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## Contents

### OVERVIEW

LibraryManager .......................................................... 3
LabelManager ........................................................... 3
DriveManager ........................................................... 3

### TAPEMANAGER USAGE CONSIDERATIONS

Cartridge Tracking Considerations ...................................... 5
Cartridge Selection Process ................................................ 6
Multi-host Operation ........................................................ 7

### INSTALLING TAPEMANAGER

TapeManager Share Directory ............................................. 13
Optional LabelManager Installation ...................................... 13
MARC Installation .......................................................... 14
COMS Installation ........................................................ 14
Graphical User Interface Installation .................................... 15
Upgrading TapeManager Software ........................................ 16

### ACCESSING TAPEMANAGER

ODT Command Interface .................................................. 17
AX Command Interface .................................................... 17
DCKEYIN Interface ........................................................ 18
SEND TM Command Interface ........................................... 18
MARC Command Interface ................................................ 18
Utility Program Interface .................................................. 18
Graphical User Interface .................................................. 26

### USING ON-LINE HELP

.............................................................. 27
HELP Command .................................................................27
Utility Program Help ..........................................................28

TAPEMANAGER CONFIGURATION .........................................31
Convention Configuration ......................................................33
Database Configuration .......................................................35
Drive Configuration ............................................................37
E-Mail Configuration ...........................................................40
Library Configuration ..........................................................42
Location Configuration .........................................................44
Movement Configuration .....................................................46
Operations Configuration .....................................................49
Remote Hosts Configuration ................................................54
Report Configuration ..........................................................57
Retention Configuration .......................................................59
Retiring Configuration ........................................................63
Substitution Configuration ....................................................64
Security Configuration ........................................................66
Tape Configuration ..............................................................70
TERM Command .................................................................82
Tracking Configuration .........................................................84
VTL Configuration .............................................................87

TAPEMANAGER OPERATIONS ..............................................91
CLEAN Command .............................................................91
REPLACE Command ..........................................................93
COPY Command ...............................................................94
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridge Movement Report</td>
<td>173</td>
</tr>
<tr>
<td>Ad Hoc Reports</td>
<td>174</td>
</tr>
<tr>
<td>STATUS Command</td>
<td>178</td>
</tr>
<tr>
<td>FIND Command</td>
<td>181</td>
</tr>
<tr>
<td>VERSION Command</td>
<td>184</td>
</tr>
<tr>
<td>TAPE MOVEMENT</td>
<td>185</td>
</tr>
<tr>
<td>TAPE STACKING &amp; ENCRYPTING</td>
<td>189</td>
</tr>
<tr>
<td>TAPE DATABASE MAINTENANCE</td>
<td>213</td>
</tr>
<tr>
<td>ADD Command</td>
<td>213</td>
</tr>
<tr>
<td>DELETE Command</td>
<td>214</td>
</tr>
<tr>
<td>MODIFY Command</td>
<td>216</td>
</tr>
<tr>
<td>TAPEMANAGER MACROS</td>
<td>219</td>
</tr>
<tr>
<td>BATCH MODE EXECUTION</td>
<td>227</td>
</tr>
<tr>
<td>DIAGNOSTIC COMMANDS</td>
<td>231</td>
</tr>
<tr>
<td>LOG Command</td>
<td>231</td>
</tr>
<tr>
<td>DEBUG Command</td>
<td>232</td>
</tr>
<tr>
<td>TRACE Command</td>
<td>237</td>
</tr>
<tr>
<td>RESCUE Command</td>
<td>238</td>
</tr>
<tr>
<td>ABORT Command</td>
<td>239</td>
</tr>
<tr>
<td>COMMON SYNTAX ELEMENTS</td>
<td>241</td>
</tr>
<tr>
<td>TAPE DATABASE FIELDS</td>
<td>245</td>
</tr>
<tr>
<td>SAMPLE REPORTS</td>
<td>257</td>
</tr>
<tr>
<td>PROGRAMMATIC INTERFACES</td>
<td>265</td>
</tr>
<tr>
<td>MIGRATING FROM OTHER TAPE MANAGEMENT SYSTEMS</td>
<td>269</td>
</tr>
</tbody>
</table>
TapeManager from Dynamic Solutions International (DSI), is designed to be an integral component for A Series users who use cartridge (tape or optical) systems. TapeManager works with all cartridge types available on Unisys MCP systems. TapeManager can also be used with high capacity high performance cartridge library systems. TapeManager, being a free-standing manager of cartridge usage, works in conjunction with the MCP. TapeManager commands are entered through the console in the same manner as other system commands. There is no need to look up job or mix numbers. TapeManager also includes a utility program that follows the standard A Series (MARC) presentation with menus and forms, aided by on-line help for all forms and menu items.

The help system has been implemented in such a way that virtually this entire manual is available on-line. Both short and long help are implemented following the A Series standard. Additional help is also available for error and warning messages that are displayed. A "hyper-text" like capability is implemented by allowing users to request help for unknown items while in help mode by SPCFYing on the item.

Features

- The TapeManager database is updated in real-time as cartridge activity occurs.
- Operator console (ODT) command and response (no AX or SM)
- On-line help available at the operator console (ODT)
- Commands may also be input through MARC, DCKEYIN, batch and REMOTESPO.
Overview

- Selective cartridge tracking is based on pattern or number.
- Data protection is through PG and SN verification.
- Reports are provided either in hardcopy and/or through the operator console (ODT).
- Extensive searching capabilities locate cartridges.
- Searches on strings can use "wildcards".
- Tape movement tracking
- Tape drive usage tracking
- Customization of each site's requirements is provided.
- Logging and reporting of exception activity is standard.
- The command interface provides for quick and easy entry of all functions.
- No patches to MCP or other software.

Requirements

- 47.1 MCP release or later required.
- MT or ET equivalent terminal for utility program.

Active vs. Passive Mode

The TapeManager system can operate in one of two modes; active or passive. Active mode is the default mode of operation. When configured for active mode operation, the TapeManager is assigned to the MCP TAPEMANAGER interface via the SL command. This allows the TapeManager to be called directly by the MCP for all tape actions.

Passive mode is used when another program (usually another tape management system) is assigned to the MCP TAPEMANAGER interface. In this situation the TapeManager software acts as an interface to the LibraryManager system for the other tape management software. In passive mode TapeManager monitors the MCP Waiting Entries for tape actions needing service.

The Install program will automatically determine if another program has been SLed as the active TAPEMANAGER and will install in passive mode. The STATUS TAPEMANAGER command can be used to determine the mode that TapeManager is operating in.

CSC Mode

The TapeManager can also operate in a variation of passive mode called Passive/CSC mode. CSC mode is activated when the TapeManager software is called by another Tape Management system (such as B&L Lib) using the CSC library interface. When in CSC mode the TapeManager software does not make any tape selection decisions, but responds to requests from the CSC interface.
LibraryManager
Cartridge Library Support from Dynamic Solutions International (DSI), is designed to be an integral component for A Series users who use automated cartridge library systems. Cartridge Library Support provides a standard interface for tape managers and user programs to interrogate and control automated cartridge libraries. Cartridge Library Support allows accessing software to be written such that the characteristics of each library type need not be programmed. Cartridge Library Support works in conjunction with the DSI Controller for Cartridge Libraries.

For more detailed information about LibraryManager, please refer to the Cartridge Library Installation Guide for Unisys MCP Systems.

LabelManager
The LabelManager interface is provided for those sites that need printed labels to be placed on the cartridge. The LabelManager interface requires a user written program to print the label when requested by the TapeManager. The LabelManager is fully integrated with the LibraryManager such that labels for cartridges within an automated library will not be printed until they are ejected from the library.

DriveManager
The DriveManager module tracks information about tape drive usage. Depending on the drive type the DriveManager is able to track the number of loads, the number of Ios, the serial number, and the actual model type of the drive.
Chapter 2
TapeManager Usage Considerations

Cartridge Tracking Considerations

Cartridge tracking is the TapeManager activity of collecting information about the various cartridges seen on the system(s) where TapeManager is operating. TapeManager tracks cartridges by their serial number. It is therefore critical that each cartridge be SNed with a unique serial number. Where cartridge libraries are used, TapeManager enforces that the serial number (SN) of the cartridge matches its barcode.

How TapeManager Decides To Track a Cartridge

When a cartridge is seen by TapeManager, it determines if the information about that cartridge should be tracked based on the following process. (Note: a cartridge is “seen” by TapeManager when an activity on the system causes the MCP to generate a log record associated with that cartridge (serial number)).

1. When a cartridge serial number is seen in a log record, TapeManager attempts to look that serial number up in the database. If the record is found, the database is updated as needed.
2. If the tape record is not found, then the value of the UNKNOWN TAPE configuration option is checked. If the UNKNOWN TAPE option is AUTO, then the value of the TRACKING configuration option is checked. Otherwise the cartridge is ignored.
3. The cartridge is then checked against the current value of the CONFIGURE TRACKING option to determine if it should be added to the database. If the cartridge meets the tracking criteria, it is added to the database and tracked from then on.

Once a cartridge serial number is in the database, it will continue to be tracked even if the TRACKING option is changed. This aspect allows for exceptions (tapes that don’t meet any tracking rule) to be placed in the database with the ADD command. It also means that cartridges that are not to be tracked any longer, need to be removed from the database with the DELETE command.

Commands Affecting Cartridge Tracking

The following configuration options and commands should be reviewed as these settings and commands will affect which cartridges are tracked.

1. CONFIGURE TRACKING
2. CONFIGURE OPERATIONS UNKNOWN TAPE
3. CONFIGURE OPERATIONS MISMATCH LABEL
Cartridge Selection Process

Cartridge selection is the process where TapeManager decides which data cartridge will be used to satisfy a program’s tape request. The following paragraphs describe the process that TapeManager uses to select a data cartridge for use. This process does not apply when TapeManager is operating in CSC mode. In CSC mode, it is the responsibility of the calling Tape Management System to select the data cartridge to be used.

Output (scratch) tape selection

When a process requests an output tape the following steps are used to select a particular cartridge for use.

1. If the process has set SERIALNO to a value, the cartridge referenced by that serial number is used. No other selection is done.
2. Tapes that are currently mounted and ready to the system are checked. If a scratch tape with a matching SCRATCHPOOL is mounted, it will be used. If an expired tape is mounted that has a matching scratch pool and Auto Purge is set, it will be purged and used.
3. If one or more tape libraries are active, the tapes within the library(s) are searched for a scratch tape with a matching SCRATCHPOOL.
4. If Auto Purge is set and one or more tape libraries are active, the tapes within the library(s) are searched for an expired tape with a matching SCRATCHPOOL. If a tape is found, it is purged and used.
5. The entire database is searched for a scratch tape with a matching SCRATCHPOOL.

For every process that is waiting for an output tape, this search is repeated every 2 minutes until a tape is selected for the process, a tape is manually given the task (say by the operator), or the task is discontinued.

Input tape selection

When a process requests an input tape the following steps are used to select a particular cartridge for use.

1. If the process has set SERIALNO to a value (other than the special GETGnn), the cartridge referenced by that serial number is used. No other selection is done.
2. The tape database is searched for a tape that matches the FILENAME (TITLE) of the tape request. If the CYCLE, VERSION, FILESECTION, or usercode have been specified for the input tape, these items must also match. If more than 1 tape in the
database matches these criteria, then if a specific generation was requested (see Migrating From Other Tape Management Systems), the tape of the requested generation is selected, otherwise the most current generation is selected if the Duplicate Volume option is set to Recent.

3. If there are no tapes with matching labels in the database, then the Retention rules are searched for a rule that matches the requested FILENAME. If a rule is found and it has a MATCH parameter that is the same as the length of the requested FILENAME, the database is searched for all tapes in that generational set as defined by the Retention rule. A tape is then selected based on usercode and generation (if any) as above. If the label of the selected tape does not match the requested FILENAME, TapeManager will FA (file equate) the FILENAME of the waiting entry to the label of the selected tape.

As with output tapes, for every process that is waiting for an input tape, this search is repeated every 2 minutes until a tape is selected for the process, a tape is manually given the task (say by the operator), or the task is discontinued.

Commands Affecting the Selection Process

The following configuration options should be reviewed as these settings will affect the selection process.

1. CONFIGURE OPERATIONS DUPLICATE VOLUME
2. CONFIGURE OPERATIONS USERCODE SELECTION
3. CONFIGURE OPERATIONS SCRATCHPOOL REQUIRED
4. CONFIGURE OPERATIONS AUTO PURGE

Multi-host Operation

TapeManager has the ability to coordinate its activities among a number of MCP hosts. All TapeManager hosts that communicate with each other form a TapeManager cluster. Each host in the cluster has a complete copy of the TapeManager software installed. Each host in the cluster is a peer to all other hosts in the cluster (peer-to-peer). There is no master host in a TapeManager cluster. Each host maintains a complete copy of the TapeManager tape database. Therefore a failure of any given host due to hardware or software will not affect operations at another host in the cluster.

Multi-host Database Operations

In a multi-host environment, any time a host does a tape database update, that update is broadcast to all other hosts configured in the cluster. Each time the database is updated, that record is given a timestamp to show when the update occurred. Each host remembers the timestamp of the last database update seen from each host. Each tape
record in the database is “owned” by a particular host. A tape database record may only be updated by the owning host. A non-owning host may request that the owning host transfer record ownership to it.

Multi-host Recovery

If any host in the cluster stops communicating with the rest of the cluster, the remaining hosts in the cluster continue as before with the exception that they may acquire ownership of the missing host’s records without requiring the missing host’s permission. When a missing host reconnects to the cluster, the hosts exchange the timestamps of the last update seen from each of the hosts. Each host then compares the received timestamp with its database and sends any updates that have occurred since that timestamp to the newly connected host. A host that is being added to the cluster will have a null timestamp for the other hosts and therefore will be sent all records in the database.

Multi-host Configuration

All hosts in a TapeManager cluster must be configured to each of the other hosts in the cluster. For example, if there are 4 hosts in a cluster, each host must configure the other 3 hosts in the cluster using the CONFIGURE HOST + command. Each host must be directly visible to all other hosts in the cluster. Individual TapeManager hosts do not pass on information received from other hosts.

Connection between hosts in a cluster may be made by using either the BNA or TCPIP communication protocols. Both types of communication may be used within a cluster, but the protocol used between correspondent end points must be the same. In other words, for any given pair of hosts, the configured communication protocol must be the same.

Difference with DISABLE/ENABLE HOST and CONFIGURE HOST -/+ 

Disabling a host breaks the communication link between the local host and the host specified in the DISABLE command. All information about the disabled host is retained, including the timestamp of the last database update. When the host is enabled, normal multi-host recovery is done as described above.

Removing a host from a local host’s configuration (CONFIGURE HOST -) causes the local host to forget all information about that host. This includes the host’s last update timestamp. Should the host be added into the configuration again (CONFIGURE HOST +) it will be as if the host has never been seen before and the entire database will be exchanged. Therefore, if a host needs to be disconnected from the TapeManager cluster, but will be re-connected later, use the DISABLE/ENABLE HOST commands rather than the CONFIGURE HOST -/+ commands.

Commands Affecting Multi-host Operation

The following configuration options and commands should be reviewed as these settings will affect the multi-host operation.
1. CONFIGURE HOST
2. ENABLE HOST
3. DISABLE HOST
Chapter 3
Installing TapeManager

Installation starts by copying the files from the release tape to an A Series pack family. All the files must be copied from the release tape to the same pack family. If the files are loaded under a usercode, all files must be under the same usercode.

Once the files have been copied to the pack, the installation continues by running the SYSTEM/TAPEMANAGER/INSTALL program. This program will do the various SL and other system commands to setup the TapeManager system. The TapeManager system is now ready to execute. Optionally follow the MARC and COMS installation procedures described below.

The following files are supplied with the TapeManager system:

SYSTEM/TAPEMANAGER/SUPPORT

This file is a library that is the core module of the TapeManager system. It must be available at all times. The library should be active whenever there is the possibility of tape activity. This library must be SLed as TAPEMANAGER with the library attribute of ONEONLY.

Example: SL TAPEMANAGER = SYSTEM/TAPEMANAGER/SUPPORT:ONEONLY. The library code file is supplied with the CONTROL, PU, LOCKED, SECADMIN, TASKING, and IDENTITY MP commands applied to it. (The library must be MP+ PU at a minimum.)

SYSTEM/TAPEMANAGER/UTILITY

This program provides a menu and form interface to the TapeManager system. It may be renamed to something more convenient like OBJECT/TMU if desired. A name of OBJECT/TMU will allow the utility to be executed from CANDE with a simple R TMU command. Access to this program should be restricted as in the current version any user of the utility can update the TapeManager database.

SYSTEM/TAPEMANAGER/GUIINTERFACE

This program acts as the interface to the TapeManager Graphical User Interface (GUI). A copy of this program is executed for each user using the GUI. The TapeManager install program declares 2 named pipes (TMGUI and TMGUI_DUPLEX) which when connected to by the PC based GUI will automatically start a copy of the GUI interface program for that user. The TMGUI and TMGUI_DUPLEX pipes are automatically created by the TapeManager Installation program.
Installing TapeManager

SYSTEM/TAPEMANAGER/INSTALL

This program issues the various system commands to install the TapeManager software. This program is also run when installing an update of the TapeManager software. If the LibraryManager software for automated tape library systems has also been licensed, this program will install those software modules as well.

SYSTEM/DSISUPPORT

This file is a support library used by the TapeManager system and other products available from DSI. This library contains common procedures used by these softwares. This library must be SLed as DSISUPPORT with the library attributes of ONEONLY and TRUSTED.

Example: SL DSISUPPORT = SYSTEM/DSISUPPORT: TRUSTED, ONEONLY. The library code file is supplied with the CONTROL, PU, LOCKED, and IDENTITY MP commands applied to it. (The library must be MP+ PU at a minimum.)

BOOK/TAPEMANAGER/ENGLISH

This file contains the help text used by the TapeManager system. This file can be removed if the on-line help features will not be used.

Note: All the above files are supplied as system files (non-usercoded) with a security of PUBLIC. The security must be changed if access to the system is to be restricted.

Note: If the LibraryManager software for automated tape library systems was also licensed, these files will be included on the same tape or CD. The installation and description of these files is found in the DSI A Series LibraryManager Installation and Programming Guide.

The following files will be created the first time the TapeManager system is activated. These files comprise the TapeManager database:

SYSTEM/TAPEMANAGER/CONTROL
SYSTEM/TAPEMANAGER/DATA
SYSTEM/TAPEMANAGER/DATA/SNINDEX
SYSTEM/TAPEMANAGER/DATA/LABELINDEX
SYSTEM/TAPEMANAGER/DATA/TSINDEX
SYSTEM/TAPEMANAGER/DATA/USINDEX
SYSTEM/TAPEMANAGER/DATA/BCINDEX
SYSTEM/TAPEMANAGER/DATA/IDINDEX
Installing TapeManager

Note: Some of the files require the KEYEDIOII software to be installed before they may be accessed.

Note: Some of the above files may or may not exist depending on configuration options. Other files may also be created in the course of TapeManager usage.

TapeManager Share Directory

During installation, the TapeManager Install program will create an NXSERVICES share called TAPEMANAGER (on systems supporting NXSERVICES). This share will point to the DOCUMENTATION and FIRMWARE/LIBRARYCONTROLLER directories which contain PC type files. The DOCUMENTATION directory contains the most current product manuals and release notes. The FIRMWARE/LIBRARYCONTROLLER directory contains the most current DSI Library Controller firmware and installation instructions. Use the MS Windows Map Network Drive function to access these files from a PC.

The directories, as seen by the MCP, are installed on the same family and useridcode as the other TapeManager files with the following names.

TAPEMANAGER/DOCUMENTATION/=
TAPEMANAGER/ FIRMWARE/LIBRARYCONTROLLER/= 

Optional LabelManager Installation

Sites requiring printed labels to be placed on each cartridge can install the optional LabelManager interface. The LabelManager interface requires a user written program that is called by the TapeManager each time a label is to be generated. The programming interface used to write a LabelManager interface program is described in Appendix D of this manual.

Attaching the user program to the LabelManager interface is done by using the SL operator command to equate the program to the LABELMANAGER function. Example: SL LABELMANAGER = OBJECT/TAPE/LABELER ON PACK. TapeManager will attempt to link to this function each time it is executed. If TapeManager is already running when the program is completed, use the TM LABEL :RESUME command to activate the LabelManager interface. See the LABEL command in the TapeManager Operations section for additional information on the LabelManager interface.
Installing TapeManager

Note: Some media cartridges such as DLT and MO should never have labels affixed directly to the media. For these kinds of media, attach the label to the case the media is stored in.

MARC Installation
For the TapeManager command interface to be available through MARC, the following command must be entered at a MARC screen:

DIRECTIVE + TM = <usercode>SYSTEM/DSISUPPORT ON <familyname>::SYSTEM

Example: DIRECTIVE + TM = (USER)SYSTEM/DSISUPPORT ON PACK:SYSTEM

The <usercode> and <familyname> specification must be the usercode and family where the TapeManager software is installed. The :SYSTEM syntax restricts the use of TapeManager commands to those users with SYSTEMUSER privileges. This option may be dropped or changed depending on the sites' security requirements. (See the A Series Menu-Assisted Resource Control (MARC) Operations Guide.)

Note: The MARC Directive interface is not protected against program faults and operator actions as are some MCP interfaces. While TapeManager attempts to protect the interface, it can not do so in all cases, such as an operator DS of the TapeManager library. These kinds of faults/actions may lead to the DSing or hanging of the MARC processes which could lead to the loss of control of COMS until COMS is restarted.

COMS Installation
The TapeManager Utility may be installed as a COMS window. The utility should be installed as a single user remote file program. (See the A Series Communications Management System (COMS) Configuration Guide.) This is accomplished by creating a COMS WINDOW entity and a COMS PROGRAM entity.

First log onto MARC with a COMSCONTROL usercode and initiate the COMS COMSUTILITY Program by entering ON UTILITY in the MARC Action line.

Select “P” to go to the PROGRAM ACTIVITY screen to create the PROGRAM entity, and enter the following values as necessary:

Action: CREATE
Program Name: TMUTILITY
Title: (uc)SYSTEM/TAPEMANAGER/UTILITY ON <pack name>
Usercode: . (for SECURE command to function correctly must be.)
Remote-File Interface: Y
Remote Users: 1

Transmit this screen, and the message “TMUTILITY created” should be displayed on the left-side of line 24.
Enter GO W in the Action field and transmit, to go to the WINDOW ACTIVITY screen to create the WINDOW entity, and enter the following values:

Action: CREATE
Window Name: TMUTILITY
Window Type: R

Transmit this screen and the WINDOW ACTIVITY screen will be redisplayed with a new field at the bottom, enter the following:

Remote-File Program: TMUTILITY

Transmit this screen and the message “TMUTILITY created” should be displayed on the left-side of line 24.

At this point your users will be able to enter ON TMUTILITY on a MARC screen.

**Graphical User Interface Installation**

The TapeManager Graphical User Interface (GUI) is an optional component that can be installed at a user workstation. The GUI is a Microsoft Windows based application. The GUI can be installed by executing the GUI_SETUP.EXE program which can be found in the TAPEMANAGER share described previously.

An MCP host component of the GUI, SYSTEM/TAPEMANAGER/GUIINTERFACE, is installed during the normal TapeManager installation. A copy of the GUIInterface is started for each workstation that executes the GUI.
Upgrading TapeManager Software

The TapeManager software will periodically need to be upgraded as enhancements and corrections become available. (The following instructions are for Active Mode installations only.)

1. Backup all TapeManager programs and data files to tape or another disk family. The TM DB BACKUP command may be used for this.

2. Mount the software release CD in a system CDROM drive unit.

3. From a TapeManager Utility or TMRemoteSPO session enter TM INSTALL ALL. (See INSTALL Command pg. 108) A copy of files from the software release CD will start, then the SYSTEM/TAPEMANAGER/INSTALL program will run and issue a number of system commands to install the updated TapeManager software. TapeManager will shut down automatically.

4. All TapeManager Utility and TMRemoteSPO sessions must be ended to complete the install. If MARC access to the TapeManager has been provided then enter the following from the command line of a MARC session: DIRECTIVE - TM to delink the old software.

5. The install program will automatically restart the updated TapeManager. To manually activate the updated TapeManager system, issue the following command at the operator’s console (ODT) or TMRemoteSPO session: SEND TM START.

6. If MARC access to the TapeManager is to be provided, then enter the following commands from the command line of a MARC session: DIRECTIVE + TM = <usercode>SYSTEM/DSISUPPORT ON <pack family>:SYSTEM

The :SYSTEM option may be omitted if the TM command is to be used by all users.

7. Finally, verify that the TapeManager is active and communicating by entering a command at the console such as TM STATUS. You will see the message UNRECOGNIZED REQUEST (which is normal due to the way the TapeManager gets console messages) followed by a response by the TapeManager to the console.

The TapeManager update has now been completed.

If there has been an update to the TapeManager Graphical User Interface (GUI), each workstation will need to install the update manually.
Access to the TapeManager system is provided via multiple interfaces.

**ODT Command Interface**

TapeManager may be accessed from the system console (ODT) in the same way as other system facilities such as the PrintS software. Commands to TapeManager may be entered by sending TM followed by a TapeManager command. For example, you would enter `TM FIND SN 100201`. For these commands entered at the console, TapeManager will respond directly back to that console just as a normal system response.

TapeManager may also be accessed from a REMOTESPO session. However, there is currently no mechanism in the A Series to respond to the REMOTESPO session. For commands received from a REMOTESPO session, TapeManager will respond using the DISPLAY mechanism so that the response will show up in the ODT MSG display.

*Note:* When entering a TapeManager command from an ODT or REMOTESPO session the system will respond with “UNRECOGNIZED REQUEST SCANNING TM”. The TapeManager will respond correctly despite this message. This message can be suppressed for ODT input by using the `TM CONFIG SUPPRESS = TRUE` command.

The TapeManager release media includes a source file for an example of a REMOTESPO program that also processes TM commands. You are welcome to use this source file, but it is not supported by DSI. The REMOTESPO program may be setup in MARC as a window by following the steps similar to the ones outlined in COMS Installation in the previous chapter.

*Note:* The MCP limits the number of characters that can be input via the ODT or REMOTESPO to approximately 110 characters for the ODT and 100 characters for a REMOTESPO. The actual number of characters allowed will vary depending on unit or station number.

**AX Command Interface**

Commands to TapeManager may also be passed via the AX ODT command. The AX command must be used with the mix number of the TapeManager active entry. For example, you must use `<mix>`AX TM LAST. When the AX command is used, TapeManager will respond via the display mechanism so that the response will appear in the MSG list.

*Note:* The MCP limits the number of characters that can be input via the AX command to 960 characters.
DCKEYIN Interface

Commands may also be received by the TapeManager sent by a program using the DCKEYIN intrinsic. Commands received via DCKEYIN will be responded to with the display mechanism.

Note: The MCP limits the number of characters that can be input via DCKEYIN to 104 characters.

SEND TM Command Interface

The SEND TM <text> ODT command is supported as a means of sending commands to TapeManager. Commands received via SEND TM will be responded to with the display mechanism. Since SEND TM STATUS is a valid MCP command, an abbreviation of STATUS must be used in order to execute TapeManager STATUS commands. Ex: SEND TM STAT LIBRARY DLTLIB.

MARC Command Interface

If MARC is configured as in the previous section, the TM commands may be entered on the action line of any MARC screen. Responses to these commands will be displayed by MARC in the same way as responses to other system commands.

Utility Program Interface

The TapeManager utility program can also be used to access the TapeManager system. The utility uses menus and forms that follow the MARC standard. These menus and forms build commands that are passed to TapeManager. The utility can be useful for complex or rarely used commands.

In the utility, TapeManager commands may also be entered on the action line in the same way as MARC. If the command is too large to fit on the action line, the COMND form is available for long commands.

Responses to commands, whether from a form or the action line, are returned to an OUTPUT form similar to that in MARC. If the response is two lines or less, the response is displayed in the message area (lines 23 and 24) of the form or menu.

Screen Layout

The TapeManager utility consists of a set of forms and menus. The forms and menus have a basic layout as follows:

- The first line of each screen is the title line. It contains the screen name, screen title, current time, and product identifier.

- The second line of each screen is the action line. The action line allows for menu and form traversal and the entry of commands without using forms or menus.

- The third line is the action prompt line. The action prompt line displays the actions that are currently valid for entry in the action line field.
- Lines 4 through 22 contain selections and fields that are specific to the various menus and forms.

- Lines 23 and 24 are the message area. Errors, warnings, and informational messages are displayed here. This area is also used for the display of short help.

- The 25th line is the status line. The utility will place status information in this area, such as the current setting of the find target.
Using Menus

Menus provide a list of possible selections to be performed at this point in the utility. Selections are made up of an identifier and a descriptive string. To choose a selection, type the identifier in the Choice field.

In the above example, the user has specified the **OPER** selection. The user need only enter as many characters of the selection identifier that will differentiate it from the other selection in the menu. In this example, **O** would be sufficient since there are no other selections that start with the letter **O**.
Using Forms

Forms have the same basic layout as menus except the menu selections and choice field are replaced by data entry fields. The fields will vary from form to form.

Viewing On-line Reports

Some commands and forms generate reports when executed. The OUTPUT form displays the report for viewing.

The OUTPUT form displays the report generated by commands and forms that are not sent to the printer. The report may be scrolled forward and backward by using the + and - actions. The current report is retained and can be reviewed until another report overwrites it.
Accessing TapeManager

Report Traversal Actions

+  

Syntax

```
+ <integer> P
```

Explanation

The + action moves the display forward. A + without parameters moves the display forward one page. The <integer> parameter moves the display forward the specified number of lines or pages when the P specifier is used.

-  

Syntax

```
- <integer> P
```

Explanation

The - action moves the display backward. A - without parameters moves the display backward one page. The <integer> parameter moves the display backward the specified number of lines or pages when the P specifier is used.
Form/Menu Traversal Actions

HOME

Syntax

- HOME

Explanation

The HOME action returns the user to the main menu.

GO

Syntax

- GO <screen name>

Explanation

The GO action takes the user to the specified screen. If GO is entered without a screen name, a menu of screen names is presented.

PARENT

Syntax

- PARENT

Explanation

The PARENT action displays the menu that leads to the screen on which the action was entered.
Accessing TapeManager

PREVIOUS

Syntax

\[ \text{PREV} \]

Explanation

The PREVious action returns the user to the last screen displayed. The utility retains the last 16 screens.

RETURN

Syntax

\[ \text{RETURN} \]

Explanation

The RETURN action returns the user to the screen that generated the command to enter the current screen.

COMND

Syntax

\[ \text{COMND} \]

Explanation

The COMND action causes the utility to display the COMND form. The COMND form is used to enter freeform TapeManager commands that are too long for the action line.
BYE

Syntax

    -- BYe --|

Explanation

The BYE action causes the utility session to end. The TapeManager system will continue to execute. Do not confuse this with the QUIT command which will terminate the TapeManager system.
Graphical User Interface

An optional Graphical User Interface (GUI) is available for accessing TapeManager functions. The GUI is installed on individual workstations. The GUI allows access to TapeManager functions using menus and forms similar to other Windows based applications. There are also additional features not available via the TapeManager Utility or command interfaces.

The initial form requests the name or IP address of an MCP host where TapeManager is installed. Depending on the security setting of the host a user code and password may be required.
Chapter 5
Using On-line Help

The TapeManager includes a complete on-line help system. The help is available from the operator console (ODT), from MARC, and from the Utility program.

HELP Command
The HELP command causes the TapeManager to display help information on the requested subject. HELP and TEACH are synonyms. A command that consists of only a TM will produce a list of the available commands.

Syntax

```
HELP <keyword> : -- PRINTER
```

<keyword>

```
<simple keyword>
<composite keyword>
<metatoken keyword>
```

Explanation

HELP

The HELP command without a keyword will produce a list of the commands available with the TapeManager system. This is the same as the TM HELP COMMANDS entry.

HELP <keyword>

Causes the utility to enter teach mode and display the information associated with the keyword. A simple keyword is an identifier containing only letters, digits, and the dash (-) character. A composite keyword is a string of characters including spaces delimited by the asterisk (*) character. A metatoken keyword is a string of characters including spaces delimited by the less than (<) and greater than (> ) characters.

: PRINTER

Using the PRINTER modifier causes the entire section of the help subject to be sent to the printer. The print attributes defined in the CONFIGURE REPORT command are applied to the help printout. To print a list of the commands enter: TM HELP COMMANDS :PRINTER.
Utility Program Help

The TapeManager utility has complete on-line help to guide the user. Each menu and form have two types of help. Short help provides a quick prompt as to what is expected in a field or what a menu selection does. Long help provides a more in depth discussion of the field or selection.

Short Help

Short help is accessed by placing the cursor on a menu selection or in a form field and pressing the Specify (SPCFY) key. The short help information will appear on lines 23 and 24 of the form or menu.

In this example, the cursor was placed in the "Action" field and the SPCFY key was pressed.
Long Help

Long help is accessed by pressing the SPCFY key a second time while displaying the short help for a field or menu selection. Long help provides a complete description of the field or selection. The user can browse freely forward and backward in the description by using the "+" and "-" actions. Long help is also referred to as teach mode.

The following actions are available when using long help:

- The RETURN action exits teach mode and redisplay the menu or form from which teach mode was called.
- The PREV action allows the help subsystem to redisplay the previous help subject. The help subsystem remembers the last 12 help subjects for a utility session.
- The KEYS action displays a list of all the keywords used in the help book. Placing the cursor on a keyword and pressing SPCFY or entering the keyword on the action line will display the subject associated with that keyword.
- The TOPICS action displays a list of all the topics in the help book.
- The FORWRD action displays the next topic in the help book from the currently displayed topic.
Using On-line Help

- The BACK action displays the previous topic in the help book from the currently displayed topic.

- The + and - actions allow the user to scroll through the help text. A + or - without parameters scroll the help text forward or backward one page. A + or - followed by a number scrolls the help text the specified number of lines. A 'P' following the number will scroll the help text the number of pages.

Additional Help

Short and long help are also available for the form or menu by placing the cursor on the form or menu title and pressing SPCFY.

Additional information is also available for most messages displayed by the utility. When a message is displayed in the 23rd and 24th lines of a form or menu (the message area), placing the cursor in the message area and pressing the SPCFY key will display any additional information. This help is always displayed as long help.
Chapter 6
TapeManager Configuration

The CONFIGURE commands allow the TapeManager to be adjusted for individual site needs and preferences. Some operations require that a configuration option be defined before they can be processed.

Syntax

```
TM -- CONFIGure
     - <cleaning configuration>
     - <convention configuration>
     - <database configuration>
     - <drive configuration>
     - <library configuration>
     - <location configuration>
     - <operations configuration>
     - <remote host configuration>
     - <report configuration>
     - <retention configuration>
     - <retiring configuration>
     - <movement configuration>
     - <tracking configuration>
     - <VTL configuration>
     : PRINTer
     FILE <title spec>

```

Explanation

CONFIGURE
The CONFIGURE command without any options causes a listing of all configuration options to be displayed.

CONFIG :PRINTER
The CONFIGURE command with the PRINTER option causes a printer listing to be created that contains all of the current TapeManager configuration. The default printer attributes defined with the CONFIGURE REPORT command are applied to this report.

CONFIG :FILE
The CONFIGURE command with the FILE option causes a file to be created that contains the current TapeManager configuration in text format. This file may be used as input to the TapeManager Utility in batch mode. The name of the file created will be SYSTEM/TAPEMANAGER/CONFIGURATION under the same usercode (if any) and on the same pack family on which TapeManager is currently running. If the file already
exists, TapeManager will display an error and not overwrite the existing file.

**CONFIGURE :FILE SAVED/TAPEMANAGER/CONFIGURATION**

This option of the CONFIGURE :FILE command allows the configuration information to be placed in a file with a user specified name. The file must not already exist.
Convention Configuration

The CONFIGURE CONVENTION command specifies the format to be used when specifying or reporting date and time values. Selecting a format will cause TapeManager to use that format for all command input and output presentation.

Syntax

TM CONFIGure CONVENTion <date format spec> <time format spec>

<date format spec>

DATE FORMAT = DD.MM.YY

<time format spec>

TIME FORMAT = HH:MM:SS

Explanation

CONFIGURE CONVENTION DATE FORMAT = DD.MM.YY

The DATE option specifies the format to be used when processing date values. For command input, this command specifies the format that is expected in any command where a date is required. For output, this command specifies the format that will be used in output displays and printed reports. The FORMAT syntax is provided for readability.

CONFIGURE CONVENTION TIME = HH:MM:SS

The TIME option specifies the format to be used when processing time values. For command input, this command specifies the format that is expected in any command where a time value is required. For output, this command specifies the format that will
be used in output displays and printed reports. When a time format that includes the seconds part is configured, the seconds values are only displayed where determined to be relevant. On command input, the seconds value may always be optionally specified regardless of the time format option. The FORMAT syntax is provided for readability.

---

**Year 2000 Considerations**

The TapeManager and related software modules are Year 2000 compliant. All date related fields within the TapeManager database have always contained century information since the product’s introduction.

The above convention specification allows a site to determine when (or if) the input and reporting features of the TapeManager require 4 digit values for year specification. While not required, it is recommended that by the year 2000 the TapeManager be configured for 4 digit years to eliminate any user confusion.

When 2 digit years are configured, the TapeManager must determine which century the year refers to. TapeManager will use the century 1900 for any 2 digit years between 70 and 99 inclusive, otherwise the century 2000 is assumed.
Database Configuration

The CONFIGURE DATABASE command specifies the option settings to be used with the TapeManager database.

Syntax

```
TM CONFIGure DATABASE <database options>
<database options>
FILE WAIT = CLOSE
AUDIT = <boolean>
RECOVER FROM LOG = <boolean>
```

Explanation

**CONFIGURE DATABASE FILE WAIT = CLOSE**

The CONFIGURE DATABASE FILE WAIT command specifies the action to be taken when TapeManager detects that a Library Maintenance task is trying to copy the TapeManager database. The TapeManager database uses KEYEDIOII to manage the database, which cannot be copied while open. Library Maintenance will wait until a KEYEDIOII file set is closed or an operator OF before continuing.

The CLOSE option specifies that TapeManager is to close its database so that Library Maintenance can copy it. While the database is closed, all commands or actions that require the database are rejected or suspended. Depending on the MCP level and copy options, Library Maintenance may hold the database files (prevent from re-opening) until the copy command has completed. The default value is false.

**CONFIGURE DB FILE WAIT = BACKUP**

The BACKUP option specifies that the TapeManager should perform a DATABASE BACKUP TO DISK before allowing the copy to continue as with the CLOSE option.

**CONFIGURE DB FILE WAIT = OF**

The OF option specifies that TapeManager will issue OF commands to the Library Maintenance task to prevent the copying of the database. This option also ensures that TapeManager is kept available, but a DB BACKUP command should be performed regularly. This is the default if the database configuration option has never been specified.
TapeManager Configuration

CONFIGURE DB AUDIT = TRUE

The AUDIT option specifies that the TapeManager should create an audit trail of all accesses to the TapeManager database. The audit trail is similar to those created by DMSII in that it contains both before and after images. The audit trail can be useful for diagnostics or to determine when a change was made. Unlike DMSII, this audit trail cannot be used for recovery purposes. The audit trail can be viewed by using the AUDIT report. The default value is false.

CONFIGURE DB RECOVER FROM LOG = TRUE

The RECOVER FROM LOG option specifies that TapeManager should attempt to find any system Sumlog records that it may have missed while the software was stopped. Only log records that cause database updates are processed. The default value is false.

CONFIGURE DB

The CONFIGURE DATABASE command without any options will display the current settings of the DATABASE options.
Drive Configuration

The CONFIGURE MT command specifies option to be used with various tape drive units.

Syntax

```
TM — CONFIGure — MT — {<drive options>}
```

<drive options>

```
— {<unit #>, — {<unit #>}}
```

```
LOCATION — = — <location> — [NONE]
PURGE — = — NEVER — [ALL — EXPIRED]
COMPression — = — [NONE — COMPressed — NONCOMPressed]
AUTOUNLOAD — = — [ON — OFF — SYSTEM]
CLEANing — = — [DEFAULT — NEVER]
IGNORE — = — <boolean>
```

Explanation

**CONFIGURE MT80 LOCATION = SITE**

The LOCATION option declares the tape unit as being in a TapeManager location. The location must have been previously defined using the CONFIGURE LOCATION command. When a tape is mounted in a drive, its configured location is compared with the location of the tape in the database. If the drive location and database location do not match, a MOVE TO <location> is issued where <location> is that of the drive. The default location for a drive unit is NONE.

**CONFIGURE MT80-84 PURGE = EXPIRED**

The PURGE option determines what purge action is to be taken when a tape is mounted in a drive. The NEVER choice causes no purge action on tape mount. The EXPIRED choice causes TapeManager to issue a PG on the drive if the tape mounted is found to be expired in the TapeManager database. The ALL choice causes a PG to be issued whenever a tape is mounted in the drive. The ALL choice will try to purge any tapes that are mounted, no check is made to see if the tape is in the database or that it has a
retention rule. If the CONFIGURE OPERATIONS VERIFY option is set to True, normal retention checking is done.

Note: This option should not be used if the CONFIGURE OPERATION AUTO PURGE option is set to True. The CONFIGURE OPERATION AUTO PURGE and CONFIGURE MT PURGE functions can interfere with each other.

CONFIGURE MT801-805 COMPRESSION = COMPRESSED

The COMPRESSION option determines the compression requested when a tape purge is requested due to PURGE = EXPIRED or PURGE = ALL. The NONE choice does not request any compression state and the tape is left with the same compression as before the purge. The COMPRESSED choice always forces the tape into compressed mode. The NONCOMPRESSED choice always forces the tape compression off. This option does not affect tapes purged on the specified drives by an operator purge command (PG).

CONFIGURE MT90-93 AUTOUNLOAD = OFF

The AUTOUNLOAD option determines the action, if any, that TapeManager should take in controlling the setting of the MCP AUTOUNLOAD option for a tape unit. The ON choice causes TapeManager to set the MCP AUTOUNLOAD option to ON. The OFF choice causes TapeManager to set the MCP AUTOUNLOAD option to OFF. The SYSTEM choice causes TapeManager to leave the MCP AUTOUNLOAD option as it is set by the MCP MODE command.

If this option is never specified then the TapeManager control of the MCP AUTOUNLOAD option will continue to work as in previous releases. That is, for tape drives within a library the AUTOUNLOAD option will be set to ON. For all other tape drives the AUTOUNLOAD option will not be managed by TapeManager. If this option has never been specified, it will not be displayed in the CONFIGURE MT output.

Note: For tape drives within a tape library setting this option to OFF (or setting this option to SYSTEM and the MCP option to OFF) can cause tapes to be left in drives for excessive amounts of time. It is recommended that the CONFIGURE LIBRARY IDLE TIME option be set at some value such that drives are not left in a loaded state for an excessive amount of time.

CONFIGURE MT801-805 CLEAN = NEVER

The CLEANING option determines the action taken on an MCP cleaning required message or operator cleaning request. The DEFAULT choice allows an operator to request drive cleaning and MCP drive cleaning requests to be processed normally. The
NEVER choice causes operator cleaning requests to return an error message and MCP cleaning requests to be ignored.

**CONFIGURE MT64-65 IGNORE = TRUE**

The IGNORE option causes the DriveManager module of TapeManager to ignore the specified drive(s). An ignored drive does not have statistics collected for it and does not show up in the MT report. The purpose of this option is to not collect information for pseudo tape units that are used to communicate with front end data communications processors.

*Note: Cleaning requests for virtual tape units and tape units in backend libraries always return and error message or will be ignored if from an MCP log record.*

**CONFIGURE MT**

The CONFIGURE MT command without any options will display the current settings of all known tape units.
E-Mail Configuration

The CONFIGURE EMAIL command specifies how TapeManager will use e-mail to send notices and perform support functions. To use the EMAIL function, the Unisys MCP E-Mail software (HMP 7.0/SSR 48.1 MCP or higher) must be installed. (Refer to the EMAIL Utility section of the System Software Utilities Operations Reference Manual.)

Syntax

```
TM CONFIGure -- EMAIL

<email options>
```

<email options>

```
<SUPPORT // <addresses>
SUPERvisor NONE
OPERator
SIGNATURE <quoted string>
IN <file tile>
NONE
```

<addresses>

```
<addr list>
```

<addr list>

```
<email address>
```

Explanation

**CONFIG EMAIL SIGNATURE “Your DSI TapeManager”**

Establishes the string as the signature for any messages sent by TapeManager. To use a file for a signature, refer to the EMAIL Utility section of the System Software Utilities Operations Reference Manual.
CONFIG EMAIL SUPERVISOR VAN.TU@MYCOMPANY.COM

Establishes the e-mail account for the supervisor. By default, the supervisor account is SUPERVISOR. The supervisor receives all TapeManager e-mail messages caused by alerts or faults.

CONFIG EMAIL SUPPORT SUPPORT@MYCOMPANY.COM & & JOHNNY.ATLAS@MYCOMPANY.COM

Establishes the e-mail account to receive blind courtesy copies for all e-mail messages sent to SUPPORT. The initial list of email addresses are the TO email list. Email addresses after the first & are the CC email list. Email addresses after the second & are the BCC email list. The // form of the command is used to separate parts of the command that might be confused as email addresses. By default, the support account is SUPPORT@DYNAMICSOLUTIONS.COM.

CONFIG EMAIL SUPPORT NONE

Prevents all e-mails to SUPPORT.

CONFIG EMAIL NONE

The NONE option clears all EMAIL configuration options.

CONFIGURE EMAIL

The CONFIGURE EMAIL command without any options will display the current settings of the EMAIL options.
Library Configuration

The CONFIGURE LIBRARY command specifies the options for controlling an automated tape library.

Syntax

```
TM -- CONFIGure -- LIBrary <library spec>
```

- **IDLE TIME** = <integer>
- **MT SELECTION** = FIRST, SERIAL, RANDOM, USAGE
- **FILTER** = /4\ <bar code pattern>
- **VOLUMEKIND** = NONE, AUTOmatic, IGNORE

Explanation

**CONFIGURE LIBRARY IDLE TIME 300**

The IDLE TIME option specifies the amount of time in seconds that a tape may be left in a drive in a cartridge library unused. If the tape has remained in a drive for the specified time without being used, it will be unloaded and returned to a storage slot in the library. The TIME syntax is provided for readability and is optional. A value of zero (0) seconds resets the IDLE TIME to none. If an idle time has not been specified, a tape will remain in a drive until it has been used or is unloaded by an operator action.

Selection of the idle time value is usually based on the type of drive in the library. Idle times should normally be between 120 and 300 seconds. As a general rule, the idle time should not be less than the time it takes to do a full rewind of the tape unit plus 120.

*Note:* This option is not available with CSC-A connected libraries. Use the CSC-A AUTODISMount option instead.

**CONFIGURE LIBRARY MT SELECTION = RANDOM**

The MT SELECTION option specifies how the library management software selects a tape unit from the available tape units. If this option is set to FIRST, the first available drive in the library is used. Using the FIRST option can cause heavy usage of the first tape units in a library. If the option is set to SERIAL, the tape units will be selected for use in a circular rotation. Tape units that are in use will be skipped. If the option is set to
RANDOM, the tape drives are selected randomly from the pool of available tape units. If
the option is set to USAGE, the tape units are selected from available units based on the
number of loads logged against the tape units. The default is FIRST if MT SELECTION
has never been defined.

*Note:* This option is not available with CSC-A connected libraries. The CSC-A
software selects an available drive unit.

**CONFIGURE LIBRARY FILTER = NT????**

The FILTER option allows for tapes with certain bar codes to be dropped from the
Inventory report. This option is designed for libraries that are shared between MCP and
other operating systems. The option allows for tapes used by other operating systems to
not appear on the Inventory report. Other commands are not affected. The bar code
pattern must be 6 characters long and consist of alphanumeric characters and the question
mark character (?). The bar code pattern is used as a mask to determine if the tape should
be dropped from the report. In the above example, any tapes that have a bar code that
starts with the characters “NT” will not show on the Inventory report. Using NONE will
clear all bar code filters.

**CONFIGURE LIBRARY <library spec> VOLUMEKIND = AUTO**

Setting the VOLUMEKIND option to AUTO for a specific library causes the
tapeManager system, during a search of the specified library, to search along its proper
VOLUMEKIND. In other words, when looking for virtual tapes, only search the <library
spec> if it is virtual.

Setting VOLUMEKIND to IGNORE will cause TapeManager to ignore the
VOLUMEKIND attribute during a search of the <library spec>.

**CONFIGURE LIBRARY**

The CONFIGURE LIBRARY command without any options will display the current
settings of the LIBRARY options for all attached libraries.
Location Configuration

The CONFIGURE LOCATION command specifies locations to be used when tracking cartridge movement from place to place. The location must be configured before using the MOVE command to mark cartridges as being relocated to a new place.

Syntax

```
TM CONFIGure LOCation <location options>
```

```
<location options>
   <location>
   DEFault
   + <location spec>
   
   <location spec>
   AS <quoted string>
```

Explanation

CONFIG LOCATION +WAREHOUSEA

The + option is used to add a location to the TapeManager configuration. A location must be configured before it can be used in any other command, such as MOVE, requiring a location identifier. A maximum of 15 locations may be defined.

```
Important

For multi-host configurations that share movement rules, the number and order of Locations configured must match. This restriction will be relaxed in a future release.
```

CONFIG LOC -WAREHOUSEB

The - option is used to delete a location from the TapeManager configuration. Cartridges that are assigned to the deleted location will stay associated with that location but the locations attributes will be lost. Cartridges associated with a location to be deleted should be moved to another location before deleting.
To delete a location, there must be no movement rule or tape in the database that refers to the location. Therefore, all movement rules that refer to the location must be changed or deleted and all tapes that refer to that location by rule or location field must be modified to remove the reference to the location.

**Note:** Due to the necessity of checking all tapes in the database, the delete location command may take an extended amount of time to respond.

CONFIG LOC SITEX AS “Experimental Facility”

A location can have a title of up to 80 characters. The title is used in reports to allow for a better site description than is allowed for with a 17 character location id. The title defaults to the location id when no title is specified. Since the + was not specified, SITEX must already exist and this is a modification of the attributes of the SITEX location.

**Note:** Lower case text for title will be converted to upper case when input from and ODT or remotespo program.

CONFIG LOC DEFAULT ONSITE

The DEFAULT option is used to declare a location as the default location for any tapes that are added either implicitly or explicitly.

CONFIG LOC SITEX

The CONFIGURE LOCATION command specifying a location without the + or - option causes a display of that location and its attributes if it exists.

CONFIG LOCATION

The CONFIGURE LOCATION command without any options will list all of the locations that have been configured into TapeManager.
TapeManager Configuration

Movement Configuration
The CONFIGURE MOVEMENT command specifies the tape movement rules for the TapeManager system. Movement rules define the sequence of movements between locations that a tape is to make.

Note: The CONFIGURE MOVEMENT command has been replaced by the CONFIGURE TAPE MOVEMENT command. The CONFIGURE MOVEMENT command will be supported for migration purposes through the TapeManager 10.090 release.

Syntax

```
TM CONFIG MOVEmen<move options>
<move options>
  <label>
    DEFAULT
    NONE
    AFTER <movement step>
  <label>
  <tape name>
    / <file ID>

<movement step>
  AND & <integer>
  DAYS <movement generations>
  SAVEfactor
  MOVE TO <location id>
  RETURN

<movement generations>
  GENERations
  WITH MATCH = <integer>
  BY CYCLE
  REEL
```
Explanation

CONFIG MOVEMENT BACKUP= AFTER 0 DAYS MOVE TO OFFSITE, 7 DAYS TO SITE

This rule states that any tape created with a label that starts with the characters BACKUP is to immediately be scheduled for movement to the OFFSITE location. After 7 days, the tape is to be move from the location OFFSITE to the location SITE. The locations OFFSITE and SITE must have been previously defined with the CONFIGURE LOCATION command. A movement rule may have up to 9 steps (movements).

CONFIG MOVE MYDB/QC= AFTER 0 DAYS MOVE TO VAULT, 7 DAYS TO SITE

When the <file ID> form of the label is used in a movement rule, the tape name portion of the label must match before the file ID portion is checked. Wild cards may be used with both the tape name and file ID identifiers.

CONFIG MOVEMENT DEFAULT AFTER 1 DAYS MOVE TO OFFSITE, 3 DAYS MOVE TO SITE

If a DEFAULT rule is declared, that rule is applied to any tapes for which no other movement rule applies.

CONFIG MOVEMENT DB= AFTER 1 DAYS MOVE TO VAULT, 30 DAYS RETURN TO SITE

The RETURN keyword can be used to have a location be automatically assigned by TapeManager when the tape is re-written, making the need to set the tape's location with the TM MOVE command unnecessary. However, if tapes are not re-written by the day after the RETURN step is effective, they will appear as exceptions if the TM MOVE command is not used to update their locations. Although the location of any step can be designated as the return step, typically this would only be the last step. TapeManager will only use the location of the last step that is designated as "return" for the return location.

:NO and :APPLY

The :NO option is used to control the updating of tape database records. By default, any change made to a movement rule will cause all tapes that match the <label id> of the rule to be updated with the new rule information (:APPLY). If the :NO option is specified, this rule will only apply to newly created tapes and current tapes retain the previous rule values.

The :APPLY option is used to apply the current rule definition to all existing tape database records for <label id>. Whether by this option or by default, when database records are updated the update activity occurs in the background and may take several
minutes to complete after the TM CONFIGURE MOVEMENT command itself has finished.

**CONFIG MOVEMENT**

The CONFIGURE MOVEMENT command without any options will display the current list of movement rules.
Operations Configuration

The CONFIGURE OPERATIONS command specifies operations options for the TapeManager system.

Syntax

```
TM CONFIG OPERATIONS <operating options>
```

<operating options>:

- UNKNOWN
- MISMATCH
- ASSIGN
- DUPLICATE
- OPTIONAL
- RETENTION
- GENERATIONS
- VERIFY
- SCRATCHPOOL
- CLEAR
- AUTO
- SUPPRESS
- USER
- VOLUMEKIND
- TAPE
- LABEL
- SERIALNUMBER
- VOLUME
- SELECTION
- RETAINED
- CREATED
- DATE
- COUNT
- USERCODE
- HOSTNAME
- NONE
- IGNORE
- AUTO
- NEVER
- ALWAYS
- NEVER
- RECENT
- SYSTEM
- AUTO
- SELF
- PURGE
- COMMENT
- REQUIRED
- SELECT
- IGNORE
- NONE
- AUTO

Explanation

CONFIGURE OPERATIONS UNKNOWN TAPE = IGNORE

The UNKNOWN option specifies what action to take when a tape is seen that is not in the database but matches the tracking criteria defined in the CONFIG TRACKING command.

AUTO specifies that the tape is automatically entered into the database depending on the setting of the CONFIGURE TRACKING option. AUTO is the default if the UNKNOWN option has never been specified.
TapeManager Configuration

IGNORE will cause the system to disregard any tape not already in the database.

The TAPE syntax is included for readability.
**CONFIGURE OPERATIONS MISMATCH = AUTO**

The MISMATCH option specifies what action to take when a tape is seen that has a different label from that stored for it in the database. This can occur when a tape is created on a different system from the system that TapeManager is running on.

The AUTO option automatically updates the database with the new information from the tape. AUTO is the default if the MISMATCH option has never been specified.

The IGNORE option will keep the database from being updated.

The LABEL syntax is included for readability.

**CONFIGURE OPERATIONS VERIFY = TRUE**

Setting the VERIFY option causes the TapeManager system to verify that a tape may be PG'ed or SN'ed by checking the RETENTION rules before it will allow the tape to be scratched. The default for the VERIFY option is FALSE if it has never been specified.

*Note:* TapeManager will allow tapes with the LOCKEDFILE attribute set to be purged as long as there are retention attributes and those attributes determine that the tape is expired.

*Note:* The VERIFY option is only applicable when the TapeManager is run in ACTIVE mode. If the TapeManager is in PASSIVE mode, it is the responsibility of the active tape management system to allow or deny tape purges.

**CONFIGURE RETENTION BY UPDATED DATE**

Setting the RETENTION option to BY UPDATED DATE causes TapeManager to use the last updated date/time of the tape when calculating the retention period. If this option is set to BY CREATED DATE then the creation date/time of the tape is used when calculating the retention period. A tape’s last updated date/time is the same as the creation date/time unless the tape has been appended to since its creation. The default for this option is BY CREATED DATE.

**CONFIGURE GENERATIONS BY UPDATED COUNT**

Setting the GENERATIONS option to BY UPDATED COUNT causes TapeManager to treat each update (append) of a tape as a new generation of that tape. The number of generations is used in retention calculations. If this option is set to BY CREATED COUNT then each tape is considered a single generation even if it has been updated (appended to) since its creation. The default for this option is BY CREATED COUNT.
CONFIGURE OPERATIONS AUTO PURGE = TRUE

Setting the AUTO PURGE option causes the TapeManager system to purge (PG) an expired tape so it may be used by another program. If an expired tape is mounted, it is purged when a request for an output tape is detected. This allows the auto purge function to work with auto-loader tape drives. For automated cartridge libraries, if an expired tape is not already mounted and there are no scratch tapes in the library, an expired tape is mounted and purged. The default for this option is FALSE.

CONFIGURE OPERATIONS DUPLICATE VOLUME = RECENT

Setting the DUPLICATE VOLUME option causes the TapeManager system to automatically mount the most recently created volume for an input request when two or more volumes match the selection criteria (normally the volume label). If this option is set to IGNORE, and two or more volumes match the selection criteria, then the request is left waiting for the operator to resolve. This option has no effect if the LibraryManager software is not present. The default for this option is IGNORE if it has never been set.

CONFIGURE OPERATIONS SCRATCHPOOL = TRUE

Setting the SCRATCHPOOL option causes the TapeManager system to require that scratch tape requests have the SCRATCHPOOL attribute set before TapeManager will interpret and process the request. If this option is FALSE then all scratch tape requests are processed. Scratch tape requests that are not processed will not load a scratch tape from an automated tape library or have an expired tape auto-purge in an autoloader or drive. The default for this option is TRUE. The REQUIRED syntax is provided for readability.

CONFIGURE OPTIONAL SELECTION = USER

Setting the OPTIONAL SELECTION option causes the TapeManager system to only select input tapes that were created under the same usercode or on the same host as the process requesting the input tape. This option is useful for sites that run the same application multiple times but under different usercodes or on different hosts. The default for this option is NONE. The SELECTION syntax is provided for readability.

Note: When OPTIONAL SELECTION is set to USERCODE or HOSTNAME, the value of ASSIGN SERIALNUMBER is ignored for input tapes. TapeManager will temporarily assign a serial number of TBA to the waiting input request, followed by the assignment of the required serial number if it can be determined. In effect, input tape requests while OPTIONAL SELECTION is not NONE will act like ASSIGN SERIALNUMBER is set to ALWAYS.

CONFIGURE OPERATIONS ASSIGN SERIALNUMBER = ALWAYS

The ASSIGN SERIALNUMBER option determines when the TapeManager system is to issue an FA SERIALNO for tasks waiting for a tape. The ALWAYS value causes
TapeManager Configuration

TapeManager to set the serial number for the waiting entry whenever it assigns a tape for the waiting task. This value can be used to help operators to determine the tape that should be mounted without requiring an inquiry to the system. The SYSTEM value causes the TapeManager to assign the serial number whenever the MCP SERIALNUMBER option (OP+27) is set. When MCP option 27 is set, requesting programs are not assigned tapes unless there is a matching serial number request or the operator manually assigns it. The NEVER value keeps the TapeManager from assigning serial numbers even when MCP option 27 is set. The SERIALNUMBER syntax is provided for readability. To allow previous syntax to be supported, TRUE is a synonym for ALWAYS and FALSE is a synonym SYSTEM. The default value is SYSTEM.

CONFIGURE OPERATIONS CLEAR COMMENT = TRUE

Setting the CLEAR COMMENT option causes the TapeManager system to erase (fill with blanks) the COMMENT field of the tape’s database record whenever the tape is newly written on. If the COMMENT field is used to document a tape’s current contents, set this option to TRUE. If the COMMENT field is used to document cartridge attributes, set this option to FALSE. The default for this option is FALSE.

CONFIGURE OPERATIONS SUPPRESS = TRUE

Setting the SUPPRESS option causes the TapeManager system to install a procedure that connects to the MCP ODT output procedure that prevents the UNRECOGNIZED REQUEST SCANNING TM message from being displayed whenever a TM command is entered at the ODT console. This option has no effect on input from remote sops. The default for this option is FALSE.

CONFIGURE OPERATIONS VOLUMEKIND = AUTO

Setting the VOLUMEKIND option to AUTO causes the TapeManager system to treat Library searches along their proper VOLUMEKIND. In other words, when looking at virtual VTLs then only search the virtual VTLs configured, when physical then only search those VTLs that have physical drives (i.e., back end VTLs).

Setting VOLUMEKIND to IGNORE will cause TapeManager to ignore the VOLUMEKIND attribute during any searches.

CONFIGURE OPERATIONS

The CONFIGURE OPERATIONS command without any options will display the current settings of the OPERATIONS options.
Remote Hosts Configuration

The CONFIGURE HOSTS command specifies the addition, deletion, or current configuration of remote TapeManager systems. A remote TapeManager host will send a copy of its tape activity to the local host and the local host will broadcast its tape activity to each remote host configured. Each host will have a duplicate copy of the tape database. Whenever TapeManager is executed and remote hosts are configured, TapeManager will attempt to synchronize its database with all the remote TapeManager hosts configured.

Syntax

```
TM -- CONFIGure -- HOSTs [ <remote host options> ]

<remote host options>
  [ <host name> -- <receive options> -- <coordinate option> ]

<receive options>
  -- RECEIVE
    [ ALL | DEFAULT | NONE ]

<coordinate option>
  [ VIA | BNA | TCPIP -- <IP address> ]

<configure options>
  [ CONVENTION | DATABASE | LIBRARY | LOCATION | MOVEMENT | MT | EMAIL | OPERATIONS | REPORT | RETENTION | RETIRING | STACKING | TRACKING ]
```
<coordinate option>

COORDinate = NONE
SYNChronize
IN
OUT
IO

Explanation

CONFIGURE HOST + OTHERSYSTEM
CONFIGURE HOST + REMOTEHOST VIA TCPIP 10.0.0.10

The plus (+) option of the CONFIGURE HOST commands adds a remote host to the TapeManager database network. The VIA option specifies which communication protocol should be used when connecting to the remote TapeManager. If a communication protocol is not specified, BNA is assumed. When a host is added a BNA or TCPIP port is offered at the remote host for connection with TapeManager on that remote system. The connection can not be made until a mirror CONFIGURE HOST + command has been entered at the remote host adding the local host to its configuration. Adding a remote host will cause additional structures and information to be kept in the TapeManager database for use in keeping the copies of the database synchronized. An additional process stack will also be invoked to handle the remote host I/O activity. A maximum of 20 remote hosts may be configured.

Note: The TCP/IP communication option uses the Unisys MCP TCP/PNATIVESERVICE port service. Therefore only Unisys TCP/IP 3.1 or greater is supported. Third party TCP/IP products are not supported.

CONFIGURE HOST - YOURHOST

The minus (-) option of the CONFIGURE HOST command deletes the specified host from the network of remote TapeManager hosts. All information regarding the host is removed from the TapeManager control file requiring that that information be rebuilt if the host is again added later. If a temporary disconnect with the remote host is needed, use the DISABLE HOST command.

CONFIGURE HOST + OTHERHOST RECEIVE ALL

The RECEIVE option of the CONFIGURE HOST command allows the site to determine what configuration and operations options are to be replicated from other hosts. Changes made to receivable items at the specified host will be duplicated at this host. The ALL value will allow all receivable items to be updated from the referenced host. The NONE value does not allow any configuration or operations items to be received from the referenced host. The DEFAULT value will allow the reception of the following items: SET, CONFIGURE CONVENTION, CONFIGURE CLEANING, CONFIGURE MOVEMENT, CONFIGURE MT, CONFIGURE OPERATIONS, CONFIGURE RETENTION, CONFIGURE RETIRING, and CONFIGURE TRACKING.
CONFIGURE HOST DEV RECEIVE + LOG

The RECEIVE + LOG allows multiple TapeManager hosts to have a common log file similar to the common TapeManager database. A common log allows for reports based on the log to be consistent across systems.

CONFIGURE HOST DEV RECEIVE + DRIVELOG

The RECEIVE + DRIVELOG allows multiple TapeManager hosts to have a common drive log file similar to the common TapeManager database. A common drive log allows drive statistics to be consistent across systems.

CONFIGURE HOST DEV RECEIVE + LABEL

The RECEIVE + LABEL allows multiple TapeManager hosts to have a single label printer.

CONFIGURE HOST DEV COORDINATE = SYNCHRONIZE IO

The COORDINATE option controls the coordination with other hosts when assigning tapes to tasks. The setting of SYNCHRONIZE IN causes TapeManager to verify that the local host is up-to-date on tape changes with the specified remote host before assigning any tapes for input requests. If the remote host is offline a tape will not be assigned until that host becomes online and synchronized or this setting is changed. The SYNCHRONIZE OUT setting requires the local host to be up-to-date in order to assign output tapes. The SYNCHRONIZE IO setting requires the local host to be up-to-date for both input and output tape assignments. The NONE setting allows the assignment of input and output tapes even if the remote host is offline or synchronizing. The default is NONE.

CONFIGURE HOST DEVELOPMENT

The CONFIGURE HOST <name> determines whether the host referred to by <name> has been configured and displays that configuration entry.

CONFIGURE HOSTS

The CONFIGURE HOSTS command lists all of the HOSTS that have been configured locally for the sending and receiving of TapeManager database updates.
Report Configuration

The CONFIGURE REPORT command sets the default options used for printed reports generated by the TapeManager system.

Syntax

```
TM — CONFIGure — REPORT [ <report options> ]

<report options>
  ┌ SITEname — = — <quoted string> [ ]
  │   PRIORITY — = — <integer> [ ]
  │   TIME [ FORMAT ] — = — LOCAL [ ZONE ]
  │   Attributes — = — <file attributes>
```

Explanation

**CONFIGURE REPORT SITENAME = "Dynamic Solutions Int'l"

The SITENAME parameter allows the setting of a name used in the heading of printed reports. The SITENAME can have a maximum of 80 characters. The SITENAME attribute is cleared by using a null string (""").

*Note:* Lower case text for SITENAME will be converted to upper case when input from and ODT or remotespo program.

**CONFIGURE REPORT PRIORITY = 45

The PRIORITY parameter allows the defining of the print task priority when a REPORT or FIND is processed as a separate task. The value must be between 1 and 99. If the value is USER, then the priority will be the priority of the Utility or TMRemoteSpo program used to execute the command or the priority of the TAPEMANAGER task if from and ODT entry. The default is USER.
CONFIG REP ATT = FORMID = "TAPEMANAGER",PAGESIZE=80

The ATTRIBUTES parameter is a list of A Series file attributes applied to the printer file created by the REPORT command. The attributes can be any valid A Series print file attribute. A value of NONE will clear all currently defined printer attributes.

If the PAGESIZE attribute is specified, it will determine the number of lines to be printed on a page. The default value for PAGESIZE is 60 for the TapeManager.

The ATTRIBUTES defined in this command may be added to or changed in the REPORT command.

CONFIGURE REPORT TIME FORMAT = LOCAL

The TIME FORMAT parameter is only available if SET TIME ZONE is ON. The TIME FORMAT parameter determines how time stamp information is displayed in reports. The LOCAL option causes times to be shown as converted to the local time zone where the report is being prepared. The ZONE option causes the time information to be compressed so that an abbreviated time zone identifier is added to the output. The NO ZONE option (default) causes times to be shown without adjustment and time zone information.

CONFIGURE REPORT

The CONFIGURE REPORT command without any options will display the current settings of the REPORT options.
Retention Configuration

The CONFIGURE RETENTION command specifies the parameters under which a tape may be scratched (purged). Any or all options may be specified but if an option is not specified it is left in its previous state. Reset an option by specifying a value of zero (0) or FALSE. If more than one option is specified, they are additive. For example, if both the DAYS option and the GENERATIONS option are defined, the tape must be N days old AND have N generations of newer tape in the database.

Note: The CONFIGURE RETENTION command has been replaced by the CONFIGURE TAPE RETENTION command. The CONFIGURE RETENTION command will be supported for migration purposes through the TapeManager 10.090 release.

Syntax

```
TM — CONFIGure — RETENtion <retention options>

<retention options>

<label>
DEFAULT UNKNOWN
NONE <retention rules>

<label>
<tape name> / <file ID>

<retention rules>

PERMANent
SAVEFactor
DAYS = <boolean>
<generations spec>

GENERations = <integer>
> WITH MATCH = <integer>
BY CYCLE REEL
```

Explanation

**CONFIGURE RETENTION SYMBOL= PERMANENT**

The PERMANENT option specifies that the tape may never be purged until the PERMANENT attribute is reset or the tape is deleted from the TapeManager database.
CONFIG RETEN MYDB/QC= DAYS = 7

When the <file ID> form of the label is used in a retention rule, the tape name portion of the label must match before the file ID portion is checked. Wild cards may be used with both the tape name and file ID identifiers.

CONFIGURE RETENTION MYBACKUP SAVEFACTOR=TRUE

The SAVEFACTOR option specifies the SAVEFACTOR value assigned when the tape was created be used to determine if the tape may be purged.

CONFIGURE RETENTION DAILY= DAYS=90

The DAYS option specifies the number of days that must pass since the creation date before the tape may be purged.

CONFIGURE RETENTION BACKUP= GENERATIONS=3

The GENERATIONS option specifies the number of generations of newer versions of a tape that must exist in the database before the tape may be purged.

CONFIGURE RETEN PACKBACKUP= GENERATIONS=4 WITH MATCH=10

The WITH MATCH specification of the GENERATIONS rule determines the number of leading characters of the label that should be used when determining if a cartridge belongs to a generation set. The rule above specifies that the first 10 characters of the cartridge label will be used when searching for tapes that belong to the same generation set. This specification allows for labels that contain variable information such as the date to be considered part of the same set. For example, using the above rule, the labels PACKBACKUP030397 and PACKBACKUP030497 are considered part of the same set when determining if there are enough newer cartridges to allow the cartridge to be considered expired.

The MATCH option also allows input tapes to be selected so that the program only needs to supply the fixed part of the label name. Using the above example, if a program requests a tape labeled PACKBACKUP, and there is not a tape that is labeled PACKBACKUP, then TapeManager will automatically change the name of the request to match the generation requested (current generation is the default).

CONFIGURE RETEN DBDUMP= GENERATIONS=3 BY CYCLE

The BY CYCLE option of the GENERATIONS rule specifies that the members of a generation set are to be determined by LABEL, CYCLE, VERSION and JOB NUMBER. This option is intended for use by DMSII dumps created by DMUTILITY that uses the CYCLE and VERSION attributes to identity tapes. The JOB NUMBER is also used since it can not be guaranteed that the tape with CYCLE = 1 and VERSION = 1 will be
created first. Since JOB NUMBER is used as part of the generation set determination, if a job creates a second set of tapes with the same name (i.e. a second dump of a database), the second set of tapes will be considered part of the same generation set as the first set of tapes.

The BY REEL option of the GENERATIONS rule specifies that the members of a generation set are to be determined by LABEL and reel number (FILESECTION). This is the default if neither BY REEL or BY CYCLE is specified. This option is intended for use by Library Maintenance and most other software that create multi-reel tapes.

**CONFIGURE RETENTION DEFAULT SAVEFACTOR**

When DEFAULT is used in place of a <label ID>, the site is specifying retention parameters for tapes created that do not match any other retention rules. If a DEFAULT rule is not specified, it has a value of NONE.

**CONFIGURE RETENTION *UNKNOWN PERMANENT = TRUE**

When *UNKNOWN is used in place of a <label ID>, the site is specifying retention parameters for tapes that do not have a record in the TapeManager database. The *UNKNOWN option is intended to be used with tape libraries that are shared between hosts that do not share the TapeManager database. The feature is meant to prevent operators from purging the tapes of another host that are not known to it. The *UNKNOWN tape option may not have a GENERATIONS rule defined for it. When used with a shared library such that the sharing OS is not an MCP system, only the PERMANENT rule should be used as tapes from other OSes will not have SAVEFACTOR or CREATIONDATE information available in the label. If a *UNKNOWN rule is not specified, it has a value of NONE.

**CONFIGURE RETENTION TEST= NONE**

The NONE option resets all retention parameters for that <label ID> and removes the rule from the retention rules table.

**CONFIGURE RETENTION**

If the configure retention command is given without parameters, then a listing of the currently defined retention rules is displayed.

: NO

The NO option restricts TapeManager from updating the retention parameters for tapes that match the <label ID> with the new parameters. By default, the database is searched for any tapes matching the <label ID> specification and those tapes are updated with the new retention rules.
Warning

Do not create retention rules where the <label ID> begins with a wild card (i.e. =BACKUP). Use of retention rules that start with wild cards can severely impact the performance of TapeManager and therefore the entire system. Certain functions such as adding the rule and the SCRATCH report may take so long that the software will appear to be in a loop. Using the GENERATIONS option with this type of rule, makes the problem even worse.

Note: If the VERIFY option of the CONFIGURE OPERATIONS command is not set, then these rules will not be checked before a tape is purged.

Note: TapeManager will allow tapes with the LOCKEDFILE attribute set to be purged as long as there are retention attributes and those attributes determine that the tape is expired.
Retiring Configuration

The CONFIGURE RETIRING command specifies the parameters under which a tape should be reported as needing to be retired. Any or all options may be specified but if an option is not specified it is left in its previous state. Reset an option by specifying a value of zero (0). A tape will be reported as to be retired if any of the specified parameters has been exceeded. Use the RETIRING report to list the tapes that should be retired. Once a tape has been retired, used the REPLACE or DELETE command to update the TapeManager database.

Syntax

```
TM CONFIGure RETIRing [ <retiring options> ]
```

<retiring options>

```
  MONTHS = <integer>
  USES  = <integer>
  ERRors = <integer>
```

Explanation

**CONFIGURE RETIRING MONTHS = 24**

The MONTHS option specifies the number of months to elapse since the tape was new.

**CONFIGURE RETIRING USES = 200**

The USES option specifies the number of times that a tape may be used (read or written) before marked for retiring.

**CONFIGURE RETIRING ERRORS = 15**

The ERRORS option specifies the number of reported errors for a tape before it is marked for retiring.

**CONFIGURE RETIRING**

The CONFIGURE RETIRING command without any options will display the current settings of the RETIRING options.
Substitution Configuration

The CONFIGURE SUBSTITUTE command allows density and scratch pool values to be replaced without the need to change programs or WFLs. The CONFIGURE SUBSTITUTE command can be a migration aid when moving to new tape drives and media. A maximum of 9 substitute scratch pools plus a default scratch pool may be defined. Density substitution is applied before any scratch pool substitution with the scratch pool substitution possibly replacing or overriding the density substitution.

Syntax

```
TM CONFIGure SUBSTITUTE ALTernate

> DENSITY <density> = 
  DEFAULT
  ALL

SCRAATCHPOOL <pool> = 
  DEFAULT
  NONE
```

Explanation

**CONFIGURE SUBSTITUTE DENSITY BPI38000 = LTO3**

The DENSITY option specifies which tape densities should be replaced by a different density. In this example, all tape requests that ask for a scratch tape with a density of 38000 will be changed to LTO3. The density name can be specified as either the long name or the short name (i.e. FMTLTO3 vs. LTO3).

**CONFIGURE SUBSTITUTE DENSITY DEFAULT = LTO**

The DENSITY DEFAULT option specifies a density to be applied to a scratch tape request when no density value was requested.

**CONFIGURE SUBSTITUTE DENSITY BPI11000 = CLEAR**

The DENSITY CLEAR option causes the requested density to be cleared (removed) from the pending scratch tape request.

**CONFIGURE SUBSTITUTE DENSITY 38000 = POOL VIRTUAL**

The DENSITY POOL option causes the requested density to be cleared and the specified scratch pool to be applied to the pending scratch tape request. If the scratch tape request already has a scratch pool assigned, the scratch pool specified in the substitute rule is ignored.
**TapeManager Configuration**

**CONFIGURE SUBSTITUTE DENSITY ALL = LTO3**

The DENSITY ALL option causes all known MCP densities to be replaced by the specified density. The default density is not affected by this option. Individual densities may be set to other values after using the ALL option.

**CONFIGURE SUBSTITUTE SCRATCHPOOL OLD = NEW**

The SCRATCHPOOL option specifies which tape scratch pool should be replaced by a different scratch pool. In this example, all tape requests that ask for a scratch tape with from the pool OLD will be changed to request a tape from the pool NEW.

**CONFIGURE SUBSTITUTE SCRATCHPOOL DEFAULT = VIRTUAL**

The SCRATCHPOOL DEFAULT option specifies a scratch pool to be applied to a scratch tape request when a scratch pool value was not requested by the caller.
Security Configuration

The SECURITY command is used to restrict access to the TapeManager commands. Commands may be restricted to specified users, stations, or operator consoles (SPOs/ODTs). Commands may be restricted individually or the entire command set may be restricted. If a command is restricted to a station and a user, then the command may be used by any user at that station, or that user at any station. When a command is “secured” it can only be accessed via the TapeManager Utility, MARC (via the Directive) or an operator console if so specified. Secured commands cannot be used from remote SPOs or via the AX interface.

Syntax

```
TM -- SECURITY

<commands> + <user list> - <group list> - <station list> - <unit list>

PRIVILEGED + <user list> - <group list> - <station list> - <unit list>

DEFAULT   - <group list> - <station list> - <unit list>

PUBLIC	SECURE

: -- FILE -- <file name>

<commands>

<TapeManager command>

<user list>

USER  ( <usercode> / <access code> )

<group list>

GROUPcode <group code>

<station list>

STATIONs <station name>

<unit list>

UNITs <unit number>
```
Explanation

SECURE ADD, DELETE, MODIFY + USER (OPERATIONS)

The USER option of the SECURE command restricts access to these commands to the specified user(s). Use the + attribute to add user(s) to the list of users that can use the specified command(s). Use the - attribute to delete the user(s) from the list.

SECURE ADD, DELETE, MODIFY + GROUP OPGROUP

The GROUP option of the SECURE command restricts access to these commands to the specified group code(s). Use the + attribute to add group code(s) to the list of users that can use the specified command(s). Use the - attribute to delete the group code(s) from the list.

SECURE MODIFY + USER (MGR/MYACCESS)

If the access code option of the user specification is defined then the command cannot be executed unless both the user code and the access code match for the calling user or program.

SECURE CONFIGURE, SECURE + STATION NXHA5/CANDE/1

The STATION option of the SECURE command restricts access to these commands to the specified station(s). Use the + attribute to add stations to the list of stations that can use the specified command(s). Use the - attribute to delete the station(s) from the list.

SECURE TM + UNIT 1,2,3

The UNIT option of the SECURE command restricts access to these commands to the specified operator console(s) (also known as ODTs, SPOs, and SCs). The <unit number> must be the unit number of a valid ODT. Use the + attribute to add ODTs to the list of ODTs that can use the specified command(s). Use the - attribute to delete the ODT(s) from the list.

SECURE REPORT PUBLIC

The PUBLIC option of the SECURE command removes all security restrictions from the specified command(s).

SECURE MODIFY SECURE

The SECURE option of the SECURE command restricts a command from being used by any user, station, or unit unless that user, station, or unit is privileged.
SECURE PRIVILEGED + USER (OPERATOR2)

The PRIVILEGED option of the SECURE command confers or removes a privileged status on a user, station, or unit. Privileged users, stations, and units are not affected by any restrictions that may have been placed on TapeManager commands.

SECURE DEFAULT PUBLIC

The DEFAULT option of the SECURE command with the PUBLIC attribute, removes all security restrictions from the TapeManager system.

SECURE DEFAULT SECURE

The DEFAULT option of the SECURE command with the SECURE option restricts all TapeManager commands from being used by any user, station, or unit unless overridden by a command specific SECURE command or that user, station, or unit is privileged. This command will not be accepted unless a privileged user, station, or unit has been defined or a security definition for the SECURE command has been defined.

SECURE

The SECURE command without any options displays a listing of the current security settings.

: FILE TAPEMANAGER/SECURITY

When security restrictions are placed on TapeManager commands with the SECURE command, the security information is stored in the TapeManager control file. This information is stored in such a way as to detect any attempt to change this information except through the SECURE command. Should this information become corrupt, TapeManager will refuse to initialize until provided with a valid security file. The FILE option of the SECURE command provides a means of creating a backup of the TapeManager security information.

The FILE option, when used with a security update creates a backup copy of all the current security information. This file should then be removed to a known, secure location. Whenever a SECURE command is issued for a system that has no current security restrictions and the :FILE option is not present, TapeManager will issue an RSVP to alert the user that a backup copy needs to be created. **It is strongly recommended that a backup copy of the security information be created and retained in a known, secure location.**

If for any reason it is required that a backed up version of the security restrictions be used in place of the current security values, an override option is available. Using the SECURE command with just the FILE option will replace the current security information with that in the designated security backup file. The file must have been created by TapeManager. Any other file will be rejected.
Note: The SECURE command is not automatically secured. The SECURE command should be one of the first commands secured if TapeManager security is to be used.

Caution

Use of the SECURE command implies that normal MCP file security is also used to ensure the safety of the TapeManager database. The SECURE command only controls access to TapeManager commands. It does not control access to the TapeManager database. Access to the TapeManager database should be controlled via file access security mechanisms.

Implementation Hints

When deciding to implement security restrictions for TapeManager, a review of the impact of the various TapeManager commands is necessary.

Commands that control configuration values

The CONFIGURE and SECURE commands control the operational characteristics of the TapeManager system. These commands should be restricted to those designated as tape library administrators.

Commands that modify the TapeManager database

The ADD, DELETE, MODIFY, and REPLACE commands can modify one or more tape database records. These commands should be restricted to those designated as tape library administrators.

Other commands

Other commands that should be considered for restriction are; PURGE, TL, DATABASE, and SET. These commands could cause operational problems and inaccurate databases if misused.
Tape Configuration

The CONFIGURE TAPE command defines the policies to be applied to tape cartridges. The policies cover retention, movement, and attribute assignments. Most policies are applied at tape creation time based on the label of the tape.

Syntax

TM — CONFIGure — TAPE — RULES —>

> — <label id> — / — <file id> — = —>

> — NONE — / — <rules options> —:

<rules options>

— RETENtion — = — <retention rules>
— MOVement — = — <movement rules>
— LABEL — = — <label substitution>
— SCRATCHPOOL — = — <pool id substitution>
— EVENTS — = — <event options>
— COMMENT — = — <comment option>
— EXPORT — = — <export rules>

Explanation

CONFIGURE TAPE ABC=

The configure tape <label id> specifies the label (tape name) of the tape(s) to which the tape policies (rules) should be applied. The <label id> may contain the wild cards “=” for a string of characters and “?” for a single character. If the configure tape command is given with a <label id> and without parameters, then a listing of the defined policies for that <label id> is displayed.

CONFIG TAPE MYDB/QC=

When the <file ID> form of the label is used in a tape rule, the tape name portion of the label must match before the file ID portion is checked. Wild cards may be used with both the tape name and file ID identifiers.
CONFIGURE TAPE DEFAULT

When DEFAULT is used in place of a <label ID>, the site is specifying policy parameters for tapes created that do not match any other rules defined by the <label id>. If a DEFAULT rule is not specified, it has a value of NONE.

CONFIGURE TAPE *UNKNOWN RETENTION = PERMANENT = TRUE

When *UNKNOWN is used in place of a <label ID>, the site is specifying policy parameters for tapes that do not have a record in the TapeManager database. The *UNKNOWN option is intended to be used with tape libraries that are shared between hosts that do not share the TapeManager database. The feature is meant to prevent operators from purging the tapes of another host that are not known to it. The *UNKNOWN tape option may not have a RETENTION policy with a GENERATIONS rule defined for it. When used with a shared library such that the sharing OS is not an MCP system, only the PERMANENT option of the RETENTION rule should be used as tapes from other OSes will not have SAVEFACTOR or CREATIONDATE information available in the label. If a *UNKNOWN rule is not specified, it has a value of NONE.

CONFIGURE TAPE TEST= NONE

The NONE option resets all policy parameters for that <label ID> and removes the rule from the rules table.

CONFIGURE TAPE

If the configure tape command is given without a <label id> and parameters, then a listing of the all currently defined policies is displayed.

: APPLY

The APPLY option causes TapeManager to search the database for any tapes matching the <label ID> specification and those tapes are updated with the new rules. This is the default action if a colon (:) option is not specified.

: NO

The NO option restricts TapeManager from updating the policy parameters for tapes that match the <label ID> with the new parameters. By default, the database is searched for any tapes matching the <label ID> specification and those tapes are updated with the new rules.
TapeManager Configuration

Retention Rules
Retention rules specify the parameters under which a tape may be scratched (purged). Any or all options may be specified but options not specified will have their default or not set values. Reset an option by specifying a value of zero (0) or FALSE. If more than one option is specified, they are additive. For example, if both the DAYS option and the GENERATIONS option are defined, the tape must be N days old AND have N generations of newer tape in the database.

Syntax

<retention rules>

PERManent
SAVEFactor
DAYS = <integer>

<generations spec>

PARENT = <literal>
# <intrinsic variable>
NONE

<generations spec>

GENERations = <integer>

WITH MATCH = <integer> BY CYCLE REEL

Explanation

CONFIGURE TAPE SYMBOL= RETENTION =PERMANENT

The PERMANENT option specifies that the tape may never be purged until the PERMANENT attribute is reset or the tape is deleted from the TapeManager database.

CONFIGURE TAPE MYBACKUP RETENTION SAVEFACtor=TRUE

The SAVEFACtor option specifies the SAVEFACtor value assigned when the tape was created be used to determine if the tape may be purged.

CONFIGURE TAPE DAILY= RETENTION DAYS=90

The DAYS option specifies the number of days that must pass since the creation date before the tape may be purged.
TapeManager Configuration

CONFIGURE TAPE BACKUP= RETENTION GENERATIONS=3

The GENERATIONS option specifies the number of generations of newer versions of a tape that must exist in the database before the tape may be purged.

CONFIG TAPE PACKBACKUP= RETENTION GENERATIONS=4 WITH MATCH=10

The WITH MATCH specification of the GENERATIONS rule determines the number of leading characters of the label that should be used when determining if a cartridge belongs to a generation set. The rule above specifies that the first 10 characters of the cartridge label will be used when searching for tapes that belong to the same generation set. This specification allows for labels that contain variable information such as the date to be considered part of the same set. For example, using the above rule, the labels PACKBACKUP030397 and PACKBACKUP030497 are considered part of the same set when determining if there are enough newer cartridges to allow the cartridge to be considered expired.

The MATCH option also allows input tapes to be selected so that the program only needs to supply the fixed part of the label name. Using the above example, if a program requests a tape labeled PACKBACKUP, and there is not a tape that is labeled PACKBACKUP, then TapeManager will automatically change the name of the request to match the generation requested (current generation is the default).

CONFIGURE TAPE DBDUMP= RETENTION GENERATIONS=3 BY CYCLE

The BY CYCLE option of the GENERATIONS rule specifies that the members of a generation set are to be determined by LABEL, CYCLE, VERSION and JOB NUMBER. This option is intended for use by DMSII dumps created by DMUTILITY that uses the CYCLE and VERSION attributes to identify tapes. The JOB NUMBER is also used since it can not be guaranteed that the tape with CYCLE = 1 and VERSION = 1 will be created first. Since JOB NUMBER is used as part of the generation set determination, if a job creates a second set of tapes with the same name (i.e. a second dump of a database), the second set of tapes will be considered part of the same generation set as the first set of tapes.

The BY REEL option of the GENERATIONS rule specifies that the members of a generation set are to be determined by LABEL and reel number (FILESECTION). This is the default if neither BY REEL or BY CYCLE is specified. This option is intended for use by Library Maintenance and most other software that create multi-reel tapes.

CONFIG TAPE ABCDB/QCAUDIT= RETENTION PARENT = ABCDBDUMP

The PARENT option specifies a parent tape that must be expired before the “child” tape may be purged.
**TapeManager Configuration**

**Movement Rules**
Movement rules specify tape movement policies for the TapeManager system. Movement rules define the sequence of movements between locations that a tape is to make.

**Syntax**

```
<movement rules>
  
  AFTER <movement step>
  
  <movement step>
  AND
  
  <integer> DAYS <movement generations>
  
  SAVEfactor

  TO <location id>

  MOVE
  RETURN

<movement generations>
GENERations

WITH MATCH = <integer> BY CYCLE REEL
```

**Explanation**

**CONFIG TAPE BACKUP= MOVEMENT AFTER 0 DAYS MOVE TO OFFSITE, 7 DAYS TO SITE**

This rule states that any tape created with a label that starts with the characters BACKUP is to immediately be scheduled for movement to the OFFSITE location. After 7 days, the tape is to be move from the location OFFSITE to the location SITE. The locations OFFSITE and SITE must have been previously defined with the CONFIGURE LOCATION command. A movement rule may have up to 9 steps (movements).

The DAYS value is always the number of days after the creation date of the tape not the number of days after the previous movement step.
CONFIG MOVEMENT DB= AFTER 1 DAYS MOVE TO VAULT, 30 DAYS RETURN TO SITE

The RETURN keyword can be used to have a location be automatically assigned by TapeManager when the tape is re-written, making the need to set the tape's location with the TM MOVE command unnecessary. However, if tapes are not re-written by the day after the RETURN step is effective, they will appear as exceptions if the TM MOVE command is not used to update their locations. Although the location of any step can be designated as the return step, typically this would only be the last step. TapeManager will only use the location of the last step that is designated as "return" for the return location.
Label Substitution
Label substitution allows a tape’s label (name) to be changed before the tape is requested (opened). For example the date or time could be added to the label name specified by the program writing the tape.

Syntax

<label substitution>

┌─","<literal>  # <intrinsic variable> ─ <fileid substitution> │
 │ # <intrinsic variable> ─ <fileid substitution> │
<fileid substitution>

/ ┌─","<literal>  # <intrinsic variable> │
 │ # <intrinsic variable> │

Explanation

CONFIGURE TAPE YEAREND LABEL = #LABELID#YYYY

The LABEL substitution option uses literals and intrinsic variables to change the label (name) of a tape being created. The intrinsic variables available are defined in Chapter 13 TapeManager Macros. If the resulting label (or file id) exceeds the MCP maximum (currently 17 characters) the label is truncated. In the above example the tape label has the current 4 digit year value appended to the label name.

The <file id substitution> option should only be used with tapes written by user programs. If this option is used with MCP written tapes (Library Maintenance) or DMSII tapes (CopyAudit or DMUtility) the results may be errors or the request ignored.
Scratchpool Substitution
Scratchpool substitution allows an output tape’s scratch pool attribute to be assigned based on the tape name (label).

Syntax

\[<\text{Pool id substitution}>\]

Explanation

CONFIGURE TAPE MYTAPE SCRATCHPOOL = MYPOOL

The SCRATCHPOOL substitution option uses literals and intrinsic variables to assign the scratch pool of a tape being created. The intrinsic variables available are defined in Chapter 13 TapeManager Macros. If the resulting pool id exceeds the MCP maximum (currently 17 characters) the label is truncated.

Note: If CONFIGURE SUBSTITUTION SCRATCHPOOL policies are also defined the CONFIGURE TAPE policies are applied before the CONFIGURE SUBSTITUTION policies are applied.
Events Options
The events options allow for actions to be taken for predefined events for a tape based on the tape name (label).

Syntax

```
<events options>

[ [ <event command> ] ]

<event command>

EVENT [ <event types> ] <TM command text>

<event types>

CREATE
UPDATE
PURGE
IMPORT
EXPORT
STACK
UNSTACK
ARCHIVE
DISMOUNT
```

Explanation

```
CONFIGURE TAPE XTAPE EVENTS = ON STACK PURGE SN #SERIALNO
```

The EVENTS option of the tape policy configuration allows for TapeManager commands to be executed when configured events happen to tapes covered by the rule name. The command text can be any valid TapeManager command(s). The maximum length of the command text is 255 characters. The commands do not need to be prefixed by “TM”. TapeManager will check the command text for proper syntax before accepting the policy configuration.

The CREATE event is triggered when the tape is dismounted after the tape has been created. The UPDATE event is triggered after the tape has been dismounted after the tape has been written to including the first (creation) time. The PURGE event is triggered when the tape has a scratch label written to it. The IMPORT event is triggered when the tape is imported into a tape library. The EXPORT event is triggered when the tape is exported from a tape library. The STACK event is triggered when the tape is stacked (either MCP or VTL) on another tape. The UNSTACK event is triggered when the tape is created as a result of an unstack (either MCP or VTL) operation. The
ARCHIVE event is triggered when the virtual tape is written to a physical tape on the back end of a VTL. The DISMOUNT event is triggered whenever the tape is unloaded from a tape drive.

`CONFIGURE TAPE EVTAPE EVENTS = [EVENT CREATE, UPDATE EMAIL SUPERVISOR “TAPE SN “ #SERIALNO “ HAS BEEN “ #EVENTNAME; EXPORT #SERIALNO]`

If the command text contains commas, colons, semi-colons or other text that could confuse the input scanner the event text should be bracketed by “[“ and “]”.

*Note:* The intrinsic variables #EVENTNAME, #EVENTTIME, #EVENTDATE have been added for use within command strings triggered by events.

`CONFIGURE TAPE ETAPE = EVENTS = EMAC`

If the list of events and associated command text exceeds the 255 character limit or the same event triggers and commands are to be used for multiple tape policies then the event text may be placed in a macro. The following example shows a possible implementation of the EMAC macro.

```
TM DEFINE EVMAC =
BEGIN
EVENT DISMOUNT STACK SN #SERIALNO;
EVENT STACK EXPORT SN #SERIALNO;
EVENT EXPORT EMAIL SUPER #SERIALNO stacked and exported, #LABELID;
END EVMAC;
```

`CONFIGURE TAPE MYTAPE EVENTS = NONE`

A value of NONE for the EVENTS option clears all event settings for this tape policy.
Comment Option
Comment option allows a comment to be added to the TapeManager database for a tape based on the tape name (label).

Syntax

<comment option>

Explanation

CONFIGURE TAPE TESTTAPE COMMENT = “Test tape created at ”#TOD

The comment option uses literals and intrinsic variables to assign a comment to the tape record in the TapeManager database. The intrinsic variables available are defined in Chapter 13 TapeManager Macros. If the resulting comment exceeds the TapeManager maximum (currently 59 characters) the comment is truncated.

Note: CONFIGURE OPERATIONS CLEAR COMMENT command controls clearing of the comment database item when the tape is purged.
Export Rules
The export rules define an export policy of a tape based on the tape name (label). The export policy is useful for physical tape libraries to automate movement of tape offsite. For VTL users the export policy can be used to automate back-end VTL processes such as archive (copy to physical tape) or replication (copy to another VTL).

Syntax

```
<export rules>

<number> DAYS

NONE DAYS
```

Explanation

**CONFIGURE TAPE DAILYDUMP EXPORT = 1 DAY**

The export rules specify when a tape should be placed in the export queue for removal from a physical or virtual library. The DAYS value defines the time that the tape should be placed in the export queue. A value of 1 DAY will cause the tape to be placed in the export queue 24 hours after the tape has been ejected from the tape unit. A value of 0 DAYS will place the tape in the export queue immediately after the tape is ejected from the tape unit.

**Note:** Once a tape has been placed in the export queue it may be managed with the EXPORT command.
TERM Command

The TERM command allows the operator to control the display of responses from TapeManager at the ODT. This command allows the responses from TapeManager to match output from the system. TapeManager will attempt to monitor changes made to the ODT TERM command and adjust automatically.

Syntax

```
TM   TERM
   └─ LINES
       └─ WIDTH
       └─ FIRST
       └─ DCSTATION
       └─ TRUNCATE
       └─ MESSAGE
          └─ MSG
          └─ LANGUAGE <name>
          └─ RESPONSE
             └─ NONE
                └─ CONCISE
                └─ EXPANDED
          └─ USER <name> / <name>
```

Explanation

TERM

Displays the current values of the TERM options.

TERM LINES 24

Sets the number of lines the terminal being used as an ODT can display. The default is 24 lines.

TERM WIDTH 80

Sets the number of characters on line the terminal being used as an ODT can display. The default is 80 characters per line.

TERM FIRST 4

Sets the number of lines to skip before displaying an output message. This allows commands typed at the top of the screen to be preserved. The default is to skip the first 2 lines.
TERM DCSTATION TRUE

Controls whether the terminal being used as an ODT is set to run as a MARC datacomm station. If this option is TRUE, output will be displayed as if to a normal datacomm station. If this option is FALSE, output will be formatted for an ODT set up with the visible ETX option set and DC1 set to erase to the end of the line. The default value is TRUE.

TERM LANGUAGE ENGLISH TRUNCATE TRUE MSG TRUE USER -

The LANGUAGE, TRUNCATE, MESSAGE, RESPONSE, and USER options of the TERM command are provided for compatibility with the ODT TERM command. These options are ignored by TapeManager.
Tracking Configuration

The CONFIGURE TRACKING command allows only selected tapes to be monitored by the TapeManager system. This option is only used when the OPERATIONS option UNKNOWN is set to AUTO. Cleaning cartridge specifications may also be configured with this command.

Syntax

```
TM - CONFIGure - TRACKing <tracking options>
```

<tracking options>

- ALL
- NUMERIC
- MATCH = <serial number pattern>
- RANGE + SN <starting SN> - <ending SN>
- LIBrary
- CLEANing <cleaning cartridge spec>

<cleaning cartridge spec>

- <add cleaning cartridge range>
- <delete cleaning cartridge range>

<add cleaning cartridge range>

- RANGE + SN <starting SN> - <ending SN>
- USES = <integer>

<delete cleaning cartridge range>

- RANGE - SN <starting SN> - <ending SN>

Explanation

CONFIGURE TRACKING ALL

The ALL option specifies that all tapes seen by TapeManager be stored in the tape database.

CONFIGURE TRACKING NUMERIC 100000 - 300000
The NUMERIC option restricts TapeManager to only tracking tapes that have a completely numeric serial number. If a range is not specified for the NUMERIC option, 000000 to 999999 will be used.

**CONFIGURE TRACKING MATCH AA?NNN**

The MATCH option allows a site to set a serial number pattern that a tape must have before it is tracked. The serial number pattern is made up of six characters where an A is any letter, an N is any digit, and a ? is any character. EX: TM CONFIGURE TRACKING MATCH = AA?NNN will cause TapeManager to track tapes that start with two alpha characters followed by any character and ending in three digits for a serial number.

**CONFIGURE TRACKING RANGE + SN ABC001 - ABC999**

The RANGE option restricts TapeManager to only tracking tapes that match the specified range(s). Up to 4 ranges may be specified. The serial number ranges may also contain alpha values as long as the starting and ending serial number have matching alpha values. Overlapping ranges will not be merged. A range may only be deleted (-) by specifying the same serial number range as specified when the range was added (+). The last remaining range specification may never be deleted. Changing the TRACKING configuration to something other than RANGE will delete all range specifications.

**CONFIGURE TRACKING LIBRARY**

The LIBRARY option allows a site to have TapeManager only track information for tapes in an automated tape library. The LibraryManager software must be configured with the system to use this option. This option is provided for “passive” mode operation where another tape management system is providing the active tape tracking. The ONLY syntax is provided for readability.

**Note:** The tracking options only have effect if the TapeManager system has been configured with AUTOMATIC operation. This configuration option only applies to tapes new to the TapeManager system. Once a tape is entered into the database, it will continue to be tracked until deleted from the database. (Tapes can be included in the TapeManager database with the ADD command.) This feature allows a site to track specific tapes that do not follow the normal tracking rule.

**CONFIGURE TRACKING**

The CONFIGURE TRACKING command without any options will display the current settings of the TRACKING options.
The CLEAN RANGE option defines the range of serial numbers that will automatically be recognized as cleaning cartridges. The USES count defines the number of times the cleaning cartridge may be used before it should be discarded. Up to 4 cleaning cartridges serial number ranges may be defined. Each range may have a different usage count. The following table defines maximum uses for various cleaning cartridges. By default, TapeManager assumes cleaning cartridges have serial numbers CLN000 to CLN999 each with 20 uses.

<table>
<thead>
<tr>
<th>Cleaning cartridge media type</th>
<th>Maximum # of uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>4mm (DDS-1/2/3/4) (DAT)</td>
<td>50</td>
</tr>
<tr>
<td>8mm (not AIT or Mammoth)</td>
<td>24 (17 for 8500/8500c)</td>
</tr>
<tr>
<td>AIT (1/2/3)</td>
<td>36</td>
</tr>
<tr>
<td>DLT (4000/7000/8000)</td>
<td>20</td>
</tr>
<tr>
<td>SDLT</td>
<td>Up to 50</td>
</tr>
<tr>
<td>LTO</td>
<td>20</td>
</tr>
<tr>
<td>3480/3490 (18/36 track)</td>
<td>500</td>
</tr>
<tr>
<td>9840</td>
<td>100</td>
</tr>
</tbody>
</table>

The above values are maximums and may be less for your drive and/or cleaning cartridge. Check with the drive and cartridge manufacturer for the recommended values.

A tape that is marked as a cleaning cartridge will be shown as such on the various reports. It will appear on the RETIRING report once it has been used the specified number of times. For site with automated tape libraries and LibraryManager, the cartridge will be automatically loaded into a drive in the library that reports to the MCP that it needs cleaning. Cleaning cartridges in tape libraries that exceed the specified number of uses are automatically ejected from the library. Use the CLEAN MTxxx WITH <serial number> command to track the number of uses of manually used cleaning cartridges.

Note: Some automated tape libraries have the capability to use and track cleaning cartridges on their own. Generally these libraries have dedicated slots for these cleaning cartridges. TapeManager generally will not be able to see, use, or track the usage of these cartridges. Also TapeManager will not be able to track the usage of cleaning cartridges when used by another non-MCP host on a multi-host library.

The – option of the CLEAN RANGE configuration command removes the specified serial number range from those automatically detected as cleaning cartridges. It does not remove records from the database. Cleaning cartridges already in the database in the specified serial number range will continue to be tracked and reported. Use the database DELETE command to remove those tapes from the database if desired.
VTL Configuration

The CONFIGURE VTL command specifies the options for managing a virtual tape library (VTL).

Syntax

```
TM — CONFIGure — VTL [ <library spec> ]
```

```
> LOG [ <VTL logging options> ]
> DISK [ <VTL disk monitor options> ]
> PERFORMANCE [ <VTL performance options> ]
```

```
<VTL logging options>
```

```
> SIZE = — <integer>
> TIME = — <integer>
> COPIES = — <integer>
> NONE
```

```
<VTL disk monitor options>
```

```
> MINimum = — <integer>
> PERCENT = — <integer>
> TIME = — <integer>
> NONE
```

```
<VTL performance options>
```

```
> TIME = — <integer>
> NONE
```

Explanation

**CONFIGURE VTL LOG SIZE=2000, TIME=720, COPIES=20**

The VTL LOG option specifies the logging options used by the VTL Agent. SIZE is the amount of disk space in Megabytes a single log is allowed to occupy. Once a log file reaches this size it is closed and a new log file is created. SIZE may have a value of 1 to 65535 with the default value being 7.

TIME is the amount of time in seconds that a VTL Agent log file will collect information before it is closed and a new log file created. TIME may have a value of 1 to 65535 with a default value of 1440 (1 day).
TapeManager Configuration

COPIES is the number of VTL Agent log files to retain on the VTL. Once this number is reached older log files are removed. COPIES may have a value from 2 to 50 with a default value of 10.

Setting LOG to NONE will clear local host logging configuration. This host will not request logging but the VTL Agent will use its local values or those from another host.

**CONFIGURE VTL DISK MINIMUM=200, PERCENT=95, TIME=30**

The VTL DISK option specifies the disk space monitoring options used by the VTL Agent. MINIMUM is the amount of disk space in Megabytes that will trigger an alert message to the host(s). Once available disk space for virtual cartridges falls below this value an alert message is sent to the host(s). SIZE may have a value of 1 to 65535 with the default value being 100.

PERCENT is the percentage value above which in use disk space will trigger an alert message to the host(s). Once in use disk space for virtual cartridges exceeds this percentage an alert message is sent to the host(s). PERCENT may have a value of 1 to 99 with a default value of 90.

TIME is the frequency in minutes that the VTL Agent should check the VTL cartridge disk space. This check can be CPU intensive so it is recommended that the interval time not be short. TIME may have a value from 1 to 65535 with a default value of 60.

Setting DISK to NONE will clear local host disk monitoring configuration. This host will not request disk monitoring but the VTL Agent will use its local values or those from another host.

**CONFIGURE VTL PERFORMANCE TIME=30**

The VTL PERFORMANCE option specifies the performance space monitoring options used by the VTL Agent. TIME is the frequency in minutes that the VTL Agent should report performance information to the host(s). This check can be CPU intensive so it is recommended that the interval time not be short. TIME may have a value from 1 to 65535 with a default value of NONE.

Setting PERFORMANCE to NONE will clear local host performance monitoring configuration. This host will not request performance monitoring but the VTL Agent will use those from another host. If no host has requested performance reports then none are generated.

**CONFIGURE VTL**

The CONFIGURE VTL command without any options will display the current settings of the VTL options for all VTLs.
NOTE: The CONFIGURE VTL output shows both requested and current settings for the VTL Agent. The VTL Agent only supports a single setting of the VTL options. Therefore the requested and current values may differ if there are multiple hosts requesting changes to these settings.
Chapter 7
TapeManager Operations

CLEAN Command

The CLEAN command is used for drive related cleaning functions. The CLEAN command cleans a tape unit in an automated tape library or marks a non-automated tape unit as having been cleaned.

Syntax

TM - CLEAN - <unit spec> WITH <serial number> ->

Explanation

CLEAN MT342

This command causes the specified tape unit to be scheduled for cleaning. The Tape unit must be in an automated tape library. If the drive is in use, it will be reserved such that another task can not select the drive until cleaning has been completed. Once the drive is not in use, a cleaning tape in the library is selected and mounted in the drive. Once the drive cleaning process is completed the cleaning tape is returned to a slot. If the cleaning tape has reached its maximum number of uses it will be ejected from the library. This command is not required for tape units that report the need for cleaning to the MCP. An MCP generated cleaning request will cause this command to be processed automatically. Cleaning tapes are defined using the CONFIGURE TRACKING CLEANING command.

CLEAN MT80 WITH CLN005

The CLEAN MT command with the WITH part marks the tape unit as being cleaned and the updates the cleaning cartridge usage count. The serial number supplied must be that of a cleaning cartridge as defined with the CONFIGURE TRACKING CLEANING command. This command does not perform any actual cleaning action. It simply registers the use of the cleaning cartridge for counting and reporting purposes. It is meant for non-automated tape drives so that cleaning cartridge usage can be tracked.

Note: This feature is not available with libraries connected via the Unisys CSC-A library interface. The Unisys CSC-A interface software is responsible for drive cleaning.
CLEAN :STATUS

The STATUS option of the CLEAN command displays information regarding current drive cleaning activity. The display will show whether the cleaning process is active or inactive and how many drives are queued for cleaning. If the cleaning process is active, the display will also show what action the cleaning process is currently performing.

CLEAN :CLEAR

The CLEAR option of the CLEAN command removes all entries from the queue of drives to be cleaned. The clear is done before any drives specified in the command are added to the queue for cleaning. The command has no effect on drives that are in the process of being cleaned.

CLEAN :STOP

The STOP option of the CLEAN command stops the processing of drive cleaning requests by cleaning process. The cleaning process stack is sent to end-of-job. Drives in the cleaning queue are retained but no additional drives may be added. If a drive is being cleaned, it will be completed before the stop is executed.

CLEAN :RESUME

The RESUME option of the CLEAN command restarts the cleaning process. Once the resume has successfully completed, any queued drives are processed and additional drives may be added to the drive cleaning queue.
REPLACE Command

The REPLACE command is used when an old tape or tape unit is retired and replaced with a new tape or tape unit.

Syntax

```
TM ─ REPLace ──┬ ──┬ ──<SN list> ──┤
       │       │  └ ──<unit spec> ┘
       │       └ ──SN ┘
```

Explanation

**REPLACE SN 100001**

This command marks tape 100001 as having been replaced with a new reel or cartridge. The serial number is retained but the new date field is updated and the usage and error counts since new are cleared. A tape must be marked as being purged (scratch) before the system will allow it to be replaced. The SN syntax is provided for consistency and readability.

**REPLACE MT80**

This command marks tape unit MT80 as having been replaced with a new unit. The drive statistics are cleared and the in service date is set to the current date. For tape drives and MCPs that support the reporting of the tape unit serial number, an automatic replace is done whenever a different tape drive serial number is seen for that unit.
COPY Command

The COPY command is used to make an image copy of a tape.

Syntax

```
TM — COPY — <VTL archive spec>
  — <VTL import spec>
  — <VTL remote copy spec>

<VTL archive spec>
  — SN — <name> — TO — BACKEND — SN — <bar code>

<VTL import spec>
  — SN — <name> — FROM — BACKEND — SN — <bar code>

<VTL remote copy spec>
  — SN — <name> — TO — VTL — <name> — AS — <string>
```

Explanation

**COPY SN V00001 TO BACKEND SN T00004**

The COPY to BACKEND command starts a VTL archive process that duplicates the virtual tape onto a physical tape in a backend library attached to the VTL. The source virtual tape must be in the virtual vault of the VTL. If a bar code of the destination physical tape is not specified then an expired tape in the physical library will be selected if available. If the physical tape is to be encrypted then the VTLKEY and PASSWORD options should define the preconfigured VTL encryption key and key password. If a default VTL encryption key and password were defined with the CONFIGURE ENCRYPTION command those strings will be used if not specified in this command. The EJECT option causes the physical tape to be ejected from the physical library when
the copy process has finished. This command requires a VTL with the DSI VTL Agent installed and a physical library attached to the back end of the VTL.

**COPY SN V00001 FROM BACKEND SN T00004**

The COPY from BACKEND command starts a VTL import process that duplicates the physical tape in a backend library attached to the VTL onto a virtual tape. The destination virtual tape must not already exist as it will be created. If the physical tape is encrypted then the VTLKEY and PASSWORD options should define the preconfigured VTL encryption key and key password used to encrypt that tape. If a default VTL encryption key and password were defined with the CONFIGURE ENCRYPTION command those strings will be used if not specified in this command. This command requires a VTL with the DSI VTL Agent installed and a physical library attached to the back end of the VTL.

**COPY SN V00001 TO VTL DRVTL**

The COPY to VTL command starts a VTL remote copy process that duplicates the virtual tape at a remote VTL. The USER and PASSWORD options should define the user id and password for accessing the remote VTL. This command requires a VTL with the DSI VTL Agent installed and a remote VTL accessed via a TCP/IP connection.
DATABASE CLOSE Command

The DATABASE CLOSE command temporarily closes the TapeManager database. DB is an abbreviation for DATABASE. This command allows the database to be closed for backup purposes without shutting the TapeManager system down. While the TapeManager system is active, tape activity will be queued when the database is closed. This ensures no tape activity will be missed. The user count of TapeManager must be zero before the action is allowed.

Syntax

```
TM DATABASE CLOSE
```

Explanation

DB CLOSE

Temporarily closes the TapeManager database so that it may be backed up. While the database is closed, commands that require database access will receive an error message. The utility program will not execute.

Note: TapeManager will attempt to automatically close and reopen its database if it detects a COPY of its database when the TM CONFIG DB setting is CLOSE. (Only if the user count is zero.)
DATABASE OPEN Command

The DATABASE OPEN command reopens the TapeManager database after it has been closed with the DATABASE CLOSE command. DB is an abbreviation for DATABASE. This command allows reopening of the database after it has been closed for backup purposes.

Syntax

```
TM ┌─ DATABASE ── OPEN ──┐
     └─ DB ──┐
```

Explanation

**DB OPEN**

Reopens the TapeManager database closed by a previous DB CLOSE command.

While the database is closed, commands that require database access will receive an error message. The utility program will not execute.
DATABASE BACKUP Command

The DATABASE BACKUP command temporarily closes the TapeManager database and copies the database to tape or disk. Once the database is copied, it is reopened. The DB BACKUP process attempts to copy all parts of the TapeManager system; database, configuration, control, and object files. If the LibraryManager software is in use, the LibraryManager files are backed up to the same tape or disk directory. A BACKUP file set will then contain a complete file set if recovery is needed. DB is an abbreviation for DATABASE and Tape Library files.

Syntax

```
TM ── DATABASE ── BACKUP ── <dest>
<dest>
 ── TO ── TAPE ── <name> ( ─ <destination attributes> ─ ) ─
 ── DISK ── PACK ── ON ─ <family name> ─
```

Explanation

**DB BACKUP**

**DB BACKUP TO TAPE**

Copies the TapeManager database to a library maintenance tape named TAPEMANAGERBACKUP. If the TapeManager object files have not been renamed and reside on the same family as the database, they will be backed up also.

**DB BACKUP TO MYTMTAPE**

Copies the TapeManager backup set to a tape labeled MYTMTAPE. This option allows a site to name the backup tape something other than the default of TAPEMANAGERBACKUP.

**DB BACKUP TO TAPE(SCRATCHPOOL=LIBRARY)**

When the TO TAPE or TO <name> specification is used, optional destination volume attributes may be supplied. These attributes include (but are not limited to) SCRATCHPOOL, DENSITY, and SAVEFACTOR. The list of available attributes and their syntax is described in the MCP/AS Work Flow Language (WFL) Programming Reference Manual in the COPY or ADD Statement section under <destination volume attribute list>.
Note: Not all destination volume attributes may be allowed. The BACKUP command generates a COPY & VERIFY statement in the WFL job it creates. Some destination volume attributes may not be available with the VERIFY option.

DB BACKUP TO DISK

Copies the TapeManager database as BACKUP= to the pack family where the TapeManager database resides. The DB RESTORE command can be used to recover a database backed using the DB BACKUP command.

DB BACKUP TO PACK ON BACKUPPACK

This command copies the TapeManager database as BACKUP= to the pack family named BACKUPPACK.

Note: While the database is closed for the backup, commands that require database access will receive an error message.
DATABASE REORGANIZE Command

The DATABASE REORGANIZE command temporarily closes the TapeManager database and reorganizes the database files. Once the reorganization has completed the database is reopened. DB is an abbreviation for DATABASE.

Syntax

```
TM DATABASE REORGanize <multi-host spec>

<multi-host spec>

ALL HOSTS

HOSTname = <hostname>

: TEST
```

Explanation

**DB REORG**

This command starts a reorganize process of the TapeManager database. During the reorganization, the database is checked for validity, any deleted record space is returned to the system, and the index tables are rebuilt for efficiency. The pack family must have enough space to temporarily hold two copies of the database. While the database is closed for the reorganization, commands that require database access will receive an error message.

The database reorganization will create a file that contains a list of the changes and corrections made during the reorganization. The REPORT/LIST REORGANIZATION command is used to view this data. Only one reorganization results file is maintained. Executing the reorganization command will delete a previous results file.

**DB REORG ALL HOSTS**

The multi-host option of the reorganize command starts the reorganize process at the local host and at the specified remote hosts if those remote hosts are online. The specified hosts send database records to the lead host for comparison to make sure the records on all hosts are the same. If a discrepancy is found with a hosts record when compared to other hosts the lead TapeManager host will determine which record is the most recent and update the other hosts.

The :TEST option allows a multi-host reorganize to be executed as normal except that no database updates are done. Reports and displays are generated as normal but the database will be left in its original condition on all hosts.
DATABASE RESTORE Command

The DATABASE RESTORE command restores the TapeManager database from a backup copy of the database files. Once the restore has completed the database is reopened. DB is an abbreviation for DATABASE.

Syntax

```
TM DATABASE RESTORE <directory>
```

Explanation

**DB RESTORE**

Restores the TapeManager database from the BACKUP/= directory created with the DB BACKUP TO DISK command. The current database is overwritten and any data not in the backup database is lost.

**DB RESTORE BACKUP/= ON BACKUPPACK**

Restores the TapeManager database from the BACKUP/= directory on the family BACKUPPACK.

*Note:* While the database is closed for the recovery, commands that require database access will receive an error message.
DATABASE RECOVER Command

The DATABASE RECOVER command causes TapeManager to recover records from the MCP Sumlog and apply them to the TapeManager database. DB is an abbreviation for DATABASE.

Syntax

```
TM DATABASE RECOVER DB
```

Explanation

DB RECOVER

TapeManager calls the Sumlog and requests records from the time of the last TapeManager database update. This command is a manual version of the CONFIGURE DB RECOVER FROM LOG = TRUE. Use this command if the RECOVER FROM LOG is not set and information from the system Sumlog is required after a TapeManager restart. This command must be entered before any database updates have occurred to be of any use.
DATABASE Command

The DATABASE command displays the current status of the TapeManager database. The database record count and license information is also displayed. DB is an abbreviation for DATABASE.

Syntax

```
TM DATABASE DB
```

Explanation

DATABASE

Displays the open or closed state of the TapeManager database. The number of records in the database is displayed. TapeManager license information is also displayed.
DELETE Command
The DELETE command removes a tape unit from the TapeManager drive log.

Syntax

```
TM -- DELete -- <unit spec>  
```

Explanation

DELETE MT999

The referenced tape unit is deleted from the TapeManager drive log. All information for that drive is cleared.

*Note: Tape units are added to the drive log automatically. The deleted drive will be re-added to the drive log if it is acquired onto the system again.*
DISABLE Command

The DISABLE HOST command closes the connection to a remote TapeManager host. While a host is disabled, no tape activity information is passed between these hosts. The local TapeManager will not attempt to access the remote TapeManager host until it has been allowed to do so with the ENABLE command. When a host is re-enabled a synchronization process is started to make sure any tape database changes made to either host while disabled are passed to each host. The disabled state of a host is saved over TapeManager restarts.

Syntax

```
TM - DISABLE ─ HOSTs ── <hostname>
                └─ ALL ── HOSTs ── STACKING
```

Explanation

DISABLE HOST TESTHOST

Closes the connection between the named remote host and the local host used to transfer tape database activity and other information as defined in the CONFIGURE HOST command.

DISABLE ALL HOSTS

Closes the connection between all remote hosts and the local host used to transfer tape database activity and other information as defined in the CONFIGURE HOST command.

Note: The DISABLE HOSTS command does not affect any connection with the remote host used for remote library access. The DISABLE LIBRARY command should be used to disconnect access to/from a remote tape library.

DISABLE STACKING

The disable stacking function attempts to delink the TapeManager system from the Unisys TapeStack system (SYSTEM/TAPESTACKSUPPORT). The disable will not be allowed if there are stacking functions currently running. Delinking from the TapeStack software allows the TapeStack software to be updated without the need of bringing TapeManager down.
The ENABLE command attempts to re-establish the connection to a remote host that was closed with the DISABLE HOST command. When a host is re-enabled a database synchronization process is started to make sure any tape database changes made to either host while the connection was disabled are passed to each host.

Syntax

```
TM - ENABLE HOSTs <hostname> [resync option]  
ALL HOSTs <resync option>  
STACKING
```

Explanation

**ENABLE HOST DEVELOPMENT**

Attempts to reestablish the connection to the named host. The reconnection will only succeed if the named host has been configured for connection to the local host, that connection is enabled, and the network service between the hosts is active. Enabled is the default state when a host is added with the CONFIGURE HOST command.

**ENABLE ALL HOSTS**

Attempts to reestablish the connection to all remote hosts.

**ENABLE HOST TESTSYSTEM RESYNC TO YESTERDAY**

An ENABLE HOST command with the RESYNC option causes the database resynchronization process that is activated to be at the specified date and time rather than from the point when the connection was last broken. If a time is not specified, midnight (00:00) is assumed. The date and time must be prior to the point when the connection between the local and remote host was broken.

**ENABLE HOST PROD RESYNC ALL**

The ALL option of the HOST ENABLE RESYNC command causes the remote host to send all records from its database to be resent.

**Note:** The ENABLE HOSTS command does not affect any connection with the remote host used for remote library access. The ENABLE LIBRARY command should be used to reconnect access to/from a remote tape library.
ENABLE STACKING

The enable stacking function attempts to link TapeManager to the Unisys TapeStack system (SL TAPESTACKSUPPORT).
INSTALL Command

The install command allows initiation of a software upgrade directly from TapeManager. The install command will start a copy of all software from the source into a temporary directory of INSTALL/= within the current TapeManager installation directory. The SYSTEM/TAPEMANAGER/INSTALL program will run and select the best code for the current machine and install that set of files. For active mode installations, the install program will shut down TapeManager and restart it after the new code has been installed. For CSC mode installations, the install program will pause and wait for the site management to shut down TapeManager. Any TapeManager Utility or TMREMOTESPO sessions will be temporarily delinked from TapeManager. Restart of TapeManager must also be done manually for CSC mode installations.

Syntax

```
TM - INSTALL [ ALL ] FROM <name> [ IN <filename> [ ON <directory> ] AT <hostname> ]
```

Explanation

**TM INSTALL**

Will install the entire new release from CD media. The release CD must be mounted on a system CDROM drive.

**INSTALL ALL FROM TAPEMANAGER (CD)**

Same as TM INSTALL.

**INSTALL FROM TMBACKUP(TAPE)**

Will install the entire new release from the tape named TMBACKUP.

**INSTALL ALL IN “TM.CON”**

Will install the entire new release from the WRAP container file, “TM.CON”.

**INSTALL ON *TMFILES ON PACK**

Will install the entire new release from the directory TMFILES on disk family, PACK.
INSTALL ALL ON TAPEMANAGER/= AT PROD

Use of the AT hostname option in the ON string will cause TapeManager to copy the install files from the specified location on another host. The two hosts must be communicating via a BNA connection.
MOVE Command

The MOVE command changes the location designation of a set of one or more cartridges.

Syntax

```
TM -- MOVE ___ SN -- <SN list> ___ TO -- <location> >
```

```
>-- TO -- LOCation -- <location> 
```

```
: -- EXCEPT -- <SN list>
```

Explanation

MOVE SN 10235,10249 TO LOCATION HOTSITE

Marks the cartridges with the specified serial numbers as having been moved to another location. The location must have been configured with the CONFIGURE LOCATION command before using the MOVE command.

MOVE TO VAULT TO LOCATION VAULT

The use of the TO <location> option, marks all the cartridges scheduled to be moved to the location as now being at that location. Use the TM LIST/REPORT MOVEMENT TO <location> to view the cartridges that will be updated.

MOVE TO VAULT TO LOCATION VAULT :EXCEPT 123456, 234567

The exception option of the movement command allows for cartridges that are part of a movement list to be excluded from the movement update.
SCHEDULE Command

The SCHEDULE command allows one or more TapeManager commands to be executed on a specific instance or schedule. Each schedule request that has a <time point> is placed into a file under SYSTEM/TAPEMANAGER/SCHEDULE and given a number. Included in the file are the credentials (user code, station name or SC number) of the initiator. When the schedule request runs, the file is marked with the timestamp of that run. On TapeManager restart, the schedule entry is made after that timestamp. If the stream is interrupted by a TapeManager shutdown, it will restart from the beginning when TM comes back up. Output from the command execution is placed at the end of the file. The file is in plain text and can be read or printed in any manor the user desires. Security is PUBLIC IN.

Syntax

```
TM -- SCHEDULE
    <time point> -- <TM commands> --
    <schedule option> -- <schedule selection>

<time point>

DAILY
    WEEKDAYs
    WEEKENDs
    <date list>
        NEXT
        EACH

<day of month>

    <month>
        QUARTER
            FIRST
            SECOND
            THIRD
            FOURTH
            LAST

<month>

    JANuary
    FEBruary
    MARch
    APRil
    MAY
    JUNE
    JULy
    AUGust
    SEPtember
    OCTober
    NOVember
    DECember
```
Tape Library Operations

<day of week>

MONday
TUEsday
WEDnesday
THUrsday
FRIday
SATurday
SUNday

<schedule option>

STATUS
COMPLETE
DISABLE
ENABLE
DELETE

<schedule selection>

<number list>
<string>
ALL

Explanation

SCHEDULE DAILY @ 1:00 DB BACKUP TO DISK
SCHED EACH TUE LOG “starting report”; REPORT ALL

The SCHEDULE command creates a schedule request item to be processed one or more times in the future. The time point allows for TapeManager commands to be scheduled for execution at the specified date and time. If a time component is not supplied then midnight is assumed. Any number of TapeManager commands can be defined. Each TapeManager command must be separated by a semi-colon (;).

SCHEDULE
SCHEDULE STATUS 5219, 5222
SCHEDULE STATUS “MODIFY”

The SCHEDULE STATUS command reports the status of active and scheduled requests. Completed requests are not listed. The returned list can be filtered by supplying a list of request numbers or a search string. It the search string is used then only requests that contain that string will be listed. The search string will match with any test in the time point, TapeManager commands, or results text for completed items. The search is not case sensitive. The SCHEDULE command without any options is the same as SCHEDULE STATUS ALL.
SCHEDULE COMPLETE
SCHED C 38

The SCHEDULE COMPLETE command will list all requests that have completed in this day. Information for older completed requests can be found in the TapeManager logs.

SCHEDULE DISABLE

The SCHEDULE DISABLE command will prevent selected requests from starting. Requests that are currently executing are not affected.

SCHEDULE ENABLE

The SCHEDULE ENABLE command will allow previously disabled requests to start on schedule.

SCHEDULE DELETE

The SCHEDULE DELETE command will remove the selected requests from the schedule. If an active request is in the delete list then the active request is terminated.

Note: See the REPORT/LIST SCHEDULE command for reports on schedule requests.
SET Command
The SET command permits the specification of locally determined values. All such settings can be viewed by entering SET alone.

Syntax

```
TM -- SET
```

Explanation

SET PROCESSING DATE TO TODAY
SET PROCESSING DATE 11/11/96

The PROCESSINGDATE attribute is set to the specified date value. The <date> variable must conform to the format defined in the Convention configuration item. The PROCESSINGDATE attribute is retained by the system for application to each newly labeled tape. Activity and exception reports will be influenced by PROCESSINGDATE, in that activity which is logged while PROCESSINGDATE is set will appear only in reports that include that date (the PROCESSINGDATE), regardless of the actual date.

The effect of setting PROCESSINGDATE to a future time may cause expected information to be missing from some reports. PROCESSINGDATE affects PURGE lists by selecting tapes based on the maximum of PROCESSINGDATE and the calendar date.

SET PROCESSING NONE

The PROCESSINGDATE attribute is reset. Events logged will use the system calendar date.

SET PROCESSING DATE

If no value is given then the current setting of PROCESSINGDATE is displayed.

**Note:** Once a PROCESSINGDATE has been specified it will be used until reset or changed. It is the responsibility of the user to see that the PROCESSINGDATE is changed as required. There is no automatic changing or resetting of this value.

SET TIME ZONE ON

Setting the TIME ZONE attribute to ON activates the TapeManager multi-host time zone features. These features allow for the reporting of time values in various reports with
Tape Library Operations

time zone information. With the TIME ZONE feature active (ON) the CONFIGURE REPORT TIME command can be used to control how times are reported. When this feature is OFF the time zone is not reported and the times are always shown as set by the creating or modifying host.

Note: Since setting the TIME ZONE option makes changes to the TapeManager database it is recommended that the TapeManager database be backup before setting this option the first time.
TL (Transfer Log) Command

The TL command changes the name of the current TapeManager log file by adding the current date and time to the title and creates a new empty log file. This command can be executed whenever the site feels the log file is too big or the activity or exception reports take too long. The log is automatically transferred at the end of the month or when it has acquired 40000 records.

Syntax

```
TM − TL
```

Explanation

TL

Closes the current log file and adds the current date and time to the files title. A new empty log file is then created.
LABEL Command

The LABEL command designates cartridges that should have labels printed for them. The command places one or more label requests in the label queue of the LabelManager. Label requests are automatically placed in the label queue when a cartridge is created or when a newly created cartridge is ejected from a library. This command can be used to print extra labels or reprint labels that may have been damaged. The options to this command allow control of the LabelManager process.

The LabelManager process calls the user written label printing routine designated by the LABELMANAGER SL. Information on programming the label interface used by the LabelManager is found in Appendix D.

Syntax

```
TM - LABEL
  └── SN  ── <SN list>
    └── LABEL  ── <label ID>
        └── WITH  ── <update spec>

<update spec>

  └── <field name>  ── =  ── <value>
```

Explanation

**LABEL SN 123456**

The LABEL command with the SN option causes a print label request to be queued for the LabelManager if the LabelManager interface is active. The tape referenced by the SN must not be scratch.

**LABEL LABEL WEEKLYBACKUP**

The LABEL command with the LABEL option causes a print label request to be queued for the LabelManager if the LabelManager interface is active.

**LABEL WITH SERIALNO=A12345 LABEL=MYTAPE CREATEDDATE=1/01/01**

The LABEL command with the WITH option causes a temporary tape record to be created and passed to the LabelManager. Any database field may be set in the <update spec> even Read-Only fields since the record is temporary and never written to the tape.
Tape Library Operations

database. Setting a field in the <update spec> does not guarantee that it will be printed as what is contained on the label is controlled by the label printing program.

**LABEL :STATUS**

The STATUS option of the LABEL command displays information regarding current label printing activity. The display will show whether the LabelManager interface is active or inactive and how many labels are queued for printing. If the LabelManager interface is active, the display will also show what action the LABELMANAGER process is currently performing.

**LABEL :CLEAR**

The CLEAR option of the LABEL command removes all entries from the queue of items to be labeled. The clear is done before any items specified in the command are added to the queue for labeling. The command has no effect on labels that may be in a print queue outside of TapeManager or are being processed.

**LABEL :STOP**

The STOP option of the LABEL command stops the processing of label requests by the LabelManager. The LabelManager stack is sent to end-of-job and delinked from the LABELMANAGER library interface. Items in the label queue are retained but no additional items are allowed to be added. If a label is being processed, it will be completed before the stop is executed.

**LABEL :RESUME**

The RESUME option of the LABEL command restarts the LabelManager process if the LABELMANAGER library function is available. This command may also be used to activate label printing if the LABELMANAGER library function is added after the TapeManager was executed without needing to bring down the TapeManager system. Once the resume has successfully completed, any queued items are processed and additional items may be added to the label printing queue.

The STOP and RESUME options of the LABEL command can be used to change the label printing software associated with the LABELMANAGER SL without the need to bring down the TapeManager system.

**LABEL :ALIGN**

The ALIGN option of the LABEL command causes an alignment label request to be sent to the label printing program. It is the responsibility of the label printing program to determine how to handle or ignore this request.
Note: Some media cartridges such as DLT and MO should never have labels affixed directly to the media. For these kinds of media, attach the label to the case the media is stored in.
LOAD Command
The LOAD command is used to read in a file of macros for use as TapeManager commands.

Syntax
```
TM -- LOAD -- MACROS ┌─ IN ─ <file title> └
```

Explanation
LOAD MACROS
Reads the macros from a file named SYSTEM/TAPEMANAGER/MACROS. The file is expected to be found on the same family and under the same usercode as the other TapeManager files. Any macros that had been previously loaded are unloaded before the new load is processed.

LOAD MACROS IN TEST/MACROS
Reads macros from the file TEST/MACROS. If the family and/or a usercode are not specified, the default is the family and/or usercode where the other TapeManager are found. Any macros that had been previously loaded are unloaded before the new load is processed.
UNLOAD Command
The UNLOAD command is used to remove macros for use as TapeManager commands.

Syntax
```
TM ─ UNLOAD ─ MACROS
```

Explanation

UNLOAD MACROS
All macros that have been created either by the LOAD command or through a operator entered DEFINE command are removed from the TapeManager system.
QUIT Command
The QUIT command shuts down the TapeManager system.

Syntax

```
TM - QUIT
   TAPEMANAGER
   TM
   TL
   ALL
```

Explanation

QUIT
Shuts down the TapeManager system. No new commands will be allowed after the QUIT has been issued.

QUIT TAPEMANAGER
Shuts down the TapeManager system. The TAPEMANAGER syntax is used to verify the product that is to be shut down. TM is a synonym for TAPEMANAGER.

Note: When TapeManager is operating in ACTIVE mode, the SEND TM QUIT operator command may also be used.

QUIT TL
The TL option of the QUIT command causes the LibraryManager library management software (SYSTEM/TAPELIBRARY/SUPPORT) to shut down without requiring the TapeManager software to shut down. The library management software can be restarted by using the ENABLE LIBRARY command.

QUIT ALL
The ALL option of the QUIT command causes all modules of the TapeManager system to shut down. It functions the same as QUIT TAPEMANAGER.
DO Command
The DO command processes a disk file of TapeManager commands.

Syntax

```
TM - DO ──<filename>─ STARTUP
```

Explanation

**DO MY/REPORTS ON MYFAMILY**

Commands in the file MY/REPORTS are executed sequentially with responses returned to the originating station (or to the system display if the originator can not be determined). Any number of commands can be contained in one file, separated by semicolons. If an error occurs, processing stops with that command. The file can be any textual type (e.g. SEQDATA) and a command may occupy multiple lines of the file but only the first 72 columns of each line are analyzed. If the file’s family is not specified, the family from which TapeManager is executing is assumed.

**DO STARTUP**

The STARTUP option looks for the TapeManager startup file which must be contained in the same directory and family as the TapeManager installation. If the file, SYSTEM/TAPEMANAGER/STARTUP/<hostname> is found, that file is executed. Otherwise, TapeManager looks for the file, SYSTEM/TAPEMANAGER/STARTUP. The TM DO STARTUP command is automatically executed each time TapeManager starts with responses going to the system messages.
EMAIL Command

The EMAIL command sends email messages via the Unisys MCP Email Support library. To use the EMAIL function, the Unisys MCP E-Mail software (HMP 7.0/SSR 48.1 MCP or higher) must be installed. (Refer to the EMAIL Utility section of the System Software Utilities Operations Reference Manual.)

Syntax

```
TM EMAIL ── <to part> ─├──<attachments> ─├──<message> ┘
<to part>
 ─<addresses> ─∥ ─<addresses> ┘
 adreses> ─<addr list> ─∥ ─<addr list> ┘
 addr list> ─<email address> ─∥ ─<email address> ┘
 ─<email address> ─∥ ─<email address> ┘
 ─FILE ─<file title> ─∥ ─<integer> ┘
 ─TRACE ─<integer> ─∥ ─TM ─<commands> ┘
<commands> ─<command> ─∥ ─<command> ┘
<message> ─<text> ─∥ ─<quoted string> ┘
```

Explanation

```
TM EMAIL SUPER Job 9422 faulted @21:52

Sends the text message to the SUPERVISOR account. The SUPERVISOR account must have been previously configured with the CONFIGURE EMAIL SUPERVISOR
```
command. The Subject of the message is created from the first 50 characters of the message or the portion until the first period (.) whichever comes first. Extra spaces in the message text will be compressed unless the text is contained within quotes. The // option is available to be consistent with the Unisys email software.

**TM EMAIL SUPPORT FILE TEST/FIEL ON WORK, “File as requested”**

The FILE option of the EMAIL command causes the specified file to be placed in the email as an attachment. The email is sent to the SUPPORT account as defined by the CONFIGURE EMAIL SUPPORT command. A maximum of 10 total traces and files may be included in an email.

**TM EMAIL SUPPORT TRACE 1204, “Trace as requested”**

The TRACE option of the EMAIL command causes the TapeManager trace with the specified trace number is placed in the email as an attachment. The email is sent to the SUPPORT account as defined by the CONFIGURE EMAIL SUPPORT command. A maximum of 10 total traces and files may be included in an email.

**TM EMAIL OPERATOR TM STATUS; END, “Check the status”**

The TM option of the EMAIL command causes the output of the specified TapeManager command(s) to be placed in the email as an attachment.

**TM EMAIL SUPPORT TRACE TM LAST; END, “LAST command has a bug”**

The TRACE option followed by the TM option is a special case of the email TRACE option. This sequence will activate the TapeManager DEBUG tracing feature, execute the specified command(s), and deactivate the tracing feature. The output from the command(s) and the resulting trace files are placed in the email following the message portion of the email.


Tape Library Operations

**WAIT Command**

The WAIT command causes the process executing the command to pause until the wait condition has cleared. The WAIT command is designed to allow batch execution of TapeManager commands to pause until asynchronous tasks have completed. The following TapeManager commands cause asynchronous processes to be processed: CLEAN MT, DATABASE (BACKUP, REORGANIZE, RESTORE), PURGE, IMPORT, EXPORT, REPORT, FIND :PRINTER and all TapeStack commands.

**Syntax**

```
TM - WAIT — ( <integer> )
```

**Explanation**

**WAIT(5)**

The WAIT command with the integer parameter causes the process executing the command to pause for the integer number of seconds. If the integer is greater than 164925 then a value of 164925 will be used.

**WAIT(OK)**

The WAIT command with the OK parameter causes the process executing the command to pause until the operator allows the process to continue by entering a <mix #>OK.

**WAIT(STACKTASK)**

The WAIT command with the task id parameter causes the process executing the command to pause until the task associated with the task id has completed. If the task id has never been associated with a command, the associated command does not execute asynchronously, or the associated task has already completed then the wait command completes immediately.

**WAIT(DBOPEN)**

The WAIT command with the DBOPEN parameter causes the process executing the command to pause until the TapeManager database is in an open and ready condition. If the database is already open, the wait command completes immediately.

**WAIT(DBCLOSE)**

The WAIT command with the DBCLOSE parameter causes the process executing the command to pause until the TapeManager database is in a closed condition. If the database is already closed, the wait command completes immediately.
Special Considerations:

1. The TM WAIT(<task name>) command return an error if the task that is being waited on has been DSed. The impact is that a TM Utility batch run could abort on this WAIT. To override this functionality see the RESUME/IGNORE Dollar option card in Chapter 14.

2. When the WAIT command is used with a task id associated with a PURGE process, the WAIT command will not complete until all purge workers have finished. PURGE commands entered after the current command has started but before the current command has finished will cause the paused task to wait until all tapes are purged including the newly entered tapes.

3. When the WAIT command is used with a task id associated with an EXPORT process, the WAIT command will not complete until the export worker has finished. EXPORT commands entered after the current command has started but before the current command has finished will cause the paused task to wait until all tapes are exported including the newly entered tapes.

4. The WAIT(DBOPEN) command must be used if the requirement is to pause until a REORGANIZE, BACKUP, or RESTORE has completed. The WAIT(<task id>) form of the command will complete immediately if used with a DATABASE command.

5. The TapeManager will not allow the WAIT command to be executed on the TapeManager or LOGPROCESSOR stacks as this could cause a slowdown or temporary hang of the TapeManager system. In practical terms, this means that a WAIT command entered at the operators console (ODT/SPO) will cause a warning and the WAIT will complete immediately.

See Chapter 14, Batch Mode Execution later in this manual for additional information on assigning a task id to a command.
Chapter 8
Tape Library Operations

The tape library operations commands allow the TapeManager to control an automated tape library. These commands are only available when TapeManager is configured with the LibraryManager software and an automated tape library is connected to the system.

PURGE Command

The PURGE command allows one or more tapes to be mounted, purged, and replaced back into an automated tape library with a single command. Tapes may be purged by requesting a list of serial numbers, a list of slots, or the entire library. The purge process is handled by a different mix entry running at a lower priority so that it does not interfere with other tape library operations.

Syntax

```
TM - PURGE
  | SN - <SN list>
  | SLOT - <slot list> OF - <library spec>
  | LIBRARY <library name> <select>
  | TO - <location>
  |<1/1\  (  - <density value>  - )<name>
  |<1/1\  SCRATCHPOOL  |<1/1\  COMPpressed
  |<1/1\  POOL NONCOMPpressed
  |<1/1\  CLEAR

<select >
  ─ WHERE - <selection spec> ─
```
Tape Library Operations

<selection spec>

AND
OR

<field name> <compare op> <value>

<auto SN spec>

AUTOSN <SN range>

<volume id spec>

VOLUMEid FIRST LAST <INTEGER> ALPHA NUMERIC

Explanation

PURGE SN 123456, 1001-1003

The PURGE command with the SN option will purge the tapes from the automated tape library as specified by their serial numbers (barcode labels). This example would purge tapes with the serial numbers of 123456, 001001, 001002, and 001003. If a specified serial number is not in a tape library, an error message is displayed and the purging process continues with the other serial numbers specified. The tapes are SN’ed using the barcode label attached to the tape. If the tape does not have a barcode label, an error is displayed and the tape must be purged manually. If a tape is assigned to a scratchpool, the scratchpool assignment is retained.

PURGE SLOT 2, 5-7 OF ALPINE (11000)

The PURGE command with the SLOT option purges tapes from a tape library by the slots that the tapes reside in. In this example, the tapes in slots 2, 5, 6, and 7 would be purged. The tapes will be purged with a density of 11000 BPI. If a slot is empty, or the tape does not have a barcode label, an error message is displayed and the process continues with the other slots.

Note: If only one automated tape library is configured with the LibraryManager, then the <library spec> is not required. However, if more than one tape library is configured, the <library spec> must be supplied.

Note: The PURGE SLOT command is not available for libraries managed by the Unisys CSC-A library interface.

PURGE LIBRARY ALPINE SCRATCHPOOL = DMSPOOL

The PURGE command with the library option purges all the tapes in an automated tape library. This command is equivalent to a PURGE SLOT 1-<last slot number> command.
In this example all the tapes will be purged with their SCRATCHPOOL attribute set to DMSPOOL.

**Note:** If only one automated tape library is configured with the LibraryManager, then the `<library name>` is not required. However, if more than one tape library is configured, the `<library name>` must be supplied.

**PURGE LIBRARY WHERE EXPIRED**

The PURGE library command with the WHERE option purges the tapes in an automated tape library that meet the selection specification. In this example all the tapes in the tape library that are expired according to the retention rules will be purged.

**PURGE TO HOME**

The PURGE command with the TO `<location>` option purges all the tapes in an automated tape library that are marked as being scheduled for movement to the specified location. This function is useful for purging tapes that are coming back from an off-site location to be reused. This command must be executed before the MOVE command that registers the cartridges as having been moved to this location.

**PURGE :STATUS**

The STATUS option of the PURGE command displays information regarding current purge activity. The display will show if purging is currently ACTIVE or INACTIVE and how many tapes are currently waiting to be purged. If purging is active, the number of workers allowed is displayed. For each running purge worker, a message is displayed showing is current activity.

**PURGE :CLEAR**

The CLEAR option of the PURGE command removes all purge entries from the queue of tapes waiting to be purged. The clear is done before any tapes specified in the command are added to the purge queue. This command has no effect on tapes that are in the process of being purged (i.e. already being processed by a purge worker).

**PURGE :STOP**

The STOP option of the PURGE command stops the selection of tapes from the purge queue. The purge WORKER tasks will end when they have completed working on the current tape. This command has no effect on tapes that are in the process of being purged (i.e. already being processed by a purge worker).
PURGE :RESUME

The RESUME option of the PURGE command restarts a purging process that may have been stopped without needing to add any tapes to the purge queue. Any time a tape is added to the purge queue via the PURGE command, it will be resumed if it has been stopped.

PURGE :WORKERS = 4

The WORKERS option of the PURGE command controls the number of tasks that will be used to purge tapes. Each worker will select a tape from the purge queue and mount it in an available tape unit for purging. The workers value may be changed while purging is active and the number of active purging tasks will be adjusted accordingly. The WORKERS value is retained until changed by the operator. The default is 1 worker. The maximum number of workers is 10.

PURGE LIBRARY ALPINE :AUTOSN M00001-M00999
PURGE LIBRARY ALPINE :AUTOSN 1000-1500 VOL FIRST 1 ALPHA

The AUTOSN option of the purge command is for use with media libraries that do not support barcode readers. The serial number range supplied is used to SN the media sequentially from the start of the range to the last slot specified. In the first example above, the media would be SNed M00001, M00002, M00003, M00004 to M00999 or the limit of the slots in the library. The AUTOSN option may only be used with the SLOT and LIBRARY functions of the PURGE command. The serial number range must contain at least as many values as the slots specified.

The VOLUMEID specifier is for use with media that can have more than one volume on a single piece of media. Examples would be MO media which has 2 sides (2 volumes) or a tape that supports multiple partitions. The VOLUMEID is one or more characters used to identify a particular volume within a multi-volume piece of media. The characters may be placed at the beginning (FIRST) or end (LAST) of the generated serial number. The VOLUMEID characters may be either alphabetic (ALPHA) or numbers (NUMERIC). If alphabetic volume identifiers are requested, the volume identifier are A, B, C, etc. ALPHA volume identifiers are limited to a single character. NUMERIC volume identifiers start at 1, increment by 1, and may be up to 3 characters long. The sequence number range specified by the AUTOSN parameter is only incremented when the cartridge changes. When using ALPHA identifiers, the number of volumes per cartridge is limited to 26. NUMERIC identifiers are limited by the number of characters specified (9, 99, or 999).

When VOLUMEID is specified with the AUTOSN option, the sequence number range must be specified such that there is room within the serial number for the VOLUMEID. For example, if a one character ALPHA character is requested, the sequence number range can not exceed 5 characters as the MCP serial number is 6 characters maximum. In the second example above, the media would be SNed A01000, B01000, A01001, B01001, … when used with an MO library (2 sided media).
**EXPORT Command**

The EXPORT command allows one or more tapes to be moved from an automated tape library storage slot to the export door with a single command. Tapes may be removed by requesting a list of serial numbers or a list of slots. The export process is handled by a different mix entry running at a lower priority so that it does not interfere with other tape library operations. The EXPORT process can not be started if an IMPORT process is already running. Export requests seen while importing is active, are queued and processed once the import process has completed. EJECT and REMOVE are synonyms for EXPORT.

**Syntax**

```
TM [EXPORT] [EJECT] [REMOVE] [SN] [SLOT] [WHERE] [OF] [TO] [<location>]
```

**Explanation**

**EXPORT SN 123456, 1001-1003**

The EXPORT command with the SN option will send the tapes as specified by their serial numbers (barcode labels) to the export door from the automated tape library storage slot(s). This example would remove tapes with the serial numbers of 123456, 001001, 001002, and 001003. If a specified serial number is not in a tape library, an error message is displayed and the removal process continues with the other serial numbers specified.

**EXPORT SLOT 2, 5-7 OF ALPINE**

The EXPORT command with the SLOT option removes tapes from a tape library by the slots that the tapes reside in. In this example, the tapes in slots 2, 5, 6, and 7 would be removed.
Note: If only one automated tape library is configured with the LibraryManager, then the <library spec> is not required. However, if more than one tape library is configured, the <library spec> must be supplied.

EXPORT WHERE CREATEDDATE = TODAY

The EXPORT command with the WHERE option removes tapes from tape libraries that match the selection criteria. Only tapes in currently online libraries are selected.

EXPORT TO VAULT

The EXPORT command with the TO <location> option removes tapes from a tape library by that are scheduled to be moved to the specified location. The location and movement rules must have been previously configured.

EXPORT :STATUS

The STATUS option of the EXPORT command displays information regarding current removal activity. The display will show if tape removal is currently ACTIVE or INACTIVE and how many tapes are currently waiting to be removed.

EXPORT :CLEAR

The CLEAR option of the EXPORT command removes all removal entries from the queue of tapes waiting to be removed. The clear is done before any tapes specified in the command are added to the remove queue. This command has no effect on tapes that are in the process of being removed (i.e. already being processed by a remove worker).

EXPORT :STOP

The STOP option of the EXPORT command stops the selection of tapes from the remove queue. The remove WORKER task will end when it has completed working on the current tape. This command has no effect on the tape that is in the process of being removed (i.e. already being processed by the remove worker).

EXPORT :RESUME

The RESUME option of the EXPORT command restarts a removal process that may have been stopped without needing to add any tapes to the remove queue. Any time a tape is added to the remove queue via the EXPORT command, it will be resumed if it has been stopped.

Note: The EXPORT command is only supported on cartridge libraries with the correct import/export door hardware installed.
IMPORT Command
The IMPORT command allows one or more tapes to be moved from the import door of an automated cartridge library to storage slots with a single command. The import process is handled by a different mix entry so that it does not interfere with other tape library operations. The IMPORT process cannot be started if a REMOVE process is already running. ENTER is a synonym for IMPORT.

Syntax

```
TM └ IMPORT └ START └ <integer> └ STOP └ SN └ <SN list> └ OF └ <library spec> └ INTO └ INTO

> : STATUS
```

Explanation

IMPORT START
The IMPORT command with the START option initiates cartridge loading of a library through its import door. The operator places cartridges into the door and activates the door continuously until there are no more cartridges to insert. Once all cartridges are imported an IMPORT STOP command should be issued.

IMPORT 10
The IMPORT command with the <integer> option allows the operator to import a specific number of cartridges without the need to enter a STOP after those cartridges are imported.

IMPORT STOP
The STOP option of the IMPORT command cancels the import operation. The STOP option will cancel imports started either through the START option or the <integer> option. Importing will also stop once there are no more slots available in the library.

IMPORT SN A00001, A00010, A00099
The SN option of the IMPORT command is used to import virtual cartridges from a VTL virtual vault to a virtual library. For each tape listed the tape is moved from the vault to the virtual library. This command requires a VTL with the DSI VTL Agent installed.
IMPORT :STATUS

The STATUS option of the IMPORT command displays information regarding current import activity. The display will show if cartridge importing is currently ACTIVE or INACTIVE and how many cartridges have been imported for the current import session. The STATUS option will not show any activity for imports from a VTL virtual vault.

Note: If only one automated tape library is configured with the LibraryManager, then the <library spec> is not required. However, if more than one tape library is configured, the <library spec> must be supplied.

Note: The IMPORT command or some import options are only supported on cartridge libraries with the correct import/export door hardware installed.
LOAD Command

The LOAD command moves a tape from a tape library slot or input/output door to a tape unit in that library. This command can only be used if there is a tape library connected to the system and accessed by the TapeManager. MOUNT is a synonym for LOAD.

Syntax

```
TM LOAD SN <serial number> TO <unit spec> ON
MOUNT SLOT <slot spec> TO <unit spec> ON
LABel <label ID> TO <unit spec> ON
DOOR <door spec> TO <unit spec> ON
```

Explanation

**LOAD SN 123456**

If a tape with the serial number 123456 is in a tape library, that tape is mounted on the first available tape unit in that library.

**LOAD SLOT 12 TO MT122**

Moves the tape from slot 12 of the tape library and mounts it on tape unit MT122 if it is available. If more that one tape library is connected to the system, the slot specification must include a library identifier.

**MOUNT LABEL BACKUP032294 ON MT120**

If a single tape with the label BACKUP032294 is the tape library that contains the tape unit MT120, that tape is mounted on MT120 if it is available. If more than one tape matches the label specification an error is returned since the TapeManager cannot determine which tape is requested.

**LOAD DOOR**

Moves a tape from the tape library’s input/output door to the first available tape unit in that library. If the tape library has more than one input/output door, then the particular door must be specified. If there is more than one tape library attached to the system, then the particular library name must be given in the door specification.

**Note:** Some tape library systems require that an empty slot be available in order to move a tape from an input/output door to a tape unit or other location.
UNLOAD Command

The UNLOAD command moves a tape from a tape unit in a tape library to a slot or input/output door in that tape library. Only use this command if there is a tape library connected to the system and accessed by the TapeManager. DISMOUNT is a synonym for UNLOAD.

Syntax

```
TM ┌─┐ UNLoad ┌─┐<unit spec> ┌─┐
    │   │  DISMount ┌─┐
          ┌─┐   TO ┌─┐ SLOT ┌─┐<slot spec> ┌─┐
          │   │   │   │   │   │   │   │   │   │
          │   │   │   │   │   │   │   │   │   │
          └─┘   │   │   │   │   │   │   │   └─┘
          DOOR ┌─┐<door spec> └─┘
```

Explanation

UNLOAD MT120

Issues a rewind (RW) command for the tape unit. Once the tape ejects from the tape unit, the tape is placed in the slot that it originated from.

DISMOUNT MT122 TO SLOT 12

Issues a rewind (RW) command for the tape unit. Once the tape ejects from the tape unit, the tape is placed in slot 12 if that slot is currently empty.

UNLOAD MT120 TO DOOR

Issues a rewind (RW) command for the tape unit. Once the tape ejects from the tape unit, the tape is placed in the input/output door of the tape library. If the tape library has more than one input/output door then the particular door must be specified. If there is more than one tape library attached to the system, then the particular library name must be given in the door specification.

Note: Some tape library systems require that an empty slot be available in order to move a tape from an input/output door to a tape unit or other location.
**MOVE Command**

The MOVE command moves a tape from one location to another within a tape library. This command can only be used if there is a tape library connected to the system and accessed by the TapeManager.

**Syntax**

```
TM - MOVE
  SN    <serial number>  
  SLOT  <slot spec>     
  LABEL <label ID>     
  DOOR  <door spec>    
  <unit spec>          
  PICKER <picker spec> 
  PASSTHRU <passthru spec> 

> TO 
  SLOT  <slot spec>     
  DOOR  <door spec>    
  <unit spec>          
  PICKER <picker spec> 
  PASSTHRU <passthru spec> 
  VAULT
```

**Explanation**

**MOVE SN 234567 TO DOOR**

Moves the tape specified by the serial number from the slot that it resides in to the input/output door. The slot is available for use by another tape. If the tape library has more than one input/output door, then specify the particular door. If there is more than one tape library attached to the system, then the particular library name must be given in the door specification.

**MOVE DOOR TO SLOT 11**

Moves the tape in the specified door slot from the input/output door to the specified slot, and assigns the slot to that tape. If the tape library has more than one input/output door, then specify the particular door. If there is more than one tape library attached to the system, then the particular library name must be given in the door specification.

**MOVE SLOT 5 OF MYLIBRARY TO PICKER**

**MOVE DOOR TO PASSTHRU**

A cartridge may be moved to or from most addressable elements within the library. Moving a cartridge to or from the picker (also known as the gripper or robot) or the passthru is meant for testing and emergency recovery actions and should not be used for normal operations. Not all libraries have all element types such as a passthru.
MOVE SN T00005 TO VAULT

Moves the specified tape to the VTL vault. This command is only available with libraries marked as a VTL. This command is functionally the same as MOVE … TO DOOR.
FLIP Command

The FLIP command takes a cartridge from a drive unit, turns it over, and replaces it in the drive. This command is only available for use with drives and media that have 2 recording sides such as Magneto-Optical (MO). INVERT is a synonym for FLIP.

Syntax

```plaintext
TM ┌── FLIP ───<unit spec> └── INVERT
```

Explanation

FLIP MT120

Issues a rewind (RW) command for the cartridge unit. Once the cartridge ejects from the cartridge unit, the cartridge is turned over and replaced in the drive unit.
DISABLE Command

The DISABLE command takes an automated tape library system out of service. A close is issued to the controller for the library and the library is marked off-line. If the library is the last device open on the controller, the connection to the controller is also closed. The TapeManager and LibraryManager software will not attempt to access the library until it has been brought back on-line with the ENABLE command.

Syntax

```
TM - DISABLE - LIBRARY <library spec>
```

Explanation

DISABLE LIBRARY

Takes the tape library out of service. All tape library actions will receive an off-line error response. If the library is a remote library, the connection to the host that owns the tape library is disabled.

**Note:** If only one automated tape library is configured with the LibraryManager, then the `<library spec>` is not required. However, if more than one tape library is configured, the `<library spec>` must be supplied.

**Note:** As of the 8.068 release of TapeManager, the Enabled/Disabled state of a library is preserved over restarts of the TapeManager software.
ENABLE Command

The ENABLE command brings an automated tape library system into service that had been taken out of service by a DISABLE command. An open is issued to the controller for the library and the library is marked on-line if successful.

Syntax

```
TM - ENABLE - LIBrary                  <library spec> ->

>             USING <alternate name>  DEFAULT
```

Explanation

ENABLE LIBRARY

Brings the tape library into service from a disabled state. The tape inventory and status information are reinitialized. If the library is a remote library, the connection to the host that owns the tape library is enabled. If the TapeManager is being called by another tape management system using the CSC interface (i.e. B&L Lib STC Driver), the enable command will also pass the complete library inventory to the CSC interface.

Note: If only one automated tape library is configured with the LibraryManager, then the <library spec> is not required. However, if more than one tape library is configured, the <library spec> must be supplied.

USING <alternate name>

The USING syntax allows different configurations to be defined in the configuration file. For instance, if the host is connected to the library via a remote connection, there may be a need to declare the host to be directly connected to the library in a fail over condition. Both definitions can be declared in the SYSTEM/TAPELIBRARY/CONFIGURATION file. See the Cartridge Library Installation Guide for Unisys MCP Systems for an explanation of creating alternate configurations.

USING DEFAULT

The USING DEFAULT syntax will revert the library configuration to the default configuration as declared in the SYSTEM/TAPELIBRARY/CONFIGURATION file.

Note: As of the 8.068 release of TapeManager, the Enabled/Disabled state of a library is preserved over restarts of the TapeManager software.
INITIALIZE Command

The INITIALIZE LIBRARY command is used to initialize (take inventory) a cartridge library when it is not done automatically by the library after a bulk load or unload through the main door. This command should only be used with libraries that require it (currently DISC MO libraries).

Syntax

```
TM ---- INITIALize ---- LIBrary <library spec>
```

Explanation

INITIALIZE

The INITIALIZE library command will cause a cartridge library to perform a cartridge scan process. This process determines if a library slot contains a cartridge and what the cartridge’s bar code is, if the library is equipped with a bar code scanner. Most cartridge libraries perform this operation automatically after power up or after the main bulk load doors have been opened. This command is intended for those libraries that do not perform this function automatically. This command should only be used when needed (after a bulk load or unload) as the initialization process can take a significant amount of time depending on the size and type of library.

Note: If only one automated tape library is configured with the LibraryManager, then the <library spec> is not required. However, if more than one tape library is configured, the <library spec> must be supplied.
Chapter 9
TapeManager Reports

The output of some reports generated from the following commands has been enhanced to identify certain types of tapes. For reports or queries with these special characters following the Serial Number (SN), the following legend can be used:
s = This is a stacked tape (either Unisys TapeStack or DSI VTL stacked)
v = This is a tape image on a stacked tape
e = This is an encrypted tape image on a stacked tape
p = This is a physical tape (to distinguish from a virtual tape on a VTL)

Examples

<table>
<thead>
<tr>
<th>SN</th>
<th>LABEL/FILEID</th>
<th>CREATED</th>
<th>REEL</th>
<th>CYC:VER</th>
<th>DEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>S00003a</td>
<td>TSU/STACKEDTAPE</td>
<td>10/29/2016 @ 16:05</td>
<td>1</td>
<td>1:0</td>
<td>LTO3</td>
</tr>
<tr>
<td>S00004</td>
<td>GIZA1/FILE000</td>
<td>10/29/2016 @ 15:23</td>
<td>1</td>
<td>1:0</td>
<td>LTO3</td>
</tr>
<tr>
<td>S00005v</td>
<td>GIZA2/FILE000</td>
<td>10/29/2016 @ 15:23</td>
<td>1</td>
<td>1:0</td>
<td>LTO3</td>
</tr>
<tr>
<td>S00006</td>
<td>GIZA3/FILE000</td>
<td>7/08/2016 @ 10:39</td>
<td>1</td>
<td>1:0</td>
<td>LTO3</td>
</tr>
<tr>
<td>S00007e</td>
<td>GIZA4/FILE000</td>
<td>7/08/2016 @ 10:39</td>
<td>1</td>
<td>1:0</td>
<td>LTO3</td>
</tr>
<tr>
<td>S00008p</td>
<td>GIZA5/FILE000</td>
<td>7/08/2016 @ 10:39</td>
<td>1</td>
<td>1:0</td>
<td>LTO3</td>
</tr>
</tbody>
</table>

OLDEST Command

The OLDEST command displays the tape with the oldest creation date that matches the label selection string.

Syntax

```
TM -- OLDEST -- <label ID>
```

Explanation

**OLD DAILYBACKUP**

Searches for all tapes with the label DAILYBACKUP and displays the tape with the oldest creation timestamp. This command is useful for quickly finding the oldest tape in a revolving set of backups.

**OLD DAILY=**

Searches for all tapes whose labels start with the string DAILY and displays the tape with the oldest creation timestamp.
NEWEST Command
The NEWEST command displays the tape with the latest creation date that matches the label selection string.

Syntax
TM — NEWest — <label ID>

Explanation
NEW DAILYBACKUP
Searches for all tapes with the label DAILYBACKUP and displays the tape with the most recent timestamp. This command is useful for quickly finding the latest tape in a revolving set of backups.

NEW DAILY=
Searches for all tapes whose labels start with the string DAILY and displays the tape with the most recent creation timestamp.
ALL Command

The ALL command displays all tapes whose labels match the label selection string.

Syntax

```
TM - ALL <label ID> BY LABEL DATE
```

Explanation

**ALL SCRATCH**

The SCRATCH option lists all the tapes that are currently marked as being scratched in the database. Do not confuse this listing with the SCRATCH REPORT which will list tapes that have expired and are to be scratched.

**ALL MYDB=**

Displays all tapes whose label names start with MYDB. The label selection string can be a complete name or may contain wild cards. The wild cards follow the rules of the MARC PDIR command. (Examples: =, DBDUMP=, =TEST=, MYTAPE??, =DUMP, TEST?TAPE).

**ALL MYDB BY DATE**

Displays all tapes with the label MYDB in order of their creation date and time from newest to oldest. The BY DATE option is useful when reloading a database and tapes are needed in time sequence order. If the BY DATE option is omitted, the tapes are listed by label name in alphabetical order.

**Note:** The capabilities of the ALL command have been merged with the LIST/REPORT ALL command. Use the REPORT ALL command if a hard copy of this output is required.
LAST Command
The LAST command displays the last 20 tapes created on the system.

Syntax

```
TM -- LAST
```

Explanation

LAST

Displays the last 20 tapes created on the system. They are displayed in order of newest to oldest.
REPORT and LIST Commands

The REPORT command prepares one of the TapeManager systems printed reports. The LIST command is functionally the same as the REPORT command except that the report is returned to the requesting ODT or station. The format of LIST reports is slightly different due to the width difference of a terminal versus a printer.

Syntax

```
TM [ REPORT LIST ] ALL <label ID> <sort order> >

RETIRing ON <date>
LOCation <location report specs>
ACTIVITY <activity report specs>
SCRATCH <scratch report specs>
MAINTenance <maint report specs>
EXCEPTIONs
LOG <log report specs>
REORGanize
SUMmary
MT
AUDIT <audit report specs>
INVENTory <inventory report specs>
VAULT <vault report specs>
MOVEment <movement specs>
SCHEDule <schedule selection>

<attributes> = <file attributes>
FILE = <title specification>

<sort order>

BY SN
LABEL
LOCation
CREATING USER
CREATING PROGRAM
CREATION DATE

<report date range>

ON FROM <date range>

<date range>

<date> TO <date>
ONLY
```
<date>
  <date in format defined by CONFIGURE CONVENTION>
  YESTERDAY
  TODAY
  TOMMORROW

<maint report specs>
  <report date range>
  USING — <log file title>

<activity report specs>
  OF <serial number>
  <report date range>

<scratch report specs>
  <report date range>
  <sort order>

<log report specs>
  ALL
  CONFIGure
  MODIFY
  CONTROLler
  TAPEMANAGER
  LIBRARYMANAGER
  OPERator
  CSCLIB
  CSCA
  MT
  REMOTE
  STACK
  VTL
  MAJOR — = — <integer>
  MINOR — = — <integer>
TapeManager Reports

<inventory report specs>

ON <date/time range> FROM YESTERDAY TODAY @ <time range>

USING <log file title>

<inventory report specs>

IN <lib spec> OF <unit spec> BY SLOT SN LABEL

SLOTS <slot spec> — — <slot spec>

<vault report specs>

IN <lib spec> OF

<location report specs>

<location id> BY SN LABEL DATE

<audit report specs>

OF SN <serial number> MIX <integer> LABEL <label ID>

USING <audit file title>

<movement specs>

TO <location>

WHERE <selection spec> EXCEPTIONS

<schedule selection>

Completed <number list> <string> ALL
**Explanation**

**REPORT ALL**

Creates a printed report of all the tapes in the TapeManager database.

**LIST ALL**

Displays a report of all the tapes in the TapeManager database at the originating station or ODT.

**ATTRIBUTES = FORMID = "TAPEMANAGER", PAGESIZE = 80**

The ATTRIBUTES option may only be used with the REPORT command. This option provides file attributes to be applied to the printer file of the report. These attributes are applied after the attributes are defined with the CONFIGURE REPORT command and so may override those default attributes.

**FILE = “MYREPORT.TXT” ON MYPACK**

The FILE option may only be used with the REPORT command. This option causes all report output to be placed in a disk file. The specified file must not already exist. If a file title is not specified, the file will be created with a default title of the form SYSTEM/TAPEMANAGER/REPORT/<date>/<time> with the user code and family that TapeManager is running with. Open system file titles are supported as defined by the LTITLE file attribute if the LONGFILENAMES system option is set.
ALL Tapes Report

The ALL report lists all tapes in the tape database. Tapes that have been added with the ADD command but not yet seen are not listed. The report lists a tape’s serial number, label and file ID, creation date and time, reel number, cycle and version, and density. The printed report will also list the name of the program that created the tape.

Explanation

ALL

Creates a report of all the tapes in the TapeManager database in the order in which they appear in the database.

ALL BY SN

Creates a report of all the tapes in the TapeManager database in serial number order.

ALL BY LABEL

Creates a report of all the tapes in the TapeManager database in alphabetical order by label name. Scratch tapes will be listed by their previous label name.

ALL BY LOCATION

Creates a report of all the tapes in the TapeManager database in sorted by location. Each location will begin on a separate page.

ALL BY CREATING USER

Creates a report of all the tapes in the TapeManager database in sorted by the usercode of the creating program.

ALL BY CREATING PROGRAM

Creates a report of all the tapes in the TapeManager database in sorted by the name of the program that created the tape.

ALL BY CREATION DATE

Creates a report of all the tapes in the TapeManager database in sorted by the date the tape was created. The report is listed newest to oldest.
ALL ABCBACKUP=

Creates a report of all the tapes in the TapeManager database that have a label starting with the characters ABCBACKUP.

ALL =

Creates a report of all the tapes in the TapeManager database that have a label. Note that this is different from just the ALL report which will include scratch tapes in the report.

ALL SCRATCH

Creates a report of all the tapes in the TapeManager database that are currently scratched. This is not the same as REPORT SCRATCH which reports expired tapes that can be scratched.
Tapes to be RETIRED Report

The RETIRING report lists tapes that are to be retired based on the retiring configuration parameters specified in the TM CONFIGURE RETIRING command or form. Retiring parameters must be defined before this report can be run. If the date option is used, the specified date is used to determine if the tape should be retired based on the date that the tape was new, otherwise the current date is used. Cleaning tapes are also reported if the cleaning cartridge’s usage count meets or exceeds the number of uses as defined with the CONFIGURE TRACKING CLEANING command.

Explanation

RETIRING

Creates a report of all the tapes that should be retired as of today.

RETIRING ON 9/12/93

Creates a report of all the tapes that should be retired as of 9/12/93.
Tapes to be SCRATCHED Report

The SCRATCH report lists tapes that may be scratched based on the retention configuration parameters specified in the TM CONFIGURE RETENTION command or form. Retention parameters must be defined before this report can be run. This report will only list tapes that have had retention parameters defined for them and may be purged. A tape with a retention value of NONE will never be listed. If the date option is used, the specified date is used to determine if the tape may be scratched.

Explanation

SCRATCH

Creates a report of all the tapes that can be scratched as of today.

SCRATCH ON 9/12/93

Creates a report of all the tapes that can be scratched as of 9/12/93. Tapes that have retention GENERATIONS defined, will not show up on a report of future scratches unless there are enough current generations since it is not possible to determine when future generations will be created.

SCRATCH ON YESTERDAY ONLY

Creates a report of all the tapes that became expired on the day before the report was run. Only those tapes that became expired due to the date, days since creation, or enough newer generations were created on the day before are listed. Tapes that expired previous to the day before are not listed.

SCRATCH ON TODAY ONLY BY LABEL

Creates a report of all the tapes that can be scratched on the current date. The report is ordered by the tape label rather than by the serial number, which is the default.
Tape LOCATION Report

The LOCATION report lists tapes that have been marked as having been moved to various locations. The locations must have been first defined using the TM CONFIGURE LOCATION command. Tapes may then be moved to these defined locations via the TM MOVE command. Tapes that have never been “MOVED” are marked as belonging to the default location UNKNOWN.

Explanation

LOCATION

Creates a report of all the tapes in the database listing them by location. Since a sort order was not specified, the tapes will be sorted by serial number within the locations.

LOC BY LABEL

Creates a report of all the tapes in the database listing them by location. The tapes will be sorted by their label name within the locations.

LOCATION BY DATE

Creates a report of all the tapes in the database listing them by location. The tapes will be sorted by their creation date within the locations.

LOCATION OFFSITE

Creates a report of all the tapes that are marked as being at the location OFFSITE. Since a sort order was not specified, the tapes will be sorted by serial number within the location.
Tape Activity Report

The ACTIVITY report lists all tapes that have been used on the current or specified date range. All tapes are listed, including those not tracked by the TapeManager system. If a tape was used more than once, only its last activity is listed. This report is useful for verifying that tapes used during the day are replaced in the library. The activity report may also be used to report all activity for a particular serial number.

Explanation

ACTIVITY

Creates a report of all the tapes used today.

ACTIVITY ON 10/2/93

Creates a report of all the tapes used on 10/2/93.

ACTIVITY FROM 10/2/93 TO 10/4/93

Creates a report of all the tapes used on the days 10/2/93 through 10/4/94.

ACTIVITY OF SN A00125

Creates a report of all the activity for a single serial number. Unlike the regular activity report, which only shows the last activity for a serial number, this report shows all activity in the specified date range including purges, imports, exports, and record modification.

ACTIVITY FROM YESTERDAY TO TODAY: ALL

The default Activity report only shows the last action that was done to that tape. Use the ALL option to show all activity for all tapes in the specified date range.

ACTIVITY OF SN A00125 USING TAPEMANAGER/LOG/OTHER/HOST

The USING feature of the Activity report allows the generation of an Activity report using a TapeManager log file other than those in the current log chain. This feature can be useful for generating reports from old archived logs or logs from a different TapeManager host.
Tape Exceptions Report

The EXCEPTIONS report is similar to the activity report but list only tapes with exception conditions. Exception conditions include tapes that had media errors, tapes used but not tracked, and tapes whose labels do not match those in the database. Review this report daily to see if any operations actions are required.

Explanation

EXCEPTIONS

Creates a report of all the tape exceptions that were identified today.

EXCEPTIONS ON 5/7/93

Creates a report of all the tape exceptions that were identified on 5/7/93.

EXCEPTIONS ON 5/7/93 - 5/10/93

Creates a report of all the tape exceptions identified on the days 5/7/93 through 5/10/93.

EXCEPTIONS ON 5/7/93 USING TAPEMANAGER/LOG/OTHER/HOST

The USING feature of the Exception report allows the generation of an Exception report using a TapeManager log file other than those in the current log chain. This feature can be useful for generating reports from old archived logs or logs from a different TapeManager host.
Maintenance Report

The MAINTENANCE report is a report of exceptions and error conditions seen by the TapeManager software. If the LibraryManager software is configured on the system, exception and error conditions for libraries are also included. The report lists log entries that are placed in the TapeManager log whenever a program error or hardware exception condition is observed. The operator may also create a log entry through the use of the LOG command. The report does not include the same entries as described in the EXCEPTION report above. This report is an additional diagnostic tool to help resolve hardware or software problems.

Explanation

MAINTENANCE

Creates a report of all the TapeManager log entries that were created today.

MAINTENANCE ON 5/7/93

Creates a report of all the TapeManager log entries that were created on 5/7/93.

MAINTENANCE ON 5/7/93 - 5/10/93

Creates a report of all the TapeManager log entries for the days 5/7/93 through 5/10/93.

MAINTENANCE ON 5/7/93 USING TAPEMANAGER/LOG/OTHER/HOST

The USING feature of the Maintenance report allows the generation of a Maintenance report using a TapeManager log file other than those in the current log chain. This feature can be useful for generating reports from old archived logs or logs from a different TapeManager host.

Note: The MAINTENANCE report is being replaced by the LOG report which has additional features and capabilities.
Log Report

The LOG report is a report of exceptions and error conditions seen by the TapeManager software. If the LibraryManager software is configured on the system, exception and error conditions for libraries are also included. The report lists log entries that are placed in the TapeManager log whenever a program error or hardware exception condition is observed. The operator may also create a log entry through the use of the LOG command. The report does not include the same entries as described in the EXCEPTION report above. This report is an additional diagnostic tool to help resolve hardware or software problems.

Explanation

LOG ALL

Creates a report of all the TapeManager maintenance log entries that were created today. ALL is the default if no selection condition is specified. This report is essentially the same as that produced by the REPORT MAINT command.

LOG CONFIGURE ON 2/1/2000

Creates a report of all the TapeManager configuration changes that were made on 2/1/2000.

LOG MODIFY TODAY @ 10:00 – 13:00

Creates a report of all the TapeManager database modification commands (ADD, DELETE, MODIFY) that were processed between 10:00 AM and 1:00 PM on the current day.

LOG TAPEMANAGER FROM 1/1/2000 @ 10:00 TO 2/2/2000 @ 15:00

Creates a report of all the log entries made by the TapeManager software processes between January 1, 2000 at 10:00 AM and February 2, 2000 at 3:00 PM. If the time portion of the start date is not specified, midnight of the previous date is assumed. If the time portion of the ending date is not specified, midnight of the ending date is assumed.

LOG MAJOR = 6

Creates a report of all the TapeManager configuration changes that were made today. When a Minor type or types are not specified, all Minor types are reported. See the table below for a list of the major and minor log types.

LOG MODIFY ON 5/7/93 USING TAPEMANAGER/LOG/OTHER/HOST

The USING feature of the Log report allows the generation of a Log report using a TapeManager log file other than those in the current log chain. This feature can be useful for generating reports from old archived logs or logs from a different TapeManager host.
### TapeManager Log Major and Minor Types

<table>
<thead>
<tr>
<th>Major Type</th>
<th>Minor Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>TapeManager messages</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>General TapeManager entries</td>
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<tr>
<td>1</td>
<td>2</td>
<td>TapeManager fault entries</td>
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<tr>
<td>1</td>
<td>3</td>
<td>Purge allowed entries</td>
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<tr>
<td>1</td>
<td>3</td>
<td>Purge denied entries</td>
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<tr>
<td>2</td>
<td>1</td>
<td>LibraryManager messages</td>
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<tr>
<td>2</td>
<td>2</td>
<td>LibraryManager events and errors</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Operator commands including items from SCHEDULE</td>
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<td>4</td>
<td>1</td>
<td>DSICONTROLLER Support messages (currently not used)</td>
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<tr>
<td>5</td>
<td>1</td>
<td>Library Controller messages</td>
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<tr>
<td>6</td>
<td>1</td>
<td>TapeManager configuration changes</td>
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<td>6</td>
<td>2</td>
<td>Configure OPERATIONS command</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>Configure DATABASE command</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>Configure REPORT command</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
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<td>6</td>
<td>Configure HOSTS command</td>
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<td>6</td>
<td>7</td>
<td>Configure RETENTION command</td>
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<td>6</td>
<td>8</td>
<td>Configure RETIRING command</td>
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<td>6</td>
<td>9</td>
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<td>12</td>
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<td>Configure EMAIL command</td>
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<td>6</td>
<td>14</td>
<td>Configure MT command</td>
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<td>6</td>
<td>15</td>
<td>Configure STACKING command</td>
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<td>TapeManager database ADD command</td>
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<td>TapeManager database DELETE command</td>
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<td>1</td>
<td>CSCLIB Inventory Notifications</td>
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<tr>
<td>8</td>
<td>2</td>
<td>CSCLIB Eject Notification</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>CSCLIB Enter Notification</td>
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<td>8</td>
<td>4</td>
<td>CSCLIB Error/Exception Notification</td>
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<td>CSCLIB Mount request</td>
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<td>9</td>
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<td>CSC-A interface entries</td>
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<td>9</td>
<td>2</td>
<td>CSC-A eject notification</td>
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<tr>
<td>9</td>
<td>3</td>
<td>CSC-A import notification</td>
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<tr>
<td>9</td>
<td>4</td>
<td>CSC-A error/exception notification</td>
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<tr>
<td></td>
<td>Description</td>
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<td>---</td>
<td>---------------------------------------------</td>
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<tr>
<td>5</td>
<td>CSC-A mount statistics report</td>
<td></td>
</tr>
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<td>10</td>
<td>MT DriveManager entries</td>
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</tr>
<tr>
<td>1</td>
<td>MT Drive Added</td>
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</tr>
<tr>
<td>2</td>
<td>MT Drive Deleted</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>MT Drive Replaced</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Remote logging entries</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Remote identity added</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Remote identity deleted</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>TapeStack entries</td>
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</tr>
<tr>
<td>0</td>
<td>Messages about TapeStack processes</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>VTV stack messages</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>VTV unstack messages</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>VTV append messages</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Stacked tape merge/duplicate messages</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>VTV invalidate messages</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Tape size messages</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>VTL entries (only if DSI VTL Agent installed on VTL)</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Messages from VTL</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>VTL disk space notices</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>VTL library inventory change notices</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>VTL virtual vault change notices</td>
<td></td>
</tr>
</tbody>
</table>
Reorganize Report

The REORGANIZE report is a listing of all the changes and corrections made when TapeManager database reorganization was last run. A file is created whenever the reorganization process is executed. This report list the entries in that file.

Explanation

REORGANIZE

Creates a report of all the changes and corrections made when the last TapeManager database reorganization was run.
Summary Report

The SUMMARY report produces a summary of the information contained in the TapeManager database. The report summarizes cartridge usage and database record usage. It will also report a cartridge summary for each scratch pool found in the database. If the LibraryManager is active, a cartridge and scratch pool summary for each active library is presented.

Explanation

SUMMARY

Creates a report that summarizes the information contained in the TapeManager database.
MT Report

The MT report produces a report from the information contained in the Drive Log of the TapeManager database. The report will show the model, serial number, in service date, total tape loads, and total IOs for each drive. Not all drives support the accumulating of all these statistics, therefore some fields may be blank for some drive types. Also a drive may need to be FREEEd and ACQUIREEd to be correctly registered with the DriveManager.

Explanation

MT

Creates a report that summarizes the drive information contained in the TapeManager database.
Audit Report

The AUDIT report is a report of accesses made to the TapeManager database. Only the main tape data structure is audited. The control, log, and other files are not audited. The audit file has before and after images of records that have been updated. The audit file also contains information on database opens, closes, backups and reorganizations.

Explanation

AUDIT

Creates a report of all the TapeManager database audit entries that were created today.

AUDIT OF SN 123456

Creates a report of all the TapeManager database audit entries that were created today and accessed records for the specified serial number. If audit report specifies a specific serial number, mix number, or label name, the report filters out all records that do not match the requested item.

AUDIT ON 5/7/93

Creates a report of all the TapeManager database audit entries that were created on 5/7/93.

AUDIT ON 5/7/93 - 5/10/93

Creates a report of all the TapeManager database audit entries for the days 5/7/93 through 5/10/93.

AUDIT ON 5/7/93 USING SYSTEM/TAPEMANAGER/DBAUDIT12

The USING feature of the Audit report allows the generation of an Audit report using a TapeManager audit file other than those in the current audit chain. This feature can be useful for generating reports from old archived audits or audits from a different TapeManager host.
Tape Inventory Report

The INVENTORY report lists the cartridges that are in a particular tape library. This report is similar in content and format to the ALL report. For the LIST command, any cartridges that are in use (in a drive unit) have a # in column 1 of the report.

This report may only be requested if an automated cartridge library is connected to the system and interfaced with the TapeManager system.

Explanation

INVENTORY

Creates a report by slot number of all the cartridge slots in the automated library. This option may only be used when there is only one tape library connected to the system. Otherwise, a specific library must be specified.

INVEN OF MYLIBRARY

Creates a report by slot number of all the cartridge slots in the automated library named MYLIBRARY.

INVENTORY MT120

Creates a report by slot number of all the cartridge slots in the automated library that contains the drive unit MT120.

INVENTORY BY SLOT

Creates a report by slot number of all the cartridge slots in the automated library. This is the default option.

INVENTORY BY SN

Creates a report by serial number of all the full cartridge slots in the automated library.

INVENTORY BY LABEL

Creates a report by label of all the full cartridge slots in the automated library. Tapes with the same label will be sorted by creation date and time, while scratch tapes will be sorted by SCRATCHPOOL name and then by serial number.
INVEN SLOTS 100-140

Creates a report by containing information only about the slots 100 through 140.
VTL Vault Report

The VAULT report lists the cartridges that are in the VTL virtual vault associated with a logical tape library in that VTL. This report is similar in content and format to the INVENTORY report except that slot numbers do not exist.

This report is only available for logical tape libraries configured in a DSI Virtual Tape Library (VTL) that also has the DSI VTL Agent installed.

Explanation

VAULT

Creates a report by serial number of all the cartridges in the VTL virtual library associated with the logical library. This option may only be used when there is only one tape library connected to the system. Otherwise, a specific library must be specified.

VAULT OF MYLIBRARY

Creates a report by serial number of the cartridges in the VTL virtual vault associated with the logical library named MYLIBRARY.
Cartridge Movement Report
The cartridge movement report is a listing of the tapes in the TapeManager database that are scheduled to be moved from their current location to another location. Locations and movement rules must have been previously defined to use this report.

Explanation

MOVE TO VAULT
Creates a report of all the tapes that, based on the movement configuration rules, are destined to the location VAULT.

MOVEMENT TO VAULT WHERE CREATED > YESTERDAY
Creates a report of all the tapes that are destined to the location VAULT but limits the tapes reported to those that were created today.

MOVE TO VAULT EXCEPTIONS
Creates a report of all the tapes that are exceptions that are destined to the location VAULT. Tapes appearing in the exception list for a movement rule need intervention. If a TM MOVE is entered for an exception case that places the tape into the correct location, the exception will automatically clear.
Schedule Report

The schedule report is a listing of current or completed schedule items.

Explanation

SCHEDULE ALL
SCHEDULE 7, 22
SCHEDULE “COPY”

Creates a report of current schedule items. The report list can be filtered by supplying a schedule selection of a search string or schedule item numbers. The search string will select any schedule item that has matching text in the time point, TapeManager commands, or results text for completed items. The search is not case sensitive. If no schedule selection is supplied ALL is assumed.

SCHEDULE COMPLETED
SCHEDULE COMPLETED “COPY”

Creates a report of completed schedule items. As with the current schedule items the completed schedule items may be filtered by supplying a search string or schedule item numbers.
Ad Hoc Reports

The ad hoc reporting capability allows a custom report to be created when one of the standard reports does not meet a site's requirements. Ad hoc reports allow for the selection of the reported database fields, the specifying of database record selection criteria, and the specifying of the sort order of the output. Ad hoc report output can also be stored on disk and formatted for different uses.

Syntax

```
TM [ REPORT LIST ] <item spec> [ WHERE <selection spec> ] >
> [ SORT <field name>  BY <field name> ] ASCENDING DESCENDING
> [ : <report/output options> ]
> [ ATTRIBUTES = <file attributes> ]
> [ FILE = <title specification> ]

=item spec

<field name> , ( <column spec> )

= quoted literal

= column spec

/1/ - HEADING = quoted literal
/1/ - WIDTH = integer
/1/ - TOTAL
/1/ - AVERAGE

= selection spec

NOT ( <field name> <compare op> <value> )
```

TapeManager Reports
TapeManager Reports

<compare op>

EQ  
^=  
NE  
>   
GT  
<   
LT  
>=  
GE  
<   
LE  

<report/output options>

<table>
<thead>
<tr>
<th>TITLE</th>
<th>=</th>
<th>&lt;quoted literal&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORMAT</td>
<td>=</td>
<td>TEXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CSV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RAW</td>
</tr>
</tbody>
</table>

Explanation

**TM LIST SERIALNO,” “, LABEL**

**TM REPORT SERIALNO,” “, LABEL**

Creates a report that shows a tapes serial number and label. Since a tape selection (WHERE) was not specified, all tapes are reported. The use of LIST or REPORT determines the width of the report and its output destination. Using LIST specifies that the report will be 80 characters in width and the output is to be returned to the originating station. (Note: if the LIST command is received from a source to which the output can not be sent, such as an AX, the report will be shown via the MCP display (MSG) mechanism.) Using the REPORT option specifies a report that is 132 characters wide and the output is directed to the system printer.

**TM REPORT SERIALNO (HEADING=”SERIAL #”),” “,LABEL(WIDTH=40)**

The <column spec> options are used to control attributes of the report columns. The HEADING option sets the title at the top of the report column. If the HEADING option is not specified, the filed name will be used. The WIDTH option is used to control how many characters are used to display the data of the field. If WIDTH is not specified, then the column width will be the greater of the default column width for the data item and the column heading string. If the specified width is less than the column heading and/or the data to be show, the heading and/or data will be truncated. The TOTAL option will create a sum at the bottom of the specified column(s). The AVERAGE (AVG) option will create an average value in while numbers (no decimal places) at the bottom of the specified column(s). the TOTAL and AVERAGE options may only be used with database fields of type integer.

**TM REPORT SERIALNO,” “, LABEL WHERE EXPIRED = TRUE**
The WHERE option allows for selected records to be reported. In this example, only those tapes that have expired based on the retention rules will be listed in the report.

**TM REPORT SERIALNO,” “, LABEL SORT BY SERIALNO**

The SORT option allows the output listing to be organized in a user specified order. If the SORT option is not specified the output will be in serial number order whether or not the SERIALNO field has been selected for reporting. The ASCENDING and DESCENDING sort modifiers determine if the sort item is to be ordered lower to higher or higher to lower. The default is ASCENDING.

**TM REPORT SERIALNO,” “, LABEL :TITLE=”MY CUSTOM REPORT”**

The TITLE report option allows the ad hoc report to be given a custom title. If the TITLE report option is not specified, the default is TAPEMANAGER ADHOC REPORT.

**TM REPORT SERIALNO,” “, LABEL :FORMAT = CSV**

The FORMAT report option specifies what kind of output will be generated by the report. The FORMAT option is only available with the REPORT command. The TEXT format specifies that the output is to be in normal textual strings. If FORMAT is not specified, TEXT is the default.

The CSV format specifies that the output is to be in Comma Separated Values (CSV). CSV is a file format understood by many PC based spreadsheet and word processor programs. If the CSV format is specified, the FILE option is assumed. If the FILE option does not specify a file name then ends in a quote (i.e. “XFERFILE.CSV”) then the last node of the file name will have .CSV appended to it and quoted.

The RAW format specified that the output is to be in raw database records. These records are a copy of the TapeManager database record. The FIELD_VALUE procedure (see Appendix D) should be used to interpret the information in these records. If the RAW format is specified, the FILE option is assumed.

**TM REPORT SERIALNO,” “, LABEL FILE = MY/REPORT**

The FILE option may only be used with the REPORT command. This option causes all report output to be placed in a disk file. The specified file must not already exist. If a file title is not specified, the file will be created with a default title of the form SYSTEM/TAPEMANAGER/REPORT/<date>/<time> with the user code and family that TapeManager is running with. Open system file titles are supported as defined by the LTITLE file attribute if the LONGFILENAMES system option is set.
STATUS Command

The STATUS command displays information about the current state of various components of the TapeManager and LibraryManager systems.

Syntax

```
TM -- STATUS [OF {TAPEMANAGER DATABASE LIBRARY <library spec> SN <serial number> SLOT <slot spec> MT <unit status spec> DOOR <door spec> ALL <library spec> HOST <host name> PURGE EXPORT IMPORT MACROs CLEANing LABEL}

<unit status spec>

<unit number> [ALL <library spec> ] : ALL
```

Explanation

STATUS or STATUS TAPEMANAGER

Displays the current status of the TapeManager system. The display shows if the TapeManager system is operational (or not) and what mode TapeManager is running in (active or passive). Also displayed is the open/closed state of the TapeManager database. If LibraryManager is configured with the system, its status is displayed with a count of the number of libraries being controlled. The TapeManager’s version is also displayed. The TapeManager will then display a list of the tasks associated with the TapeManager so they can be easily found in a heavy mix environment.

STATUS DB

Displays the current status of the TapeManager database. The open or closed state of the database is displayed. The number of records in the database is displayed. TapeManager license information is also displayed.
STATUS LIBRARY

Displays the current status of an automated tape library connected through LibraryManager. Also displayed is the configuration of the tape library. If more than one tape library is configured on the system, a tape library name must be specified. If the library is a VTL with the DSI VTL Agent additional VTL information is shown.

STATUS SN 1234

Displays the current status of a tape cartridge including its label. If the tape is in an automated tape library, the name of the owning library and its slot assignment are displayed. If the tape is being used by a tape library tape unit, the using tape unit’s number is also displayed, along with information about the using task. If the cartridge has been selected, or is in use, information concerning the selection and the requesting/using program are displayed. If the SN refers to a virtual cartridge in a VTL with the DSI VTL Agent additional VTL cartridge information is shown.

STATUS SLOT 8

This status option will display whether a slot in an automated tape library is full or empty and if the slot is usable. If the slot is full, the barcode of the tape assigned to the slot is displayed. If the tape assigned to this slot is in use then the unit number of the tape unit that has the tape is displayed. If the SLOT refers to a virtual cartridge in a VTL with the DSI VTL Agent additional VTL cartridge information is shown.

STATUS MT180

This status option will display the current status of a tape unit. The first line of the display will return the MCP status of the tape unit. The next lines will display the drive configuration information as defined with the CONFIGURE MT command. If the tape unit is in an automated tape library, the next display line will show library status of the tape unit. If the tape unit has a tape in it then the tapes barcode and slot assignment are displayed. The ALL option can be used to display the status for all the drives within a library.

STATUS MT180 : ALL

The ALL option of the STATUS MT command will cause additional information collected by the DriveManager to be displayed. The information displayed may include the drive model, firmware level, serial number, load count, total IO count, in service date, cartridge load history, and cleaning history.

Note: Not all drives report all information (i.e. serial number). Some drive information will not be listed if it is not available for that drive.

STATUS DOOR
TapeManager Reports

This status option will display status information for an automated tape library import/export door. If a tape is in the door, the tape’s barcode is displayed if it is known. If the tape library contains more than one import/export door, a door name must be specified. The ALL option can be used to display the status for all the doors/door slots within a library.

STATUS HOST

This status option will display status information about remote TapeManager hosts. If a host name is not specified then the status of all remote hosts is displayed.

STATUS PURGE

This status option displays the same information as the PURGE :STATUS command.

STATUS EXPORT

This status option displays the same information as the EXPORT :STATUS command.

STATUS IMPORT

This status option displays the same information as the IMPORT :STATUS command.

STATUS LABEL

This status option displays the same information as the LABEL :STATUS command.

STATUS CLEANING

This status option displays the same information as the CLEANING :STATUS command.

STATUS MACROS

This status option displays the names of the currently defined macros.
FIND Command

The FIND command displays information about one or more tapes. If the specification results in only a single tape being selected then a page of information on that tape is displayed. If more than one tape is selected, the normal single line per tape display is used. Wild cards may be used in the <label ID> specification. The WHERE clause allows tapes to be selected based on attributes stored in the tape record such as CYCLE and VERSION. The default is to send the output back to the terminal or ODT making the request but the output may be optionally sent to a printer or disk file. INQUIRE is a synonym for FIND.

Syntax

```
TM FIND <SN list> SN <SN list> <SN list>
INQure <SN list>

SN LABEL = <label ID>
WHERE = <selection spec>

SORT <field name> ASCENDing DESCENDING

: ALL PRINTer FILE QUERY <file options>

<selection spec>

AND OR

NOT { <field name> <compare op> <value> }

<compare op>

= EQ ^=
NE >
GT <
LT >=
GE <=
LE

<file options>

FORMAT = TEXT CSV
```
Explanation

FIND SN 100101

Selects the tape with serial number 100101 and displays a report of attributes stored for the tape.

FIND SN 100101 :ALL

Selects the tape with serial number 100101 and displays a report of all attributes stored for the tape. If the selection specification results in more than one tape being reported, the single line per tape format is used and the ALL option is ignored.

INQUIRE LABEL =Z=

Selects any tapes that have a Z in their label. If only one tape is selected, a full page on that tape is displayed. If more than one tape is selected, a single line per tape is displayed.

FIND WHERE CYCLE=2 AND VERSION=2

Selects and displays the current information for any tapes that have both the CYCLE and the VERSION fields set to 2.

FIND WHERE CREATED = 1/19/2000 AND CREATED < 1/19/2000 @ 8:39:30

Selects any tapes that were created on January 19, 2000 and before 8:39:30 AM. The format of the <date> and <time> values must conform with the Convention Configuration except a 4-digit year may be specified even though only a 2-digit year was defined in the Convention Configuration.

FIND WHERE (CREATINGUSER=ACCOUNTING OR CREATINGUSER=SHIPPING) AND NOT (EXPIRED=TRUE OR CREATED<7/1/2001)

Parenthesis “(“ “)” may be used to group selection expressions together. The NOT Boolean modifier causes the Boolean inverse of the following selection expression to be evaluated.

FIND LABEL DBBACKUP= SORT ON CREATED DESCENDING

The SORT option of the find command allows the output of the FIND to be ordered based on one or fields within the tape record. The fields selected for ordering do not have be items that are displayed. Each field selected for sorting may specify an ASCENDING or DESCENDING order. Ascending sort order is assumed if not specified. A FIND
command with the SORT option will always use the single line per tape output even if only 1 tape is selected.

**FIND WHERE PROCESSINGDATE = 6/30/97 :FILE EXPORT/063097**

Selects all the tapes created with the specified processing date and places those records in a disk file. If a file name is not specified, the name of the file will depend on the FORMAT of the output file. For files with FORMAT = RAW (default), the default file title is SYSTEM/TAPEMANAGER/EXTRACT in the same user code and family as the TapeManager files. The file must not already exist. For disk files with a FORMAT of TEXT or CSV, the file will be created with a default title of the form SYSTEM/TAPEMANAGER/REPORT/<date>/<time> with the user code and family that TapeManager is running with. Open system file titles are supported as defined by the LTITLE file attribute if the LONGFILENAME system option is set.

**FIND WHERE CREATEDDATE = YESTERDAY :FILE FORMAT = TEXT**

Selects all the tapes created with the specified creation date and places those records in a disk file. The format of the disk file depends on the FORMAT option. The RAW format specifies that the output is to be in raw database records. These records are a copy of the TapeManager database record. The FIELD_VALUE procedure (see Appendix D) should be used to interpret the information in these records. If FORMAT is not specified RAW is the default.

The TEXT format specifies that the output is to be placed in a disk file in a format similar to that if the output had been printed.

The CSV format specifies that the output is to be in Comma Separated Values (CSV). CSV is a file format understood by many PC based spreadsheet and word processor programs. The output to the CSV file is fixed and contains the fields that are seen in the printed report available from the FIND command.

**FIND LABEL BACKUP= :PRINTER**

Selects and prints the current information for any tapes whose label name starts with BACKUP. The printer options defined with the TM CONFIG REPORT command are applied to the output.

**FIND WHERE LABEL = #LABELID AND FILEID LE #FILEID SORT BY FILEID DESCENDING CREATED DESCENDING: QUERY**

The QUERY option causes the records selected by the FIND command to be retained in an internal queue rather than be displayed, printed, or sent to a file. The purpose of the QUERY option is to allow the results of a FIND to be used within a macro definition. See the QUERY description in the TapeManager Macros section.
**VERSION Command**

The VERSION command displays the version information of the TapeManager software. If the LibraryManager system is configured with TapeManager additional information is displayed.

**Syntax**

```
TM -- VERsion
```

**Explanation**

**VERSION**

Displays the version of the TapeManager software that is running. If LibraryManager is also running then the version information for Tapelibrary Support and DSIcontroller Support are also displayed. For each library attached, the microcode version of the DSIcontroller and the microcode version of the tape library is displayed.
Chapter 10

Tape Movement

Overview

The TapeManager tape movement system is the mechanism by which the individual pieces of tape media can be tracked from place to place. Based on a set of definitions and rules, a tape’s location can be determined at any time. The following sections describe the setup and usage of the tape movement system.

Configure Tape Movement

Prior to using the tape movement systems, the tape movement definitions and rules must be defined for the TapeManager.

The various locations that tape media will be stored and used must be defined before any other activity. The CONFIGURE LOCATION command is used to define these locations. A TapeManager location can be any logical location that media may be stored or used. Therefore a physical location may have one or more CONFIGURE LOCATION definitions. For example, the site that contains the main processing center may contain the “home” location and a vault location. See Location Configuration in the TapeManager Configuration section for complete information on defining locations.

Once the media locations have been defined, rules can now be defined that determine when tape media is to be moved from one location to another. The CONFIGURE MOVEMENT command specifies the parameters by which a tape is to undergo a sequence of movements between locations. Any number of movement rule definitions may be given, but only one such rule can apply to a given tape label. As with retention rules, movement rules are applied to individual tapes on a “best fit” basis. When a DEFAULT movement rule is defined, it will be applied to all tapes for which no other defined movement rule can be matched. See Movement Configuration in the TapeManager Configuration section for complete information on defining movement rules.

Generally, TapeManager must rely on operator input (the MOVE command) to know when a tape has been moved. Defining the location of the various tape units attached to the system can do some automation of the tape movement. Use the CONFIGURE MT command to define the physical location of the tape units. Media that is mounted on tape units with a defined location will be checked against the media’s location as stored in the database. Where the tape unit location and the media’s database location do not match, the tape will be logically moved to the tape unit’s location. See Drive Configuration in the TapeManager Configuration section for complete information on configuring tape drive units.
Tape Movement

Tape Movement Operations
Using the tape movement system consists of selecting the tapes that are to be physically moved, moving the selected tapes, and then informing TapeManager what tape movements have taken place.

To determine which tapes are to be moved, a movement report is produced. The REPORT MOVEMENT (or LIST) command is used to create a report that lists the tapes to be moved to a particular location. The report should be run for each possible location. See Cartridge Movement Report in the TapeManager Reports section for more information.

Once the tapes listed in the movement report are collected for transfer, the MOVE command is used to notify TapeManager that the tape media has been physically moved to another location. The report should be run for each possible location. See the MOVE Command in the TapeManager Operations section for more information.

Tape Movement Operations with Tape Libraries
When used with an automated tape library, the tape movement system has additional features available.

The EXPORT command can be used with the tape movement system to eject tapes from the tape library that are scheduled for relocation. See the EXPORT Command in the Tape Library Operations section for more information.

The PURGE command can be used to purge tapes that have been returned to a tape library after they have completed their movement cycle. See the PURGE Command in the Tape Library Operations section for more information.

Database Items
The following database items can be used to report and manage the movement of tape media. See Appendix B – Tape Database Fields for more information.

LOCATION
The current logical location of the tape media as specified by the most recent MOVE command.

QUEUEDTIME
The time from which the steps of the movement rules are calculated.

MOVEDESTINATION
This item is the location name of the tape’s queued destination or its current location if no movement step is pending. If no movement rule applies to a tape, this item is empty.
Tape Movement

MOVEEXCEPTION

This item returns true if the tape’s location does not match the location defined by its movement rule.

MOVERULES

This item is the textual definition of the tape’s defined movement rules.
Chapter 11
Tape Stacking & Encrypting

Overview
The TapeManager supports the stacking of multiple logical tape volumes on a single physical tape by either the Unisys MCP TapeStack Utility or the VTL stacking capabilities. The concept of tape stacking is to allow a single tape to contain many copies of previously created tapes. Newer tape technologies allow many Gigabytes and even Terabytes of data to be stored on a single tape cartridge. Many older tape cartridges held much smaller amounts. Also some applications and processes only use a small amount of these higher capacity tape cartridges. In order to get higher utilization of newer tape technology as well as reduce cartridge count and storage space, the concept of tape stacking was introduced.

When a tape is stacked, an exact copy of the source tape is added to the stacked tape. A copy of an original tape on a stacked tape is known as Virtual Tape Volume (VTV). The original tape is referred to as the Real Tape Volume (RTV). As VTVs are stacked, TapeManager will track each VTV in the same way it tracks RTVs. Most reports and queries will not show VTVs, only RTVs.

The stacking systems can also be used to encrypt tapes. The encryption process is similar to that of creating a stacked tape. An original tape is created and then encrypted while being stacked onto another cartridge. The encryption of the data is done by an encryption co-processor, an MCPvm system, or a VTL.

The Unisys TapeStack software may be accessed via TapeManager or the TapeStack Utility (TSU). For security reasons it is recommended that TapeManager be used for most TapeStack operations and that TSU be removed or secured. Whichever method is used TapeManager will track any VTVs created.

Refer to the Unisys System Software Utilities Operations Reference Manual (Section 19, MCP TapeStack Utility) for additional information on the Unisys TapeStack software.

The VTL stacking features requires a DSI VTL with the stacking license and the DSI VTL Agent installed on the VTL.
Configure Tape Stacking

The CONFIGURE STACKING command specifies defaults and operational options for the Unisys TapeStack tape stacking system for commands processed via TapeManager.

Syntax

```
TM CONFIGure STACKing <stacking options>
```

```
<stacking options>
```

```
REPORT = <boolean>
AUTOMATIC = UNSTACK
SCRATCHPOOL = <pool ID>
RETENTION = NORMAL VTV
PRIORITY = <integer> USER
METHOD = MCP VTL
```

Explanation

**CONFIGURE STACKING REPORT = TRUE**

The REPORT option specifies the default value for the report function when TapeManager processes a TapeStack operation. If the report option is set, a printed report is generated for the TapeStack operation. The default defined with the configuration command can be overridden when the command is entered.

**CONFIGURE STACKING AUTO UNSTACK = TRUE**

The AUTO UNSTACK option specifies the whether TapeManager should start a TapeStack Unstack operation should a tape request be seen that can only be satisfied by unstacking a VTV from a stacked tape.

**CONFIGURE STACKING SCRATCHPOOL = GIZA**

The SCRATCHPOOL option specifies the default scratch pool to be assigned for new output tapes requested by TapeStack operations. The scratch pool defined with this command will apply to TapeStack output tape requests whether started by TapeManager or via the TapeStack utilities.

**CONFIGURE STACKING RETENTION = VTV**

The RETENTION option specifies the method used to determine if a stacked tape has expired. If the option is set to NORMAL, then TapeManager will use the tape's retention values to determine if it has expired. If the option is set to VTV, then the records for all
the VTVs on that stacked tape are check to see that each VTV has expired or has been invalidated. If any VTVs are not expired (and not invalid) then the stacked tape is not expired. The default is NORMAL.

**NOTE:** Setting this option to VTV may cause a delay in the purge process for some stacked tapes. For this reason it is recommended that VTVs do not have retention rules that specify GENERATIONS.

**CONFIGURE STACKING PRIORITY = 50**

The PRIORITY option specifies the default value of the priority of TapeStack tasks processed by TapeManager. The default value is 50. The value of the option may be overridden at the command level by using the PRIORITY = <integer> command option.

**CONFIGURE STACKING METHOD = VTL**

The METHOD option specifies the default system used to create stacked tapes. A value of MCP causes TapeManager to use the Unisys TapeStack system to create stacked tapes. A value of VTL causes TapeManager to use the VTL tape stacking process. The default defined with the configuration command can be overridden when the command is entered.

**CONFIGURE STACKING**

The CONFIGURE STACKING command without any options will report the current values of the stacking options.
Configure Tape Encryption

The CONFIGURE ENCRYPTION command specifies defaults and operational options for the Unisys TapeStack tape encryption system for commands processed via TapeManager.

Syntax

```
TM CONFIGURE ENCRYPTION <encryption options>
```

<encryption options>

```
KEY = RANDOM <string>
METHOD = AUTO
AES256
3DES
VTLKEY = <string>
PASSWORD = <string>
```

Explanation

CONFIGURE ENCRYPTION KEY = RANDOM

CONFIGURE ENCRYPTION KEY = “abcdfghijkl1234567890”

The KEY option specifies the pass phrase value for the encryption function when TapeManager processes a TapeStack encryption operation. If the KEY option has a value of RANDOM then a random pass phrase of 20 characters is generated for each volume (VTV) that is encrypted. If the KEY option is given a string then that string will be used as the master pass phrase for all volumes (VTVs) encrypted. The string can be at most 20 characters in length. The key value defined can be overridden in commands requesting encryption by the KEY option.

CONFIGURE ENCRYPTION METHOD = AUTO

The METHOD option specifies the type of encryption to be used when encrypting a VTV. The AUTO setting will provide the highest level of encryption supported by the encryption co-processor. The AES256 setting will request that the AES256 encryption method be used. The 3DES will request that the 3DES encryption method be used. TDES is a synonym for 3DES. Not all encryption methods are supported by all encryption co-processors. The default setting is AUTO.

CONFIGURE ENCRYPTION VTLKEY = “MyVTLkey”

The VTLKEY option specifies the encryption key to be used by the VTL when an export to tape or VTL stack operation is requested. The key must have been predefined at the VTL. The VTLKEY option must be used with the PASSWORD option. The key value defined can be overridden in commands requesting encryption by the VTLKEY option.
CONFIGURE ENCRYPTION PASSWORD = “VTLPassword”

The PASSWORD option specifies the password for the VTL encryption key to be used when an export to tape or VTL stack operation is requested. The password must have been predefined at the VTL. The PASSWORD option must be used with the VTLKEY option. The key value defined can be overridden in commands requesting encryption by the PASSWORD option.

CONFIGURE ENCRYPTION

The CONFIGURE ENCRYPTION command without any options will report the current values of the encryption options. See the following section, Special Security for Encrypted Tape Key Values, for information on who can view the key values if set.
Tape Stacking

Tape Stacking & Encrypting Commands
Using the tape stacking and encrypting commands causes the Unisys TapeStack software to be called to perform the requested operation. The calls on the TapeStack software are done by an asynchronous task that is processed by the TapeManager software. These asynchronous tasks may be managed by the system operator (DS, Priority, etc.) without affecting the TapeManager system. If the call to the TapeStack software returns an error or a warning the task will DS itself once all other operations are completed. A Dsed TapeStack process may be detected in batch runs via the WAIT command.

Tape Stack Command
The STACK command calls the TapeStack stack process. The TapeStack stack process will copy one or more real tapes (RTVs) as virtual tapes (VTVs) onto a stacked tape.

Syntax

```
TM STACK [ & ENCRYPT ] <SN list> 
    SN [ LABel <label ID> ] 
    WHERE <selection spec> 
    TO SN <serial number> 
    LABel <label ID> 
    <stacking options> 
```

Explanation

**TM STACK SN RTV001, RTV002, RTV003**
The tape volumes specified by the serial numbers are copied onto a stacked tape.

**TM STACK LABEL GIZA=**
The label version of the stack command causes TapeManager to search its database for all RTVs that match the requested label string and create a list of serial numbers to be passed to the TapeStack stack process.
TM STACK WHERE CREATEDDATE = TODAY

The where version of the stack command causes TapeManager to search its database for all RTVs that match the requested selection parameters and create a list of serial numbers to be passed to the TapeStack stack process.

TM STACK LABEL GIZA= TO GIZASTACK

The TO option allows the serial number or the label of the output tape to be specified. If the label is not specified, the label of the stacked tape is STACKED.

TM STACK & ENCRYPT SN RTV099

The ENCRYPT option requests that the volume be encrypted as it is copied to the destination tape. This command is the same as the ENCRYPT & STACK command.

:REPORT
:NOREPORT

The REPORT and NOREPORT options set and reset, respectively, the report request for the TapeStack function being called. If neither the REPORT nor NOREPORT option is specified, the default as set with the CONFIGURE STACKING REPORT command is used.

:SCRATCHPOOL STACKPOOL

The SCRATCHPOOL option sets the scratch pool to be used for tape output requests for the TapeStack function being called. If the SCRATCHPOOL option is not specified, the default as set with the CONFIGURE STACKING SCRATCHPOOL command is used.

:KEY “any phrase or string”

The KEY option sets the pass phrase to be used when encrypting a tape. If the KEY option is not specified, the default as set with the CONFIGURE ENCRYPTION KEY command is used. A pass phrase key can be limited to 20 characters in length. A warning message is generated if a KEY is specified and encryption has not been requested.

:PRIORITY = 50

The PRIORITY option sets the priority to be used for the TapeStack function being called. If the PRIORITY option is not specified, the default as set with the CONFIGURE STACKING STACKING command is used. If an integer is specified the value must be between 1 and 99. The value USER specifies that the caller’s priority should be passed to the TapeStack process.
Tape Stacking

:MCP
:VTL

The MCP and VTL options determine which tape stacking system is called for the requested function. If MCP is specified then the Unisys TapeStack system is called. If VTL is specified then the VTL stacking system is called. If neither the MCP nor VTL option is specified, the default as set with the CONFIGURE STACKING METHOD command is used.

:VTLKEY “MyVTLkeyname”

The VTLKEY option sets the VTL encryption key to be used when encrypting a tape using the VTL. If the VTLKEY option is not specified, the default as set with the CONFIGURE ENCRYPTION VTLKEY command is used. The key and password must have been previously defined at the VTL.

:PASSWORD “MyVTLpassword”

The PASSWORD option sets the VTL password for the encryption key to be used when encrypting a tape using the VTL. If the PASSWORD option is not specified, the default as set with the CONFIGURE ENCRYPTION PASSWORD command is used. The key and password must have been previously defined at the VTL.
Tape Appends Command

The APPEND command calls the TapeStack append process. The TapeStack append process will add one or more real tapes (RTVs) as virtual tapes (VTVs) onto a previously created stacked tape.

Syntax

```
TM APPEND & ENCRYPT <SN list> >

>— TO
  SN <serial number> <SN list>
  LABEL <label ID>

>— <stacking options>

<stacking options>

```

Explanation

`TM APPEND SN RTV004 TO SN STK001`

The tape volumes specified by the serial numbers are appended to the specified stacked tape.

`TM APPEND LABEL NEWGIZA= TO LABEL OLDSTACK`

The label version of the stack command causes TapeManager to search its database for all RTVs that match the requested label string and create a list of serial numbers to be passed to the TapeStack append process. When using the output to a label name, if more than one tape has that label name, the most recent tape of that name is used.

`TM APPEND WHERE CREATEDDATE = TODAY TO SN STK001`

The where version of the stack command causes TapeManager to search its database for all RTVs that match the requested selection parameters and create a list of serial numbers to be passed to the TapeStack append process.
Tape Stacking

TM APPEND & ENCRYPT SN RTV099

The ENCRYPT option requests that the volume be encrypted as it is appended to the destination tape. This command is the same as the ENCRYPT & APPEND command.
Tape Merge Command
The MERGE command calls the TapeStack consolidate (merge) process. The TapeStack merge process will copy all virtual tapes (VTVs) from one or more stacked tapes onto a new stacked tape.

Syntax

```
TM MERGE [SN <SN list>] [LABel <label ID>] [WHERE <selection spec>]

TO [SN <serial number>] [LABel <label ID>]

<stacking options>
```

Explanation

**TM MERGE SN STK001 STK002 STK003**

The stacked tape volumes specified by the serial numbers are merged (consolidated) onto a new, stacked tape.

**TM MERGE LABEL DUMPSTACK=**

The stacked tape volumes specified by the label are merged (consolidated) onto a new, stacked tape. Only tapes marked as tapes created by the TapeStack process are selected.

**TM MERGE WHERE CREATEDDATE < 1/1/2004**

The stacked tape volumes specified by the selection specification are merged (consolidated) onto a new, stacked tape. Only tapes marked as tapes created by the TapeStack process are selected.

**TM MERGE SN STK001 STK002 TO LABEL GIZASTACK**

The TO option allows the serial number or the label of the output tape to be specified. If the label is not specified, for merges that have a single input tape (a duplicate) the label
Tape Stacking

will be the same as the source tape, otherwise the label of the stacked tape is TSU/STACKEDTAPE.

Note: This command is not valid when the stacking method is VTL.
Tape Duplicate Command

The DUPLICATE command calls the TapeStack duplicate process. The TapeStack duplicate process will copy all virtual tapes (VTVs) from the specified stacked tape onto a new stacked tape. Duplicate is the same as a Merge (Consolidate) that only specifies a single input tape.

Syntax

```
TM — DUPLICATE <serial number> ——<label ID> ——SN

TO ——<serial number> ——<label ID>

<stacking options>
```

Explanation

**TM DUPLICATE SN STK002**

The stacked tape volume specified by the serial number is copied onto a new stacked tape.

**TM DUP LABEL ALLSTACK**

The stacked tape volume specified by the label is copied onto a new stacked tape. Only a tape marked as created by the TapeStack process can be specified.

**TM DUP LABEL GIZASTACK TO LABEL GIZASTACK**

The TO option allows the serial number or the label of the output tape to be specified. If the label is not specified, the label of the stacked tape will be the same as the source tape.

*Note: This command is not valid when the stacking method is VTL.*
Tape Stacking

Tape Unstack Command

The UNSTACK command calls the TapeStack unstack process. The TapeStack unstack process will recreate the original tape volume from the virtual volume on the specified stacked tape. If the virtual volume was encrypted, and TapeManager knows the key, the volume will be decrypted as the original volume is recreated.

Syntax

```
TM  UNSTACK  &  DECYPRT  VTV  <SN  list>  >
     SN  <SN  list>  >
     VOLID  <VOLID  list>  >
     VOLUME  >
     LABEL  <label  ID>  >
     WHERE  <selection  spec>  >
     ON  SN  <serial  number>  >
     FROM  LABEL  <label  ID>  >
     TO  SN  <SN  list>  >
     <stacking  options>  >
```

Explanation

**TM UNSTACK VTV RTV002, RTV003 ON STK002**

The virtual tape volumes specified by the serial numbers are unstacked to available scratch tapes with the resulting tapes retaining the serial numbers of the scratch tapes.

**TM UNSTACK VTV RTV002 ON STK002 TO RTV004**

The virtual tape volume specified by the serial number is unstacked to a different serial number.
**TM UNSTACK VOLID 3 ON STK002**

The virtual tape volume specified by the volume number is unstacked to an available scratch tape.

**TM UNSTACK LABEL DBDUMP ON LABEL DUMPSTACK**

The virtual tape volume specified by the label name is unstacked to an available scratch tape.

**TM UNSTACK & DECRYPT VTV RTV002 ON STK002 :KEY “ax2ywdferg145”**

The virtual tape volumes specified by the serial numbers are unstacked and decrypted to available scratch tapes. The DECRYPT option is only required if TapeManager was not supplied the pass phrase for the VTV when it was created. TapeManager will automatically call for decryption on any unstack operation where the tape has been marked as encrypted and TapeManager has the pass phrase stored. The KEY phrase is required to decrypt a volume where the pass phrase is not stored by TapeManager. The KEY phrase will be used for all volumes in the volume selection list and will override any stored pass phrase. This command is the same as the DECRYPT & UNSTACK command.
Tape Volume Delete Command

The DELETE command calls the TapeStack invalidate process. The TapeStack invalidate process will mark all the specified virtual tapes (VTVs) on the stacked tape as invalid.

Syntax

```
TM -- DELe <SN list> >
    VTV <VTV list> >
    VOLID <VOLID list>
    VOLUME

> ON SN <serial number> >
    LABel <label ID>

> <stacking options> >
    <stacking options>

> : REPORT,
    NOREPORT
    PRIORITY = <integer>
    USER
```

Explanation

**TM DELETE VTV RTV002, RTV004 ON STK002**

The virtual tape volumes specified by the serial numbers are marked as invalid on the specified stacked tape.

**TM DELETE VOLID 1, 3-5 ON LABEL DUMPSTACK**

The virtual tape volumes specified by the volume numbers are marked as invalid on the specified stacked tape.

*Note:* If a VTV has retention properties, the retention properties must show the VTV as expired or the Delete (Invalidate) will not be allowed. This VTV expiration check is only done for delete/invalidate processes started by TapeManager. Invalidate processes done by the TSU utility can not be checked.

*Note:* This command is not valid when the stacking method is VTL.
Stacked Tape Directory Command

The DIRECTORY command calls either the TapeStack or VTL directory process. The directory process locates the directory of a stacked tape and reports all VTVs to TapeManager.

Syntax

```
TM --- DIREctroy \SN <serial number> \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \SN \S
Stacked Tape Recreate Directory Command

The RECREATEDIR command calls the TapeStack recreate directory process. The TapeStack recreate directory process scans a stacked tape for VTVs creating a new directory and reporting all VTVs to TapeManager.

Syntax

```
TM RECREATEDIR SN <serial number> →
       REDIR LABEL <label ID>
```

Explanation

**TM RECREATEDIR SN STK002**

The stacked tape specified by the serial number has its directory recreated and the directory information is passed to TapeManager.

**TM REDIR LABEL DUMPSTACK**

The stacked tape specified by the label name has its directory recreated and the directory information is passed to TapeManager.

*Note: This command is not valid when the stacking method is VTL.*
Tape Size Command

The SIZE command calls the TapeStack tape sizing (merge) process. The TapeStack sizing process will read the specified tape(s) and report the size in MB of the specified tape(s).

Syntax

```
TM SIZE <SN list> >
```

```
SN  <SN list>
LABel <label ID>
WHERE <selection spec>
```

```
> <stacking options>  
```

```
<stacking options>
```

```
> : REPORT, NOREPORT, PRIORITY = <integer>, USER
```

Explanation

**TM SIZE SN STK001 STK002 STK003**

The tape volumes specified by the serial numbers are read to determine the number of bytes used on those tapes.

**TM SIZE LABEL DUMPSTACK**

The stacked tape volumes specified by the label are read to determine the number of bytes used on those tapes.

**TM SIZE WHERE CREATEDDATE < 1/1/2004**

The stacked tape volumes specified by the selection specification are read to determine the number of bytes used on those tapes.

*Note: This command is not valid when the stacking method is VTL.*
Tape Stacking

Tape ENCRYPT Command
The ENCRYPT command calls the TapeStack encryption process. The TapeStack encryption process will copy and encrypt one or more real tapes (RTVs) as virtual tapes (VTVs) onto a stacked tape.

Syntax

```
TM ENCRYPT & STACK SN <SN list>
    SN LABEL <label ID>
    WHERE <selection spec>

TO SN <serial number>
    LABEL <label ID>

<stacking options>
```

Explanation

**TM ENCRYPT SN RTV001**

The tape volume specified by the serial number are encrypted and copied onto a stacked tape. The ENCRYPT command is the same as the STACK & ENCRYPT command.

**TM ENCRYPT & STACK LABEL GIZA=**

The label version of the encryption command causes TapeManager to search its database for all RTVs that match the requested label string and create a list of serial numbers to be passed to the TapeStack encryption process. The & STACK part is not required and is implied if more than one RTV is selected for input.
Tape DECRYPT Command

The DECRYPT command calls the TapeStack decryption process. The TapeStack decryption process will decrypt and recreate the original tape volume from the virtual volume on the specified stacked tape.

Syntax

```
TM DECRYPT & UNSTACK VTV <SN list> >

SN VTV <SN list>
VOLID <VOLID list>
LABEL <label ID>
WHERE <selection spec>

ON FROM SN <serial number> LABEL <label ID>

TO SN <SN list>

<stacking options>

<stacking options>

REPORT
NOREPORT
SCRATCHPOOL <pool ID>
KEY <string>
PRIORITY = <integer>
USER
MCP
VTL
VTLKEY <string>
PASSWORD <string>
```

Explanation

**TM DECRYPT VTV RTV002**

The virtual tape volume specified by the serial number is decrypted to an available scratch tape with the resulting tape retaining the serial number of the scratch tape. The DECRYPT & UNSTACK command is the same as the UNSTACK & DECRYPT command.

**TM DECRYPT & UNSTACK VTV RTV002 ON STK002 TO RTV004**

The virtual tape volume specified by the serial number is decrypted and unstacked to a different serial number. The & UNSTACK part is not required and is implied for any RTV selected for input that is marked as encrypted in the TapeManager database.
Tape Stacking & Encryption Reporting
To support the Unisys TapeStack product, a number of reports are enhanced and an additional report is available.

Stacked Tape Directory Report
The stacked tape report lists the virtual volumes (VTVs) on a stacked tape created by either the MCP or VTL stacking systems. The directory report is produced from the TapeManager database. Therefore, TapeManager must have been active and seen the stack tape created (appended or merged) to produce the directory report. For VTVs that have been encrypted, a small “e” is placed next to the serial number.

Syntax

```
REPORT DIRECTORY SN STK001
LIST DIR LABEL DUMPSTACK
```

Explanation

```
REPORT DIRECTORY SN STK001
LIST DIR LABEL DUMPSTACK
```

Creates a printed report of the virtual volumes contained on the specified stacked tape.

VTV Query
The Query/Find command has been enhanced to allow a query on a specific VTV.

Syntax

```
INQire VTV <serial number>
ON SN <serial number>
```
Explanation

FIND VTV STK033 ON RTV STK001
FIND VTV STK003 ON LABEL COPYSTACK

Displays a report for the requested VTV. If the VTV is found on the stacked tape multiple times, all VTVs with that serial number are shown.

Query (Find) Output

The output of some reports generated by the Query/Find command has been enhanced to support stacked tapes and virtual volumes. For queries that respond with any records that are virtual tape volumes (VTVs) a small “v” is appended to the serial number. For VTVs that have been encrypted, a small “e” is used instead of the “v”. If the tape record is for a stacked tape volume, a small “e” is appended to the serial number.

Examples

<table>
<thead>
<tr>
<th>VOLUME NAME</th>
<th>VOLUME TYPE</th>
<th>DATE/TIME</th>
<th>VOLUME COPY</th>
<th>TAPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STK003s STACKED/TAPE</td>
<td>10/29/2004 @ 16:05</td>
<td>1</td>
<td>1:0</td>
<td>DLT40</td>
</tr>
<tr>
<td>STK043 GIZA1/FILE000</td>
<td>10/29/2004 @ 15:23</td>
<td>1</td>
<td>1:0</td>
<td>DLT40</td>
</tr>
<tr>
<td>STK043v GIZA1/FILE000</td>
<td>10/29/2004 @ 15:23</td>
<td>1</td>
<td>1:0</td>
<td>DLT40</td>
</tr>
<tr>
<td>STK055 GIZA2/FILE000</td>
<td>7/08/2005 @ 10:39</td>
<td>1</td>
<td>1:0</td>
<td>DLT40</td>
</tr>
<tr>
<td>STK055e GIZA2/FILE000</td>
<td>7/08/2005 @ 10:39</td>
<td>1</td>
<td>1:0</td>
<td>DLT40</td>
</tr>
</tbody>
</table>

For queries that respond with a single record, the record detail report has been enhanced to report the volume type.

Examples

<table>
<thead>
<tr>
<th>VOLUME TYPE</th>
<th>VOLUME TYPE</th>
<th>VOLUME TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL (RTV)</td>
<td>STACKED TAPE (UNISYS)</td>
<td>VIRTUAL VOLUME (VTV)</td>
</tr>
</tbody>
</table>

For queries that respond with a single record and the record is for an RTV and the RTV has been stacked, the display will show what volume(s) the RTV has been stacked on.

Example

<table>
<thead>
<tr>
<th>VOLUME COPIES ON</th>
<th>VOLUME ON RTV</th>
</tr>
</thead>
<tbody>
<tr>
<td>STK003, STK066</td>
<td>STK003</td>
</tr>
</tbody>
</table>

For queries that respond with a single record and the record is for a VTV, the display will show the status of the VTV and the stacked tape that it resides on.

Example

<table>
<thead>
<tr>
<th>VOLUME STATUS</th>
<th>VOLUME ON RTV</th>
</tr>
</thead>
<tbody>
<tr>
<td>VALID</td>
<td>STK003</td>
</tr>
</tbody>
</table>

Log Report

TapeManager places information about the various TapeStack processes in its log. The LOG report has been enhanced to select only these stacking and encryption information log records by using the STACKING option.

Example

TM REPORT LOG STACKING
Tape Stacking

LOG ENTRIES (STACKING ENTRIES)

<table>
<thead>
<tr>
<th>TIME</th>
<th>TYPE</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:38:36</td>
<td>STACK</td>
<td>Giza STACK call returned error 16</td>
</tr>
<tr>
<td>16:14:25</td>
<td>STACK</td>
<td>VTV GIZA1/FILE000 [STK043] has been Stacked onto RTV GIZASTACK [STK006] (Valid 1)</td>
</tr>
<tr>
<td>16:23:13</td>
<td>STACK</td>
<td>VTV GIZA2/FILE000 [STK050] has been Stacked onto RTV GIZASTACK [STK006] (Valid 2)</td>
</tr>
<tr>
<td>16:33:57</td>
<td>STACK</td>
<td>VTV GIZA1/FILE000 [STK025] has been Stacked onto RTV GIZASTACK [STK006] (Valid 3)</td>
</tr>
<tr>
<td>18:46:12</td>
<td>STACK</td>
<td>VTV GIZA4/FILE000 [STK003] has been Appended onto RTV GIZASTACK [STK006] (Valid 4)</td>
</tr>
</tbody>
</table>

Summary Report

The TapeManager summary report will now show how many records in the TapeManager database are in use by virtual tape volume (VTV) records.

Example

DATABASE RECORD SUMMARY
Cartridge Records 2657 (303 Stacked Volume Records)
Added Records 60
Deleted Records 0
Cleaning Records 2
Other Records 0
Total Records 2719 (91% OF LICENSE)

Special Security for Encrypted Tape Key Values

The TapeManager collects and stores the pass phrases (KEY) used by any tape that is encrypted by the TapeStack software. These pass phrases, including the master pass phrase if configured, are encrypted before being stored. Various commands such as FIND and ad hoc reports will not show or allow the PASSPHRASE field or configured key values to be viewed without special security having been defined. The SECURE command must be used to specify the security settings for the pseudo command KEY. For example, TM SECURE KEY + USER (SAM) will only allow users logged in as user SAM to see or use the PASSPHRASE database field. This security is also used to determine who may see the key values cset with the CONFIGURE ENCRYPTION command. If security for the pseudo command KEY has not been specified, then no access to the TapeManager will be allowed to see or use the key values.
Chapter 12
Tape Database Maintenance

ADD Command

The ADD command is used to add tape records to the database so that those tapes will be tracked. Its primary purpose is to initially add a range of SNs to the database so that the TM CONFIG OPERATIONS UNKNOWN option can be set to IGNORE. This command can also add tapes to the database that do not match the current tracking specification so that they will be tracked.

Syntax

\[
\text{TM} \quad \text{ADD} \quad \text{SN} \quad \text{<SN list>} \quad <\text{update spec}> \\
\text{WITH} \quad <\text{update spec}> \\
\text{<field name>} \quad = \quad <\text{value}> 
\]

Explanation

TM ADD SN 200000-201999

Creates records in the tape database for tapes with serial numbers from 200000 through 201999.

WITH REELLENGTH = 2400

The WITH part is used to specify initial tape field values for the added tapes such as the REELLENGTH.

Note: If many tapes are being added (i.e., TM ADD SN 100000-199999) it may take some time before a response is returned. Tapes added with the ADD command do not show up in any reports or displays until they have been used on the system.
DELETE Command

The DELETE command is used to delete tape records from the database. It is used to remove tapes from the system that should no longer be tracked or reported. Deleted records are not actually removed from the database but rather marked as deleted.

Syntax

```
TM DELETE <SN list> [VIR]Tual [PHYS]ical [UNDO] [WHERE <selection spec>] [AND OR] [NOT] [<field name> <compare op> <value>]
```

Explanation

**TM DELETE MYSN**

Removes the tape record from the database for the tape with the serial number of MYSN.

*Note:* If the serial number is within the range specified by the TM CONFIG TRACKING command and the system is in AUTO mode, the tape will be placed back in the system the next time it is seen.

**TM DELETE WHERE DATENEW < TODAY – 5 YEARS**

Removes all tape records that have a new date greater than 5 years old. The WHERE clause can be used with any database field (see Appendix B).

**TM DELETE VIRTUAL SN V00021**

VTL systems with the DSI VTL Agent TapeManager can track both a physical and virtual copy of a tape. This allows the VTL to make a physical copy of a virtual tape via a backend library and track both copies. The PHYSICAL or VIRTUAL modifier of the DELETE command allows either the physical or virtual copy of the tape record to be deleted from the database. If neither PHYSICAL or VIRTUAL is specified then both the physical and virtual tape records are deleted (if found).

*Note:* For VTL systems that do not specify the VTL Agent entry in the LibraryManager configuration file all tapes are treated as physical.
TM DELETE UNDO

The UNDO option of the DELETE command removes the effects of the last DELETE command (i.e. un-deletes). The UNDO option can be used multiple times to undo successive DELETE commands in the reverse order in which they were done. UNDO will not undelete any records that may have been added back in that were part of the delete process. The UNDO will not be able to find any records to un-delete after a DATABASE REORGANIZE has been done. A database reorganize physically removes the deleted records from the database.

Note:  A DATABASE REORGANIZE must be done to recover the database space used by deleted records. This is particularly important if the database record count is near the limit set by the license key. Use the STATUS DB command to display license and record count information.
MODIFY Command

The MODIFY command is used to change fields in tape records in the database. Tapes may be selected by serial number, by label, or by the values in the records fields. Tapes that are selected may have their fields changed to new values.

Syntax

```
TM MODIFY <SN list> SN <label ID> LABEL <value> 
WHERE <selection spec> > WITH <update spec>
```

Explanation

**TM MODIFY SN 100101 WITH PERMANENT = TRUE**

Selects the tape with serial number 100101 and changes the PERMANENT field to TRUE so that the tape cannot be purged.

**TM MODIFY LABEL MYDB= WITH RETAINING = 4**

Selects all tapes whose labels start with MYDB and changes the RETAINING field to 4 so that the tape cannot be purged unless there are four newer generations.

**TM MODIFY SN 1234 WITH RETENTION = 0**

Selects the tape with serial number 1234 and clears the retention values so that the tape can be purged.

**TM MODIFY WHERE REELLENGTH = 0 WITH REELLENGTH = 2400**

Selects all tapes whose REELLENGTH value is 0 and changes the REELLENGTH value to 2400.
Note: Some fields in the record, such as SERIALNO, are read only and may not be modified.

Note: For multi-host TapeManager environments, the MODIFY command may not be able to update all records that match the <selection spec>. In a multi-host environment, a tape record is “owned” by one host at a time. Only the “owning” host can modify the tape record. Therefore on multi-host systems the MODIFY command may need to be executed on each host in the multi-host environment in order to ensure that all records are updated.
Chapter 13
TapeManager Macros

Overview of TapeManager Macros
The TapeManager macro facility provides a means for TapeManager commands and other strings to be processed based on a defined name. Invoking a macro name is the same as entering the command text manually.

TapeManager macros may be stored as text in an ordinary text file on MCP host machines. TapeManager macros are manually loaded from this text file using the LOAD MACROS command or the execution of a DO command referencing a file containing macro DEFINE commands. When macro definitions are loaded via the TM LOAD MACROS command, all the currently defined macros are deleted first. All the currently defined macros may be deleted with the TM UNLOAD MACROS command. The set of loaded macros can be modified on-line.

A TapeManager macro can override the definition of a standard TapeManager command. For instance, the macro with the name “PURGE”, could replace the standard TapeManager PURGE command. Other keywords (e.g. “SLOT”) are always recognized in context. (See OVERRIDE below)

The definition of a macro includes principally rules for expanding into text, which represents valid TapeManager command input. The definition may also include rules for invoking the macro automatically based on the text of a program’s system display or RSVP message, or a TapeManager event message.

The set of loaded macro definitions is recognized throughout the TapeManager software installation, so utility sessions, ODT input, and TMREMOTESPO input all are treated the same.

Defining a Macro
Macro definition uses the same syntax whether done on-line or in a loaded text file. The definition begins with the keyword DEFINE and ends with the keyword END. A name must be placed after the END, matching the name of the macro being defined. Semicolons in a text file separate successive macro definitions.

Macro definitions are not stored over TapeManager sessions. It is recommended that a site’s regularly used macro definitions be stored in a STARTUP file so that the macro definitions are loaded each time TapeManager is initiated. (see the DO command)
TapeManager Macros

Syntax

```plaintext
TM DEFINE <name> <formal parameters> >
>
: <options> = <body>
<formal parameters>

<formal name>
<formal name>
<name>
<name> 

<options>

: <auto reply>
REPLACE OVERRide RESPONSE = NONE ALL EXPLICIT

<auto reply>

REPLY TO <program id> REQUIRES MT NO FILE DISPLAY
>
<message template>

<program id>

<program id>

TASKNAME JOBNAME USERCODE ACCESSCODE

<message template>

<quoted string>

<wild card string>

<message template>

<quoted string>

SKIP FILENAME <formal name> <string literal>

<string literal>

NOT <quoted string>

<body>
```
Macro Parameters

Macro parameters allow variable information to be passed to the macro define. Parameters may also be used in auto macros (described below) to acquire the parameter information from the message that triggers the auto macro. When a macro is invoked, the supplied parameters are inserted in the body of the macro at the designated places as if the text had been originally written in the macro definition. All defined parameters must be supplied when the macro is invoked. Any extra parameters supplied when the macro is invoked are ignored.

Macro Options

Macro options give the macro author control over how macro functions are used and how they operate.

The REPLY option defines a macro that is executed automatically (auto macro). This allows TapeManager to invoke a macro in response to a particular display or RSVP from a program. A program may any program producing display or RSVP text that fits the message template.

A message template is merely an abstract description of an acceptable message. It contains strings that are required to appear or portions that may contain anything as indicated by the SKIP keyword. The template can also specify that certain strings not appear. Only if the program’s text fits the template will the macro be invoked. Except as part of a string literal, spaces are ignored in matching a string to a template. A string literal that appears in a message template may contain wildcard characters so the template can match more than one specific message. If the FILENAME keyword appears following a string literal or <formal name>, then the matching string must conform to the system definition for a valid display form file name. If the SKIP keyword appears following a string literal, then anything that follows the given string literal will match.

The REPLACE option provides for replacing a current macro definition with a new macro definition. The REPLACE option ensures that the macro writer understands that a macro definition is being replaced for sites where there are multiple macro authors. If the name provided in the macro’s definition matches a current macro name, an error is returned if REPLACE is not specified.

The OVERRIDE option provides for replacing a TapeManager command with a macro definition. Only TapeManager commands can be replaced. Individual syntax items of a command cannot be replaced. The OVERRIDE option ensures that the macro author understands that the macro will replace a TapeManager command. If the name provided in the macro’s definition matches a TapeManager command name, an error is returned if OVERRIDE is not specified.

The RESPONSE option provides control over the display of text from an auto macro. If NONE is specified, this text is not displayed. If ALL is specified, then all response text from an auto macro is displayed with the system messages. If EXPLICIT is specified, then only responses coded directly within the macro are displayed. A response may be
coded in the macro body by specifying a quoted string as a macro statement. The default is NONE.

**Macro Body**

The macro body is a list of macro statements that are evaluated when the macro is invoked. Each macro statement must evaluate to a valid TapeManager command or macro primitive.

The text portion of the body of the macro is the non-variable part of the TapeManager command(s) to be executed. The text is entered, as it would be at any of the TapeManager command interfaces, with the need for the preceding TM. Depending on the syntax of the TapeManager command, some parts of the text may need to be enclosed in quotes.

Use of parameters (<formal name>) within the body allows variable information to be included in the evaluated command. A parameter name can be any alpha-numeric identifier. When the command is evaluated, any instance of the string that was identified as a parameter, is replaced by the passed information for that parameter. It is important to choose parameter names carefully as names that also match command syntax items may produce unexpected results.

Macro primitives are MCP commands available within the macro. These macro primitives allow the macro to control aspects of a waiting entry. Macro primitives are designed specifically for use with auto macros. These commands are not available from normal TapeManager command interfaces.

Intrinsic variables give the macro writer access to attributes of an outstanding tape assignment request. The various attributes of the request such as usercode of the program or the scratch pool requested, can be referred to symbolically. Intrinsic variables may be used wherever a value or string would be accepted, such as in a <selection spec> or <update spec>.

QUERY fields give the macro writer access to the results of a TM FIND command where the QUERY clause appears as the output destination of the FIND command. Any field of the current query database record can be accessed by giving the database field name prefixed by QUERY and a period (i.e. QUERY.FILEID). The requested item evaluates as a quoted string. As with intrinsic variables, query fields may be used wherever a value or string would be accepted. When a TM FIND:QUERY returns more than one database record, the information returned for the QUERY.<field name> refers to the first record found. If the .LIST option is used with QUERY, it evaluates to an ordered, comma separated list of quoted strings that contain the values of the specified database field for all records of the previous query. If the FIND:QUERY is not part of the macro definition, the results are undefined (usually a null string).

EVALUATE renders the <string> following it without the quotes. This is intended for use when some commands, such as the FA macro primitive, do not accept quoted parameters. (Example: FA SCRATCHPOOL = #EVAL #QUERY.POOLID)
TapeManager Macros

Using Macros
Invoking a macro is as simple as giving its name as a command (i.e. TM <macro name>). Macros may be invoked automatically as well as by text input. The automatic method is controlled by the REPLY macro option as described above.

Examples

DEFINE FINDSPECIAL =
   BEGIN
   FIND WHERE POOLID = "SPECIAL" OR
       OWNER = "SPECIAL" OR
       CREATINGUSER = "SPECIAL" :PRINTER
   END FINDSPECIAL

Macros can be used to make a long, often used command into a much shorter command. The FINDSPECIAL command will create a printed report of all cartridges that have the string SPECIAL as a Scratch Pool, Owner, or Creating Usercode.

DEFINE MYFIND  <KEY> =
   BEGIN
   FIND LABEL <KEY>=  SORT ON CREATINGUSER
       :FILE MYFIND/RESULTS
   END MYFIND

Parameters allow a single define to be used for multiple requests. The MYFIND command will create a file of all cartridges that have a label name that starts with the passed parameter.

DEFINE REPORTYESTERDAY =
   BEGIN
   REPORT ACTIVITY YESTERDAY;
   REPORT EXCEPTIONS YESTERDAY
   END REPORTYESTERDAY

Use macros to combine multiple commands into a single command. Issuing the command REPORTYESTERDAY will cause both an ACTIVITY and an EXCEPTION report for the previous day to be run.

DEFINE DBHOSTPOOL
   : REPLY TO REQUIRES MT "DBBACKUP=" FILENAME SKIP =
   BEGIN
   FA SCRATCHPOOL=DBPOOL
   END DBHOSTPOOL

Macros can be used to assign the SCRATCHPOOL attribute to a waiting entry. DBHOSTPOOL assigns the SCRATCHPOOL attribute using the FA macro primitive. It causes the FA (File Attribute) MCP command to be issued whenever a waiting entry is
seen that is waiting for an output tape and the label starts with the characters DBBACKUP.

DEFINE BLPACKREL <SN> :  REPLY TO DISPLAY "BL/PACK(" <SN> "): RELEASED" SKIP =  
BEGIN  
MODIFY <SN> WITH EXPIRED = TRUE;  
LOG "BLPACKREL RELEASED " <SN>;  
END BLPACKREL

BLPACKREL allows TapeManager to recognize the display produced by BL/PACK that releases a tape for reuse. The message template describes how to find the released serial number in the display message and to supply the found value as the <SN> parameter. With this value, the macro uses the MODIFY command to force the tape to be expired in the database, permitting the tape to be purged and reused. The LOG step enters the release into the TapeManager log file.

Other Commands Used with Macros

LOAD MACROS  
The LOAD MACROS command is used to load a file that contains macro definitions. See the LOAD Command in the TapeManager Operations section.

UNLOAD MACROS  
The UNLOAD MACROS command is used to remove all macros defines from TapeManager. See the UNLOAD Command in the TapeManager Operations section.

DO  
The DO command is used to process TapeManager commands contained in a disk file. The DO command is useful for loading macro defines particularly as part of a STARTUP file. See the DO Command in the TapeManager Operations section.

STATUS MACROS  
The STATUS MACROS command can be used to list the currently defined macros. See the STATUS Command in the TapeManager Reports section.

SELECT WHERE <selection spec>  
The SELECT WHERE command can be used to redefine a selection string for use in later commands so the entire selection string does not have to be repeated. Use SELECTED or * to invoke the selection string in a WHERE clause. The SELECT command only retains its value within the macro. SELECT NONE will clear the selection string.

TM SELECT WHERE POOLID = “ARCHIVE” AND CREATEDDATE < TODAY 
TM FIND WHERE *
Chapter 14
Batch Mode Execution

Starting the Utility in Batch Mode
The TapeManager utility may be executed in batch mode either by executing the utility from a WFL job, by file equating the utility's CARD file, or by setting the utilities TASKSTRING task attribute. If the utility any either of these conditions it will expect to receive its input through the CARD file or TASKSTRING task attribute.

Batch Mode Parameters for CARD file
In batch mode the utility reads commands from the CARD file. The CARD file is declared as kind READER but may be equated to a disk file. This file will only be opened if the TASKSTRING task attribute has not been set and the CARD file has been file equated to another file. The format of the commands is the same as those described in the previous sections with the following enhancements and restrictions:

- Each command must end with a semicolon (;).
- A command may be continued over many cards. This includes strings but intervening spaces may be included in the string if the first part of the string does not end in column 72 and the next part of the string does not begin in column 1.
- The percent sign (%) may be used to place comments in the batch command file. The utility will stop scanning the record when a "%" is found that is not in a quoted string.
- The CARD file may be equated to almost any file containing TapeManager commands in EBCDIC. However, the utility will only scan the first 72 characters of a record. The remainder of the record will be ignored. Generally, a simple CANDE text file will be used as input.

Dollar ($) Option Card
A dollar ($) option card may be used to control the processing of a batch Utility run. The dollar option card is implemented as follows.

- The dollar option card must be the first card in the deck.
- There can only be a single dollar option card.
- There must be a "$" in column 1 or column 2 to identify a dollar option card.
- A list of options may be set or reset by specifying the SET or RESET keyword. If SET or RESET is not specified SET is assumed.
- The following options are available on the dollar option card.

LIST dollar Option
The LIST option controls the creation of the printed listing of the batch run of the Utility. If the LIST dollar option is set, all input and output is sent to the printer. Each command read by the utility will be printed along with the results of the command. The default for the LIST option is SET.
**Batch Mode Execution**

**IGNORE dollar Option**
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. The default for IGNORE option is RESET. RESUME is a synonym for IGNORE.

**Batch Mode Parameters for TASKSTRING task attribute**
If the TASKSTRING task attribute has been set the utility will use that string as the command input. The format of the commands is the same as those described in the previous sections with the following enhancements and restrictions:

- Each command must end with a semicolon (;).
- The total length of the string must not exceed 254 characters. This is an MCP/WFL restriction.
- Comments (%) must not be used in the string.
- Dollar ($) option cards can not be used.

**Waiting for Asynchronous Commands to Complete**
Various TapeManager commands cause asynchronous processes to be started. The command that starts the process(es) returns after the process has started but before the asynchronous process has completed. The following TapeManager commands cause asynchronous processes to be processed; CLEAN MT, DATABASE (BACKUP, REORGANIZE, RESTORE), PURGE, IMPORT, EXPORT, REPORT, FIND :PRINTER and all TapeStack commands.

By using the WAIT command and a <task id> associated with the asynchronous task, it is possible to pause execution until the asynchronous task has completed. A <task id> may be associated with a command by placing [<task id>] at the end of the command but before the semicolon (;). A <task id> can be any user defined alpha-numeric identifier up to 17 characters in length. The <task id> can then be used in a later WAIT command to pause the batch processing until the asynchronous task associated with the <task id> has completed.

See the WAIT command in Chapter 7 of this manual for additional information.

*Note:* The [<task id>] syntax is accepted for all TapeManager commands but is ignored if the command does not process an asynchronous task.

**Examples**
Executing the TapeManager utility from WFL

100  BEGIN JOB TEST/BATCH;
200  TASK TSK;
300  ?DATA CARD/TAPEMANAGER
400  % TEST RUN
500  TM REPORT ALL BY SN; % PRINT ALL TAPES BY SN
700  TM FIND SN 100100; % DISPLAY A TAPES ATTRIBUTES
800  TM OLDEST DAILYDUMP;
900  TM PURGE WHERE INLIBRARY AND EXPIRED [PGTASK];
1000 TM WAIT(PGTASK); % WAIT FOR THE PURGING TO FINISH
1100 TM DB % MULTI CARD COMMAND
1200 BACKUP;
1300 ?
1400 RUN SYSTEM/TAPEMANAGER/UTILITY [TSK];
1500  FILE CARD(TITLE=CARD/TAPEMANAGER);
1600 IF TSK(VALUE) = 1 THEN
1700  ABORT "ERROR IN TAPEMANAGER BATCH RUN";
1800 END JOB.

Executing TapeManager Utility In Batch Mode From CANDE

RUN $SYSTEM/TAPEMANAGER/UTILITY; FILE CARD(KIND=DISK,
TITLE=TAPEMANAGER/BATCH/INPUT)

Executing TapeManager Utility In Batch Mode with TASKSTRING

100  BEGIN JOB TEST/TASKSTRING;
200  TASK TSK;
300  RUN SYSTEM/TAPEMANAGER/UTILITY [TSK];
400  TASKSTRING="TM STATUS;
500  "TM STACK WHERE CREATEDDATE = TODAY
600  [STKTSK]);"
600  "TM WAIT(STKTSK);
600  IF TSK(VALUE) = 1 THEN
700  ABORT "ERROR IN TAPEMANAGER BATCH RUN";
800  END JOB.

Note: The DO command may also be used to input a series of TapeManager commands from a file.
Chapter 15
Diagnostic Commands

Caution
Dynamic Solutions International reserves the right to change the syntax and output of the diagnostics commands at any time without the normal advance notification.

LOG Command
The LOG command allows the operator to place a maintenance log entry into the TapeManager log file. A maintenance log entry allows for a time marker, event message, or information that would be useful in diagnosing a hardware or software problem.

Syntax

```
TM ------------- LOG ------------- <text> -------------
```

Explanation

```
TM LOG *** START OF TEST ***
```

The LOG command allows the operator to place a text entry into the TapeManager log file. These entries are shown in the reports generated by the LIST/REPORT MAINTENACE command and the LIST/REPORT LOG OPERATOR/ALL command.
Diagnostic Commands

DEBUG Command
The DEBUG command controls the various capabilities of the TapeManager and LibraryManager software modules diagnostic capabilities.

Syntax

```
TM -> DEBUG
   TRACE <boolean> PRINT <debug spec> PURGE <debug spec> +/- <command keyword>
   INITIALIZE <boolean> TEMPorary
   DUMP PURGE <debug spec>
   TO ( <usercode> ) ON <family>
   AUTO COPY &REMOVE <files> <integer>
   FILESIZE = <integer>
   SPLIT NEVER WHEN FULL NOW
   SCRATCHPOOL = <name>
   QUEUES LOAD WAITERs
   LOCKS
   LOG
   PORTS

> <comment>
<debug spec>

# <integer>
<files>

<debug spec> ALL
<comment>

<quoted string>
```
Explanation

**TM DEBUG TRACE ON “Test of MOVE command”**

The DEBUG TRACE command causes the diagnostic tracing function to be activated (ON), deactivated (OFF), or its current status to be displayed. When tracing is active, information about the internal operations of the TapeManager are written to a disk file. The size of the disk file(s) is determined by the DEBUG FILESIZE command. If this record count is exceeded the file wraps so that the oldest information is overwritten. Each time tracing is activated a new set of trace files is created. If the LibraryManager software is also executing, separate trace files of the LibraryManager components are also produced. By default, the files are placed on the same family as the TapeManager files. The files will be named as follows: 

`<user name>/DEBUG/TRACE/<debug sequence #>/<module>/<date>/<time>`. See the DEBUG TO and DEBUG ON commands below for additional information.

If a comment is included (highly recommended), that comment will be included in the trace output.

**TM DEBUG INITIALIZE ON**

In some situations it may be necessary to have tracing be activated when the software initializes. Setting INITIALIZE to ON will cause the tracing to be activated the next time the software is started. When the INITIALIZE option is set to OFF, trace files will not be created unless a TRACE ON command is given.

**TM DEBUG INITIALIZE TEMPORARY**

Setting the INITIALIZE option to TEMPORARY causes the TapeManager to start tracing when the software is started. These files are not saved unless a subsequent TRACE ON command is issued. This option is useful for diagnosing intermittent problems that do not occur on a predictable basis so that trace files do not accumulate unnecessarily.

**TM DEBUG TRACE PRINT #143**

The PRINT option of the DEBUG TRACE command will cause the specified trace file(s) to be printed. If a trace file set number is not given, the current trace file(s) are printed. The print attributes defined with the CONFIGURE REPORT command are used when printing trace files.

**TM DEBUG TRACE PURGE #157**

The PURGE option of the DEBUG TRACE command is used to remove trace files from disk. All trace files in the specified trace set are removed. If a trace file set number is not given the current trace files are removed. If the specified trace files are active (TRACE ON), tracing is turned off before the remove.
Diagnostic Commands

**TM DEBUG TRACE + <command keyword>**

The TRACE option will arm a trace for a particular command tracing to start when that command executes and finish with the command. Also, only traces occurring on the process executing the command will be collected and traces that are normally suppressed will be included. Command TRACE settings are not carried over when the system restarts.

**TM DEBUG DUMP**

The DEBUG DUMP command causes a program dump of all TapeManager stacks and libraries to be placed on disk. If the LibraryManager software is also executing, program dumps of the LibraryManager components are also produced. By default, the dump files are placed on the same family as the TapeManager files. The files will be named as follows:

\(<\text{user name}>/\text{DEBUG/PDUMP/}\text{debug sequence #}/\text{module}/\text{date}/\text{time}/\text{mix #}/\text{sequence #}\). See the DEBUG TO and DEBUG ON commands below for additional information.

**TM DEBUG DUMP PURGE**

The PURGE option of the DEBUG DUMP command is used to remove dump files from disk. All trace files in the specified dump set are removed. If a dump file set number is not given the current dump files are removed.

**TM DEBUG TO (MYUSERCODE) ON MYPACK**

The TO and ON options control the placement of the trace and dump files. By default, trace and dump files are placed on the same family as the TapeManager database and program files. The ON option can be used to change the pack family used to store these files. The TO option can be used to change the directory name under which the files are stored. By default, the directory name is the usercode under which the TapeManager software is installed without the parenthesis (i.e. an installation usercode of (DSI) will cause the trace and dump files to be placed in the directory *DSI/DEBUG/*). If TapeManager was installed without a usercode or the TO option is used to set the debug usercode to *, then the debug directory name is DEBUG/*.

**TM DEBUG COPY & REMOVE # 152 “Load fail problem”**

The COPY option of the DEBUG command initiates a copy of trace and dump files to tape. The files collected will include some or all debug traces and dump files, the running set of code files, the TapeManager database files, the tape library configuration file, and the current MCP code file. If a debug serial number is not specified, the current debug serial number is assumed. &REMOVE option causes the dump and trace files to be removed after they have been copied to tape. The tape created will be called TMDUMP. The copy job will request a scratch tape according to the settings of the DEBUG SCRATCHPOOL option.
If a comment is included (highly recommended), it is placed in a file that is included on the tape.

**TM DEBUG FILESIZE = 28800**

The FILESIZE option allows the controlling of the size of trace files. This value represents the number of records to be stored in each trace file created. The default value is 14400 records. The value must be between 900 and 1,000,000. A change to this value will not affect a trace that is currently being taken, but will take effect the next time a trace is started.

**TM DEBUG SPLIT WHEN FULL**

Setting this tracing option prevents the wraparound overwrite when a trace file fills up. Instead, a new set of trace files under the next debug serial number is created. Tracing picks up directly in the new files with no entries lost. Use the FILESIZE option to control the point at which the files will be split.

**TM DEBUG SPLIT NEVER**

Setting this tracing option causes trace files to wraparound and overwrite older entries when full. This is the default behavior.

**TM DEBUG SPLIT NOW**

Use this command to cause the trace files to be split immediately. Tracing must already be on.

**TM DEBUG QUEUES**

The QUEUES option displays the queue depths of various internal queues used by the TapeManager.

**TM DEBUG QUEUES LOAD**

The QUEUES LOAD option displays the details of the load queue. This information may be useful to understand why a tape did not load when requested.

**TM DEBUG QUEUES WAITERS**

The QUEUES WAITERS option displays the details of the waiters queue. This information identifies the tape selected by TapeManager for assignment to each task.

**TM DEBUG LOCKS**

The LOCKS option displays the stack and mix numbers for the holder and contender of each interlock used by the TapeManager.
Diagnostic Commands

TM DEBUG LOG

The LOG option displays a snapshot of the system state into the TapeManager log. This includes QUEUES, LOCKS, and the calling list for each internal process and for each external process calling COMMANDER in TapeManager.

TM DEBUG PORTS

The PORTS option displays the current status and status history of the port files used by TapeManager and LibraryManager.

TM DEBUG

The DEBUG command without any options will display the current settings of the debug options.

Note:  Collection of DEBUG information takes additional processor and I/O time that may be noticeable on heavily loaded systems. It is therefore recommended that DEBUG information not be requested except as requested by DSI or to document a problem.
TRACE Command

The TRACE command is the same as the DEBUG TRACE command. It is retained to be compatible with previous releases.

Syntax

```
TM TRACE <boolean>
```

Explanation

**TM TRACE ON**

The TRACE command causes the diagnostic tracing function to be activated (ON), deactivated (OFF), or its current status to be displayed. When tracing is active, information about the internal operations of the TapeManager are written to a disk file. The size of the disk file(s) is determined by the DEBUG FILESIZE command. If this record count is exceeded the file wraps so that the oldest information is overwritten. Each time tracing is activated a new set of trace files is created. If the LibraryManager software is also executing, separate trace files of the LibraryManager components are also produced. By default, the files are placed on the same family and under the same usercode as the TapeManager files. The files will be named as follows: DEBUG/TRACE/<debug sequence #>/<module>/<date>/<time>. This command is the same as the TM DEBUG TRACE <boolean> command.

**TM TRACE**

The TRACE command without any options will display the current settings of the TRACE/DEBUG options. This command is the same as TM DEBUG.

**Note:** Collection of TRACE information takes additional processor and I/O time that may be noticeable on heavily loaded systems. It is therefore recommended that TRACE information not be collected except as requested by DSI or to document a problem.
RESCUE Command

The RESCUE command is used to recover from a possibly hung TapeManager system. This command is not a normal TM command, but rather an AX or HI command executed from an Operator Console or remotespo program. The rescue operation causes all active TapeManager tasks to be aborted (DSed) with a program dump and restarted. Another task is then started to copy all the program dumps and related information to a tape so that it may be sent to Dynamic Solutions International (DSI) for analysis.

Explanation

<mix #> AX RESCUE
<mix #> HI 911
<mix #> HI 999

To start the rescue process, you must know the mix number of the SYSTEM/TAPEMANAGER/SUPPORT library. This can be found using the LIBS system command. For sites with many active libraries, LIBS NAME =TAPEMANAGER= will result in a response with fewer selections. (Note: Systems with B&L Lib running may also see OBJECT/TAPEMANAGER. This is not the same as SYSTEM/TAPEMANAGER/SUPPORT and will not respond to a rescue.)

Issuing the AX RESCUE, HI 911, or HI 999 to the SYSTEM/TAPEMANAGER/SUPPORT library will cause all active TapeManager processes to take program dumps, be DSed, and restarted. In most cases this will clear up any hung condition.

Once the dump and restart process has completed, TapeManager will start a process to copy the dumps, any related traces, the TapeManager data files, and current MCP (needed to analyze the dumps). The resulting tape should be sent to Dynamic Solutions International (DSI) support organization for analysis.
Diagnostic Commands

ABORT Command

The ABORT command is used to bring down TapeManager system in an emergency or if the normal QUIT command does not seem to function. This command is not a normal TM command, but rather an AX command executed from an Operator Console or remote spo program. The abort operation causes all active TapeManager tasks to be aborted (DSed) and the TapeManager support library to be DSed.

Explanation

<mix #> AX ABORT

To start the abort process, you must know the mix number of the SYSTEM/TAPEMANAGER/SUPPORT library. This can be found using the LIBS system command. For sites with many active libraries, LIBS NAME =TAPEMANAGER= will result in a response with fewer selections. (Note: Systems with B&L Lib running may also see OBJECT/TAPEMANAGER. This is not the same as SYSTEM/TAPEMANAGER/SUPPORT and will not respond to an abort.)

Issuing the AX ABORT to the SYSTEM/TAPEMANAGER/SUPPORT library will cause all active TapeManager processes to be DSed.

WARNING

Since ABORT DSes a library stack, any processes linked to that library stack will also be DSed. For users of other tape management systems such as B&L Lib and Metalogic TRIM, which usually link to SYSTEM/TAPEMANAGER/SUPPORT, these applications could also be DSed when the ABORT command is used. For these systems it is better to use the RESCUE command.
Appendix A
Common Syntax Elements

<boolean>

TRUE
FALSE
YES
NO
ON
OFF

<compare op>

=
EQ
“=”
NE
>?
GT
<
LT
>=
GE
<=
LE

<date>

<date in format defined by CONFIGURE CONVENTION>
YESTERDAY
TODAY
TOMMORROW

+</integer>
DAYS
WEEKs
MONTHs
YEARS

<date range>

<date>
TO
<date>
ONLY

<time>

<hour>
<minute>
<second>

<time range>
Common Syntax Elements

- `<time>`
  - `TO <time>`

`<date/time range>`

- `<date>`
  - `@ - <time>`
  - `TO <date>`
  - `@ - <time>`

`<door spec>`

- `<name>`
  - `<side spec>`
  - `IN <library spec>`

`<library spec>`

- `<library name>`

`<selection spec>`

- `<field name>`
  - `<compare op>`
  - `<value>`

`<side spec>`

- `SIDE`  
  - `1
  - `2
  - `A
  - `B`

`<slot list>`

- `<integer>`
  - `<side spec>`
  - `- <integer>`

`<slot spec>`

- `<integer>`
  - `<side spec>`
  - `IN <library spec>`

`<SN list>`

- `<serial number>`
  - `- <serial number>`

`<time>`

- `@ <hours>`
  - `: <minutes>`
  - `: <seconds>`

Delimiters as defined in Convention Configuration

`<unit spec>`
Common Syntax Elements

- MT - <integer> -

<update spec>

<field name> = <value>
Common Syntax Elements
Appendix B  
Tape Database Fields

The TapeManager has a data dictionary for use in accessing the fields in tape records. The field names are used in the WHERE specification of many commands. The fields are also used in the SORT specifications of reports and update specifications in the ADD and MODIFY commands. The field names are also used by the FIELD_VALUE exported procedure for user interpretation of the TapeManager database records. Items in parenthesis ( ) in the following descriptions are mnemonics which may be used in place of numeric values.

Caution

Dynamic Solutions International reserves the right to change the layout and structure of the TapeManager database at any time. The FIELD_VALUE exported procedure is provided to shield the user from changes that may occur.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>Location</th>
<th>RW</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIALNO</td>
<td>str</td>
<td>[0]</td>
<td>R</td>
<td>The tape serial number.</td>
</tr>
<tr>
<td>TIMESTAMP</td>
<td>ts</td>
<td>[1]</td>
<td>R</td>
<td>The timestamp of the last change to this record.</td>
</tr>
<tr>
<td>RECORDTYPE</td>
<td>int</td>
<td>[2].[47:8]</td>
<td>R</td>
<td>The tape record type:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 = empty record (EMPTY)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 = control record (CONTROL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 = tape record (TAPE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 = continuation (CONTINUATION)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 = deleted record (DELETED)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 = cleaning cartridge (CLEANING)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 = open systems (non-MCP) (OPEN)</td>
</tr>
<tr>
<td>RECORDMODIFIER</td>
<td>int</td>
<td>[2].[39:8]</td>
<td>R</td>
<td>The reason for the last change:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 = modify command (MANUAL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 = log entry (SUMLOG)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 = command action (COMMAND)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 = remote host (REMOTEHOST)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 = importer updated (IMPORTER)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 = auto update (AUTOMATIC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7 = TapeStack (TAPESTACK)</td>
</tr>
</tbody>
</table>

November 2017

245
## Tape Database Fields

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>Location</th>
<th>RW</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECORDSTATE</td>
<td>int</td>
<td>[2].[31:8]</td>
<td>R</td>
<td>The record state:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 = added record (ADDED)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 = purged tape (PURGED)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 = need close log (NEED_CLOSE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 = need EOT log (NEED_EOT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 = need EOJ log (NEED_EOJ)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 = complete record (COMPLETED)</td>
</tr>
<tr>
<td>VTVINVALID</td>
<td>bool</td>
<td>[2].[23:1]</td>
<td>RW</td>
<td>If true VTV has been invalidated by the TapeStack utility.</td>
</tr>
<tr>
<td>VOLUMETYPE</td>
<td>int</td>
<td>[2].[22:3]</td>
<td>RW</td>
<td>Type of tape record:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 = normal record (NORMAL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 = VTV record (VTV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 = Unisys stacked tape (USTACKED)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 = STK stacked tape (SSTACKED)</td>
</tr>
<tr>
<td>VOLUMEKIND</td>
<td>int</td>
<td>[2].[19:4]</td>
<td>RW</td>
<td>Kind of tape record:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 = physical tape (PHYSICAL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 = virtual tape (VIRTUAL)</td>
</tr>
<tr>
<td>REELLENGTH</td>
<td>int</td>
<td>[2].[15:16]</td>
<td>RW</td>
<td>The length of the physical tape.</td>
</tr>
<tr>
<td>READSNEW</td>
<td>int</td>
<td>[3].[47:16]</td>
<td>RW</td>
<td>The number of times tape has been read since entered in tape library.</td>
</tr>
<tr>
<td>WRITESNEW</td>
<td>int</td>
<td>[3].[31:15]</td>
<td>RW</td>
<td>The number of times the tape has been written to since entered into tape library.</td>
</tr>
<tr>
<td>DATENEW</td>
<td>date</td>
<td>[3].[16:17]</td>
<td>RW</td>
<td>The date that the tape was entered into the tape library.</td>
</tr>
<tr>
<td>READSCLEANED</td>
<td>int</td>
<td>[4].[47:16]</td>
<td>RW</td>
<td>The number of times tape has been read since it was last cleaned. (Record type 2 records only.)</td>
</tr>
<tr>
<td>WRITESTCLEANED</td>
<td>int</td>
<td>[4].[31:15]</td>
<td>RW</td>
<td>The number of times tape has been written to since it was last cleaned. (Record type 2 records only.)</td>
</tr>
<tr>
<td>DATECLEANED</td>
<td>date</td>
<td>[4].[16:17]</td>
<td>RW</td>
<td>The date the tape was last cleaned. (Record type 2 records only.)</td>
</tr>
</tbody>
</table>
## Tape Database Fields

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>Location</th>
<th>RW</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEANSUSED</td>
<td>int</td>
<td>[4].[31:15]</td>
<td>RW</td>
<td>The number of this cleaning cartridge has been used. (Record type 5 records only.)</td>
</tr>
<tr>
<td>CLEANSAVAILABLE</td>
<td>int</td>
<td>[4].[16:17]</td>
<td>RW</td>
<td>The original number of uses this cleaning cartridge has available. (Record type 5 records only.)</td>
</tr>
<tr>
<td>ERRORSNEW</td>
<td>int</td>
<td>[5].[47:16]</td>
<td>RW</td>
<td>The number of media errors detected since the tape was entered into tape library.</td>
</tr>
<tr>
<td>ERRORSCLEANED</td>
<td>int</td>
<td>[5].[31:16]</td>
<td>RW</td>
<td>The number of media errors detected since the tape was last cleaned.</td>
</tr>
<tr>
<td>ERRORSLAST</td>
<td>int</td>
<td>[5].[15:16]</td>
<td>RW</td>
<td>The number of media errors detected on the tapes last use.</td>
</tr>
<tr>
<td>MOVEERRORS</td>
<td>int</td>
<td>[6].[35:4]</td>
<td>RW</td>
<td>The number of library robotic errors seen associated with this cartridge.</td>
</tr>
<tr>
<td>RETENTION</td>
<td>word</td>
<td>[7]</td>
<td>RW</td>
<td>The retention parameters word for this tape. In the MODIFY command, RETENTION may be set to a rule or label such that the tape takes the retention attributes of that rule or label. EX: MODIFY SN 123 WITH RETENTION = LABEL XTAPE. NONE or 0 can be used to clear the retention information.</td>
</tr>
<tr>
<td>PERMANENT</td>
<td>bool</td>
<td>[7].[47:1]</td>
<td>RW</td>
<td>If true tape may not be scratched.</td>
</tr>
<tr>
<td>RETAINBYDAYS</td>
<td>bool</td>
<td>[7].[46:1]</td>
<td>RW</td>
<td>If true the RETAINDAYS field contains the number of days a tape must be saved.</td>
</tr>
<tr>
<td>Field Name</td>
<td>Type</td>
<td>Location</td>
<td>RW</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------</td>
<td>-----------</td>
<td>----</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>RETAINBYREEL</td>
<td>bool</td>
<td>[7].[45:1]</td>
<td>RW</td>
<td>If true the generations are calculated using the REEL number otherwise generations are calculated using the CYCLE attribute.</td>
</tr>
<tr>
<td>RETAINBYFACTOR</td>
<td>bool</td>
<td>[7].[44:1]</td>
<td>RW</td>
<td>If true the SAVEFACTOR field contains the number of days a tape must be saved.</td>
</tr>
<tr>
<td>RETAINBYDATE</td>
<td>bool</td>
<td>[7].[43:1]</td>
<td>RW</td>
<td>If true the RETAINDATE field contains the date until which the tape must be saved.</td>
</tr>
<tr>
<td>RETAINDATE</td>
<td>date</td>
<td>[7].[42:17]</td>
<td>RW</td>
<td>The date until which the tape must be saved.</td>
</tr>
<tr>
<td>RETAINLABELLEN</td>
<td>int</td>
<td>[7].[25:5]</td>
<td>RW</td>
<td>The number of leading label characters that must match to be considered part of the generation set.</td>
</tr>
<tr>
<td>RETAINGENS</td>
<td>int</td>
<td>[7].[20:9]</td>
<td>RW</td>
<td>The number of generations of this tape that must be saved.</td>
</tr>
<tr>
<td>RETAINDAYS</td>
<td>int</td>
<td>[7].[11:12]</td>
<td>RW</td>
<td>The number of days this tape must be saved.</td>
</tr>
<tr>
<td>RETENTION2</td>
<td>word</td>
<td>[8]</td>
<td>RW</td>
<td>This field will be used for future retention rule enhancements. (Not currently used.)</td>
</tr>
<tr>
<td>UPDATED</td>
<td>ts</td>
<td>[9]</td>
<td>RW</td>
<td>The timestamp of the tapes last updated (open time).</td>
</tr>
<tr>
<td>UPDATEDDATE</td>
<td>date</td>
<td>[9].[47:16]</td>
<td>RW</td>
<td>The time portion of the UPDATED database field.</td>
</tr>
<tr>
<td>UPDATEDTIME</td>
<td>time</td>
<td>[9].[31:32]</td>
<td>RW</td>
<td>The date portion of the UPDATED database field.</td>
</tr>
<tr>
<td>UPDATEDCOUNT</td>
<td>int</td>
<td>[10].[47:24]</td>
<td>RW</td>
<td>The number of times the tape has been updated (appended) including its creation.</td>
</tr>
<tr>
<td>OWNER</td>
<td>str</td>
<td>[10].[11:12]</td>
<td>RW</td>
<td>The usercode of the owner of this tape. (Not currently used.)</td>
</tr>
</tbody>
</table>
### Tape Database Fields

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>Location</th>
<th>RW</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POOLID</td>
<td>str</td>
<td>[12..14]</td>
<td>RW</td>
<td>The scratch pool that this tape belongs to.</td>
</tr>
<tr>
<td>COMMENT</td>
<td>str</td>
<td>[15..24]</td>
<td>RW</td>
<td>A user defined comment for this tape.</td>
</tr>
<tr>
<td>USAGESTATE</td>
<td>int</td>
<td>[25].[47:36]</td>
<td>RW</td>
<td>This field is used to control the allocation of the tape. A non-zero value indicated that the tape is in use.</td>
</tr>
<tr>
<td>SCRATCHSTATE</td>
<td>int</td>
<td>[25].[11:12]</td>
<td>RW</td>
<td>(Not currently used.).</td>
</tr>
<tr>
<td>QUEUEDTIME</td>
<td>ts</td>
<td>[26]</td>
<td>RW</td>
<td>The time from which movement rules are triggered.</td>
</tr>
<tr>
<td>LABEL</td>
<td>str</td>
<td>[27..29]</td>
<td>RW</td>
<td>The current label (MFID) of the tape.</td>
</tr>
<tr>
<td>CREATED</td>
<td>ts</td>
<td>[30]</td>
<td>RW</td>
<td>The timestamp of the tapes creation (open time).</td>
</tr>
<tr>
<td>CREATEDDATE</td>
<td>date</td>
<td>[30].[47:16]</td>
<td>RW</td>
<td>The time portion of the CREATED database field.</td>
</tr>
<tr>
<td>CREATEDTIME</td>
<td>time</td>
<td>[30].[31:32]</td>
<td>RW</td>
<td>The date portion of the CREATED database field.</td>
</tr>
<tr>
<td>CREATINGHOST</td>
<td>str</td>
<td>[31..33]</td>
<td>RW</td>
<td>The HOSTNAME of the host that created this tape.</td>
</tr>
<tr>
<td>CREATINGUNITNO</td>
<td>int</td>
<td>[34].[47:16]</td>
<td>RW</td>
<td>The tape unit that created this tape.</td>
</tr>
<tr>
<td>TAPESIZE</td>
<td>int</td>
<td>[34].[31:32]</td>
<td>RW</td>
<td>The amount of information on the tape in GB as reported by TapeStack.</td>
</tr>
<tr>
<td>CREATINGMIXNAME</td>
<td>str</td>
<td>[35].[47:12]</td>
<td>RW</td>
<td>The name of the task that created this tape.</td>
</tr>
<tr>
<td>CREATINGJOBNAME</td>
<td>str</td>
<td>[35],[35:12]</td>
<td>RW</td>
<td>The name of the job that created this tape.</td>
</tr>
<tr>
<td>CREATINGACCESS</td>
<td>str</td>
<td>[35],[23:12]</td>
<td>RW</td>
<td>The access code of the creating task.</td>
</tr>
</tbody>
</table>
### Tape Database Fields

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>Location</th>
<th>RW</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREATINGCHARGE</td>
<td>str</td>
<td>[35],[11:12]</td>
<td>RW</td>
<td>The charge code of the creating task.</td>
</tr>
<tr>
<td>CREATINGUSER</td>
<td>str</td>
<td>[36..38]</td>
<td>RW</td>
<td>The usercode of the creating task.</td>
</tr>
<tr>
<td>LASTUSED</td>
<td>ts</td>
<td>[39]</td>
<td>RW</td>
<td>The timestamp of the tapes last use (open time).</td>
</tr>
<tr>
<td>LASTUSEDDATE</td>
<td>date</td>
<td>[30],[47:16]</td>
<td>RW</td>
<td>The time portion of the LASTUSED database field.</td>
</tr>
<tr>
<td>LASTUSEDTIME</td>
<td>time</td>
<td>[30],[31:32]</td>
<td>RW</td>
<td>The date portion of the LASTUSED database field.</td>
</tr>
<tr>
<td>LASTUSEDHOST</td>
<td>str</td>
<td>[40..42]</td>
<td>RW</td>
<td>The HOSTNAME of the host that last used this tape.</td>
</tr>
<tr>
<td>LASTUSEDUNITNO</td>
<td>int</td>
<td>[43],[47:16]</td>
<td>RW</td>
<td>The tape unit that last used this tape.</td>
</tr>
<tr>
<td>PASSPHRASE</td>
<td>str</td>
<td>[43],[31:12]</td>
<td>R</td>
<td>If the VTV is encrypted, the pass phrase used to encrypt the tape. Caller must have KEY security capability in order to access.</td>
</tr>
<tr>
<td>RETENTIONPARENT</td>
<td>str</td>
<td>[43],[19:12]</td>
<td>RW</td>
<td>The label of the parent tape which must be expired before this tape can be expired.</td>
</tr>
<tr>
<td>TIMEZONE</td>
<td>str/int</td>
<td>[43],[ 7:8]</td>
<td>RW</td>
<td>The time zone of the various time values in the database. Output is the abbreviated time zone string. Input is the abbreviated time zone string or the MCP value for the time zone.</td>
</tr>
<tr>
<td>LASTUSEDMIXNAME</td>
<td>str</td>
<td>[44],[47:12]</td>
<td>RW</td>
<td>The name of the task that last used this tape.</td>
</tr>
<tr>
<td>LASTUSEDJOBNAME</td>
<td>str</td>
<td>[44],[35:12]</td>
<td>RW</td>
<td>The name of the job that last used this tape.</td>
</tr>
<tr>
<td>LASTUSEDACCESS</td>
<td>str</td>
<td>[44],[23:12]</td>
<td>RW</td>
<td>The access code of the last using task.</td>
</tr>
<tr>
<td>LASTUSEDCHARGE</td>
<td>str</td>
<td>[44],[11:12]</td>
<td>RW</td>
<td>The charge code of the last using task.</td>
</tr>
<tr>
<td>Field Name</td>
<td>Type</td>
<td>Location</td>
<td>RW</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>------</td>
<td>-----------</td>
<td>----</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>LASTUSEDUSER</td>
<td>str</td>
<td>[45..47]</td>
<td>RW</td>
<td>The usercode of the last using task.</td>
</tr>
<tr>
<td>CYCLE</td>
<td>int</td>
<td>[48],[36:14]</td>
<td>RW</td>
<td>The CYCLE file attribute assigned to the tape.</td>
</tr>
<tr>
<td>MULTIREEL</td>
<td>bool</td>
<td>[48],[7:1]</td>
<td>RW</td>
<td>If true this is part of a multi-reel tape set.</td>
</tr>
<tr>
<td>OPERATOREXPIRED</td>
<td>bool</td>
<td>[48],[2:1]</td>
<td>RW</td>
<td>If true then this tape has been forced into an expired state by the operator.</td>
</tr>
<tr>
<td>NEEDLABEL</td>
<td>bool</td>
<td>[48],[1:1]</td>
<td>RW</td>
<td>If true then a label request will be passed to the LabelManager when the tape next dismounted or ejected from a library.</td>
</tr>
<tr>
<td>CREATORDSDED</td>
<td>bool</td>
<td>[48],[0:1]</td>
<td>RW</td>
<td>If true then the creating task was DSed.</td>
</tr>
<tr>
<td>VERSION</td>
<td>int</td>
<td>[49],[47:8]</td>
<td>RW</td>
<td>The VERSION file attribute assigned to the tape.</td>
</tr>
<tr>
<td>LABELLEVEL</td>
<td>int</td>
<td>[49],[39:9]</td>
<td>RW</td>
<td>The format level of the tape label.</td>
</tr>
<tr>
<td>LABELKIND</td>
<td>att</td>
<td>[49],[30:8]</td>
<td>RW</td>
<td>The LABELKIND file attribute assigned to the tape.</td>
</tr>
<tr>
<td>ENCRYPTED</td>
<td>bool</td>
<td>[49],[13:1]</td>
<td>RW</td>
<td>True if this VTV was encrypted when it was stacked.</td>
</tr>
<tr>
<td>COMPRESSED</td>
<td>bool</td>
<td>[49],[12:1]</td>
<td>RW</td>
<td>True if this tape was purged with compression.</td>
</tr>
<tr>
<td>Field Name</td>
<td>Type</td>
<td>Location</td>
<td>RW</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------</td>
<td>----------</td>
<td>----</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MOVERULES</td>
<td>str</td>
<td>[49],[11:12]</td>
<td>RW</td>
<td>The rules assigned to this tape that control its movement to/from locations..</td>
</tr>
<tr>
<td>FILEID</td>
<td>str</td>
<td>[50..52]</td>
<td>RW</td>
<td>The file ID (FID) of the first file on the tape.</td>
</tr>
<tr>
<td>RTVSN</td>
<td>str</td>
<td>[53]</td>
<td>RW</td>
<td>If record is VTV, the serial number of the tape VTV is on.</td>
</tr>
<tr>
<td>VTVSTACKTIME</td>
<td>ts</td>
<td>[54]</td>
<td>RW</td>
<td>If record is VTV, the timestamp of the time the VTV was created as reported by TapeStack.</td>
</tr>
<tr>
<td>VTVCOMMENT</td>
<td>str</td>
<td>[55],[47:12]</td>
<td>RW</td>
<td>VTV comment string reported by TapeStack.</td>
</tr>
<tr>
<td>VTVVOLID</td>
<td>int</td>
<td>[55],[35:19]</td>
<td>RW</td>
<td>VTV volume id as reported by TapeStack.</td>
</tr>
<tr>
<td>PROCESSINGDATE</td>
<td>date</td>
<td>[55],[16:17]</td>
<td>RW</td>
<td>The processing date the tape was created as defined by the SET PROCESSING DATE command.</td>
</tr>
<tr>
<td>CREATINGJOBNO</td>
<td>int</td>
<td>[56],[47:24]</td>
<td>RW</td>
<td>The job number that created this tape.</td>
</tr>
<tr>
<td>CREATINGMIXNO</td>
<td>int</td>
<td>[56],[23:24]</td>
<td>RW</td>
<td>The task number that created this tape.</td>
</tr>
<tr>
<td>LASTUSEDJOBNO</td>
<td>int</td>
<td>[57],[47:24]</td>
<td>RW</td>
<td>The job number that last used this tape.</td>
</tr>
<tr>
<td>LASTUSEDMIXNO</td>
<td>int</td>
<td>[57],[23:24]</td>
<td>RW</td>
<td>The task number that last used this tape.</td>
</tr>
<tr>
<td>NEXTLINK</td>
<td>int</td>
<td>[58],[47:8]</td>
<td>R</td>
<td>An index to available space for link fields.</td>
</tr>
<tr>
<td>HASCONT</td>
<td>bool</td>
<td>[58],[39:1]</td>
<td>R</td>
<td>If true this tape has a continuation record in the DATA2 file.</td>
</tr>
<tr>
<td>CONTRECORD</td>
<td>int</td>
<td>[58],[38:39]</td>
<td>R</td>
<td>Record number of the continuation record in the DATA2 file.</td>
</tr>
</tbody>
</table>
**Virtual Database Fields**

The following items are “virtual” database fields. Virtual database fields do not actually reside in the database record but are calculated from database or other information. They may be used in the same way as the above database fields.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>RW</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPIRED</td>
<td>bool</td>
<td>RW</td>
<td>If true this tape may now be purged and reused according to its retention rule. If set to true, the RETAINDATE field is set to TODAY and the RETAINBYDATE and OPERATOREXPIRED fields are set to TRUE. If set to false, the RETAINDATE field is set to 0 and the RETAINBYDATE and OPERATOREXPIRED fields are set to FALSE.</td>
</tr>
<tr>
<td>EXPIREDATE</td>
<td>date</td>
<td>R</td>
<td>This field returns the date on which the tape will become expired. If the tape does not have a retention rule or the rule is only based on Generations the value returned is zero (0). WARNING: If the retention rule for the tape contains both days and generation attributes, only the days portion of the rule is used and may not show the true expiration date based on generations.</td>
</tr>
<tr>
<td>EXPIREDREASON</td>
<td>str</td>
<td>R</td>
<td>For a tape whose EXPIRED field is TRUE, the text of the reason the tape has expired is returned.</td>
</tr>
<tr>
<td>PURGED</td>
<td>bool</td>
<td>R</td>
<td>If true this tape has already been purged (i.e. is SCRATCH).</td>
</tr>
<tr>
<td>MOVEDESTINATION</td>
<td>str</td>
<td>R</td>
<td>Will contain the value of the next destination location if a movement rule exists for this tape label.</td>
</tr>
</tbody>
</table>
## Tape Database Fields

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>RW</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOVEDATE</td>
<td>date</td>
<td>R</td>
<td>This field returns the date on which the tape is to be moved to its next destination. If the tape does not have any move rules, the value returned is zero (0). WARNING: If the movement rules for the tape contain Generation based movements, the date returned may not be the true movement date when based on generations.</td>
</tr>
<tr>
<td>MOVEEXCEPTION</td>
<td>bool</td>
<td>R</td>
<td>If true this tape failed to follow the movement rule that is in existence for this tape label.</td>
</tr>
<tr>
<td>MOVERULES</td>
<td>str</td>
<td>RW</td>
<td>The text of the movement rule for this cartridge. In the MODIFY command, MOVERULES may be set to a rule or label such that the tape takes the movement attributes of that rule or label. EX: MODIFY SN 123 WITH MOVERULES = LABEL XTAPE. NONE can be used to clear the movement information.</td>
</tr>
<tr>
<td>INLIBRARY</td>
<td>bool</td>
<td>R</td>
<td>If true this tape is resident in a tape library managed by the LibraryManager software. This field will return false if the library is offline or LibraryManager is not running.</td>
</tr>
<tr>
<td>SLOT</td>
<td>int</td>
<td>R</td>
<td>If INLIBRARY is TRUE, the slot that the cartridge is assigned to in the cartridge library is returned.</td>
</tr>
<tr>
<td>LIBRARYNAME</td>
<td>str</td>
<td>R</td>
<td>If INLIBRARY is TRUE, the name of the library containing the cartridge is returned.</td>
</tr>
<tr>
<td>INUSE</td>
<td>bool</td>
<td>R</td>
<td>If true this tape has been allocated for use.</td>
</tr>
<tr>
<td>IMAGECOUNT</td>
<td>int</td>
<td>R</td>
<td>The number of tape images (including this one) that matches that matches this tape image. A</td>
</tr>
</tbody>
</table>
Tape is considered a matching tape image if it has the same label and creation timestamp.

The following virtual database items are only available for virtual cartridges in DSI VTLs that have the DSI VTL Agent installed. Requests for cartridges other than above will return zero (false).

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>RW</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTLCAPACITY</td>
<td>int</td>
<td>R</td>
<td>The maximum capacity of the virtual cartridge in MB.</td>
</tr>
<tr>
<td>VTLDISKUSED</td>
<td>int</td>
<td>R</td>
<td>The amount of disk storage in MB that is currently being used by this virtual cartridge.</td>
</tr>
<tr>
<td>VTLDATASIZE</td>
<td>int</td>
<td>R</td>
<td>The amount of data in MB that is currently written to this virtual cartridge.</td>
</tr>
<tr>
<td>VTLCOD</td>
<td>bool</td>
<td>R</td>
<td>If true the Capacity On Demand (COD) option is set for this virtual cartridge.</td>
</tr>
<tr>
<td>VTLREADONLY</td>
<td>bool</td>
<td>R</td>
<td>If true this virtual cartridge can only be read not written to.</td>
</tr>
<tr>
<td>VTLCOMPRESS</td>
<td>bool</td>
<td>R</td>
<td>If true the data compression option is set for this virtual cartridge.</td>
</tr>
</tbody>
</table>
# Appendix C

## Sample Reports

### All Tapes Report

#### ABC COMPANY

11/01/1996 @ 15:30

---

<table>
<thead>
<tr>
<th>SERIAL NUMBER</th>
<th>LABEL/FILE ID</th>
<th>CREATION DATE @ TIME</th>
<th>REEL NMBR</th>
<th>CYCLE VERSION</th>
<th>DENSITY</th>
<th>CREATING PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCTC</td>
<td>CCTCTAPE/FILE000</td>
<td>7/10/96 @ 14:43</td>
<td>1</td>
<td>1:0</td>
<td>6250</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>*LIBRARY/MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFX828</td>
<td>DEVRKUP0627/FILE000</td>
<td>6/27/96 @ 8:17</td>
<td>1</td>
<td>1:0</td>
<td>11000</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>*LIBRARY/MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>095249</td>
<td>DK0906/TAPDIR</td>
<td>9/06/95 @ 1</td>
<td>1</td>
<td>1:0</td>
<td>6250</td>
<td></td>
</tr>
<tr>
<td>000096</td>
<td>DSIPACK96267/FILE000</td>
<td>9/06/96 @ 22:37</td>
<td>1</td>
<td>1:0</td>
<td>11000</td>
<td>*ARCHIVE/BACKUP</td>
</tr>
<tr>
<td>999999</td>
<td>DSITRACE/FILE000</td>
<td>3/12/96 @ 1</td>
<td>1</td>
<td>1:0</td>
<td>6250</td>
<td></td>
</tr>
<tr>
<td>031296</td>
<td>ECOO31196/FILE000</td>
<td>7/19/96 @ 10:49</td>
<td>1</td>
<td>1:0</td>
<td>6250</td>
<td></td>
</tr>
<tr>
<td>FED</td>
<td>FED/FILE000</td>
<td>7/19/96 @ 10:49</td>
<td>1</td>
<td>1:0</td>
<td>6250</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>*LIBRARY/MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>000169</td>
<td>FEDBACKUP091796/FILE000</td>
<td>9/17/96 @ 12:19</td>
<td>1</td>
<td>1:0</td>
<td>11000</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>*LIBRARY/MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFX802</td>
<td><em>SCRATCH</em> (POOL=DLT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11000</td>
</tr>
<tr>
<td>AFX795</td>
<td><em>SCRATCH</em> (POOL=DLT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11000</td>
</tr>
<tr>
<td>AFX806</td>
<td><em>SCRATCH</em> (POOL=DLT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11000</td>
</tr>
<tr>
<td>096701</td>
<td><em>SCRATCH</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6250</td>
</tr>
<tr>
<td>070196</td>
<td><em>SCRATCH</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6250</td>
</tr>
<tr>
<td>000168</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11000</td>
</tr>
<tr>
<td>SMCO17</td>
<td>SMCO1017/FILE000</td>
<td>8/27/96 @ 11:05</td>
<td>1</td>
<td>1:0</td>
<td>6250</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>*LIBRARY/MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM2025</td>
<td>TAPEMANAGER/FILE000</td>
<td>8/12/96 @ 17:00</td>
<td>1</td>
<td>1:0</td>
<td>11000</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>*LIBRARY/MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>000004</td>
<td>TEST/FILE000</td>
<td>7/02/96 @ 17:03</td>
<td>1</td>
<td>1:0</td>
<td>6250</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>*LIBRARY/MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R2177</td>
<td>UNIGATE2217/FILE000</td>
<td>7/25/96 @ 16:13</td>
<td>1</td>
<td>1:0</td>
<td>6250</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>*LIBRARY/MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS1025</td>
<td>WFLBACKUP/FILE000</td>
<td>8/09/96 @ 8:50</td>
<td>1</td>
<td>1:0</td>
<td>11000</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>*LIBRARY/MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS1021</td>
<td>WFLBACKXX/FILE000</td>
<td>8/09/96 @ 16:07</td>
<td>1</td>
<td>1:0</td>
<td>11000</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>*LIBRARY/MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Tapes To Be Retired Report

**ABC COMPANY**

**11/01/1996 @ 15:32**

**TAPES TO BE RETIRED AS OF 11/01/96**

<table>
<thead>
<tr>
<th>SERIAL NUMBER</th>
<th>LABEL/FILE ID</th>
<th>DATE</th>
<th>USAGE</th>
<th>I/O ERRORS</th>
<th>RETIRING REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFX838</td>
<td><em>SCRATCH</em> (POOL=DLT)</td>
<td>6/27/96</td>
<td>1</td>
<td>0</td>
<td>DATE NEW IS OLDER THAN 12</td>
</tr>
<tr>
<td>DM1025</td>
<td>WFLBACKUP/FILE000</td>
<td>8/09/96</td>
<td>1</td>
<td>0</td>
<td>DATE NEW IS OLDER THAN 12</td>
</tr>
<tr>
<td>ENVMGR</td>
<td>RON_ENV/FILE000</td>
<td>7/11/96</td>
<td>3</td>
<td>0</td>
<td>USAGE COUNT EXCEEDS 3 USES</td>
</tr>
<tr>
<td>TM2024</td>
<td>TAPEMANAGER/FILE000</td>
<td>7/17/96</td>
<td>5</td>
<td>1</td>
<td>I/O ERROR COUNT EXCEEDS 1</td>
</tr>
<tr>
<td>TM2025</td>
<td>TAPEMANAGER/FILE000</td>
<td>8/12/96</td>
<td>2</td>
<td>0</td>
<td>DATE NEW IS OLDER THAN 12</td>
</tr>
<tr>
<td>TM2126</td>
<td>TAPEMANAGER/FILE000</td>
<td>8/30/96</td>
<td>4</td>
<td>0</td>
<td>USAGE COUNT EXCEEDS 3 USES</td>
</tr>
<tr>
<td>TRACE</td>
<td>TRACE/FILE000</td>
<td>8/22/96</td>
<td>1</td>
<td>0</td>
<td>DATE NEW IS OLDER THAN 12</td>
</tr>
<tr>
<td>US2217</td>
<td>UGSNA02217/FILE000</td>
<td>7/01/96</td>
<td>4</td>
<td>4</td>
<td>I/O ERROR COUNT EXCEEDS 1</td>
</tr>
<tr>
<td>000169</td>
<td>FEDBACKUP091796/FILE000</td>
<td>9/17/96</td>
<td>1</td>
<td>0</td>
<td>DATE NEW IS OLDER THAN 12</td>
</tr>
<tr>
<td>000197</td>
<td><em>SCRATCH</em> (POOL=ABCDEFG)</td>
<td>7/10/96</td>
<td>2</td>
<td>0</td>
<td>DATE NEW IS OLDER THAN 12</td>
</tr>
<tr>
<td>012345</td>
<td>ROUTER2215/FILE000</td>
<td>9/17/96</td>
<td>7</td>
<td>0</td>
<td>USAGE COUNT EXCEEDS 3 USES</td>
</tr>
<tr>
<td>281006</td>
<td><em>SCRATCH</em> (POOL=MARK)</td>
<td>7/26/96</td>
<td>0</td>
<td>0</td>
<td>DATE NEW IS OLDER THAN 12</td>
</tr>
<tr>
<td>960806</td>
<td>JEFFCO/FILE000</td>
<td>8/06/96</td>
<td>2</td>
<td>0</td>
<td>DATE NEW IS OLDER THAN 12</td>
</tr>
<tr>
<td>999999</td>
<td>DSITRACE/FILE000</td>
<td>7/11/96</td>
<td>3</td>
<td>0</td>
<td>USAGE COUNT EXCEEDS 3 USES</td>
</tr>
</tbody>
</table>

15 tapes marked as needing retiring
## Tapes To Be Scratched Report

**TAPES TO BE SCRATCHED AS OF 11/01/96**

<table>
<thead>
<tr>
<th>SERIAL NUMBER</th>
<th>LABEL/FILE ID</th>
<th>CREATION DATE</th>
<th>SAVE DAYS</th>
<th>FACT GENS</th>
<th>EXPIRE DATE</th>
<th>SCRATCH REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFX803</td>
<td>TP/TP</td>
<td>7/01/96</td>
<td>0</td>
<td>12/01/96</td>
<td>EXPIRED</td>
<td>REPORT DATE GEQ 12/01/96 SAVE DATE</td>
</tr>
<tr>
<td>SMC017</td>
<td>SMC01017/FILE000</td>
<td>8/27/96</td>
<td>30</td>
<td>8/28/96</td>
<td>EXPIRED</td>
<td>REPORT DATE GEQ 30 DAYS</td>
</tr>
<tr>
<td>S02238</td>
<td>SOURCETAPE/FILE000</td>
<td>9/27/96</td>
<td>365</td>
<td>9/28/96</td>
<td>EXPIRED</td>
<td>REPORT DATE GEQ 365 DAYS</td>
</tr>
<tr>
<td>TM2126</td>
<td>TAPEMANAGER/FILE000</td>
<td>9/17/96</td>
<td>1</td>
<td>3</td>
<td>9/18/96</td>
<td>AT LEAST 3 GENERATIONS ARE NEWER</td>
</tr>
<tr>
<td>UT2218</td>
<td>UNIGATE92218/FILE000</td>
<td>9/11/96</td>
<td>1</td>
<td>9/12/96</td>
<td>EXPIRED</td>
<td>REPORT DATE GEQ 1 DAYS</td>
</tr>
<tr>
<td>0000996</td>
<td>DSIPACK96267/FILE000</td>
<td>9/23/96</td>
<td>1</td>
<td>9/24/96</td>
<td>EXPIRED</td>
<td>REPORT DATE GEQ 30 SAVE FACTOR</td>
</tr>
<tr>
<td>012345</td>
<td>ROUTER2215/FILE000</td>
<td>9/17/96</td>
<td>1</td>
<td>9/18/96</td>
<td>EXPIRED</td>
<td>REPORT DATE GEQ 1 DAYS</td>
</tr>
<tr>
<td>9999999</td>
<td>DSITRACE/FILE000</td>
<td>9/06/96</td>
<td>1</td>
<td>9/07/96</td>
<td>EXPIRED</td>
<td>REPORT DATE GEQ 1 DAYS</td>
</tr>
</tbody>
</table>

8 tapes marked as able to be scratched.
# Tape Location Report

**ABC COMPANY**

**TM LOCATION**

**11/01/1996 @ 15:36**

**TAPE LOCATION REPORT BY SERIAL NUMBER**

<table>
<thead>
<tr>
<th>SERIAL NUMBER</th>
<th>LABEL/FILE ID</th>
<th>DATE &amp; TIME</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>000000</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000001</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000002</td>
<td>LABELTEST/FILE000</td>
<td>5/02/97 @ 18:52</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000003</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000004</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000005</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000006</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000007</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000008</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000009</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000010</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000011</td>
<td><em>SCRATCH</em> (POOL=4MM)</td>
<td>ON SITE</td>
<td></td>
</tr>
<tr>
<td>000012</td>
<td>MET/FILE</td>
<td>11/02/96 @ 15:46</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000014</td>
<td>PRD/IN/PRMBKP</td>
<td>11/08/96 @ 8:06</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000015</td>
<td>SCRAT/OISITE</td>
<td>3/19/94 @ 1:46</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000016</td>
<td>PRD/IN/PRMBKP</td>
<td>11/08/96 @ 12:46</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000017</td>
<td>FSTAV/FILK</td>
<td>11/14/96 @ 7:06</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000018</td>
<td>FMDIR/EOY</td>
<td>12/29/95 @ 11:45</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000019</td>
<td>PRTSAV/PRMBKP</td>
<td>10/01/96 @ 14:15</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000020</td>
<td>EMDIR/EIMBKP</td>
<td>11/12/96 @ 14:17</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000021</td>
<td>PRTSAV/PRMBKP</td>
<td>5/31/96 @ 1:53</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000022</td>
<td>SCAT/OISITE</td>
<td>7/25/96 @ 11:15</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000023</td>
<td>FMDIR/OISITE</td>
<td>5/24/95 @ 10:30</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000024</td>
<td>PRTSAV/PRMBKP</td>
<td>10/31/96 @ 12:57</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000025</td>
<td>SCRAT/OISITE</td>
<td>8/14/95 @ 22:32</td>
<td>ON SITE</td>
</tr>
<tr>
<td>000026</td>
<td>EOD/PRMBKP</td>
<td>7/26/96 @ 8:00</td>
<td>VAULT</td>
</tr>
<tr>
<td>000027</td>
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<tr>
<td>000028</td>
<td>ASAVE/ONSITE</td>
<td>5/28/96 @ 18:19</td>
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</tr>
<tr>
<td>000029</td>
<td>FMSDIR/OFFSIT</td>
<td>11/15/96 @ 11:42</td>
<td>VAULT</td>
</tr>
<tr>
<td>000030</td>
<td>EIMDIR/EIMBKP</td>
<td>11/08/96 @ 13:30</td>
<td>VAULT</td>
</tr>
<tr>
<td>000031</td>
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<td>2/25/94 @ 1:45</td>
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</tr>
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<td>10/31/96 @ 12:47</td>
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<td>2/24/95 @ 13:55</td>
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# Tape Activity Report

ABC COMPANY

11/01/1996 @ 15:38

TAPE ACTIVITY ON 10/01/96

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<thead>
<tr>
<th>SERIAL NUMBER</th>
<th>LABEL/FILE ID</th>
<th>USING PROGRAM</th>
<th>TAPE UNIT</th>
<th>I/O R/M</th>
<th>ERRORS</th>
<th>DATE AND TIME</th>
</tr>
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<tbody>
<tr>
<td>MARK</td>
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<td>R</td>
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<td>ROUTER02218/FILE008</td>
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## Tape Exceptions Report

**ABC COMPANY**  
11/01/1996 @ 15:40  

**TAPE EXCEPTIONS ON 10/01/96**

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<th>USING PROGRAM</th>
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<th>R/W</th>
<th>ERRORS</th>
<th>EXCEPTION REASON</th>
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<tr>
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## Tape Library Inventory Report

**ABC COMPANY**

**INVENTORY OF TAPE LIBRARY**

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<th>NUMBER</th>
<th>LABEL/FILE ID</th>
<th>CREATION DATE &amp; TIME</th>
<th>NMBR</th>
<th>VERSION</th>
<th>CREATING PROGRAM</th>
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# Tape Inquiry Output to Printer

ABC COMPANY  
11/01/1996 @ 15:44

**TAPE INQUIRY REPORT**

<table>
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<tr>
<th>SERIAL NUMBER</th>
<th>LABEL/FILE ID</th>
<th>CREATION DATE</th>
<th>REEL NUMBER</th>
<th>CYCLE NUMBER</th>
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</table>

17 records selected.
Appendix D
Programmatic Interfaces

The TapeManager Support library exports a number of functions that allow user written programs to interface with the TapeManager systems and its database.

TAPEMANAGER LIBRARY DECLARATION

In order to access these library procedures the library must be declared in your program. The declaration used will depend on whether you are running the TapeManager software in active or passive mode.

For active mode declare the library as follows;

```
LIBRARY TAPEMANAGER(LIBACCESS = BYFUNCTION,
    FUNCTIONNAME = "TAPEMANAGER.");
```

For passive mode declare the library as follows (you will need to change the usercode and family as needed for the installation at your site);

```
LIBRARY TAPEMANAGER(LIBACCESS = BYTITLE,
    TITLE = "(UC)SYSTEM/TAPEMANAGER/SUPPORT ON TMPACK.");
```

FIELD_VALUE Procedure

```
BOOLEAN PROCEDURE FIELD_VALUE(FIELD_NAME, TAPE_RECORD, FORM,
    VALU, VALUE_TYPE);
ARRAY
    FIELD_NAME[0]
    , TAPE_RECORD[0]
    , VALU[0]
    ;
REAL
    FORM
    , VALUE_TYPE
    ;
LIBRARY TAPEMANAGER;
```

Function: The FIELD_VALUE procedure allows the user to extract data from a TapeManager record without needing to know the field location of the data.
Usage: The FIELD_VALUE procedure is exported from the SYSTEM/TAPEMANAGER/SUPPORT library. It is also passed by the LabelManager interface for use in decoding tape records for label printing. TapeManager database records are obtained by using the FILE option of the FIND/INQUIRY command or by being passed via the LabelManager interface.

Parameters:

- **FIELD_NAME** (Input) the name of the field to be extracted from the TAPE_RECORD. The name must terminate in a NUL (48’00”). The valid field names are listed in Appendix B of this manual.

- **TAPE_RECORD** (Input) this is a TapeManager database record that was extracted to a file with the FIND/INQUIRE command or passed via the LabelManager label printing interface.

- **FORM** (I/O) this field is currently not used and is set to zero.

- **VALU** (Output) this parameter returns the value of the requested field. For all field types except string, the first word of the array returns the raw (binary) value of the field. The second and following words of this parameter contain an EBCDIC string representation of the field value delimited by a NUL. String fields start in the first word and continue until complete. Fields of type word are undefined and do not have a string representation. If needed this parameter will be RESIZED to contain all of the field value results.

- **VALUE_TYPE** (Output) this parameter returns the type of the requested field in bits [7:8]. For some fields the length of the string portion of the VALU parameter are returned in bits [47:16]. The possible field types are;
  1 = integer
  2 = boolean
  4 = date
  5 = timestamp (in TIME(6) format)
  7 = string (delimited by a NUL)
  9 = file attribute value (integer)
  10 = word
  15 = time (in TIME(11) format)

Results: The FIELD_VALUE procedure returns a value of FALSE if the procedure completes correctly. If there is an error in returning the requested value, the procedure returns a TRUE with an error value in bits [11:8] of the return value.
Possible errors:  
1 = the field name is unknown or badly constructed  
2 = the field type was unknown. Contact DSI for a software correction/upgrade.  
3 = the tape record passed is invalid  
4 = the procedure faulted. Contact DSI for a software correction/upgrade  
5 = a bad parameter was passed. Check that the FORM or VALUE_TYPE parameters are not literals.
Appendix E
Migrating From Other Tape Management Systems

The TapeManager system supports the migration from other Tape Management Systems (TMS) with the following features.

TMS Data Import

Data from another TMS system is migrated into TapeManager using the SYSTEM/TAPEMANAGER/IMPORTER/… program. There is a different Importer program for various TMS products. Contact Dynamic Solutions International (DSI) for the current list of Importer programs available.

Other Migration Support

TapeManager also supports the following functions used by other TMS products.

TapeManager will recognize the special SERIALNO value of GETGnn, where nn is has the value of 00 to 99. This represents a request by the calling program for a specific generation of the tape based on the requested FILENAME (TITLE). A tape’s generation is determined automatically by the definition of a generation set defined with the CONFIGURE RETENTION command. Generation 00 is the most recent generation. A SERIALNO value of GETGXX is also accepted to request the most recent generation of a tape.

TapeManager will recognize a special NOTE attribute value assigned to the file requesting an input tape as follows. If the NOTE string starts with TM or TAPEMANAGER, the rest of the NOTE string will be scanned for usercode and generation request information. If the NOTE string contains USER <usercode>, the usercode will be used during input tape selection. Only tapes that were created by the requesting usercode will be considered for selection. If the NOTE string contains GEN nn, then nn will be used to select a particular generation of the requested input tape as described above for the SERIALNO attribute. If both the NOTE attribute with the GEN value and the SERIALNO attribute with GETGnn are specified, the value in the NOTE attribute takes precedence.
Glossary

A

attribute
1. A quality added to text to make it stand out from surrounding text, such as underlining, boldface, subscript, superscript, or struck out text. Attributes can be combined so that a character or text has several attributes at the same time.
2. A configurable quality used to define a file or station and so on.

C

command
an instruction to a computer to perform a special task.

COMS
Unisys A Series Communications Management System.

CSV
Comma Separated Values is a file format that is used by spread sheet and other programs for importing and transferring data.

cursor
The blinking underline or block on the screen that indicates where the next character can be entered. As characters are entered, the cursor moves to the right.

D

DELETE
Display data control key which enables you to delete the character at the current cursor position. Characters to the right of the cursor within the same field and on the same line shift one character position to the left.

F

field
1. An area on a screen or form in which data is displayed or entered. The delimiters of the field can be visible or invisible to the terminal operator.
2. A consecutive group of bits within a word or a component of a record that represents a logical piece of data.

File
A named group of related records.

form
A special screen containing prompts requesting information and empty form fields in which the requested information can be entered.
Glossary

H

HOME
A field cursor movement key that moves the cursor to the home position, the first unprotected character position of the screen. If the display has no unprotected fields or no fields at all, the home position is row 1, column 1.

I

Input
Text typed into the computer.

M

MCP
The Master Control Program or operating system of a Unisys A Series system.

menu
A special group of fields that show the user a set of options from which to choose.

message boxes
Message boxes are pop up windows that provide status and error messages.

message line
Displays the INSERT operator guidance message.

mix number
A number assigned to a job or task by the A Series operating system (MCP).

P

pack
A disk drive on a Unisys A Series system.

parameter
A data item provided to or by a program or procedure (subroutine).

Process
1. Execution of a program or procedure.
2. A software application; activity or series of operations that produces specified results.

R

railroad diagram
A graphic representation of the syntax of a command or statement.

S

screen
An image that appears on the display area of a terminal or workstation prompting the user to enter data, displays information or presenting options from which to choose.

scroll
To move forward and backward within a list, within help text, or within other displayed items.

session
A session is a Logical connection between two units on a network.
Specify
A key on a Unisys T-27 (or compatible) terminal that, when pressed, sends a message containing the current cursor position to the host system.

station
The outer end of a communication line. A station can correspond to a single terminal connected on a single line, or several stations can be connected on a line.

system
Operating system

T

tape library
A hardware device containing multiple magnetic tape cartridges along with robotics to load them into one or more tape drives.

terminal
I/O device designed to receive or send information in a network.

U

user
Individual accessing the computer.

User code
The <string> used to identify the user to the host system.

user interface
The appearance of a program to a user.
Index

琫 - 21, 30
    action · 22

+ - 21, 30
    action · 22

<

<boolean> · 243
<compare op> · 243
<date range> · 151, 243
<date/time range> · 244
<date> · 152, 243
    example · 182
<door spec> · 244
<keyword> · 27
<library spec> · 244
<location> · 110, 131, 134, 173
<selection spec> · 244
<side spec> · 244
<slot list> · 244
<slot spec> · 244
<SN list> · 244
<task id> · 126, 230
<time range> · 244
<time> · 243, 245
    example · 182
<unit spec> · 245
<update spec> · 245

3

3DES · 194

A

ABORT
    command · 241
access code · 66
ACTIVE · 50
active mode · 2
ad hoc
    report · 175
Index

ADD
  command · 215
AES256 · 194
ALIGN
  label · 118
ALL
  command · 149
  option · 182
  report · 155
  STATUS MT · 179
  TRACKING · 84
ALPHA · 132
APPEND
  command · 199
ASCENDING · 182
ASSIGN SERIALNUMBER
  OPERATIONS · 52
ATTRIBUTES
  REPORT · 57
AUDIT
  DATABASE · 36
  report · 169
AUTO
  MISMATCH LABEL · 50
  UNKNOWN TAPE · 49
AUTO PURGE
  OPERATIONS · 51
AUTO UNSTACK
  STACKING · 192
AUTOSN
  purge · 132
AUTOUNLOAD
  CONFIGURE MT · 38
AX · 17

B

BACK
  action · 30
BACKEND · 94, 95
BACKUP
  DATABASE · 35
  DATABASE command · 98
barcode label · 130
batch · 229
BNA · 54
BY CYCLE
  RETENTION · 60, 72
BY REEL
Index

RETENTION · 60, 72
BYE
   action · 25

C
CLEANED
   command · 91
CLEANING
   CONFIGURE MT · 38
CLEAR
   CLEANING · 92
   label · 118
   purge · 131
   remove · 134
CLEAR COMMENT
   OPERATIONS · 52
CLOSE
   DATABASE · 35
   DATABASE command · 96
COMMENT · 80
COMND
   action · 24
COMPRESSED · 38
COMPRESSION
   CONFIGURE MT · 38
COMS · 14
CONFIGURE
   CONVENTION · 33
   DATABASE · 35
   EMAIL · 40
   ENCRYPTION · 194
   HOSTS · 53
   LIBRARY · 42
   LOCATION · 44
   MOVEMENT · 46
   MT · 37
   OPERATIONS · 49
   REPORT · 56
   RETENTION · 58
   RETIRING · 62
   STACKING · 192
   SUBSTITUTE · 63
   TAPE · 69
   TRACKING · 84
   VTL · 87
consolidate
   stacking · 201
CONVENTION
Index

CONFIGURE command · 33
COORDINATE · 55
COPIES
   VTL LOG · 88
COPY
   command · 94
CSV
   format · 177, 183

D

database
   status · 178
DATABASE · 103
   BACKUP · 98
   CLOSE · 96
   CONFIGURE command · 35
   OPEN · 97
   RECOVER · 102
   REORGANIZE · 100
   RESTORE · 101
DATE · 33, 149
   CONVENTION · 33
DAYS
   RETENTION · 59, 72
DBOPEN · 126, 127
DCKEYIN · 18
DCSTATION · 83
DEBUG
   command · 234
DECRYPT
   command · 211
DEFAULT · 67
DEFINE
   command · 221
DELETE
   command · 206, 216
   MT · 104
DENSITY
   ALL · 64
   CLEAR · 63
   DEFAULT · 63
   SCRATCHPOOL · 63
   SUBSTITUTE · 63
DESCENDING · 182
Directory
   report · 212
DIRECTORY
   command · 207
DISABLE
  STACKING command · 105
DISABLE
  HOST command · 105
DISABLE
  LIBRARY command · 142
DISK · 88
DISMOUNT · 138, 141
DO
  command · 123
door
  status · 180
DUMP · 236
DUPLICATE
  command · 203
DUPLICATE VOLUME
  OPERATIONS · 51

E

EJECT · 94, 133
EMAIL
  command · 124
  CONFIGURE command · 40
ENABLE
  STACKING command · 107
ENABLE
  HOST command · 106
ENABLE · 122
ENABLE
  LIBRARY command · 143
ENCRYPT
  command · 210
  STACK · 197, 200
ENCRYPTION
  CONFIGURE · 194
ENTER · 135
ERRORS
  RETIRING · 62
EVALUATE · 226
EVENT OPTIONS
  CONFIGURE · 78
EXCEPT · 110
EXCEPTIONS · 173
  report · 161, 162, 166
EXPORT
  command · 133
Index

F

FA · 227
FIELD_VALUE · 183
   procedure · 267
FILE · 125, 154, 177
   option · 183
FILESIZE · 237
FILTER · 43
FIND
   command · 181
FIRST · 83, 132
   MT SELECTION · 42
FLIP
   command · 139
FORMAT · 177, 183
FORWRD
   action · 29

G

GENERATIONS · 158
   OPERATIONS · 50
   RETENTION · 59, 72
GO
   action · 23

H

HELP
   command · 27
HOME
   action · 23
host
   status · 180
hostname
   install from · 109
HOSTS
   CONFIGURE command · 53

I

IDLE TIME · 42
IGNORE
   CONFIGURE MT · 39
   MISMATCH LABEL · 50
   UNKNOWN TAPE · 49
IMPORT
   command · 135
INITIALIZE · 235
Index

command · 144
install
    command · 108
INSTALL · 11
    command · 108
invalidate
    stacking · 206
INVENTORY
    report · 170

K

KEY
    ENCRYPTION · 194
KEYS
    action · 29

L

LABEL
    command · 117
LABELID
    LABEL · 76
LabelManager · 13, 117
LAST · 132
    command · 150
library
    status · 179
LIBRARY
    CONFIGURE command · 42
    TRACKING · 85
LibraryManager · 2, 85, 105, 142
    version · 184
LINES · 82
LIST
    command · 151
LOAD
    library command · 137
    MACROS command · 120
LOCATION · 110
    CONFIGURE command · 44
    CONFIGURE MT · 37
    report · 159
log · 116
LOG · 87
    command · 162, 163, 233
    report · 163
long help · 29
Index

M

MAINTENANCE report · 160 MARC · 14, 18 MATCH
   TRACKING · 85 ME STACKING · 193 MERGE
   command · 201 message area · 30 METHOD
   ENCRYPTION · 194 MINIMUM
   VTL DISK · 88 MISMATCH LABEL OPERATIONS · 50 MODIFY
   command · 218 MONTHS RETIRING · 62 MOUNT · 137 MOVE · 44
   command · 110 MOVEMENT
   CONFIGURE command · 46 report · 173 MT
   CONFIGURE command · 37 report · 168 status · 179 MT SELECTION · 42

N

NEWEST
   command · 148 NONCOMPRESSED · 38 NONE
   RETENTION · 60 TAPE · 70 NUMERIC · 132
   TRACKING · 84

O

ODT · 17 OF
   DATABASE · 35
OLDEST
  command · 147
OPEN
  DATABASE command · 97
OPERATIONS
  CONFIGURE command · 49
OPERATOR · 125
OUTPUT
  form · 21
OVERRIDE
  macro option · 224

P

PAGESIZE · 57
PARENT
  action · 23
  RETENTION · 73
PAS
  ENCRYPTION · 195
  passive · 85
PASSIVE · 50
  passive mode · 2
PASSTHRU · 139
PASSWORD · 94, 95
PERCENT
  VTL DISK · 88
PERFORMANCE · 88
PERMANENT
  RETENTION · 59, 71
PICKER · 139
PORTS
  debug · 238
PREV · 29
  action · 24
PRINT
  trace files · 235
PRINTER · 27
  option · 183
PRIORITY
  REPORT · 56
  STACKING · 193
PRIVILEGED · 67
PROCESSINGDATE
  SET · 114
PUBLIC · 66
PURGE
  command · 129
  CONFIGURE MT · 37
Index

dump files · 236
trace files · 235, 236

Q

QUERY · 225
  option · 183
QUEUES · 237, 238
QUIT
  command · 122

R

RANDOM
  MT SELECTION · 42
RANGE
  TRACKING · 85, 86
RAW
  format · 177, 183
RECEIVE · 54
RECOVER
  DATABASE · 36
RECREATEDIR
  command · 208
REDIR
  command · 208
REMOTESPO · 17
REMOVE · 133
REORGANIZE
  DATABASE command · 100
REPLACE
  command · 93
  macro option · 224
REPLY
  macro option · 224
REPORT
  command · 151
  CONFIGURE command · 56
  STACKING · 192
RESCUE
  command · 240
RESPONSE
  macro option · 224
RESTORE
  DATABASE command · 101, 102
RESUME
  CLEANING · 92
  label · 118
  purge · 132
Index

remove · 134
RETENTION · 50
  CONFIGURE command · 58
OPERATIONS · 50
STACKING · 192
RETIRE
  CONFIGURE command · 62
RETIRING
  report · 157
RETURN · 29
  action · 24
RTV · 191
RW · 138

SAVEFACTOR
  RETENTION · 59, 71
SCHEDULE
  command · 111
  DELETE · 113
  DISABLE · 113
  ENABLE · 113
  report · 174
  STATUS · 112
SCRATCH
  ALL command · 149
  report · 158
SCRATCHPOOL · 77
  DEFAULT · 64
  OPERATIONS · 51
  STACKING · 192
  SUBSTITUTE · 64
SECURE
  command · 65
SERIAL
  MT SELECTION · 42
SET
  command · 114
  short help · 19, 28
SITENAME
  REPORT · 56
SIZE
  command · 209
  VTL LOG · 87
SKIP · 224
slot
  status · 179
SLOT · 130
Index

SN
  status · 179
SORT · 177, 182
STACK
  command · 196
stacking · 105, 107, 191
STACKING
  CONFIGURE · 192
START · 135
STARTUP · 123
STATION · 66
STATUS · 2
  CLEANING · 92
  command · 178
DB · 217
  import · 136
label · 118
  purge · 131
  remove · 134
STOP · 135
  CLEANING · 92
label · 118
  purge · 131
  remove · 134
SUBSTITUTE
  CONFIGURE command · 63
SUMMARY
  report · 167
SUPERVISOR · 124
SUPPORT · 125
SUPPRESS
  OPERATIONS · 52

T

TAPE
  CONFIGURE command · 69
TAPE COMMENT
  CONFIGURE · 80
TAPE EXPORT
  CONFIGURE · 81
TAPE LABEL SUBSTITUTION
  CONFIGURE · 76
TAPE MOVEMENT
  CONFIGURE · 74
  Database Items · 188
TAPE RETENTION
  CONFIGURE · 71
TAPE SCRATCHPOOL SUBSTITUTION
CONFIGURE · 77
TapeManager
   status · 178
TapeStack · 191
TCP/IP · 54
teach mode · 27, 29
TEMPORARY · 235
TERM
   command · 82
TEXT
   format · 177, 183
TIME · 33
   CONVENTION · 33
   VTL DISK · 88
   VTL LOG · 87
   VTL PERFORMANCE · 88
TIME FORMAT
   REPORT · 57
TIME ZONE · 57
   SET · 115
TITLE · 177
TL
   command · 116
TOPICS
   action · 29
TRACE · 125, 235, 239
   command · 239
TRACKING
   CONFIGURE command · 84

UNDO · 217
unit
   status · 179
UNIT · 66
UNKNOWN TAPE
   OPERATIONS · 49
UNLOAD
   command · 141
   library command · 138
   MACROS command · 121
UNSTACK
   command · 204
USAGE
   MT SELECTION · 43
USER · 66, 95
USERCODE SELECTION
   OPERATIONS · 51
Index

USES
  RETIRING · 62

V

VAULT · 140
  report · 172
VERIFY
  OPERATIONS · 50
VERSION
  command · 184
VIA · 54
VOLUMEID
  purge · 132
VTL · 95
  CONFIGURE command · 87
VTL Agent · 172
VTLKEY · 94, 95
  ENCRYPTION · 194
VTV · 191
  find · 212

W

WAIT · 230
  command · 126
WHERE · 173, 177, 216, 218
WIDTH · 82
WITH · 215, 218
WITH MATCH
  RETENTION · 59, 72
WORKERS
  purge · 132
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