TapeManager/LibraryManager/FileManager Release Notes

9.069W

Release 9.069W

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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 9.069W (9.069.821)

Corrections

1. TapeManager corrections

a. Previously if TapeLibrary Support had not finished initializing, typically because of a missing configuration file, the GUI client would hang and not connect to the MCP host as normal.

b. When executing the command “TM COPY SN <virtual tape > TO BACKEND “, it was possible to see the error “TAPEMGR COPY ERROR: VTL Support returned error 161”. This has been resolved. Along with this fix, the correct VTLs will be searched and an error about Tape Not In Vault will not occur (when the tape is in the vault).

c. It was possible to get a message “TAPEMGR:INVALID OPERATOR @ (29812600)” after doing a command like “TM MOVE SLOT 25 OF LLCNEO TO MT 91”. This has been resolved.

d. Previously, if a remote host had declared libraries (in the configuration file) in a different order then the current hosts declared libraries, the sharing of the libraries would cause the library configuration to be mixed up as one library's information would supplant another's. This has been fixed.

e. Previously, when two tasks request the same input tape but they receive the tape in reverse order it can happen that the first requestor will not get serviced. This has been fixed.

f. Previously if a remote host had declared libraries declared in a different order then a remote configuration sharing those libraries, this would cause the library configuration to be mixed up as one library's information would supplant another's. This has been fixed.

g. Previously, searching a library could miss a tape because of the VOLUMEKIND not matching the library being checked. This has been resolved.

h. Recognition and support for the LTO-7 tape drive has been added.

i. Previously any variant of the STACK command would hold the database until the command stream was finished, potentially a long time if there was a WAIT command in that stream. This could prevent the TapeLibrary system from being shut down during that interval, leaving the impression that the QUIT TL code was hung. This has been fixed.

j. Previously, a stall or lockup would cause the SYNC/HOST process to abort and the synchronize would not complete (especially when attempting to add a new host with a large database). This has been fixed.

k. Previously an optimized search involving INLIBRARY, LIBRARYNAME or SLOT fields would not necessarily return the correct results for TM CONFIG OPER VOLUMEKIND IGNORE. This has been fixed.

l. Previously, for hosts connected by BNA only, a synchronize could fail because of a communications timeout. A subsequent resynchronize would start after that and may or may not fail the same way. A change has been made to prevent this.

m. When using the Stacking command, it was possible to tie up the database for the entire time the command was being issued. This would cause serious delays in other commands that needed the database. This has been fixed.

n. In rare circumstances a TM QUIT would not finish if another host was requesting a DB update at that moment. A DS of the LogProcessor task would allow the quit to complete. This has been fixed.

o. Improvement to the MODIFY WHERE command has been made to reduce database contention.

p. Previously, for hosts connected by BNA only, a synchronize could fail because of a communications timeout. A subsequent resynchronize

would start after that and may or may not fail the same way. A change has been made to prevent this.

q. Previously, slow progress or even communication timeout could occur during purge tapes operation due to an inconsistency of MT HOLD state. This has been fixed.

r. It might be possible on B & L systems that a request for a trace split could cause a DCKEYIN job to be waiting. This wait occurs with a trace lock and could hang all the tape management software requiring an MCP Halt/Load to fix it. This has been resolved.

s. On certain systems that do a lot of purging of tapes on remote hosts, it might be possible to cause delays in processing because a lock has been held too long. This problem has been resolved.

t. A new example WFL (EXAMPLE/WFL/REMOVE/TRACES) has been added that if used will run every 30 days and remove TapeManager and LibraryManager traces older than 1 month. This is primarily needed at BLLIB shops that have LibraryManager tracing turned on constantly. The WFL needs to be modified for individual installations. Instructions for use are in the example WFL file.

u. Previously, under certain error conditions, it was possible to get a message similar to DISPLAY: MSRFIB82: TAPEMGR:FILE REMOTETM CLOSE ERROR: INVALID SUBFILE @ (44020200). This has been fixed.

v. Previously, a TM REPORT that was formatted for CSV would return a file attribute error if the user did not specifically specify the .CSV filename extension with a quoted filename. This problem has been corrected. Now, TapeManager will correctly apply the necessary quotes and the .CSV file extension if this was not specified by the user.

w. When using the CONFIGURE TAPE ... COMMENT = command the resulting comment was not correct if intrinsic values were expected as per the documentation. This has been corrected and intrinsic value are evaluated before the comment string is stored. Also new intrinsics, #NOW and #TODAY, have been implemented to provide display form values for the current date and time in CONFIGURE CONVENTION presentation.

2. LibraryManager corrections

a. If a large amount of data was unexpectedly seen in the SSH RESULTQ, DDSUPPORT could fault with SEG ARRAY ERROR @ (53446800). This is an addendum to a previous patch. This has been resolved.

b. If the DEBUGFILESZ passed into LibraryManager is zero, it could cause a “TLCOMMANDER: DIVIDEBYZERO @ (80512000)” display. This has been fixed.

c. When a VTL Export or VTL Import of a single tape is issued, it was possible that a successful operation would be display when in fact id did not send the notification. This has now been fixed. This involved Import from tape, Export to tape, Export to physical tape failed, Stack Export failed, and Stack Export or Tape Stacking started messages.

d. Previously, when two MCP hosts were connected to the same LLC, many different errors could ensue. This has been resolved by now returning the error Duplicate Connection and the library will be disabled and marked offline so that continuous recovery of the library will not be attempted.

e. A change has been made to validate some of the response data to a library open request from a client host. This will prevent a situation where a remote library could show zero slots if corrupt data is received from the server host when using TCPIP connections.

f. A change has been made that will fix a problem where DDSUPPORT was being installed for customers that did not wish to install DDSUPPORT.

g. Previously on large remote libraries, fatal faults in TLREMOTE could occur when the received message had been segmented by the originator and the order of reception was not maintained. A change has been made to assure that such messages will always retain the correct order of reception.

h. Previously, repeated disconnection of the remote library interface when using BNA would eventually cause the interface to fail to reconnect at all until the library software was shut down and restarted. A fix has been made to prevent this from happening.

i. Under certain timing conditions if a LIBRARY ENABLE was done at a library client host the library could enter a state where it could not be ENABLED and a QUIT TL would be needed to reconnect that library to the server host. This problem has been resolved. Connection timings have also been tightened such that if there is communication issues they will be noticed sooner.

j. Under specific timing of a library going offline a library process could fault with an INVALID INDEX at 16622000. This has been corrected.

k. Should the TLREMOTE process fault on a server (local) host the port files (BNA connections) could be left in a state that would not allow clients (remote) hosts to connect for library activity. TLREMOTE will now check port states on startup after a fault and reset states as needed.

l. Previously for remote libraries connected via BNA, various types of aborts (INVALIDINDEX, INVALIDOP) could occur on the TLREMOTE process, causing communication to a remote library to fail. Typically, this would happen on a heavily loaded connection where the traffic would encounter FILESTATE transitions from OPEN to BLOCKED and back. This has been fixed.

m. Previously, corrupted data was acted upon and caused a fault in TLREMOTE: INVALIDINDEX @ 0D9:00D4:3 (07964000). This has been fixed.

n. The library name in the VTL statement of the Library Configuration file must match the name of the virtual library in the VTL exactly including case. If upon connecting to the Library Controller that name is not found an error is displayed and logged at the MCP host. The library is also DISABLED to prevent repetitive connection attempts.

o. A constant retry of an open or other transaction could cause an INTEGER OVERFLOW or STRING POOL EXCEEDED fault at 12806000. This has been corrected.

p. It was found that Data Domain systems may wait up to 15 minutes before replication started. This could cause DDSUPPORT to incorrectly report that a tape had been replicated when it had not. Now, DDSUPPORT will issue a "replication sync" command. While checking for replication completion the values of Pre-comp Bytes Sent is monitored for change as well as waiting for Pre-comp Bytes Remaining to go to zero.

q. Previously, on release 69V and beyond, when the DSI software is verifying keys a message : DSISUPP:KEY INVALID MCN: DSI-LIBMGR could be produced. This has been resolved.

Release 9.069V (9.069.743)

Corrections

1. TapeManager corrections

a. Starting in 9.069P an entered sequence range list would have the second of two adjacent numbers dropped when they would form a range pair. This has been corrected.

2. FileManager corrections

a. In some releases, a message may be displayed through FileManager regarding truncated filenames when a file is being replaced. This occurs when FileManager attempts to look up a file replace message, and ensure that no FileManager records are affected. The problem has been corrected.

b. Previously the DEBUG QUEUES command would fault with an invalid index. This has been fixed

3. LibraryManager corrections

r. Implement license key checking in SYSTEM/DDSUPPORT. We will now check for license key DSI-DDVTL and DSI-DDVTL-UNL (the unlimited

version). If your site uses DDSUPPORT (also known as Data Domain Agent) and have not received these keys please contact DSI.

s. If the media manager sent too long a command array to the VTL_COMMAND API it could result in a String Protect fault at 53275740. The request is now truncated if too long to prevent the fault.

t. If a large amount of data was unexpectedly seen in the SSH RESULTQ, DDSUPPORT could fault with SEG ARRAY ERROR @ 53446800. This error has been corrected. This patch also reduces the size of the trace file if being created and adds displays relating to tracking the replication between Data Domain systems.

Release 9.069U (9.069.734)

Corrections

1. TapeManager corrections

a. Entering a TM QUIT command through the Utility, MARC or a TMRemoteSPO program could cause a fault for "Orphaned code found in library delinkage". This has been fixed.

b. Previously, a TM PURGE command would fire up all the configured purge workers for even one tape. Now, only as many workers as needed, up to the maximum configured, will be started.

c. In the case where OP 27 (SERIALNUMBER) is set and a scratch pool is used in the tape request, the MCP will not honor the serial number when assigned. Instead, it will use any scratch tape with the correct scratch pool. Because of this behavior, which can cause TapeManager to create an error RSVP due to the "wrong" tape being used, TapeManager will no longer assign the serial number in this case when CONFIG OPER ASSIGN SERIALNUMBER = SYSTEM. To obtain the old response of assigning the serial number, use CONFIG OPER ASSIGN SERIALNUMBER = ALWAYS.

d. In support releases 9.069S and 9.069T an *ad hoc* database search would not correctly honor the VOLUMEKIND either specified or implied. This has been corrected.

e. A change has been made to allow the shorthand qualifier for VOLUMEKIND in the ADD command, e.g. TM ADD PHYS ABC134.

f. Should the tape unit numbers assigned to VTL backend physical library given in the TapeLibrary configuration file conflict with those given for MCP accessible units they will be ignored for any operation that implies MCP activity, especially tape mounts. This will prevent confusion about a tape's implied VOLUMEKIND.

g. Previously if a scratch tape were mounted where the TapeManager database did not have RECORDSTATE = PURGED for that tape, the

database would not be corrected as it should when CONFIG OPER MISMATCH = AUTO. This has been corrected.

h. Previously attempting to set the TIME FORMAT of the REPORT configuration would cause a syntax error if time zone tracking were not set. This has been corrected.

i. Previously the DEFAULT location was not given in the CONFIG: PRINT output. This has been corrected.

j. Previously a search by library (INLIBRARY or LIBRARYNAME) did not obey CONFIG OPER VOLUMEKIND=IGNORE. This has been fixed.

k. The CONFIG:PRINT output did not include the DEFAULT location. This has been fixed.

l. Systems with older PCD files or PCD files with many declared but unused disk units could see those disk units show up in the tape drive tables. These units were automatically added after a H/L due to the MCP not clearing information for unused units and the units appearing as tape units. A deeper check is now made before automatically adding a tape unit.

2. FileManager corrections

a. Previously, if FileManager had detected that a container file had been replaced, and the container file name was longer than 17 characters, FileManager may produce the following message:FILEMGR:WARNING 35: NAME LONGER THAN 17 CHARACTERS HAS BEEN TRUNCATED. @ (09741230). This problem has been corrected.

3. LibraryManager corrections

a. DD2200 and DD9500 are now accepted as valid TYPEs in a Data Domain VTL statement.

b. When the TAPELIBRARY/CONFIGURATION file is modified to have a library name greater than 17 characters it can cause a Segment Array Error. This has been fixed.

c. The message: UNEXPECTED PROPERTY IN REMCOPY TAPE RESPONSE, PROPERTY = REPOFF @ 53281880 will no longer occur. It has been fixed.

d. For a standalone Data Domain VTL (i.e. no Library Controller) all requests to send to the DOOR/CAP will now be rerouted to the VAULT.

e. The virtual tape creation message text changed with the VTL 8.2 release (DSI4xx) which prevented tape creation events from being passed to the controlling media manager. This has been corrected.

f. The VTL stacking and unstacking message text changed with the VTL 8.2 release (DSI4xx) which prevented tape stacking events from being passed to the controlling media manager. This has been corrected.

Release 9.069T (9.069.710)

Corrections

1. **TapeManager corrections**
   a. In 69S only, an invalid index fault would occur when initializing a non-VTL library. This has been fixed.
   b. Ad hoc reports by library slot did not return all proper records in 9.069S. This has been fixed.
   c. A COPY command to a backend library would not find the destination tape unless CONFIG OPER VOLUMEKIND=AUTO. Now, such a command will correctly find the destination SN even without that setting.
   d. In 9.069S only, a TM PURGE command would locate the right tape but the purge would not finish unless the VIRTUAL or PHYSICAL qualifier were used in the command. This has been fixed.
   e. A TM INSTALL command that used a CD for the software source did not correctly shut down TapeManager, delaying the completion of the install until a manual shut was done. This has been fixed.
2. **LibraryManager enhancements**
   a. Support for the new Linux based Library Controller has been added.
   b. A problem has been corrected where VTLSUPPORT was not correctly interpreting a newer version of a Remote Copy completion message. This prevented BLLIB from getting a completion event.

Release 9.069S (9.069.699)

Corrections

1. **TapeManager corrections**
   a. Previously the TM LAST command would only list physical tapes when TM CONFIG OPER VOLUMEKIND = AUTO. This has been fixed.
   b. Previously, a unit from a backend library would be considered by the LOAD, UNLOAD and PURGE commands as legitimate. This has been fixed.
   c. Previously the VOLUMEKIND setting for a library/VTL configuration was hidden unless it was specified in the command. Now, this setting is always given.
   d. Previously, if TapeManager were configured to assign serial numbers and a scratch pool was given, a waiting entry could appear noting that the assigned SN was not to be written to. This is because the MCP does not obey SN assignment when a scratch pool is used. A change has been made to under these circumstances not to produce the waiting entry.

e. Previously, an install to a location without a user code ("*") would get an error in the WFL install. A workaround was to remove the file WFL/INSTALL/TAPEMANAGER from the TM install location. The problem is now fixed.

f. Previously a zero divide fault could occur when TapeManager attempts to assign a DMSII audit tape when the number of such tapes was one. This has been fixed.

g. Previously an export event wasn't handled correctly and so would not execute the script configured in the tape rule. This has been fixed.

h. Previously, a syntax check of TapeManager event script would give an error if the actual resources (a given tape serial number, for instance) were not present at the time. Supposedly, these resources would be available when the event script is executed. Now, a warning is given instead of an error when event script is syntax checked.

i. Previously a DS for Initiate Active Task could occur to LogProcessor when starting the WorkProcessor task. This has been fixed.

j. Previously event script would get truncated when a tape rule configuration change was propagated to a remote host. This has been fixed.

k. Previously a copy to backend from the vault could receive a "not in vault" error when, in fact, the designated SN was in the vault. This is a timing problem in coordinating the vault inventory with the TapeManager software and has been corrected.

l. Previously the create and update events were not being properly disabled after being handled. The practical effect was that the next time the tape was dismounted the associated event script would be executed again. This has been fixed.

m. The syntax of a TM MOUNT VIRTUAL SN command was not being handled correctly causing the command to mount a physical tape. This has been fixed.

n. Previously events were not being disabled when a tape was purged. This has been fixed.

o. When a macro appeared as the first command after and ON/EVENT statement it would not be recognized. This has been fixed.

p. Deleted database entries were shown as "unknown" in the TM STATUS SN response. These now appear as "deleted".

q. The automatic assignment of the VOLUMEKIND database field that occurs when a library's VOLUMEKIND changes from IGNORE to AUTO failed to account for several things, and did not prevent the same SN from being assigned twice if both a physical and virtual library contained that SN. This has been fixed.

r. A search by library or slot (e.g. FIND WHERE LIBRARYNAME) did not stop searching after the last library slot for the given name, continuing into the next library until the last one was searched. Due to the design of the search engine no invalid results were returned but time was wasted. This has been fixed.

2. **LibraryManager corrections**

   a. Previously if a VTL reported a slot count mismatch vs. the TapeLibrary configuration file, an invalid index fault would occur when that VTL inventory was accessed. This has been fixed.

3. **LibraryManager enhancements**

   a. The VTL stacking event mechanism has been fixed/improved such that a single start event and a single finish event are seen no matter how many virtual tapes were stacked. Prior to this multiple finish stacking events could have been seen if greater than 16 virtual tapes had been requested for stacking.

Release 9.069R (9.069.672)

Corrections

1. **TapeManager corrections**

   a. Previously, an install could fail to complete because the TapeManager did not shut down as instructed. A manual shut down via SEND TM QUIT would fix the issue. This change insures that TapeManager will shut down as needed, correcting the problem.

   b. Previously an AX RESCUE did not clear the database lock preventing a clean recovery in cases where the database was left locked. This has been fixed.

   c. Previously if the database were closed at the time of an automatic log transfer (after midnight on the first of each month) processes trying to add information to the TapeManager log would become hung leading eventually to TapeManager becoming unresponsive. An AX RESCUE to the library mix number would clear the condition. This has been fixed.

   d. Previously when a CONFIG LOCATION command was executed from a Utility run if no locations were configured the TASKVALUE of the Utility was set as if there were an error. This would also happen if the CONFIGURE command were executed. This has been fixed.

2. **TapeManager enhancements**

   a. An AX to the SYSTEM/TAPEMANAGER/SUPPORT mix number now has additional capabilities:

      AX LOCKS displays the results of a DEBUG LOCKS command.

AX QUEUES displays the results of a DEBUG QUEUES command.

An AX of any command that does not conflict with other defined AX syntax will be executed as if it were entered via SEND TM <command>.

b. When TapeManager sends a Remote Copy request (TM COPY) to a DSI VTL it will now set an option to force any replication set for that virtual cartridge to be turned off. Replication for a virtual cartridge can be left on if a previous Remote Copy request fails. This feature requires DSI VTL Agent version 2.02.023.

3. LibraryManager corrections

a. Under very rare circumstances the VTL driver stack could fault with an invalid index at 50614000. This has been corrected.

b. The Remote Copy completed event returned for Data Domain systems was sometimes returning incorrect or incomplete information. This has been corrected.

c. A call for a VTL stacked tape directory will now return an error if no tapes are returned even if the response does not report an error.

4. LibraryManager enhancements

a. The Unisys SSH Client software will sometimes lose connection to a Data Domain system (known as a 230 error) for unknown reasons. Following transactions appear to work correctly. For that reason retry logic has been added to the DDSUPPORT module such that on seeing a 230 result it will retry the Data Domain request one time.

b. Support has been added for a new DSI VTL Agent option that forces auto replication off on a cartridge when a Remote Copy is requested. Auto replication can be left on when a previous Remote Copy attempt fails. This feature requires DSI VTL Agent version 2.02.023.

c. Support has been added for a new DSI VTL Agent options that controls the compression and encryption features of the VTL Remote Copy function. The compression option compresses the data stream for Remote Copy actions. The encryption option encryptions the data stream for Remote Copy actions. If neither option is specified the default is compression on with encryption off. Use of these options can affect the performance of the Remote Copy operation. Compression has been shown to improve the Remote Copy performance in many cases whereas the encryption option will generally degrade performance. This feature requires DSI VTL Agent version 2.02.023.

Release 9.069Q (9.069.654)

Corrections

1. TapeManager corrections

a. Previously if the TapeManager data file were removed or renamed while in use, any use of a REPORT involving the database would cause a zero divide fault in REPORTER. This has been fixed. Furthermore, a repair step is then taken to recover the file from the open instance.

b. When the Install program is run only to unwrap files it will now first install any additional keys it finds first.

c. Previously the Install program could fail to copy files if initiated by CANDE and there was a job class restriction on library maintenance for such tasks. A change has been made to remove that job class from the WFL statements Install uses to copy files.

d. Previously when a remote DB update was presented to a system where CONFIG OPER VOLUMEKIND = IGNORE the incoming VOLUMEKIND was not handled properly. Depending upon the history of the two databases the effect could range from nothing to the local entry becoming back-dated with the possibility of that tape being prematurely overwritten if CONFIG OPER MISMATCH = IGNORE. This change corrects the handling of a remote update for VOLUMEKIND.

e. A correction has been made to the multi-host version of DB REORGANIZE to collect all the remote records that differ. Previously records from the other hosts that differ from those on the initiating host would not be corrected when on that host they contained the initiating host as LASTUSEDHOST value.

f. A change has been made to prevent the purging of tapes whose database record contains an invalid creation timestamp. This is a safety measure to prevent errant DB entries from allowing an improper purge. The invalid timestamp will be noted on the CREATION DATE line of the FIND/INQ command response.

g. When TM is installed to family DISK, a report command could fault with zero divide if the user code of the accessing program included a family substitution that obscures the TM DB data file, e.g. FAMILY DISK=PACK OTHERWISE WORK. A change has been made to permit this without getting the fault.

2. LibraryManager corrections

a. TAPELIBRARY/SUPPORT could fault while trying to start tracing and thus not produce needed traces. This fault could only occur on CMOS MCP systems. This has been corrected.

b. The BLLIB tape import process could stall due to not getting a timely tape enter event after a tape create was requested for Data Domain systems. This event is now sent much faster.

c. A very long report from a Data Domain system could cause DDSUPPORT to DS with a REQUESTED MEMORY SIZE GREATER THAN 65535 WORDS error. This fault could only occur when using the Telnet interface. This error has been corrected.

3. LibraryManager enhancements

a. A new feature has been added that allows the tape library configuration file to be parsed based on the host MCN. This is similar to the $ HOSTNAME feature. However in some BCA environments the hostname may not change in a DR failover. So this feature allows parts of the tape library configuration to be selected based on the host hardware MCN.

b. The SN_STATUS procedure used by B&L LIBRARYSERVER will now check for inconsistencies in the responses returned from the Library Controller and VTL Agent. If an inconsistency is found a re-inventory of the library is forced before returning the response to the caller. These inconsistencies can occur if users move tapes via the VTL console rather than the host software.

c. Per customer request the name of the trace files for the DSI Library Controller support process has been changed from DEBUG/TRACE/<seq #>/"DSI CONTROLLER"/<date>/<time> to DEBUG/TRACE/<seq #>/DSICONTROLLER/<date>/<time>.

Release 9.069P (9.069.639)

Corrections

1. TapeManager corrections

a. DDSUPPORT has been enhanced to support segmented results received from the SSHCLIENT interface.

b. Previously a report using the CSV option could get an invalid index fault. This has been fixed.

c. Previously a report for an SN range could incorrectly include tapes not intended to be reported. For instance, VTVs may be reported when only RTVs should have been. This has been fixed.

d. Starting in 9.069H a TM LOAD LABEL command that returned an error for a label not found would leave the database locked so that consequent commands needing the database would hang and not return a result. This has been fixed.

e. Previously an invalid index fault could occur in the STACK command, depending on how many tapes were selected, typically ten. This has been fixed.

2. **FileManager corrections**

   a. A performance improvement has been made for FileManager users who do not use the WRAP backup method. Previously, every ‘Replace’ message from the MCP would be parsed for the filename, and the database searched to determine if the file replaced was a previous WRAP backup. The change now checks to determine if the database has any container data. If there is no container data in the database, the ‘Replace’ messages are ignored, avoiding the database search.

Release 9.069O (9.069.629)

Corrections

1. **TapeManager corrections**

   a. A "No File" condition could prevent the Install program from completing the setup of the new DSISUPPORT. This has been fixed.

   b. Previously, the multi-host DB reorganize did not correctly distribute all updates depending on which host was the leader (where the command originated). This has been fixed.

   c. Starting in 9.069N using the “: TEST” option on a local DB REORG caused the reorganize to fail. This has been fixed.

   d. A change has been made to prevent remote DB records from storing VOLUMEKIND = VIRTUAL records when the local host is configured to ignore VOLUMEKIND. Such records will now be store as VOLUMEKIND = PHYSICAL.

2. **LibraryManager corrections**

   a. In some instances when a tape has been loaded and unloaded very quickly from a drive on a high speed multi-processor system the inventory for the slot the tape was returned to could be set to zero. This has been corrected.

   b. When the DEBUG TRACING function was set to SPLIT the split did not work correctly when called by a media manager other than DSI TapeManager. This has been corrected and now works correctly with other media managers.

   c. In 9.069N only an erroneous IO ERROR 46 message could be displayed the first time 9.069N was executed. The error was not really an error and should not have been displayed. This has been corrected.

d. Non-DSI media managers requesting import/exports events from TapeLibrary Support could receive import events from VTLs with null bar codes. This has been corrected.

e. The VAULT_DELETE procedure for both VTLSUPPORT and DDSUPPORT could get an invalid Index fault. This has been corrected.

f. The GET_TAPE_INFO procedure for Data Domain systems has been changed to request virtual tape information by bar code within the designated pool. This prevents incorrect information if that bar code is present in two virtual libraries.

g. The ALTERNATE_ID_FROM_NAME procedure was not checking that the LIB_ID passed was valid. LIB_ID is now checked and an error returned if it is not valid.

3. LibraryManager enhancements

a. Support for SSH access to Data Domain VTL systems has been implemented. The SSH protocol is selected by using the SSHCREDENTIALS property in place of the CREDENTIALS property in the Data Domain VTL statement in the library configuration file. NOTE: use of this feature requires updated SSHCLIENT software from Unisys and the loading of the Data Domain system public key into the MCP host.

b. The debug and tracing features of LibraryManager have been enhanced to better support third party media managers. As part of that enhancement a primitive command interface has been added to SYSTEM/TAPELIBRARY/SUPPORT. This command interface is accessed by <mix #>AX <command> where <mix #> is the MCP mix number of the SYSTEM/TAPELIBRARY/SUPPORT stack. Currently the HELP, TRACE, DEBUG, and STATUS commands are available. The DEBUG command allows the changing of the tracing parameters without involving the third party media manager. This feature is not available if you are using DSI TapeManager as all features are available via TapeManager interfaces.

c. The extraneous "Failure getting data for tape" message will no longer be displayed. This was not an error but an indication that a requested tape could not be found.

d. Licensing information for LibraryManager is now made available to non-DSI media managers through the LIBRARY_INFO interface.

4. FileManager corrections

b. Previously, a very large FileManager database could run out of available areas, resulting in no further records being added, and an error message on the MCP declaring that FILEMGR could not allocate another area. This issue has been corrected by changing the geometry of the FileManager database, increasing its size two-fold. The FileManager database should now be able to hold over 1.5 million records.

c. Previously, using a number of FM LOAD LMDIR commands simultaneously could result in FMLOGPROCESSOR being DSed. This could occur because each LOAD invokes a SAVE_FAST task, and FMLOGPROCESSOR may DS due to an attempt to initiate an active task. This problem has been corrected. FileManager now looks at the current state of any running SAVE_FAST tasks, and if running, queues the outstanding SAVE_FAST request.

d. Previously, FileManager would look at every 'replace' command that was found in the System Sumlog, and search the FileManager database to see if this file was a WRAP file. In very large FileManager configurations, this could result in very high CPU utilization from FMLOGPROCESSOR searching the FM database. This patch enhances performance by looking at the file kind of the file just replaced, and ignore that if the type is not CONTAINERDATA.

Release 9.069N (9.069.613)

Corrections

1. TapeManager corrections

a. A problem where ALTERNATE configuration name that included a dash (-) caused the switch to the alternate to fail has been corrected. ALTERNATE names may now contain dashes (-) and underscores (_).

b. A change has been made to assure that a search for a matching (not a wildcard match) tape label will find tapes that have the label padded with blanks at the end. This applies to the file id as well.

c. For systems where the time zone is different from other systems attached to the same tape library, the record timestamp was set incorrectly causing one system to reject a valid update from another. This has been fixed.

d. Previously if a task requested and used a tape but went waiting instead of finishing, the tape could be loaded again. This has been fixed.

e. It the family name for the DEBUG TRACE files were invalid, TapeManager/LibraryManager could hang on a NO FILE condition when tracing was turned on. This has been fixed.

f. If there were retention rules having only GENERATIONS and a large number (>10) of generations were present then the SCRATCH report could fail with an invalid index fault. This has been fixed.

g. Previously, getting the TCPIP remote hosts to connect took too long. A change has been made to speed up that process.

2. LibraryManager corrections

a. A change has been made to allow the CREDENTIALS to be backup-operator role and not just the sysadmin role for Data Domain.

b. If after a move from the vault the Data Domain VTL does not return the correct information as to what slot the tape was placed in (as could happen with duplicate bar codes) a full library inventory is now taken.

c. Adding a tape to the vault in a Data Domain system could cause an invalid index in the DDSUPPORT library. This has been corrected.

d. The ability to create a virtual tape in a Data Domain system has been added.

e. During a switch to an ALTERNATE configuration a call on LIBRARY_DISABLE could return an error if the Library Controller or attached library was offline. The error returned by LIBRARY_DISABLE could cause BLLIB to abort the alternate switch operation. LIBRARY_DISABLE will no longer return an error in these situations allowing the alternate switch to proceed.

3. LibraryManager enhancements

a. The debug and tracing features of LibraryManager have been enhanced to better support third party media managers. As part of that enhancement a primitive command interface has been added to SYSTEM/TAPELIBRARY/SUPPORT. This command interface is accessed by <mix #>AX <command> where <mix #> is the MCP mix number of the SYSTEM/TAPELIBRARY/SUPPORT stack. Currently the HELP, TRACE, DEBUG, and STATUS commands are available. The DEBUG command allows the changing of the tracing parameters without involving the third party media manager. This feature is not available if you are using DSI TapeManager as all features are available via TapeManager.

4. FileManager corrections

e. Previously attempting a restore from a very large directory could result in an ‘ARRAY EXCEEDED’ message on the MCP, and the SYSTEM/TAPEMANAGER/GUIINTERFACE ending abnormally. This problem has been fixed, and also includes some performance enhancements to the GUI for RESTORE operations.

Release 9.069M (9.069.596)

Corrections

1. TapeManager corrections

a. Failure to load a unit by a remote library that occurred on 9.069L has been fixed. This caused a fatal bounds error fault in LOGPROCESSOR.

Release 9.069L (9.069.595)

Corrections

1. **TapeManager corrections**
   a. Previously a COMMENT specified in a tape rule configuration did not properly set the comment when the tape was labeled. A change has been made to set the comment correctly in that case.
   b. An MCP stack command that selects 21 or more tapes would fail with an invaliid index fault. Ths has been fixed.
   c. Previously if a task requesting a tape went into a waiting state for another condition TapeManager would drop the request and not mount the tape. This has been fixed.
   d. Previously certain tape policy rules would cause a TM CONFIG:PRINT command to abort with a bounds error. This has been fixed.
2. **TapeManager enhancements**
   a. A change has been made to the recognition of serial number ranges to ensure that the numeric part will always be the rightmost digits of the SN.
   b. The release package contains a new file for perfoming installs: *ALL/EXAMPLE/WFL/INSTALL. The Install program will make a customized copy of this file as WFL/INSTALL/TAPEMANAGER or WFL/INSTALL/FILEMANAGER as appropriate. If ever necessary, the customized file can be used to install software on any machine without TapeManager/FileManager running. This is expecially useful if the Install program will not run on a new MCP or hardware. Usage is a simple as: START (TM)WFL/INSTALL/TAPEMANAGER("MYTMCONTAINER") ON TMPACK. List the file to find its self documentation.
   c. Emode Eta is supported by this software release.
3. **LibraryManager enhancements**
   a. The DSI370 and DSI400 are now recognized as valid VTL TYPES.
   b. Additional fields have been added to LIBRARY_STATUS, LIBRARY_INFO, LIBRARY_INFO_STATUS, and SLOT_STATUS to denote libraries that have been desinated with a CONNECTION = NONE.
   c. Management of the VTL vault has been improved by updating the local inventory as tapes are moved in and out rather than constantly asking the VTL for inventory information.
   d. Management of the Data Domain vault has been improved by updating the local inventory as tapes are moved in and out rather than constantly asking the VTL for inventory information.

4. **LibraryManager corrections**
    a. An obscure set of circumstances could cause a one minute deadlock delay between one host and remote library service on another. During that timeframe a TM MOUNT command would fail if it also involved the remote tape library. This has been fixed.
    b. On multi-processor systems the message "TRIED TO DEALLOCATE NOT IN USE BUFF " could be displayed if multiple processes were trying to get a library inventory. Various other error messages might also be displayed at the same time. This has been corrected.
5. **FileManager corrections**
    a. Previously the task name for the FILEMANAGER process was shown as SYSTEM/FILEMANAGER/SUPPORT. Now it correctly shows as FILEMANAGER.
    b. Corrections have been made in the handling of files with long file names. In some case individually selected files with long file names could be skipped. When deleting a FileManager container file the display NAMES LONGER THAN 17 CHARACTERS WILL BE TRUNCATED was sometimes seen. These issues have been corrected.
    c. Previously, a non-privileged user running FileManager may receive a returned message that a syntax error had occurred in the generated WFL. Actually, it may be that the operation resulted in an MCP Security Error, and the WFL syntax is correct. This patch modifies the response to the client that that the generated Work Flow did not start, and may be a syntax error or security error.

Release 9.069K (9.069.569)

Corrections

1. **TapeManager corrections**
    a. Previously a VTV that should have been created by a stacking command could fail to be placed in the TapeManager database, based on unpredicable timing factors. This has been fixed.
    b. Previously if the SDASUPPORT library was the InfoGuard version, a TM DB RECOVER would not work. This has been fixed.
    c. Previously, a TM QUIT issued while stack tasks are running could cause a TapeManager abort. Now, the QUIT will not be done and a warning message will be given. The expectation is that if the QUIT must be done the stack tasks will be DSed by the operator.
    d. Previously, if a transfer log (TL) operation occurred at a time when the database was closed or a QUIT was underway, the linkage between log files could be broken such that log queries would no show any results from before this incident. This has been fixed.

e. A multi-host DB REORG could stall in the file setup stage requiring the DATABASE/REORGANIZE task to be DSed on one or more hosts. A fix for this has been done and additional status displays are now provided to indicate that the reorganize is proceeding.

f. Previouly, if the install program were run manually and the MARC directive had been established, the directive would not be automatically removed and the install would not finish, waiting on DSISUPPORT to EOJ. This has been fixed.

g. On MCP release 57.1 (MCP 16) it may occur that the install will not finish waiting on DSISUPPORT to EOJ. There would also be a "no file" message for SYSTEM/DSISUPPORT. This is fixed.

h. A random "ATTEMPTED DOWNWARD RESIZE IGNORED" display when using the GUI interface has been corrected.

i. An invalid index fault could occur on a STACK APPEND where more that 20 tapes are given. This has been fixed.

2. TapeManager enhancements

a. Batch mode in Utility has been improved to return the last result line in the parameter array. If there was an error result, this will normally be the text of that error. The WFL running Utility can display that error if desired. Note that the RUN statement must use the REFERENCE qualifier on the parameter for this. Also, if the output print file is equated to a disk file then blank fill will be provided to make the resulting file more readable.

b. Previously to install a FileManager upgrade a shut down of TapeManager was required, and vice versa. Now, either product can be updated independently.

c. Tapes that have been mounted but never used by a program will now be dismounted and put away when the task for which they were mounted leaves the waiting state.

3. **LibraryManager enhancements**

a. LibraryManager now recognizes LTO6 as a valid drive type in the configuration file.

4. **LibraryManager corrections**

a. LibraryManager and VTLSUPPORT were not correctly matching virtual library names defined in the VTL statement when the cases may have been different. This has been corrected.

5. **FileManager corrections**

a. Previously, a FileManager append operation may fail to record file records to the database. That may happen due to an LMDIR.TITLE attribute error occurring. A change has been made to check for proper title attribute application, correcting this potential issue.

b. Previously, a RESTORE operation would ignore a change for the target destination other than the origination point. This problem has been corrected. Note that this patch must use GUI version 9.069.290 or above to be effective. This patch also corrects a minor issue where the restore option SKIPEXCLUSIVE was allowed for a restore, and would generate a WFL error. This patch also corrects this problem. In the 9.069.291 version of the GUI, the SKIPEXCLUSIVE option is no longer allowed for a RESTORE. For batch-processing, FileManager will ignore the SKIPEXLUSIVE option and continue with a RESTORE request, rather than generating an error.

c. Corrects a problem where filenames of a particular length could cause a WFL syntax error during a FileManager RESTORE process.

d. Changes to the FileManager product had uncovered a latent GUIINTERFACE issue, where a selected BACKUP or RESTORE by set may not display the file configuration defined. This problem has been corrected.

e. Previously, a syntax omission in a set could cause future restores to yield unpredictable results. This problem has been corrected.

f. Previously, the FileManager GUI would truncate pack family names larger than 10 characters in the RESTORE tab, preventing the user from restoring files from that family. This problem has been corrected.

g. When installing only FileManager, the Install program will no longer copy TapeLibrary files.

h. A problem that could cause the GUI to hang when attempting to open the set specifications has been corrected.

Release 9.069J (9.069.536)

Corrections

1. TapeManager corrections

a. On a database reorganize or restore, missing index files were not being handled properly. This could cause looping and excess processor time accumulation on the LOGPROCESSOR task. This has been fixed.

b. An invalid index fault could occur on a purge worker task if the library for the purge tape had gone offline during the period the tape was queued for purge. This has been fixed.

c. A purge of a tape by serial number that is already mounted could fail to complete or get the error, "must have a barcode label". This has been fixed.

Release 9.069I (9.069.532)

Corrections

1. TapeManager corrections

a. Previously a multi-reel COPY & COMPARE would fail to mount the second reel. This has been fixed.

b. A change has been made restoring the dismount logic so that a match of the serial number in the MCP log record to the reported library drive content serial number will not be required. The message "**MTnnn dismount cancelled, bar code did not match log record"** will no longer be issued.

c. If the TAPEMANAGER share had inadvertently been changed such that PUBLIC was set to TRUE the NXSERVICES update would fail. TM install now ensures that PUBLIC is not set for the TAPEMANAGER share.

d. Previously if a retention rule used the PARENT clause a tape could appear as EXPIRED that should not. This has been fixed.

e. Previously an invalid index fault could occur in a database reorganize operation preventing the reorganize from completing. This has been fixed.

Release 9.069H (9.069.525)

Corrections

1. TapeManager corrections

a. Previously it could happen that an invalid index (01156050) fault could occur on a database open or a tape rules change. This has been fixed.

b. Starting in TM 9.069E the version of the EXPORT(REMOVE) command using the WHERE part would fail to remove the selected tapes. This has been fixed.

c. A change has been made to prevent a fault in the case of an invalid time zone number being entered for a tape.

d. Previously a tape rule starting with an "=" did not properly contend with other rules starting with "=". A change has been made to insure the rule that will match the label has the most non-wildcard characters in it.

e. Previously a timeout on a remote host connected via TCPIP could ultimately lead to RMTPROCESSOR being DSed for an invalid index fault and a partial system lockup where remote host commands and configuration changes would not respond. This has been corrected.

f. A performance improvement has been made to reduce the occurrence of the message, "Mix # did not get reply,..." and the associated diagnostics.

g. Previously if a TM CONFIG MT were done on a unit not in the configuration subsequent commands involving MT configuration would be unresponsive making the session doing the command unusable. This has been corrected.

h. A change has been made to correct the spelling of "SUPERVISOR" in the TM CONFIG:PRINT output.

i. Drive units that were deleted kept reappearing when hosts resynced and the Drive Log was shared between hosts. This has been corrected.

j. Under certain rare circumstances disk drives, such as BCV units, coming online could be added to the TM DriveManager directory. These drives will no longer be added to the DriveManager listings.

k. A modify of the comment field could get an invalid index fault if the new length were a multiple of size characters long. This has been fixed.

l. The DRIVEMANAGER process could encounter multiple fatal faults by INVALIDOP. This has been fixed.

m. Previously, an *ad hoc* query involving LIBRARYNAME, SLOT or INLIBRARY could fail to find all tapes specified if a serial number in the library were also represented in the TapeManager database as a VTV. This would only occur if the VTV came before the RTV for the serial number. This has been fixed.

n. Previously if the configured email addresses where too long, a TM CONFIG:FILE command could fault with a segmented array error. This has been fixed.

o. Previously if the retention rule in a TM CONFIG TAPE command used the form of <n> DAYS or <n> GENERATIONS instead of DAYS=<n> or GENERATIONS=<n> then whatever follows would not be accepted, such as a ":NO". This has been fixed.

p. Previously, the OWNER field would be lost or confused with the LOCATION field, when a tape was purged. Now, the OWNER is preserved when a tape is purged.

q. A change has been made so that an auto unstack would not be prevented because there was more than one matching VTV in the case where DUPLICATES was set to IGNORE.

r. An invalid index fault could occur in the purge worker preventing the purge. This has been fixed.

2. **LibraryManager corrections**

a. A warning will be given and a waiting entry will occur if a remote library is not described as "VTL" in like manner to the actual server library. This will also happen if the remote library is connected through older software than release 9.069H.

The warning is given because tapes will be seen as different VOLUMEKINDs based upon how the library is declared in the TapeLibrary configuration file.

Enhancements

1. **TapeManager enhancements**
   a. The STATUS SN command has been extended to show instances of the serial number that do not appear in the database.
2. **LibraryManager enhancements**
   a. A new CONNECTION type of NONE is now allowed in a library configuration. The value of NONE is used when a remote VTL is used for replication controlled by the host but no host robotics are used. If NONE is used a VTL statement must be defined.
   b. Support for Data Domain VTL sense codes has been added.
   c. Support has been added to LibraryManager to re-initialize the inventory of a VTL backend library upon receiving an inventory change event from the VTL Support library.

Release 9.069G (9.069.488)

Corrections

1. **TapeManager enhancements**
   a. A new CONFIGURE MT cleaning option has been added. CONFIGURE MT CLEANING = NEVER/DEFAULT. When this option is set to NEVER an MCP cleaning request and operator cleaning requests are ignored or return an error. Cleaning requests for virtual tape drives and drives in backend libraries are always ignored or return an error. NOTE: the GUI will not show this option until the 10.070 release.
   b. Additional safety checks have been added to try and prevent an unload from an in use drive for libraries that don't prevent the move when not ejected.
2. **TapeManager corrections**
   a. The SCHEDULE syntax now accepts the form: SCHED EACH DAY=<day of month>.
   b. Systems that are using the VTL Agent software need the support of the VOLUMEKIND database field. When a remote host does not support VOLUMEKIND it cannot interoperate with those that need VOLUMEKIND, therefore such a host will be automatically disabled in order to prevent creating disorder in the database. This effectively means that when upgrading to 69G all hosts must be at software level 69E or greater.

c. Previously if a host were left enabled while the software on that machine continued to function the TM log would fill with "host end" entries. This has been fixed.

d. When upgrading directly from 7.067 to 9.069 the upgraded system would not get MCP log messages until it was restarted, resulting in newly created tapes not being placed into the database. This has been fixed.

e. Previously when attempting to load an input tape by serial number, if there were not a drive available, the system would drop the serial number and the tape may never load. This problem would not be obvious if the tape label would resolve the request to the same serial number. Fixed..

3. **LibraryManager corrections**

a. The virtual library name in the VTL statement in the library configuration file may now be up to 64 characters in length to match that of the VTL. NOTE: if the MCP SYSOPS LONGFILENAMES option is not set then some tasks that use this name will have the name truncated to 17 characters.

b. A change has been made for SLxxx libraries such that certain operations such as the "limbo" check are not done. This is an attempt to reduce the chance of a drive not-ready error from the MCP due to the library allowing a move from the drive when not in an ejected state.

c. Since it was found that some Agent operations could take longer than expected the host to Agent ping routine has been modified as follows, a) the ping timer is now 60 seconds, b) a ping timeout will no longer close and reopen the port to the Agent. A side effect of these changes is that a reconnect to the Agent could take slightly longer.

d. On very fast systems with VTLs the MCP might not update its unit status on unloads as fast as the host tries to unload it. Therefore for VTLs this check is removed as the VTLs will not allow the movement unless the tape is in an ejected state.

4. **LibraryManager enhancements**

a. The VTL configure procedure has been enhanced to allow host applications to reset the monitoring of log records, vault inventory, and virtual library inventory. This allows B&L LIBRARYSERVER to control which events it will see.

b. For VTL Agent move functions such as vault to library imports the library inventory will now update before the move command response is returned. This will improve performance for B&L LIBRARYSERVER users.

c. The time the VTLSUPPORT waits for a response from the Agent for various commands has been increased.

Release 9.069F (9.069.470)

Corrections

1. **TapeManager corrections**
   a. An AX RESCUE would fail if the VTLSUPPORT library were linked. This has been fixed.
   b. On TM 9.069E only, remote hosts did not handle the VOLUME_KIND database field correctly, leading to confusion about what tape was being updated. This has been fixed.
   c. Especially when using a VTL, the rapid use of the same serial number in back-to-back tasks could leave the second tape mount undone. This has been fixed.
   d. Previously if the DATABASE command were secured a TM DB BACKUP would only work when issue directly from an ODT. This has been fixed.
   e. When remote configuration change tracking is in use, the delete of a tape policy rule would not replicate correctly to the hosts that were to receive it. This has been fixed.
   f. A change has been made to the remote host via TCPIP logic to improve the speed of connection. Previously it could take many minutes or even hours to make a first connection between to hosts. Now the connection time is two minutes or less.
2. **LibraryManager corrections**
   a. A timer added to make sure a tape was not unloaded when it had been just loaded was too long for VTL virtual libraries. The symptom was a tape would not unload if it had been loaded, used, and rewound within 10 seconds. The timer has been shortened to accommodate the speed of virtual libraries.
   b. For remote library connection via TCPIP the TLREMOTE process can fault DS (bounds error) trying to send a minimal length message. This is fixed.

Release 9.069E (9.069.459)

Enhancements

1. **LibraryManager enhancements**
   a. VTLSUPPORT now supports the additional features of the DSI VTL Agent version 2.02. The information returned for a virtual cartridge now includes the cartridge used size, the cartridge creation timestamp, the cartridge modify timestamp, and the replica VID (if any).

b. Added support for VTL Agent 2.02 LICENSED handshake parameter and allow a not licensed error response to VTL_COMMAND rather than waiting for Agent to respond.

c. A change has been made to LibraryManager to allow libraries to run in IMPLICIT mode. In IMPLICIT mode a move from drive unit command will be processed even when the tape is in use. This patch adds a check on the unit with the MCP to ensure the drive is not in use before executing the move. NOTE: this mode is NOT recommended for MCP direct connected libraries.

d. An improvement has been made to the Remote Copy event process in VTLSUPPORT. The Remote Copy start event will happen faster and the Finish event should be more consistent. This improvement requires VTL Agent 2.1.031 or higher.

e. DSI300 has been added as a valid VTL type.

f. LibraryManager will no longer initialize if due to licensing constraints a library ends up with zero slots.

2. **TapeManager enhancements**

a. Provision has been made to track physical tapes and VTL tapes concurrently by a new database field, VOLUME_KIND. TapeManager will automatically assign a VOLUME_KIND of PHYSICAL to any tape appearing on a non-VTL drive, and of VIRTUAL to any tape appearing on a VTL drive.

The TM DELETE command now has an optional qualifier to allow the selection of VIRTUAL or PHYSICAL for the database record to be deleted, e.g.:

TM DEL VIRTUAL ABC070

The TM EXPORT command now has an optional qualifier to allow the selection of VIRTUAL or PHYSICAL for the database record to be exported, e.g.:

TM EXPORT VIRTUAL ABC070

b. The Install program has been improved to install files directly from a container file:

RUN SYSTEM/TAPEMANAGER/INSTALL; FILE WRAP=TMCONFILE

The program will check for the container file being available before proceeding.

Previously you could do this, but it was necessary to remove any existing SYSTEM/TAPEMANAGER/SUPPORT code file first and no check was made to be sure the container file was available.

Corrections

1. **TapeManager corrections**
   a. Previously, using the ‘Scratch’ radio button on the ALL tab of REPORTS in the TapeManager GUI Interface program had no effect, returning all TapeManager records rather than limiting the report to just scratch tapes. This problem has been corrected.
   b. A remote DB reorganize where one of the hosts is in a different time zone could fail with a bounds error. This has been fixed.
   c. In 9.069D only, the message "TapeLib: Deallocate_Buff passed invalid Buff_ID @ 4314000" was being displayed on every cartridge move. This message was being displayed incorrectly and did not affect operations. This has been corrected.
   d. Previously when auto purge was used on a system where ASSIGN SERIAL was either ALWAYS or SYSTEM (with OP 27 set) TapeManager could, based on particular timing circumstances, queue the selected tape for purge twice. If at the same time the purge VERIFY option were reset, then the tape could be purged immediately after it was written. This has been fixed.
   e. A change has been made to reduce the likelihood that a tape will be queued for auto purge that is already so queued.
   f. Previously a WFL started by the Install program would get a syntax error if there were not a keys file present. This has been fixed.
2. **FileManager corrections**
   a. Previously a database backup command would leave the log queue processing internally disabled causing a large buildup of messages queued to the halt/load unit. This has been fixed.

Release 9.069D (9.069.435)

Enhancements

1. **LibraryManager enhancements**
   a. An improvement has been made that when tapes are moved to/from a VTL vault, its inventory is updated in the GUI, making the vault inventory command much faster.

Corrections

1. **TapeManager corrections**
   a. Systems using replication cause temporary tapes to be created and deleted. When a temporary tape is deleted the message generated caused TM to try and delete that tape. That tape never existed in the TM

database and therefore displayed an error message. These delete messages are now ignored by VTLSUPPORT.

b. If a stack append process was started for a tape whose record had been deleted from the TapeManager database the waiting task could be changed to reflect the tape name from the database. This has been corrected.

c. The LOAD SN <XXXX> TO MTnnn syntax was being rejected. This has been fixed.

d. Occasionally an ODT can fail to complete a write to it from TapeManager, causing the TAPEMANAGER process to stop responding. This can make it appear that TapeManager is hung, which it is not. A change has been made to allow the write to timeout and abort output to that ODT unit, allowing TAPEMANAGER process to continue responding.

e. On occasion the install program would log a fault but would finish normally. This is believed to be related to the number of SL libraries running at the time. A change has been made to reduce or eliminate this happening.

2. **FileManager corrections**

a. Previously, a client that used an ad-hoc backup via the FileManager GUI could result in an ‘invalid string’ message. This happened because FileManager was checking for a post-process workflow for ad-hoc backups. Ad-hoc backups are prefixed by a special character that is illegal in file naming conventions. Now, FileManager recognizes that the request is an ad-hoc backup, and will not check for a post-process work flow.

b. Previously, FileManager may fail to include files in the FileManager Database if the Disk Location setting (DL) for LIBMAINTDIR was set to something other than DISK. This problem has been corrected. Also, the DL setting for LIBMAINTDIR can be changed at any time. FileManager will now track and follow the DL change dynamically.

Release 9.069C (9.069.423)

Enhancements

1. LibraryManager enhancements

a. The STK (Sun/Oracle) SL3000 is now recognized as a library type.

Corrections

1. TapeManager corrections

a. The waiting entry, "waiting for log" will no longer occur. This message, which was used to indicate a slowdown in internal processing of system log messages, previously required an operator OK for the waiting task to

continue. Now, the task will continue on its own. Note that the delay in log processing will still cause the task to not get its required tape until the delay is ended.

2. **LibraryManager corrections**

   a. If a VTL backend library reports fewer tapes than expected as could happen with and ACSLS attached library then a fault could occur at 1274730. This has been corrected.

   b. If a VTL backend library is offline when VTLSUPPORT attempts to connect to it VTLSUPPORT could fault at 52803554. This has been corrected.

   c. Some requests to the VTL Agent may take longer to process and return a response than others. A change has been made providing variable time out times for commands such as stack, unstack, and backend library tape movement such that a longer time for completion is allowed.

   d. Corrected a fault that can occur if the VTL backend library configuration request returns zero for the drive count due to its being offline.

Release 9.069B (9.069.416)

Corrections

1. **TapeManager corrections**

   a. The TM LOAD <sn> TO <mt> was not using the given unit number in TM 9.069A. This has been fixed.

2. **LibraryManager corrections**

   a. An additional correction has been made to prevent TAPELIBRARY support from consuming excess memory when checking on the status of a remote library.

Enhancements

1. **FileManager enhancements**

   Previously, the FileManager PostProcess feature only included a single string passed into a client's work flow, the destination label (whether a TAPE label or a WRAP file). This has been modified to now pass in two strings, the first being the destination as previously documented, and a second string of TYPE. This second string in this implementation will only have the values of "TAPE" or "WRAP". The intent of the second string is to allow for future sources (FTP, HTTP, etc.). Clients that are currently using FileManager Post-Process work flows will need to modify their WFLs to accept a second passed-in parameter. Using the OPTIONAL parameter attribute will ensure compatibility between initial and future 9.069 FileManager releases. Refer to the examples files of the 9.069B release, or the updated 9.069B FileManager documentation for further information.

A new FileManager PreProcess function has been introduced. In some cases where a FileManager RESTORE operation is started, and the source is no longer available (example, a WRAP file that has been moved to a cloud storage location), the PreProcess function can be used to automate the return of a previous archive file to satisfy the FileManager restore request, and alleviate operator intervention.

The pre-process WFL file name must conform to the following naming convention:

(<usercode of FileManager>)<root name of FileManager, usually SYSTEM/FILEMANAGER>/PREPROCESS/><set name to be restored, or ADHOC> ON <family where the SYSTEM/FILEMANAGER/SUPPORT library is installed>. A restore operation that specifies a given SET name will run a work flow titled SYSTEM/FILEMANAGER/PREPROCESS/<set name>. Any other RESTORE operations that request single files, or a group of files that are not a full set will run a work flow titled SYSTEM/FILEMANAGER/PREPROCESS/ADHOC.

The pre-process work flow will be passed four (4) string-valued parameters, as follows:

1) PARAM is the name of the first file to be restored. NOTE: If this is a multi-file restore, ONLY the first filename to be restored is passed in. This is meant as a reference in assisting the client in building a Preprocess work flow.
2) CONTAINER is the name of the wrap file from which files will be restored.
3) CONTAINERPK is the name of the pack family of the original container file location.
4) TYPE is the description of the medium to retrieve the original container. Currently, this is always “WRAP”. In future releases, this field may indicate FTP or HTTP hosts, or the credentials/connectivity to retrieve a container. Refer to the documentation and examples for further information.

Release 9.069A (9.069.412)

Enhancements

3. TapeManager corrections

a. The TM DEBUG LOCKS command could fault depending on when it was first used. This has been fixed.

b. Semicolons were not being handled in a tape rule event definition leading to an error of "']' expected". This has been fixed.

c. Selection specifications using INLIBRARY = FALSE were not working. (NOT INLIBRARY was, however.) This has been fixed.

d. A TM STATUS command could fault if there were no tape libraries active. This has been fixed.

e. A TM CONFIG OPER command (or just TM CONFIG) entered from an ODT where the TERM TRUNCATE option was false would get a string protect fault. This has been fixed.

f. The TM LOAD command did not properly support the SYNTAX qualifier, giving an error when the specified tape was not found. When SYNTAX has been set, the command should finish without looking for the tape. This has been fixed.

g. A change has been made to reduce the likelihood of the message "Greeting from out of order" when a large multi-host configuration is resynchronizing.

4. VTL support corrections

a. If TCPIP is not running when the VTLDRIVER attempts to connect to the VTL Agent a large amount of processor could be used and many messages could be generated trying to connect. The VTLDRIVER stack now pauses for at least 5 seconds between connection tries.

5. LibraryManager corrections

a. Under certain conditions the TAPELIBRARY support stack would accumulate memory that could grow to a very large amount until the software was brought down and restarted. This has been corrected.

6. GUI corrections

2. Fixed a problem where the user could not select a list value when creating an Adhoc Report with a Selection Spec (e.g. CreatingHost).

3. Fixed a problem where when using multiple display monitors GUI windows would appear unpredictably on one monitor or the other. Now the window will appear in the same location where the window or form was requested (e.g. Tape Information window in the Library Operations tab).

Release 9.069 (9.069.396)

Notes

1. All corrections documented through TM 8.068Q are included in the base release for TM 9.069. (See the latter part of this document.) If you are upgrading from a release prior to 8.068Q, you should review the changes made between your current release and 8.068Q as well as reviewing the changes made for 9.069.

2. The TapeManager database has had some changes made to it from the 8.068 version. The 8.068M and later releases will allow multi-host communication with 9.069 versions of TapeManager. For complete fallback

capability and multi-host support an install of TM 8.068M or later is recommended prior to installing TM 9.069.

Enhancements

2. TapeManager enhancements

a. TapeManager can now delink and relink to the Unisys TapeStack software by using the DISABLE STACKING and ENABLE STACKING commands.

b. The DEBUG command output will now show the complete file title where the TapeManager trace file may be found.

c. LTO-5 drives are now recognized and supported.

d. The install program will now attempt to turn off the MARC DIRECTIVE TM during installation of TapeManager if that directive has been set.

e. The CONFIGURE TAPE command has been enhanced to allow the defining of actions (commands) to be performed when certain EVENTS occur for that tape. The events that can be monitored are CREATE, UPDATE, PURGE, IMPORT, EXPORT, STACK, UNSTACK, ARCHIVE, and DISMOUNT.

f. The SCHEDULE command has been implemented to allow the automatic initiation of TapeManager commands based on a time schedule.

3. VTL support enhancements

a. A new COPY command has been implemented. The COPY command adds support for the VTL functions that copy tapes to/from physical tape and other VTLs.

   i. The COPY SN <bar code> TO BACKEND SN <bar code> command is used to copy a virtual tape to physical tape (VTL export).

   ii. The COPY SN <bar code> FROM BACKEND SN <bar code> command is used to copy a physical tape to a virtual tape (V TL import).

   iii. The COPY SN <bar code> TO VTL <name> is used to copy a virtual tape to another VTL system (VTL remote copy).

b. The current STACK commands and features have been enhanced to support VTL tape stacking as follows.

   iv. The CONFIGURE STACK command has a new option of METHOD to set the default method of tape stacking. A value of MCP uses the Unisys TapeStack system. A value of VTL uses the VTL stacking process.

   v. The CONFIGURE ENCRYPTION command has two additional options. The VTLKEY option designates the default name of the VTL key to be used when copying to or from a physical tape. The

PASSWORD option defines the default password used to access the VTLKEY at the VTL.

vi. The STACK and UNSTACK commands allow the options of MCP, VTL, VTLKEY, and PASSWORD to override the defaults set with the CONFIGURE commands.

vii. The DIRECTORY report has been enhanced to support VTL stacked tapes.

viii. The following stacking functions are not available when the stack METHOD is VTL: MERGE, DUPLICATE, REDIR, DELETE and SIZE.

c. Tapes may now be moved from the VTL virtual vault to a virtual library with the IMPORT SN command.

d. A physical library connected to the backend of a VTL may now be declared in the library configuration file with a CONNECTION of VTL. A backend library may be controlled and viewed in a similar manner to that of a directly connected library.

e. The CONFIGURE VTL command has been implemented to allow site control of VTL logging, performance monitoring, and disk storage monitoring.

f. DSI9253, DSI9303, and DSI9983 are recognized as valid VTL types.

4. LibraryManager enhancements

a. The IBM TS3500 (3584) tape library systems are now supported.

b. LTO5 is now recognized as a valid drive type.

5. FileManager enhancements

a. The FileManager has been enhanced to allow the backup output to go to an MCP container file rather than tape. The container file can then be transferred to other locations electronically. FileManager tracks and can restore files from these containers in a manner similar to that used with tape.

b. When a backup job completes (tape or wrap) FileManager will now look for a post-processing job (WFL) file and pass the tape or file name to that job. The job file title should be of the form (<FMusercode>)SYSTEM/FILEMANAGER/POSTPROCESS/<FM backup name> ON <FMfamily>. If the job file does not exist no post-processing is done. Post-processing can be used for additional local handling of the backup such as sending a wrapped backup to a remote site.

6. GUI enhancements

The GUI has been enhanced to support the TapeManager and FileManager enhancements described above along with the following new features.

a. Context sensitive help has been added for most of the GUI functions.

b. The host connection dialog has been enhanced to allow disconnecting from a host and reconnecting to a different host.

c. The name of the host currently connected to is displayed in the application banner.

d. Multiple Command windows (TapeManager or FileManager) may be opened at the same time.

e. Windows 7 (32 and 64 bit) are now supported.

f. The output displayed in the Command window may now be printed.

g. User defined database update forms (templates) may now be defined.

h. Ad hoc reports can be saved locally for future use.

i. Report windows now have a text search capability.

j. The library inventory display for virtual libraries will now show the Virtual Vault rather than the I/O door display.

k. Tape cartridges may now be moved within a library by using drag and drop on the library inventory display.

l. The underlying architecture was rewritten to be more efficient.

m. The GUI now logs application errors and other information in the Windows Event log.

Release 8.068Q (8.068.993)

Corrections

1. A TM PURGE WHERE that was followed by COMPRESSED failed set compression on the purged tapes. This has been fixed.
2. The GUIINTERFACE software did not get RESTRICTED=FALSE on an install. This has been fixed.
3. On the Modify tab of the Database Maintenance window the RETENTION field can now be set to Clear (remove all retention policy) or Apply Label Based Rules (apply rules based on tape label).
4. WARNING: For the INSTALL ALL IN command the name of the container file must be 17 characters or less.

Release 8.068P (8.068.986)

Corrections

1. If a library name had dashes in it some GUI functions did not display the correct information. This has been corrected.

2. An invalid index error could occur when a tape that was created on one system is used by another system. This is dependent on the length of the host names on each system. This has been fixed.
3. A TM PURGE WHERE could take a long time and tie up the database producing the message, "…did not get reply…". The system would not handle tape mounts for tasks during this period. A change has been made to reduce the dependency of the purge command on the database so that the purge command can proceed without tying up the main database path.
4. A selection containing the form "LABEL=XXX=1" would fail to find all instances of the label unless optimization were turned off. This has been fixed.
5. When two hosts are synchronizing such that their clocks are in different days, especially where one lies over the international dateline, synchronization would fail with a message to the effect that the clocks where more than five minutes different. This has been fixed.
6. When configuring remote hosts it was possible for the last host added to "disappear", especially if all hosts were recently removed. A change has been made so that the correct number of hosts will be shown at all times.
7. A tape that was added but not used could show invalid serial numbers in detail tape report under the VOLUME COPIES ON heading. This has been fixed.

Release 8.068O (8.068.978)

Corrections

1. The TM CONFIG TAPE command was not logging changes to the configuration as it should. This has been corrected.
2. A fault for Invalid Operator could occur on a report to a disk file where neither a user code nor "*" security was given for the file name. This has been corrected.
3. A TM EXPORT SLOT or TM PURGE SLOT command could fault for invalid index if it included a slot number greater than the number of slots in the library. This has been fixed.
4. In TM 8.068M and TM 8.068N an attempt to delete a VTV from a stacked volume that failed due to retention by VTV rule would cause any future tape request to hang in file open, necessitating a TapeManager restart. This has been fixed.
5. VTL Support was requesting a disk storage report more often than needed which could slow responses to other functions. This change could significantly speed up certain repetitive calls.

6. A change has been made to improve performance so the “did not get reply” message will not appear.
7. Previously a log message from TapeManager for a purged tape would cause a fault in FileManager. This has been fixed.

Release 8.068N (8.068.967)

Corrections

1. If the number of tape rules configured is greater than 57, a DIVIDEBYZERO fault could occur, preventing TapeManager from completing initialization. A change has been made to prevent this. A work-around is to remove the SYSTEM/TAPEMANAGER/TAPERULES file and re-enter or reload the tape rules configuration.

Release 8.068M (8.068.964)

Corrections

1. On TM 8.068 if the host name is twelve characters or longer, a fatal bounds error occurs on initialization rendering TapeManager unusable. This has been corrected.
2. Previously if a SCRATCHPOOL substitution were specified by tape rule, the correct SCRATCHPOOL would be assigned to the tape request but TapeManager would not load the request until it was given <mix#>OK by an operator. This has been fixed.
3. Previously if some database records had expanded into the continuation record, selecting (WHERE) for the content in that continuation would not work in ad hoc reports. For this to be the case, the tape would have to have a creating or last used job and/or task name that was unusually long. This has been corrected.
4. A timing hole related to TCPIP message handling in VTL support has been closed. The problem could occur on multi-processor systems.
5. The TM DB BACKUP command was not including the VTLSUPPORT file. This has been fixed.
6. Previously in TM 8.068 if no default rules were configured the last rule (alphabetically) became the default. This has been fixed.
7. A VTV DELETE (Invalidate) request could end up with no VTVs to delete if all the VTVs in the selection were not expired. This caused the request to fail but the user might not see the error as it happened in a secondary process. The DELETE command will now return an error to the caller if the request results in no VTVs being selected.
8. Previously tapes marked as manually expired were not counted for the purpose of determining generations. All other expired tape were counted, so

this has been changed for consistency. Now manually expired tapes are counted as generational members.

9. Previously when the 32nd macro was defined, an invalid index would occur. This has been fixed.
10. In TM 8.068 only a search for serial numbers using wildcards did not always return all proper matching records. This has been fixed.
11. Previously, if a report were directed to a disk file, an error for file "already exists" could occur if a similarly named file existed on the secondary family for the task running with the FAMILY task attribute set, or existed on either the primary or secondary family without a user code. A change has been made to only give this error if the file exists on the primary family and with the same security as a newly made file would have.
12. The Utility has been corrected to not require a "TM" to introduce a command from the action line.

Release 8.068L (8.068.947)

Corrections

1. Library Support could get a critical block exit fault if there was an offline library at the time. This has been fixed.
2. Some status requests would cause an erroneous error message to be displayed by GUIINTERFACE. This has been corrected.
3. TM CONFIG EMAIL SUPERVISOR NONE was giving an error. This has been corrected.
4. Library Manager might disconnect from the VTL Agent when enabling a library if the library had not been previously disabled. This has been corrected.
5. If a VTL library has been declared as having the VTL Agent but the Agent is not running, the VTL Driver stack for that library could consume large amounts of CPU constantly trying to open the port to the Agent. This has been corrected. The port open will only be tried every 30 seconds if a connection has never been seen.
6. On multi-processor systems the input event for the TCPIP port to the Agent could be caused before the entire message had accumulated in the read buffer. This caused messages to be displayed by the VTL Driver that the message size was wrong or did not have the correct key. This has been corrected.
7. Previously when a stacked volume was purged, TapeManager could take up to several minutes to delete the VTVs associated with that volume. Now such deletes should be done in a few seconds.

8. Previously an integer overflow fault could occur on reports detailing tape attributes. This is related to a rare condition caused by the tape having a lot of very long strings in those attributes, especially the mix and job names for creating and last used. This has been fixed.
9. Previously a TM DB REORG:TEST would hang on file "ODB2". This is not a problem without the TEST option. This has been fixed.
10. The REQUIRES LP BACKUP(MT) waiting entry was not being processed correctly in Passive/CSC mode. This has been corrected.
11. Previously it was possible for a TM DB BACKUP or REORGANIZE to lead to a DS of TapeManager by "initiate active task". This could only happen on multiple processor systems and very rarely. This has been fixed.

Enhancements

1. The following VTL models are now accepted as valid library types; DSI9253, DSI9303, DSI9983.
2. The TM DB REORGANIZE has been improved to do a better job of detecting errors in linked strings. Such things as LASTUSEDMIXNAME are potentially very long and so do not occupy a fixed part of the database record. Instead, these are allocated on an "as needed" basis. The improvement made relates primarily to cases where a lot of these linked strings are very long and spill over into the continuation area (DATA2). Checking for this condition (very rare) is now much more rigorous.

Release 8.068K (8.068.929)

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 (8.068.921)

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 VTLSUPPORT library with symptoms being an invalid index in one or more VTLDRIVER 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 GUIINTERFACE 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 bee 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/TAPELIBARY/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 bee 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 configures 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.