's time zone. The TM CONFIG REPORT command can change this to:

TM CONFIG REPORT TIME FORMAT = LOCAL

The LOCAL option causes time and date information to be reported in the equivalent local time.

TM CONFIG REPORT TIME FORMAT = ZONE

The ZONE option causes time and date information to be reported with the abbreviated time zone qualifier.

TM CONFIG REPORT TIME FORMAT = NO ZONE

The NO ZONE option causes time and date information to be reported in the creating host's time zone.

There is a new database item, TIMEZONE, which you can select, modify and report upon. Valid values of time zone are the abbreviations, full spellings (quoted) or integer values that the MCP reports. TapeManager reports TIMEZONE as abbreviated.

Before setting time zone on for the first time, it is recommended that a TM database backup be done first.

- b. The TM ENABLE/DISABLE command has been extended to allow action on all remote hosts. E.g.,

TM DISABLE ALL HOSTS

TM ENABLE HOSTS SYSBLUE, SYSGREEN RESYNC ALL

When a RESYNC clause appears it applies to all the hosts mentioned equally.

- c. Database reorganize can now be done on an entire multi-host complex at once. Example:

```
TM DB REORG HOSTS A, B
```

The databases of hosts A and B are combined with the result containing records from each as judged most accurate.

```
TM DB REORG ALL HOSTS:TEST
```

Produces only the report of how a reorganize of all hosts would go.

- d. The maximum number of remote hosts in a TapeManager multi-host database cluster has been raised to 20.
- e. Remote hosts configuration has a new feature designed to enforce database synchronization between hosts while they are connected. Following a RECEIVE specification, if present, the COORDINATE option allows:

```
>- COORDINATE -- = -- | -- SYNCHRONIZE -- | -- IN --- | - | -- |
      |                                     | -- OUT -- | |
      |                                     | -- IO --- | |
      | -- NONE ----- |
```

Any host marked SYNCHRONIZE IN or IO will be required to be online and have completed a synchronize transaction within the previous five minutes (the remote host is "in-sync") before an input tape will be assigned by the local host. This will assure that a newer version of the same file name has not been recently created without the database update revealing that being processed locally. Any host marked SYNCHRONIZE OUT or IO will similarly be required to be in-sync before an output tape will be assigned by the local host.

3. TapeManager reporting enhancements

- a. An ad hoc report may now request a total or an average for a column where the field is of type integer. For averages only whole numbers are reported (no decimal places). A side effect of this enhancement is that columns for integer fields are now right justified. The total or average is specified in the <column spec> portion of the ad hoc report request. Example:

```
TM REPORT SERIALNO, LABEL, TAPESIZE(TOTAL) WHERE RTVSN = 123456.
```

- b. The TM STATUS MTxxx :ALL display has been enhanced to show how many times a drive has been cleaned as well as the last time the drive was cleaned.
- c. TapeManager now supports the following tape units for the MT report and MT status: LTO-4, T10000A (T10KA) and T10000B (T10KB) tape units.
- d. The FIND/INQUIRE command has been enhanced to allow additional forms of output. If the FILE option of the command is specified then an optional FORMAT may be specified. The format options are RAW (default), TEXT, and CSV. This is similar in capability to the Ad Hoc report. The output from the TEXT, CSV, and RAW formats is fixed.
- e. When a tape is imported, exported, or modified and individual entry is now made in the TapeManager log for each tape. On the SN Activity report, an entry is listed for each import, export, or modification of that tape.
- f. The heading of printed TapeManager reports has been changed as follows. The first and second lines of the report heading have been reversed. That is the first line now has the SITE string while the second line has the date, time and page number. The first line of the heading now has a report identifier on the right side. The report identifier is "TM" followed by a report identifier keyword. i.e. TM INVENTORY Each report has its own identifier except for all TapeStack reports which use the STACK identifier. The purpose of this change was to allow users of Unisys EOM (Depcon) to route TapeManager reports via EOM configuration.

4. LibraryManager enhancements

- a. LibraryManager can now access the new DSI VTL Agent software that resides in a DSI VTL. The DSI VTL Agent is an optional component that allows LibraryManager to monitor various aspects of a VTL and its logical libraries. The SYSTEM/TAPELIBRARY/CONFIGURATION file has been enhanced to specify a connection to the DSI VTL Agent for a logical library. See the LibraryManager manual for additional information.

```
VTL      =  BARTST-1 (TYPE = DSI9252,
                ADDRESS = 10.0.1.90);
```

Note: the DSI VTL Agent requires a DSI 2.1 VTL with updates. Contact DSI support for current patch level requirements.

- b. The STATUS SLOT, STATUS SN, and detail report of FIND/INQUIRY have been enhanced to show the following information for virtual cartridges in a VTL when used with the DSI VTL Agent, 1) the capacity of the virtual cartridge, 2) the disk space used by the virtual cartridge, 3) the amount of data on the virtual cartridge, 4) the status of Capacity On Demand (COD), 5) the read only status, 6) the status of the compression option.
- c. The STATUS LIBRARY command will now display additional information for logical libraries in VTLs with the DSI VTL Agent installed. The status

will show if the VTLManager is in communication with the VTL Agent and the amount of available disk space in that VTL.

- d. TapeManager now places VTL records in its log file for VTLs configured with the DSI VTL Agent. A report of these records is available by using the VTL option of the LOG report.
- e. For VTLs with the DSI VTL Agent a version of the Inventory report is available that will show the inventory of the VTL Virtual Vault.
LIST/REPORT VAULT
- f. The virtual database items VTLCAPACITY, VTLDISKUSED, VTLDATASIZE, VTLCOD, VTLREADONLY, and VTLCOMPRESSION have been added. These items are only available for virtual cartridges in a DSI VTL with the DSI VTL Agent.
- g. LibraryManager can now support libraries of up to 64,000 slots. Total slots declared for all libraries can not exceed 65,535.
- h. The number of remote libraries allowed to connect to a library server host has been increased to 30 from 15.
- i. DSI2000 and DSI4000 are now valid library types in the LibraryManager configuration file.
- j. If a tape library has been DISABLED or reconfigured using an ALTERNATE, that state is now retained over restarts of the TapeManager or LibraryManager software.
- k. Up to 20 alternate libraries can now be declared.

5. TapeStack support enhancements

- a. If Unisys TapeStack reports an error or warning to TapeManager (for TapeManager started processes) then the processed stack will be DSed once it completes all other actions. This is to be consistent with the new WAIT(<task id>) feature where the WAIT command can abort the batch stream if an error is detected. Please see the note on the new WAIT(<task id>) feature for more information.
- b. For calls to the Unisys TapeStack software, TapeManager will now display text for any error or warning results returned from those calls. Previously only the error/warning number was displayed. The message text is as found in the Unisys MCP TapeStack Utility Programming Guide.
- c. A new TapeStack configuration option has been added. A run priority can now be specified in the CONFIGURE STACK command. The priority value can be 1 to 99 or USER. If USER is specified as the priority then the priority of the program/user that initiated the stack process will be used. EX: TM CONFIGURE STACK PRIORITY = 50. The configured priority can be overridden at command time by using the :PRIORITY option.

EX: TM STACK SN 123, 456 :PRIORITY 45

- d. A new stacking option has been implemented. The CONFIGURE STACKING RETENTION option allows more control over how stacked tapes are purged. The new option is RETENTION. It has two possible values, NORMAL and VTV. If the RETENTION option is set to NORMAL then the retention of a stacked tape will be based on the retention information for that tape. If the RETENTION option is set to VTV then the retention of a stacked tape is the cumulative value of the retentions of all the VTVs on that tape. That means a stacked tape can not be purged until all VTVs on that taped are expired or invalidated (deleted). The default for the RETENTION option is NORMAL. NOTE: If this option is used it is recommended that the Generations retention policies not be used for tapes that are stacked as this could cause delays during purging and reporting.
- e. For VTVs on a stacked tape TapeManager will now verify if a VTV has expired based on retention policy before allowing an Invalidate (Delete) of that VTV. Note: this feature is only available through the TapeManager TapeStack interface and is not support when using the Unisys TSU utility program.
- f. TDES is now a synonym for 3DES when specifying the encryption method to be used by TapeStack.

6. TapeManager batch mode enhancements

- a. The TapeManager Utility program has been enhanced to allow commands to be passed to it in batch mode via the TASKSTRING task attribute. Upon execution if the utility program detects that the TASKSTRING attribute has been set it will use that string as input and run in batch mode. If the task string has not been set the utility will look for the card file for input. If the card file is not found it will execute in interactive mode. See the following example.

```
BEGIN JOB TEST/TASKSTRING;  
RUN SYSTEM/TAPEMANAGER/UTILITY;  
TASKSTRING="TM STACK WERE CREATEDDATE = TODAY  
[STKTSK]; TM WAIT(STKTSK);"  
END JOB.
```

- b. The TM WAIT(<task name>) command has been enhanced such that it will return an error if the task that is being waited on has been DSed. The impact of this change is that a TM Utility batch run might abort on this WAIT where it had not before. To override this new functionality see the note on the Option card RESUME/IGNORE enhancement.
- c. The dollar card option IGNORE (synonym RESUME) has been added to the TM Utility batch operation. The IGNORE option controls the action

taken by the Utility on either a syntax or processing error. If the IGNORE option is SET then the batch process will continue with the next command if a syntax error is found. Also if a process error (DSed) is detected with a TM WAIT(<task id>) the batch process will continue with the next command. If IGNORE is set the TASKVALUE of the TM Utility run is NOT set if there were any errors. If the IGNORE option is RESET then either a syntax or processing error will cause the batch job to abort and set the TASKVALUE to 1.

Release 7.067Y (7.067. 576)

Corrections

1. Selection expressions involving timestamp fields and the OR operator were giving wrong results, starting in TM 7.067L. This has been fixed.
2. Database open would fail with a KEYEDIOII error if the index files had been removed. This change causes the indexes to be rebuilt and the open to succeed.
3. The database Summary report was taking longer than needed. This has been fixed.
4. A FIND report with the ": PRINT" option would get a syntax error if the last item before the ": PRINT" were a time and the time separator convention was for a colon. This has been fixed.
5. If a picker hardware failure caused a cartridge to be stuck in the picker mechanism the library handling process could DS with a stack overflow. This has been corrected.
6. The Install program will no longer MP the library code files with +CONTROL. Especially on smaller systems, this contributed to problems associated with high CPU usage by LOGPROCESSOR and other TapeManager processes.
7. The efficiency of TCPIP port open/close for remote hosting has been improved.
8. Previously a report heading for FIND employing a WHERE clause having a CREATEDDATE or CREATEDTIME part could show the wrong or no value for those quantities. This has been fixed.
9. Previously if a TapeManager database were opened and the indexes for ID or BC had been removed, as via the KEYEDIOII Utility, TapeManager would fail to complete initialization, initiating and terminating numerous KEYIOII Utility libraries. This has been fixed.
10. RMTPROCESSOR could be DSed for "initiate active task" under certain circumstances, probably due to system load. A change has been made to eliminate this possibility.

11. A problem was found where under certain conditions TapeManager was not handling the encryption key management for TapeStack correctly in all cases. The tapes were being encrypted but sometimes would not decrypt with the TM DECRYPT SN xxxxxx command. The TM DECRYPT LABEL nnnnnnnn generally would function properly. This problem has been corrected and additional checks will be made that a valid pass phase (KEY) is entered and passes to TapeStack.

Release 7.067X (7.067.553)

Corrections

1. Previously, a tape that was added to the TapeManager database by being "discovered" mounted on a drive would not necessarily have the correct scratch pool assigned. This would be corrected the first time the tape was purged thereafter, but until then the database would be wrong. This has been corrected.
2. The SUMMARY report was incorrectly including VTV record information in the Cartridge Summary and Scratch Pool Summary statistics. This has been corrected.
3. Entering a library name longer than 17 characters could cause a string protect fault. This has been fixed.
4. The STKSEL form when used with the APPEND option did not allow for all the option fields to be blank. This has been corrected.
5. A possible fault in the version handling section when a non-numeric version string is seen has been corrected.
6. A macro name appearing as the first command item when entered from the MARC directive would not be recognized. This has been fixed.
7. Previously, when TapeManager was installed on family DISK, a TM DB BACKUP TO DISK command would fail with a WFL syntax error. This has been corrected.
8. Previously retention and movement rules created immediately after a fresh TapeManager install would result in a bad SYSTEM/TAPEMANAGER/LABELRULES file and a message of the form "rule removed for bad timestamp" would be displayed. This has been fixed.
9. TapeManager now supports the LTO-4 tape unit for the MT report and MT status.
10. When TapeManager is running at the time of a halt/load and no database close/open cycle has occurred, a timestamp mismatch can occur on the DRIVELOG file when it restarts. This has been fixed.
11. When a stacked tape was purged remote hosts were not being correctly updated with deleted VTV records. This has been corrected.

Release 7.067W (7.067.541)

Corrections

1. A problem was introduced in the 7.067V release that did not allow new database records to be created. This has been corrected.
2. Problems with the EMAIL command where multiple addresses and/or ambiguous addresses (e.g. SUPPORT@DYNAMICSOLUTIONS.COM) caused errors preventing the sending of mail have been fixed.

Release 7.067V (7.067.537)

Enhancements

1. Backward compatibility for TM database version 3 is provided by this release. In a fall-back from TM 8.068 this is the minimum level that can convert the database back to version 2.

Corrections

1. The output of the CONFIGURE :FILE or :PRINT was not correct for the CONFIGURE STACKING component. The boolean values for the REPORT and AUTO UNSTACK were reversed. This has been corrected.
2. Previously the email configuration was not given when the request was TM CONFIG:PRINT. This has been fixed.
3. For tapes that are "discovered" (found by being mounted rather than by a creation log record), only the date portion of the creation timestamp is available. Some reports when displaying this timestamp would incorrectly drop the time field which caused subsequent fields to mis-align in their report columns. This has been corrected.
4. The CONFIGURE EMAIL command was not correctly distinguishing between an account name (SUPPORT, SPUPERVISOR, OPERATOR) and an email address that started with one of those names. This has been corrected.
5. If there were many purge workers active when trying to shut down TapeManager the wait for TapeManager to shut down could be excessive. That delay has been reduced but not eliminated as TapeManager must wait for the current purge process(es) to complete.
6. TapeStack VTV records are meant to be reused after a stacked tape has been purged. TapeManager was not correctly reusing those records which could lead to the database growing larger than it should. This has been corrected.
7. Previously, and invalid index fault could occur if a macro to be expanded were empty, i.e. resulted in no text to process. This has been corrected.

Release 7.067U (7.067.527)

Corrections

1. For multi-host installations using TCPIP connect, occasional "Wrong host connect" aborts could occur on sync host processes. This would only happen if there were three hosts or more. This has been fixed.
2. Previously, commands submitted via the SEND TM system interface did not have TapeManager security rules applied. Now, they will.
3. The TM CONFIG OPER SUPPRESS was not working on MCP 53.1. This has been fixed.
4. TapeManager was not correctly interpreting the display NO FILE INPUTTAPE (UNLABELED MT) [NNNNNN] #1 for handling in passive mode. The symptoms were that an input tape being read as unlabeled was not being loaded. This has been corrected. This problem only affected sites using TapeManager as called by B&L STCDRIVER and using Unisys TapeStack.
5. The input file for Utility can now be UNITS=CHARACTERS. Utility will only use 72 characters per record, however.
6. If the CONFIGURE OPERATIONS ASSIGN SERIALNUMBER option was set and an input tape was requested that had VTVs the waiting task was FAed with multiple serial numbers rather than just one one needed. This has been corrected.
7. In situations where an auto-unstack was triggered TapeManager might have multiple VTVs to choose from for the unstack. This enhancement makes sure that if there are multiple copies of a VTV on various stacked tapes that a tape within a library is picked if one is available.
8. Previously, if a remote host connection using TCP/IP were terminated between message segments it was possible for RMTPROCESSOR to become stuck in a high CPU use condition requiring a DS to fix. This has been corrected.
9. In TM 7.067T only, a TM MODIFY of a string field could corrupt an adjacent field. Symptoms of this include tapes mysteriously appearing as "in use", bad timestamps or the RTV serial number of a VTV being invalid. The problem with MODIFY has been fixed. DSI recommends doing a TM DB REORG using release TM 7.067U to detect and correct these errors. In most cases, if the DB REORG cannot fix the errors, the information can be recovered from the TapeManager log by using TM REPORT ACTIVITY for the affected serial number, or contact DSI for additional instructions. If uncorrected by hand, these data will self-correct the next time the tape is written.
10. On remote hosts where the system clock lags another host by more than a few seconds, and on TM 7.067T only, tapes purged on that other host would not show as purged on the lagging host. This has been fixed.

11. A TM QUIT on a multi-processor system where tapes are being written (initially labeled) could show errors concerning the LABELRULES file and some rules in the file would be damaged and removed on a subsequent restart of TapeManager. This has been fixed.

Release 7.067T (7.067.512)

Enhancements

1. When a DB RESTORE is done, the current TapeManager log gets overwritten by the restored one. Now, the current log is preserved as SYSTEM/TAPEMANAGER/LOG/PRERESTORE.

Corrections

1. Tape drive CTLs were being included in the CONFIG MT and LIST MT listings. CTLs are no longer added to the drive database. Note: if CTLs are currently in the drive database they will need to be removed with the TM DELETE MT xxx command in order not to show up in the MT report.
2. The TapeManager Utility was only allowing 1-4 WORKERS to be set for purging. This has been corrected. One to 10 purge workers may now be specified in the Utility.
3. The MODIFY command was padding strings with nuls rather the spaces as it should. This could lead to some queries returning incorrect results if that string field was queried upon. This has been corrected though string items modified before this change still have the incorrect padding. The detour is to use the equal sign (=) at the end of a string in a query. Example: TM FIND LABEL ABC= instead of TM FIND LABEL ABC.
4. When TapeManager is DSed (definitely not recommended) the linkage to DSISUPPORT is now taken down cleanly. This should prevent delinkage errors by "orphan code found".
5. TapeManager database backup and reorganize have been changed so that a FAMILY restriction applied via a default queue (WFL CLASS) will not impede the process.
6. When doing a TapeStack with Library Maintenance source tapes, a large number of IOs to the Drive Log were being generated. If the Drive Log was shared in a multi-host environment, these IOs were then propagated to the other hosts which may have caused those hosts to slow down. This change dramatically reduces the number of IOs done to the Drive Log during a TapeStack process.
7. If a STACK or APPEND command with a WHERE clause had a large number of selection conditions, TapeManager could fault with an Invalid Index at 32493107. This problem has been corrected.

8. A TM QUIT could sometimes hang while trying to close the database. This has been fixed.
9. A deadlock could occur when a database reorganize is run while a host synchronize is happening. Both processes would fail to proceed. This has been fixed.
10. When any task goes to EOT, TapeManager looks to see if it had used any tapes and updates its database if so. A change has been made to reduce the number of DB stores done under this circumstance.
11. The filtering of remote DB updates has been changed to prevent new uses of recently created tapes to back-date the database. This necessary as a VTL can turn the virtual tape around to another host before the writing host can update the other host's database.
12. Under unknown conditions tapes could end up without a creation timestamp. These tapes could be purged incorrectly if there was a by generation retention policy. This correction causes tapes that do not have a creation timestamp to be ignored when calculating a generational set. This correction also ensures that these tapes will not be purged if AUTO PURGE is not set.
13. For multi-host installations it was possible for the TAPEMANAGER or LOGPROCESSOR tasks to go waiting on "No matching port" when one of the hosts was synchronizing or just after disconnecting. This change reduces the likelihood of this happening.

Release 7.067S (7.067.488)

Enhancements

1. DBCLOSE is now one of the choices for a WAIT statement. The process is suspended until the database completes closing.
2. The compiled code in the release package now is at MCP 53.1. TapeManager will install and run on any MCP from 50.1 to 54.1.

Corrections

1. Previously, the number of tapes tracked would not be reported correctly after a TM DB RESTORE. This has been fixed.
2. Previously, the Utility did not accept a sequence number range with non-numeric characters for the ADD and MODIFY screens. This has been fixed.
3. For installations, if a Default Queue were configured having a FAMILY attribute that conflicted with the intended TapeManager install location, typically masking DISK, the install would fail. Now, the install program will propagate the QUEUE(CLASS) attribute for its subsidiary jobs so that install can run successfully under an explicitly assigned queue.

4. TapeManager will now automatically purge tapes that have the LOCKED attribute set as long as a retention rule has been defined for that tape. Previously this had only been done for TapeStack tapes.
5. Under certain conditions a library with many drives could get a fault at 04220000 with the REQUESTED MEMORY SIZE GREATER THAN 65535 WORDS message. This patch prevents this fault from occurring.
6. The response to the LOAD/MOUNT command has been changed to "Unable to process command: library is offline or busy" if the library is offline and therefore unable to allocate a tape unit.
7. An EXPORT of a large number of tapes (@ 1000) could cause an Invalid Index fault at 04528500. This has been corrected.
8. For Ad Hoc reports, if the first record reported requires more than one print line, the second print line would have the last item of the report repeated at the front of that line. This has been corrected.
9. When shutting down some TapeManager waiting entries such as operator alerts or license warnings might P-DS. While this did not hurt anything these waiting tasks now exit correctly.
10. A change has been made accounting for additional port state transitions in TCP/IP remote hosting. This will improve the stability of the connection, the performance of remote libraries, and prevent certain RMTPROCESSOR runaway conditions.
11. An error termination for "Illegal downward resize" could occur when starting the Utility or TMRemoteSPO. This has been fixed.
12. Infrequently, when a tape library that was disabled is re-enabled, remote service for that library would fail to re-initiate. This could happen only if it was the last (or only) library defined for that host system. A correction has been made to retain the TLREMOTE process even after the last tape library is disabled. This will eliminate the possibility that remote service will not resume when a disabled library is enabled.
13. An AX RESCUE could cause an excessive number of program dumps leading to a "no disk" condition on the pack where TapeManager is installed if a program such as TMRemoteSPO were in the mix at the time. There is no problem for systems that only used the MARC directive or direct ODT command entry. This has been fixed.

Release 7.067R (7.067.471)

Enhancements

1. The TapeManager Utility program has been enhanced to allow commands to be passed to it in batch mode via the TASKSTRING task attribute. Upon execution if the utility program detects that the TASKSTRING attribute has been set it will use that string as input and run in batch mode. If the task

string has not been set the utility will look for the card file for input. If the card file is not found it will execute in interactive mode. See the following example.

```
BEGIN JOB TEST/TASKSTRING;  
RUN SYSTEM/TAPEMANAGER/UTILITY;  
TASKSTRING="TM STACK WHERE CREATEDDATE = TODAY [STKTSK];  
TM WAIT(STKTSK);"  
END JOB.
```

2. The tape detail report generated when a FIND/INQUIRY finds a single tape will now show library information when the ALL option is specified if that tape is found to be in a library.
3. The mounted message displayed as a result of the LOAD command has been enhanced to show the tape label and serial number as well as the slot and unit number.

Corrections

1. A unit load command might fail for no apparent reason when loading by serial number. A trace of the problem would show "INVALID SN IN SLOT PASSED TO UNIT_LOAD". This problem has been corrected.
2. There seems to be some confusion between the interface used by calling media managers and the interface used to manage some StorageTek libraries since they both refer to CSC. To help alleviate that confusion all references in the documentation and messages displayed by TapeManager have been adjusted as follows. References to the interface used by calling media managers is now referred to as CSCLIB. References to the interface used to control some StorageTek libraries is now consistently referred to as CSC-A.
3. The DELETE VTV command was being incorrectly logged as a TM entry. DELETE VTV is now logged as a STACK entry such that it will show up on LOG STACK reports.
4. The FIND WHERE : PRINTER and the REPORT MOVEMENT printer reports could fault with an Integer Overflow while building the heading. This problem has been corrected.
5. Under rare conditions in a multi-host environment the LOGPROCESSOR could F-DS with an INVALIDOP in the HOST_RPC_HANDLER at 19994960. This problem has been corrected.
6. The WHY parameter that is passed to the PRINT_LABEL procedure of the LabelManager was incorrectly being passed as zero. The WHY parameter is now set to the correct value as documented.
7. Previously, a TM MOVE to location could fault with ZERODIVIDE if the TapeManager database were closed at the time. This has been fixed.

8. Previously, a call to the programmatic interface, such as used by the MARC directive, that occurs immediately after a TapeManager shutdown could re-initiate TapeManager and cause the MCP to deny the linkage, causing the calling program to be terminated. Now, such a program will get a "TapeManager not available" result.
9. Logic has been added to allow a retry of the empty tape unit selector via a different mechanism should the primary mechanism fail due to a timeout with the library controller.
10. The timeout value when connecting to large ACSLS controlled libraries was too short for the library controller to collect the inventory. The timeout value when connecting to a library has been increased.
11. A request made of a remote host to modify a tape that has no record there could get DSED for ARRAY TOO LARGE. This has been fixed.
12. When starting up a multi-host TapeManager, if another host has a copy of the database but never submitted any transactions to make that database, the synchronize process would send the entire database from that host, a clear waste of time. This has been fixed.
13. If the system time at a remote host is set to a very old value other TM hosts could request excessive numbers of records from it on re-sync. A change has been made that prevents the host timestamp from being back-dated in this manner.
14. Recent changes to the Library Controller firmware and the LibraryManager software made cartridge loads for ACSLS (LibAttach) controlled libraries more efficient. It was found that remote hosts using these libraries were not taking full advantage of these enhancements. Remote hosts now use these enhancements fully.
15. A recent change (7.067M) to prevent mismatch bar codes messages during purging caused a slow start of the purging process when requesting a large number of purges by slot was requested. The purge by slot with a large number of slots starts substantially faster now.
16. If a bad slot number for a load or inventory report was entered an error was not always returned. An error is now returned when a bad slot number is entered for these commands.

Release 7.067Q (7.067.447)

Enhancements

1. The stacked tape directory report (TM REPORT DIR) will now show a total for the VTV SIZE column.
2. If the Unisys TapeStack SIZE function has been run against a tape, the size information will now be shown in the tape detail display.

3. The tape cartridge cleaning functions (CONFIGURE CLEAN, CLEAN SN, REPORT CLEAN) are obsolete and being removed from TapeManager in the 8.068 TapeManager release. Usage of these functions will now generate a deimplementation warning.

Corrections

1. Additional checks have been placed on the DriveManager lock to prevent deadlocks in case of a fault or DS.
2. Previously, a report command having both USING and FILE parts did not work as both files ended up with the same title. This has been fixed.
3. The DECRYPT function (specifically the STKSL3 form) was not building the DECRYPT command correctly and returning various errors. This has been corrected.
4. The output on the VOLUME COPIES line of the tape record detail report was not useful in that it just showed if the serial number had been stacked before. If the referenced serial number had been purged and rewritten then this really wasn't a copy of the referenced tape. The VOLUME COPIES line will now only show tape serial numbers that contain actual copies of the referenced volume either in VTV form or as a duplicate tape.
5. When purging new or unlabeled tapes in a drive that had a location defined for it, the message "Invalid serial number :" could be displayed. This has been corrected.
6. If the DB RESTORE command was entered via MARC the restore process would try to copy files with incorrect titles. This has been corrected.
7. A change has been made to improve the performance at a remote host when a large number of VTV are deleted due to the scratching of a stacked tape.
8. Retention for rules where GENERATIONS is used would sometimes be incorrect. This would occur when numerous deleted VTVs were present. This has been fixed.
9. The TM MODIFY command with a serial number range was displaying an incorrect starting serial number in the completion message. This has been corrected.
10. The TM REPLACE MT nnnnn command could cause the caller to hang on the drive lock if the specified unit was not in the drive table. This has been corrected.
11. In some cases ACSLS could return could return a slot count greater than expected. In some cases this could lead to a retry loop that would cause the library to never go ready. A change has been made such that a slot count greater than that defined in the configuration file for an ACSLS library is ignored. An additional check is also being made to prevent a future occurrence of a loop in the inventory process.

12. If a library declared more than 39 drives, one or more of the following problems could be experienced. The STATUS LIBRARY response could show one more drive than expected. The software would report an Invalid Index at 19894000. The display of a STATUS MT ALL could be incorrect with unit numbers of zero and invalid status information. This problem has been corrected. Note: it is important that the TapeManager and LibraryManager softwares be at this level or above to get the full correction.
13. On single processor systems where remote hosts are present, RMTPROCESSOR could loop endlessly on shutdown. This has been fixed.
14. A problem with reading the encryption pass phrases from the TapeManager database was causing tapes created with the TapeStack Encrypt command or the TM ENCRYPT command to not be decryptable automatically with TapeManager. This correction fixes this problem. Note: any tapes created with the ENCRYPT commands are still good. This version or higher of TapeManager will be needed to do automatic decryption.
15. A movement report could get an integer overflow fault on TM 7.067N and higher. This has been fixed.
16. If a large number of drives beyond the actual number of drives in a library is declared in the library configuration file, the software might Invalid Index at 19894000. This has been corrected. Any drives declared beyond the actual number in the library are ignored.

Release 7.067P (7.067.423)

Enhancements

1. A new CONFIGURE MT option, IGNORE, has been added. If CONFIGURE MT xxx IGNORE = TRUE then that drive will be ignored by the DriveManager for statistics tracking and reporting. This option is intended for pseudo tape units that are used as communications interfaces for third party TCP/IP interfaces, etc.
2. The execution of <SELECTION SPEC> has been optimized to perform an "early out" whenever the result of the expression is already determined, as A AND B resolves to FALSE when A is FALSE, or as A OR B resolves to TRUE when A is TRUE. Use this to reduce search time, especially where a potentially very slow operation, like EXPIRED, is involved. Place checks on simple values and Booleans at the start of an expression and leave the more complicated ones for last.

Example:

```
TM PURGE WHERE INLIBRARY AND EXPIRED
```

is much faster than

TM PURGE WHERE EXPIRED AND INLIBRARY.

Corrections

1. Additional warnings have been added for configuration options that are not effective when running in passive mode.
2. In some cases two entries for the same drive could be listed by the LIST MT report due to the way the MCP reported the drive number. This has been corrected so that a given drive is only tracked and reported once.
3. Previously a wait on "No file" could occur if a library were disabled while another library is being initialized.
4. On TM 7.0670 only, the create time was not reported for a TM FIND that returned only one record. This has been fixed.
5. Previously, it was possible for tapes that are shared by multiple hosts to each be marked in the database as owned by the other host. This made it impossible for TapeManager to correct the databases. Now, if a request arrives to modify a tape whose LASTUSEDHOST is the same as the requestor's host name, the request will be honored even though the modifying host is not the owner. Symptoms of this are displays on each machine: "NOT MODIFIED, USE HOST xxx".
6. Previously, RMTPROCESSOR could fail to shutdown with the rest of TapeManager and go on accumulating process time rapidly. This has been fixed.
7. Previously, if more than one host was marked RECEIVE +DRIVELOG any change in the MT configuration would cause the configuration update to keep repeating at each such host. This has been fixed.
8. Previously, if TapeManager were to hang in shut down after the MCP delinks, it could stay in the mix unnoticed until the MCP queues it attaches fill the H/L disk leading to a halt/load if the situation isn't recognized. Now TapeManager will detach those queues so they will stop accumulating messages.
9. Previously, an automatic TRACE SPLIT could cause a deadlock in the remote logging code. Now logging code avoids sending a remote log record during a TRACE SPLIT.
10. On TM 7.0670 only, the TM PURGE LIBRARY <lib> WHERE variant of the purge command did not correctly add the restraints needed and allowed the entire database to be evaluated instead of just the named tape library, causing the command to take a long time to complete. This has been fixed.
11. The install program could get DSed for ARRAY TOO LARGE on systems running very many library programs. This has been fixed.

12. If the purge queue is cleared before the first worker can start an invalid index could occur in the worker. This has been fixed.
13. The TM INSTALL command using a container file was unwrapping the container twice. This has been fixed.
14. On TM 7.0670 only, a TM DB REORG would incorrectly flag link fields as overlapping. This has been fixed.
15. A SEG ARRAY error at 08275000 could occur with remote library connection. This has been fixed.

Release 7.0670 (7.067.397)

Enhancements

1. Remote host synchronizing has been improved to be faster when each host has most of the database intact. This will make recovery of a host group from a power down go much faster.
2. The AUTOUNLOAD drive feature can now be configured in TapeManager. The TM CONFIG MT command has been extended to include:

AUTOUNLOAD ON

ON causes the feature to be turned on whenever TapeManager sets drive attributes, typically on startup.

AUTOUNLOAD OFF

ON causes the feature to be turned off whenever TapeManager sets drive attributes.

AUTOUNLOAD SYSTEM

SYSTEM causes the TapeManager to leave the feature unchanged.

If left unspecified, the AUTOUNLOAD feature will be handled as previously, where library drives were always set to AUTOUNLOAD ON when the library was enabled.

By setting the AUTOUNLOAD feature to OFF sites can allow tapes to be quickly used by successive programs without having to wait for the tape to unload and reload for each use. In such cases, it is important to set the IDLE TIME configuration for the tape library to a tolerably low figure (one minute or less) so that drives can be unloaded when programs are done.

Corrections

1. In versions 7.067L thru 7.067N movement accounting was incorrect for tapes having a WITH MATCH clause in both the RETENTION rule and the MOVEMENT rule.
2. Under rare circumstances a library going offline could cause a deadlock in the DSICONTROLLER support library that will have any other libraries going offline. This has been corrected.
3. If the primary calls on REPORT_LOG_ENTRIES failed TapeManager did not shut down as expected. TapeManager will now shut down if the primary RLE calls return an error.
4. When unstacking a range of serial numbers or voids it was possible that the unstack process could fault with a SEG ARRAY ERROR at 44413644. This has been corrected.
5. When doing a TM INQUIRE VTV command and there are many VTVs with the same serial number the reporter function of TapeManager could fault with an Invalid Index at 39430800. This has been fixed.
6. Previously a virtual tape having the same serial number as a tape in a library would be reported as "INLIBRARY". This has been fixed.
7. Previously, tape labels with underscores or dashes might not be counted correctly if the retention rule contained a "GENERATIONS WITH MATCH" clause, causing a tape that should be expired to report as not expired. This has been fixed.
8. Previously an automatic unstack that requested a matching cycle and version could cause LOGPROCESSOR to loop indefinitely, requiring a TapeManager restart or AX RESCUE. This has been fixed.
9. On rare occasions, the message:

THE ID BEING WRITTEN DOES NOT MATCH THE LAST ID READ

along with an I/O error on the TapeManager data file would be seen. This has been fixed.
10. The STACK WHERE command has additional filtering automatically added to filter out the selection of scratch and stacked tapes as these tapes will cause errors in the stack/append process.
11. The PURGE WHERE command now has additional filtering automatically added so that scratch tapes and tapes with only VTV records are not selected for purging.
12. Previously an integer overflow error could occur when stacking an especially large tape. This has been fixed.
13. Finding audit tapes could be confounded if there were stacked copies of the target tape. This has been fixed.

14. The TM LOAD SLOT command could fail on ACSLS controlled libraries with the message "The TAPELIBRARY SUPPORT procedure was passed an invalid slot number parameter". This has been corrected.
15. Additional checking has been added to database reorganize to detect and fix overlapping link fields.
16. The TM CONFIGURE MT PURGE options and the TM CONFIGURE OPERATIONS AUTO PURGE option could conflict with each other as well as being confusing. A change has been made that will not allow the TM CONFIGURE MT PURGE option to be set for drives that are known to be in a tape library. The TM CONFIGURE OPERATIONS AUTO PURGE option should be used for automated tape libraries. The TM CONFIGURE MT PURGE options should only be used for stand-alone drives and auto-loaders. As a secondary check, if a purge worker detects that it is trying to purge a tape on a drive with the MT PURGE option set to something other than NEVER it will abort the purge and let the other process do the purge.
17. Previously, tape stacking could cause the remote host software to fail to finish synchronizing. This has been fixed.
18. After an unstack the resulting tape would show as unlabeled in the TapeManager database until that tape was mounted again. An unstacked tape will now display correctly in the database.
19. Previously, a lengthy TM MODIFY in a multi-host environment could be reported as finished by the WAIT statement even though other hosts are still working on parts of the request. A change has been made to insure that all hosts have processed all requests from a MODIFY before the command completes.
20. Under certain very tight timing conditions on multiprocessor systems, the TM WAIT command could fail to pause until the related task had completed. This has been corrected.
21. Under certain conditions the MCP could take a non-fatal system dump with a GetStatus error. A correction has been made to prevent this from occurring.

Release 7.067N (7.067.368)

Enhancements

1. The TCPIP port number used to connect to the Library Controller can now be changed by modifying the YOURNAME attribute of the IPDUMMY file in the SYSTEM/DSICONTROLLER/SUPPORT library. This change requires the Windows Library Controller program to be at release 5.003.084 or higher to use this feature.
2. Additional logging is done when a stacked tape is purged. An entry is made for each VTV record that is deleted. Also when a tape is stacked if a record

with the same RTVSN and Volume ID is found that record is reused so that duplicate entries are not found on the directory report.

Corrections

1. Previously for remote hosts, records for deleted entries were replicated on the local host. Now, if the entry does not exist on the local host, no deleted entry will be made.
2. If a tape is discovered via the unknown or mismatch processes and the processing date is set then the processing date for that tape will only be set if the creation date of the tape and the current date match. Otherwise the processing date is not set for a discovered tape.
3. On TM 7.067M only, an invalid index fault could occur on slot load command. This is fixed.

Release 7.067M (7.067.365)

Corrections

1. For Export and Purge operations, if the items entered are slot numbers, the slots are now evaluated to serial numbers at command entry time. This should help resolve any issues where the inventory changes before the export of purge operation is attempted especially on ACSLS controlled libraries. For ACSLS libraries the Library Controller firmware must be upgraded to 5.003.087 to take full advantage of this change.
2. In TM 67L only, a tape purged on a remote host but not rewritten would show as expired, not scratch. This has been fixed.
3. Previously, for systems using TCPIP remote hosting, an interruption of the network could result in difficult reconnection of a remote tape library. Typically, both the host side and the client side needed to be restarted via TM QUIT TL and then restarted. Now, a remote library under TCPIP will reconnect automatically.

Release 7.067L (7.067.359)

Enhancements

1. The TCPIP port number used to connect to the Library Controller can now be changed by modifying the YOURNAME attribute of the IPDUMMY file in the SYSTEM/DSICONTROLLER/SUPPORT library. This change requires the Windows Library Controller program to be at release 5.003.084 or higher to use this feature.
2. Additional logging is done when a stacked tape is purged. An entry is made for each VTV record that is deleted. Also when a tape is stacked if a record

with the same RTVSN and Volume ID is found that record is reused so that duplicate entries are not found on the directory report.

Corrections

1. When a tape was ADDED that had been previously DELETED, the old information for the deleted tape was not being erased. The old tape information is now cleared on tape adds.
2. During startup or shutdown a FAULT IN START_LIBRARY_TIMER could occur. This has been fixed.
3. Previously, movement or retention rules that were modified or set did not affect existing VTVs of the affected RTV. VTVs created subsequently would correctly have the rules that were set for the RTV. Furthermore, when accounting for VTV volumes in generations for rules, any given RTV serial number can only count once. This includes all VTVs of it as well. This change enforces this policy and corrects the setting of rules in existing VTVs.
4. Records created by the TapeStack DIRECTORY process when the original RTV record is missing were missing some attributes needed to make them usable. This has been corrected.
5. When a tape is purged, the information about that tape is now cleared at the time of the purge rather than at the time the tape is rewritten as was previously done. This should allow for less complex queries as scratch tapes no longer need be filtered out.
6. The MERGE and DUPLICATE commands were not validating that a supplied list of serial numbers were all stacked tapes. An error is returned for the MERGE and DUPLICATE commands if any of the serial numbers in the SN list are not stacked tapes.
7. An auto macro may not assign the right tape based on timing of the request. A change has been made to make such macros execute at the right time, reducing the possibility of assigning the wrong serial number.
8. Tape libraries controlled by ACSLS that use the Access Control feature may see the library slot count reported by ACSLS change (up and down). This change allows LibraryManager to handle a slot count that can change. This patch also forces LibraryManager to do a reconnect to an ACSLS controlled library after an import to make sure the slot count and inventory are correct.
9. A possible cause of the log entry, "An attempt was made to update an unlocked record" has been fixed.

Release 7.067K (7.067.345)

Corrections

1. Systems running MCP 52 and higher could not use the TM CONFIG OPER SUPPRESS feature. A previous fix in 7.067J caused system dumps by CONTROLLOR. This has now been fixed.
2. When a tape is queued for purge that is currently in use, PURGEWORKER could fail to notice that the slot was empty and give an error "BARCODE DOES NOT MATCH" instead. This is fixed.
3. Large ACSLS controlled libraries (i. e SL8500) could take a very long time to respond to some commands such as import. For these commands the timeout has been increased up to 12 minutes.
4. When running the Importer program, invalid warning messages were being displayed. This has been corrected.

Release 7.067J (7.067.341)

Enhancements

1. A new option has been added to the TM CONFIGURE MT command. The option COMPRESSION may be set to the value NONE, COMPRESSED, or NONCOMPRESSED. This option affects purge actions that are triggered by the PURGE = EXPIRED/ALL option. The NONE option leaves the current compression as is while COMPRESSED forces the tape to be compressed and NONCOMPRESSED forces the tape to not be compressed.

Corrections

1. Due to a known MCP problem, not all tape labels would be printed. TapeManager has long had a work around for this but it was not always effective depending on the timing of events. A more reliable work around has been added to fix this. This could also be the reason for the occasional failure to immediately put away a dismounted tape in an automated tape library.
2. Online help text is now available for the INSTALL command.
3. The scratch pool request was not being passed to TapeStack for UNSTACK requests. This only occurred at sites that had the stacked tape naming issue. This has been corrected.
4. When importing from an ACSLS controlled CAP that is not set to auto, it could not be determined how many tapes were actually imported by ACSLS. This has been corrected.
5. The mixing of auto-loaders and robotic tape libraries was producing long delays for the auto-loader jobs, due to the excessive load of searching the

tape library for tapes that are never going to be found there. Some timing adjustments have been made to reduce this effect.

Release 7.067I (7.067.326)

Enhancements

1. The WHERE selection expression has been added as an option to the EXPORT command. The WHERE expression allows selection of tapes for export based on database field values. The EXPORT WHERE was implemented to allow exports to be automated in batch processes, i.e. TM EXPORT WHERE CREATEDDATE = TODAY.
2. The CONFIGURE SUBSTITUTE DENSITY command has been enhanced. The density can now be configured to clear rather than change a particular density. (i.e. TM CONFIGURE SUBSTITUTE DENSITY BPI38000 = CLEAR) A density can also be changed to a scratch pool. (i.e. TM CONFIGURE SUBSTITUTE DENSITY BPI38000 = VIRTUAL).
3. A WAIT command and task id option have been implemented. The purpose of the WAIT command is to allow a batch (Utility) run of TapeManager commands to pause until a previous asynchronous task has completed before continuing with following operations. The WAIT command can wait for a) an operator OK, b) a number of seconds, c) a task to complete, or d) the TapeManager database to be open. When used to wait on an asynchronous task, the command used to start the task must have a task id associated with it. The task id is associated with a command by placing [<task id>] at the end of the command string. The WAIT command can then pause until this task has completed. Example: TM PURGE WHERE INLIBRARY AND EXPIRED [PURGETASK]; WAIT(PURGETASK); Additional information can be found in the 7.067I TapeManager Operations Guide Chapter 7 (WAIT command) and Chapter 14 (Batch Execution).
4. Some sites had experienced an issue where the requested tape name for a stacked tape was not being applied. This release adds an additional mechanism to make sure the requested tape label is applied to stacked tapes.
5. When using the TapeStack DUPLICATE command or a MERGE (Consolidate) where there is only one input tape, the label of the input tape is now duplicated to the output tape unless overridden by the TO LABEL command option.
6. The number of tape units that may be declared in the tape library configuration file has been increased. A library declaration may now declare up to 999 tape units. A total of 65,000 tape units may be declared in a single configuration file.
7. The IMPORT command is now allowed for ACSLS controlled tape libraries when the CAP is configured for manual operation.

Corrections

1. When stacking tapes using the TapeStack software, it could take up to 2 minutes before a source tape was Uled once it had been mounted. This has been improved such that the UL should happen within a few seconds of the source tape becoming ready.
2. The results of the SIZE command (TapeStack TSIZE) were not being stored in the TapeManager database. The tape size information is now stored in the TAPESIZE database field.
3. Due to a change in recent releases of TapeStack, the TapeStack trace (TSULOG) was not being saved when it was requested. Now, the TapeStack trace is requested whenever a TapeStack command is issued via TapeManager. The TapeStack trace is saved to the same family as the TapeManager trace.
4. Previously, if a tape library had more than approximately 1000 slots, it could not be shared by the remote library mechanism, causing a STRING PROTECT fault. Now, tape libraries of any size can be accessed remotely.
5. If TapeManager is Dsed during a shutdown it could become hung and a halt/load required to recover TM functionality. A change has been made to avoid this occurring.
6. If a remote host synchronize is terminated and the host left enabled then there was a possibility that the host could end up repeatedly starting a synchronize and failing. A change has been made to make sure that one host synch attempt fully finishes before another is started.
7. If the library inventory of a library client host becomes out-of-sync with the server host, cartridge loads could fail with the slot being empty. A change has been made to force the client host to reacquire the library inventory from the server host should a load fail with a slot empty error.
8. When the operations DUPLICATE VOLUME is set to IGNORE and the stacking options AUTO UNSTACK is TRUE the LOGPROCESSOR task could become non-responsive, accumulating processor time rapidly. A change has been made to prevent this.
9. Previously, if a QUIT were attempted while tape purge was waiting, a tight processor loop could occur. Depending on how the QUIT command was entered, this could be the MCP process, TAPEMANAGER_TERMINATION. This change prevents the processor loop and allows the shut down to finish after a one minute timeout.
10. Previously if the TM QUIT TL command were entered twice then TapeManager would quit. This has been fixed.
11. The TapeStack Merge (Consolidate) or Duplicate processes could create TapeManager database records with incorrect information if the original tape had been reused before the merge or duplication. This has been corrected.

However, if a stacked taped is merged or duplicated that is unknown to the TapeManager database the records created for those VTVs will have little information. NOTE: This correction also requires an updated TapeStack support library with a compile date of 8/28/2006 or greater. Using an older version of TapeStack when doing a merge or duplicate will cause the TapeManager database to not be updated.

12. During host synchronization it was possible for a NODATAFORREAD result to cause the sync to abort and restart. This has been fixed.
13. Phantom waiters entries could be appear when a stacked tape is purged. The waiting entries would be for the SNs of the VTVs on the tape. Although the waiters go away when TapeManager is restarted, a change has been made to prevent their creation.
14. A purge attempt by the MCP runner, PURGIT, could be delayed for a long time, giving the MT unit the appearance of being hung. This has been fixed.
15. It was possible for a TM QUIT operation to fall into a tight processor loop. This has been fixed.
16. When using the recover from log feature, a tight processor loop in LogProcessor could occur during startup if there where no changes to the database that day. This has been fixed.
17. Previously it was possible for the command processor to get an INVALID INDEX fault if the input text was within five characters of the provided space. This has been fixed.
18. A macro name could fail to be recognized if the macro table were changed by another command at the same time. This has been fixed.
19. Deleted VTVs were not being removed by the reorganize process. This has been fixed.
20. Previously, depending on the speed and number of processors in the system, it was possible that TapeManager would not recognize commands from an ODT until the next time it was restarted. This has been fixed.
21. A tape with no bar code when used in a tape library could cause the LibraryManager to lose track of that library. Another symptom could be a tape library software "lock up" where a given library no longer responds to TapeManager requests. The problem was introduced in 7.067H and is now corrected.

Release 7.067H (7.067.275)

Enhancements

1. The STKSL500 and STKSL8500 are now recognized as valid tape library types.
2. Default trace file size is now 144,000.

3. DSI2000 and DSI4000 are now valid library types in the LibraryManager configuration file.
4. The install process has been improved to properly install code files under SECADMIN security.

Corrections

1. When tapes were imported into a library controlled by ACSLS, LibraryManager might not detect the changed inventory for some time. LibraryManager will now update its inventory when ACSLS imports tapes in a more timely manner.
2. Some library commands are not available when the library is controlled by ACSLS. Previously, some of these commands appeared to execute but did nothing. Now a "feature is not available with ACSLS attached libraries" response is given.
3. The DRIVEMANAGER could fault with a message REQUESTED MEMORY SIZE GREATER THAN 65535 WORDS @ (11145580). This could occur on new installs (empty database). This problem has been corrected.
4. TapeManager will no longer try to automatically restore a database backup when a DB REORGANIZE fails if it were attempting to convert between database versions.
5. Setting OPER SUPPRESS=TRUE would not always enable the ODT error suppression. Now ODT error suppression will be enabled whenever the option is set.
6. TapeManager was not logging stacking commands entered via TapeManager. Stacking commands are now logged in the TapeManager log file.
7. In the WHERE specification, strings that started with wild card characters were not being correctly handled. Wild card characters may now start a string in the WHERE specification where appropriate.
8. The 7.067G release introduced a problem that gave a NO TAPES MATCHED SELECTION SPECIFICATION error when trying to unstack individual VTVs. This problem has been corrected.
9. When the ASSIGN SERIALNUMBER option is set to ALWAYS, or SYSTEM and MCP OP 27 is set, TapeManager sets a temporary serial number of TBA to prevent the wrong tape from being assigned to a task. If the requested tape is already mounted and that tape is not in the TapeManager database, it could take some time (1-2 minutes) before the TBA serial number is cleared or changed to the serial number of the mounted tape. This process has been changed such that TBA will be set to the mounted tape in 1-2 seconds when the above conditions occur.

10. The LibraryManager inventory could become corrupted when load operations fail without correct error information from the library or library controller. Additional checks have been added to prevent this inventory corruption.
11. The Utility program was not correctly requesting a trace when the "Include diagnostic trace" was selected. This has been corrected.

Release 7.067G (7.067.255)

Enhancements

1. A new configuration option, SUBSTITUTE, has been implemented. The CONFIGURE SUBSTITUTE allows density or scratchpool values defined in programs or WFLs to be replaced by different values. Defaults may also be defined that allow a task to be assigned a density or scratchpool where none was requested. The purpose of this option is to help sites migrate to tape devices that have different density and/or scratchpool assignments than used previously without having to immediately change programs and WFLs that have these values hard coded.
2. A new feature has been added to the LABEL command to allow user generated labels. The TM LABEL WITH <update spec> command creates a temporary tape record which is passed to the LabelManager for a user specified label. The temporary tape record is not stored in the database and is discarded once passed to the LabelManager or if TapeManager is shut down. Data entered in the <update spec> portion of the command may or may not be printed depending on the label printing program. A form has been added to the TapeManager Utility to aid in creating these user labels. EX:
TM LABEL WITH SERIALNO = ABC123 LABEL = MYTAPE CREATEDDATE
= 1/2/2003

Corrections

1. If a TapeStack process was faulted or was Dsed, debugging information was lost. TapeStack debugging information is now retained even when the stack is DSed.
2. The density fields on some Utility forms were too short to allow the entry of modern density mnemonics. These fields have all been expanded to support the largest mnemonics.
3. The Find Records (INQREC) form of the Utility was not accepting non-numeric tape ranges. This has been corrected.
4. Forms to configure cleaning cartridges were missing from the Utility. This has been corrected.
5. TapeManager would fault with a Seg Array error at 32494370 when trying to stack or append tapes that had very long Label and File Ids. This has been corrected.

6. An invalid index could occur if a macro having a bracketed parameter (<id>) as the last item in a DO file. This has been fixed.
7. Certain variations of the Stack and Unstack command were not being handled correctly. Symptoms included UNSTACK not decrypting tapes known to be encrypted, the stack or unstack process fault Dsing, or tapes being missed in the unstack. These problems have been corrected.
8. Recent versions of TapeStack have been setting the LOCKEDFILE attribute for stacked tapes requiring operator input when purging an expired stacked tape. Tapemanager will now force stacked tapes to be purged without operator intervention if they are expired.
9. Previously, a semicolon encountered in between the commands of a stream of TapeManager input would end the stream at that point without error. This could also terminate the processing of a DO file. One way for this to happen without noticing is if a macro ended in a semicolon and its invocation was also followed by a semicolon.

This has been fixed.

A note about using semicolons in macros: a macro may, but does not have to, have a semicolon as the last item before the END. However, if omitted, the macro may use text following its invocation as part of the command it builds. For example, this macro:

```
TM DEFINE MYFIND = BEGIN FIND WHERE CREATED=TODAY END  
MYFIND
```

can be extended, like this:

```
TM MYFIND AND POOLID = BACKUP
```

Release 7.067F (7.067.232)

Enhancements

1. When presented with a long list of serial numbers, such as from a query list, TapeManager will now compact the list by using ranges wherever possible.

Corrections

1. Previously if a SCRATCH report specified a date range, i.e. ON <date1> TO <date2>, the report could be incorrect. This has been fixed.
2. Previously, when the TCPIP connection method was used for multi-hosting, it could occur that incorrect message types would be received causing the display, "* UNEXPECTED REMOTE HOST MSG TYPE *". An integer overflow fault could occur subsequently. A change has been made to disconnect any host for which this occurs.

3. The install program has been changed to provide support for a wider range of MCP releases. Now the program will install the newest code that can run on the target machine.
4. Previously if the recover from log database configuration were set, LOGPROCESSOR could loop endlessly if there had been no transactions made by LOGPROCESSOR on the first day of the log search and other transactions were made, e.g. TM DELETE, TM MODIFY, etc. This has been fixed.
5. Previously a message "POSSIBLE DRIVELOG CORRUPTION" could occur several times during startup. This has been fixed.
6. Previously it was possible for the TM ADD command to cause a display, "THE ID BEING WRITTEN...DOES NOT MATCH THE LAST ID READ". This has been fixed.
7. The MODIFY command had a problem such that certain database field names if entered in a particular order could cause a syntax error. This has been corrected.

Release 7. 067E (7.067.220)

Enhancements

1. The number of remote libraries allowed to connect to a library server host has been increased to 30 from 15.

Corrections

1. The TM CONFIG:PRINT report did not properly format all printer attributes when if they took up more than one line. This has been fixed.
2. Previously, putting the REPLACE option in a macro definition after the REPLY option could cause the macro to fail to execute on an appropriate display or RSVP. Also, replaced macros did not show properly in the TM STATUS MACRO response, although they did perform correctly. These problems have been fixed.
3. Previously, it was possible for an invalid index fault to occur on a macro DEFINE. This has been fixed.
4. When the LABEL field of a tape record is modified the RECORDTYPE and RECORDSTATE fields are now set appropriately for a normal tape record.
5. The Delete Records (DELREC) form of the Utility was not accepting non-numeric tape ranges. This has been corrected.
6. Previously if the email SIGNATURE was configured to a file title, an error would occur on email send which would prevent the email from being sent. This has been fixed.

7. Previously if a REPORT LOG had an invalid character at the end, the syntax problem was not detected and the time range used was empty cause no records to be reported. This has been fixed.
8. When a report was attached to an email, some records contained unexpected characters causing the report to display incorrectly via PC software. This has been fixed.
9. Previously, if a fault occurred during a QUIT operation the QUIT would be aborted. Now, TapeManager will ignore the error and continue with the QUIT.

Release 7.067D (7.067.207)

Corrections

1. If and ad hoc report used the LOCATION field as the first item in a report, the report would be confused with the LOCATION report. Now, if the items following the LOCATION syntax match the syntax expected for an ad hoc report, the ad hoc report is called.
2. The number of days left displayed for a demonstration period or expiration warning could be wrong if the period extended over a new year. This has been corrected.
3. Support for the LTO-3 tape drive has been added to TapeManager.]
4. A change has been made to the handling of the assignment of an input tape to a task requesting a label that is not in the TapeManager database. Previously, when user code matching is configured (TM OPER USERCODE = TRUE), "TBA" was assigned as the serial number, pending the resolution of the label by the database. In the case where the desired tape is mounted but does not qualify to be added to the database (tracking restricted), the task would need manual intervention. Now, such cases will be given two chances to be resolved by the database, a time of approximately four minutes, after which the "TBA" will be removed allowing normal assignment by the MCP.
5. Previously, a large number of movement and retention rules could cause a waiting entry for insufficient sort disk. This has been fixed.
6. Previously, when no remote hosts were configured, a TM STATUS HOST command would cause a false assert fault. This has been fixed.

Release 7.067C (7.067.190)

Enhancements

1. TapeManager now supports the encryption capability available with the Unisys TapeStack product. The following commands are now available; ENCRYPT, DECRYPT, STACK&ENCRYPT, APPEND&ENCRYPT. The CONFIGURE ENCRYPTION command has been added to manage some

encryption features. A full description of all the Stacking and Encryption features supported by TapeManager can be found in Chapter 11 of the TapeManager Operations Guide (7.067C, September 2005).

Corrections

1. Previously, back-to-back TM DB BACKUP commands could encounter an error on the second one relating to unavailability of the TapeManager log file. This has been fixed.
2. Certain actions caused TapeManager to create an audit file when the database audit option was set to false. This problem has been corrected.
3. Previously, for systems using remote hosts, if ten or more jobs were waiting for tapes at once, an INVALID INDEX could occur in RMTPROCESSOR. The fix for this problem in 7.067B was incomplete and is now correct.
4. When a library was configured with CONNECTION = ACSLS, certain title constructions of the SL ACSSUPPORT library were not being handled correctly causing a fault at 05519500. Various title constructions are now handled correctly.

Release 7.067B (7.067.176)

Enhancements

1. The DSI9x00 (REO) virtual tape and virtual tape libraries are now supported. The library TYPE may be identified as REO, DSI9000, DSI9200, or DSI9500. The drive TYPE is LTO2. The virtual tape and libraries are connected to the host via Fibre Channel (FC). Due to the use of FC the PORT address allowed when declaring a library in the SYSTEM/TAPELIBRARY/CONFIGURATION file has been expanded to 255.

Corrections

1. The location report was giving an erroneous syntax error when a sorting order was specified, e.g. TM LIST LOC X BY DATE was not recognized. This has been fixed.
2. A task which selects an input tape by an auto macro and does so repeatedly and rapidly could eventually fail to have the auto macro executed. This has been corrected.
3. Previously, a waiting request would try to find a matching auto macro on every retry. Now the search for a matching auto macro will be done only once per tape request.
4. In the case where a task performs a conditional input tape open, fails to open the tape, and then immediately goes waiting on another condition (e.g. an accept) TapeManager would display the error message, "SS FA SOFT ERROR=2..." every two minutes while the task was waiting. This has been corrected.

5. A fault for NON ANCESTRAL TASK REFERENCE could occur when a TM QUIT is done via the Utility or TMRemoteSPO, but not when done at an ODT, if a purge, import or export process were active. This has been fixed.
6. In rare circumstances, but especially after a TM DB BACKUP has finished, SYSTEM/TAPEMANAGER/SUPPORT could abort with "Initiate Active Task", taking out the TapeManager system. This has been fixed.
7. The auto macro for a task request that loads more than one tape could get skipped if the log reports from the MCP are delayed more than usual. Now TapeManager will execute such auto macros regardless of how long MCP log reports are delayed.
8. The CONVENTION configuration did not appear in the output for TM CONFIG:PRINT. This has been fixed.
9. Previously, for TM CONFIG OPER UNKNOWN = AUTO and TM CONFIG TRACK LIBRARY ONLY, tapes would not be added to the database as expected if cartridge is loaded to a drive from a door and there is no empty slot, or a cartridge is loaded to a drive from a door and the slot allocated to it is taken before the drive becomes ready. Furthermore, under the same circumstances, if a cartridge having a serial number not in the database were SN'ed to a serial number that is in the database, the database would not be updated to reflect the change.

These problems have been fixed.

10. Starting with TM 7.067, the movement report always listed no tapes. This has been fixed.
11. Previously, for systems using remote hosts, if ten or more jobs were waiting for tapes at once, an INVALID INDEX could occur in RMTPROCESSOR. This has been fixed.

Release 7.067A (7.067.163)

Enhancements

1. Compatibility between Version 1 and Version 2 databases has been extended to allow V2 hosts to share all records with a V1 host not requiring V2 semantics. This permits the upgrade of one host to TM 7.067 while others remain at 6.066 with no loss in function to the older software hosts.

Corrections

1. The location report was giving an erroneous syntax error when a sorting order was specified, e.g. TM LIST LOC X BY DATE was not recognized. This has been fixed.
2. ADDED records were not correctly being updated when CONFUIRE OPERATIONS MISMATCH = AUTO. This has been corrected.

3. Version 2 databases (TM 7.067 only) did not produce a complete scratch report. Some tapes could be missing if there were tapes having GENERATIONS specifications in their retention rule. This has been corrected.
4. The Configure Email form of the TapeManager Utility was not passing email addresses to TapeManager correctly. The form also had a From field which was never implemented. The From field has been removed and email addresses are now handled correctly.

Release 7.067 (7.067.158)

Notes

3. All corrections documented through TM 6.066l are included in the base release for TM 7.067. (See the latter part of this document.) If you are upgrading from a release prior to 6.066l, you should review the changes made between your current release and 6.066l as well as reviewing the changes made fro 7.067.

Enhancements

1. Unisys TapeStack utility is now fully supported by TapeManager. All functions of the TapeStack utility may be called from TapeManager. TapeManager has also implemented the following enhancements for use with the TapeStack utility.
 - (a) TapeManager tracks all virtual tapes (VTVs) created on stacked tapes.
 - (b) A stacked tape directory may be listed without the need to mount the tape.
 - (c) Tapes may be selected for Stacking, Appending, Unstacking, etc. by using TapeManager enhancements that allow for selection by label or selection specification (WHERE).
 - (d) TapeManager allows the specification of a scratch pool for output tapes created by TapeStack.
 - (e) TapeManager allows stacked tapes to be given a label other than the default tape label.

See chapter 11 of the TapeManager Operations Guide for additional information on TapeStack and the TapeManager interface.
2. TapeManager database management has been enhanced with the following features.
 - (a) An optional database audit trail has been implemented. Initially it is intended for diagnostic purposes. The audit is activated via CONFIGURE DB AUDIT = TRUE. Information in the audit trail can be viewed with the REPORT/LIST AUDIT command. (NFR)

- (b) The database configuration has been enhanced to allow missing database entries to be automatically recovered from the system log. TM CONFIG DB RECOVER FROM LOG = TRUE will cause TapeManager to look for missing changes to the tape database in the system sumlog. All available log files (SYSTEM/LOG and SUMLOG/=) that apply to the time since the last database change made by a log entry (labeled or purged) will be used to find the correct label information. You must have the system LOGGING option for major type 15 set for SUMLOG ALL in order for this to work. (NFR)
 - (c) The INUSE virtual database item has been added. INUSE is a read-only, Boolean item that can be used in a query to determine in the cartridge has been allocated for use. (NFR)
3. TapeManager multihost capabilities have been enhanced with the following features.
- (a) The TapeManager log may now be combined on multiple hosts in a manner similar to the TapeManager database. Entering CONFIGURE HOST xxxxxx RECEIVE + LOG at each host will cause each host to have a combined TapeManager log. (NFR)
 - (b) The DRIVELOG may now be shared/combined among hosts. Setting RECEIVE + DRIVELOG causes drive tracking to be information to be replicated from the other host.
 - (c) The remote configuration sharing option CONFIG MT is now available. Setting CONFIG MT causes purge and location configuration for drives to be replicated from the other host. (NFR)
4. LibraryManager has been enhanced with the following feature.
- (a) The TM PURGE command has been enhanced to allow use of a <selection spec>. For example: TM PURGE LIBRARY WHERE EXPIRED will cause all expired tapes in an attached tape library to be queued for purging. TM PURGE LIBRARY L1 WHERE COMMENT = "Year end discard" will find all the tapes with the specified comment in library L1 and queue them for purging. Note: tapes are selected without regard to their retention rule (unless EXPIRED is used) but the purge process will still check the retention rule before the tape can be purged. (NFR)
 - (b) Cleaning cartridges listed in the inventory report will now show how many cleaning uses are left for the cartridge.
 - (c) The message that states that a cleaning cartridge is used up and has been ejected from the library is now made a waiting entry so the operator will not miss it. (NFR)
 - (d) The tape drive cleaning command has been enhanced with the ":STATUS", ":CLEAR", ":STOP", and ":RESUME" command options.

5. The reporting and query features of TapeManager have been enhanced with the following features.
 - (a) The CONFIGURE REPORT command has been enhanced to allow a priority to be defined for TAPEMANAGER/REPORT stack which is processed off when the REPORT command is used. Use CONFIGURE REPORT PRIORITY = <integer> or USER to set the default priority. The integer must be a value from 1 to 99. If USER is specified, the priority of the caller will be used. USER is the default value.
 - (b) The keyword NONE is now accepted in a WHERE or MODIFY clause as the value of a date or timestamp. This is useful for finding dates that were not set, such as tapes where the PROCESSINGDATE is not present. (NFR)
 - (c) The value of Boolean database item can now be given directly in selection expressions with an implied value of TRUE. For example, TM FIND WHERE EXPIRED.
 - (d) The support version, e.g. "66D", is now displayed in the response to TM STATUS TM.
6. ACCESSCODE can now be used to qualify the security of TapeManager commands. In the specification for a user, the access code required can be given optionally as "/<accesscode>". For example, TM SECURE CONFIGURE +USER(OPS/2NDSHIFT) (NFR)
7. Retention and movement rules can now include a file id part. For example, TM CONFIG RETEN XXX/AB= DAYS=14
The file id part is applied only to the first file on the tape for multi-file volumes. (NFR)
8. The LABEL command was enhanced to add the ":ALIGN" option. The ALIGN option passes a request to the label printing library to print an alignment pattern. The ALIGN option cannot be used with the SN or LABEL syntax.
9. The install program has been enhanced to select files for e-mode Epsilon machines and to use files compiled for the next MCP level in preference to those compiled for two releases prior, as was the previous behavior. Furthermore, no longer will TARGET=LEVEL2 code be installed. Instead, the lowest common denominator code level will be TARGET = ALL.