Contents

Figures ........................................ v

Tables ........................................ vii

About this information ....................... ix
Who should read this book .................. ix
Conventions used in this book ............. ix
Terminology used in this book .............. x
Service updates and support information .. x
Receiving information updates automatically . x
Where to find information ................... x
Accessibility features ....................... x
How to send your comments ............... xi

Summary of Changes ........................ xiii

Chapter 1. Introduction to IBM Tivoli Tape Optimizer ....................... 1
What does Tape Optimizer do? ............. 1
Uses for Tape Optimizer ..................... 2
Mass tape-copy operations ................. 3
Post-copy processing ....................... 3
Tape Optimizer interface ................... 3
Copy process flow ........................... 4
Support for manually created copy jobs .. 5
Required RACF privileges .................. 5
Prerequisites ................................ 5
Tape media requirements .................. 5
Hardware requirements ..................... 6
Software requirements ..................... 6

Chapter 2. Customizing IBM Tivoli Tape Optimizer ....................... 7
Required privileges .......................... 7
Customization steps ........................ 7
Step 1: Run the customization script ...... 7
Step 2: APF-authorize the product load library . 8
Step 3: Ensure that the LE routines are accessible .. 9
Product run-time libraries and files ....... 9
Manually allocating the product’s VSAM files. 11
Defining an additional Request Database .. 12

Chapter 3. Getting started with IBM Tivoli Tape Optimizer ....................... 13
About the Tape Optimizer interface ........ 13
Starting the Tape Optimizer interface ... 13
Tape Optimizer Primary Menu ............. 14
Pull-down menus ............................. 14
Online Help ................................ 15
Supported wildcard characters .............. 15
Task flow for copying tapes ............... 16
Default values for copy requests .......... 17
How to select the tapes or data sets to copy . 18
Example 1 ................................ 19
Example 2 ................................ 20
Example 3 ................................ 20
Example 4 ................................ 20

Chapter 4. Setting default values for copy requests ....................... 29
Setting default values for general copy parameters .......................... 30
Setting defaults for tape selection filters .... 35
Setting defaults for stacked tape parameters .... 36
Setting defaults for DFSMSrmm parameters ........ 38
Specifying the default DFSMSrmm control variables .......................... 41
Where to go next ............................. 43

Chapter 5. Defining and managing copy requests ....................... 45
Considerations for defining copy requests .................................. 45
Strategies for specifying input and output tape devices .................... 47
Task flow for defining a copy request .................. 47
Defining a basic copy request based on volser ........ 49
Defining a basic copy request based on data set names .................... 53
Creating a date filter ................................ 56
Creating a volser filter ................................ 58
Creating a program-name filter .................. 60
Creating a data-set-name filter .................. 61
Creating a filter based on other tape criteria .................. 63
Specifying copy options for a copy request .................................. 65
Specifying stacked tape parameters for a copy request . 69
Renaming tape data sets .......................... 71
Examples .................................. 72
Specifying criteria for renaming tape data sets .......................... 73
Specifying DFSMSrmm parameters for a copy request .................... 74
Specifying the DFSMSrmm control variables to use for a copy request .................................. 77
Editing a copy request ....................... 79
Deleting a copy request ....................... 81
Where to go next ............................. 82

Chapter 6. Running a copy request ....................... 83
Sample copy request .......................... 83
Performing a trial run of a copy request ........ 85
Submitting a copy request from the Tape Optimizer interface ............ 86
Where to go next ............................. 87

Chapter 7. Verifying that tapes were copied properly ....................... 89
Return codes ................................ 89
Log information .................. 90
Tape Selection Summary report ............ 91
Request Summary report ..................... 92
Sample Request Summary report ............ 93
Figures

1. Tape Optimizer Primary Menu .................. 14
2. A pull-down menu .......................... 15
3. Copy Request Defaults menu .................. 30
4. General Parameters pop-up window .......... 31
5. Tape Selection Filters pop-up window (for
defaults) .................................... 35
6. Program Filter Defaults pop-up window (for
exclusion filter) ................................ 36
7. Stacked Tape Parameters pop-up window (for
defaults) ..................................... 37
8. DFSMSrmm Parameters menu .................. 38
9. Default DFSMS Parameters pop-up window ... 39
10. DFSMSrmm Control Variables panel .......... 42
11. Copy Requests panel ........................ 50
12. Create/Edit Request panel (for volsers) .... 51
13. Create/Edit Request panel (for data set names). . 54
14. Filters pull-down menu on the Create/Edit
Request panel .................................. 57
15. Date Filters pop-up window ................... 57
16. Filter Type pop-up window .................... 59
17. Copy Request VOLSER Filters pop-up window . 59
18. Copy Request Program Filters pop-up window . 61
19. Copy Request Data Set Name Filters pop-up
  window ....................................... 62
20. Other Filters pop-up window .................. 64
21. Options pull-down menu on the Create/Edit
  Request panel ................................ 66
22. Copy Options pop-up window .................. 66
23. Stacked Tape Parameters pop-up window (for a
copy request) ................................ 70
24. Copy Request Data Set Rename pop-up
  window ....................................... 73
25. DFSMSrmm Copy Request Parameters pop-up
  window ...................................... 75
26. Request Action pop-up window ................. 80
27. Sample copy request ........................ 84
28. Tape Selection Summary report ................ 92
29. Sample Request Summary report ............... 93
30. Sample Stacked Tape Summary report ........... 94
31. View VOLUME Copy Statistics panel .......... 96
32. VOLUME Copy Statistics pop-up window ........ 96
33. Sample copy log ................................ 99
Tables

1. Tape Optimizer usage scenarios .................... 2
2. Product run-time libraries and files ............... 9
3. Runtime_HLQ.CNTL members ....................... 10
4. Task flow for copying tapes ........................ 16
5. Use of expiration dates for filtering under alternative scenarios .......................... 22
6. Tasks for defining a copy request ................ 48
7. Return code descriptions ........................... 90
8. Key log messages .................................. 90
9. Error message severity codes ....................... 105
About this information

This book provides instructions for customizing and using IBM® Tivoli® Tape Optimizer on z/OS®. It is designed to help storage administrators, tape managers, and tape operators perform the following tasks:

- Plan for the installation of Tape Optimizer
- Customize Tape Optimizer after installation
- Define and run a job for copying tapes or tape data sets

The technical changes for this edition are summarized under “Summary of Changes” on page xiii.

For installation instructions, refer to the Program Directory for IBM Tivoli Tape Optimizer on z/OS, which is included in the product package.

Who should read this book

This book is intended for those persons who are responsible for customizing and using Tape Optimizer. It assumes a working knowledge of:

- The z/OS or OS/390® operating system
- ISPF
- Job Control Language (JCL)
- IBM Data Facility System Managed Storage removable media manager (DFSMSrmm™)

Conventions used in this book

This book uses the following highlighting conventions:

- **Boldface type** indicates user interface controls such as names of fields or menu choices.
- **Monospace type** indicates examples of code, line commands, and text that you type exactly as shown.
- *Italic type* indicates parameter variables that you need to replace with a value, and variables in messages. It is also used for book titles and for emphasizing words.

The following labels identify significant elements within this book:

- **Example**: is used to identify example code or scenarios.
- **Restriction**: is used to identify a restriction or limitation of the product.
- **Tip**: is used to suggest an action that might simplify a task or improve some aspect of the product.
Terminology used in this book

In this book, IBM Tivoli Tape Optimizer on z/OS is shortened to “Tape Optimizer” where the context makes the meaning clear.

For additional product-related terminology, see the “Glossary” on page 151.

Service updates and support information

To find service updates and support information, including software fix packs, PTFs, Frequently Asked Question (FAQs), technical notes, troubleshooting information, and downloads, refer to the following Web page:


Receiving information updates automatically

By registering with the IBM My Support service, you can automatically receive a weekly e-mail that notifies you when new DCF documents are released, when existing production documentation is updated, and when new product documentation is available. You can customize the service so that you receive information about only those IBM products that you specify.

To register with the My Support service.
1. Go to http://www.ibm.com/support/mysupport
2. Enter your IBM ID and password, or create one by clicking register now.
3. When the My Support page is displayed, click add products to select those products that you want to receive information updates about.
4. Click Subscribe to email to specify the types of updates that you would like to receive.
5. Click Update to save your profile.

Where to find information

The Tape Optimizer Web page provides current product documentation that you can view, print, or download. To locate publications with the most up-to-date information, refer to the following Web page:


Accessibility features

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use a software product successfully. The major accessibility features in Tape Optimizer enable users to:

- Use assistive technologies such as screen readers and screen magnifier software. Consult the assistive technology documentation for specific information when using it to access z/OS interfaces.
- Customize display attributes such as color, contrast, and font size.
• Operate specific or equivalent features using only the keyboard. Refer to the following publications for information about accessing ISPF interfaces:
  — z/OS ISPF User’s Guide, Volume 1, SC34-4822
  — z/OS TSO/E Primer, SA22-7787
  — z/OS TSO/E User’s Guide, SA22-7794

These guides describe how to use ISPF, including the use of keyboard shortcuts or function keys (PF keys). The guides provide the default settings for the PF keys and explain how to modify their functions.

How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other Tape Optimizer documentation, send your comments by e-mail to comments@us.ibm.com. Be sure to include the name of the book, the part number of the book, the version of Tape Optimizer, and, if applicable, the specific location of the text that you are commenting on (for example, a page number or table number).
Summary of Changes

This section summarizes the significant improvements and enhancements to IBM Tivoli Tape Optimizer on z/OS versions 1.1 and 1.2. The changes are listed for each edition of this book that has been issued. The list includes references to the relevant portions of the book for more information.

IBM Tivoli Tape Optimizer on z/OS 1.2

SC18-9569-04 (fifth edition) — September 2006:

- The logic that Tape Optimizer uses to select a copy utility for a copy operation changed. Tape Optimizer will always use the ADRDSSU backup utility to copy a tape data set if the DFSMSrmm create program name is ADRDSSU, regardless of how you set the Call ADRDSSU when Blocksize is 0 option on the General Parameters panel or the Copy Options panel.

- The General Parameters panel and the Copy Options panel include the new option Enable Job Restart. If you select this option, Tape Optimizer locks the Request Database when a copy job terminates abnormally so that you can restart the job later from the point at which it abended. If you clear this option, Tape Optimizer will not lock the Request Database. As a result, you will not be able to restart the copy job. However, the Request Database will be available for use by another copy job. The corresponding new parameter for manually coded copy jobs is REQU_JOB_RESTARTABLE. For more information, see “Specifying copy options for a copy request” on page 65 and Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

- The General Parameters panel includes the new field Number of Seconds to Retry Allocation. In this field, you can specify the maximum number of seconds that Tape Optimizer should retry allocating input tape units for a copy request when the initial allocation attempt fails. Valid values are from 0 through 9999. The default value is 0, which causes Tape Optimizer to make no retry attempts. The corresponding new parameter for manually coded copy jobs is REQU_ALLOC_WAIT_SECS. For more information, see “Setting default values for general copy parameters” on page 30 and Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

- If you use generation data groups (GDGs), you can now specify a generation data set name with a relative generation number when you create a copy request based on data set names or when you define a data-set-name filter. For more information, see “Defining a basic copy request based on data set names” on page 53 and “Creating a data-set-name filter” on page 61.

- You can now include a special percent sign (%) wildcard in criteria for renaming tape data sets as they are copied. This wildcard enables you to append a value to existing data set names to generate new data set names. For implementation details, see “Renaming tape data sets” on page 71.

- If you select the Perform unit name validity check option on the General Parameters panel, Tape Optimizer will display the new Invalid Unit Name window whenever you specify an invalid input or output unit name on the General Parameters panel or the Create/Edit Request panel. From this window, you can direct Tape Optimizer to accept an invalid name if your SMS routines can interpret the name or if you intend to run the copy request on a processor where the name is valid. For more information, see “Setting default values for general copy parameters” on page 30 or “Defining a basic copy request based on volsers” on page 49.
A new report, called the Tape Selection Summary, lists the tapes and data sets that Tape Optimizer selects for copying based on the selection criteria that you specify in the basic copy request and any filters that you define. This report is generated when you perform a trial run or the actual run of a copy job. If the report is generated during a trial run, you can use it to check that the correct tapes and data sets will be copied when you actually run the copy job. For more information, see “Tape Selection Summary report” on page 91.

The following additional messages are documented: GTO004I, GTO216I, GTO250E, GTO363I, GTO437I, GTO439E, GTO440E, GTO441E, GTO442E, GTO443E, GTO444E, GTO445E, GTO446E, GTO447E, GTO448E, GTO449E, GTO450I, GTO451I, GTO452I, GTO453E, GTO454E, GTO455I, GTO456I, GTO457W, GTO458E, GTO459E, GTO460I, and GTO470E.

IBM Tivoli Tape Optimizer on z/OS 1.1

SC18-9569-03 (fourth edition) — March 2006:

• Tape Optimizer provides improved support for IBM 3592 tape drives and high-capacity tape media, such as Write Once Read Many (WORM) media. You can now use tapes that have the enterprise recording format EFMT1 or EFMT2 and a type of MEDIA5. The following new options and parameters are provided:

  — The General Parameters panel and the Copy Options panel include the new option Use Exact Data Set Name for Tape Unit Allocation. If you select this option, Tape Optimizer uses the exact name of the first data set that is selected for copying when allocating an output tape drive. If you specified data-set renaming criteria, Tape Optimizer uses the name that is generated for the first output data set. For SMS-managed data sets, this feature enables your ACS routines to determine that a 3592 tape drive with high-capacity media is needed. The corresponding parameter for manually coded copy jobs is REQU_USE_EXACT_TDSN.

  — The Stacked Tape Parameters panels (for defaults and for a specific copy request) provide two new options, EFMT1 and EFMT2, for setting the maximum threshold utilization levels (in MBs) for tapes that have the EFMT1 or EFMT1 format. The corresponding parameters for manually coded copy jobs are REQU_EFMT1_THRESHOLD and REQU_EFMT2_THRESHOLD.

For more information about these new options and parameters, see Chapter 4, “Setting default values for copy requests,” on page 29; Chapter 5, “Defining and managing copy requests,” on page 45; and Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

• Documentation clarification: Tape Optimizer does not support copying data from tapes that are managed by hierarchical storage management (HSM).

• Documentation clarification: If you select the Copy Tape without Recatalog option, Tape Optimizer ignores the following catalog-related options if selected: Continue When Invalid Catalog Entries Found and Use FSEQ for Catalog Matches when DSSEQ Match Fails. For more information, see Chapter 4, “Setting default values for copy requests,” on page 29 and Chapter 5, “Defining and managing copy requests,” on page 45. Similarly, if you set the REQU_NO_RECATALOG parameter to Y in a manually created copy job, Tape Optimizer ignores the REQU_CONT_WHEN_INV_CATENT and REQU_USE_FSEQ_FOR_CAT parameters if specified. For more information, see Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

• Documentation clarification: The REQU_TLIB_TYPE parameter must be included in manually created tape-copy jobs. For more information, see “Other required parameter” on page 131.
SC18-9569-02 (third edition) — January 2006:

- Additional information about restarting a copy request has been added. For more information, see Chapter 8, “Stopping and restarting a copy request,” on page 101.
- Clarified that if you manually allocate the Tape Optimizer VSAM files, you must edit the FILEDEFS file to point to the correct file names. See Chapter 2, “Customizing IBM Tivoli Tape Optimizer,” on page 7.
- The General Parameters panel and the Copy Options panel include a new field named Call ADRDSSU when Blocksize is 0. This field enables you to specify the situations in which Tape Optimizer calls the ADRDSSU utility (rather than IEBGENER) to copy a tape data set. A corresponding new batch job parameter is available: REQU_CALL_ADRDSSU_BLK0. For more information, see Chapter 4, “Setting default values for copy requests,” on page 29, Chapter 5, “Defining and managing copy requests,” on page 45, and Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

SC18-9569-01 (second edition) — November 2005:

- Tape Optimizer can now copy individual data sets from input tapes and stack them together onto output tapes. This copy strategy is an alternative to copying the entire tape chains that contain the data sets. The Create/Edit Request panel for data sets now includes VOLSER and DSSEQ columns in support of this feature. For more information, see Chapter 5, “Defining and managing copy requests,” on page 45.
- The Dates Filters panel includes a new field named Tapes/Data Sets That Expire After for including tapes or data sets in a copy request that expire after a particular date. The pre-existing exclusion option Exclude tapes that expire before was renamed Tapes/Data Sets That Expire Before. For more information, see “How expiration or retention dates are used in tape filtering” on page 21 and “Creating a date filter” on page 56.
- The Other Filters panel includes a new inclusion option named Cataloged Data Sets. You can use this option to include only the data sets that are in the system catalog in a copy request. For more information, see “Creating a filter based on other tape criteria” on page 63.
- The General Parameters panel now includes the following new options for specifying default values for copy requests:
  - Number of Copy Log Entries
  - Number of Seconds to Retry Re-Allocation
  - Continue Copy Following a Copy Utility Failure
  - Continue When Invalid Catalog Entries Found
  - Use FSEQ for Catalog Matches When DSSEQ Match Fails

Also, the pre-existing option Do Not Use Assign/Create Date for Data Set Searches was moved to this panel from the Copy Options panel. The default values for the Number of Days to Retain Input Tapes field and the Perform unit name validity check field have changed.

For information about all of these options, see “Setting default values for general copy parameters” on page 30.

- The Copy Options panel now includes the following new options:
  - Continue Copy Following a Copy Utility Failure
  - Apply New Expiration Date to Input Volume When Copy by Data Sets
  - Print Summary Statistics Reports
  - Continue When Invalid Catalog Entries Found
— Use FSEQ for Catalog Matches When DSSEQ Match Fails

For more information about these options, see “Specifying copy options for a copy request” on page 65.

Also, the options Do Not Use Assign/Create Date for Data Set Searches and Perform Unit Name Validity Check were removed from this panel. They now appear on the General Parameters panel only.

• The Default DFSMSrmm Parameters panel and the DFSMSrmm Copy Request Parameters panel now include the following new options:
  — Use Volume Expiration Date When a Volume Is Retained and No Data-Set Expiration Date or Retention Date Exists
  — Use Old Data-Set Retention Date When No Data-Set Expiration Date Exists
  — Continue After RMM Variable Copy Failure

For descriptions of these options, see “Setting defaults for DFSMSrmm parameters” on page 38 and “Specifying DFSMSrmm parameters for a copy request” on page 74.

• You can now perform limited editing of copy requests that have the status ACTIVE or PEND RSTRT if these requests have actually terminated.

• Manually created copy jobs now include a GTOUTRPT DD statement for indicating the destination for the summary report output for the copy job. For more information, see Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

• You can now specify the following new parameters when manually creating the JCL for a copy job:
  — REQU_CONT_COPY_AFTER_FAIL
  — REQU_CONT_WHEN_INV_CATENT
  — REQU_COPY_ONLY_CATALOGED
  — REQU_DFRM_CONT_VARCOPYFAIL
  — REQU_EXPR_DATE_INC
  — REQU_EXPIRE_COPY_BY_DATASET
  — REQU_PRINT_STATS_REPORTS
  — REQU_TABLE_BY_DSNVOL_mmmm
  — REQU_TABLE_BY_DSNDSQ_mmmm
  — REQU_USE_DSRET_AS_DSNEXP
  — REQU_USE_EXP_WHEN_DSNOTRET
  — REQU_USE_FSEQ_FOR_CAT

For descriptions of these parameters, see Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

• The following new messages, which are related to the new copy parameters, might be issued: GTO404W through GTO433W, GTO700E through GTO704W, GTO710E, GTO750I, and GTO755I. These messages are described in Appendix A, “Messages,” on page 105.

• The runtime_HLQ.CNTL library contains two new members that contain sample JCL for removing records from the stats file: GTOSTDEL and GTOSTREO. Also, the runtime_HLQ.LOAD library member GTOUTIL was renamed GTOUTILR to distinguish it from the member by the same name in the runtime_HLQ.CNTL library. For more information, see Chapter 2, “Customizing IBM Tivoli Tape Optimizer,” on page 7 and Chapter 9, “Performing maintenance tasks,” on page 103.
Chapter 1. Introduction to IBM Tivoli Tape Optimizer

Review the following introductory information to learn about IBM Tivoli Tape Optimizer on z/OS key benefits and features, uses, authorization requirements, and prerequisites:

- “What does Tape Optimizer do?”
- “Uses for Tape Optimizer” on page 2
- “Mass tape-copy operations” on page 3
- “Post-copy processing” on page 3
- “Tape Optimizer interface” on page 3
- “Copy process flow” on page 4
- “Support for manually created copy jobs” on page 5
- “Required RACF privileges” on page 5
- “Prerequisites” on page 5

What does Tape Optimizer do?

Tape Optimizer copies information from one or more tape volumes to other tapes or tape-compatible media in a single batch job, called a copy request. The product can work with any source or target media that is capable of storing physical or logical tape volumes. It also can copy most tape data sets except some that are in a proprietary format, such as HSM and FDR data sets.

Besides copying the tape data, Tape Optimizer automatically applies the Data Facility System Managed Storage removable media manager (DFSMSrmm) tape library information to the output tape definitions to preserve this information. The product also updates the system catalog to identify the new locations of the copied tape data sets.

The following list summarizes the key product features:

- Works with all tape media and tape devices that are compatible with your IBM system, including VTSs
- Provides an ISPF interface with online Help for configuring and submitting copy requests
- Generates a detailed copy log, online copy statistics by tape volume, and three summary reports (the Tape Selection Summary report, Request Summary report, and Stacked Tape Summary report) for each copy request
- Copies data sets individually, or copies entire tape chains that include the tape volumes or data sets that you specify
- Runs up to 10 copy tasks concurrently for a single copy job to help you copy tape volumes or data sets much more quickly
- Enables you to define a variety of filters to specify precisely the input tapes or data sets to copy
- Optionally stacks tape volumes or data sets on output tapes to reduce the number of tapes that you need to store and maintain
- Optionally renames tape data sets as they are copied based on the renaming criteria that you specify
Applies DFSMSrmm tape library information for the input tapes to the output tape definitions to preserve this information

Updates the system catalog information for the copied tape data sets to reflect their new tape locations

Enables you to perform a trial run of a copy job to ensure that the correct tape volumes or data sets will be copied

Enables you to restart copy requests that you stopped or that failed from the appropriate point

**Uses for Tape Optimizer**

Tape Optimizer is a versatile product that you can use in a variety of situations. Table 1 lists several usage scenarios:

**Table 1. Tape Optimizer usage scenarios**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Contexts</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Migrate data from existing tapes</td>
<td>To prevent data loss due to the degradation of old tapes</td>
<td>Routine task for tape managers and operators</td>
</tr>
<tr>
<td>to new tapes</td>
<td>To stack data on high-density tapes to reduce the number of tapes to store and manage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To release source tapes to the scratch pool for reuse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To consolidate a file that spans multiple tapes onto one tape</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To back up a particular data set</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To move data to more durable tape media</td>
<td></td>
</tr>
<tr>
<td>Migrate data from a VTS or ATL to</td>
<td>To copy data that you do not expect to use in the near future to tapes for offsite vaulting</td>
<td>Frequent task for storage administrators, tape managers, and tape operators</td>
</tr>
<tr>
<td>other media</td>
<td>To clear volumes from a VTS or an automated tape library (ATL) because it is becoming full</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To migrate data to less expensive tape media</td>
<td></td>
</tr>
<tr>
<td>Migrate data from tapes to a VTS</td>
<td>To load a new VTS with data from tapes</td>
<td>Occasional task for storage administrators and tape managers</td>
</tr>
<tr>
<td></td>
<td>To reduce the number of tapes, tape devices, floorspace, and tape operators that are needed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To improve the availability of tape data that is frequently used</td>
<td></td>
</tr>
<tr>
<td>Migrate data between VTSs</td>
<td>To upgrade to a new VTS that offers higher performance and greater capacity</td>
<td>Infrequent task for storage administrators and tape managers</td>
</tr>
<tr>
<td></td>
<td>To create a remote peer VTS for disaster recovery</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To consolidate data that resides in multiple VTSs onto one VTS</td>
<td></td>
</tr>
</tbody>
</table>
Mass tape-copy operations

A key feature of Tape Optimizer is its ability to copy numerous tapes in a single copy job. The product imposes no limit on the number of tapes that can be copied per job. This feature can provide the following benefits to your enterprise:

- Reduce the impact of copy operations on system performance and availability. Only one copy job is written to the JES queue, initiated, and scanned for completion status.
- Reduce the workload for tape operators and the related personnel costs.
- Make recovery from a failed tape-copy operation easier. You restart just one copy job to resume copy processing from the appropriate point.

Also, Tape Optimizer supports running multiple subtasks for a single copy job to accommodate large copy operations. For more information, see “Strategies for optimizing performance of mass-copy operations” on page 26.

Post-copy processing

After Tape Optimizer copies the data on tapes, it automatically performs the following post-copy processing:

- Applies the tape library information for the input tapes to the output tape definitions to preserve this information. You can control which information is applied by selecting DFSMSrmm control variables from the Tape Optimizer interface.
- Recatalogs the tape data sets to point to their new locations.
- Releases the copied input tapes to the scratch pool for reuse as soon as their expiration dates are reached, provided that VRS retention criteria do not hold the tapes from release. For more information, see “Factors affecting the release of copied tapes” on page 25.

Tape Optimizer interface

Tape Optimizer provides an ISPF interface from which you can define and submit copy requests, perform a trial run of a copy request, and view the results of copy requests that ran. The interface includes numerous copy parameters that you can use to tailor your copy requests.

When you define a specific copy request, you must identify the input tape volumes to copy by specifying either volser values or tape data set names. You must also specify the input and output tape drives to use. You can then refine the set of input tape volumes or data sets by specifying a variety of optional filtering criteria, such as tape-creation dates and the names of programs that created tape data sets. By creating a combination of filters, you can identify precisely the tape volumes or data sets to copy.

Tape Optimizer also provides copy options for controlling how the copy request is processed and how the tape media is handled. For example, you can specify the number of days to retain input tapes and whether to stack data on output tapes.

To save time in configuring copy requests, you can specify default values for many copy options. If necessary, you can override these default values when defining a specific copy request.
When you finish defining a copy request, Tape Optimizer generates the JCL for the copy job and displays it for your review. If you are satisfied with the JCL, you can submit it for execution directly from the interface.

After a copy request runs, you can display the copy log and summary copy statistics by volume from the ISPF interface. You can also review the summary reports that Tape Optimizer provides with the job output.

For information about getting started with using the Tape Optimizer interface, see Chapter 3, “Getting started with IBM Tivoli Tape Optimizer,” on page 13.

Copy process flow

A copy request that is created from the Tape Optimizer interface is processed as follows:

1. A user defines a copy request from the Tape Optimizer interface. The basic copy request specifies the tape volumes or data sets to be copied and the input and output tape units to use. The user can also specify optional filtering criteria and copy options.

   This information is saved to a parameters file. The default name of this file is `runtime_HLQ.PARMS`, where `runtime_HLQ` is the high-level qualifier that was specified during customization.

   Tip: When defining a copy request, the user can select an option to perform a simulated run of the copy job. By performing a simulated run, the user can check that all of the specified tape or data set selection criteria and filters will result in the expected set of tape volumes or data sets being copied.

2. When the user exits the copy request, Tape Optimizer generates and displays the JCL for the copy job. The JCL includes any copy parameters that the user set and the copy request number that Tape Optimizer automatically generates for the request.

3. The user reviews the JCL.

4. The user submits the copy job to JES for execution.

5. Tape Optimizer temporarily acquires a lock on the Request Database (a VSAM file) that the copy request uses. This file contains information about the tape volumes to be copied. Its primary purpose is for restarting the copy request, if necessary. The file remains locked until the copy request finishes or until the user deletes the copy request from the Tape Optimizer interface.

6. Tape Optimizer determines the tapes or series of tapes (called tape chains) that need to be mounted based on the copy parameters and filters that the user specified for the copy request.

7. The copy job performs the following steps, in the order shown:
   a. Copies all of the tape chains or data sets that were selected for copying. If the user specified renaming criteria for the copy request, the tape data sets are renamed during the copy operation.
   b. Applies the DFSMSrmm tape library information for the copied tapes to the output tape definitions.
   c. Recatalogs the copied tape data sets to reflect their new locations.
   d. Writes detailed information about the copy job to the Tape Optimizer log file. The default name of this file is `runtime_HLQ.MSGLOG`, where `runtime_HLQ` is the high-level qualifier that was specified during customization.
   e. Records summary copy statistics for the tape volumes in the stats file. The default name of this file is `runtime_HLQ.STATS`.
Tip: The user can monitor the copy job from SDSF.

8. When the copy job finishes, Tape Optimizer releases the lock on the Request Database file so that it can be reused for another copy request.

9. The user verifies that all of the selected tape volumes were copied properly. The user can review the job output and summary reports from SDSF or an equivalent tool and can review the copy log and summary copy statistics from the Tape Optimizer interface.

10. Tape Optimizer will release the copied tapes to the scratch pool for reuse based on their expiration dates (their original or new expiration dates, depending on how you configured expiration criteria). If any tapes are held by VRS retention criteria unnecessarily, the user can run a job that Tape Optimizer supplies to release the tapes immediately.

Support for manually created copy jobs

To minimize syntax errors, you should create copy requests from the Tape Optimizer interface. The interface will validate many of your entries, generate the JCL for the job, and display online Help upon request. However, if you want to create the JCL for a copy job manually, you can do so. You might want to manually create JCL for a copy job to save the JCL to file that you can use over and over again, for example, to run the copy job on a routine basis as part of a batch job. The syntax of the basic JCL statements for a Tape Optimizer copy job and all of the required and optional parameters are described in Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

Tip: First define the copy request through the Tape Optimizer interface. Tape Optimizer will generate JCL that you can use as a template. You can then manually edit the generated JCL, as needed.

Required RACF privileges

To customize the product and run tape copy requests, your TSO user ID must have the following RACF privileges, which are typically granted to tape librarians:

- CONTROL access to STGADMIN.EDG.LISTCONTROL
- CONTROL access to STGADMIN.EDG.MASTER
- CONTROL access to STGADMIN.EDG.VRS
- UPDATE access to STGADMIN.EDG.OPERATOR
- UPDATE access to STGADMIN.EDG.FORCE

You do not need any special privileges to use the Tape Optimizer interface to configure copy requests and to view the copy log or summary statistics.

Prerequisites

Before you install Tape Optimizer, ensure that your system meets the following requirements.

Tape media requirements

As the input or output tape media, you can use any media that can store physical or logical tape volumes and that your IBM system recognizes as tape media. Supported media types include reel tapes (IBM 3420), cartridge tapes (IBM 3480, 3490, 3492, 3590, or 3592), and logical tape volumes in a VTS. Tape Optimizer can copy single- or multi-
volume tapes, tapes with standard labels, unlabeled tapes, and tapes that contain either cataloged or uncataloged data sets.

Note: Tape Optimizer does not support copying data from HSM-managed tapes.

**Hardware requirements**

You must have a computer that is capable of running the software that is listed under “Software requirements.”

Also, make sure that you have tape devices that are appropriate for reading data from your input tapes and for writing data to your output tapes. Tape Optimizer works with any tape device that the operating system recognizes, including IBM 3420, 3480, 3490, 3590, and 3592 tape drives. The tape drives can be stand-alone units or units in a system-managed automatic tape libraries (ATL) or VTS. Tape Optimizer can also work with tape devices such as tape stackers and autoloaders.

**Software requirements**

You must have the following software to use Tape Optimizer:

- z/OS V1R1 or later
- Any version of TSO/E and ISPF that your operating system supports
- Any version of DFSMSrmm that your operating system supports
- JES2 or JES3
Chapter 2. Customizing IBM Tivoli Tape Optimizer

After you install Tape Optimizer, you must complete several customization steps before you can use the product to copy tapes. Tape Optimizer provides a customization script to simplify the customization process. The script allocates the runtime libraries based on the SMP/E target libraries from installation. The script also performs some basic editing and unpacking tasks. For example, it adds a high-level qualifier that you specify to the sample JCL files, wherever needed. Optionally, the script automatically allocates the product's VSAM files (the log file, parameters file, stats file, and Request Database file). This practice is recommended. However, you can manually define these files, if you prefer; sample JCL is provided for this purpose.

For customization instructions, see the following topics:
- “Required privileges”
- “Customization steps”

For installation instructions, see the IBM Program Directory for Tape Optimizer on z/OS.

Required privileges

Before you begin, ensure that your TSO user ID has the following RACF privileges:

- CONTROL access to STGADMIN.EDG.LISTCONTROL
- CONTROL access to STGADMIN.EDG.MASTER
- CONTROL access to STGADMIN.EDG.VRS
- UPDATE access to STGADMIN.EDG.OPERATOR
- UPDATE access to STGADMIN.EDG.FORCE

Customization steps

Complete the following customization steps after installing the product and before using the product for the first time.

Step 1: Run the customization script

1. From the ISPF command shell (ISPF Option 6), run the GTOINST EXEC that is in the SGTOEXEC target library, as follows:

   EXEC 'target_HLQ.SGTOEXEC(GTOINST)' 'runtime_HLQ target_HLQ'

   where target_HLQ is the high-level qualifier that you specified at installation for the SMP/E target libraries and runtime_HLQ is the high-level qualifier that you want to use for the run-time libraries. For example, you can use userid.GTO as the runtime_HLQ.

   While the script is running, informational messages regarding the progress of the customization process are displayed.
2. Tape Optimizer lists the default names of the product run-time libraries. At the prompt \textit{Are these names OK?}, respond as follows:
   - Type \texttt{Y} if you want to use the default names (recommended).
   - Type \texttt{N} if you want to use other names.

3. If you specified \texttt{N} in Step 2, Tape Optimizer prompts you to edit the customization script. Exit customization and edit the following portion of the customization script to specify alternative names for the last qualifier of the product library and file names:

   \textbf{Tip:} To perform this task, you should be familiar with the REXX programming language.

   ```rexx
/* >>>>>>>>>>>>>>>>>>>>  note <<<<<<<<<<<<<<<<<<<<<<<<< */
/* If you want to change the default names of the */
/* run-time data sets, then specify the names here. */
/* >>>>>>>>>>>>>>>>>>>>  note <<<<<<<<<<<<<<<<<<<<<<<<< */
/* set run-time dataset constants */
loadnam = "LOAD"  /* Executables */
isppnam = "ISPPLIB"  /* Panels */
ispmnam = "ISPMLIB"  /* Messages */
ispsnam = "ISPSLIB"  /* JCL Skeletons */
joblnam = "JOBLIB"  /* Copy JOB JCL */
cntlnam = "CNTL"  /* Sample Jobs */
execnam = "EXEC"  /* Rexx EXECs */
fildnam = "FILEDEFS"  /* File Definition */
rmmvnam = "RMMVARS"  /* RMM MetaData */
```

Replace the default names for the run-time libraries and files with the names that you want to use at your site, and save your changes. Then restart the customization script.

4. At the prompt \textit{OK to delete product files?}, type \texttt{Y} to delete any files from a previous product version and to continue.

   \textbf{Tip:} If you want to back up or rename the files from the previous product version before deleting them, type \texttt{N}. The customization script terminates. You can then back up or rename the older product files. Then restart the customization script.

5. At the prompt \textit{Do you want to allocate the product VSAM files from the script (Y) or from batch (N)?}, indicate whether you want the VSAM files that the product requires to be automatically allocated, as follows:
   - Type \texttt{Y} to have the VSAM files automatically allocated using the system defaults when the customization script runs.
   - Type \texttt{N} to not have the VSAM files automatically allocated and to end the customization script. You might want to choose this option if you need to customize how the files are allocated or to allocate the files by means of a batch job.

   If you specify \texttt{N}, you will need to manually allocate the VSAM files by running the JCL in the GTOVSAM member of the \texttt{runtime_HLQ.CNTL} library. For more information, see “Manually allocating the product’s VSAM files” on page 11.

\textbf{Step 2: APF-authorize the product load library}

Tape Optimizer requires that the run-time load library (\texttt{runtime_HLQ_LOAD}) be authorized by the z/OS Authorized Program Facility (APF). You must include this load library in your system APF-authorized list. If you need assistance, contact your system administrator or security administrator.
Step 3: Ensure that the LE routines are accessible

Tape Optimizer requires access to the z/OS LE (Language Environment) run-time routines. These routines reside in the `prefix.SCEERUN` and `prefix.SCEERUN2` libraries, where `prefix` is the default prefix “CEE” or another prefix that the system programmer specified for these libraries. Usually, these routines are included in the system LINK LIST and are available to all programs. However, if the LE routines are not in the LINK LIST on your system, you must perform the following steps to ensure that Tape Optimizer can access these routines:

1. Add `prefix.SCEERUN` and `prefix.SCEERUN2` to the TSO logon proc STEPLIB that is used by the user ID under which the Tape Optimizer interface will run.

2. Add `prefix.SCEERUN` and `prefix.SCEERUN2` to the STEPLIB DD in the Tape Optimizer run-time member `runtime_HLQ.ISPSLIB(GTOSCOPY)`, which contains JCL skeletons for Tape Optimizer use. For example:

```plaintext
//COPY1 EXEC PGM=GTOCOPY,REGION=20M
//STEPLIB DD DSN=PDUSER.GTO.LOAD,DISP=SHR
//                  DD DSN=CEE.SCEERUN,DISP=SHR
//                  DD DSN=CEE.SCEERUN2,DISP=SHR
//FILEDEFS DD DSN=PDUSER.GTO.FILEDEFS,DISP=SHR
//GTOUTRPT DD SYSOUT=*,DCB=(BLKSIZE=133,LRECL=133,RECFM=FBA),
//          SPIN=UNALLOC
//SYSUDUMP DD SYSOUT=*  
//CEEDUMP DD SYSOUT=* ...
```

Product run-time libraries and files

Table 2 describes the Tape Optimizer run-time libraries that should exist on your system at the completion of customization. The table shows the default names for these libraries and files. If you specified other names during customization, the libraries and files will have those names instead. The only library that you should need to access is `runtime_HLQ.CNTL`.

<table>
<thead>
<tr>
<th>Library/File</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>runtime_HLQ.CNTL</td>
<td>A library that contains sample JCL and the Tape Optimizer tape-maintenance utility.</td>
</tr>
<tr>
<td>runtime_HLQ.EXEC</td>
<td>A library that contains the REXX EXECs that invoke the customization script and the Tape Optimizer interface.</td>
</tr>
<tr>
<td>runtime_HLQ.FILEDEFS</td>
<td>A file that defines Tape Optimizer file names and locations. It is used for finding the product's files. When running the customization script, if you chose to allocate the VSAM files from batch (that is, you specified &quot;N&quot; at substep 5 on page 8), you must edit the FILEDEFS file to specify the names of the VSAM files that you manually defined.</td>
</tr>
<tr>
<td>runtime_HLQ.ISPMLIB</td>
<td>A library that contains Tape Optimizer ISPF messages.</td>
</tr>
<tr>
<td>runtime_HLQ.ISPPLIB</td>
<td>A library that contains the Tape Optimizer ISPF panels.</td>
</tr>
<tr>
<td>runtime_HLQ.ISPSLIB</td>
<td>A library that contains JCL skeletons that Tape Optimizer uses to build copy jobs.</td>
</tr>
<tr>
<td>runtime_HLQ.JOBLIB</td>
<td>A library that contains the JCL for the copy requests that you create from the Tape Optimizer interface.</td>
</tr>
<tr>
<td>runtime_HLQ.LOAD</td>
<td>A library that contains the Tape Optimizer programs.</td>
</tr>
</tbody>
</table>
Table 2. Product run-time libraries and files (continued)

<table>
<thead>
<tr>
<th>Library/File</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>runtime_HLQ.MSGLOG</td>
<td>A VSAM log file that contains saved Tape Optimizer messages.</td>
</tr>
<tr>
<td>runtime_HLQ.PARMS</td>
<td>A VSAM file that contains the parameters and options that you set for copy requests.</td>
</tr>
<tr>
<td>runtime_HLQ.RMMVARS</td>
<td>A file that defines all of the DFSMSrmm control variables (or structured fields) to Tape Optimizer.</td>
</tr>
<tr>
<td>runtime_HLQ.RQDBnn</td>
<td>A VSAM file, known as the Request Database, that stores information about the tape volumes or data sets to be copied for each copy request. Each instance of Tape Optimizer must have its own Request Database file. If you plan to run multiple instances of Tape Optimizer, you must define a Request Database file for each one. The first Request database is named runtime_HLQ.RQDB00. For more information, see “Defining an additional Request Database” on page 12.</td>
</tr>
<tr>
<td>runtime_HLQ.STATS</td>
<td>A VSAM file that stores saved tape-copy statistics.</td>
</tr>
</tbody>
</table>

Table 3 describes the contents of the runtime_HLQ.CNTL library in more detail. You will need to use the sample JCL and maintenance utility in this library occasionally.

Table 3. Runtime_HLQ.CNTL members

<table>
<thead>
<tr>
<th>Member</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTODEFML</td>
<td>Sample JCL for saving the contents of the existing messages log file to a sequential file and creating a new log file. You will need to use this JCL occasionally, when the log file becomes too large. For more information, see “Backing up the log file and re-creating it” on page 103.</td>
</tr>
<tr>
<td>GTODEFPM</td>
<td>Sample JCL for deleting the existing Tape Optimizer parameters file and redefining it. Usually, you do not need to use this JCL. However, if an error occurs, the error message or IBM Software Support might direct you to redefine the PARMS file by using this JCL. For more information, see “Redefining the parameters file” on page 104.</td>
</tr>
<tr>
<td>GTODEFRQ</td>
<td>Sample JCL for defining additional Request Database files. For more information, see “Defining an additional Request Database” on page 12.</td>
</tr>
<tr>
<td>GTODEFST</td>
<td>Sample JCL for saving the contents of the existing Tape Optimizer stats file to a sequential file and creating a new stats file. Normally, you do not need to run this JCL. You would run this JCL only if you want to start the recording of copy statistics anew. For more information, see “Backing up the stats file and re-creating it” on page 104.</td>
</tr>
<tr>
<td>GTOMSGLGF</td>
<td>IDCAMS control statements to define the log file. You will not need to use this member.</td>
</tr>
<tr>
<td>GTOPARMF</td>
<td>IDCAMS control statements to define the parameters file. You will not need to use this member.</td>
</tr>
<tr>
<td>GTORQDBF</td>
<td>IDCAMS control statements to define the Request Database file. You will not need to use this member.</td>
</tr>
</tbody>
</table>
You should allow the customization script to automatically allocate the product’s VSAM files (the log file, parameters file, stats file, and Request Database file). However, you can manually allocate these files if you prefer by using the sample JCL in the GTOVSAM member of the runtime_HLQ.CNTL library. Edit the job card, and then submit the job.

**Important:** If you manually allocate the VSAM files by using the GTOVSAM member or another method, ensure that you edit the runtime_HLQ.FILEDEFS file to specify the names of the VSAM files that you created. Otherwise, Tape Optimizer will not be able to locate these files.
Defining an additional Request Database

If you plan to implement multiple Tape Optimizer instances, you will need to define an additional Request Database file for each instance. Normally, a single Tape Optimizer instance is sufficient, even for very large tape-copy jobs, because it can run up to 10 copy subtasks concurrently on multiple tape drives. However, if a single instance is not sufficient for your tape-copy workload, you can use multiple product instances. In this case, you must define an additional Request Database file for each additional instance by using the sample JCL in the GTODEFREQ member of the runtime_HLQ.CNTL library.

To define an additional Request Database:

1. In the GTODEFREQ member, edit all occurrences of RQDBxx to replace xx with a value that equals the numeric identifier of the last Request Database created plus 1. For example, if the last Request Database has the identifier of RQDB01, you would replace xx with 02. Valid values are from 00 to 09. The original Request Database has the value of 00.

2. Run the job.

3. Add the following line to the runtime_HLQ.FILEDEFS file:
   `<FILEDEF namedef="Request-Databasexx">'runtime_HLQ.RQDBxx'</FILEDEF>`
   where xx is the number that is one greater than the value for the last Request Database that was created (the value that you specified in Step 1).
Tape Optimizer provides an ISPF interface from which you can define and manage tape copy requests. Before you start using the interface, review the following topics to become familiar with interface usage and with several important concepts that will affect how you define your copy requests:

- “About the Tape Optimizer interface”
- “Task flow for copying tapes” on page 16
- “Default values for copy requests” on page 17
- “How to select the tapes or data sets to copy” on page 18
- “How expiration or retention dates are used in tape filtering” on page 21
- “Factors affecting the release of copied tapes” on page 25
- “Strategies for optimizing performance of mass-copy operations” on page 26
- “How SMS affects the allocation of tape drives” on page 26
- “Special VTS considerations” on page 27

Many of these concepts also pertain to manually-coded tape copy jobs. For information about manually creating copy jobs, see Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

**About the Tape Optimizer interface**

Tape Optimizer provides an ISPF-based interface for defining and running copy requests. You should create your copy requests from this interface to reduce the chance of syntax errors. The interface validates entries for many copy options, generates the JCL, performs some optional validity checking, and includes online Help for every copy option.

If you decide to create your copy jobs manually instead, you should still use the Tape Optimizer interface to generate a basic copy request that you can use as a template. Then manually tailor the control cards in the generated JCL as needed. For more information, see Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

**Starting the Tape Optimizer interface**

To start the Tape Optimizer ISPF interface, run the GTOI EXEC that is in the runtime_HLQ.EXEC library. This REXX EXEC program is typically invoked from the ISPF command shell (ISPF Option 6), as follows:

```
EXEC 'runtime_HLQ.EXEC(GTOI)' 
```

where runtime_HLQ is the high-level qualifier that you specified during product customization for the run-time libraries.
Tape Optimizer Primary Menu

After you start the product, the first panel that is displayed is the Tape Optimizer Primary Menu, as shown in Figure 1:

![Figure 1. Tape Optimizer Primary Menu]

From Primary Menu panel, you can perform most product functions.

Panel options:

1. **Copy Request Defaults**
   Choose this option to set default values for copy options and for filters that refine the selection of input tape volumes or data sets. The default values will be applied to all copy requests unless you override them when defining a specific request. For more information, see Chapter 4, “Setting default values for copy requests,” on page 29.

2. **Copy Requests**
   Choose this option to define a new copy request or to edit, delete, or submit an existing copy request. For more information, see Chapter 5, “Defining and managing copy requests,” on page 45 and Chapter 6, “Running a copy request,” on page 83.

3. **Log**
   Choose this option to view the copy log for a completed copy request. This information is useful for verifying that a copy request completed successfully or for troubleshooting or diagnosing errors. For more information, see Chapter 7, “Verifying that tapes were copied properly,” on page 89.

4. **Statistics**
   Choose this option to view summary copy statistics for a tape volume to determine whether it was copied successfully. For more information, see Chapter 7, “Verifying that tapes were copied properly,” on page 89.

You must use option 2 to create and manage copy requests. Options 1, 3, and 4 are for optional tasks.

Pull-down menus

An action bar appears at the top of each full panel. (Pop-up windows do not have action bars.) The action bar displays the names of pull-down menus that contain options for working with the Tape Optimizer interface and for defining a copy request. Different panels have different menus, depending on the panel’s context and functions.
To display a pull-down menu, use one of the following methods:

- Press the Tab key to move the cursor to the menu and then press Enter.
- If you use a tn3270 emulator that supports a mouse, you can click the menu name and press Enter.

For example, the Create/Edit Request panel has four pull-down menus: **Menu**, **Filters**, **Options**, and **Help**. If you tab to the **Filters** menu and press Enter, a list of menu options drops down, as shown in Figure 2. You can use these options to define filters for input tapes or data sets.

![Figure 2. A pull-down menu](image)

To choose an option from a pull-down menu, type the number that corresponds to the option and press Enter. For example, to choose **By Program** from the **Filters** menu, type 3 and press Enter.

To close a pull-down menu without making a selection, press F3 (End).

**Online Help**

The Tape Optimizer interface includes online Help information to help you use the product. To access Help for the panel that you are working in, press F1 (Help) while the panel is displayed.

Alternatively, on the action bar at the top of a panel, move the cursor to "Help" and press Enter to display the **Help** pull-down menu. The menu will contain one or more options for displaying context-sensitive Help information.

**Supported wildcard characters**

When defining copy requests, you can specify masks for volsers, data set names, or tape-creation program names. A **mask** is composed of part of a name or volser value and one or more wildcard characters that represent the remaining characters. Tape Optimizer can match the masks that you specify against actual tape or data set information to determine whether to include or exclude the tapes or data sets or to rename tape data sets.
The wildcards that you can use vary, depending on the task that you are performing:

- If you are defining a basic copy request based on volser values, or if you are creating a filter based on program names, volser values, or data set names, you can use only the trailing asterisk (*) wildcard to represent one or more characters at the end of a name or volser value.

- If you are specifying criteria for renaming the tape data sets to be copied, you can use the standard asterisk (*) wildcard or a special percent sign (%) wildcard. Both wildcards represent zero or more characters. However, the asterisk (*) wildcard is used for "find and replace" type of renaming operations, whereas the percent sign (%) wildcard is used for "append" type of renaming operations. For implementation details, see “Renaming tape data sets” on page 71.

- If you are defining a basic copy request based on data set names, you can use any of the wildcards that DFSMSrmm supports for data-set-name masks. These wildcards include the following:
  - A single asterisk (*) to represent a qualifier or any number of characters within a data set name, for example, PDUSER.*.DATA
  - A double asterisk (**) to represent zero or more qualifiers or all remaining characters at the end of a name, for example, PDUSER.**
  - A percent sign (%) to represent a single character, for example, PDUSER.GT%.DATA

For more information about DFSMSrmm data-set-name masks, see the IBM DFSMSrmm Guide and Reference book.

### Task flow for copying tapes

To copy tapes, perform the tasks listed in Table 4. You can perform all of these tasks from the Tape Optimizer interface. Alternatively, you can define, run, and verify batch copy jobs by using the standard TSO/ISPF and batch processing features of your z/OS system.

**Table 4. Task flow for copying tapes**

<table>
<thead>
<tr>
<th>Task</th>
<th>Required or optional</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set default values for the copy options and</td>
<td>Required for the</td>
<td>See Chapter 4, “Setting default values for copy</td>
</tr>
<tr>
<td>input-tape filters that you expect to use for</td>
<td>input and output</td>
<td>requests,” on page 29.</td>
</tr>
<tr>
<td>most of your copy requests (usually done</td>
<td>tape units and the</td>
<td></td>
</tr>
<tr>
<td>when you first start using the product)</td>
<td>basic job card</td>
<td></td>
</tr>
<tr>
<td></td>
<td>information.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional for other</td>
<td></td>
</tr>
<tr>
<td></td>
<td>parameters.</td>
<td></td>
</tr>
<tr>
<td>Define a specific copy request</td>
<td>Required</td>
<td>See Chapter 5, “Defining and managing copy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>requests,” on page 45.</td>
</tr>
<tr>
<td>Perform a simulated run of a copy request</td>
<td>Optional but</td>
<td>See Chapter 6, “Running a copy request,” on</td>
</tr>
<tr>
<td>to verify your tape-selection criteria</td>
<td>recommended</td>
<td>page 83.</td>
</tr>
<tr>
<td>Run the copy request</td>
<td>Required</td>
<td>See Chapter 6, “Running a copy request,” on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>page 83.</td>
</tr>
</tbody>
</table>
Also, you might need to perform the following tape-copy management tasks occasionally:

- Edit or delete a pending copy request. For more information, see Chapter 5, “Defining and managing copy requests,” on page 45.
- Stop a copy request that is running and restart a copy request that failed or was intentionally stopped. For more information, see Chapter 8, “Stopping and restarting a copy request,” on page 101.
- Release copied tapes to the scratch pool that are being held by VRS retention criteria and update the tape status information in the stats file. For more information, see Chapter 9, “Performing maintenance tasks,” on page 103.
- If the log file or stats file becomes very large, you can back up and re-create the file. Alternatively, for the stats file, you can remove only the records that are obsolete or that are for a particular copy request. For more information, see Chapter 9, “Performing maintenance tasks,” on page 103.

### Default values for copy requests

You must set default values for the input tape unit, output tape unit, and basic job card information. Setting default values for other copy parameters is optional but can help you save time. You should set default values for any copy parameters that you expect to use often so that you do not need to re-enter the same information repeatedly when defining new copy requests.

You can set default values for the following copy parameters:

- **General copy parameters**, including the input and output tape devices, basic job card information, the number of days to retain input tapes, the maximum number of copy log entries, the maximum number of seconds to retry allocating or re-allocating tape units, whether to preserve the block size of input tapes on the output tapes, whether to check the validity of tape unit names, whether to allocate SMS-managed tape drives based on the location of the first volser to be copied, whether to ignore DFSMSrmm assigned or create date ranges when searching the DFSMSrmm database for input tape data sets, whether to continue copying after a copy failure or when a data-set sequence number (DSSEQ) on a tape does not match the sequence number in the catalog, whether to use a file-sequence number (FSEQ) instead of a DSSEQ when copying a data set for which the catalog records a sequence number other than a DSSEQ, when to use the ADRDSSU utility rather than IEBGENER to copy tape data sets, whether to use the exact data set name of the first-selected data set for allocating an output tape drive, and whether to enable the restart of failed copy jobs.
- **Tape selection filters**, including tape data set names and the names of programs that created tape data sets
- **Stacked tape parameters**, including tape utilization limits that determine when Tape Optimizer loads a new output tape when tape-stacking is enabled

---

**Table 4. Task flow for copying tapes (continued)**

<table>
<thead>
<tr>
<th>Task</th>
<th>Required or optional</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify that tapes or data sets were copied properly</td>
<td>Optional but recommended</td>
<td>See Chapter 7, “Verifying that tapes were copied properly,” on page 89.</td>
</tr>
</tbody>
</table>
• DFSMSrmm parameters, including the DFSMSrmm locations of tapes to include in or exclude from copy requests, whether VRS retention rules are considered for input tape selection, whether to use tape-volume expiration dates or expired data-set retention dates for filtering data sets when data-set expiration dates are not available, the DFSMSrmm control variables to use for transferring tape library information to output tape definitions, whether Tape Optimizer checks if the control variables are supported on the system where a copy request runs, whether a copy request continues if a requested control variable cannot be found, and whether to apply the input tape volumes to the Accounting field on output tapes.

You can override many of the default values when you define or edit a specific copy request. Therefore, you should not hesitate to set default values for frequently used copy parameters. Doing so will help you define new copy requests more efficiently.

How to select the tapes or data sets to copy

When you define a basic copy request (Option 2 on the Primary Menu), you select the input tape volumes or data sets to copy by specifying their volser or data set names. Depending on the selection criteria that you specify, Tape Optimizer copies either individual data sets from the input tapes or copies entire tape chains.

• If you specify volser, Tape Optimizer will build tape chains that are composed of the specified volser and any related volser. If a data set on a specified volser continues to another volser, that related volser will also be included in the tape chain. Tape Optimizer will copy the entire contents of an input tape chain, that is, all data sets on all tape volumes in the tape chain.

• If you specify data set names, you have the option of also specifying the data set sequence numbers (DSSEQ values). The presence of a DSSEQ value determines the scope of what is copied.
  — If you specify a data set name with a DSSEQ value (either a specific DSSEQ value or only the asterisk (*) wildcard), Tape Optimizer will copy the data sets individually from the input tapes. If a data set spans multiple tapes, Tape Optimizer will build an input tape chain that is composed of these tapes but will copy only the specified data set from the tapes.
  — If you specify data set names without DSSEQ values, Tape Optimizer will build tape chains that are composed of the tape volumes that contain the specified data sets and then copy the entire contents of the tape chains, including any other data sets on the tapes in the tape chains.

You can specify both types of data set name criteria (with or without DSSEQ values) in the same copy request. If your selection criteria identify the same data sets multiple times, these data sets will still be copied only once.

You can refine the set of input tapes or data sets by creating filters. Tape Optimizer matches your filtering criteria against tape library or system information for the selected tapes or data sets. You can specify default filtering criteria based on tape data set names or program names. Later, when defining a specific copy request, you can override the default filtering criteria and specify additional types of filtering criteria. By creating various types of filters, you can identify precisely the input tape volumes or data sets to copy.

For most types of filtering criteria, you can create two types of filters:
• Inclusion filters implicitly include any tape chains or data sets that match your inclusion criteria.
• Exclusion filters explicitly exclude any tape chains or data sets that match your exclusion criteria.
If you create both inclusion and exclusion filters, Tape Optimizer first applies all of the inclusion criteria and then applies, to the resultant set of included tapes or data sets, the exclusion criteria.

If you configured a basic copy request based on volsers or on data set names without corresponding DSSEQ values (that is, a copy request that copies tape chains), any filter that you create includes or excludes entire tape chains, not individual volsers or data sets. If any tape or data set in a selected tape chain matches an inclusion filter, all tapes or data sets in the tape chain are eligible for copying, even if they do not match the selection criteria in the basic copy request. If you specify multiple inclusion filters, at least one tape or data set in a tape chain must match all of the inclusion criteria for the tape chain to be eligible for copying. If an exclusion filter excludes any of the tapes or data sets in a tape chain, Tape Optimizer will not copy that tape chain.

If you configure a copy request based on data set names with corresponding DSSEQ values (that is, a copy request that copies data sets individually), the inclusion and exclusion filters are applied to individual data sets. If you specify multiple inclusion filters, a data set must match all of the inclusion filters to be eligible for copying. If you specify an exclusion filter that excludes a data set, that data set is not copied.

**Important:** All input tape volumes that your selection and filtering criteria identify must be mountable on the requested input device type. Otherwise, they will not be copied.

If you perform a trial run of a copy request, you can view the Tape Selection Summary report in the job output to determine the exact set of tapes or tape data sets that Tape Optimizer will select for copying based on your selection criteria and filters. For more information, see “Tape Selection Summary report” on page 91.

The following examples demonstrate some alternative scenarios for selecting input tapes or data sets.

**Example 1**

*Scenario:* You want to copy tape chains that contain data sets that have names beginning with "SYS2.ONLINE" and data sets that were created by the PAY0005 program. Your tape library includes a tape that contains the data sets SYS2.ONLINE.BACKUP and SYS1.PAYROLL.MASTER. The SYS2.ONLINE.BACKUP data set was created by the IDCAMS program, and the SYS1.PAYROLL.MASTER data set was created by the PAY005 program. The tape library contains no other tapes that contain data sets with names beginning with "SYS2.ONLINE."

*User action:* You create a basic copy request based on data set names. In the copy request, you specify SYS2.ONLINE.* as the data-set-name mask. You do not include a DSSEQ value because you want to copy tape chains, not just the individual data sets. You also create an inclusion filter that specifies the tape-creation program name PAY0005.

*Result:* Tape Optimizer selects the tape as a candidate for copying because the SYS2.ONLINE.BACKUP data set matches the data-set-name mask in the basic copy request. Because this data set was created by the IDCAMS program, it does not match the inclusion filter criteria. However, the other data set on the tape (SYS1.PAYROLL.MASTER) does match the inclusion filter criteria because it was created by the PAY005 program. As a result, the entire tape (both data sets) are copied.
Example 2

**Scenario:** You want to create a custom tape that contains only the tape data sets that you specify.

**User action:** You create a basic copy request based on data sets names that includes a line entry for each data set that you want to copy. For each entry, you specify the full data set name, the volser of the tape volume on which the data set resides, and the data set sequence number (DSSEQ value). These criteria identify specific instances of the data sets.

**Result:** Tape Optimizer copies the specified data sets individually onto one or more output tapes. No other tape data sets are copied.

Example 3

**Scenario:** You want to copy all of the data sets on a stacked tape that have not yet expired so that you can reuse the tape.

**User action:** You create a basic copy request based on data set names. You add a single line entry that specifies the following values:
- The asterisk (*) wildcard as the data-set name-mask
- C12345 as the VOLSER
- The asterisk (*) wildcard as the DSSEQ value

You include a value (the wildcard) in the DSSEQ field so that the data sets will be copied individually. You also select the Stack input tape volumes on output tapes option to stack the data sets onto other tapes. You then create a date inclusion filter that specifies the current date in the Tapes/Data Sets That Expire After field.

**Result:** Tape Optimizer copies each of the unexpired data sets on volser C12345 and stacks them together onto the output tape or tapes. Only the data sets that expire after the current date (the date specified in the date filter) are copied. After the copy job completes, you can manually release the old stacked tape to the scratch pool by running a sample job that Tape Optimizer provides.

Example 4

**Scenario:** You want to back up data sets from virtual tape volumes in a VTS to tapes. You want the original tape data sets to remain in the system catalog and the backup tape data sets to be added to the catalog. For both the original and backup data sets to appear in the catalog, you will need to rename the backup data sets.

**Use action:** You create a basic copy request based on data set names. You specify PAYROLL.* as the data-set-name mask. To rename the output data sets, you specify the following renaming criteria on the Copy Request Data Set Rename panel: PAYROLL.* in the From field, and BACKUP.PAYROLL in the To field. You also select the Recatalog the New Data Set Name if already cataloged option to add the new backup data sets to the catalog while retaining the original data sets in the catalog.

**Result:** Tape Optimizer copies the tape chains that contain the data sets that match the data-set-name mask in the basic copy request. During copy processing, Tape Optimizer renames the data sets by replacing "PAYROLL" with "BACKUP.PAYROLL." For example, the new name for a data set might be "BACKUP.PAYROLL.BRNCH1." During post-copy processing, Tape Optimizer adds the backup tape data sets to the catalog under their new names. The original tape data sets still remain in the catalog.
How expiration or retention dates are used in tape filtering

On the Date Filters panel, you can specify a date for filtering tapes or data sets based on their expiration dates. To include tapes or data sets in the copy request, you specify a date in the **Tapes/Data Sets That Expire After** field. To exclude tapes or data sets, you specify a date in the **Tapes/Data Sets That Expire Before** field. If you specify a date in one of these fields, Tape Optimizer matches that date against one of the following dates to determine which tapes or data sets are eligible for copying:
- DFSMSrmm tape-volume expiration dates,
- DFSMSrmm data-set expiration dates,
- VRS tape-volume retention dates,
- VRS data-set retention dates.

The following factors can affect which expiration or retention date is used for date filtering:

- Whether the copy request was configured based on volsers or on data-set names and masks
- Whether you use VRS retention dates or rules
- Whether your data sets have DFSMSrmm data-set expiration dates
- Whether you selected any of the following options on the DFSMSrmm Copy Request Parameters panel:
  - Consider VRS Rules for Tape Copy Selection (selected by default)
  - Use Volume Expiration Date When a Volume Is Retained and No Data-Set Expiration Date or Retention Date Exists
  - Use Old Data-Set Retention Date When No Data-Set Expiration Date Exists

Table 5 on page 22 identifies the type of expiration or retention dates that are used for filtering tapes or data sets under alternative scenarios. For all scenarios, a date filter must exist that specifies a value in the **Tapes/Data Sets That Expire Before** field, in the **Tapes Data Sets the Expire After** field, or in both of these fields.
Table 5. Use of expiration dates for filtering under alternative scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Copy request based on volsers or data set names?</th>
<th>Date used for filtering</th>
</tr>
</thead>
<tbody>
<tr>
<td>• DFSMSrmm tape expiration dates exist.</td>
<td>volsers</td>
<td>Tape Optimizer matches the <strong>tape expiration dates</strong> against the date in the date filter to determine which of the tape volumes that were identified by the volser criteria in the basic copy request are eligible for copy processing.</td>
</tr>
<tr>
<td>• The tapes are not retained by VRS tape retention dates.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The <strong>Consider VRS Rules for Tape Copy Selection</strong> option is selected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• DFSMSrmm tape expiration dates exist.</td>
<td>volsers</td>
<td>Tape Optimizer matches the <strong>VRS tape retention dates</strong> rather than the tape expiration dates against the date that is specified in your date filter to determine if a tape volume is eligible for copy processing.</td>
</tr>
<tr>
<td>• The tapes are retained by VRS retention dates.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The <strong>Consider VRS Rules for Tape Copy Selection</strong> option is selected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• DFSMSrmm tape or data-set expiration dates exist.</td>
<td>volsers or data set names</td>
<td>Tape Optimizer ignores the date filter fields for including or excluding tapes or data sets based on their expiration or retention dates. No filtering occurs based on these fields. Instead, Tape Optimizer uses the other selection and filtering criteria in the copy request to determine which tapes or data sets are eligible for copy processing.</td>
</tr>
<tr>
<td>• The tapes or data sets are retained by VRS retention rules but not by retention dates.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The <strong>Consider VRS Rules for Tape Copy Selection</strong> option is selected.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The tapes or data sets are retained by VRS retention dates.
- DFSMSrmm tape or data set expiration dates exist.
- The **Consider VRS Rules for Tape Copy Selection** option is **not** selected.

Tape Optimizer matches the expiration dates rather than the VRS retention dates against the date in the date filter when determining which tapes are eligible for copy processing.
- For a copy request based on volsers, Tape Optimizer matches the tape expiration dates.
- For a copy request based on data sets, Tape Optimizer matches the data-set expiration dates, if available. If no data-set expiration dates exist, the filtering based on expiration dates is skipped. Instead, Tape Optimizer uses the other selection and filtering criteria in the copy request to determine which data sets are eligible for copy processing.

The data sets are retained by VRS data-set retention dates
- The tapes on which the data sets reside are retained by VRS tape retention dates
- No data-set expiration dates exist.
- The **Consider VRS Rules for Tape Copy Selection** option is selected.

Tape Optimizer matches the VRS data-set retention dates against the date in the date filter.

The data sets are **not** retained by VRS data-set retention dates
- The tapes on which the data sets reside are retained by VRS tape retention dates
- Data-set expiration dates exist.
- The **Consider VRS Rules for Tape Copy Selection** option is selected.

Tape Optimizer matches the data-set expiration dates against the date in the date filter.
Table 5. Use of expiration dates for filtering under alternative scenarios (continued)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Copy request based on volser or data set names?</th>
<th>Date used for filtering</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The data sets are not retained by VRS data-set retention dates</td>
<td>data set names</td>
<td>Tape Optimizer ignores the date filter fields for including or excluding data sets based on expiration dates. Data sets are not filtered based on retention dates or expiration dates.</td>
</tr>
<tr>
<td>• The tapes on which the data sets reside are retained by VRS tape retention dates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No data-set expiration dates exist.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The Consider VRS Rules for Tape Copy Selection option is selected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The data sets are not currently retained by VRS data-set retention dates, but expired retention dates exist.</td>
<td>data set names</td>
<td>Tape Optimizer matches the expired VRS data-set retention dates against the date in the date filter.</td>
</tr>
<tr>
<td>• The tapes on which the data sets reside are retained by VRS tape retention dates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No data-set expiration dates exist.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The Use Old Data-Set Retention Date When No Data-Set Expiration Date Exists option is selected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The Consider VRS Rules for Tape Copy Selection option is selected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The data sets are not currently retained by VRS data-set retention dates, and no expired retention dates exist.</td>
<td>data set names</td>
<td>Tape Optimizer matches the tape volume expiration dates against the date in the date filter.</td>
</tr>
<tr>
<td>• The tapes on which the data sets reside are retained by VRS tape retention dates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No data-set expiration dates exist.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The Use Volume Expiration Date When a Volume Is Retained and No Data-Set Expiration Date or Retention Date Exists option is selected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The Consider VRS Rules for Tape Copy Selection option is selected.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Reminder: To be copied, the tapes or data sets still must meet all of the other selection and filtering criteria that are specified for a copy request.

Factors affecting the release of copied tapes

As part of post-copy processing, Tape Optimizer calculates a new expiration date for each copied input tape by using the value that you specified in the **Number of Days to Retain Input Tapes** field in the Copy Options window. Tape Optimizer adds the specified number of days to the date on which the tapes are copied to generate a new expiration date. If you created a copy request based on data set names, you must select the **Apply New Expiration Date to Input Volume When Copy by Data Set** option for Tape Optimizer to apply the new expiration date to the input tapes that contain the copied data sets. Tape Optimizer calculates the expiration date only for tape volumes, not for the individual data sets.

When the tape expiration date is reached, the copied tapes are released to the scratch pool for reuse, unless any VRS retention dates or rules that are used at your site cause the tapes to be held. For example, you might have a VRS rule to retain tapes that still contain cataloged data sets. To release tapes that are held by VRS retention dates or rules, you can run a batch job that Tape Optimizer supplies in the GTOUTILR member of the runtime_HLQ.CNTL library. For more information, see Chapter 9, “Performing maintenance tasks,” on page 103.

Tip: If you want to use the original expiration dates of the input tapes rather than the expiration date that Tape Optimizer calculates, set the **Number of Days to Retain Input Tapes** option to 999 in the Copy Options window.
Strategies for optimizing performance of mass-copy operations

If you need to copy a very large quantity of tape volumes, you can optimize the performance of your tape-copy job by using one or more of the following strategies:

- When you define a copy request, specify a value greater than one in the Number of concurrent copies field in the Copy Options pop-up window to run multiple subtasks concurrently. You can run up to 10 subtasks to copy multiple tape chains at the same time.

- If you have a multiple-processor system, create multiple copy requests and run them on different z/OS images simultaneously. (Each request can run multiple subtasks.) To prevent more than one copy request from attempting to copy the same tape volume, select the Tapes Previously Copied option on the Other Filters panel when you define each copy request. Tape Optimizer will then exclude any tape volumes that another copy request has already copied.

- Create tape filters to ensure that you copy only the input tape volumes or data sets that need to be copied.

Also, you can stack tape volumes or data sets on the output tapes to improve tape utilization. This feature reduces the number of output tapes that are produced and the resources that are required to store and manage the tapes.

How SMS affects the allocation of tape drives

If your tape drives are not SMS-managed, the input and output tape drives that the system allocates for a copy request based on the esoteric name, generic unit name, or unit address that you specify in the copy request. If you specify a generic unit name (for example, 3490), a tape drive that is consistent with that device type is allocated. If you specify an esoteric (for a group of devices), a tape drive that is within that group of devices is allocated.

If your tape drives are SMS-managed, you can specify either an SMS storage class or a tape unit name (an esoteric name, a generic unit name, or a unit address) for the input tape drive and the output tape drive. You specify this information in the Input Tape Esoteric or Generic Unit Name field, the Input Tape SMS Storage Class field, the Output Tape Esoteric or Generic Unit Name field, and the Output Tape SMS Storage Class field on the Create/Edit Request panel. Based on your input, the automatic class selection (ACS) routines that your system administrator has defined for your site determine which input and output tape drives to allocate. If you specify a storage class, usually an SMS-managed tape drive that is associated with that storage class is allocated. To determine which storage class to specify, check with your system administrator. If you specify an esoteric or generic unit name, the tape drive that is allocated may or may not be SMS-managed, depending on how your ACS routines process this information.

Also, the following optional copy options can affect the allocation of input and output tape drives:

- For input tape drives only, you can select the option Use 1st VOLSER for Input Unit Allocation to allocate input tape drives based on the volser of the first tape volume that is selected for copying. If you do so, any value that you specified in the Input Tape Esoteric or Generic Unit Name field or the Input Tape SMS Storage Class field is ignored.

- For output tape drives only, you can select the option Use Exact Data Set Name for Tape Unit Allocation. If you do so, Tape Optimizer considers the exact data set name of the first data set that is selected for copying when allocating an output tape drive. If you specified renaming criteria, Tape Optimizer uses the name that is generated for the first output data set based on your renaming criteria. If your
data sets are SMS-managed, your ACS routines will determine the proper output tape drive to allocate based on the exact data set name, SMS storage class, and SMS data class of the first data set. If your data sets are not SMS-managed, an output tape drive will be allocated based on the data set name and volser of the first data set or volume and on the output tape unit name.

For more information about SMS tape management, see the IBM DFSMSdftp Storage Administration Reference book and the IBM DFSMS: Implementing System-Managed Storage book.

Special VTS considerations

VTSs store tape data sets in logical volumes on disk arrays and in disk cache. This storage is SMS-managed. Tape Optimizer can use an SMS storage class to select the VTS virtual tape drive to use as an input or output tape drive for a copy request.

If you plan to copy tape volumes to or from a VTS, you can identify the VTS virtual drive to use for the input or output tape volumes by using one of the following methods:

- When identifying the input or output tape unit for a copy request, specify a storage class instead of a tape esoteric, generic unit name, or unit address. The storage class will be passed to your ACS routines and used to select a VTS virtual tape drive.
- Select the option Use 1st VOLSER for Input Unit Allocation (the default setting) in the Copy Options window to have Tape Optimizer allocate a tape drive from the library where the first tape volume that is selected for copying is located.
- Check your ACS routines to determine if an SMS storage class is defined that maps to the generic tape unit that you want to use for the VTS. Then, when creating a copy request, specify the generic unit name as the input or output tape device.
- From ISPF, rename all of the copy jobs that Tape Optimizer generates for the VTS target to the same job name. Then, for all jobs by that name, add code to your ACS routine for choosing an SMS storage class that maps to the VTS target.
Chapter 4. Setting default values for copy requests

You must specify default values for the input tape unit, the output tape unit, and basic job card information. For other copy parameters, you can optionally specify default values or accept the default values that the product provides.

Consider specifying default values for any copy parameters and filtering criteria that you expect to use often. This practice will save you time in defining new copy requests. Tape Optimizer automatically enters the default values for you so that you do not have to re-type the same information for each new copy request.

The copy parameters for which you can specify default values are categorized as follows:

- **General copy parameters** - Includes basic job card information, the input and output tape units, several parameters that affect tape-unit allocation, whether to check the validity of tape unit names, the number of days to retain input tapes, the maximum number of copy log entries, whether to preserve the block size of the input tapes, whether to ignore DFSMSrmm assigned or create dates when searching the DFSMSrmm database, whether to continue copying after certain types of copy failures, whether to use a file-sequence number (FSEQ) instead of a DSSEQ when copying certain data sets, when to use the ADRDSSU utility rather than IEBGENER for copying, and whether to enable the restart of failed copy jobs. For more information, see “Setting default values for general copy parameters” on page 30.

- **Tape selection filters** - Includes any program names and tape-data-set names that you want to use for filtering the input tape volumes or data sets. For more information, see “Setting defaults for tape selection filters” on page 35.

- **Stacked tape parameters** - Includes tape utilization limits that determine when Tape Optimizer loads a new output tape when tape-volume stacking is enabled. For more information, see “Setting defaults for stacked tape parameters” on page 36.

- **DFSMStm parameters** - Includes the DFSMSrmm locations of tapes to include in or exclude from copy requests, whether VRS retention rules are considered for input tape selection, whether to use tape expiration dates or expired data-set retention dates for filtering data sets when data-set expiration dates are not available, the DFSMSrmm control variables to use for transferring tape library information, whether Tape Optimizer checks if the control variables are supported, whether a copy request continues if a requested control variable cannot be found, and whether to apply the input tape volers to the Accounting field on output tapes. For more information, see “Setting defaults for DFSMSrmm parameters” on page 38 and “Specifying the default DFSMSrmm control variables” on page 41.

You can override the default values for most parameters when defining a specific copy request, if necessary.

**Tip:** You can also specify additional copy options and filters when you define a specific copy request. For more information, see Chapter 5, “Defining and managing copy requests,” on page 45.
Setting default values for general copy parameters

You must specify default values for the input and output tape unit names and basic job card information. For other copy parameters, you can accept the default values that the product provides.

If necessary, you can override the default job card information and the default values for most parameters when you define a specific copy request. However, the following parameters can be set only from the General Parameters window: Number of Copy Log Entries, Number of Seconds to Retry Allocation, Number of Seconds to Retry Re-Allocation, Perform unit name validity check, and Do Not Use Assign/Create Date for Data Set Searches.

To set default values for general copy parameters:

1. From the Tape Optimizer Primary Menu, choose option 1 (Copy Request Defaults). The Copy Request Defaults menu opens, as shown in Figure 3:

   ![Figure 3. Copy Request Defaults menu](image)

2. Choose option 1 (General Parameters). The General Parameters pop-up window opens, as shown in Figure 4 on page 31.
3. (Required) In the Input Tape Esoteric or Generic Unit Name field, type the name of an esoteric (a group of tape devices), a generic unit name (a type of tape device), or the hexadecimal system address of a specific tape unit to identify the tape drive or drives to use for reading the input tapes. This value can be up to eight characters long. For example, you could specify "CART" for an esoteric, "3490" for a generic unit name, or "A80" for a system address.

If you previously selected the Perform unit name validity check option, Tape Optimizer will check the validity of the unit name that you specify. If the name is invalid, the Invalid Unit Name window is displayed. In this event, either specify CANCEL if you want to discard the invalid unit name and specify another name, or specify END if you want Tape Optimizer to accept the invalid unit name. You might want Tape Optimizer to accept an invalid unit name if your SMS routines can interpret the name or if you plan to run your copy jobs on a processor where the name is valid.

Note: You can override the input unit name or specify an SMS storage class instead when you define a specific copy request. Also, if your tape drives are SMS-managed and you select the Use 1st VOLSER for Input Unit Allocation option, Tape Optimizer will allocate input tape drives based on the location of the first volser that is selected for copying instead of on the input unit name.

4. (Required) In the Output Tape Esoteric or Generic Unit Name field, type the name of an esoteric, a generic unit name, or the hexadecimal address of a specific tape unit to identify the tape drive or drives to use for writing data to output tapes. This value can be up to eight characters long.

If the Invalid Unit Name window is displayed, either specify CANCEL to discard the invalid unit name so that you can specify another name or specify END to have Tape Optimizer accept the invalid unit name.

Note: You can override the output unit name or specify an SMS storage class instead when you define a specific copy request.
5. In the **Number of Days to Retain Input Tapes** field, type the number of days that you want Tape Optimizer to use for calculating a new expiration date for the copied input tapes. When this expiration date is reached, Tape Optimizer releases the tapes to the scratch pool for reuse.

You must enter a value from 0 through 999. The default value is 999. If you accept the default value, Tape Optimizer does not calculate a new expiration date; the existing expiration dates remain in effect. If you specify zero, the copied tapes are released to the scratch pool as soon as possible. If you specify a number between 0 and 999, this number of days is added to the date on which a copy request runs to generate a new expiration date for the copied tapes.

If your site uses VRS retention dates or rules, these retention criteria might cause your tapes to be held past the calculated expiration date. In this case, you must run the Tape Optimizer GTOUTIL utility to release the tapes. For more information, see Chapter 9, “Performing maintenance tasks,” on page 103.

6. In the **Number of Copy Log Entries** field, type the maximum number of message entries from copy processing that the copy log can contain. You can specify a number from 1000 through 9999999 or the number 0. The default value is 9999. If you specify a non-zero value, Tape Optimizer will write messages to the log up to the specified limit. Then Tape Optimizer will start overwriting existing log entries, beginning with the first entry. By specifying this limit, you can prevent the copy log from becoming too large. If you specify 0, logging is disabled.

**Tip:** If you specify a maximum number of log entries but the copy log still becomes too large, you can manually back up and re-create the log. For instructions, see Chapter 9, “Performing maintenance tasks,” on page 103.

7. In the **Number of Seconds to Retry Allocation** field, type the maximum number of seconds that you want Tape Optimizer to retry allocating input tape units for a copy request when the initial allocation attempt fails. Usually, the initial allocation fails because all tape units are already in use when the copy request starts. Tape Optimizer can retry allocating the input tape units up to the number of seconds that you specify. You can specify a number from 0 through 9999. If you accept the default value of 0, Tape Optimizer makes no retry attempts and the copy request terminates.

8. In the **Number of Seconds to Retry Re-Allocation** field, type the maximum number of seconds that you want Tape Optimizer to retry reallocating input tape units when copying tape data sets that span multiple tape volumes. During these copy operations, Tape Optimizer deallocates and reallocates an input tape unit whenever a new tape needs to be mounted. If the first attempt to reallocate the tape unit fails, Tape Optimizer retries the allocation up to the number of seconds that you specify. If a tape unit cannot be reallocated within this period, the copy job terminates. Valid values are from 0 through 9999. The default value of 0 causes no retries to be attempted and the copy job to terminate.

9. (Required) Under **Job Card Defaults**, type the basic job card information that you want to use for copy jobs by default. For example, you could specify the CLASS and MSGLEVEL keywords as follows:

```plaintext
//PDABCDE JOB ACCT01,
//CLASS=5,NOTIFY=PUUSER,MSGLEVEL=(1,1)
```

10. In the **Copy Tape Without Recatalog** field, retain the forward slash (/), the default setting, if you want to copy input tapes and transfer the DFSMSrmm tape library information for these tapes without recataloging the tape data sets. When this field is selected, Tape Optimizer will not calculate a new expiration date for input tapes, even if you specified a value between 0 and 999 in the **Number of Days to Retain Input Tapes** field. Also, Tape Optimizer will ignore the **Continue When Invalid Catalog Entries Found** field and the **Use FSEQ for Catalog Matches when DSSEQ Match Fails** field, if these fields are selected.
11. In the **Use Input Block Size for Output Files** field, retain the forward slash (/), the default setting, if you want to preserve the block size that is used on input tapes and not reblock the data on the output tapes. If you clear this field, Tape Optimizer determines the optimal block size to use for the output tapes and reblocks the data.

12. In the **Perform unit name validity check** field, type a forward slash (/) if you want Tape Optimizer to check whether the values that you specify in the **Input Tape Esoteric or Generic Unit Name** field and the **Output Tape Esoteric or Generic Unit Name** field for copy requests are valid tape esoteric names, generic unit names, or unit addresses. By default, this field is not selected and the checking is skipped; as a result, Tape Optimizer attempts to use the specified values for allocating tape devices, even if they are invalid.

   **Tip:** You might want to skip unit-name validity checking if your site allows invalid unit names to be passed to ACS routines for translation into SMS storage groups.

13. In the **Use 1st VOLSER for Input Unit Allocation** field, retain the forward slash (/), the default setting, if you use SMS-managed tape drives and want the input tape drives for copy requests to be allocated based on the location of the first volser that is selected for copying or (if you are copying data sets individually) based on the location of the tape volume that contains the first data set that is selected for copying. The tape drives will be allocated using DISP=OLD, which causes your ACS routines to not be used for tape-drive allocation. The tape drives will be from the location that the system tape catalog specifies for the first volser of the first tape chain to be copied. All other tape volumes to be copied must be mountable on these tape drives. If you clear this field, your ACS routines determine which input tape drives to allocate based on the value that you specify in the **Input Tape Esoteric or Generic Unit Name** field or the **Input Tape SMS Storage Class** field for a copy request. These tape drives will be allocated using DISP=NEW.

   If you do not use SMS-managed tape drives, this field is ignored. The input tape drives will be allocated based on the name that you specify in the **Input Tape Esoteric or Generic Unit Name** field.

14. In the **Do Not Use Assign/Create Date for Data Set Searches** field, retain the forward slash (/), the default setting, if you do not want Tape Optimizer to use any assigned date range or create date range that you specify in a date filter when searching for input tape data sets in the DFSMSrmm tape database. For example, you might want Tape Optimizer to ignore an assigned date filter if a tape contains an incorrect assigned date that is affecting tape selection. However, you normally should clear this field to have Tape Optimizer to use an assigned date range or (if no assigned date range is available) a create date range in DFSMSrmm database searches. Tape Optimizer enters an assigned date or a create date in the SINCE (YYYY/DDD) parameter for the DFSMSrmm SEARCHDATASET command. By doing so, Tape Optimizer can search the database faster. Therefore, to optimize search performance when using an assigned date filter or a create date filter, clear this field.

15. In the **Continue Copy Following a Copy Utility Failure** field, type a forward slash (/) if you want copy requests to continue when an error (for example, an I/O error) prevents an input tape from being copied. If the error occurs when a multiple-volume tape chain is being copied, no additional data sets from the tapes in that tape chain are copied; Tape Optimizer continues to the next input tape chain that the copy request identifies. If the error occurs when an individual data set is being copied, no additional data sets from that tape are copied; Tape Optimizer continues to the next tape chain that contains a data set to be copied.

   **Important:** Tape Optimizer will continue a copy request only if one of the following system abend codes is issued for the input tape error: IEC022I, IEC023I, IEC024I, IEC026I, IEC028I, IEC029I, IEC141I, IEC145I, IEC146I, IEC147I, IEC149I,
IEC150I, IEC151I, IEC210I, IEC215I, IEC218I, and IEC222I. If none of these abend codes are issued, the copy request will terminate.

If you do not select this option, your copy requests will always terminate if a copy failure occurs.

16. In the Continue When Invalid Catalog Entries Found field, type a forward slash (/) if you want copy requests to continue when Tape Optimizer determines that a data set is cataloged to an input tape but the data-set sequence number (DSSEQ) of that data set on the tape does not match the sequence number in the system catalog. Tape Optimizer will report the data set name, and the copy request will continue. If you do not select this field, the copy request will terminate in this situation.

17. In the Use FSEQ for Catalog Matches when DSSEQ Match Fails field, type a forward slash (/) if you want Tape Optimizer to attempt to use a file-sequence number (FSEQ) instead of a DSSEQ when copying a data set for which the catalog records a sequence number other than a DSSEQ (that is, when the catalog sequence number does not match any DSSEQs for data sets on the tape but is associated with a data set name in the DFSMSrmm tape library). If you do not select this field, a copy request will either continue or terminate depending on how you set the Continue When Invalid Catalog Entries Found field. (That is, if you selected that field, the copy request will continue. If you cleared that field, the copy request will terminate.)

18. In the Call ADRDSSU when Blocksize is 0 field, type a forward slash (/) to have Tape Optimizer call the ADRDSSU backup utility to copy a tape data set whenever the block size of the data set is zero, regardless of the create program name that is recorded in DFSMSrmm.

Note: If the DFSMSrmm create program name is ADRDSSU, Tape Optimizer will always use the ADRDSSU utility to copy tape data sets, even if this option is cleared. If the create program name is some value other than ADRDSSU and the block size of a data set is zero, Tape Optimizer will probably not be able to copy the data set unless you select this option.

19. In the Use Exact Data Set Name for Tape Unit Allocation field, type a forward slash (/) if you want Tape Optimizer to use the exact name of the first data set that is selected for copying when allocating an output tape drive in an SMS-managed environment. If you also specify data-set renaming criteria, Tape Optimizer uses the generated name for the first output data set instead. Based on the exact or generated data set name, the SMS storage class, and the SMS data class of the first data set, your ACS routines will determine the proper output tape drive and media to allocate. For example, if these criteria indicate a very large data set, your ACS routines might allocate a 3592 tape drive with Write-Once-Read-Many (WORM) media.

If this option is not selected, Tape Optimizer generates a unique data set name to be used for allocating a tape drive. The tape drive that is allocated will not conflict with any other tape jobs that are running on the system. However, because the exact data set name of the first data set is not used, your ACS routines might not be able to determine that a tape drive for high-capacity media, such as WORM media, is needed.

If your data sets are not SMS-managed, Tape Optimizer allocates an output tape drive based on the specified output unit name only.

Important: Regardless of whether this option is selected, Tape Optimizer allocates only one input tape drive and one output tape drive per copy subtask for an entire copy operation.

20. In the Enable Job Restart field, retain the forward slash (/), the default setting, if you want Tape Optimizer to lock the Request Database if a copy job terminates abnormally so that you can restart the job later from the point at which it abended. If you clear this field, Tape Optimizer will not lock the Request
Database. In this case, you will not be able to restart the copy job; instead, you must resubmit it. However, the Request Database will be available for use by another copy job.

21. Press F3 (End) to save your entries and return to the Copy Request Defaults menu.

Setting defaults for tape selection filters

You can specify default filtering criteria for refining the set of the input tape chains to copy. These criteria include tape data set names or the names of the programs that created the tape data sets. For example, you can create a filter that excludes a program that creates data in a proprietary format that cannot be copied, such as the FDR utility. If necessary, you can override your default filtering criteria when you define a specific copy request.

If you create both inclusion and exclusion filters, Tape Optimizer will first apply all of the inclusion criteria and then apply the exclusion criteria.

To set defaults for tape selection filters:
1. From the Tape Optimizer Primary Menu, choose option 1 (Copy Request Defaults).
2. From the Copy Request Defaults menu, choose option 2 (Tape Selection Filters). The Tape Selection Filters pop-up window opens, as shown in Figure 5:

```
IBM Tivoli Tape Optimizer on z/OS - Tape Selection Filters
OPTION => ___________________________________________________  
Choose a filter type. 
Program Name Filters 
  1. Exclude 
  2. Include 
Data Set Name Filters 
  3. Exclude 
  4. Include 
Enter END to return. 
```

Figure 5. Tape Selection Filters pop-up window (for defaults)

3. Specify the type of filter that you want to create by typing one of the following option numbers and pressing Enter:

**Program Name Filters:**

1 - **Exclude**
   To create a filter for excluding tape data sets from copy requests based on the names of programs that created the data sets

2- **Include**
   To create a filter for including tape data sets in copy requests based on the names of programs that created the data sets or masks
Depending on which option you chose, either the Program Filter Defaults pop-up window (shown in Figure 6) or the Data Set Filter Defaults window opens.

![Figure 6. Program Filter Defaults pop-up window (for exclusion filter)](image)

4. On the lines provided, specify your filtering criteria, as follows:
   - If you are creating a filter based on program names, type the full program names or name masks, one per line. This value can be up to eight characters in length. To specify a mask, type the first few characters of a program name followed by the asterisk (*) wildcard, for example, FDR*.
   - If you are creating a filter based on data set names, type the fully qualified tape-data-set names or name masks, one per line. Each value can be up to 44 characters in length. To specify a mask, type the first few characters of a data set name followed by the asterisk (*) wildcard, for example, PAYROLL.*.

   If you use generation data groups (GDGs), you can include a relative generation number in a data set name, such as (0) for the current generation data set, (-1) for the first generation data set back from the current data set, (-2) for the second generation data set back, and so on. For example, you could specify GDG.PAYROLL(0) to identify the current generation data set in the payroll GDG. If you specify a relative generation number, do not also specify the asterisk (*) wildcard.

   If you fill all of the entry lines, press Enter after the entry on the last line to add more lines at the bottom.

5. When you are finished, press F3 (End) to save your entries and return to the Copy Request Defaults menu.

   Tip: To exit without saving your filtering criteria, type CANCEL at the command line.

### Setting defaults for stacked tape parameters

If you enable tape-stacking for copy requests, you can set parameters that control when Tape Optimizer automatically loads new output tapes. You can specify one or both of the following types of parameters:

- The maximum number of files to load onto a stacked tape
- Tape utilization thresholds by tape type

You specify the maximum number of files to stack on an output tape in the **Specify maximum stacked tape file count** field. If you do not specify a value, the default value of 9999 is used. When this maximum number of files is reached, Tape Optimizer automatically loads a new output tape.
**Tip:** Do not specify a file count greater than 9999 unless you use z/OS 1.5 or later. Only these z/OS versions support tapes that contain more than 9999 files.

You can also specify tape-utilization thresholds (in MBs) by tape type. To enable these thresholds, you must select the **Start a new stacked tape when byte threshold reached** option. Tape Optimizer will then load a new output tape whenever a threshold level is reached. Consider setting default threshold levels when you expect that the files on your input tapes will typically not fit onto one stacked tape and you do not want any one of the files to span multiple tapes. You can set threshold levels for several tape types, including high-capacity enterprise recording format tapes.

If you specify both a maximum file count and tape-utilization thresholds, Tape Optimizer stacks data on a tape until the first of these limits is met and then loads a new tape. If you specify neither a maximum file count nor any threshold levels, Tape Optimizer uses the default maximum file count of 9999 to determine when to load a new tape.

You can override your default settings for these options when defining a specific copy request, if necessary.

To set defaults for stacked tape parameters:

1. From the Tape Optimizer Primary Menu, choose option 1 (Copy Request Defaults).
2. From the Copy Request Defaults menu, choose option 3 (Stacked Tape Parameters). The Stacked Tape Parameters pop-up window opens, as shown in Figure 7:

   ![Figure 7. Stacked Tape Parameters pop-up window (for defaults)](image_url)

3. In the **Start a new stacked tape when byte threshold reached** field, type a forward slash (/) if you want Tape Optimizer to automatically load a new output tape whenever the number of megabytes on an output tape reaches the threshold level that you specify for that tape type. If you do not select this option, Tape Optimizer writes data to output tapes until the maximum file count is reached.
4. For each tape type under **Stacked tape media thresholds (in MB)**, specify the number of megabytes that must exist on an output tape to trigger the loading of a new tape. Either accept the default values or type new values. Valid values (in MBs) are:
   - **18-track tapes:** 200 (default) through 600
   - **36-track tapes:** 400 (default) through 2400
   - **128-track tapes:** 10000 (default) through 60000
- **256-track tapes**: 20000 (default) through 120000
- **384-track tapes**: 30000 (default) through 180000
- **EFMT1 (enterprise recording format 1) tapes**: 60000 (default) through 900000
- **EFMT2 (enterprise recording format 2) tapes**: 100000 (default) through 1500000

**Tip**: When setting threshold levels, consider whether data compression is being used and the degree of compression. Also, consider if the tapes are MEDIA3, MEDIA4, or MEDIA5 tapes. For MEDIA5 tapes, you should set a value for the EFMT1 or EFMT2 tape format.

5. In the **Specify maximum stacked tape file count** field, type the maximum number of files that you want Tape Optimizer to place on a stacked tape. When the number of files on a stacked tape is one less than this maximum, Tape Optimizer automatically loads a new output tape. Valid values are from 2 through 65535. The default value is 9999.

**Restriction**: Do not specify a value greater than 9999 unless you use z/OS 1.5 or later. Only systems with these z/OS versions support tapes that contain more than 9999 files. If you create stacked tapes that contain more than 9999 files, you might encounter problems when attempting to use these tapes on older z/OS systems.

6. Press F3 (End) to save your entries and return to the Copy Request Defaults menu.

### Setting defaults for DFSMSrmm parameters

You can set default values for several DFSMSrmm parameters for your copy requests. When defining a specific copy request, you can override the default values for all of the DFSMSrmm parameters except those for the Accounting field. The Accounting field options can be set only from the Default DFSMSrmm Parameters panel.

To set defaults for DFSMSrmm parameters:

1. From the Tape Optimizer Primary Menu, choose option 1 (Copy Request Defaults).
2. From the Copy Request Defaults menu, choose option 4 (DFSMSrmm Parameters). The DFSMSrmm Parameters menu opens, as shown in Figure 8:

```
+--------------------------------------------------------------+
|    IBM Tivoli Tape Optimizer on z/OS - DFSMSrmm Parameters   |
|                                                              |
| OPTION => _________________________________________________  |
|                                                              |
| 1. DFSMSrmm Default Parameters                               |
| 2. DFSMSrmm Control Variables                                |
|                                                              |
| Select an option or enter END to return.                     |
+--------------------------------------------------------------+
```

**Figure 8. DFSMSrmm Parameters menu**
3. Choose option 1 (DFSMSrmm Default Parameters). The Default DFSMSrmm Parameters pop-up window opens, as shown in Figure 9:

![Figure 9. Default DFSMS Parameters pop-up window](image)

4. In the Locations to Include field, type the names of the DFSMSrmm locations for the tape volumes that you want to include in copy requests. You can specify up to four locations, one per line. Locations include shelf locations, storage locations, and system-managed library names.

5. In the Locations to Exclude field, type the names of the DFSMSrmm locations for the tape volumes that you want to exclude from copy requests. You can specify up to four locations, one per line.

   If you specify both locations to include and locations to exclude, Tape Optimizer processes the locations to include first and then processes the locations to exclude.

6. In the Consider VRS Rules for Tape Copy Selection field, retain the forward slash (/), the default setting, if you want Tape Optimizer to consider VRS retention dates and rules when filtering tapes or data sets based on expiration dates.

   - If you select this field and your site uses VRS retention dates, Tape Optimizer uses the retention dates instead of any expiration dates when filtering tapes or data sets.
   - If you select this field and your site uses VRS rules other than retention dates (for example, a rule to retain tapes that still contain some cataloged data sets), Tape Optimizer ignores both the VRS retention rules and any expiration dates when filtering tapes or data sets.
   - If you do not select this field, Tape Optimizer considers only the expiration dates when filtering tapes or data sets.

   For detailed information about how VRS retention dates and rules affect tape and data set selection, see “How expiration or retention dates are used in tape filtering” on page 21.

7. In the Use Volume Expiration Date When a Volume Is Retained and No Data-Set Expiration Date or Retention Date Exists field, type a forward slash (/) if you want Tape Optimizer to use DFSMSrmm tape-volume expiration dates instead of data-set expiration or retention dates when filtering data sets that are on VRS-
retained tapes. This option is useful in the following situation: 1) you create a copy request based on data set names or masks; 2) you create a date filter to filter data sets based on expiration dates; 3) the data sets that you want to include or exclude do not have DFSMSrmm data-set expiration dates or VRS retention dates; 4) the data sets are on tapes that are being retained by VRS retention dates; and 5) the **Consider VRS Rules for Tape Copy Selection** option is selected. If you select this option, Tape Optimizer matches the expiration dates of the tape volumes on which data sets reside against the filter date. If you do not select this option, the data sets will not be filtered based on expiration or retention dates; they will be considered for copying based on other selection criteria.

You can also select the option **Use Old Data Set Retention Date When No Data Set Expiration Date Exists** to have Tape Optimizer check for old data-set retention dates before using tape-volume expiration dates.

8. In the **Use Old Data-Set Retention Date When No Data-Set Expiration Date Exists** field, type a forward slash (/) in this field if you want Tape Optimizer to use expired VRS data-set retention dates instead of DFSMSrmm data-set expiration dates when filtering data sets based on expiration dates. This option is useful in the following situation: 1) you create a copy request based on data set names or masks; 2) you create a date filter to filter data sets based on an expiration date; 3) the data sets that you want to include or exclude do not have DFSMSrmm data-set expiration dates or current VRS retention dates, but they do have expired VRS retention dates; 4) the data sets are on tapes that are being retained by VRS retention dates; and 5) the **Consider VRS Rules for Tape Copy Selection** option is selected.

If you select this option, Tape Optimizer will match the expired data-set retention dates against the date in the date filter. If you do not select this option, Tape Optimizer will check whether the **Use Volume Expiration Date When a Volume Is Retained and No Data-Set Expiration Date or Retention Date Exists** field is selected. If that field is selected, Tape Optimizer will use volume expiration dates for filtering. If that field is not selected, Tape Optimizer will not filter data sets based on expiration or retention dates; the data sets will be considered for copying based on other selection criteria.

9. In the **Perform RMM Control Variable Validity Check** field, type a forward slash (/) if you want Tape Optimizer to check whether the selected DFSMSrmm control variables are supported on the system where you will run copy requests. Tape Optimizer performs this checking during a trial run or the actual run of a copy request. If the checking identifies any unsupported control variables, the copy request terminates with an error (unless you also select the **Continue After RMM Variable Copy Failure** option). After the copy request terminates, you should resubmit the request on a system that supports these control variables, or deselect the unsupported control variables on the DFSMSrmm Control Variables panel to avoid further errors and then run the copy request again.

If you do not select this field, this checking is skipped. If some selected control variables are not supported on your system, your copy requests will continue, but Tape Optimizer will not transfer the tape library information that is associated with the unsupported control variables to the output tape definitions. No error message is issued to alert you of this situation.

**Tip:** To avoid the unanticipated loss of tape library information, you should select this field.

10. In the **Continue After RMM Variable Copy Failure** field, type a forward slash (/) if you selected the **Perform RMM Control Variable Validity Check** field but do not want copy requests to terminate when an unsupported DFSMSrmm control variable is detected. If you select this option and an unsupported variable is found for a copy request, the copy request will continue and Tape Optimizer will write a warning message to the copy log. The message will identify the tape library information that was not transferred to the output tape definitions. If you
do not select this option, copy requests will terminate when an unsupported control variable is found.

11. If you want the volser values of input tapes to be assigned to the DFSMSrmm Accounting field for output tapes, type a forward slash (/) next to Apply Input VOLSER to New Tape Acct Field, and press Enter. This assignment of volser information can help you determine the source of the copied data on an output tape.

12. If you selected Apply Input VOLSER to New Tape Acct Field, complete the following fields:
   a. In the Account Field Position field, specify the starting position of the tape volser information within the Accounting field by typing an offset value (in bytes). This value must be a number from 1 through 34.
   b. In the Overlay Account Data If Required field, type a forward slash (/) if you want to allow Tape Optimizer to overwrite any existing information in the Accounting field with input tape volser information.

13. Press F3 (End) to save your entries and return to the Copy Request Defaults menu.

For more information about DFSMSrmm parameters, see the IBM DFSMSrmm Guide and Reference book.

**Specifying the default DFSMSrmm control variables**

You can control which DFSMSrmm control variables are used to transfer tape library information to output tape definitions during copy requests. The variables represent information about the tape volumes or data sets, such as the tape creation date and owner. Tape Optimizer applies this information to the output tapes after copying the tape data.

Tape Optimizer automatically selects the DFSMSrmm control variables that are provided by the latest DFSMSrmm version that Tape Optimizer supports. However, if you have an older DFSMSrmm version on the system where you will run most of your copy requests, your system might not support all of the selected control variables. In this case, you should deselect the unsupported variables so that Tape Optimizer will not terminate copy requests with an error when it checks the validity of the control variables.

If necessary, you can override the default settings for a specific copy request. For example, if you plan to run a copy request on a system that is older than the one for which you specified the default settings, you might need to deselect the control variables that are not supported on the older system. For more information, see “Specifying the DFSMSrmm control variables to use for a copy request” on page 77.

The term DFSMSrmm control variables is equivalent to the term structured fields in DFSMSrmm documentation. DFSMSrmm writes structured field data to the DFSMSrmm API output buffer at the request of an application such as Tape Optimizer. If you select the control variables for those fields on the DFSMSrmm Control Variables panel, Tape Optimizer can apply that data to the output tapes.

To specify the default DFSMSrmm control variables:

1. From the Tape Optimizer Primary Menu, choose option 1 (Copy Request Defaults).
2. From the Copy Request Defaults menu, choose option 4 (DFSMSrmm Parameters).
3. From the DFSMSrmm Parameters pop-up menu, choose option 2 (DFSMSrmm Control Variables). The DFSMSrmm Control Variables panel opens, as shown in Figure 10.

![Panel](image)

**File**  
**Help**

---

IBM Tivoli Tape Optimizer on z/OS - DFSMSrmm Control Variables

**COMMAND =>**

---

This table describes all known DFSMSrmm variables that contain Tape VOLSER and Data Set information that can be copied. You may de-select variables in this list by overtyping the "/" with a blank next to any variable that you do not want to be transferred to the new tape definition by the copy request.

Enter END to Save Changes or CANCEL to return without saving.

<table>
<thead>
<tr>
<th>Copy</th>
<th>VarType</th>
<th>Varname</th>
<th>SFI</th>
<th>Command</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>ACN</td>
<td>801000</td>
<td>ACCOUNT</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>ADTJ</td>
<td>804000</td>
<td>ASDATE</td>
<td>PJULDATE</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>ATM</td>
<td>806000</td>
<td>ASTIME</td>
<td>PTIME</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>CDTJ</td>
<td>813000</td>
<td>CDDATE</td>
<td>PJULDATE</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>CJBN</td>
<td>814000</td>
<td>JOBNAME</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>CTM</td>
<td>81a000</td>
<td>CTIME</td>
<td>PTIME</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>DESC</td>
<td>820000</td>
<td>DESCRIPTION</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>DLWJ</td>
<td>823000</td>
<td>READDATE</td>
<td>PJULDATE</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>DMWJ</td>
<td>824000</td>
<td>WRITEDATE</td>
<td>PJULDATE</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>FCD</td>
<td>831000</td>
<td>FEATCD</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>MVS</td>
<td>863000</td>
<td>USE</td>
<td>BIN</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>NME</td>
<td>866000</td>
<td>SECLEVEL</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>OAC</td>
<td>869000</td>
<td>OWNERACCESS</td>
<td>BIN</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>OWN</td>
<td>870000</td>
<td>OWNER</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>OXDJ</td>
<td>871000</td>
<td>ORIGINALEXPDT</td>
<td>PJULDATE</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>PNUM</td>
<td>878000</td>
<td>NUMBER</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>UID</td>
<td>8ab001</td>
<td>ADDUSERS</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>VAC</td>
<td>8af001</td>
<td>ACCESS</td>
<td>BIN</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>VM</td>
<td>8bf000</td>
<td>USE</td>
<td>BIN</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>VENDR</td>
<td>8b9e001</td>
<td>VENDOR</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTVOL</td>
<td>XCTDJ</td>
<td>8c5000</td>
<td>EXPDT</td>
<td>PJULDATE</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>CDTJ</td>
<td>813000</td>
<td>CDDATE</td>
<td>PJULDATE</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>CJBN</td>
<td>814000</td>
<td>JOBNAME</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>CGM</td>
<td>817820</td>
<td>PROGRAMNAME</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>CMT</td>
<td>81a000</td>
<td>CTIME</td>
<td>PTIME</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>DD</td>
<td>81a000</td>
<td>DONAME</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>DLWJ</td>
<td>823000</td>
<td>READDATE</td>
<td>PJULDATE</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>DMWJ</td>
<td>824000</td>
<td>WRITEDATE</td>
<td>PJULDATE</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>LGM</td>
<td>84e600</td>
<td>LASTPROGRAMNAME</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>NME</td>
<td>866000</td>
<td>SECLEVEL</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>OXDJ</td>
<td>871000</td>
<td>ORIGINALEXPDT</td>
<td>PJULDATE</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>STEP</td>
<td>8a3000</td>
<td>STEPNAME</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>SYS</td>
<td>8a5000</td>
<td>CRSPID</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>MVY</td>
<td>8b9000</td>
<td>MANAGEMENTVALUE</td>
<td>VARCHAR</td>
</tr>
<tr>
<td>/</td>
<td>LISTDSN</td>
<td>XDTJ</td>
<td>8c6000</td>
<td>EXPDT</td>
<td>PJULDATE</td>
</tr>
</tbody>
</table>

Figure 10. DFSMSrmm Control Variables panel

The panel lists the control variables (or structured fields) for tape library information that the latest supported version of DFSMSrmm is known to support. A forward slash (/) in front of a variable, in the **Copy** column, indicates that Tape Optimizer will attempt to apply the related information to output tapes by default for all copy requests unless you override these selections for a specific request.

**Panel columns:**

**VarType**

The type of DFSMSrmm subcommand that produces the structured field data on the DFSMSrmm output buffer at the request of an application, for example, LISTVOLUME, LISTDSN, CHANGEVOLUME, and CHANGEDSN.
Varname
A structured field introducer (SFI) name. An SFI is an 8-byte DFSMSrmm structure that separates one field of DFSMSrmm output from another field.

SFI
The structured field introducer number.

Command
The name of a DFSMSrmm subcommand that produces tape library information in the form of structured fields on the DFSMSrmm output buffer.

Format
The data type of the structured field data.

For more information about structured fields, see the IBM DFSMSrmm Application Programming Interface book.

4. To deselect a control variable, delete the forward slash (/) in front of it. Any variables that have a blank in the Copy column will not be included in copy requests.

5. Press F3 (End) to save your changes and return to the Copy Request Defaults menu.

Where to go next

After setting default values, you are ready to start defining specific copy requests. For instructions, see Chapter 5, “Defining and managing copy requests,” on page 45.
You can define a copy request that copies numerous tape volumes or data sets in a single batch job. You must first create a basic copy request that specifies the following required information:
- The input and output tape devices
- Either the volsers of the tape volumes to copy or the data set names of the data sets to copy

Typically, Tape Optimizer builds and copies tape chains based on the volsers or data set names that you specify. However, you can copy individual data sets from input tapes by creating a basic copy request based on data set names and specifying the data set sequence numbers (DSSEQ values). A single copy request can specify data set names with DSSEQ values as well as data set names without DSSEQ values. In this case, Tape Optimizer copies individual data sets for the data set names with DSSEQ values and copies tape chains for the data set names without DSSEQ values.

You can refine a basic copy request by creating various types of filters for input-tape selection and by setting copy options. Also, you can edit or delete a pending copy request that has not yet run, if necessary.

For more information, see the following topics:
- “Considerations for defining copy requests”
- “Strategies for specifying input and output tape devices” on page 47
- “Task flow for defining a copy request” on page 47
- “Defining a basic copy request based on volsers” on page 49
- “Defining a basic copy request based on data set names” on page 53
- “Creating a date filter” on page 56
- “Creating a volser filter” on page 58
- “Creating a program-name filter” on page 60
- “Creating a data-set-name filter” on page 61
- “Creating a filter based on other tape criteria” on page 63
- “Specifying copy options for a copy request” on page 65
- “Specifying DFSMSrmm parameters for a copy request” on page 74
- “Specifying the DFSMSrmmm control variables to use for a copy request” on page 77
- “Editing a copy request” on page 79
- “Deleting a copy request” on page 81

Considerations for defining copy requests

Consider the following points before defining a copy request:
- If you expect to use the same filtering criteria or copy options for many of your copy requests, set default values for them. This practice saves time in defining new requests. For more information, see Chapter 4, “Setting default values for copy requests,” on page 29.
If you create both inclusion and exclusion filters for a copy request, Tape Optimizer first applies all of the inclusion criteria and then applies, to the resultant set of included tapes or data sets, the exclusion criteria. For more information about using tape filters, see “How to select the tapes or data sets to copy” on page 18.

If you configure a basic copy request that includes data set names with DSSEQ values, Tape Optimizer will select these data sets from input tapes individually and then write them together onto one or more output tapes. Any filtering criteria that you specify will refine the set of data sets to be copied. If you specify multiple inclusion filters, the data sets must match all of the inclusion criteria to be copied. If you specify one or more exclusion filters, any individual data sets that match any exclusion filter will be excluded from copying.

If you configure a basic copy request based on volsers or based on data set names without DSSEQ values, consider these points:

— Tape Optimizer will build a tape chain based on each volser entry or on each data-set-name entry. Tape Optimizer will then write the tape chains to separate output tapes if tape-stacking is not enabled. If tape-stacking is enabled, Tape Optimizer will stack the tape chains onto a single output tape (and continue to more tapes if necessary).

— Any filtering criteria that you define will refine the set of tape chains to be copied. If you create multiple inclusion filters, at least one tape volume or data set in a tape chain must match all of the inclusion criteria for the tape chain to be eligible for copying.

— If you create exclusion filters and any volser or data set in a multi-volume tape chain matches any one of the exclusion filters, none of the volumes in the tape chain will be copied. For example, if you exclude a data set on one volume in a multi-volume tape chain, the entire tape chain is not copied.

— If a tape volume was already copied as part of a previously copied tape chain, that tape volume is not copied again. For example, assume that you specify a volser range of C50100 through C50104. Volser C50100 is part of a two-volume tape chain that also includes volser C50102. In this case, Tape Optimizer copies C50100 and C50102 together, copies C50101 next, and then copies C50103 and C50104. C50102 is not copied twice.

To verify that all of the selection and filtering criteria in a copy request will correctly select the tapes or data sets that you want to copy, you can perform a trial run of the copy job.

If you enable tape stacking for a copy request that specifies both data set names with DSSEQ values and data set names without DSSEQ values, the individual data sets and the tape chains that are identified by these selection criteria will all be stacked onto output tapes together.

If you configure a copy request based on volsers and specify filtering criteria that exclude a tape volume that contains a portion of a data set that spans multiple tape volumes, none of the tapes in the multi-volume tape chain are copied.

All input tape volumes must be mountable on the requested input device type. Any tapes that the input tape device cannot read are excluded from the copy operation.

All output tape volumes must be mountable on the requested output device type. Any tapes that the output device cannot write to are excluded from the copy operation.

For copy requests that are defined from the Tape Optimizer interface, Tape Optimizer automatically generates a copy request number and records this number in the REQU_NUMBER parameter. The request number is primarily used for restart purposes. However, if you manually create the JCL for a copy request (see Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127),
the request number is dynamically generated each time the job is run and is not recorded in the \texttt{REQU\_NUMBER} parameter.

\section*{Strategies for specifying input and output tape devices}

When you define a basic copy request, you must identify the input and output tape drives to use.

- If your tape drives are managed by SMS, your ACS routines will determine which tape drives to use based on one of the following sets of criteria:
  - A tape esoteric, generic unit name, or unit address that you specify in the \texttt{Input Tape Esoteric or Generic Unit Name} field and in the \texttt{Output Tape Esoteric or Generic Unit Name} field
  - A storage class that you specify in the \texttt{Input Tape SMS Storage Class} field and in the \texttt{Output Tape SMS Storage Class} field

If you also select the \texttt{Use 1st VOLSER for Input Tape Allocation} option on the Copy Options panel, Tape Optimizer will allocate input tape drives based on the location of the first volser that is selected for copying instead. In this case, your ACS routines are ignored, and the input tape drives are allocated using \texttt{DISP=OLD}.

- If your tape drives are \textit{not} SMS-managed, you must specify a unit name, unit address, or esoteric in the \texttt{Input Tape Esoteric or Generic Unit Name} field and in the \texttt{Output Tape Esoteric or Generic Unit Name} field. Tape Optimizer will then allocate the tape drives that have the specified unit names or unit addresses or that are in the esoteric group of devices you identified.

\textbf{Tip:} If you want to run multiple subtasks for a copy job concurrently, each with its own set of tape drives, you should \textit{not} specify a unit address. Instead, specify an esoteric, generic unit name, or storage class. Tape Optimizer can use this more general criteria to allocate multiple sets of tape drives, as available.

Also, the default values that you set in the following fields on the General Parameters panel can affect how you specify tape drives:

- The default values that you were required to specify in the \texttt{Input Tape Esoteric or Generic Unit Name} and \texttt{Output Tape Esoteric or Generic Unit Name} fields will be automatically displayed for a new copy request. You can accept or change these values.

- If you selected the \texttt{Perform unit name validity check} option, Tape Optimizer will check whether the values in the \texttt{Input Tape Esoteric or Generic Unit Name} field and the \texttt{Output Tape Esoteric or Generic Unit Name} field are valid tape esoteric names, generic unit names, or unit addresses. If you did not select this option, you can specify an invalid value. You might want to specify an invalid value, for example, because your site allows invalid values to be passed to ACS routines for translation into SMS storage classes.

\section*{Task flow for defining a copy request}

To define a copy request, you must at least specify the input and output tape drives, and the data-set-name or volser criteria for selecting the input tapes or data sets. You can perform the other definition tasks, as needed, to tailor a copy request to your site’s needs.

Table 6 on page 48 lists the tasks for defining a copy request and indicates whether they are required or optional. After you define the basic copy request, you can perform the optional tasks in any order.
Table 6. Tasks for defining a copy request

<table>
<thead>
<tr>
<th>Task</th>
<th>Required or optional</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define a basic copy request that specifies criteria for identifying</td>
<td>Required</td>
<td>• “Defining a basic copy request based on volser values” on page 49</td>
</tr>
<tr>
<td>the input and output tape drives, whether tape-volume stacking</td>
<td></td>
<td>• “Defining a basic copy request based on data set names” on page 53.</td>
</tr>
<tr>
<td>is enabled, and the data-set-name or volser criteria for selecting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the input tapes or data sets to copy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create filters for refining the set of input tape volumes that the</td>
<td>Optional</td>
<td>• “Creating a date filter” on page 56</td>
</tr>
<tr>
<td>basic copy request identifies. You can specify a variety of filtering</td>
<td></td>
<td>• “Creating a volser filter” on page 58</td>
</tr>
<tr>
<td>criteria, including tape-creation dates, assigned dates, last-</td>
<td></td>
<td>• “Creating a program-name filter” on page 60</td>
</tr>
<tr>
<td>referenced dates, whether the tapes or data sets expire before or</td>
<td></td>
<td>• “Creating a data-set-name filter” on page 61</td>
</tr>
<tr>
<td>after a specific date, volser values, program names, data set names,</td>
<td></td>
<td>• “Creating a filter based on other tape criteria” on page 63</td>
</tr>
<tr>
<td>tape types, whether the tape data sets are cataloged, the system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDs of the processors on which the tapes were created, whether the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tapes are copies that you previously created, and whether the tapes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>contain temporary or permanent I/O errors.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specify copy options, including the number of days to retain input</td>
<td>Optional</td>
<td>“Specifying copy options for a copy request” on page 65</td>
</tr>
<tr>
<td>tapes, the number of concurrent copy tasks to run, whether to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prevent the recataloging of tape data sets, whether to check the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>compatibility of input tapes with the input tape devices, whether</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to perform a trial run, whether to use the block size of input</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tapes for output tapes, whether to continue copying after a tape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>chain fails to be copied, whether to apply a new expiration date to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>copied input tapes when the copy request is based on data set names,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>whether to print the Request Summary report at the completion of a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>copy job, whether to continue copying after a copy failure or when</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a data-set sequence number (DSSEQ) on a tape does not match the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sequence number for the data set in the catalog, whether to use a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>file-sequence number (FSEQ) instead of a DSSEQ when copying a data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>set for which the catalog records a sequence number other than a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSSEQ, when to use the ADRDSSU utility rather than IEBGENER to copy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tape data sets, whether to use the exact data set name of the first-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>selected data set for allocating an output tape drive, and whether</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to enable failed copy jobs to be restarted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If you enabled tape-volume stacking for the basic copy request,</td>
<td>Optional</td>
<td>“Specifying stacked tape parameters for a copy request” on page 69</td>
</tr>
<tr>
<td>specify tape utilization limits that determine when Tape Optimizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>loads a new output tape.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
After you define a copy request, it has the status of pending until you submit it for execution. From the Tape Optimizer interface, you can edit or delete pending copy requests, if necessary. Tape Optimizer automatically deletes copy requests after they finish running and you end the Tape Optimizer session.

### Defining a basic copy request based on volsers

You must complete either this procedure or “Defining a basic copy request based on data set names” on page 53 for Tape Optimizer to create a copy request.

To define a basic copy request based on volsers:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens, as shown in Figure 11 on page 50.

<table>
<thead>
<tr>
<th>Task</th>
<th>Required or optional</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you want to rename the output tape data sets as they are copied, specify renaming criteria.</td>
<td>Optional</td>
<td>“Renaming tape data sets” on page 71</td>
</tr>
<tr>
<td>Specify DFSMSrmm options, including whether to consider VRS retention criteria when filtering tapes or data sets based on expiration dates, whether to use tape-volume expiration dates or expired data-set retention dates instead of data-set expiration dates for filtering data sets, whether Tape Optimizer checks the validity of the selected DFSMSrmm control variables, whether a copy request should continue if an unsupported control variable is found, and the DFSMSrmm locations of tapes to include in or exclude from a copy job.</td>
<td>Optional</td>
<td>“Specifying DFSMSrmm parameters for a copy request” on page 74</td>
</tr>
<tr>
<td>Deselect any DFSMSrmm control variables for tape library information that is not supported by the system where you will run the copy job.</td>
<td>Recommended</td>
<td>“Specifying the DFSMSrmm control variables to use for a copy request” on page 77</td>
</tr>
</tbody>
</table>
Figure 11. Copy Requests panel

The bottom portion of this panel lists the copy requests that you previously defined. The following columns are displayed:

**Req Num**
A unique number that Tape Optimizer generates for a copy request to identify it.

**Req Date**
The date (YY/MM/DD) on which the copy request was created.

**Req Time**
The 24-hour time (HH:MM:SS) when the copy request was created.

**Tape Range**
The starting and ending volser values or data set names that define a range of input tapes or data sets to copy.

**Status**
One of the following copy request statuses: PEND START (pending, not yet started), BUILDCOPY (Tape Optimizer is scanning the DFSMSrmm tape database to find the tapes that match the copy criteria), PEND RSTRT (pending, was stopped and is now waiting to be restarted), ACTIVE (running), and PEND COMP (done, will be deleted the next time you start the product).

**Note:** A job might have the status ACTIVE or BUILDCOPY even if it terminated abnormally or was canceled. You can check whether these copy requests are actually running from SDSF. If an ACTIVE request is not running, you must either delete it or resubmit it. If a BUILDCOPY request is not running, you can edit it to correct any problems and then resubmit it, or delete it. If you do not take these remedial actions, you will not be able to run other copy requests.

**RQDB**
The ID for the Request Database that Tape Optimizer assigned to the copy request. This ID can be a number from 00 through 09. The value will be 00 unless you defined multiple Request Databases for multiple Tape Optimizer instances.
2. Type a forward slash (/) next to the **Create a new tape copy request by VOLSER** option and press Enter. The Create/Edit Request panel opens, as shown in Figure 12.

![Create/Edit Request panel (for volser)](image)

Figure 12. Create/Edit Request panel (for volser)

3. To identify the input tape drives to use, complete one of the following fields:
   - In the **Input Tape Esoteric or Generic Unit Name** field, type the name of an esoteric (a group of tape devices), a generic unit name, or the hexadecimal address of a specific tape unit to identify the tape drive or drives to use for reading data from the input tapes. This value can be up to eight characters long. For example, you could specify "CART" as an esoteric, "3490" as a generic unit name, or "A80" as a unit address.

   If you previously selected the **Perform unit name validity check** option on the General Parameters panel, Tape Optimizer will check the validity of the unit name that you specify. If the name is invalid, the Invalid Unit Name window is displayed. In this event, either specify CANCEL if you want to discard the invalid unit name and specify another name, or specify END if you want Tape Optimizer to accept the invalid unit name. You might want Tape Optimizer to accept an invalid unit name if your SMS routines can interpret the name or if you plan to run the copy job on a processor where the name is valid.

   - If your site uses SMS to manage tape drives, you can specify an SMS storage class. In the **Input Tape SMS Storage Class** field, type the name of the storage class that you want the system to use for allocating SMS-managed input tape drives for the copy request. If you are unsure about which storage class to use, contact your system administrator.

   **Tip**: Ensure that all input tapes can be mounted on the input device. Any tapes that the input device cannot read will not be copied.

4. To identify the output tape drives, complete one of the following fields:
   - In the **Output Tape Esoteric or Generic Unit Name** field, type the name of an esoteric, a generic unit name, or the hexadecimal address of a tape unit to identify the tape drive or drives to use for writing data to output tapes. This value can be up to eight characters long.
If the Invalid Unit Name window is displayed, either specify CANCEL to discard the invalid unit name so that you can specify another name, or specify END to have Tape Optimizer accept the invalid unit name.

- If your site uses SMS to manage tape drives, you can specify an SMS storage class. In the Output Tape SMS Storage Class field, type the name of the storage class that you want the system to use for allocating SMS-managed output tape drives for the copy request. If you are unsure about which storage class to use, contact your system administrator.

**Tip:** Ensure that all output tapes can be mounted on the output device. Any tapes that the output device cannot read will not be copied.

5. In the **Stack Input Tape Volumes on Output Tapes** field, type a forward slash (/) if you want to stack tape volumes onto output tapes to optimize tape media utilization.

If you select this field, you can set optional stacked tape utilization limits for determining when Tape Optimizer loads new output tapes. To do so, use the **Options** pull-down menu.

6. In the **Starting VOLSER** and **Ending VOLSER** columns at the bottom of the panel, specify volser ranges, individual volser values, volser masks, or a combination of these entries, as follows:

- To specify an individual volser, type a volser value in the **Starting VOLSER** column and leave the **Ending VOLSER** column blank. A volser value can be from one to six characters long and can include alphanumeric characters, national characters, and special characters.

- To specify a volser range, type a volser value in the **Starting VOLSER** column and a volser value in the **Ending VOLSER** column. The ending volser value must be greater than the starting volser value. (If the ending volser is equal to or less than the starting volser, the range is invalid.) Tape Optimizer will copy the specified volser and all intermediate volser in the range.

- To specify a volser mask, type the first few characters of a volser value followed by the asterisk (*) wildcard character (for example, CS*) in the **Starting VOLSER** column. Leave the **Ending VOLSER** column blank. Tape Optimizer will copy all tape volumes that have volser starting with the characters you type.

All entries require a value in the **Starting VOLSER** column. If an entry has a value in the **Ending VOLSER** column only, it will not be copied. If you fill all of the entry lines, press Enter after the entry on the last line to add more lines at the bottom.

Tape Optimizer will copy the tape volumes in the order in which you specify their volser. If Tape Optimizer cannot find a tape volume, it continues to the next volser in a volser range or to the next volser in the list. When a tape is selected for copying, the entire tape chain to which it belongs is eligible for copying.

7. Optionally, use the **Filters** and **Options** pull-down menus to refine the copy request. You can create filters for refining the set of input tapes to copy and set various copy options. For more information, see Table 6 on page 48 and “Considerations for defining copy requests” on page 45.

8. When you are finished, press F3. The JCL for the copy job is displayed in an ISPF Edit panel. The location of the JCL member is shown at the top. You can save the JCL to another location, if necessary. For example, you might want to move it to a location from which it can be run by a job scheduler.

9. Press F3 (Exit) to return to the Copy Requests panel.
Defining a basic copy request based on data set names

You must complete either this procedure or “Defining a basic copy request based on volser values” on page 49 for Tape Optimizer to create a copy request. Tape Optimizer uses the tape data set names and masks that you specify in a basic copy request to identify the tape chains or data sets to copy. If you specify a data set name or mask with a data set sequence number (DSSEQ value), Tape Optimizer will copy the data sets individually rather than copy the entire tape chains that contain them.

To define a basic copy request based on data set names:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens:

   Menu    Help
   --------------------------------------------------------
   IBM Tivoli Tape Optimizer on z/OS - Copy Requests
   COMMAND => ____________________________________________________________________
   Enter "/" to select option
   _ Create a new tape copy request by VOLSER
   _ Create a new tape copy request by Data set name or mask
   Enter END to return
   Enter "/" next to a request to select for submit, edit or delete
   Sel - Req - - Req - - Req - - Tape Range - - Status - - RQDB -
   Num  Date    Time    Start    End
   00001 05/03/10 12:47:29                      PEND START
   00004 05/03/10 12:43:46  C50023              ACTIVE        00
   00005 05/03/10 12:26:03  C50025              PEND START
   *********************************************** Bottom of data ***********************************************

   The bottom portion of this panel lists the copy requests that you previously defined. The following columns are displayed:

   Req Num
   A unique number that Tape Optimizer generates for a copy request to identify it.

   Req Date
   The date (YY/MM/DD) on which the copy request was created.

   Req Time
   The 24-hour time (HH:MM:SS) when the copy request was created.

   Tape Range
   The starting and ending volser values or data set names that define a range of input tapes or data sets to copy.

   Status
   One of the following copy request statuses: PEND START (pending, not yet started), BUILDCOPY (Tape Optimizer is scanning the DFSMSrmm tape database to find the tapes that match the copy criteria), PEND RSTRT (pending, was stopped and is now waiting to be restarted), ACTIVE (running), and PEND COMP (done, will be deleted the next time you start the product).

   Note: A job might have the status ACTIVE or BUILDCOPY even if it terminated abnormally or was canceled. You can check whether these copy requests are actually running from SDSF. If an ACTIVE request is not running, you must either delete it or resubmit it. If a BUILDCOPY request is not running, you can edit it to correct any problems and then resubmit it, or delete it. If you do not take these remedial actions, you will not be able to run other copy requests.
RQDB

The ID for the Request Database that Tape Optimizer assigned to the copy request. This ID can be a number from 00 through 09. The value will be 00 unless you defined multiple Request Databases for multiple Tape Optimizer instances.

2. Type a forward slash (/) next to Create a new tape copy request by data set name or mask and press Enter. The Create/Edit Request panel opens, as shown in Figure 13:

Figure 13. Create/Edit Request panel (for data set names)

3. To identify the input tape drives to use, complete one of the following fields:

- In the Input Tape Esoteric or Generic Unit Name field, type the name of an esoteric (a group of tape devices), a generic unit name, or the hexadecimal address of a specific tape unit to identify the tape drive or drives to use for reading data from input tapes. This value can be up to eight characters long. For example, you could specify "CART" as an esoteric, "3490" as a generic unit name, or "A80" as a unit address.

If you previously selected the Perform unit name validity check option on the General Parameters panel, Tape Optimizer will check the validity of the unit name that you specify. If the name is invalid, the Invalid Unit Name window is displayed. In this event, either specify CANCEL if you want to discard the invalid unit name and specify another name, or specify END if you want Tape Optimizer to accept the invalid unit name. You might want Tape Optimizer to accept an invalid unit name if your SMS routines can interpret the name or if you plan to run the copy job on a processor where the name is valid.

- If your site uses SMS to manage tape drives, you can specify an SMS storage class. In the Input Tape SMS Storage Class field, type the name of the storage class that you want the system to use for allocating SMS-managed input tape drives. If you are unsure about which storage class to use, contact your system administrator. If you do not specify a storage class, you must specify a value in the Input Tape Esoteric or Generic Unit Name field.

Tip: Ensure that all input tapes can be mounted on the input device. Any tapes that the input device cannot read are not copied.
4. To identify the output tape drives, complete one of the following fields:
   - In the **Output Tape Esoteric or Generic Unit Name** field, type the name of an esoteric, a generic unit name, or the hexadecimal address of a tape unit to identify the tape drives to use for writing data to output tapes. This value can be up to eight characters long.
     
     If the Invalid Unit Name window is displayed, either specify CANCEL to discard the invalid unit name so that you can specify another name, or specify END to have Tape Optimizer accept the invalid unit name.
   - If your site uses SMS to manage tape drives, you can specify an SMS storage class. In the **Output Tape SMS Storage Class** field, type the name of the storage class that you want the system to use for allocating SMS-managed output tape drives. If you are unsure about which storage class to use, contact your system administrator.

   **Tip:** Ensure that all output tapes can be mounted on the output device. Any tapes that the output device cannot write to are not copied.

5. In the **Stack Input Tape Volumes on Output Tapes** field, type a forward slash (/) if you want to stack tape volumes or data sets on output tapes to optimize tape media utilization.

   If you select this field, you can set optional stacked tape utilization limits for determining when Tape Optimizer loads new output tapes. To do so, use the **Options** pull-down menu.

6. To identify the tape data sets to include in the copy request, perform the following steps:
   a. (Required) Under **Full Tape Data Set Name or Mask**, type the fully qualified data set names or name masks for the tape data sets that you want to copy. Specify one data set name or mask per line. This value can be up to 44 characters long.
      
      To specify a mask, type a portion of a data set name and use the appropriate wildcards to represent the remaining characters, for example, PDUSER.PAYROLL.**. For these masks, Tape Optimizer supports the same wildcards that DFSMSrmm supports. For more information, see “Supported wildcard characters” on page 15.
      
      If you use generation data groups (GDGs), you can include a relative generation number in a data set name, such as (0) for the current generation data set, (-1) for the first generation data set back from the current data set, (-2) for the second generation data set back, and so on. For example, you could specify GDG.PAYROLL(-3) to identify the third data set back in the payroll GDG. If you specify a relative generation number for a generation data set, do not also specify a wildcard.
      
      If you fill all of the entry lines, press Enter after the entry on the last line to add more lines at the bottom.
   b. (Optional) Under **VOLSER**, type the volser value of the tape that contains the named data set or data sets that you want to copy. By specifying this value, you copy only the occurrences of the named data sets from a specific tape volume. Wildcards are not permitted.
   c. (Optional) Under **DSSEQ**, type the data set sequence number of a named data set if you want to copy that data set individually. Alternatively, you can type only the asterisk (*) wildcard if you want all data sets that match the data set name (and volser if specified) to be copied individually.

   **Tip:** If you fill all of the entry lines, press Enter after the entry on the last line to add more lines at the bottom.
7. Optionally, use the Filters and Options pull-down menus to refine the request. You can create filters for refining the set of input tapes or data sets to copy and set various copy options. For more information, see Table 6 on page 48 and “Considerations for defining copy requests” on page 45.

8. When you are finished, press F3. The JCL for the copy job is displayed in an ISPF Edit panel. The location of the JCL member is shown at the top. You can save the JCL to another location, if necessary. For example, you might want to move it to a location from which it can be run by a job scheduler.

9. Press F3 (Exit) to return to the Copy Requests panel.

Creating a date filter

Optionally, you can refine the set of tape volumes or data sets that the basic copy request identifies by specifying tape creation dates, DFSMSrmm assigned dates, last-referenced dates, or dates that are matched against expiration dates. If you create both inclusion and exclusion filters, Tape Optimizer first applies all of the inclusion criteria first and then applies the exclusion criteria. For detailed information about selecting and filtering tapes and data sets, see Chapter 3, “Getting started with IBM Tivoli Tape Optimizer,” on page 13.

To create a date filter:
1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.

2. To open the Create/Edit Request panel, perform one of the following actions:
   • If you are defining a new copy request, type a forward slash (/) next to the Create a new tape copy request by VOLSER field or the Create a new tape copy request by data set name or mask field, and press Enter.
   • If you are editing a pending copy request that is listed at the bottom of the panel, type a forward slash (/) in the Sel column next to the request, and press Enter.

3. To display the Filters pull-down menu, press the Tab key to move the cursor to "Filters" on the action bar and then press Enter. The Filters menu drops down, as shown in Figure 14 on page 57.
4. From the **Filters** menu, choose option 1 (By DATE). The Date Filters pop-up window opens, as shown in Figure 15:

![Figure 14. Filters pull-down menu on the Create/Edit Request panel](image)

**Figure 14. Filters pull-down menu on the Create/Edit Request panel**

**Tip:** On this panel, you must specify all dates in Julian date format (YYYY/DDD), for example, 2005/180. To specify a date range, type both a starting date and an ending date, for example, 2005/180 thru 2005/250.

5. Under **Include Filters**, complete any of the following fields, as needed:

a. In the **Create Date Range** field, type a range of DFSMSrmm create dates for the tape volumes or data sets that you want to include in the copy request. A create date can be the date on which a tape volume was defined to DFSMSrmm or on which a data set was written to tape. If you defined the basic copy request based on volser, specify volume create dates. If you defined the basic copy request based on data sets, specify data-set create dates.
b. In the **Assigned Date Range** field, type a range of DFSMSrmm assigned dates for the tapes that you want to include in the copy request. An *assigned date* is the date on which a data set was first written to a tape.

c. In the **Last Referenced Date Range** field, type a range of DFSMSrmm last-referenced dates for the tape volumes or data sets that you want to include in the copy request. A *last-referenced date* is the date on which the tape was last accessed for a read or write operation or on which a data set was last read or written to. If you defined the basic copy request based on volsers, specify volume last-referenced dates. If you defined the basic copy request based on data sets, specify data set last-referenced dates.

d. If you want to include tapes or data sets that expire *after* a specific date, type this date in the **Tapes/Data Sets That Expire After** field. By specifying this date, you can copy only the tapes or data sets that contain recent data. Tape Optimizer will match this date against tape or data-set expiration dates to determine whether to include the tapes or data sets. If your site uses VRS retention dates and you selected the **Consider VRS Rules for Tape Copy Selection** option, Tape Optimizer will match the date in this field against retention dates instead. For more information, see “How expiration or retention dates are used in tape filtering” on page 21.

6. Under **Exclude Filters**, complete any of the following fields, as needed:

   a. In the **Create Date Range** field, type a range of DFSMSrmm create dates for the tape volumes or data sets that you want to exclude from the copy request. A *create date* can be the date on which a tape volume is defined to DFSMSrmm or on which a data set is written to tape. If you defined the basic copy request based on volsers, specify volume create dates. If you defined the basic copy request based on data sets, specify data set create dates.

   b. In the **Assigned Date Range** field, type a range of DFSMSrmm assigned dates for the tapes that you want to exclude from the copy request. An *assigned date* is the date on which a data set was first written to a tape.

   c. In the **Last Referenced Date Range** field, type a range of DFSMSrmm last-referenced dates for the tape volumes or data sets that you want to exclude from the copy request. A *last-referenced date* is the date on which the tape was last accessed for a read or write operation or on which a data set was last read or written to. If you defined the basic copy request based on volsers, specify volume last-referenced dates. If you defined the basic copy request based on data sets, specify data set last-referenced dates.

   d. If you want to exclude tapes or data sets from the copy request that expire *before* a specific date, type this date in the **Tapes/Data Sets That Expire Before** field. By specifying this date, you can avoid copying tapes or data sets that expire soon and no longer contain useful data. Tape Optimizer will match this date against the tape or data-set expiration dates to determine whether to exclude the tapes or data sets. If your site uses VRS retention dates and you selected the **Consider VRS Rules for Tape Copy Selection** option, Tape Optimizer will match the date in this field against retention dates instead. For more information, see “How expiration or retention dates are used in tape filtering” on page 21.

7. Press F3 (End) to save your entries and return to the Create/Edit Request panel.

---

**Creating a volser filter**

You can refine the set of tape volumes to copy by specifying volser filtering criteria. You can specify volser values or masks as inclusion or exclusion filters. If you create both inclusion and exclusion filters, Tape Optimizer applies the inclusion criteria first and then applies the exclusion criteria. This task is optional.
To create a volser filter:
1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.
2. To open the Create/Edit Request panel, perform one of the following actions:
   - If you are defining a new copy request, type a forward slash (/) next to the Create a new tape copy request by VOLSER field or the Create a new tape copy request by data set name or mask field, and press Enter.
   - If you are editing a pending copy request that is listed at the bottom of the panel, type a forward slash (/) in the Sel column next to the request, and press Enter.
3. From the Filters pull-down menu, choose option 2 (By VOLSER). The Filter Type pop-up window opens, as shown in Figure 16:

   Figure 16. Filter Type pop-up window

4. Specify the type of filter that you want to create, as follows:
   - Choose option 1 (Exclude) to create an exclusion filter for excluding tape volumes from the copy request.
   - Choose option 2 (Include) to create an inclusion filter for including tape volumes in the copy request.

The appropriate Copy Request VOLSER Filters pop-up window opens. An example window for an exclusion filter is shown in Figure 17:

   Figure 17. Copy Request VOLSER Filters pop-up window

5. On the lines provided, type specific volser values or volser masks for the tape volumes that you want to include in or exclude from (as indicated) the copy request. Type one volser value or mask per line.

   To specify a mask, type the first few characters of a volser value followed by the asterisk (*) wildcard, for example, CS99*. The wildcard represents an ending string of characters. Tape Optimizer matches the mask against tape volsers to
determine which tapes to include in or exclude from the copy request. For example, if you specified broad volser ranges in the basic copy request, you can create a more specific volser exclusion filter to exclude tape chains that contain particular volzers.

Tip: If you fill all of the entry lines, press Enter after the entry on the last line to add more lines at the bottom.

6. When you are finished, press F3 (End) to save your entries and return to the Create/Edit Request panel.

Creating a program-name filter

You can refine the set of tape data sets or tape chains to copy by creating a filter based on the names of programs that created tape data sets. For example, you might want to exclude programs, such as the FDR utility, that produce data in a proprietary format that cannot be copied. You can create an inclusion filter, exclusion filter, or both. If you specify both types of filters, Tape Optimizer first applies the inclusion criteria and then applies the exclusion criteria. By default, Tape Optimizer excludes tapes that are created by hierarchical storage management (HSM).

If you specified default values for program-name filters, the default values are automatically displayed. You can accept or override these values.

To create a program-name filter:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.

2. To open the Create/Edit Request panel, perform one of the following actions:
   - If you are defining a new copy request, type a forward slash (/) next to the Create a new tape copy request by VOLSER field or the Create a new tape copy request by data set name or mask field, and press Enter.
   - If you are editing a pending copy request that is listed at the bottom of the panel, type a forward slash (/) in the Sel column next to the request, and press Enter.

3. From the Filters pull-down menu, choose option 3 (By Program). The Filter Type pop-up window opens:

4. Specify the type of filter that you want to create, as follows:
   - Choose option 1 (Exclude) to create an exclusion filter for excluding data sets or tape chains from the copy request.
   - Choose option 2 (Include) to create an inclusion filter for including data sets or tape chains in the copy request.

The appropriate Copy Request Program Filters pop-up window opens. An example window for an exclusion filter is shown in Figure 18 on page 61.
5. On the lines provided, type the full program names or name masks for the programs that created the tape data sets that you want to include in or exclude from (as indicated) the copy request. Specify one name or mask per line. An entry can be up to eight characters long.

To specify a mask, type the first few characters of a program name followed by the asterisk (*) wildcard, for example, FDR *. Tape Optimizer matches the mask against tape library information to determine which tapes to include in or exclude from the copy request. By default, Tape Optimizer specifies "ARC*" as an exclusion filter to exclude tapes that are created by HSM.

6. When you are finished, press F3 (End) to save your entries and return to the Create/Edit Request panel.

Creating a data-set-name filter

You can refine the set of input tape data sets to copy by specifying data-set-name filtering criteria. To create a filter, you specify data set names or name masks as inclusion or exclusion filters. This task is optional.

Before creating a data-set-name filter, consider the following points:

- If you created a default filter based on data set names, the default criteria are automatically displayed. You can accept or override these default criteria.

- If you specified a general data-set-name mask in the basic copy request, you can specify a more specific data-set-name mask as an exclusion filter to refine the set of data sets or tape chains to copy.

- If the basic copy request specifies data set names or masks with DSSEQ values (to copy data sets individually), a data-set-name filter will include or exclude individual data sets.

- If the basic copy request specifies volsers or data set names without DSSEQ values (to copy entire tape chains), consider these points:
  - A data-set-name filter will include or exclude entire tape chains.
  - If you create an inclusion filter that specifies a data set that resides on a tape volume that also contains unselected data sets, Tape Optimizer copies the entire tape volume.
  - If an included data set spans several tape volumes and you exclude one of these tape volumes in another filter, Tape Optimizer does not copy any tape volumes in the tape chain.

To create a data-set-name filter:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.
2. To open the Create/Edit Request panel, perform one of the following actions:
   - If you are defining a new copy request, type a forward slash (/) next to the
     Create a new tape copy request by VOLSER field or the Create a new tape
     copy request by data set name or mask field, and press Enter.
   - If you are editing a pending copy request that is listed at the bottom of the
     panel, type a forward slash (/) in the Sel column next to the request, and
     press Enter.

3. From the Filters pull-down menu, choose option 4 (By Data Set Name). The Filter
   Type pop-up window opens:

   ![Filter Type pop-up window]

4. Specify the type of filter that you want to create, as follows:
   - Choose 1 (Exclude) to create an exclusion filter for excluding tape volumes or
     data sets from the copy request.
   - Choose 2 (Include) to create an inclusion filter for including tape volumes or
     data sets in the copy request.

   The appropriate Copy Request Data Set Name Filters pop-up window opens. An
   example window for an exclusion filter is shown in Figure 19:

   ![Copy Request Data Set Name Filters pop-up window]

5. On the lines provided, type the fully qualified data set names or name masks for
   the tape data sets that you want to include in or exclude from (as indicated) the
   copy request. Specify one data set name or mask per line. Each value can be up to
   44 characters long.

   To specify a mask, type the first few characters of a data set name followed by the
   asterisk (*) wildcard, for example, PDUSER.PAYROLL.AUS*. The wildcard
   represents zero or more ending characters. Tape Optimizer matches the mask
   against the input tape data set names to determine which tape chains to include in
   or exclude from the copy operation. For example, if you specified a general data-
   set-name mask for the basic copy request, you can create an exclusion filter that
   specifies more specific criteria to restrict the tape data sets to be copied.
If you use generation data groups (GDGs), you can include a relative generation number in a data set name, such as (0) for the current generation data set, (-1) for the first generation data set back from the current data set, (-2) for the second generation data set back, and so on. For example, you could specify GDG.PAYROLL(0) to identify the current generation data set in the payroll GDG. If you specify a relative generation number, do not also specify the asterisk (*) wildcard.

If you fill all of the entry lines, press Enter after the entry on the last line to add more lines at the bottom.

6. When you are finished, press F3 (End) to save your entries and return to the Create/Edit Request panel.

Creating a filter based on other tape criteria

You can refine the set of input tape volumes or data sets that the basic copy request identifies by creating a filter based on various other tape criteria:

- **Inclusion criteria**: The type of tapes, whether the tapes contain temporary I/O errors, the system IDs of the processors on which the tapes were created, and whether to copy only cataloged data sets
- **Exclusion criteria**: Whether the tapes are copies that you previously created, whether the tapes contain permanent I/O errors, and the system IDs of the processors on which the tapes were created

If you specify both inclusion and exclusion criteria, Tape Optimizer first applies all of the inclusion criteria and then applies the exclusion criteria.

To create a filter based on other tape criteria:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.

2. To open the Create/Edit Request panel, perform one of the following actions:
   - If you are defining a new copy request, type a forward slash (/) next to the Create a new tape copy request by VOLSER field or the Create a new tape copy request by data set name or mask field, and press Enter.
   - If you are editing a pending copy request that is listed at the bottom of the panel, type a forward slash (/) in the Sel column next to the request, and press Enter.

3. From the Filters pull-down menu, choose option 5 (Other). The Other Filters pop-up window opens, as shown in Figure 20 on page 64.
4. Under **Include Filters**, complete any of the following fields, as needed, to include tapes or data sets in the copy request:

   a. In the **Input Tape Unit Device Type** field, type one of the following values to indicate the type of input tapes to copy:
      
      - **3420** for reel tapes
      - **3480** for 16-track cartridge tapes that were created on a 3480 tape drive with no data compression
      - **348x** for 16-track cartridge tapes that were created on newer 3480 tape drive models with data compression
      - **3490** for 36-track cartridge tapes
      - **3480/3490** for any cartridge tapes other than 3590 tapes
      - **3590** for cartridge tapes that have 128 tracks or greater

      Tape Optimizer includes tapes of the type that you specify in the copy request and excludes all other tape types. The specified tape type should be compatible with the input tape esoteric or generic unit name that you specified for the copy request. For example, assume that you specify 3490 as the tape type and specify CART as the input tape esoteric. In this case, Tape Optimizer copies 3490 tapes if the tape drives within the CART group can read 3490 tapes.

   b. At **Copy Tapes with Temporary I/O Errors**, type the minimum number of temporary I/O errors that must exist on tapes for Tape Optimizer to consider them for inclusion in the copy request. You can specify a value from 1 through 99.

      Temporary I/O errors indicate that tapes are starting to degrade but their data is still recoverable. You might want to copy these tapes to ensure their data is retained.

   c. In the **Create System ID** field, type up to four system IDs for the processors on which the tapes that you want to include in the copy request were created. A system ID can be up to four characters long. Specify one system ID per line.
d. In the **Cataloged Data Sets** field, type a forward slash (/) if you want to copy only the data sets that are currently in the system catalog.
   - If the basic copy request is based on data set names with DSSEQ values (that is, a copy request that copies data sets individually), only the named data sets that have catalog entries are eligible for copying.
   - If the copy request is based on volser or on data set names without DSSEQ values (that is, a copy request that copies tape chains), any tape chains that contain cataloged data sets only are eligible for copying. If a tape chain contains a data set that is not cataloged, the entire tape chain will not be copied.

If any data sets have catalog entries that contain a file-sequence number (FSEQ) instead of a data-set sequence number (DSSEQ), Tape Optimizer considers those catalog entries to be invalid and will not select the data sets for copying.

5. Under **Exclude Filters**, complete the following fields, as needed, to exclude tapes or data sets from the copy request:
   a. In the **Tapes Previously Copied** field, type a forward slash (/) if you want to exclude tapes that are copies that you previously created with Tape Optimizer.
   b. In the **Tapes with Permanent I/O Errors** field, retain the forward slash (/), the default setting, if you want to exclude tapes that have permanent I/O errors. These errors indicate that the tape data has been damaged or lost; therefore, the tapes are no longer useful for recovery.
   c. In the **Create System ID** field, type up to four system IDs for the processors on which the tapes that you want to exclude were created. A system ID can be up to four characters long. Specify one system ID per line.

6. When you are finished, press F3 (End) to save your entries and return to the Create/Edit Request panel.

---

**Specifying copy options for a copy request**

You can set several copy options for a copy request, including the number of concurrent tasks to run and the number of days to retain input tapes. This task is optional.

If you previously set default values for any of the copy options in the General Parameters window, the default values are automatically displayed. You can accept or override these values.

**Note:** The General Parameters window contains some additional options that you cannot specify for an individual copy request. For more information, see “Setting default values for general copy parameters” on page 30.

To specify copy options:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.
2. To open the Create/Edit Request panel, perform one of the following actions:
   - If you are defining a new copy request, type a forward slash (/) next to the **Create a new tape copy request by VOLSER** field or the **Create a new tape copy request by data set name or mask** field, and press Enter.
   - If you are editing a pending copy request, type a forward slash (/) in the **Sel** column next to the request, and press Enter.
3. To display the **Options** pull-down menu (shown in Figure 21 on page 66), click **Options** on the action bar and press Enter.
4. From the **Options** pull-down menu, choose option 1 (Copy Options). The Copy Options pop-up window opens, as shown in Figure 22:

![Figure 21. Options pull-down menu on the Create/Edit Request panel](image)

**Figure 21. Options pull-down menu on the Create/Edit Request panel**

From the Options pull-down menu, choose option 1 (Copy Options). The Copy Options pop-up window opens, as shown in Figure 22:

![Figure 22. Copy Options pop-up window](image)

**Figure 22. Copy Options pop-up window**

5. In the **Number of Days to Retain Input Tapes** field, type the number of days that you want Tape Optimizer to use for calculating a new expiration date for the copied input tapes. When the expiration date is reached, Tape Optimizer releases the tapes to the scratch pool for reuse.

You must enter a value from 0 through 999. If you specify 0, the copied tapes are released to the scratch pool as soon as possible. If you accept the default value of 999, Tape Optimizer does not calculate a new expiration date; the existing expiration dates remain in effect. If you specify a number between 0 and 999, this
number is added to the date on which a copy request runs to generate a new expiration date for the copied tapes.

If your site uses VRS retention dates or rules, these retention criteria might cause your tapes to be held past the expiration date. In this case, you must run the Tape Optimizer GTOUTIL utility to release the tapes. For more information, see Chapter 9, “Performing maintenance tasks,” on page 103.

6. In the **Number of Concurrent Copies for This Request** field, type the number of copy subtasks that you want to run concurrently for the copy request. Valid values are from 1 through 10. The default value is 1. A copy subtask copies one tape chain by using two tape drives: an input tape drive and an output tape drive. You can run up to 10 subtasks on 20 tape drives at the same time. This multi-tasking capability enables you to complete a large copy request much faster. If you run more than five concurrent subtasks, you must increase the Region size in the EXEC statement for the copy request from 20 MB to 40 MB.

   **Tip:** If you run multiple subtasks concurrently, do not specify a unit address for the input and output tape units in the basic copy request. Instead, enter an esoteric, generic unit name, or storage class so that Tape Optimizer can allocate multiple sets of tape drives, if available, for concurrent subtasks.

7. In the **Copy Tape Without Recatalog** field, retain the forward slash (/), the default setting, if you want to copy the input tapes and transfer the DFSMSrmm tape library information for these tapes without recataloging the tape data sets. When this field is selected, Tape Optimizer will not calculate a new expiration date for the input tapes, even if you specified a value between 0 and 999 in the **Number of Days to Retain Input Tapes** field or selected the **Apply New Expiration Date to Input Volume When Copy by Data Set** field. Also, Tape Optimizer will ignore the **Continue When Invalid Catalog Entries Found** field and the **Use FSEQ for Catalog Matches when DSSEQ Match Fails** field, if selected.

8. In the **Disable Input Tape Unit/Tape Volume Compatibility Check** field, type a forward slash (/) if you want to force Tape Optimizer to mount the input tapes on the specified input tape device even if the tapes seem to be incompatible with the device type. Normally, Tape Optimizer does not mount an input tape on a device type that it determines to be incompatible. However, if you expect that Tape Optimizer will fail to recognize a device type as compatible, you can select this option to override the default behavior.

9. In the **Use 1st VOLSER for Input Unit Allocation** field, retain the forward slash (/), the default setting, if you use SMS-managed tape drives and want the input tape drives for the copy request to be allocated based on the location of the first volser that is selected for copying or (if you are copying data sets individually) on the location of the tape volume that contains the first data set to be copied. The tape drives will be allocated using DISP=OLD, which causes your ACS routines to not be used for tape-drive allocation. The tape drives will also be from the location that the system tape catalog specifies for the first volser of the first tape chain to be copied. All other tape volumes to be copied must be mountable on these tape drives. If you clear this field, your ACS routines determine which input tape drives to allocate based on the value that you specify in the **Input Tape Esoteric or Generic Unit Name** field or the **Input Tape SMS Storage Class** field. These tape drives will be allocated using DISP=NEW.

   If you do not use SMS-managed tape drives, this field is ignored. The input tape drives will be allocated based on the name that you specify in the **Input Tape Esoteric or Generic Unit Name** field.

10. In the **Perform Trial Run to Verify Tapes to Be Copied** field, type a forward slash (/) if you want to perform a trial run of the copy request to troubleshoot potential problems and to preview the tape volumes or data sets to be copied based on your selection and filtering criteria. After you select this field, you must "submit" the
copy request to perform the trial run. You can then view the copy log to assess the
results. If the results are acceptable and you want to actually run the copy request,
you must clear this field and then resubmit the copy request.

11. In the Use Input Block Size for Output Files field, retain the forward slash (/),
the default setting, if you want to preserve the block size that is used on the input
tapes and not reblock data on the output tapes. If you clear this field, Tape
Optimizer determines the optimal block size to use for the output tapes and
reblocks the data.

12. In the Continue Copy Following a Copy Utility Failure field, type a forward
slash (/) if you want the copy request to continue when an error (for example, an
I/O error) prevents an input tape from being copied. If the error occurs when a
multiple-volume tape chain is being copied, no additional data sets from the tapes
in that tape chain are copied; Tape Optimizer continues to the next input tape
chain that the copy request identifies. If the error occurs when an individual data
set is being copied from a tape, no additional data sets from that tape are copied;
Tape Optimizer continues to the next tape chain that contains a data set to be
copied.

Important: Tape Optimizer will continue the copy request only if one of the
following system abend codes is issued for the input tape error: IEC022I, IEC023I,
IEC024I, IEC026I, IEC028I, IEC029I, IEC141I, IEC145I, IEC146I, IEC147I, IEC149I,
IEC150I, IEC151I, IEC210I, IEC215I, IEC218I, and IEC222I. If none of these abend
codes are issued, the copy request will terminate.

If you do not select this option, the copy request will terminate if a copy failure
occurs, regardless of the system abend code that is issued.

13. In the Apply New Expiration Date to Input Volume When Copy by Data Set
field, type a forward slash (/) if you configured the copy request based on data set
names and you want Tape Optimizer to apply the new expiration date that it
calculates to the input tapes that contain the specified data sets. Tape Optimizer
calculates the new expiration date based on the value that you specify in the
Number of Days to Retain Input Tapes field.

Do not select this field if you do not want Tape Optimizer to change the expiration
dates of the input tapes, regardless of how the Number of Days to Retain Input
Tapes option is set. For example, you might want the expiration dates to remain
unchanged if you are copying data sets individually and the tapes that contain the
selected data sets also contain unselected data sets that might need to be copied in
the future.

14. In the Print Summary Statistics Reports field, retain the forward slash (/), the
default setting, if you want the Request Summary report to be printed as part of the
copy job, after copy processing completes. For very large copy jobs, the
printing of the report can take a long time. Other copy jobs cannot run until the
printing completes. If you have a very large copy job and want to avoid this
problem, clear this field. You still will be able to print the report from the output
queue.

15. In the Continue When Invalid Catalog Entries Found field, type a forward slash (/)
if you want the copy request to continue when Tape Optimizer determines
that a data set is cataloged to an input tape but the data-set sequence (DSSEQ)
number of that data set on the tape does not match the sequence number in the
system catalog, Tape Optimizer will report the data set name, and the copy
request will continue. If you do not select this field, the copy request will
terminate.

16. In the Use FSEQ for Catalog Matches when DSSEQ Match Fails field, type a
forward slash (/) if you want Tape Optimizer to attempt to use a file-sequence
number (FSEQ) instead of a DSSEQ when copying a data set for which the catalog
records a sequence number other than a DSSEQ (that is, when the catalog
sequence number does not match any DSSEQs for data sets on the tape but is
associated with a data set name in the DFSMSrmm tape library). If you do not select this field, the copy request will either continue or terminate depending on how you set the **Continue When Invalid Catalog Entries Found** field. (That is, if you selected that field, the copy request will continue. If you cleared that field, the copy request will terminate.)

17. In the **Call ADRDSSU when Blocksize is 0** field, type a forward slash (/) to have Tape Optimizer call the ADRDSSU backup utility to copy a tape data set whenever the block size of the data set is zero, regardless of the create program name that is recorded in DFSMSrmm.

**Note:** If the DFSMSrmm create program name is ADRDSSU, Tape Optimizer will always use the ADRDSSU utility to copy tape data sets, even if this option is cleared. If the create program name is some value other than ADRDSSU and the block size of a data set is zero, Tape Optimizer will probably not be able to copy the data set unless you select this option.

18. In the **Use Exact Data Set Name for Tape Unit Allocation** field, type a forward slash (/) if you want Tape Optimizer to use the exact name of the first data set that is selected for copying when allocating an output tape drive in an SMS-managed environment. If you also specify data-set renaming criteria, Tape Optimizer uses the generated name for the first output data set instead. Based on the exact or generated data set name, the SMS storage class, and the SMS data class of the first data set, your ACS routines will determine the proper output tape drive and media to allocate. For example, if these criteria indicate a very large data set, your ACS routines might allocate a 3592 tape drive with Write-Once-Read-Many (WORM) media.

If this option is not selected, Tape Optimizer generates a unique data set name to be used for allocating a tape drive. The tape drive that is allocated will not conflict with any other tape jobs that are running on the system. However, because the exact data set name of the first data set is not used, your ACS routines might not be able to determine that a certain tape drive, such as a tape drive for high-capacity WORM media, is needed.

If your data sets are not SMS-managed, Tape Optimizer allocates an output tape drive based on the specified output unit name only.

**Important:** Regardless of whether this option is selected, Tape Optimizer allocates only one input tape drive and one output tape drive per copy subtask for the entire copy operation.

19. In the **Enable Job Restart** field, retain the forward slash (/), the default setting, if you want Tape Optimizer to lock the Request Database if the copy job terminates abnormally so that you can restart the job later from the point at which it abended. If you clear this field, Tape Optimizer will not lock the Request Database. In this case, you will not be able to restart the copy job; instead, you must resubmit it. However, the Request Database will be available for use by another copy job.

20. When you are finished, press F3 (End) to save your entries and return to the Create/Edit Request panel.

### Specifying stacked tape parameters for a copy request

If you enabled tape stacking when you defined the basic copy request, you can set options that control when Tape Optimizer automatically loads new output tapes. You can specify one or both of the following types of criteria:

- The maximum number of files to load onto stacked tapes
- Tape utilization thresholds by tape type
You specify the maximum number of files to stack on an output tape in the **Specify maximum stacked tape** field. If you do not specify a value, the default value of 9999 is used. When the maximum number of files is reached, Tape Optimizer loads a new output tape.

**Tip:** You should not specify a file count greater than 9999 unless you use z/OS 1.5 or later. Only these z/OS versions support tapes that contain more than 9999 files.

You can also specify tape utilization thresholds (in MBs) by tape type. To enable the threshold levels, you must select the **Start a new stacked tape when byte threshold reached** option. Tape Optimizer will then automatically load a new output tape whenever a threshold level is reached. Consider setting threshold levels when you expect that the files on your input tapes will not fit onto one stacked tape and you do not want any of them to span multiple tapes.

If you specify a maximum file count and tape-utilization thresholds, Tape Optimizer loads a new output tape when one of these criteria are met (whichever one is met first).

If you set default values for these options, the defaults are automatically displayed. You can accept or override these values for the copy request.

To specify stacked tape parameters:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.

2. To open the Create/Edit Request panel, perform one of the following actions:
   - If you are defining a new copy request, type a forward slash (/) next to the **Create a new tape copy request by VOLSER** field or the **Create a new tape copy request by data set name or mask** field, and press Enter.
   - If you are editing a pending copy request, type a forward slash (/) in the **Sel** column next to the request, and press Enter.

3. From the **Options** pull-down menu on the action bar, choose option 2 (Stack Options). The Stacked Tape Parameters pop-up window opens, as shown in Figure 23:

   ![Stacked Tape Parameters pop-up window (for a copy request)](image)

4. In the **Start a new stacked tape when byte threshold reached** field, type a forward slash (/) if you want a new tape to be loaded in the output tape drive whenever the number of megabytes on an output tape reaches the threshold level that you specify for that tape type. If you do not select this option, Tape Optimizer
stacks tape data sets on the output tapes until the maximum stacked tape file count is reached.

5. For each tape type under **Stacked tape media thresholds in megabytes**, specify the number of megabytes that must exist on an output tape to trigger the loading of a new tape. Either accept the default values or type the other values that you want to use for this copy request. Valid values (in MBs) are:

- **18-track tapes**: 200 (default) through 600
- **36-track tapes**: 400 (default) through 2400
- **128-track tapes**: 10000 (default) through 60000
- **256-track tapes**: 20000 (default) through 120000
- **384-track tapes**: 30000 (default) through 180000
- **EFMT1 (enterprise recording format 1) tapes**: 60000 (default) through 90000
- **EFMT2 (enterprise recording format 2) tapes**: 100000 (default) through 150000

**Tip:** When setting threshold levels, consider whether data compression is being used and the degree of compression. Also, consider if the tapes are MEDIA3, MEDIA4, or MEDIA5 tapes. For MEDIA5 tapes, you should set a value for the EFMT1 or EFMT2 tape format.

6. In the **Specify maximum stacked tape file count** field, type the maximum number of files that you want Tape Optimizer to place on a stacked tape. When the number of files on a stacked tape is one less than this maximum, Tape Optimizer loads a new output tape. Valid values are from 2 through 65535. The default value is 9999.

**Restriction:** Do not specify a value greater than 9999 unless you use z/OS 1.5 or later. Only systems with these z/OS versions support tapes that contain more than 9999 files. If you create stacked tapes that contain more than 9999 files, you might encounter problems when attempting to use these tapes on older z/OS systems.

7. When you are finished, press F3 (End) to save your entries and return to the Create/Edit Request panel.

### Renaming tape data sets

You can have Tape Optimizer rename tape data sets as they are copied to output tapes by specifying renaming criteria. These criteria are composed of one or more pairs of "From" data-set-name masks and "To" values. Tape Optimizer matches the mask that you specify in a **From** field against the input tape data set names to determine which data sets to rename. Depending on how you define the "From" mask, you can rename all or some of the input tape data sets for the copy request. When the copy request runs, Tape Optimizer uses the value in the corresponding **To** field to generate new names for these data sets.

**Note:** Tape Optimizer does not rename any generation data sets that have a relative generation number in their names.

Tape Optimizer supports two types of wildcards for renaming criteria: the standard asterisk (*) wildcard and a special percent sign (%) wildcard. Both of these wildcards represent zero or more characters. However, they differ in behavior.

- The asterisk (*) wildcard is used for "find and replace" type of renaming operations. You can specify the asterisk (*) wildcard with one or more existing data-set-name qualifiers in the **From** field. The asterisk (*) wildcard can appear at the beginning or end of the mask or in both locations. Tape Optimizer finds all data set names that match the "From" mask. If the wildcard is at the beginning of
the mask, Tape Optimizer finds all data set names that contain the specified qualifiers anywhere in their names. Tape Optimizer then generates new data set names by replacing the "From" qualifier string with the new qualifier string that you specify in the To field.

- The percent sign (%) wildcard is used for "append" type of renaming operations. In the From field, you can specify the percent sign (%) wildcard by itself to select all input data sets for renaming, or specify this wildcard followed by a qualifier value (specific qualifiers or a mask) to select only the data sets names that match that qualifier value. In either case, you must also specify the percent sign (%) wildcard in the To field, either immediately preceded by or followed by the qualifier value that you want to append to the data set names.

**Examples**

The following examples illustrate some renaming scenarios:

**Example 1:**
- From: MYBRNCH.PAYROLL*
- To: BACKUP.MYBRNCH.PAYROLL

Based on the "From" mask, Tape Optimizer finds all data set names that begin with "MYBRNCH.PAYROLL" followed by zero or more characters. Tape Optimizer renames these data sets by replacing "MYBRNCH.PAYROLL" in the found names with the qualifiers that are specified in the "To" field. For example, if the original data set name is MYBRNCH.PAYROLL.WEEK10, the new name would be BACKUP.MYBRNCH.PAYROLL.WEEK10.

**Example 2:**
- From: *MYBRNCH.PAYROLL.*
- To: BACKUP.MYBRNCH.PAYROLL

Based on the "From" mask, Tape Optimizer finds all data set names that contain "MYBRNCH.PAYROLL" anywhere in them. These names could begin or end with "MYBRNCH.PAYROLL" or another value. Tape Optimizer renames the data sets by replacing "MYBRNCH.PAYROLL," wherever it occurs, with the qualifiers that are specified in the "To" field. For example, if the original data set name is MYCO.MYBRNCH.PAYROLL.WEEK10, the new name would be MYCO.BACKUP.MYBRNCH.PAYROLL.WEEK10.

**Example 3:**
- From: %
- To: %.BACKUP

Because the "From" field specifies only the percent sign (%) wildcard, Tape Optimizer will rename all input tape data sets. Tape Optimizer renames the data sets by appending the qualifier "BACKUP" to the end of their names. For example, if the original data set name is MYBRNCH.PAYROLL.WEEK1, the new name would be MYBRNCH.PAYROLL.WEEK1.BACKUP.

**Example 4:**
- From: %.PAYROLL.*
- To: STACKED.%.PAYROLL.BACKUP

Based on the "From" mask, Tape Optimizer finds all data set names that contain the qualifier "PAYROLL" anywhere within them. Tape Optimizer renames the data sets by replacing "PAYROLL" with "PAYROLL.BACKUP" and by adding "STACKED" to the
beginning of the names. For example, if the original data set name is MYBRNCH.OPS05.PAYROLL.RD, the new name would be STACKED.MYBRNCH.OPS05.PAYROLL.BACKUP.RD.

Specifying criteria for renaming tape data sets

To specify criteria for renaming tape data sets:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.

2. To open the Create/Edit Request panel, perform one of the following actions:
   - If you are defining a new copy request, type a forward slash (/) next to the Create a new tape copy request by VOLSER field or the Create a new tape copy request by data set name or mask field, and press Enter.
   - If you are editing a pending copy request, type a forward slash (/) in the Sel column next to the request, and press Enter.

3. From the Options pull-down menu, choose option 3 (Rename Options). The Copy Request Data Set Rename pop-up window opens, as shown in Figure 24:

4. In the Recatalog the new data set name if already cataloged field, type a forward slash (/) if you want Tape Optimizer to record the renamed data sets that are on the output tapes in the system catalog even though they were already cataloged to the input tapes. If you do so, both the original data set names and the new data set names will appear in the catalog.

   This option is ignored if you select the Copy tape without recataloging option in the Copy Options pop-up window.

5. Specify pairs of “From” and “To” values as criteria for renaming tape data sets. You can specify as many pairs, as needed.
   a. In the From field, type a mask that you want Tape Optimizer to match against existing input data set names to identify the data sets to rename. In the mask, you can include one or more data-set-name qualifiers, the asterisk (*) wildcard, the percent sign (%) wildcard, or a combination of these values. The value can be up to 44 characters in length. If you specify the asterisk (*)
wildcard, also specify one or more qualifiers that occur in the input data set names. You can place the asterisk (*) at the beginning or end of the mask or in both locations. If the asterisk (*) is at the beginning, the mask will match the data set names that contain the qualifier value anywhere within them. To use the percent sign (%) wildcard, specify the percent sign (%) by itself or with a trailing qualifier value (a specific qualifier string or a mask that includes the asterisk wildcard). If you specify only the percent sign (%), all input data sets will be renamed through an append operation. If you specify the percent sign (%) with a qualifier value, only the input data set names that match the qualifier value will be renamed.

**Note:** Tape Optimizer does not rename generation data sets that have a relative generation number in their names. Do not specify a relative generation number in a **From** field.

b. In the corresponding **To** field, specify criteria for generating new data set names. This value can be up to 44 characters in length. If you are performing a "find and replace" type of renaming operation (that is, you specified the asterisk (*) wildcard with a qualifier value in the **From** field), type the qualifier string that is to replace the existing qualifier string that is specified in the **From** field. If you are performing an "append" type of renaming operation (that is, you specified the percent sign (%) wildcard in the **From** field), type the percent sign (%) either followed by the qualifier string that you want to add to the end of the data set names or preceded by the qualifier string that you want to add to the beginning of the data set names.

6. Press F3 (End) to save your entries.

When you run the copy request, Tape Optimizer will use the specified renaming criteria to rename the tape data sets.

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### Specifying DFSMSrmm parameters for a copy request

You can set several DFSMSrmm parameters for your copy request. This task is optional.

If you previously set default values for these options in the Default DFSMSrmm Parameters window, the default values are automatically displayed. You can accept or override these values.

**Tip:** You can also set DFSMSrmm parameters for applying input volser values to the Accounting field of output tapes in the Default DFSMSrmm Parameters window. For more information, see “Setting defaults for DFSMSrmm parameters” on page 38.

To specify DFSMSrmm parameters:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.

2. To open the Create/Edit Request panel, perform one of the following actions:
   - If you are defining a new copy request, type a forward slash (/) next to the **Create a new tape copy request by VOLSER** field or the **Create a new tape copy request by data set name or mask** field, and press Enter.
   - If you are editing a pending copy request, type a forward slash (/) in the Sel column next to the request, and press Enter.

3. From the **Options** pull-down menu, choose option 4 (RMM Options). The DFSMSrmm Copy Request Parameters pop-up window is displayed, as shown in Figure 25 on page 75.
4. In the **Consider VRS Rules for Tape Copy Selection** field, retain the forward slash (/), the default setting, if you want Tape Optimizer to consider VRS retention dates and rules when filtering input tapes or data sets based on expiration dates.
   - If you select this field and your site uses VRS retention dates, Tape Optimizer uses the retention dates instead of any expiration dates when filtering tapes or data sets.
   - If you select this field and your site uses VRS rules other than retention dates (for example, a rule to retain tapes that still contain some cataloged data sets), Tape Optimizer ignores both the VRS retention rules and any expiration dates when filtering tapes or data sets.
   - If you do not select this field, Tape Optimizer considers just the expiration dates when filtering tapes or data sets.

If you configured the basic copy request based on data set names, the following options can also affect which expiration or retention dates are used for date filtering: **Use Volume Expiration Date When the Volume Is Retained and No Data-Set Expiration Date or Retention Date Exists** and **Use Data-Set Retention Date When No Data-Set Expiration Date Exists**. For more information, see “How expiration or retention dates are used in tape filtering” on page 21.

5. In the **Use Volume Expiration Date When a Volume Is Retained and No Data-Set Expiration Date or Retention Date Exists** field, type a forward slash (/) if you want Tape Optimizer to use DFSMSrmm tape-volume expiration dates instead of data-set expiration or retention dates when filtering data sets based on expiration dates. This option is useful in the following situation: 1) you created the copy request based on data set names or masks; 2) you created a date filter to filter data sets based on expiration dates; 3) the data sets that you want to include or exclude do not have DFSMSrmm data-set expiration dates or VRS retention dates; 4) the data sets are on tapes that are being retained by VRS retention dates; and 5) the **Consider VRS Rules for Tape Copy Selection** option is selected. If you select this option, Tape Optimizer matches the expiration dates of the tape volumes on which data sets reside against the filter date. If you do not select this option, the data sets will not be filtered based on expiration or retention dates; they will be considered for copying based on other copy request criteria.

You can also select the option **Use Old Data Set Retention Date When No Data Set Expiration Date Exists** if you want Tape Optimizer to check for old data-set...
retention dates before attempting to use tape-volume expiration dates. For
detailed information about filtering based on expiration and retention dates, see
“How expiration or retention dates are used in tape filtering” on page 21.

6. In the Use Old Data-Set Retention Date When No Data-Set Expiration Date
   Exists field, type a forward slash (/) in this field if you want Tape Optimizer to
   use expired VRS data-set retention dates instead of DFSMSrmm data-set
   expiration dates when filtering data sets based on expiration dates. This option is
   useful in the following situation: 1) you create a copy request based on data set
   names or masks; 2) you create a date filter to filter data sets based on expiration
dates; 3) the data sets that you want to include or exclude do not have
   DFSMSrmm data-set expiration dates or current VRS retention dates, but they do
   have expired VRS retention dates; 4) the data sets are on tapes that are being
   retained by VRS retention dates; and 5) the Consider VRS Rules for Tape Copy
   Selection option is selected.

   If you select this option, Tape Optimizer will match the expired data-set retention
dates against the date in the date filter. If you do not select this option, Tape
   Optimizer will check whether the Use Volume Expiration Date When a Volume
   Is Retained and No Data-Set Expiration Date or Retention Date Exists field is
   selected. If that field is selected, Tape Optimizer will use volume expiration dates
   for filtering. If that field is not selected, Tape Optimizer will not filter the data sets
   based on expiration or retention dates; the data sets will be considered for
   copying based on other selection criteria.

7. In the Perform RMM Control Variable Validity Check field, type a forward
   slash (/) if you want Tape Optimizer to check whether the selected DFSMSrmm
   control variables are supported on the system where you will run the copy
   request. Tape Optimizer performs this checking during a trial run or the actual
   run of the copy request. If the checking identifies any unsupported control
   variables, the copy request terminates with an error (unless you also selected the
   Continue After RMM Variable Copy Failure option). After the copy request
   terminates, you should resubmit the request on a system that supports these
   control variables, or deselect the unsupported control variables on the
   DFSMSrmm Control Variables panel to avoid further errors and run the copy
   request again.

   If you do not select this field, this checking is skipped. If some selected control
   variables are not supported on your system, the copy request will continue, but
   Tape Optimizer will not transfer the tape library information that is associated
   with the unsupported control variables to the output tape definitions. No error
   message is issued to alert you of this situation.

   Tip: To avoid the unanticipated loss of tape library information, you should select
   this field.

8. In the Continue After RMM Variable Copy Failure field, type a forward slash
   (/) if you selected the Perform RMM Control Variable Validity Check field but
   do not want the copy request to terminate when an unsupported DFSMSrmm
   control variable is detected. If you select this option and an unsupported variable
   is found, the copy request will continue and Tape Optimizer will write a warning
   message to the copy log. The message will identify the tape library information
   that was not transferred to the output tape definitions. If you do not select this
   option, the copy request will terminate when an unsupported control variable is
   found.

9. In the Locations to Include field, type the names of the DFSMSrmm locations for
   the tapes that you want to include in the copy request. You can specify up to four
   locations, one per line. Locations include shelf locations, storage locations, and
   system-managed library names. For more information, see the IBM DFSMSrmm
10. In the **Locations to Exclude** field, type the names of the DFSMSrmm locations for the tapes that you want to exclude from the copy request. You can specify up to four locations, one per line.

11. Press F3 (End) to save your entries and return to the Create/Edit Request panel.

### Specifying the DFSMSrmm control variables to use for a copy request

You can control which DFSMSrmm control variables Tape Optimizer uses for applying the tape library information from the input tapes to the output tape definitions. These variables represent information about the tape volumes or data sets, for example, the tape creation date and owner. Often, the default settings that you specified when you first set up Tape Optimizer are adequate. (See “Specifying the default DFSMSrmm control variables” on page 41.) However, you might need to deselect some control variables for a specific copy request in the following situations:

- The z/OS system on which you will run the copy request has a DFSMSrmm version that is older than the version for which you specified the default DFSMSrmm control variables. This situation can occur if your site uses multiple z/OS systems and you set the default values for a system that is newer than the one on which you will run the copy request.

- You applied maintenance to a z/OS system at your site that introduced new control variables into the DFSMSrmm tape database. However, the system where you will run the copy request does not support these variables.

By default, Tape Optimizer does not check whether the selected DFSMSrmm control variables are supported by the system on which you run a copy request unless you enable this checking. You can enable this checking by selecting the **Perform RMM Control Variable Validity Check** option on the DFSMSrmm Copy Requests Parameters panel. (This practice is recommended.) If the checking identifies unsupported control variables, the copy request terminates with an error. In this case, you can deselect the unsupported control variables to avoid further errors and run the copy request again.

**Note:** The term **DFSMSrmm control variables** is equivalent to the term **structured fields** in DFSMSrmm documentation. Tape Optimizer preserves the structured field data for input tapes by applying it to the output tapes as part of a copy request.

To specify the DFSMSrmm control variables to use:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests).
2. To open the Create/Edit Request panel, perform one of the following actions:
   - If you are defining a new copy request, type a forward slash (/) next to the **Create a new tape copy request by VOLSER** option or the **Create a new tape copy request by data set name or mask** option, and press Enter.
   - If you are editing a pending copy request, type a forward slash (/) in the **Sel** column next to the request, and press Enter.
3. From the **Options** pull-down menu, choose option 5 (RMM Variables). The DFSMSrmm Control Variables panel opens:

The panel lists the control variables (or structured fields) for tape library information that can be transferred to the output tapes. A forward slash (/) next to a variable, in the **Copy** column, indicates that Tape Optimizer will attempt to transfer the information that is associated with the variable for the copy request.

**Panel columns:**

- **VarType**
  The type of DFSMSrmm subcommand that produces the structured field data on the DFSMSrmm output buffer at the request of an application, for example, LISTVOLUME, LISTDSN, CHANGEVOLUME, and CHANGEDSN.

- **Varname**
  A structured field introducer (SFI) name. An SFI is an 8-byte DFSMSrmm structure that separates one field of DFSMSrmm output from another field of output.
SFI  The structured field introducer number.

Command  The name of a DFSMSrmm subcommand that produces tape library information in the form of structured fields on the DFSMSrmm output buffer.

Format  The data type of the structured field data.

For more information about structured fields, see the IBM DFSMSrmm Application Programming Interface book.

4. To deselect a control variable, delete the forward slash (/) next to it. Any variables that have a blank in the Copy column will not be included in the copy request.

5. Press F3 (End) to save your changes and return to the Create/Edit Request panel.

Editing a copy request

From the Tape Optimizer interface, you can edit a copy request that has one of the following statuses:

• PEND START – A request that has never been started.

• BUILDCOPY – A request that is in phase 1 of copy processing (selecting the tapes to copy). You can edit a request that has this status only if it has terminated. A request can terminate with this status if Tape Optimizer finds no tapes to copy or is performing a trial run.

• ACTIVE – A started copy request that is in phase 2 of copy processing (copying tapes). You can edit a request that has this status only if it has actually terminated.

• PEND RSTRT – A request that has stopped and is waiting to be restarted.

Restriction: You cannot edit a copy request that has the status ACTIVE or BUILDCOPY and is currently running or a copy request that has the status PEND COMP (a request that has completed). To check whether an ACTIVE or BUILDCOPY request is actually running, use SDSF or an equivalent tool.

For example, you might want to edit an ACTIVE or PEND RSTRT copy request that has stopped because of a tape copy error. You can exclude the problematic tape and then resubmit the copy request. The request will resume copying from the point at which it left off.

You cannot edit all parameters for ACTIVE and PEND RSTRT copy requests that are not running. For example, you cannot select additional tapes for copying, disable tape stacking, or switch to performing a trial run.

Besides editing a copy request from the Tape Optimizer interface (the preferred method), you can directly edit the JCL for a copy request from the ISPF editor. However, you will not receive feedback about any invalid values that you enter. Also, you will need to save the edited JCL to another file. If you do not save the JCL to another file, your changes will be overwritten the next time you select the copy request in the Tape Optimizer interface.

To edit a copy request:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.

2. In the list at the bottom of the panel, select one or more copy requests that you want to edit. To select a copy request, type a forward slash (/) next to it in the Sel column, and press Enter.
The Request Action pop-up window opens, as shown in Figure 26:

![Request Action pop-up window](image)

Figure 26. Request Action pop-up window

3. Choose option 2 (Edit the request). The Create/Edit Request panel opens and displays existing information from the Request Database for the copy request, for example:

4. You can change the following information on this panel:
   - The input and output tape units or SMS storage classes
   - The **Stack Input Tape Volumes on Output Tapes** option (unless the copy request has the status ACTIVE or PEND RSTRT)
   - The list of volser or data set names

   You also can add, change, or delete values for copy options and filtering criteria by using the **Filters** and **Options** pull-down menus. If you need assistance, press F1 for online Help or refer to the detailed procedures in this chapter.

5. When you are finished, press F3 (End) to save your changes. The JCL for the copy request is displayed and includes your latest changes.

6. Press F3 (Exit).

7. If you selected multiple copy requests, the Request Action pop-up window is redisplayed. Repeat Steps 3 through 6 for each copy request that you want to edit.

When you are finished, the Copy Requests panel is redisplayed.
Deleting a copy request

You can delete the following types of copy requests:

- A copy request that has the status ACTIVE or BUILDCOPY but that has actually stopped running. This situation can occur if you cancel the request or if the request terminates abnormally causing the Request Database to remain locked. When an ACTIVE request is not running, you must either resubmit it or delete it. If a BUILDCOPY request is not running, you can edit it to correct the problem and then resubmit it, or delete it. If you do not take these remedial actions, you will not be able to run other Tape Optimizer copy jobs.

- A copy request that has the status of PEND START or PEND RSTRT. You might want to delete a pending request if you decide not to run it.

When you delete a copy request from the Tape Optimizer interface, Tape Optimizer deletes the JCL for the copy request as well as removes information for the copy request from the Request Database.

You cannot delete an ACTIVE copy request that is currently running or a copy request that has finished running. Tape Optimizer automatically deletes copy requests after they complete.

To delete a copy request:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens.

2. In the list at the bottom of the panel, select one or more copy requests that you want to delete. To select a copy request, type a forward slash (/) next to it in the Sel column, and press Enter. The Request Action pop-up window opens:

3. Choose option 3 (Delete the request). The Confirm Action pop-up window opens:

4. To confirm the deletion, type END and press Enter, or just press F3 (End).

5. If you selected multiple copy requests, the Request Action panel is redisplayed. Repeat steps 3 and 4 for each copy request that you are deleting.
When you are finished, the Copy Requests panel is redisplayed and no longer lists the copy request or requests that you deleted.

**Where to go next**

After you finish defining a copy request, you can run it. For instructions, see Chapter 6, “Running a copy request,” on page 83.
Chapter 6. Running a copy request

You can submit a batch copy job to JES for execution in background mode by using any of the following methods:

- By using the **Submit** option in the Tape Optimizer interface, as described in “Submitting a copy request from the Tape Optimizer interface” on page 86
- By using the ISPF editor (ISPF Option 2) to display the JCL for the copy job (for viewing or editing) and then issuing the SUBMIT primary command from the command line while the JCL is still displayed
- By using the ISPF data set list utility (ISPF Option 3.4) to list the Tape Optimizer JCLLIB contents and then specifying the Submit line command next to the member that contains the JCL for the copy job
- By using a job scheduler to run the copy job during off-peak hours

**Tip:** If you plan to run the copy job directly from the ISPF interface or a job scheduler, you will need to know the name of the member that contains the JCL for the job. You can find this member name at the top of the ISPF Edit panel that Tape Optimizer displays after you define or edit a copy request.

Before you submit a copy job, ensure that all of the following tape resources are available: the input tapes, the output media, and all of the equipment that is necessary to load and read the tapes (for example, tape drives and autoloaders).

Optionally, you can perform a simulated run of a copy request to verify that all of your tape-selection criteria will result in the correct and complete set of tape volumes being copied.

**Sample copy request**

Figure 27 on page 84 shows a sample copy request that Tape Optimizer generated based on configuration information that was entered from the Tape Optimizer interface. This copy request copies the tape volumes in the volser range of V11111 through V11113 and all volumes that match the volser mask V3333*. For descriptions of the DD statements and all parameters, see Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.
//T00002 JOB,'PDUSER',CLASS=A,MSGCLASS=X,
//  NOTIFY=&SYSUID
//COPY1 EXEC PGM=GTOCOPY,REGION=20M
//STEPLIB DD DSN=PDTOWNA.GTO.LOAD,DISP=SHR
//FILEDEFS DD DSN=PDTOWNA.GTO.FILEDEFS,DISP=SHR
//GTOOUTRPT DD SYSOUT=*,DCB=(BLKSIZE=133,LRECL=133,RECFM=FBA),
//  SPIN=UNALLOC
//GTOTSSUM DD SYSOUT=*,DCB=(BLKSIZE=133,LRECL=133,RECFM=FBA),
//  SPIN=UNALLOC
//SYSUDUMP DD SYSOUT=* 
//CEEDUMP DD SYSOUT=* 
//SYSPRO01 DD SYSOUT=* 
//ADRPRO01 DD SYSOUT=* 
//SYSIN001 DD DUMMY
//STKND001 DD DUMMY,DCB=BLKSIZE=3200 
//ADRIN001 DD *
//COPYDUMP INDD(TPDDI001) OUTDD(TPDDO001)
//TCOPARM DD
//REQU_TABLE_BY_BEGN_VOLSER_0001=V11111
//REQU_TABLE_BY_BEGN_VOLSER_0002=V33333
//REQU_ALWAYS_CAT_NEWDSNS=Y
//REQU_TLIB_TYPE=DFRMM
//REQU_RETAIN_DAYS=999
//REQU_NUM_CONCURCPY=1
//REQU_NO_RECATALOG=Y
//REQU_DISABLE_TAPEUNIT_CHECK=N
//REQU_INPUT_UNIT=ESOTER01
//REQU_OUTPUT_UNIT=ESOTER01
//REQU_VERIFY=N
//REQU_USE_INPUT_BLKSIZE=Y
//REQU_CONT_COPY_AFTER_FAIL=N
//REQU_EXPIRE_COPY_BY_DATASET=N
//REQU_PRINT_STATS_REPORTS=Y
//REQU_CONT_WHEN_INV_CATENT=N
//REQU_USE_FSEQ_FOR_CAT=N
//REQU_CALL_ADRDSSU_BLK0=N
//REQU_USE_EXACT_TDSN=N
//REQU_JOB_RESTARTABLE=Y
//REQU_UNIT_NAME_CHECK=Y
//REQU_ALLOC_INPUT_USING_VOL=Y
//REQU_DONT_USE_SINCE=Y
//REQU_COPY_ONLY_CATALOGED=N
//REQU_ALLOC_WAIT_SECS=0
//REQU_REALLOC_WAIT_SECS=0
//REQU_CREATE_STACKED_TAPE=Y
//REQU_START_NEW_STACKED_TAPES=N
//REQU_T16_TRACK_THRESHOLD=0
//REQU_T256_TRACK_THRESHOLD=0
//REQU_T384_TRACK_THRESHOLD=0
//REQU_EFMT1_THRESHOLD=0
//REQU_EFMT2_THRESHOLD=0
//REQU_STACKED_FILE_MAX=9999
//REQU_PROG_EXCL_0001=ARC*
//REQU_EXCL_PREVCPY=N
//REQU_TAPE_PERM_IOERR_EXC=Y
//REQU_PEND_SCRATCH_EXC=Y
//REQU_DFRM_USE_VRS=Y
//REQU_USE_EXP_WHEN_DSNOTRET=N
//REQU_USE_DSRET_AS_DSNEXP=N
//REQU_DFRM_CNTLVAR_CHECK=N
//REQU_DFRM_CONT_VARCOPYFAIL=N
//REQU_CREATE_DATE=06/08/04
//REQU_CREATE_TIME=15:36:07
//REQU_STATE=PEND START
//REQU_NUMBER=00007
/*

Figure 27. Sample copy request
Performing a trial run of a copy request

You should perform a simulated run of a copy request to ensure that the input tape selection criteria that you specified will result in the correct tapes being copied.

To perform a trial run of a copy request:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens. The defined copy requests are listed at the bottom.

2. In the Sel column, type a forward slash (/) next to the pending copy request for which you want to perform a trial run, and press Enter. The Request Action pop-up window opens:

   +-----------------------------------------------------------+
   | IBM Tivoli Tape Optimizer on z/OS - Request Action        |
   | OPTION => ______________________________________________  |
   | Select an action for request - 00001                      |
   | 1. Submit the copy request                                |
   | 2. Edit the request                                       |
   | 3. Delete the request                                     |
   | Enter END to return.                                      |
   +-----------------------------------------------------------+

3. If you have not yet selected the option for performing a trial run, perform the following steps:
   a. Choose option 2 (Edit the request). The Create/Edit Request panel opens.
   b. From the Options pull-down menu, choose option 1 (Copy Options). The Copy Options pop-up window opens:

   +--------------------------------------------------------------------------+
   | IBM Tivoli Tape Optimizer on z/OS - Copy Options                        |
   | COMMAND => _____________________________________________________________ |
   | Number of Days to Retain Input Tapes. . . . . . . 999 (0-999)            |
   | Number of Concurrent Copies for This Request. . . 1_ (1-10)             |
   | Enter END to save changes or CANCEL to return without saving.           |
   | Enter "/" to select any of the following general copy options:           |
   |   / Copy Tape Without Recatalog                                        |
   |   _ Disable Input Tape Unit/Tape Volume Compatibility Check             |
   |   / Use 1st VOLSER for Input Unit Allocation                           |
   |   _ Perform Trial Run to Verify Tapes to be Copied                      |
   |   _ Use Input Block Size for Output Files                              |
   |   _ Apply New Expiration Date to Input Volume When Copy by Data Set    |
   |   / Print Summary Statistics Reports                                   |
   |   _ Continue Copy Following a Copy Utility Failure                      |
   |   _ Implement New Expiration Date to Input Volume When Copy by Data Set|
   |   _ Continue When Invalid Catalog Entries Found                        |
   |   _ Use FSEQ for Catalog Matches when DSSEQ Match Fails                |
   |   _ Call ADRDSSU when Blocksize is 0                                   |
   |   _ Use Exact Data Set Name for Tape Unit Allocation                    |
   |   _ Enable Job Restart                                                  |
   +--------------------------------------------------------------------------+

   c. In the Perform Trial Run to Verify Input Tapes to Be Copied field, type a forward slash (/) to indicate that you want to perform a trial run.

   Tip: You will need to clear this field later to actually run the copy job.

   d. Press F3 (End) repeatedly until the Copy Requests panel is redisplayed.
e. At the bottom of the panel, type a forward slash (/) next to the copy request and press Enter to redisplay the Request Action pop-up window.

4. In the Request Action pop-up window, choose option 1 (Submit the copy request). Tape Optimizer performs the simulated run of the copy request.

5. Press F3 (End) repeatedly until the Tape Optimizer Primary Menu is redisplayed.

6. Choose option 3 (Log) to display the copy log. Review the log messages to determine if the correct tape volumes will be copied.

**Next step:** If you are satisfied with the results, clear the **Perform Trial Run to Verify Input Tapes to Be Copied** field and then resubmit the copy request to actually run it. For more information, see “Submitting a copy request from the Tape Optimizer interface.” If you are not satisfied with the results of the trial run, edit the copy request, as described in “Editing a copy request” on page 79.

---

**Submitting a copy request from the Tape Optimizer interface**

From the Tape Optimizer interface, you can submit a copy request for execution that has the status PEND START (pending, never started) or PEND RSTRT (was stopped and is awaiting to be restarted). You can also resubmit a copy request that has the status of ACTIVE or BUILDCOPY but that has actually stopped running. You can determine whether an active copy request has stopped running from SDSF.

If you resubmit a copy request that has the status PEND RSTRT, Tape Optimizer determines the point at which to resume the copy operation. If the copy request was canceled by using the system Cancel (C) command, any tape chains that were being copied when this command was issued are recopied. If the copy request was stopped in a controlled manner by using the system Stop (P) command, Tape Optimizer resumes the copy operation from the point where it left off. For more information about stopping and restarting a copy request, see Chapter 8, “Stopping and restarting a copy request,” on page 101.

**Tip:** Before submitting a copy request for actual execution, ensure that the **Perform Trial Run to Verify Tapes to Be Copied** field in the Copy Options window is cleared.

To submit a copy request:

1. From the Tape Optimizer Primary Menu, choose option 2 (Copy Requests). The Copy Requests panel opens. Pending and active copy requests are listed at the bottom.

2. In the **Sel** column, type a forward slash (/) next to the pending or active copy requests that you want to submit or resubmit. You can select more than one. The Request Action pop-up window opens:

```
+-----------------------------------------------------------+
|    IBM Tivoli Tape Optimizer on z/OS - Request Action     |
|                                                           |
| OPTION => ______________________________________________  |
|                                                           |
| Select an action for request - 00001                     |
|                                                           |
| 1. Submit the copy request                               |
| 2. Edit the request                                      |
| 3. Delete the request                                     |
|                                                           |
| Enter END to return.                                     +-----------------------------------------------------------+
```

3. At the Option line, type 1 (Submit the copy request) and press Enter. The copy request is submitted for execution. At the bottom of the screen, the job name and job number is displayed.
4. Press Enter.

5. If you selected multiple copy requests, the Request Action pop-up window is redisplayed. Repeat Steps 3 and 4 for each copy request that you are submitting.

When you are finished, the Copy Requests panel is redisplayed.

Tip: You can monitor a copy request as it runs from SDSF.

Where to go next

When a copy request finishes, verify that the tape volumes were copied properly. See Chapter 7, “Verifying that tapes were copied properly,” on page 89.
Chapter 7. Verifying that tapes were copied properly

Soon after running a tape-copy job, you should verify that the job completed successfully and that the correct input tapes were copied. You can verify that a tape-copy job completed successfully by performing these steps:

1. By using SDSF or an equivalent tool, check the job output on the output queue.
2. If the return codes indicate that the job or some job steps did not complete successfully, view the detailed log information in the output to determine where the problem or problems occurred.
3. If Tape Optimizer error messages were issued, look up these messages in Appendix A, “Messages,” on page 105 to obtain more information about the errors.

In the job output, you can also view the Request Summary report, the Tape Selection Summary report, and the Stacked Tape Summary Report. Tape Optimizer automatically generates these reports for a copy job. The reports present summary statistics that can help you determine if the job completed as expected.

If the output for a job has already been purged and is no longer available, you have several options:

- Display the summary copy statistics for individual tape volumes from the Tape Optimizer interface.
- Display the copy log from the Tape Optimizer interface.
- Reprint the Request Summary report and Stacked Tape Summary report.

Note: The statistics and log information that is displayed from the Tape Optimizer interface are for all copy requests that have previously run, unless you re-created the stats or log file, removed old records from the stats file, or limited the number of log entries. Usually, this information is used for performing a historical review of completed copy jobs, for example, to determine which tape volumes were copied, when they were copied, and whether copy tasks completed successfully.

For more information, see the following topics:

- “Return codes”  
- “Log information” on page 90  
- “Tape Selection Summary report” on page 91  
- “Request Summary report” on page 92  
- “Stacked Tape Summary report” on page 94  
- “Displaying summary copy statistics” on page 95  
- “Displaying the Tape Optimizer copy log” on page 98

Return codes

First look at the Max-RC value (maximum return code) for the listed copy job. (In the SDSF Status Display, you will need to scroll right to see this value.) If the return code is 0 (zero), all job steps completed successfully. If the return code is a nonzero value, an error probably occurred. In this case, view the detailed job output and note all nonzero return codes in the output.
Table 7 describes the Tape Optimizer return codes.

### Table 7. Return code descriptions

<table>
<thead>
<tr>
<th>Return code</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Success. The copy job completed successfully.</td>
</tr>
<tr>
<td>1</td>
<td>Restart success. The copy job was successfully restarted.</td>
</tr>
<tr>
<td>4</td>
<td>Warning. A recoverable error condition probably occurred. Tape Optimizer was able to successfully recover from that condition and complete the copy request.</td>
</tr>
<tr>
<td>8</td>
<td>Moderate error. The processing of all defined tape-selection filters resulted in no input tapes being selected for the copy request.</td>
</tr>
<tr>
<td>12</td>
<td>Severe error. A severe error caused the copy job to fail or data integrity problems to occur (for example, the copy utility failed or the RMM tape library information that was transferred is incorrect or incomplete).</td>
</tr>
</tbody>
</table>

### Log information

If any return codes indicate that errors occurred, you can review the detailed log information within the job output to try to identify the problems.

In the messages section of the log, you should look for the following Tape Optimizer messages that correspond to important checkpoints within the copy processing:

### Table 8. Key log messages

<table>
<thead>
<tr>
<th>Log message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT0035I Attempting to resolve VOLSER chain for VOLUME (volser)</td>
<td>Tape Optimizer is attempting to build the tape chain that includes the specified volser based on the list of input volsers or data sets in the copy request.</td>
</tr>
<tr>
<td>GT0036I BaseVOL (volser), Chain selected/excluded for copy</td>
<td>The input tape chain that is identified by the specified base volser has been selected for copying or excluded from copying based on the filter criteria in the copy request.</td>
</tr>
<tr>
<td>GT0080I Copy Task (nn) - Tape Chain Copy Completed rc (return code)</td>
<td>The copy task for the filtered tape chain completed with the specified return code.</td>
</tr>
<tr>
<td>GT0040I Copy RMM VOL info for all VOLS for data set (data set name), rc (return code)</td>
<td>The transfer of the DFSMSrmm information for the named data set or for all tape volumes that are associated with that data set completed with the specified return code.</td>
</tr>
<tr>
<td>GT0041I Copy RMM DSN info for dataset (data set name), rc (return code)</td>
<td></td>
</tr>
<tr>
<td>GT0043I Dataset (data set name) was recataloged</td>
<td>The named data set was successfully recataloged.</td>
</tr>
<tr>
<td>GT0046I Post Copy Processing - VOLCHAIN BASE (volser) successful</td>
<td>Post-copy processing of the specified tape chain completed successfully or failed, as indicated.</td>
</tr>
<tr>
<td>GT0047E Post Copy Processing - VOLCHAIN BASE (volser) failed</td>
<td></td>
</tr>
</tbody>
</table>
For more information about any Tape Optimizer messages, see Appendix A, “Messages,” on page 105.

Table 8. Key log messages

<table>
<thead>
<tr>
<th>Log message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT0032I All Requested VOLUMES have been processed</td>
<td>All of the listed volsers or data sets in the copy request have been copied if they met the selection criteria in the request.</td>
</tr>
</tbody>
</table>

For more information about any Tape Optimizer messages, see Appendix A, “Messages,” on page 105.

**Tape Selection Summary report**

Tape Optimizer automatically generates a Tape Selection Summary report when you perform an actual run or a trial run of a copy request. You can view this report by using SDSF or an equivalent tool. The report lists all of the volsers and tape data sets that Tape Optimizer selected for copying based on the selection criteria that you specified in the basic copy request and in any filters that you defined. If you generate this report while performing a trial run, you can use it to verify that the correct tapes and data sets will be selected for copying when you actually run the copy request.

Depending on the selection criteria that you specify in the basic copy request, Tape Optimizer copies either individual data sets from the input tapes or copies the entire tape chains.

- If you specify volsers, Tape Optimizer copies the entire contents of the tape chains that are composed of the specified volsers and any volsers onto which tape data sets are continued.
- If you specify data set names with DSSEQ values, Tape Optimizer copies only the individual data sets from a tape or tape chain.
- If you specify data set names without DSSEQ values, Tape Optimizer copies the entire contents of the tape chain or chains that include the specified data sets.

You can use this report to determine exactly how Tape Optimizer will implement your tape or data set selection criteria. This feature is particularly useful if you defined a complex selection scheme with several types of filters.

Figure 28 on page 92 displays a sample Tape Selection Summary report. This report is based on a copy request that specifies a single volser: C51254. Because this volume contains a data set that continues to other volumes (CSABCD.UNIQUE.#4), Tape Optimizer will build a tape chain that is composed of five volsers and copy the entire contents of this tape chain.
IBM Tivoli Tape Optimizer on z/OS Tape Selection Summary

Number of Volumes in chain: 5   Number of Files: 11
Volume Chain List: C51254, C51255, C51256, C51257, C51258

File Number: 1  Volume List: C51254
   Original Data Set Name: CSABCD.UNIQUE.#1 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

File Number: 2  Volume List: C51254
   Original Data Set Name: CSABCD.UNIQUE.#2 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

File Number: 3  Volume List: C51254
   Original Data Set Name: CSABCD.UNIQUE.#3 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

File Number: 4  Volume List: C51254, C51255, C51256
   Original Data Set Name: CSABCD.UNIQUE.#4 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

File Number: 5  Volume List: C51256, C51257
   Original Data Set Name: CSABCD.UNIQUE.#5 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

File Number: 6  Volume List: C51257
   Original Data Set Name: CSABCD.UNIQUE.#6 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

File Number: 7  Volume List: C51257
   Original Data Set Name: CSABCD.UNIQUE.#7 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

File Number: 8  Volume List: C51257
   Original Data Set Name: CSABCD.UNIQUE.#8 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

File Number: 9  Volume List: C51257
   Original Data Set Name: CSABCD.UNIQUE.#9 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

File Number: 10 Volume List: C51257
   Original Data Set Name: CSABCD.UNIQUE.#10 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

File Number: 11 Volume List: C51257, C51258
   Original Data Set Name: CSABCD.UNIQUE.#11 Label Type: SL Block Size: 32000 Rec Len: 80 RECFM: FB

Figure 28. Tape Selection Summary report

Request Summary report

Tape Optimizer automatically generates a Request Summary report for each copy request that runs and includes the report with the job output. You can access this report by using SDSF or an equivalent tool. The report provides summary statistics for the copy job, including the tape volser list copied, the number of files on each volser that were copied, and the completion status of copy and post-copy processing steps.

The Request Summary report differs from the statistics that the Tape Optimizer interface displays. The report presents summary statistics for a specific copy request, whereas the interface presents more detailed statistics for a specific tape volume.

In the Request Summary report, look for the return code values in the **Copy RC**, **RMM Var RC**, and **Catalog RC** columns. From these return codes, you can determine the following:

- Whether the data on the tape volumes was physically copied
- Whether the DFSMSrmm tape library information was successfully applied to the output tapes
- Whether the tape data sets that were previously catalogued have been recataloged to point to their new locations

You also can determine whether all tape volumes in a tape chain were copied. To do so, find all tape volumes with the same base volser, and then check their volume sequence numbers to determine if any volumes in the sequence are missing.
**Sample Request Summary report**

Figure 29 shows a sample Request Summary report:

<table>
<thead>
<tr>
<th>Tape VOLSER</th>
<th>Seq</th>
<th>Volume Seq</th>
<th>BASE VOLSER</th>
<th>Input Device</th>
<th>Number of Files</th>
<th>Release on Date</th>
<th>New BASE VOLSER</th>
<th>Copy RC</th>
<th>RMM Var RC</th>
<th>Catalog</th>
<th>Special Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>C50021</td>
<td>1</td>
<td>1</td>
<td>C50021</td>
<td>CXCART</td>
<td>1</td>
<td>2005/069</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50023</td>
<td>1</td>
<td>1</td>
<td>C50023</td>
<td>CXCART</td>
<td>1</td>
<td>2005/069</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50027</td>
<td>1</td>
<td>1</td>
<td>C50027</td>
<td>CXCART</td>
<td>1</td>
<td>2005/069</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50028</td>
<td>1</td>
<td>1</td>
<td>C50028</td>
<td>CXCART</td>
<td>1</td>
<td>2005/069</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50029</td>
<td>2</td>
<td>1</td>
<td>C50028</td>
<td>CXCART</td>
<td>1</td>
<td>2005/069</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50032</td>
<td>1</td>
<td>1</td>
<td>C50032</td>
<td>CXCART</td>
<td>1</td>
<td>2005/065</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50033</td>
<td>2</td>
<td>1</td>
<td>C50032</td>
<td>CXCART</td>
<td>1</td>
<td>2005/065</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50034</td>
<td>3</td>
<td>1</td>
<td>C50032</td>
<td>CXCART</td>
<td>1</td>
<td>2005/065</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50035</td>
<td>4</td>
<td>1</td>
<td>C50032</td>
<td>CXCART</td>
<td>1</td>
<td>2005/065</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50036</td>
<td>5</td>
<td>1</td>
<td>C50032</td>
<td>CXCART</td>
<td>1</td>
<td>2005/065</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50037</td>
<td>6</td>
<td>1</td>
<td>C50032</td>
<td>CXCART</td>
<td>1</td>
<td>2005/065</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50038</td>
<td>7</td>
<td>1</td>
<td>C50032</td>
<td>CXCART</td>
<td>1</td>
<td>2005/065</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
<tr>
<td>C50039</td>
<td>8</td>
<td>1</td>
<td>C50032</td>
<td>CXCART</td>
<td>1</td>
<td>2005/065</td>
<td>C50040</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Stack Rename</td>
</tr>
</tbody>
</table>

---

**Figure 29. Sample Request Summary report**

Report columns:

**Tape VOLSER**

The volser value of a tape volume that was copied.

**Volume Seq**

The sequence number of the tape volume within an input tape chain.

**BASE VOLSER**

The volser of the first tape volume in the input tape chain that includes the listed tape volser.

**Input Device**

The esoteric name, generic unit name, or unit address of the input tape device that was used to read data from the input tape.

**Number of Files**

The number of data sets on the tape volume that was copied.

**Release on Date**

The date (YYYY/DDD) on which the copied tape volser will be released to the scratch pool for reuse. Tape Optimizer calculates this date by adding the value that you specified in the **Number of Days to Retain Input Tapes** field to the date on which the copy request ran.

If your site uses VRS retention dates or rules, these retention criteria might cause your tapes to be held past this date.

**New BASE VOLSER**

The volser of the first tape volume in the output tape chain that includes the listed tape volser.

**Copy RC**

The return code that indicates the completion status of copying data for the tape volume. A return code of 0 (zero) indicates that the data was copied successfully. A value greater than zero indicates an error or exception probably occurred.

**RMM Var RC**

The return code that indicates the completion status of applying the DFSMSrmm tape library information for the input tape volume to the output tape. A return code of 0 (zero) indicates that the tape library information was successfully applied.
Catalog RC

The return code that indicates the completion status of recataloging any tape data sets that were previously cataloged. A return code of 0 (zero) indicates that these data sets were successfully recataloged.

Special Options

One or more of the following special copy options that were set for the copy request: Stack for tape-volume stacking, Rename for renaming tape data sets, and Nocat for not recataloging the tape data sets.

Reprinting the Request Summary report

If the Request Summary report is deleted for any reason and you need to reproduce it, use the following sample JCL in the GTOSTATS member of the runtime_HLQ.CNTL library, where runtime_HLQ is the high-level qualifier that you specified during customization:

```
//GTOSTATS JOB
//GTO EXEC PGM=GTOUTIL,PARM='SUMMARY(request_id)'
//STEPLIB DD DSN=runtime_HLQ.LOAD,DISP=SHR
//FILEDEFS DD DSN=runtime_HLQ.FILEDEFS,DISP=SHR
//GTOUTRPT DD SYSOUT=*,DCB=(BLKSIZE=133,LRECL=133,RECFM=FBA)
//CEEDUMP DD SYSOUT=* 
```

This JCL runs the Tape Optimizer GTOUTIL utility using SUMMARY as the PARM. You must specify the copy request number on this PARM. To find the request number, you can review the copy statistics or log from the Tape Optimizer interface.

Stacked Tape Summary report

Tape Optimizer automatically generates the Stacked Tape Summary report when a copy request runs that has tape-stacking enabled. You can access this report from SDSF; it is included with the job output. The report shows the volser value of the stacked output tape, the tape data sets that were stacked on the output tape, and the original tape-volume locations of the tape data sets.

Sample Stacked Tape Summary report

Figure 30 shows a sample Stacked Tape Summary report:

```
Figure 30. Sample Stacked Tape Summary report
```

<table>
<thead>
<tr>
<th>STACK BASE</th>
<th>Original</th>
<th>Original</th>
<th>Stacked Tape Data Set Name</th>
<th>Original Data Set Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>C50040</td>
<td>1</td>
<td>C50021</td>
<td>PDABCD.STACKED.BLKSMALL</td>
<td>PDABCD.BLKSMALL</td>
</tr>
<tr>
<td>C50040</td>
<td>2</td>
<td>C50028</td>
<td>PDABCD.STACKED.SPANNER</td>
<td>PDABCD.SPANNER</td>
</tr>
<tr>
<td>C50040</td>
<td>3</td>
<td>C50032</td>
<td>PDABCD.STACKED.TAPE.LONGFILE</td>
<td>PDABCD.TAPE.LONGFILE</td>
</tr>
<tr>
<td>C50040</td>
<td>4</td>
<td>C50023</td>
<td>PDABCD.STACKED.TESTFIL1</td>
<td>PDABCD.TESTFIL1</td>
</tr>
<tr>
<td>C50040</td>
<td>5</td>
<td>C50027</td>
<td>PDABCD.STACKED.TESTFILS</td>
<td>PDABCD.TESTFILS</td>
</tr>
</tbody>
</table>

Report columns:

**Stack Base VOLSER**

The volser value of the stacked output tape.

**DSSEQ**

The data set sequence number of the tape data set on the stacked output tape.
Original VOLSER
The volser value of the input tape volume that contained the original tape data set.

Original DSSEQ
The data set sequence number of the original tape data set on the input tape.

Stacked Tape Data Set Name
The name of the tape data set after it was stacked on the output tape. If you specified renaming criteria for the copy request, this name is the name that Tape Optimizer generated based on your renaming criteria.

Original Tape Data Set Name
The original name of the tape data set on the input tape.

Reprinting the Stacked Tape Summary report

If the report is deleted for any reason and you need to reproduce it, you can use the following sample JCL in the GTOSTKRP member of the runtime_HLQ.CNTL library, where runtime_HLQ is the high-level qualifier that you specified during customization:

```java
//GTOSTKRP JOB
//SUMMARY EXEC PGM=GTOUTIL,PARM='STACKRPT(request_id)'
//STEPLIB DD DSN=runtime_HLQ.LOAD,DISP=SHR
//FILEDEFS DD DSN=runtime_HLQ.FILEDEFS,DISP=SHR
//GTOUTRPT DD SYSOUT=*,DCB=(BLKSIZE=133,LRECL=133,RECFM=FBA)
//CEEDUMP DD SYSOUT=* 
```

This JCL runs the GTOUTIL utility using STACKRPT as the PARM. You must specify the copy request number on the PARM. To find the request number, you can review the summary copy statistics or log from the Tape Optimizer interface.

Tip: Because this report includes some information from the DFSMSrmm tape library for the input tapes, you should print the report before the input tapes are scratched.

Displaying summary copy statistics

From the Tape Optimizer interface, you can display summary copy statistics for individual tape volumes by copy date and time. Tape Optimizer presents statistics from all previous copy operations for a tape volume unless you removed some of these records or re-created the stats file. These statistics include the information that was in the Request Summary report as well as some additional information. If you know the volser of a copied tape volume, you can use the copy statistics to quickly find the date and time when the tape volume was last copied and whether the copy and post-copy processing steps completed successfully.

To display summary copy statistics:

1. From the Tape Optimizer Primary Menu, choose option 4 (Statistics). The View VOLUME Copy Statistics panel opens, as shown in Figure 31 on page 96.
2. To search for the copied tape volumes for which to view statistics, specify a volser value (for example, C50023) or a volser mask (for example, C5*) in the Tape VOLSER or Mask field, and press Enter. All tape volumes that match your search criteria are listed at the bottom of the panel.

3. To refine the list of tape volumes, you can specify an optional copy request number in the Request Number field, for example, 00003. The panel then lists only the tape volumes that match both the volser and request number criteria.

4. In the Sel column, type a forward slash (/) next to the tape volser copy for which you want to view statistics, and press Enter. The VOLUME Copy Statistics pop-up window opens, as shown in Figure 32:

The window displays the following information for the selected tape volume:

**Tape VOLSER**
The volser value of the tape volume.

**Copy Date**
The date (YYYY/DDD) on which the tape volume was copied.
Copy Time
The 24-hour time (HH:MM:SS) when the tape volume was copied.

VOLSER Seq Num
The sequence number of the tape volume within the input tape chain.

Prev VOLSER
The volser value of the previous tape volume in the input tape chain.

Next VOLSER
The volser value of the next tape volume in the input tape chain.

Tape Unit Info:
Input Unit
The esoteric name, generic unit name, or system address of the tape
device that was used to read data from the input tape.

Output Unit
The esoteric name, generic unit name, or system address of the tape
device that was used to write data to the output tape.

Input Chain Base
The volser of the first tape volume in the input tape chain that includes
the selected tape volume.

Output Chain Base
The volser of the first tape volume in the output tape chain that includes
the tape volume.

Number of Files
The number of tape data sets that were copied.

Copy Status:
Copy RC
The return code that indicates the completion status of copying tape data.
A return code of 0 (zero) indicates that the data was copied successfully.
A value greater than zero usually indicates an error or exception.

Status
The status of the copied tape volume in Tape Optimizer. Valid values are:
RELEASED (released to the scratch pool for reuse), RLSE PEND (the
tape is being held because the retention period specified in the Tape
Optimizer has not elapsed or the Tape Optimizer maintenance job for
releasing held tapes has not yet been run), or INCOMPLETE (the copy
operation failed).

Catalog RC
The return code that indicates the completion status of recataloging any
tape data sets that were previously cataloged. A return code of 0 (zero)
indicates that these data sets were successfully recataloged.

New Expiration Date
The tape expiration date that Tape Optimizer calculates by adding the
value that you specified in the Number of Days to Retain Input Tapes
field to the date on which the copy request ran. The new date is in Julian
date format (YYYY/DDD).

If your site uses VRS retention dates or rules, these retention criteria
might cause your tapes to be held past this date.

Tape Info Copy RC
The return code that indicates the completion status of applying the
DFSMsrm tape library information to the output tape. A return code of
0 (zero) indicates that the tape library information was successfully
applied.
Copy Options
One or more of the following special copy options that you set for the copy request: **Stack** for tape-volume stacking, **Rename** for renaming tape data sets, and **Nocat** for not recataloging the tape data sets.

General:

Request Number
A number that Tape Optimizer generated for the copy request that includes the selected tape volume.

Copy JOBNAME
The name of the job that copied the specified tape volume.

Assign Date
The DFSMSrmm-assigned date (YYYY/DDD).

Assign Time
The DFSMSrmm-assigned time (24-hour time in HH:MM:SS format).

5. When you are finished viewing summary statistics, press F3.

---

**Displaying the Tape Optimizer copy log**

From the Tape Optimizer interface, you can display a detailed log for the copy requests that have run. The log file contains messages for previous copy requests up to the limit that you set for the number of copy log entries (9999 by default). For each copy request, the log lists informational messages for the events that occurred during copy processing, including the tape volumes that were copied or excluded, the DFSMSrmm tape library information that was transferred, and the data sets that were recataloged. It also lists any error and warning messages that were issued. For information about specific messages, see Appendix A, “Messages,” on page 105.

**Tip:** You can control the size of the log by specifying a value in the **Number of Copy Log Entries** field in the General Parameters window. After this limit is reached, Tape Optimizer begins overwriting existing entries, beginning with the first entry.

To display the copy log:

1. From the Tape Optimizer Primary Menu, choose option 3 (Log). The log is displayed in an ISPF browse panel. Figure 33 on page 99 shows a sample log.
Chapter 7. Verifying that tapes were copied properly

99

Figure 33. Sample copy log

2. Review the log messages for the copy request to identify any problems that occurred. In particular, look for the key Tape Optimizer messages that are described in Table 8 on page 90. (For more information about messages, see Appendix A, “Messages,” on page 105.) Also, look for non-zero return codes.

3. When you are finished viewing the log, press F3.
Chapter 8. Stopping and restarting a copy request

If you have a long-running copy request, you might want to stop it and restart it again later. Also, you might need to restart a job that failed because of a system problem.

To stop a copy request, you can use one of the following operator commands:

- **(Recommended) The Stop (P) operator command** performs a controlled quiesce of the copy request. Tape Optimizer completes copying the tape chain that it is currently processing before the copy request stops. If multiple copy tasks are running concurrently, each task completes copying its current tape chain. If you restart the copy request later, Tape Optimizer resumes the copy operation from the point at which it stopped.

- The **Cancel (C) operator command** stops the copy request immediately. Any tape chains that were in the process of being copied when the command was issued will be recopied when you restart the copy request. However, if Tape Optimizer finished copying all of the data for a tape chain but did not complete a post-copy processing step (for example, applying the DFSMSrmm information to the output tapes), Tape Optimizer resumes from the last post-copy step when you restart the copy request.

To restart a copy request, simply resubmit the copy job. Tape Optimizer determines the appropriate point at which to resume copy processing based on the information in the Request Database. Tape Optimizer does not resume copy processing from the beginning and repeat work that has already been done.

For more information, see the following topics:

- “Stopping a copy request”
- “Canceling a copy request”
- “Restarting a copy request”

### Stopping a copy request

To stop (or quiesce) a copy request in a controlled manner, specify the following operator command from SDSF or an operator console:

```
P job name
```

### Canceling a copy request

If a quiesced stop of a copy request was not successful, you can cancel the copy request to stop it immediately by issuing the following operator command from SDSF or an operator console:

```
C job name
```

### Restarting a copy request

To restart a copy request that was intentionally stopped or canceled or that terminated abnormally, you usually just resubmit it for execution. For more information, see Chapter 6, “Running a copy request,” on page 83.
If you manually created the JCL for a copy job that stopped but did not include the \texttt{REQU\_RQDBNUM} parameter to reserve a Request Database, you must find the request number that Tape Optimizer generated for the job in the job output. Then, specify this number in the \texttt{REQU\_NUMBER} parameter before you resubmit the job. Otherwise, Tape Optimizer cannot restart the job.

Also, before you resubmit a copy job, you can edit most copy options and exclusion filters, with the following exceptions and limitations:

- You cannot edit the selection criteria for input volsers or data sets that were defined in the basic copy request that was originally submitted.

- You cannot edit any of the following copy options:
  - \texttt{Number of Concurrent Copies for This Request}
  - \texttt{Perform Trial Run to Verify Tapes to Be Copied}
  - \texttt{Stack Input Tape Volumes on Output Tapes}
  - \texttt{Stacked tape media thresholds (in MB)}
  - \texttt{Specify maximum stacked tape file count}
  - \texttt{Any data-set renaming criteria}

- You can add or edit filtering criteria only for \textit{excluding} tape volumes. Your filter changes will apply to tape volumes that have been selected for copying but not yet copied. Your filter changes will not apply to tape volumes that have already been copied.

- You cannot add or edit inclusion filtering criteria. Only the tape volumes that were already selected for copying, based on the previously submitted copy request, will be considered for copying.

\textbf{Note:} These exceptions and limitations become applicable when a copy job assumes the status of \texttt{ACTIVE}. A copy job becomes \texttt{ACTIVE} when Tape Optimizer completes copying the first selected tape volume. Prior to this point in time, the copy job has the status of \texttt{PENDING START} or \texttt{BUILD COPY}, and the restart exceptions and limitations do not yet apply.
Chapter 9. Performing maintenance tasks

Occasionally, you might need to perform the following maintenance tasks to keep Tape Optimizer running properly and manage your tapes:

- “Releasing copied tapes to the scratch pool and updating tape status information”
- “Backing up the log file and re-creating it”
- “Backing up the stats file and re-creating it” on page 104
- “Removing old records from the stats file” on page 104
- “Removing records for a specific copy request from the stats file” on page 104
- “Redefining the parameters file” on page 104

### Releasing copied tapes to the scratch pool and updating tape status information

You will need to routinely run a batch job to perform the following maintenance tasks:

- Release copied tapes that are being held by VRS retention criteria to the scratch pool for reuse
- Synchronize the Status field values in the Tape Optimizer stats file with the status information in DFSMSrmm

VRS retention rules or dates might cause copied input tapes to be held past the retention period that you specified in the Number of days to retain input tapes field and past their expiration dates. By running a batch job that Tape Optimizer provides, you can release all tapes that have the status of PENDING (as displayed on the VOLUME Copy Statistics panel) and an expiration date that has elapsed.

The same batch job also synchronizes the status information for tape volumes in the Tape Optimizer stats file with the status information that DFSMSrmm maintains. This synchronization process ensures that the status information that you view in the Tape Optimizer interface is up-to-date and is consistent with DFSMSrmm information.

To perform these tasks, use the following sample JCL, which is in the GTOUTILR member of the runtime_HLQ.CNTL library (where runtime_HLQ is the high-level qualifier that you specified during product customization):

```jcl
//GTOUTILR JOB
//GTO      EXEC PGM=GTOUTIL,PARM='RELEASE'
//STEPLIB  DD DSN=runtime_HLQ.LOAD,DISP=SHR
//FILEDEFS DD DSN=runtime_HLQ.FILEDEFS,DISP=SHR
```

Run this job on a routine basis, either before your regular job for DFSMSrmm-administered scratch operations or as part of that job.

### Backing up the log file and re-creating it

The copy log file contains messages from all copy requests. You can control the maximum size of the copy log by specifying a value in the Number of Copy Log Entries field on the General Parameters pop-up window. After this limit is met, Tape Optimizer begins overwriting the existing messages in the log. However, if the log file still becomes too large, you can run a job that Tape Optimizer supplies to back up the
contents of the existing log file to a sequential file (on tape or DASD) and to create a new log file. The new log file has an initial size that is the same as that of the original log file.

To perform this task, use the sample JCL in the GTODEFML member of the runtime_HLQ.CNTL library (where runtime_HLQ is the high-level qualifier that you specified during customization). Edit the JCL, as needed, and then run the job.

**Backing up the stats file and re-creating it**

If you want to re-create the stats file (for example, because you performed some test copy operations and now want to start recording statistics for actual copy operations), you can use the sample job that Tape Optimizer supplies to back up the contents of the existing stats file and create a new stats file. The new stats file has an initial size that is the same as that of the original stats file.

To perform this task, use the sample JCL in the GTODEFST member of the runtime_HLQ.CNTL library (where runtime_HLQ is the high-level qualifier that you specified during customization). Edit the JCL, as needed, and then run the job.

**Removing old records from the stats file**

To ensure that the stats file does not become too large, you should remove old records from the file periodically. Tape Optimizer provides a job for removing the records for tapes that were copied before a specific date and that have already been scratched and reused. Run this job on a routine basis.

Use the sample JCL in the GTOSTREO member of the runtime_HLQ.CNTL library (where runtime_HLQ is the high-level qualifier that you specified during customization). In the JCL, specify a date in YYYY/DDD format. Then run the job. Any records for tapes that were copied before this date and that have already been scratched and reused are deleted.

**Removing records for a specific copy request from the stats file**

If you run a copy request but do not retain the output tapes that it produced, you should remove the records for those output tapes from the stats file. Otherwise, the stats file will not accurately reflect which tapes have been copied by Tape Optimizer.

To perform this task, use the sample JCL in the GTOSTDEL member of the runtime_HLQ.CNTL library (where runtime_HLQ is the high-level qualifier that you specified during customization). In the JCL, specify the request number of the copy request for which you want to delete records. Then run the job.

**Redefining the parameters file**

Usually, you redefine the Tape Optimizer parameters file only at the request of IBM Software Support when an error occurs. To do so, use the sample JCL in the GTODEFPM member of the runtime_HLQ.CNTL library (where runtime_HLQ is the high-level qualifier that you specified during customization). Edit the JCL according to the comments that are included in the member, and then run the job.
Appendix A. Messages

This appendix contains information about the messages that can be issued by IBM Tivoli Tape Optimizer.

All message IDs have a severity code as the last character. Table 9 describes these severity codes:

Table 9. Error message severity codes

<table>
<thead>
<tr>
<th>Severity Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Information only. No user action is required.</td>
</tr>
<tr>
<td>W</td>
<td>Warning message. Results might not be as expected.</td>
</tr>
<tr>
<td>E</td>
<td>Error message. Some errors might be user-correctable. Read the User Response to determine the appropriate course of action.</td>
</tr>
</tbody>
</table>

GTO003I Threads are attached.
Explanation: All subtasks for the copy job are started.
User Response: No action is required.

GTO004I Initiate copy thread shutdown.
Explanation: The thread for the main copy task has begun shutdown processing.
User Response: No action is required.

GTO005E Unable to obtain product file names.
Explanation: The file name table cannot be built because the FILEDEFS file is invalid. Therefore, Tape Optimizer cannot find the product file names.
User Response: Correct the FILEDEFS file and restart the copy job.

GTO006E Input Tape UNIT (unit) - Invalid on this processor.
Explanation: The input tape unit that is requested for the copy job is not found on this system.
User Response: Resubmit the copy job on a system that has this tape unit, or change the input tape unit for the copy job.

GTO007I Input Tape UNIT (unit), type (unit_type).
Explanation: This informational message indicates the generic unit type of the input tape unit.
User Response: No action is required.

GTO008E Output Tape UNIT (unit) - Invalid on this processor.
Explanation: The output tape unit that is requested for the copy job is not found on this system.
User Response: Resubmit the copy job on a system that has this tape unit, or change the output tape unit for the copy job.

GTO009I Output Tape UNIT (unit), type (unit_type).
Explanation: This informational message indicates the generic unit type of the output tape unit.
User Response: No action is required.

GTO010E RMM Variable test rc (return_code).
Explanation: The validity testing of the selected DFSMSrmm control variables completed with the specified return code.
User Response: If the return code is zero, the variables are valid and no action is required. If the return code is a non-zero value, some variables are not valid. In this case,
you should deselect the invalid variables or run the copy job on another system.

GTO011I  Totalecbs - \( nn \).  
Explanation: This informational message indicates the total number of handles being waited on by the main copy task.  
User Response: This message is for diagnostic use. No action is required.

GTO012I  SYSIN parms.  
Explanation: All SYSIN options are about to be listed in the log.  
User Response: No action is required.

GTO013E  This request has already completed.  
Explanation: This copy request has already been run. You cannot resubmit a completed copy request to run it again.  
User Response: Configure a new copy request that uses the same parameters as the completed request. Then run the new request.

GTO014I  Request restart - SYSIN parm processing bypassed.  
Explanation: The SYSIN parms are ignored because the copy request is being restarted.  
User Response: No action is required.

GTO015I  RMM Variable test rc\( (\text{return\_code}) \).  
Explanation: This message is issued to display the return code from the DFSMSrmm variables test. Tape Optimizer tests each RMM variable to see if it is valid on the CPU where Tape Optimizer is running.  
User Response: If the return code is not zero, some RMM variables are invalid. In this case, either run the copy job on a higher level of DFSMSrmm that supports the variables, or deselect the invalid variables on the DFSMSrmm Control Variables panel and then resubmit the copy job.

GTO020E  Log File I/O error rc\( (\text{feedback\_code}), \text{rc2 (action)}, \text{file name (file\_name)} \).  
Explanation: Tape Optimizer encountered an I/O error when accessing the log file.  
User Response: See the IBM VSAM programming manual for an explanation of the feedback code. Also, ensure that the log file is defined and accessible.

GTO021E  Log File in use.  
Explanation: The log file is being accessed by another copy task or by another Tape Optimizer instance. Therefore, Tape Optimizer skips a logging attempt.  
User Response: No action is required.

GTO030I  ReqNo(\( nnnnn \)), No tapes or data sets passed all the filter tests.  
Explanation: Tape Optimizer scanned all lists of volser or data sets that are specified for the copy request to determine if they are eligible for copying based on the input-tape filtering criteria. No tape chains passed all of the filtering tests. As a result, no tape chains will be copied.  
User Response: No action is required.

GTO031W  Unable to release the Request Database. Delete the request using the SPF interface.  
Explanation: An error prevented the release of the Request Database by the current copy request. As a result, the Request Database is unavailable for use by other copy requests.  
User Response: To release the Request Database, delete the current copy request manually from the ISPF interface. Until you do so, you will not be able to run other copy requests.

GTO032I  ReqNo(\( nnnnn \)), All Requested VOLUMES have been processed.  
Explanation: Tape Optimizer scanned the lists of volser or data sets that are specified for the copy request and copied the associated tape volumes that passed all of the selection criteria.  
User Response: No action is required.

GTO033E  Unable to allocate at least 1 INPUT and 1 OUTPUT tape unit.  
Explanation: The copy job failed because none of its copy tasks successfully allocated both an input tape unit and an output tape unit.  
User Response: Re-run the copy job on a system with at least two tape drives of the requested unit type.

GTO034I  Copy job restarted.  
Explanation: A copy job that was previously submitted but did not complete running has been resubmitted. The copy job resumes running from the point at which it stopped.  
User Response: No action is required.
Appendix A. Messages

GTO035I  ReqNo(nnnnn), Attempting to resolve VOLSER chain for VOLUME (volser).

Explanation: Tape Optimizer is attempting to determine all of the volsers that are in the tape chain that includes the specified tape volser.

User Response: No action is required.

GTO036I  ReqNo(nnnnn), BaseVOL(volser), Chain selected | excluded for copy.

Explanation: The tape chain that has the specified base volume is either being selected for copying or excluded from copying based on the filters that are defined for the copy request.

User Response: No action is required.

GTO037E  Invalid VOLSER range. VOL1 (volser), VOL2 (volser).

Explanation: The specified tape range is not a valid tape range.

User Response: Specify a tape range that is composed of valid VOLSERs. The second VOLSER must be greater than the first VOLSER.

GTO038I  ReqNo(nnnnn), Request Database Selected - (RQDB_data_set_name).

Explanation: This message identifies the Request Database file that has been reserved for the specified copy request.

User Response: No action is required.

GTO039I  ReqNo(nnnnn), Post Copy Processing - VOLCHAIN BASE (volser).

Explanation: Tape Optimizer is starting post-copy processing of the tape chain that has the specified base VOLSER.

User Response: No action is required.

GTO040I  ReqNo(nnnnn), Copy RMM VOL info for all VOLS for dataset(data_set_name), rc (return_code).

Explanation: This message provides the completion status for applying the information for the selected DFSMSrmm control variables to all of the output tape volumes for the named data set.

User Response: No action is required.

GTO041I  ReqNo(nnnnn), Copy RMM DSN info for data set (data_set_name), rc (return_code).

Explanation: This message provides the completion status for applying the information for the selected DFSMSrmm control variables to the specified new data set.

User Response: No action is required.

GTO042I  ReqNo(nnnnn), Recataloging data set name(data_set_name).

Explanation: Tape Optimizer is attempting to recatalog the named data set.

User Response: No action is required.

GTO043I  ReqNo(nnnnn), Data set (data_set_name) was recataloged.

Explanation: The named data set was successfully recataloged.

User Response: No action is required.

GTO044I  RMMCMD rc (return_code), rsn (reason_code), cmd (rmm_command).

Explanation: The expiration date for the copied tape has been set to the new expiration date that Tape Optimizer calculates based on the Number of Days to Retain Input Tapes option. If you set this option to 0 (zero), the tape is released to the scratch pool.

User Response: No action is required.

GTO045I  ReqNo(nnnnn), RMMCMD rc (return_code), rsn (reason_code), cmd (rmm_command).

Explanation: An original tape data set that is protected by a VRS CYCLES rule has been renamed.

User Response: No action is required.

GTO046I  ReqNo(nnnnn), Post Copy Processing - VOLCHAIN BASE (volser) successful.

Explanation: The post-copy processing of the tape chain that has the specified base VOLSER was successful.

User Response: No action is required.

GTO047E  ReqNo(nnnnn), Post Copy Processing - VOLCHAIN BASE (volser) failed.

Explanation: The post-copy processing of the tape chain that has the specified base VOLSER failed. The copy job continues processing other tape chains.
User Response: See the messages that were issued prior to this one to determine the reason for this post-copy-processing failure.

GTO048I  RMMCMD rc (return_code), rsn (reason_code), cmd (rmm_command).

Explanation: A temporary VRS rule to retain an original tape VOLSER was added. Another rule that ignores expiration date also exists.

User Response: No action is required.

GTO049I  Tape DSN (data_set_name), VOL (volser) will be renamed to New Name (data_set_name).

Explanation: This message indicates that the specified data set will be renamed to the new name that is given.

User Response: No action is required.

GTO050I  ReqNo(nnnnn), IDCAMS Output* idcams_output_line

Explanation: This message records the output of IDCAMS operations.

User Response: No action is required.

GTO051I  ReqNo(nnnnn), Stacked Tape Build.

Explanation: All tape-volume copies will be stacked on an output tape.

User Response: No action is required.

GTO052E  FindRMMVar failed for RMM var (variable_name).

Explanation: A required DFSMSrmm control variable definition is missing from the metadata.

User Response: Restore the RMMVARS file from the original product distribution file.

GTO053I  ReqNo(nnnnn), Tape (volser), Create Date (julian_date): excluded by creation date filter.

Explanation: The tape that has the specified volser is excluded from copying based on an exclusion filter that specifies a tape-creation date.

User Response: No action is required.

GTO054I  ReqNo(nnnnn), Tape (volser), Last Referenced (julian_date): excluded by last ref date filter.

Explanation: The tape that has the specified volser is excluded from copying based on an exclusion filter that specifies a DFSMSrmm last referenced date.

User Response: No action is required.

GTO055I  ReqNo(nnnnn), Tape (volser), Expires (julian_date): excluded by expiration date filter.

Explanation: The tape that has the specified volser is excluded from copying based on a date filter that excludes tapes that expire before a certain date.

User Response: No action is required.

GTO056I  Tape (volser): excluded by TEMP I/O error filter.

Explanation: The tape that has the specified volser is excluded from copying because it does not meet the inclusion filter criteria for copying tapes with temporary I/O errors.

User Response: No action is required.

GTO057I  Tape (volser): excluded by PERM I/O error filter.

Explanation: The tape that has the specified volser is excluded from copying because it meets the exclusion filter criteria for not copying tapes with permanent I/O errors.

User Response: No action is required.

GTO058I  ReqNo(nnnnn), Tape (volser): excluded by Location filter.

Explanation: The tape that has the specified volser is excluded from copying based on an exclusion filter that specifies a DFSMSrmm location such as a shelf location.

User Response: No action is required.

GTO059I  ReqNo(nnnnn), Tape (volser), Ret Date (julian_date), Exp Date (julian_date): excluded by retention date filter.

Explanation: The tape that has the specified volser is excluded from copying because of a VRS retention date. Tape Optimizer considers VRS retention criteria for tape selection when you select the Consider VRS Rules for Tape Copy Selection option for the copy request.

User Response: No action is required.
Appendix A. Messages

GTO060I  Tape (volser): excluded by VOLSER filter.

Explanation: The tape that has the specified volser is excluded from copying based on an exclusion filter that specifies volser values.

User Response: No action is required.

GTO061I  ReqNo(mmmn), Tape (volser): excluded by UNIT type filter.

Explanation: The tape that has the specified volser is excluded from copying because it is incompatible with the input tape unit type.

User Response: No action is required.

GTO062I  Tape (volser), HOME (location), LOCATION (location): excluded by transit check filter.

Explanation: The tape that has the specified volser is excluded from copying because it is in transit between locations.

User Response: No action is required.

GTO063I  Tape (volser), Type (type): excluded by type filter.

Explanation: The tape that has the specified volser is excluded from copying because its tape type is invalid.

User Response: No action is required.

GTO064I  Tape (volser), Status (status): excluded by status filter.

Explanation: The tape that has the specified volser is excluded from copying because it has an invalid status (SCRATCH or USER).

User Response: No action is required.

GTO065I  Tape (volser), Status (status): excluded by status filter.

Explanation: The tape that has the specified volser is excluded from copying because it has an invalid status (pending SCRATCH, not copied).

User Response: No action is required.

GTO066I  ReqNo(mmmn), Tape (volser): Dataset(data_set_name) excluded by Create PGM filter.

Explanation: The tape that has the specified volser is excluded from copying based on an exclusion filter that specifies tape-creation program names.

User Response: No action is required.

GTO067I  ReqNo(mmmn), Tape (volser): Dataset(data_set_name) excluded by data set filter.

Explanation: The tape that has the specified volser is excluded from copying based on an exclusion filter that specifies data set names.

User Response: No action is required.

GTO068I  ReqNo(mmmn), Tape (volser): Dataset(data_set_name) excluded by SYSID filter.

Explanation: The tape that has the specified volser is excluded from copying based on an exclusion filter that specifies the system IDs of processors on which the tapes were created.

User Response: No action is required.

GTO069W  ReqNo(mmmn), Tape (volser): invalid dsseq field.

Explanation: The tape that has the specified VOLSER is excluded from copying because the value of the Data-Set-Sequence Number subparameter for one or more of its data set records is 0 (zero).

User Response: No action is required. Copy processing continues.

GTO070W  Tape (volser): invalid/missing dsn values found for NL tape.

Explanation: The nonlabeled tape that has the specified VOLSER is excluded from copying because its BLKSIZE and RECFM information is missing.

User Response: No action is required. Copy processing continues.

GTO071W  Tape (volser): invalid label type.

Explanation: The tape that has the specified VOLSER is excluded from copying because its label type is not supported. Tape Optimizer supports unlabeled tapes and tapes with standard labels.

User Response: No action is required. Copy processing continues.

GTO072I  ReqNo(mmmn), Copy Task Number mmmn started.

Explanation: The nth tape-copy task has started. You can run up to 10 copy tasks concurrently for a tape-copy job.

User Response: No action is required.
GTO073I  ReqNo(nnnnn),Copy Task(nnnnn) -
Allocate input unit(unit_name),
rc(return_code),rc1(return_code1),
rsn1(reason_code1),rsn2(reason_code2).

Explanation: The dynamic allocation of the input tape unit for the copy task completed with the specified return codes and reason codes.

User Response: If the allocation was successful, the return codes are zero and no action is required. If the allocation failed, non-zero return codes are returned. In this case, read the system messages from the job log to determine the reason for the failure. For descriptions of the return codes and reason codes, see the IBM MVS Programming: Authorized Assembler Services Guide.

GTO074I  ReqNo(nnnnn),Copy Task(nnnnn) -
Allocate output unit (unit),
rc(return_code),rc1(return_code1),
rsn1(reason_code1),rsn2(reason_code2).

Explanation: The dynamic allocation of the output tape unit for the copy task completed with the specified return codes and reason codes.

User Response: If the allocation was successful, the return codes are zero and no action is required. If the allocation failed, non-zero return codes are returned. In this case, read the system messages from the job log to determine the reason for the failure. For descriptions of the return codes and reason codes, see the IBM MVS Programming: Authorized Assembler Services Guide.

GTO075I  ReqNo(nnnnn),Processing COPYVOLNUM (copy_chain_id),
chainsize (chain_size).

Explanation: A copy task received the specified tape chain and is currently processing it.

User Response: No action is required.

GTO076W  Copy Task (nnnnn)- VOLSER (volser),
DSN (data_set_name) - unknown file size for stacked tape build.

Explanation: The file size for the named data set that is to be stacked on tape is not known. Consequently, the file size is recorded as zero.

User Response: No action is required. Tape stacking continues. However, the utilization limits that you specified for the stacked tapes might be exceeded.

GTO077I  Copy Task (nnnnn)- CallCopy RC (return_code).

Explanation: This message provides the return code for a data set copy operation.

User Response: No action is required.

GTO078E  Copy Task (nnnnn) - TapeVol (volser) ineligible for unit (unit).

Explanation: The tape type of the specified VOLSER is incompatible with the named tape unit. As a result, the tape chain that contains this VOLSER is skipped during copy processing.

User Response: No action is required.

GTO079E  Copy Task (nnnnn) - TapeFileNext failed RC (return_code).

Explanation: An internal error occurred. A Tape Optimizer routine failed to set up the copying of the next file in the tape chain.

User Response: Contact IBM Software Support.

GTO080I  ReqNo(nnnnn),Copy Task (nnnnn) -
Tape Chain Copy Completed rc (return_code).

Explanation: This message provides the completion code for a tape-chain copy operation.

User Response: No action is required.

GTO081I  ReqNo(nnnnn),Copy Task (nnnnn) -
Tape/DSN Chain - VOL (volser), DSN (data_set_name).

Explanation: Tape Optimizer finished copying the specified data set, which starts on the specified volser, while copying a tape chain.

User Response: No action is required.

GTO082I  Copy Task (nnnnn) - DSN renamed to data_set_name.

Explanation: Tape Optimizer renamed a tape data set that was previously cataloged to the specified new data set name as part of the copy task.

User Response: No action is required.

GTO083I  ReqNo(nnnnn),New Tape VOLSERs - volser, volser,...

Explanation: This message records all of tape VOLSERs that comprise the new tape chain.

User Response: No action is required.

GTO084E  Function(function_name) File(file_name) I/O error.
RC(return_code),Type(access_type),
IOFDBK(feedback_code)

Explanation: An I/O error occurred when Tape Optimizer was attempting to access the specified file.
while performing a function. This message indicates the Tape Optimizer function that failed, the file name, the return code from I/O processing, the type of file or record access that was attempted, and the feedback code for the error. The access type can be one of the following: OPEN (open the file), FLOCATE (locate a record), FREAD (read a record), FUPDATE (update a record), FWRITE (write data to the file), or FDELREC (delete a record). The feedback code is composed of a constant (ENQFAIL, NOTFOUND, INVREQ, or OTHER) followed by a feedback return code, for example (OTHER(2)).

User Response: For more information about the error, look up the feedback code in the IBM VSAM programming manual. Contact your system administrator if you need assistance.

GTO085E  Function (rmm_command) failed, rc (return_code), RMMrC (rmm_return_code), RMMrsn (reason_code).

Explanation: An error occurred that is related to a DFSMSrmm subcommand.

User Response: To diagnose the problem, look up the specified DFSMSrmm return codes and reason codes in the IBM DFSMSrmm Guide and Reference.

GTO086E  Function(function_name) failed rc(return_code), rc2(return_code2), rc3(return_code3).

Explanation: An internal error occurred. Note the return codes that are specified in the message. Possible values for these return codes are:

- 219: Invalid handle. A virtual memory shortage exists. Increase the region size.
- 221: Tape Optimizer has built the maximum number (99 999) of copy requests. Delete and redefine the PARSMS file.
- 222: Parameter error. Incorrect batch input parameter. For information about parameters, see Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.
- 223: More than the maximum of 10 concurrent copy tasks were requested.
- 225: DFSMSrmm is not available. Consult with your systems programmer.
- 226: A virtual memory shortage exists. Increase the region size.
- 228: Invalid meta-data. The RMM definitions file has been corrupted. Restore the original file.
- 231: Invalid meta-data. The RMM definitions file has been corrupted. Restore the original file.
- 232: No Request Database is available. Do one of the following: Wait for a copy job that is currently running to complete, delete an "active" copy job that is not actually running, or allocate additional Request Database files.
- 233: An error occurred that is related to allocating a Request Database.
- 234: No tape units of the requested type are available.
- 276: The copy job was terminated at the request of a user.
- 277: The copy job terminated early because of an error.

User Response: Based on the return codes that were issued, attempt to resolve the problem. If you need assistance, contact IBM Software Support.

GTO087W  Scan failed for RMM var (varname).

Explanation: Tape Optimizer could not copy the information that is associated with the specified DFSMSrmm variable because DFSMSrmm did not return it.

User Response: This message is for diagnostic use. These types of failures are expected to occur.

GTO088E  Unknown format for RMM var (variable_name), format (data_format).

Explanation: The metadata file that describes the format of the DFSMSrmm variables contains a format that is not supported.

User Response: Contact IBM Software Support for assistance.

GTO089I  ReqNo(nnnnn),RMMVarCopy rc (return_code), rsn (reason_code), cmd (rmm_command).

Explanation: This message provides the status of each DFSMSrmm variable update that Tape Optimizer performs during post-copy processing.

User Response: No action is required.

GTO090E  Unknown format for RMM var (variable_name), format (data_format).

Explanation: The metadata file that describes the format of the DFSMSrmm variables contains a format that is not supported.

User Response: Contact IBM Software Support for assistance.

GTO091W  RMMVarCopy rc (return_code), rsn (reason_code), cmd (rmm_command).

Explanation: A DFSMSrmm control variable or its subcommand is not supported by the DFSMSrmm release on your system.

User Response: Either re-run the copy job on a different system, or deselect the control variable for the copy request.
GTO092E  ReqNo(nnnnn), RMMcmd (rmm_command), rc (return_code), rsn (reason_code).

Explanation: A DFSMSrmm command failed with the specified return code and reason code. DFSMSrmm command failures are expected.

User Response: This message is for diagnostic use. For information about DFSMSrmm return codes and reason codes, see the IBM DFSMSrmm Guide and Reference.

GTO093E  Unable to obtain tape unit names.

Explanation: Tape Optimizer is unable to build the generic names table for the tape units.

User Response: Contact IBM Software Support for assistance.

GTO094E  Fatal Error. Memory Shortage.

Explanation: An error occurred because Tape Optimizer is unable to obtain a critical memory buffer.

User Response: Increase the size of the region in which the product executes.

GTO096E  LMINT rc (return_code).

Explanation: The ISPF LMINT service failed.

User Response: Look up the return code in ISPF services documentation to diagnose the problem. Correct the problem if possible. If you need assistance, contact IBM Software Support.

GTO098W  ReqNo(nnnnn), Data set(data_set_name) is already cataloged. Re-catalog skipped due to user request.

Explanation: While renaming tape data sets, Tape Optimizer skipped the specified data set because you selected an option to not recatalog data sets that were previously cataloged.

User Response: No action is required.

GTO101E  ReqNo(nnnnn), Request Database Allocate Failed - All Databases are in use.

Explanation: The copy job could not reserve a Request Database, as required, because other copy jobs have reserved all of the defined Request Databases.

User Response: You can obtain a Request Database for the copy job in one of the following ways:

- Wait for the copy jobs that are currently running to finish.
- Delete any "active" copy jobs that are not actually running from the Tape Optimizer interface.
- Allocate an additional Request Database.

GTO201E  One or more copy jobs are using the file file_name. Try again later.

Explanation: You cannot perform an operation from the Tape Optimizer interface because the named file is in use by one or more copy jobs. A file-sharing conflict is occurring between the interface and the running copy jobs.

User Response: Re-try the operation after all of the copy jobs that are using the file complete.

GTO202E  Function (function_name) - File operation failed due to memory shortage - file (file_name).

Explanation: The named function failed because the memory for it was insufficient.

User Response: Increase your TSO region size and try again.

GTO203E  Function (function_name) - Open failed for file (file_name).

Explanation: The named function failed to open the named file.

User Response: Ensure that the file exists.

GTO204E  Function (function_name) - VSAM I/O error. File (file_name), Verb (action), FDBK (feedback_code).

Explanation: The named function incurred an I/O error when attempting to access the specified file.

User Response: See the IBM VSAM programming manual for an explanation of the feedback code. Contact IBM Software Support if you need assistance.

GTO205E  Function (function_name) - RC (return_code).

Explanation: The named ISPF function failed with the specified return code.

User Response: See the IBM ISPF programming documentation for an explanation of the return code.
Appendix A. Messages

GTO206E  Function (function_name) - Maximum active copy requests exceeded.

Explanation: The total number of active copy requests exceeds the maximum number that is allowed (99,999).

User Response: Redefine the Tape Optimizer PARMS file. For instructions on manually defining this file and other product VSAM files, see the IBM Tivoli Tape Optimizer on z/OS User’s Guide.

GTO207E  Function (function_name) - Action cannot be performed on a existing copy request.

Explanation: You requested an action that cannot be performed on a copy request that has already been submitted to JES for execution.

User Response: Create a new copy request. Then perform the action on that request.

GTO208E  Function (function_name) - Either file open failure or memory allocation error.

Explanation: The specified function encountered an error that is related to opening a file or allocating memory.

User Response: Increase the TSO region size.

GTO210I  Function (function_name) - The Request was submitted for execution.

Explanation: The copy job was successfully submitted for execution.

User Response: No action is required.

GTO211E  The Copy Request is currently running.

Explanation: An attempt was made to edit a tape-copy job that is currently running. You cannot edit jobs that are running.

User Response: No action is required.

GTO212E  Warning: Not a valid tape Esoteric/Generic or tape unit address on this system.

Explanation: The tape unit that you specified does not exist on the system where the Tape Optimizer interface is running and on which you will run the copy job.

User Response: Ensure that the specified tape unit exists on the system on which you will run the copy job. If the tape unit does not exist there, edit the copy request to use another tape unit.

GTO213I  No messages to display.

Explanation: The log currently contains no messages for a copy job. Therefore, no messages can be displayed.

User Response: Before you can view messages on the log, you must run a copy job. Tape Optimizer will then generate and log messages for the job.

GTO214E  Delete for one or more completed requests failed.

Explanation: During interface startup, the cleanup process failed to delete one or more completed copy requests.

User Response: Delete the Tape Optimizer PARMS file, and then redefine it. For instructions on manually defining this file and other product VSAM files, see the IBM Tivoli Tape Optimizer on z/OS User’s Guide.

GTO215E  The field contains an invalid character.

Explanation: One or more characters that were typed in the field are invalid for the field type.

User Response: Type a valid value in the field. For information about valid values, press F1 for Help.

GTO216I  No statistics to display.

Explanation: No statistics records exist in the stats file so no statistics can be displayed.

User Response: No action is required. Statistics records will be created when a tape is copied.

GTO217E  VALID SELECTIONS ARE 1, 2, 3, 4, X OR PF3 TO EXIT.

Explanation: An invalid menu choice was specified.

User Response: Specify one of the valid menu choices that are listed in this message.

GTO218E  VALID SELECTIONS ARE 1, 2, 3, X OR PF3 TO EXIT.

Explanation: An invalid menu choice was specified.

User Response: Specify one of the valid menu choices that are listed in this message.

GTO219E  Valid commands are END or PF3 to exit and save or CANCEL.

Explanation: A command that is invalid on this menu panel was specified.
User Response: Specify a valid command. You can type END or press F3 to save your changes and exit, or type CANCEL to exit without saving.

GTO220E  Enter the Input Unit Name to be used for Tape Copies.

Explanation: The input tape unit name is required but is missing.

User Response: Specify a valid esoteric, generic unit name, or unit address for the tape unit or units on which input tapes will be mounted.

GTO221E  Enter the Output Unit Name to be used for Tape Copies.

Explanation: The output tape unit name is required but is missing.

User Response: Specify a valid esoteric, generic unit name, or unit address for the tape unit or units on which the output tapes will be mounted.

GTO225E  The 2nd VOLSER in the range must be greater than the 1st.

Explanation: When defining a copy request based on VOLSERs, you specified a VOLSER range that has an invalid ending VOLSER value. The ending VOLSER must be greater than the starting VOLSER.

User Response: Specify an ending VOLSER value that is greater than the starting VOLSER.

GTO226E  Specify how many days to retain the original tape.

Explanation: You must specify a value in the Number of Days to Retain Input Tapes field. This field is required.

User Response: Specify the number of days to retain the input tapes. This value is added to the date on which the copy job runs to calculate a new expiration date for the copied tapes. By default, this value is 14 days.

GTO227E  Supply a valid JOB card for copy jobs.

Explanation: You must specify the default job card information for your copy jobs. This information is required but is missing.

User Response: Specify the default job card information that you want Tape Optimizer to use for building your copy jobs.

GTO228E  VALID SELECTIONS ARE 1, 2, 3, 4, X OR PF3 TO EXIT.

Explanation: An invalid menu choice was specified.

User Response: Specify one of the valid menu choices that are listed in this message.

GTO229E  Valid commands are END or PF3 to exit and save or CANCEL.

Explanation: A command that is invalid on this menu panel was specified.

User Response: Specify a valid command. You can type END or press F3 to save changes and exit, or type CANCEL to exit without saving.

GTO230E  Enter a valid data set name or a mask with a trailing *.

Explanation: An invalid data set name was specified. This value must be either a fully qualified data set name (up to 44 characters in length) or a data set name mask that uses a single trailing asterisk (*) as a wildcard.

User Response: Specify either a valid data set name or a data set name mask with a trailing asterisk (*).

GTO231E  Enter a valid program name or a mask with a trailing *.

Explanation: An invalid program name was specified. This value must be either a full tape-creation program name (up to eight characters in length) or a program name mask that uses a single trailing asterisk (*) as a wildcard.

User Response: Specify a valid program name or a program name mask with a trailing asterisk (*).

GTO232E  VALID SELECTIONS ARE X OR PF3 TO EXIT.

Explanation: An invalid entry was specified on this menu panel. You can only type X or press F3 to exit the panel.

User Response: Type X or press F3 to exit.

GTO233E  Valid commands are END or PF3 to exit and save or CANCEL.

Explanation: A command that is invalid on this menu panel was specified.

User Response: Specify a valid command. You can type END or press F3 to save changes and exit, or type CANCEL to exit without saving.

GTO235E  Enter a valid RMM shelf location to exclude/include.

Explanation: An invalid DFSMSrmm location was entered as an inclusion or exclusion filter.

User Response: Type a valid DFSMSrmm location such as a shelf location.
**GTO236E** Enter a / to select or leave the field blank.

**Explanation:** An invalid selection character was entered.

**User Response:** Type a forward slash (/) or an ÂSÂ as the selection character, or leave the field blank if you do not want to not make a selection.

**GTO237E** Enter a value 1 thru 34 into the accounting field.

**Explanation:** An invalid value was entered in the Account Field Position field.

**User Response:** Specify a value from 1 through 34 in the Account Field Position field.

**GTO238E** Valid Tape Unit Types are 3420,3480,3490,3480/3490, and 3590.

**Explanation:** An invalid tape unit type was entered as an inclusion filter for input tape selection.

**User Response:** In the Input Tape Unit Device Type field, specify one of the valid tape unit types that are listed in this message. The value 3480/3490 is for any cartridge tapes other than 3590 tapes. You can also enter 348n (where n is a number) for other versions of 3480 tapes.

**GTO239E** Valid commands are END or PF3 to exit.

**Explanation:** A command that is invalid on this menu panel was specified.

**User Response:** Specify a valid command. You can either type END or press F3 to exit the panel.

**GTO240E** Create Request by VOLSER and Dataset are mutually exclusive.

**Explanation:** You attempted to define a new copy request based on both VOLSERs and data set names. These tape-selection criteria are mutually exclusive. You can specify only one of them.

**User Response:** Select the appropriate option to indicate whether to create the copy request based on VOLSERs or on data set names.

**GTO241E** Type a "/" or leave the field blank.

**Explanation:** An invalid selection character was entered.

**User Response:** Type a forward slash (/) or an ÂSÂ as the selection character, or leave the field blank if you do not want to not make a selection.

**GTO242E** Specify a max file count from 2 to 65535.

**Explanation:** An invalid value was specified for the maximum stacked tape file count. This value is the maximum number of files that you want Tape Optimizer to place on a stacked tape during a copy request for which stacking is enabled.

**User Response:** Specify a number from 2 through 65,535 as the maximum file count.

**GTO243E** Valid commands are END or PF3 to exit and save or CANCEL.

**Explanation:** A command that is invalid on this menu panel was specified.

**User Response:** Specify a valid command. You can type END or press F3 to save changes and exit, or type CANCEL to exit without saving.

**GTO244E** By VOLSER and By DSN selections are mutually exclusive.

**Explanation:** You attempted to define a new copy request based on both VOLSERs and data set names. These tape-selection criteria are mutually exclusive. You can specify only one of them.

**User Response:** When defining the basic copy request, specify either VOLSERs or data set names to identify the input tapes to copy. If necessary, you can create filters to refine the set of input tapes.

**GTO245E** You must select copy by VOLSER or Data Set Name.

**Explanation:** You did not specify whether to create the copy request based on VOLSERs or data set names. This information is required to identify the input tapes to copy.

**User Response:** Select the appropriate option to indicate whether to create the copy request based on VOLSERs or on data set names.

**GTO246E** UNIT and ST ORCLAS are mutually exclusive.

**Explanation:** When identifying an input tape unit or output tape unit for a copy request, you specified both a tape unit name and an SMS storage class. However, these parameters are mutually exclusive. You can specify only one of them.

**User Response:** Specify either a tape unit (esoteric, generic unit name, or unit address) or an SMS storage class.
GTO247E  Either UNIT or STORCLAS must be specified.

Explanation: To select an input tape unit or output tape unit for a copy request, you must specify either a tape unit name or an SMS storage class. This information is required but is missing.

User Response: Specify either a tape unit (esoteric, generic unit name, or unit address) or an SMS storage class. You cannot specify both of these values.

GTO248E  Valid commands are END or PF3 to save and exit or CANCEL.

Explanation: A command that is invalid on this menu panel was specified.

User Response: Specify a valid command. You can type END or press F3 to save changes and exit, or type CANCEL to exit without saving.

GTO249E  You must have a begin date to have an end date.

Explanation: An invalid date range was specified for the date filter. A date range must have a starting date as well as an ending date.

User Response: Specify a valid date range by entering both a starting date and an ending date.

GTO250E  Invalid RMM data set name/mask.

Explanation: An invalid date set name or name mask was specified.

User Response: Specify a valid date set name or mask.

GTO300E  Invalid parameters.

Explanation: Invalid parameters were passed to the Tape Optimizer GTOUTIL utility.

User Response: Correct the invalid parameter. You can specify one of the following valid parameters: RELEASE (to release copied tapes that are being held by VRS rules to the scratch pool), SUMMARY (to print the summary report that is included in the job output), or STACKRPT (to print a stacked-tape summary report). For more information about these GTOUTIL parameters, see the IBM Tivoli Tape Optimizer on z/OS User’s Guide.

GTO301I  Tape \( (\text{volser}) \) Released.

Explanation: The tape that has the specified VOLSER was released to the scratch pool for reuse.

User Response: No action is required.

GTO302I  Tape Release function complete.

Explanation: The copied tapes that met the release criteria have been released to the scratch pool.

User Response: No action is required.

GTO303E  Eligibility check call failed. Unit is not a tape drive.

Explanation: Tape Optimizer passed a tape unit name that is specified for the copy request to SMS for tape-unit allocation. However, the device that was allocated is not a tape drive.

User Response: Specify a valid tape drive unit name. Then re-run the copy request.

GTO304I  Copy Task (\( n \)) - Stacked limit exceeded. Begin new stacked tape.

Explanation: During a stacked tape build, either the maximum file count or the maximum byte threshold limit was reached for the stacked tape. As a result, Tape Optimizer automatically loads a new tape.

User Response: No action is required.

GTO305E  Copy Request was not a stacked tape build.

Explanation: The GTOUTIL utility found that the copy request does not use tape-stacking. Therefore, you cannot produce a stacked tape report for this request.

User Response: Edit the GTOUTIL PARM statement for creating the stacked tape report to specify a copy request that has a stacked-tape build.

GTO306E  GetUNIT failed. Recatalog skipped.

Explanation: Tape Optimizer is unable to obtain the tape unit type for a data set recataloging operation.

User Response: Contact IBM Software Support.

GTO307E  Dataset (\( \text{data_set_name} \)) uncatalog failure rc (\( \text{return_code} \)).

Explanation: The specified data set failed to be uncataloged during a recataloging operation.

User Response: Read the GTO050I messages in the copy log to determine the cause of the failure.

GTO308E  Dataset (\( \text{data_set_name} \)) catalog failure rc (\( \text{return_code} \)).

Explanation: The specified data set failed to be cataloged during a recataloging operation.
User Response: Read the GTO050I messages in the copy log to determine the cause of the failure.

GTO310W  ReqNo(nnnnn), Dataset (data_set_name) is not cataloged. Re-catalog skipped.

Explanation: Because Tape Optimizer is copying an uncataloged data set, it does not attempt to recatalog the data set. The new data set will also not be cataloged.

User Response: No action is required.

GTO320W  Tape (volser): cannot copy NL tape with block size > 32760.

Explanation: Tape Optimizer currently does not support the Large Block Interface (LBI) for nonlabeled tapes.

User Response: Copy this nonlabeled tape by using another utility.

GTO321W  Tape (volser): cannot use input block size of > 32760.

Explanation: The Large Block Interface (LBI) is not compatible with the option to preserve the input tapes' block size.

User Response: Deselect the Use Input Block Size for Output Files option for the copy request, or use another utility to copy the tape.

GTO330I  Tape (volser), Assigned Date (julian_date): excluded by assigned date filter.

Explanation: The tape that has the specified volser is excluded from copying because of a date exclusion filter that specifies an assigned date range.

User Response: No action is required.

GTO340E  Error occurred while deleting request (nnnn).

Explanation: An error occurred while Tape Optimizer was attempting to delete a copy request at the completion of a batch copy job.

User Response: Attempt to delete the copy request from the Tape Optimizer interface.

GTO341I  Request (nnnn) was deleted.

Explanation: A copy request that was created manually (not from the Tape Optimizer interface) was deleted after it completed. Tape Optimizer automatically deletes copy requests when they finish.

User Response: No action is required.

GTO350I  Copy Task(nnnn) - Stacked Tape (volser) synchronized.

Explanation: A restarted copy request that has tape-stacking enabled has successfully located the end of the stacked tape and can resume writing data.

User Response: No action is required.

GTO351I  RMMCMD (rmm_command), rc (return_code).

Explanation: A CONFIRM NOTIFY command was issued for a tape that Tape Optimizer is holding by using the NOTIFY PENDING status. Tape Optimizer uses NOTIFY PENDING to retain a copied tape when a VRS rule would otherwise release the tape.

User Response: No action is required.

GTO352W  Tape Chain (base_volser) is not in a state that can be copied.

Explanation: After a tape chain was selected for copying, the status of its base volser changed to SCRATCH or RELEASE PENDING. As a result, the tape chain will not be copied.

User Response: No action is required.
GTO353E  RMMCMD rc (return_code), rsn (reason_code), cmd (rmm_command).

Explanation: The named DFSMSrmm command failed with the specified return code and reason code.

User Response: To determine the cause of the failure, look up the return code and reason code in the IBM DFSMSrmm documentation.

GTO354I  ReqNo(nnmmm), Tape(volser), Create Date(julian_date): included by creation date filter.

Explanation: The tape that has the specified volser is selected for copying based on an inclusion filter that specifies a tape-creation date.

User Response: No action is required.

GTO355I  ReqNo(nnmmm), Tape (volser), Assigned Date (julian_date): included by assigned date filter.

Explanation: The tape that has the specified volser is selected for copying based on an inclusion filter that specifies an assigned date range.

User Response: No action is required.

GTO356I  ReqNo(nnmmm), Tape (volser), Last Referenced (julian_date): included by last ref date filter.

Explanation: The tape that has the specified volser is selected for copying based on an inclusion filter that specifies a DFSMSrmm last referenced date.

User Response: No action is required.

GTO357I  ReqNo(nnmmm), Tape (volser): included by Location filter.

Explanation: The tape that has the specified volser is selected for copying based on an inclusion filter that specifies a DFSMSrmm location such as a shelf location.

User Response: No action is required.

GTO359I  ReqNo(nnmmm), Tape (volser): Dataset (data_set_name) included by Create PGM filter.

Explanation: The tape that has the specified volser is selected for copying based on an inclusion filter that specifies tape-creation program names.

User Response: No action is required.

GTO360I  ReqNo(nnmmm), Tape (volser): Dataset (data_set_name) included by data set filter.

Explanation: The tape that has the specified volser is selected for copying based on an inclusion filter that specifies data set names.

User Response: No action is required.

GTO361I  ReqNo(nnmmm), Tape (volser): Dataset (data_set_name) included by SYSID filter.

Explanation: The tape that has the specified volser is selected for copying based on an inclusion filter that specifies the system IDs of processors on which the tapes were created.

User Response: No action is required.

GTO362I  ReqNo(nnmmm), BaseVOL (volser), Chain excluded from copy due to unmatched include filter(s).

Explanation: The tape chain that begins with the specified base volser was excluded from copying because it did not contain a tape volume or data set that matched all of the inclusion filters.

User Response: No action is required.

GTO363I  Stacked Meg Total(x), Stacked Byte Total(nnnnnn), Stacked Meg limit(nnnnnnnn).

Explanation: This informational message specifies the amount of data (in megabytes) that has been written to the stacked tape.

User Response: No action is required.

GTO400I  Enter Restart Option for Copy Request (nnnn).

Explanation: The specified copy request was manually created using the REQU_RQDBNUM=nn parameter to reserve a Request Database. However, the Request Database is already in use by another copy request, which is waiting to be restarted.

User Response: See message GTO401I for the appropriate responses.
Appendix A. Messages

GTO401I  Reply - (T)erminate/(R)eset and start new copy request.

Explanation: The copy request that is identified in message GTO400I was manually created using the REQU_RQDBNUM=nn parameter to reserve a Request Database. However, the specified Request Database is already in use by another copy request that has the status ACTIVE but that has actually stopped running. The new copy request cannot proceed.

User Response: You can either terminate the new, manually created copy request or delete the information for the previous copy request from the Request Database, as follows:

- Specify T (Terminate) to end the new copy request that you manually created. You can then restart the previous copy request that is using the Request Database to allow that request to complete and release the Request Database.
- Specify R (Reset) to delete the information for the previous copy request from the Request Database, thereby releasing the Request Database. Then resubmit the new, manually created copy request that specifies this Request Database.

GTO402I  Reply - Invalid Reply.

Explanation: An invalid reply was made to the operator request GTO401I.

User Response: Specify T to end the batch copy job, or specify R to delete the old copy request that is using the Request Database and to start a new copy request for the batch copy job.

GTO404W  Copy Task (task_number) - Allocation retry.

Explanation: The reallocation of a tape unit failed. The tape unit needs to be reallocated to copy a large tape data set that spans more than five tape volumes. Tape Optimizer will attempt to reallocate the tape unit up to the time limit that is specified in the Number of Seconds to Retry Re-Allocation field.

User Response: Ensure that the value in the Number of Seconds to Retry Re-Allocation field provides sufficient time for retrying tape-unit reallocation.

GTO405I  Upgrading PARMS file.

Explanation: You installed a new version of Tape Optimizer. Your existing PARMS file is being upgraded.

User Response: No action is required.

GTO406I  Upgrading Request PARMS.

Explanation: You installed a new version of Tape Optimizer. Your existing PARMS file is being upgraded.

User Response: No action is required.

GTO407E  Unable to attach unhook task.

Explanation: The End-of-Task subtask failed to attach.

User Response: Ensure that the product is properly installed.

GTO408W  Restricted parameter cannot be changed during restart: Parameter name (parm_name), retained value (parm_value)

Explanation: The specified parameter cannot be changed after the copy job has begun copying tapes.

User Response: No action is required. The old parm value is retained.

GTO409W  Copy Task (task_number) - Copy Error on Input Tape. Chain will be skipped and execution will continue.

Explanation: An input tape error has occurred. Tape Optimizer will skip the tape chain that contains the tape in error and continue to the next tape chain. This behavior occurs because you chose the Continue Copy Following a Copy Utility Failure option.

User Response: No action is required.

GTO410I  set queue non-dispatchable

Explanation: This internal message indicates that the dispatcher is shutting down after a copy error.

User Response: No action is required.

GTO411I  ReqNo(nnnnn), Tape (volser), Assigned Date (date): assigned date filter include filter not matched

Explanation: Tape Optimizer matched a tape volume against a date filter that specifies an assigned date. The tape volume did not match this filter criteria.

User Response: No action is required. The tape volume will be excluded from copying unless another volume in the same tape chain matches the filter criteria.

GTO412I  ReqNo(nnnnn), Tape (volser), Last Referenced (date): last ref date include filter not matched

Explanation: Tape Optimizer matched a tape volume against a date filter that specifies a last-referenced date. The tape volume did not match this filter criteria.

User Response: No action is required. The tape volume will be excluded from copying unless another volume in the same tape chain matches the filter criteria.
GTO413I  

ReqNo(mmmm), Tape (volser), Expires (date): included by expiration date filter

Explanation: Tape Optimizer matched a tape volume or data set against a date filter for including tapes or data sets that expire after a specific date. The volume or data set matched this filter criteria.

User Response: No action is required. The tape volume or data set will be eligible for copying unless it is excluded by another filter.

GTO414I  

ReqNo(mmmm), Tape (volser), Expires (date): expiration date include filter not matched

Explanation: Tape Optimizer matched a tape volume or data set against a date filter for including tapes or data sets that expire after a specific date. The volume or data set did not match this filter criteria.

User Response: No action is required. If the copy request is based on volser, the tape volume will be excluded from copying unless another volume in the same tape chain is included by this date filter. If the copy request is based on data set names, the data set will be excluded from copying.

GTO415I  

Tape (volser): include Location filter(s) not matched

Explanation: Tape Optimizer matched a tape volume against a filter that specifies the DFSMSrmm locations to include. The volume did not match this filter criteria.

User Response: No action is required. The volume will be excluded from copy unless another volume in the same tape chain matches the filter criteria.

GTO416I  

ReqNo(mmmm), Tape (volser), Ret Date (date), Exp Date (date): included by retention date filter

Explanation: Tape Optimizer matched a tape volume or data set against an expiration date inclusion filter by using a VRS retention date rather than an expiration date. Based on its retention date, the volume or data set matched the filter criteria.

User Response: No action is required. The tape volume or data set will be eligible for copying unless it is excluded by another filter.

GTO417I  

ReqNo(mmmm), Tape (volser), Ret Date (date), Exp Date (date): include retention date filter not matched

Explanation: Tape Optimizer matched a tape volume or data set against an expiration date inclusion filter by using a VRS retention date rather than an expiration date. Based on its retention date, the volume or data set did not match this filter criteria.

User Response: No action is required. If the copy request is based on volser, the tape volume will be excluded from copying unless another volume in the same tape chain is included by this date filter. If the copy request is based on data set names, the data set will be excluded from copying.

GTO418I  

ReqNo(mmmm), Tape (volser): include VOLSER filter not matched

Explanation: Tape Optimizer matched a tape volume against a VOLSER inclusion filter. The volume did not match the filter criteria.

User Response: No action is required. The tape volume will be excluded from copying unless another tape volume in the same tape chain matches the filter criteria.

GTO419I  

ReqNo(mmmm), Tape (volser): Dataset (data_set_name) include Create PGM filter not matched

Explanation: Tape Optimizer matched a tape data set against an inclusion filter that specifies the names of programs that created tape data sets. The data set did not match the filter criteria.

User Response: No action is required. If the copy request is based on data set names, the data set will be excluded from copying. If the copy request is based on volser, the data set will be excluded from copying unless another data set on a volume in the same tape chain matches the filter criteria.

GTO420I  

ReqNo(mmmm), Tape (volser): Dataset (data_set_name) include data set filter not matched

Explanation: Tape Optimizer matched a data set against a data-set-name inclusion filter. The data set did not match the filter criteria.

User Response: No action is required. If the copy request is based on data set names, the data set will be excluded from copying. If the copy request is based on volser, the data set will be excluded from copying unless another data set on a volume in the same tape chain matches the filter criteria.

GTO421I  

Volume (volser), Dataset (data_set_name), Dsseq(data_set_seq_number) include by catalog option not matched

Explanation: Tape Optimizer matched a data set against a filter for including only cataloged data sets. The data set did not match this filter criteria.

User Response: No action is required. If the copy request is based on data set names, the data set will be excluded from copying. If the copy request is based on volser, the data set will be excluded from copying unless another data set on a volume in the same tape chain matches the filter criteria.
Appendix A. Messages

**GTO422I**  
ReqNo(nnnnn), Volume (volser), Dataset (data_set_name), Dsseq (data_set_seq_number) included by catalog option

**Explanation:** Tape Optimizer matched a data set against an inclusion filter for including only cataloged data sets. The data set matched this filter criteria because it is in the system catalog.

**User Response:** No action is required. The data set will be eligible for copying unless it is excluded by another filter.

**GTO423I**  
ReqNo(nnnnn), Tape (volser): Dataset (data_set_name) include SYSID filter not matched

**Explanation:** Tape Optimizer matched a tape volume against an inclusion filter that specifies the system IDs of processors on which tapes were created. The volume did not match this filter criteria.

**User Response:** No action is required. The tape volume will be excluded from copying unless another volume in the same tape chain matches the filter criteria.

**GTO424W**  
Copy Utility error. Job will continue due to user request.

**Explanation:** An error occurred when Tape Optimizer was attempting to copy a tape. Because you selected the Continue Copy Following a Copy Utility Failure option, the copy request will continue.

**User Response:** Find the copy error messages for the input tape chain in the job output. Note the requested tape that was not copied.

**GTO425W**  
ReqNo(nnnnn), Copy Utility error. Job will terminate.

**Explanation:** An error occurred when Tape Optimizer was attempting to copy a tape. Because you did not select the option to continue when a tape copy failure occurs, the copy request will terminate.

**User Response:** Determine if you want to exclude this tape. If so, you can edit the copy request to exclude the tape, and then resubmit the copy request. The request will restart from the point at which it left off.

**GTO426E**  
Post Copy Processing - VOLCHAIN BASE (base_volser)- invalid expiration date.

**Explanation:** During post-copy processing, Tape Optimizer was unable to find a suitable assigned date to apply to a new stacked tape.

**User Response:** The copy request terminates. Contact IBM Software Support.

**GTO427E**  
Post Copy Processing - VOLCHAIN BASE (base_volser)- invalid assigned date.

**Explanation:** During post-copy processing, Tape Optimizer was unable to find a suitable assigned date to apply to a new stacked tape.

**User Response:** The copy request terminates. Contact IBM Software Support.

**GTO428E**  
Post Copy Processing - VOLCHAIN BASE (base_volser)- no valid dates found for stacked tape.

**Explanation:** During post-copy processing, Tape Optimizer was unable to find suitable dates to apply to a new stacked tape.

**User Response:** The copy request terminates. Contact IBM Software Support.

**GTO429E**  
Post Copy Processing - VOLCHAIN BASE (base_volser)- catalog processing skipped. Expiration var copy excluded.

**Explanation:** During post-copy processing, Tape Optimizer skipped the recataloging of tape data sets and the calculation of new expiration dates for the input tapes because the original expiration dates were not applied to the output tapes.

**User Response:** The copy request terminates. Contact IBM Software Support.

**GTO430I**  
Restart - Retesting Volume and Dataset Filters.

**Explanation:** A copy request was restarted. Tape Optimizer is reprocessing volser and data-set-name filters to determine if any of the previously selected tape volumes should be excluded.

**User Response:** No action is required.

**GTO431I**  
All stats for request number (request_number) have been deleted.

**Explanation:** The GTOTUIL program has deleted the stats for the copy request that has the specified request number.

**User Response:** No action is required.

**GTO432I**  
stats records read (number), stat records deleted (number).

**Explanation:** The GTOTUIL program reorganized the stats file. This message indicates the number of records that were read and the number of records that were deleted during the reorganization process.
User Response: No action is required.

GTO433W  Metadata cleanup.

Explanation: Tape Optimizer detected that DFSMSrmm metadata entries were deleted during cleanup processing.

User Response: No action is required.

GTO434W  RMM var(rmm_variable_name) was all blanks

Explanation: DFSMSrmm returned a blank value for the specified DFSMSrmm control variable for the tape data set or volume that was selected for copying. A blank value is not valid for this variable. Usually, this situation is caused by an error that is made when converting from another tape library management system or when manually editing tape library information. Tape Optimizer will not apply the blank value for this variable to the output tape.

User Response: No action is required. The copy operation will proceed. However, you should add a valid value to the specified DFSMSrmm variable for the tape data set or volume.

GTO435E  Invalid SIOTX address.

Explanation: Tape Optimizer is unable to locate the Step Input Output Table Extended (SIOTX) for a tape.

User Response: Ensure that you are running Tape Optimizer on a supported release of z/OS. If your z/OS release is supported, contact IBM Software Support for further assistance.

GTO436E  parm value, parm value, parm value, invalid value(s).

Explanation: This message identifies up to three related tape-copy parameters that have invalid values.

User Response: To determine the correct parameter values, you can define the copy request by using the Tape Optimizer ISPF interface. Then inspect the JCL that Tape Optimizer generates for the copy request to identify the valid parameter values. In your copy job, specify these valid values for the parameters that are in error. When you are finished, resubmit your copy job.

GTO437I  programname(copy_utility_name) copied x bytes.

Explanation: While stacking data on tapes for a copy job, the ADRDSSU utility recorded the specified number of bytes as being written to an output tape.

User Response: No action is required.

GTO438E  Request Database Allocate Failed, rc(general return code), rc1(return code), rsn1(reason code1), rsn2(reason code2).

Explanation: Tape Optimizer was unable to allocate a Request Database by using dynamic allocation. This message provides the return codes and reason codes that were returned for the failed allocation attempt. For more information about the error, look up the return codes and reason codes in the IBM publication Authorized Assembler Services Guide.

User Response: Ensure that the file names that are defined in the FILEDEFS file are correct. If necessary, correct any name in error, and then restart the copy request.

GTO439E  Invalid From Mask(rename_mask).

Explanation: The specified "From" mask for renaming the output data sets is invalid. A "From" mask is matched against the input tape data set names to determine which data sets to rename. For more information about renaming masks, see Chapter 5, "Defining and managing copy requests," on page 45 in this publication.

User Response: Correct the specified "From" mask for the copy request. A "From" mask can include one or more data-set-name qualifiers and wildcards.

GTO440E  New Data Set Name exceeds 44 characters, Old Name(data_set_name).

Explanation: A new data set name was generated for an output data set based on a "From" mask and a "To" value in the renaming criteria for the copy request. The new name exceeds the maximum allowable length of 44 characters.

User Response: Correct the "From" or "To" mask in the renaming criteria to ensure that output data set names of 44 characters or less will be generated.

GTO441E  Invalid Relative GDG Data Set Name(tape_data_set_name).

Explanation: The specified generation data set name includes parentheses for indicating a relative generation number. However, no relative generation number is specified within the parentheses. Therefore, Tape Optimizer cannot identify the generation data set to copy.

User Response: If you want to copy a generation data set based on a relative generation number, you must specify a relative number within the parentheses in the tape data set name. Specify 0 to indicate the current generation data set. Specify a negative number to indicate a prior generation data set (relative to the current data set). For example, (-1) would indicate one generation data set back from the current data set.
Appendix A. Messages

GTO442E  GDG Data Set Name base not found(tape_data_set_name).

Explanation: The specified tape data set name appears to be for a generation data set. However, a GDG base entry does not exist.

User Response: Edit the data set name to indicate a generation data set for which a GDG base entry exists.

GTO443E  filename(file_name), file close error rc(close_return_code).

Explanation: A failure occurred when Tape Optimizer was attempting to close the named data set during copy request processing.

User Response: Ensure that all file definitions in the FILEDEFS file are correct. Also check the copy job log for other messages that are related to this error.

GTO444E  Function(internal_function_name) - The submit command failed to schedule the job.

Explanation: An attempt to submit a tape copy job from the Tape Optimizer interface failed.

User Response: Check that the JCL for the copy job that was generated from the interface still exists and was not inadvertently deleted.

GTO445E  Specify how many log entries to allocate.

Explanation: The Tape Optimizer parameter that specifies the maximum number of copy log entries has an invalid value.

User Response: Specify a number from 1000 through 9999999 to indicate the maximum number of message entries that the log can contain. Alternatively, specify a value of 0 to disable logging.

GTO446E  Specify how many seconds to retry device reallocation.

Explanation: The Tape Optimizer parameter that specifies the maximum number of seconds to retry tape unit reallocation has an invalid value. This parameter is used when Tape Optimizer is copying an extremely long tape data set that spans multiple tape volumes. For this type of copy operation, Tape Optimizer must deallocate and reallocate the input tape unit during copy processing. If the first attempt to reallocate the tape unit fails, Tape Optimizer retries the allocation up to the number of seconds that you specify.

User Response: Specify a number from 0 through 9999 seconds to indicate the maximum number of seconds that you want Tape Optimizer to retry tape unit reallocation.

The value of 0 causes no retries to be attempted and the copy job to terminate.

GTO447E  Specify how many seconds to retry device allocation.

Explanation: An invalid value was specified for the parameter that specifies how long to retry tape unit allocation when the initial allocation attempt fails. Usually, the initial allocation attempt fails because all tape units are in use.

User Response: Specify a number from 0 to 9999 seconds. If you specify 0, Tape Optimizer makes no retry attempts and the copy job terminates.

GTO448E  Valid commands are END or X to exit.

Explanation: An invalid primary command was specified at the command line. The only valid commands on this panel are END and X.

User Response: Specify either END or X to exit.

GTO449E  GDG Data Set Name not found(data_set_name).

Explanation: The specified name of a relative generation data set within a generation data group (GDG) was not found in the catalog.

User Response: Correct the generation data set name and resubmit the copy job.

GTO450I  ReqNo(nnnnn),Scanning data set mask(data_set_name_mask), volchain(volser),dsseq(nnnnn).

Explanation: This informational message indicates that Tape Optimizer is scanning the tape library database for the specified data set mask, volser, and DSSEQ value.

User Response: No action is required.

GTO451I  ReqNo(nnnnn),Attempting to resolve datasets for VOLUME(volser), DSSEQ(nnnnn).

Explanation: This informational message indicates that Tape Optimizer is scanning the tape volume for the data sets to be selected for the copy operation.

User Response: No action is required.

GTO452I  ReqNo(nnnnn),BaseVOL(volser),Chain - n datasets selected for copy.

Explanation: This informational message provides the results from scanning the specified tape volume chain for the data sets to copy.

User Response: No action is required.
**GTO453E** VOLSER is required when selecting all datasets.

**Explanation:** While creating a copy request based on data set names, a user specified only the asterisk (*) wildcard as a data-set-name mask without also specifying a VOLSER. When this wildcard is used by itself to select all data sets, a VOLSER must be specified.

**User Response:** Specify a tape VOLSER value for the data-set-name mask that specifies only the asterisk (*) wildcard.

**GTO454E** invalid tape file sequence number.

**Explanation:** While creating a copy request based on data set names, a user specified an invalid DSSEQ value.

**User Response:** Specify a number from 0 through 99999 or the asterisk (*) wildcard for the DSSEQ value.

**GTO455I** Tape Optimizer Version Vvv.rr.mm.

**Explanation:** This message indicates the product version by providing the version.release.build number.

**User Response:** No action is required.

**GTO456I** main task end.

**Explanation:** The thread for main product task has ended.

**User Response:** No action is required.

**GTO457W** ReqNo(nnnnn),VOLUME(volser) Already Copied.

**Explanation:** The named volume was previously copied. It excluded from the current copy operation because the REQU_EXCL_PREVCPY parameter is set to Y.

**User Response:** No action is required.

**GTO458E** GetStatDBRec - malloc failure.

**Explanation:** A memory allocation failure occurred.

**User Response:** Increase the region size and resubmit the copy job.

**GTO459E** No tape expiration if Copy Tape Without Recatalog.

**Explanation:** Because you selected the Copy Tape Without Recatalog option (or set REQU_NO_RECATALOG=Y), the input tape will not be expired after the copy job completes, even if you specified a value between 0 and 999 in the Number of Days to Retain Input Tapes field (REQU_RETAIN_DAYS parameter).

**User Response:** Either deselect the Copy Tape Without Recatalog option (set REQU_NO_RECATALOG=N) or set the Number of Days to Retain Input Tapes option (REQU_RETAIN_DAYS parameter) to 999. Both of these actions cause Tape Optimizer to not calculate a new expiration date for copied tapes.

**GTO460I** ReqNo(nnnnn),BaseVOL(volser),Chain (volser,volser,...) Chainlength(n).

**Explanation:** This message describes the tape volume chain that is being processed.

**User Response:** No action is required.

**GTO461E** Threshold must be between nnn and nnnnnnn.

**Explanation:** An invalid value was specified for a stacked tape media threshold.

**User Response:** Specify a number that is within the range of valid values that this message specifies.

**GTO462E** Specify a number between 1 and 10.

**Explanation:** An invalid value was specified for the number of concurrent copies. This value is the number of copy subtasks that you want to run concurrently for a copy request. You can run up to 10 subtasks concurrently.

**User Response:** Specify a number from 1 through 10.

**GTO470E** this variable is currently read only.

**Explanation:** A parameter value cannot be changed because the parameter is currently in a read-only state. Some parameters cannot be changed after a copy job has started.

**User Response:** No action is required.

**GTO700E** ReqNo(number), VOLUME (volser), dataset(data_set_name) invalid catalog entry found.

**Explanation:** The specified data set was found in the system catalog. However, the data-set sequence number (DSSEQ) of that data set on the tape does not match the sequence number in the system catalog. The copy job will either continue to the next data set or tape volume or will terminate, depending on how you set the option Continue When Invalid Catalog Entries Found.

**User Response:** Correct the invalid catalog entry and re-run the copy job for any data sets or volsers that were not copied.
GTO701E ReqNo(########), Copy job terminated because of User option.

**Explanation:** An invalid catalog entry was found for a tape data set. The copy job terminated because the option *Continue When Invalid Catalog Entries Found* was set to *No* for the copy job.

**User Response:** Correct the invalid catalog entry and re-run the copy job.

GTO703E Unable to parse catalog entry.

**Explanation:** Tape Optimizer cannot parse a catalog entry for a tape data set because the IDCAMS output is not as expected.

**User Response:** Contact IBM Software Support.

GTO704W ReqNo(########), New Name(data_set_name) is already cataloged on the input volume. Recatalog is skipped.

**Explanation:** Tape Optimizer renamed a data set on the input tape based on the renaming criteria that was specified in the copy job. However, the new data set name already exists for a data set on the input tape. As a result, Tape Optimizer does not recatalog the renamed data set under its new name.

**User Response:** Check the new data set name that Tape Optimizer generated to ensure that it is correct. If necessary, correct the renaming criteria in the copy job.

GTO710E Unable to create RMM handle.

**Explanation:** DFSMSrmm was unavailable, or the copy job did not have sufficient storage space.

**User Response:** Ensure that DFSMSrmm is running. Also check the region size in the JCL for the copy job. A region size of 20 MB is recommended for a copy job that runs five or fewer subtasks concurrently. A region size of 40 MB is recommended for a copy job that runs more than five subtasks concurrently.

GTO750I Recovery routine entered.

**Explanation:** The copy job terminated abnormally. The Tape Optimizer recovery routine has been invoked.

**User Response:** No action is required.

GTO755I Report file GTOUTRPT open error.

**Explanation:** No GTOUTRPT DD statement was included in the JCL for the copy job. Tape Optimizer will still write the summary report that is generated for the copy job to your system’s default SYSOUT print destination.

**User Response:** To avoid this message, add a GTOUTRPT DD statement to the JCL for the copy job. For instructions, see Appendix B, “Manually creating JCL for a Tape Optimizer job,” on page 127.

GTO780I programname( tape_copy_program )

**Explanation:** This message identifies the program that Tape Optimizer will use to copy the selected tapes. Usually, this program is IEBGENER.

**User Response:** No action is required.
Appendix B. Manually creating JCL for a Tape Optimizer job

You should create copy requests from the Tape Optimizer ISPF interface to ensure that the JCL is coded properly and that the validity of the values you enter is checked. However, if you are an advanced user and prefer to manually create the JCL for your batch copy jobs, you can do so. You should first set up a similar copy request from the Tape Optimizer interface to use as a template. Save the JCL that Tape Optimizer generates for that copy request to a file. You can then edit the file to tailor the JCL for your site’s needs. For example, you might want to create a file for each job that you run on regular basis (daily, weekly, and so on) from a job scheduler.

This appendix summarizes the basic JCL that Tape Optimizer requires. It also describes the required and optional parameters that you can add to the JCL. For manually created copy jobs, Tape Optimizer checks the validity of the parameter names but does not check the parameter values.

Basic JCL for a tape-copy job

The basic JCL for a tape-copy job requires the following statements:

```plaintext
//PDABCDAA JOB 01,'MYJOB',MSGCLASS=X, CLASS=A
//COPY1 EXEC PGM=GTOCOPY,REGION=20M                          Note 1
//STEPLIB DD DSN=PDABCDAA.GTO.LOAD,DISP=SHR                   Note 2
//FILEDEFS DD DSN=PDABCDAA.GTO.FILEDEFS,DISP=SHR               Note 3
//GTOUTRPT DD SYSOUT=*,DCB=(BLKSIZE=133,LRECL=133,RECFM=FBA), Note 4
//  SPIN=UNALLOC
//GTOTSSUM DD SYSOUT=*,DCB=(BLKSIZE=133,LRECL=133,RECFM=FBA), Note 5
//  SPIN=UNALLOC
//SYSPR001 DD SYSOUT=*                                        Note 6
//ADRP001 DD SYSOUT=*                                         Note 7
//SYSIN001 DD DUMMY                                           Note 8
//STKND001 DD DUMMY,DCB=BLKSIZE=3200                          Note 8
//ADRIN001 DD *                                               Note 8
COPYDUMP INDD(TPDDI001) OUTDD(TPDDO001)
//TCOPARMS DD *                                               Note 9
```

Notes:

1. The EXEC statement invokes the Tape Optimizer program. Include the REGION parameter to specify the maximum amount of real or virtual storage that the program can use. Set the REGION parameter to 20 MB if you will run five or fewer subtasks concurrently, or set the REGION parameter to 40 MB if you will run more than five subtasks concurrently.

2. The STEPLIB DD statement points to the program load library.

3. The FILEDEFS DD statement points to a file that identifies all of the other product files. The names of these files are set during product customization.

4. The GTOUTRPT DD statement, as shown, writes the Request Summary report for the copy job to your system’s default SYSOUT print destination. Be sure to include the specified DCB parameters in this statement. If you want to separate the report output from the rest of the job output, also include the SPIN=UNALLOC parameter. If you do so, you will be able to find the report more easily when viewing job output from SDSF. Alternatively, you can write the report to a specific data set by using the DSNNAME parameter as follows:

   ```plaintext
   //GTOUTRPT DD DSN=MY.REPORTS(RPTNAME),DISP=SHR
   ```

   If you do not include a GTOUTRPT DD statement in the JCL, the message GTO755I is issued.
5. The GTOTSSUM DD statement writes the Tape Selection Summary report for the copy job to your system’s default SYSOUT print destination. Be sure to include the specified DCB parameters in this statement. If you want to separate the report output from the rest of the job output, also include the SPIN=UNALLOC parameter. Alternatively, you can write the report to a specific data set by using the DSNAMES parameter.

If you do not include a GTOTSSUM DD statement in the JCL, the message GTO755I is issued.

6. The SYSPR001 DD is the SYSPRINT statement for the first copy task. If you run multiple copy tasks for a copy job, specify this DD statement for each copy task. You can specify SYSPR001 through SYSPR010.

7. The ADRPR001 DD statement is for the ADRDSSU output that is produced when Tape Optimizer uses the ADRDSSU utility to copy data.

8. Also specify a SYSIN0n DD statement, a STKND0n DD statement, and an ADRIN0n DD statement for each copy task. You can specify SYSIN001 through SYSIN010, STKND001 through STKND010, and ADRIN001 through ADRIN010. In the STKND0n statements, ensure that you include DCB=BLKSIZE=3200.

9. After the //TCOPARMS DD * statement, list all of the parameters that you want to use for the tape-copy job.

Also, if you first generated the JCL from the Tape Optimizer ISPF interface as a template, as recommended, the JCL will include the optional SYSUDUMP DD and CEEDUMP DD statements, as follows:

//SYSUDUMP DD SYSOUT=*  
//CEEDUMP DD SYSOUT=*  

You should retain these statements. They will provide diagnostic dump data that you can submit to Technical Support upon request when a copy job abends.

Required parameters

To identify the tapes or data sets to copy, you must specify either tape volser or data set names. To do so, use the parameters that are described in this section. Do not specify both volser parameters and data set name parameters for a job.

Volser parameters

You can specify a range of volser, a single volser, or a volser mask. To specify a range of volser, use both the REQU_TABLE_BY_BEGN_VOLSER_nnnn and REQU_TABLE_BY_END_VOLSER_nnnn parameters with the same ending nnnn value. To specify a single volser or a volser mask, use only the REQU_TABLE_BY_BEGN_VOLSER_nnnn parameter.

You can specify from 0001 through 9999 for the ending nnnn value in the parameter names. For each new parameter or set of parameters, increment the nnnn value by one.

REQU_TABLE_BY_BEGN_VOLSER_nnnn= volser  
Specifies one of the following: the first volser in a range of volser to copy, a single volser to copy, or a volser mask. A specific volser value or a volser mask can be up to six characters in length. A mask is composed of the first part of a volser value followed by the asterisk (*) wildcard. Tape Optimizer matches a mask against actual volser values to identify a set of tapes to copy.

REQU_TABLE_BY_END_VOLSER_nnnn=volser  
Specifies the last volser in a range of volser to copy. A volser value can be up to six characters in length.
For example, the following parameters specify three volser ranges (ABC123 through
ABC130, BCD234 through BCD240, and C50100 through C50200), a single volser
(123456), and a volser mask (SMI*):

```
//TCOPARMS DD *
REQU_TABLE_BY_BEGN_VOLSER_0001=ABC123
REQU_TABLE_BY_BEGN_VOLSER_0002=BCD234
REQU_TABLE_BY_BEGN_VOLSER_0003=123456
REQU_TABLE_BY_BEGN_VOLSER_0004=SMI*
REQU_TABLE_BY_BEGN_VOLSER_0005=C50100
REQU_TABLE_BY_END_VOLSER_0001=ABC130
REQU_TABLE_BY_END_VOLSER_0002=BCD240
REQU_TABLE_BY_END_VOLSER_0005=C50200
```

In the Tape Optimizer interface, you specify this information in the Starting VOLSER
and Ending VOLSER fields on the Create/Edit Request panel (GTOP02A).

### Data set name parameters

You can use the following parameters to specify the tape data sets to copy. You must
specify REQU_TABLE_BY_DSN_nnn parameter to copy tapes or data sets based on
data set names. Optionally, you can specify the other two parameters. If you specify
the REQU_TABLE_BY_DSNDSQ_nnn parameter, Tape Optimizer copies data sets
individually rather than copying the entire tape chains that contain them.

The ending _nnn_ values of the optional parameters must match the _nnn_ value of the
corresponding _REQU_TABLE_BY_DSN_nnn_ parameter. You can specify from 0001
through 9999 for an _nnn_ value. For each new parameter or set of parameters,
increment the _nnn_ value by one.

**REQU_TABLE_BY_DSN_nnn=**_data_set_name_

Specifies a data set name or a name mask for the data sets that you want to copy.
This value can be up to 44 characters in length. To specify a mask, type a portion
of a data set name and use the appropriate DFSMSrmm wildcards to represent
the remaining characters. (For more information about these wildcards, see
“Supported wildcard characters” on page 15.) Tape Optimizer matches a mask
against the data set names in the DFSMSrmm tape library to determine which
tapes to copy.

If you use generation data groups (GDGs), you can include a relative generation
number in a data set name, such as (0) for the current generation data set, (-1) for
the first generation data set back from the current data set, (-2) for the second
generation data set back, and so on. For example, you could specify
GDG.PAYROLL(-3) to identify the third data set back in the payroll GDG. If you
specify a relative generation number for a generation data set, do not also specify
a wildcard.

**REQU_TABLE_BY_DSNVOL_nnn=**_volser_

Specifies the volser value of the tape that contains the data set or data sets that are
identified by the **REQU_TABLE_BY_DSN_nnn** parameter. By specifying the
volser, you can copy only the occurrences of the named data sets from a specific
tape volume. Wildcards are not permitted. This parameter is optional.

**REQU_TABLE_BY_DSNDSQ_nnn=**_data_set_sequence_number_

Specifies the data set sequence number of the data set that is named in the
**REQU_TABLE_BY_DSN_nnn** parameter. Specify this parameter if you want
Tape Optimizer to copy the data set individually, not as part of a tape chain.
Alternatively, you can specify only the asterisk (*) wildcard in this parameter if
you want all data sets that match your data set name and volser criteria to be
copied individually (if not excluded by other criteria). This parameter is optional.
For example, the following parameters select a single tape data set named PDUSER.PROJECT.WRK01 and the data sets on volser C51234 that have names matching the PDUSER.PAYROLL.** mask. All of these data sets will be copied individually.

```
//TCOPARMS DD *
REQU_TABLE_BY_DSN_0001=PDUSER.PROJECT.WRK01
REQU_TABLE_BY_DSNDSQ_0001=12
REQU_TABLE_BY_DSN_0002=PDUSER.PAYROLL.**
REQU_TABLE_BY_DSKVOL_0002=C51234
REQU_TABLE_BY_DSNDSQ_0002=* 
```

In the Tape Optimizer interface, you specify this information at the bottom of the Create/Edit Request panel (GTOP02R).

### Input and output tape unit parameters

Use the following parameters to identify the input and output tape drives to use. For non-SMS environments, you must specify the input and output tape unit names by using the REQU_INPUT_UNIT and REQU_OUTPUT_INPUT parameters.

For SMS-managed environments, you can specify either a tape unit name or an SMS storage class for an input or output tape unit. Alternatively, you can set the REQU_ALLOC_INPUT_USING_VOL to Y to indicate that you want the input tape drives to be allocated based on the location of the first volser that is selected for copying.

**REQU_ALLOC_INPUT_USING_VOL=Y/N**

If you use SMS-managed tape drives and set this parameter to Y (the default), Tape Optimizer allocates the input tape drives based on the location of the first volser that is selected for copying or (if you are copying data sets individually) on the location of the tape volume that contains the first data set to be copied. The tape drives will be allocated using DISP=OLD, which causes your ACS routines to not be used for tape-drive allocation. The tape drives will be from the location that the system tape catalog specifies for the first volser of the first tape chain to be copied. All other tape volumes to be copied must be mountable on these tape drives. If you set this parameter to Y, you do not need to specify the REQU_INPUT_UNIT or REQU_INPUT_STORCLASS parameter.

If you specify N, your ACS routines determine which input tape drives to allocate based on the value that you specify for the REQU_INPUT_UNIT parameter or the REQU_INPUT_STORCLASS parameter. The tape drives will be allocated using DISP=NEW.

If you do not use SMS-managed tape drives, do not specify this parameter. Specify the REQU_INPUT_UNIT parameter instead.

Corresponds to the **Use 1st VOLSER for Input Tape Allocation** field on the Copy Options panel (GTOP02D).

**REQU_INPUT_UNIT=***

Specifies the esoteric, generic unit name, or hexadecimal address of the input tape drive. This value can be up to eight characters in length. If you specify this parameter, do not also specify the REQU_INPUT_STORCLASS parameter. Corresponds to the **Input Tape Esoteric or Generic Unit Name** field on the Create/Edit Request panel (GTOP02A or GTOP02R).

**REQU_INPUT_STORCLASS=***

Specifies the SMS storage class that you want the system to use for allocating an SMS-managed input tape drive. This value can be up to eight characters in length. If you specify this parameter, do not also specify the REQU_INPUT_UNIT parameter. Corresponds to the **Input Tape SMS Storage Class** field on the Create/Edit Request panel (GTOP02A or GTOP02R).
REQU_OUTPUT_UNIT=name
Specifies the esoteric, generic unit name, or hexadecimal address of the output tape drive. This value can be up to eight characters in length. If you specify this parameter, do not also specify the REQU_OUTPUT_STORCLAS parameter. Corresponds to the Output Tape Esoteric or Generic Unit Name field on the Create/Edit Request panel (GTOP02A or GTOP02R).

REQU_OUTPUT_STORCLAS=class
Specifies the SMS storage class that you want the system to use for allocating an SMS-managed output tape drive. This value can be up to eight characters in length. If you specify this parameter, do not also specify the REQU_OUTPUT_UNIT parameter. Corresponds to Output Tape SMS Storage Class field on the Create/Edit Request panel (GTOP02A or GTOP02R).

Other required parameter

Be sure to include the following parameter in each tape-copy job that you manually create.

REQU_TLIB_TYPE=DFRMM
Specifies the type of tape library management system that contains metadata about your tapes. Currently, Tape Optimizer supports only the DFSMSrmm tape library. Therefore, the only valid value is DFRMM. No corresponding field exists in the Tape Optimizer interface, because Tape Optimizer automatically adds this parameter to jobs that are generated from the interface.

Optional parameters

You can specify any of the following optional parameters, as needed, under the //TCOPARMS DD * statement.

For any parameters that require specific values such as "Y" or "N," the default behavior depends on how you set default values in the Tape Optimizer interface. If you did not specify default values, the default behavior that occurs when a parameter is not specified is indicated by the underlined value in the parameter description.

Request Database parameter

For batch copy jobs that you plan to run frequently (for example, daily), you can reserve a Tape Optimizer Request Database. The Request Database is a VSAM file that contains information about the tapes to be copied. Its primary use is for restarting a copy request. If you specify this parameter and a copy request terminates before finishing, you can restart the copy request without having to look up its generated request number in the job output and specifying that number in the REQU_NUMBER parameter.

REQU_RQDBNUM=Request_Database_ID
Specifies the ID of a Request Database that you want to reserve for a routine batch copy job. The Request Database ID must be a number from 00 through 09. When you run the batch copy job, Tape Optimizer determines if the specified Request Database is already being used by another copy request. If the Request Database is not being used, Tape Optimizer automatically generates a copy request for the batch job, assigns the specified Request Database to this copy request, and locks the Request Database so that it is unavailable to other copy requests. After the copy request finishes, Tape Optimizer deletes the copy request and unlocks and resets the Request Database so that it can be used by other copy requests.
If the specified Request Database is being used when you submit your new, manually created copy request, the following WTO messages are issued:

GT04001 - Enter Restart Option for Copy Request (nnnnn)

GT04011 - Reply - (T)erminate/(R)eset and start new copy request

In this case, you should perform one of the following actions, as appropriate:

- Specify T to end the new copy request. You can then restart the previous copy request that is using the Request Database so that it can complete and release the Request Database.

- Specify R to delete information for the previous copy request from the Request Database, thereby releasing the Request Database. You can then resubmit the new copy request.

Data set renaming parameters

If you want to rename data sets as they are copied to output tapes, you must specify a pair of REQU_DSN_FROM_MASK_\_nnnn and REQU_DSN_TO_MASK_\_nnnn parameters for each renaming scheme. You can specify up to 9999 pairs of From and To masks by incrementing the nnnn value of the parameter names. The nnnn value can be from 0001 through 9999.

Tape Optimizer matches the mask that you specify in the REQU_DSN_FROM_MASK_\_nnnn parameter against the input tape data set names to determine which data sets to rename. Depending on how you define this mask, you can rename all or some of the input tape data sets for the copy request. When the copy request runs, Tape Optimizer uses the value in the corresponding REQU_DSN_TO_MASK_\_nnnn parameter to generate new names for these data sets.

In these parameters, you can use two types of wildcards: the standard asterisk (*) wildcard and a special percent sign (%) wildcard. Both of these wildcards represent zero or more characters. However, they differ in behavior:

- The asterisk (*) wildcard is used for "find and replace" type of renaming operations. You can specify the asterisk (*) wildcard with one or more existing data-set-name qualifiers in the REQU_DSN_FROM_MASK_\_nnnn parameter. The asterisk (*) wildcard can appear at the beginning or end of the mask or in both locations. Tape Optimizer finds all data set names that match the "From" mask. Tape Optimizer then generates new data set names by replacing the "From" qualifier string with the new qualifier string that you specify in the REQU_DSN_TO_MASK_\_nnnn parameter.

- The percent sign (%) wildcard is used for "append" type of renaming operations. In the REQU_DSN_FROM_MASK_\_nnnn parameter, you can specify the percent sign (%) wildcard by itself to select all input data sets for renaming, or specify this wildcard followed by a qualifier value (specific qualifiers or a mask) to select only the data sets names that match that qualifier value. In either case, you must also specify the percent sign (%) wildcard in the REQU_DSN_TO_MASK_\_nnnn parameter, either immediately preceded by or followed by the qualifier value that you want to append to the data set names.

For examples of renaming criteria, see Chapter 5, “Defining and managing copy requests,” on page 45.

Tip: If you want the renamed data sets to be recatalogued under their new names, you can also specify the REQU_ALWAYS_CAT_NEWDSNS parameter.

REQU_DSN_FROM_MASK_\_nnnn=mask

Specifies a mask that you want Tape Optimizer to match against existing input data set names to identify the data sets to rename. In the mask, you can include one or more data-set-name qualifiers, the asterisk (*) wildcard, the percent sign
(\%) wildcard, or a combination of these values. The value can be up to 44 characters in length. If you specify the asterisk (*) wildcard, also specify one or more qualifiers that occur in the input data set names. You can place the asterisk (*) at the beginning or end of the mask or in both locations. If it is at the beginning, the mask will match the data set names that contain the qualifier value anywhere within them. To use the percent sign (%) wildcard, specify percent sign (%) by itself or with a trailing qualifier value (a specific qualifier string or a mask that includes the asterisk wildcard). If you specify only the percent sign (%), all input data sets will be renamed through an append operation. If you specify the percent sign (%) with a qualifier value, only the input data set names that match the qualifier value will be renamed.

**Note:** Tape Optimizer does not rename generation data sets that have a relative generation number in their names. Do not specify a relative generation number in the REQU_DSN_FROM_MASK parameter.

**REQU_DSN_TO_MASK_nnnn=text string**
Specifies criteria for generating new data set names. This value can be up to 44 characters in length. If you are performing a "find and replace" type of renaming operation (that is, you specified the asterisk (*) wildcard with a qualifier value in the REQU_DSN_FROM_MASK_nnnn parameter), type the qualifier string that is to replace the 'From' qualifier string. If you are performing an "append" type of renaming operation (that is, you specified the percent sign (%) wildcard in the REQU_DSN_FROM_MASK_nnnn parameter), type the percent sign (%) either followed by the qualifier string that you want to add to the end of the data set names or preceded by the qualifier string that you want to add to the beginning of the data set names.

**REQU_ALWAYS_CAT_NEWDSNS=Y N**
Indicates whether you want to record the renamed data sets that are on the output tapes in the system catalog even though they were already cataloged to the input tapes. Valid values are Y (recatalog) or N (do not recatalog). If you specify Y, both the original data set names and the new data set names will appear in the catalog.

For example, the following parameters define two pairs of "From" and "To" masks, both of which add the qualifier "BACKUP" to the output data set names:

- REQU_DSN_FROM_MASK_0001=BRNCH01.PAYROLL.*
- REQU_DSN_TO_MASK_0001=BACKUP.BRNCH01.PAYROLL
- REQU_DSN_FROM_MASK_0002=BRNCH02.PAYROLL.*
- REQU_DSN_TO_MASK_0002=BACKUP.BRNCH02.PAYROLL

In the Tape Optimizer interface, you specify this information on the Copy Request Data Set Name Rename panel (GTOP02M).

**Tape stacking parameters**

If you want to stack data on output tapes to optimize tape utilization, you must set the REQU_CREATE_STACKED_TAPE parameter to "Y." If you enable tape stacking, you can optionally add the other parameters to control when Tape Optimizer automatically loads new output tapes. To control the loading of new tapes, you can specify a maximum file count, tape utilization thresholds (in MB), or both. If you specify both types of criteria, Tape Optimizer loads a new output tape when one of these criteria is met (whichever one is met first).

**Tip:** When setting threshold levels, consider whether data compression is being used and the degree of compression. Also, consider if the tapes are MEDIA3, MEDIA4, or MEDIA5 tapes. For MEDIA5 tapes, you should set a value for the EFMT1 or EFMT2 tape format.
REQU_CREATE_STACKED_TAPE=Y|N
Indicates whether you want to stack data on output tapes. Valid values are Y (stack data) and N (do not stack data).

REQU_EFMT1_THRESHOLD=nnnnnn
Specifies the number of megabytes that must exist on an EFMT1 (enterprise recording format 1) output tape to trigger the loading of a new output tape. Valid values are from 60000 through 900000. The default value is 60000. For this parameter to be used, you must have also set the REQU_START_NEW_STACKED_TAPES parameter to Y.

REQU_EFMT2_THRESHOLD=nnnnnn
Specifies the number of megabytes that must exist on an EFMT2 (enterprise recording format 2) output tape to trigger the loading of a new output tape. Valid values are from 100000 through 1500000. The default value is 100000. For this parameter to be used, you must have also set the REQU_START_NEW_STACKED_TAPES parameter to Y.

REQU_STACKED_FILE_MAX=nnnnn
If you enabled tape stacking, you can specify the maximum number of files that you want Tape Optimizer to place on a stacked tape. When the number of files on a stacked tape is one less than this maximum, Tape Optimizer automatically loads a new output tape. Valid values are from 2 through 65535. If you do not specify this parameter, the default behavior is to stack up to 9999 files on an output tape.

Restriction: Do not specify a value greater than 9999 unless you use z/OS 1.5 or later. Only systems with these z/OS versions support tapes that contain more than 9999 files. If you create stacked tapes that contain more than 9999 files, you might encounter problems when attempting to use these tapes on older z/OS systems.

REQU_START_NEW_STACKED_TAPES=Y|N
If you enabled tape stacking, you can indicate whether you want Tape Optimizer to automatically load a new output tape when the output tape utilization reaches the threshold level that you specify for that tape type. If you specify Y, you must also specify the threshold parameters for your tape types.

REQU_T18_TRACK_THRESHOLD=nnn
Specifies the number of megabytes that must exist on an 18-track output tape to trigger the loading of a new output tape. Valid values are from 200 through 600. The default value is 200. For this parameter to be used, you must have also set the REQU_START_NEW_STACKED_TAPES parameter to Y.

REQU_T36_TRACK_THRESHOLD=nnnn
Specifies the number of megabytes that must exist on a 36-track output tape to trigger the loading of a new output tape. Valid values are from 400 through 2400. The default value is 400. For this parameter to be used, you must have also set the REQU_START_NEW_STACKED_TAPES parameter to Y.

REQU_T128_TRACK_THRESHOLD=nnnnn
Specifies the number of megabytes that must exist on an 128-track output tape to trigger the loading of a new output tape. Valid values are from 10000 through 60000. The default value is 10000. For this parameter to be used, you must have also set the REQU_START_NEW_STACKED_TAPES parameter to Y.

REQU_T256_TRACK_THRESHOLD=nnnnnn
Specifies the number of megabytes that must exist on a 256-track output tape to trigger the loading of a new output tape. Valid values are from 20000 through 120000. The default value is 20000. For this parameter to be used, you must have also set the REQU_START_NEW_STACKED_TAPES parameter to Y.

REQU_T384_TRACK_THRESHOLD=nnnnnn
Specifies the number of megabytes that must exist on a 384-track output tape to trigger the loading of a new output tape. Valid values are from 30000 through...
180000. The default value is 30000. For this parameter to be used, you must have also set the REQU_START_NEW_STACKED_TAPES parameter to Y.

In the Tape Optimizer interface, you enable tape stacking by selecting the **Stack Input Tape Volumes on Output Tapes** field on the Create/Edit Request panel (GTOP02A or GTOP02R). You set the other stacking options on the Stacked Tape Parameters panel (GTOP01D or GTOP02E).

### Filtering parameters

You can specify various types of filtering criteria to refine the set of input tapes to copy. These filters are applied to the tapes or data sets that the required volser or data set name parameters identified.

If you create both inclusion and exclusion filters, Tape Optimizer first applies all of the inclusion criteria and then applies, to the resultant set of included tapes, the exclusion criteria. Tape Optimizer matches the inclusion criteria against the set of tapes or data sets that the required volser or data set name parameters identified. Any tapes or data sets that match the inclusion criteria are eligible for copying. If exclusion criteria are also specified, Tape Optimizer then matches the exclusion criteria against the set of included tapes. Any tapes that match the exclusion criteria are not copied. By carefully setting filtering parameters for including or excluding tapes, you can define precisely the tapes to copy.

**Tip:** To check if your filters correctly identify all of the tapes to copy, you can perform a trial run of the copy job by setting the REQU_VERIFY parameter to Y.

### Date filter parameters

You can create an inclusion filter or an exclusion filter based on a range of DFSMSrmm assigned dates, tape-creation dates, or last-referenced dates. To define a date range, you must specify the beginning and ending dates of the range by using one of the following pairs of parameters:

- For an assigned date inclusion filter, specify both REQU_ASSIGN_BEGN_DATE_INC and REQU_ASSIGN_END_DATE_INC.
- For an assigned date exclusion filter, specify both REQU_ASSIGN_BEGN_DATE_EXC and REQU_ASSIGN_END_DATE_EXC.
- For a tape-creation date inclusion filter, specify both REQU_CREATE_BEGN_DATE_INC and REQU_CREATE_END_DATE_INC.
- For a tape-creation date exclusion filter, specify both REQU_CREATE_BEGN_DATE_EXC and REQU_CREATE_END_DATE_EXC.
- For a last-referenced date inclusion filter, specify both REQU_REF_BEGN_DATE_INC and REQU_REF_END_DATE_INC.
- For a last-referenced date exclusion filter, specify both REQU_REF_BEGN_DATE_EXC and REQU_REF_END_DATE_EXC.

Also, you can create inclusion or exclusion filters based on a date that is matched against tape or data-set expiration dates by specifying the REQU_EXPR_DATE_INC and REQU_EXPR_DATE_EXC parameters. The following related parameters can affect how this filtering occurs: REQU_DFRM_USE_VRS, REQU_USE_DSRET_AS_DSNEXP, and REQU_USE_EXP_WHEN_DSNOTRET. For more information about filtering based on expiration dates, see “How expiration or retention dates are used in tape filtering” on page 21.

**REQU_ASSIGN_BEGN_DATE_INC=** *date*

Specifies a DFSMSrmm assigned date as the starting date of a date range for including tapes in the copy job. An assigned date is the date on which a data set was first written to the tape. This date must be in the format YYYY/DDD.
REQU_ASSIGN_END_DATE_INC=date
Specifies a DFSMSrmrmm assigned date as the ending date of a date range for including tapes in the copy job. This date must be in the format YYYY/DDD.

REQU_ASSIGN_BEGN_DATE_EXC=date
Specifies a DFSMSrmrmm assigned date as the starting date of a date range for excluding tapes from the copy job. An assigned date is the date on which a data set was first written to the tape. This date must be in the format YYYY/DDD.

REQU_ASSIGN_END_DATE_EXC=date
Specifies a DFSMSrmrmm assigned date as the ending date of a date range for excluding tapes from the copy job. This date must be in the format YYYY/DDD.

REQU_CREATE_BEGN_DATE_INC=date
Specifies a tape-creation date as the starting date of a date range for including tapes in the copy job. This date must be in the format YYYY/DDD.

REQU_CREATE_END_DATE_INC=date
Specifies a tape-creation date as the ending date of a date range for including tapes in the copy job. This date must be in the format YYYY/DDD.

REQU_CREATE_BEGN_DATE_EXC=date
Specifies a tape-creation date as the starting date of a date range for excluding tapes from the copy job. This date must be in the format YYYY/DDD.

REQU_CREATE_END_DATE_EXC=date
Specifies a tape-creation date as the ending date of a date range for excluding tapes from the copy job. This date must be in the format YYYY/DDD.

REQU_REF_BEGN_DATE_INC=date
Specifies a DFSMSrmrmm last-referenced date as the starting date of a date range for including tapes in the copy job. A last-referenced date is the date on which the tape was last accessed to read or write data. This date must be in the format YYYY/DDD.

REQU_REF_END_DATE_INC=date
Specifies a DFSMSrmrmm last-referenced date as the ending date of a date range for including tapes in the copy job. This date must be in the format YYYY/DDD.

REQU_REF_BEGN_DATE_EXC=date
Specifies a DFSMSrmrmm last-referenced date as the starting date of a date range for excluding tapes from the copy job. A last-referenced date is the date on which the tape was last accessed to read or write data. This date must be in the format YYYY/DDD.

REQU_REF_END_DATE_EXC=date
Specifies a DFSMSrmrmm last-referenced date as the ending date of a date range for excluding tapes from the copy job. This date must be in the format YYYY/DDD.

REQU_EXPR_DATE_INC=date
Specifies a date that Tape Optimizer matches against tape or data-set expiration dates to determine whether to include the tapes or data sets in the copy job. Any tapes or data sets that have expiration dates later than the specified date are eligible for copying. If your site uses VRS retention dates, Tape Optimizer will match the date in this field against retention dates instead (provided that you do not set the REQU_DFRM_USE_VRS parameter to N). This parameter is useful when you want to copy tapes that contain recent data. The date must be in the format YYYY/DDD.

REQU_EXPR_DATE_EXC=date
Specifies a date that Tape Optimizer matches against tape or data-set expiration dates to determine whether to exclude the tapes or data sets from copying. Any tapes or data sets that have expiration dates earlier than the specified date are not copied. If your site uses VRS retention dates, Tape Optimizer will match the date in this field against retention dates instead (provided that you do not set the REQU_DFRM_USE_VRS parameter to N). This parameter is useful when you
want to avoid copying tapes that expire soon. The date must be in the format YYYY/DDD.

In the Tape Optimizer interface, you specify this information on the Date Filters panel (GTOP02B).

**Volser filter parameters**

You can create a filter based on volser values. For example, if you specified a general volser range in the REQU_TABLE_BY_BEGN_VOLSER and REQU_TABLE_BY_END_VOLSER parameters, you can refine the set of volsers that the range identifies by specifying a more specific volser range or value as an exclusion filter. You can specify both inclusion and exclusion criteria, if appropriate.

You can specify up to 9999 entries by incrementing the ending nnnn value of a parameter name by one. The nnnn value for the first instance of a parameter is 0001. For example, you can specify REQU_VOL_EXCL_0001, REQU_VOL_EXCL_0002, REQU_VOL_EXCL_0003, and so on.

**REQU_VOL_INCL_nnnn=volser**

Specifies a volser value or a volser mask to identify the tapes to include in the copy job. A mask is composed of the first part of a volser value followed by the asterisk (*) wildcard. A volser value or mask can be up to six characters in length.

**REQU_VOL_EXCL_nnnn=volser**

Specifies a volser value or a volser mask to identify the tapes to exclude from the copy job. A mask is composed of the first part of a volser value followed by the asterisk (*) wildcard. A volser value or mask can be up to six characters in length.

In the Tape Optimizer interface, you specify this information on the Copy Request VOLSER Filters panel (GTOP12C).

**Program name filter parameters**

You can create a filter based on the names of the programs that created tape data sets. For example, you might want to exclude programs that produce data in a proprietary format that cannot be copied, such as the FDR utility. You can specify both inclusion and exclusion criteria, if appropriate. By default, Tape Optimizer excludes tapes that are created by hierarchical storage management (HSM) by using "ARC*" as an program-name exclusion filter.

You can specify up to 9999 entries by incrementing the ending nnnn value of a parameter name by one. The nnnn value for the first instance of a parameter is 0001. For example, you can specify REQU_PROG_EXCL_0001, REQU_PROG_EXCL_0002, REQU_PROG_EXCL_0003, and so on.

**REQU_PROG_INCL_nnnn=program_name**

Specifies the name of a program that created the tape data sets to include in the copy job, or specifies a name mask for such a program. A mask is composed of the first part of a program name followed by the asterisk (*) wildcard. A name or mask can be up to eight characters in length.

**REQU_PROG_EXCL_nnnn=program_name**

Specifies the name of a program that created the tape data sets to exclude from the copy job, or specifies a mask for such a program. A mask is composed of the first part of a program name followed by the asterisk (*) wildcard. A name or mask can be up to eight characters in length.

In the Tape Optimizer interface, you specify this information on the Copy Request Program Filters panel (GTOP12E).
Data set name filter parameters

You can create a filter based on data set names. For example, if you specified a general data-set-name mask in the REQU_TABLE_BY_DSN parameter, you can refine the set of tapes that the general mask identifies by specifying a more specific mask as a data-set-name exclusion filter. You can specify both inclusion and exclusion criteria, if appropriate.

You can specify up to 9999 entries by incrementing the ending nnnn value of a parameter name by one. The nnnn value for the first instance of a parameter is 0001. For example, you can specify REQU_DSN_EXCL_0001, REQU_DSN_EXCL_0002, REQU_DSN_EXCL_0003, and so on.

If you use generation data groups (GDGs), you can include a relative generation number in a data set name, such as (0) for the current generation data set, (-1) for the first generation data set back from the current data set, (-2) for the second generation data set back, and so on. For example, you could specify GDG.PAYROLL(0) to identify the current generation data set in the payroll GDG. If you specify a relative generation number, do not also specify the asterisk (*) wildcard.

**REQU_DSN_INCL_nnnn=data_set_name**
Specifies a data set name or a name mask for identifying the input tape data sets to include in the copy job. This value can be up to 44 characters in length. To specify a mask, specify the first few characters of a data set name followed by the asterisk (*) wildcard.

**REQU_DSN_EXCL_nnnn=data_set_name**
Specifies a data set name or a name mask for identifying the input tape data sets to exclude from the copy job. This value can be up to 44 characters in length. To specify a mask, specify the first few characters of a data set name followed by the asterisk (*) wildcard.

In the Tape Optimizer interface, you specify this information on the Copy Request Data Set Name Filters panel (GTOP12F).

Other inclusion filter parameters

You can create inclusion filters based on the type of tapes, whether the tapes contain temporary I/O errors, the system IDs of the processors on which the tapes were created, and whether to copy only cataloged data sets.

**REQU_COPY_ONLY_CATALOGED=Y|N**
Indicates whether to copy only the data sets that are currently in the system catalog.

- If you are copying data sets individually (that is, you specified the REQU_TABLE_BY_DSNDSQ_nnnn parameter), only the named data sets that have catalog entries are eligible for copying.
- If you are copying tape chains (that is, you did not specify the REQU_TABLE_BY_DSNDSQ_nnnn parameter), any tape chains that contain cataloged data sets only are eligible for copying. If a tape chain contains any data set that is not cataloged, the entire tape chain will not be copied.

If any data sets have catalog entries that contain a file-sequence number (FSEQ) instead of a data-set sequence number (DSSEQ), Tape Optimizer considers those catalog entries to be invalid and will not select the data sets for copying.

Corresponds to the **Cataloged Data Sets** field on the Other Filters panel (GTOP02G) in the Tape Optimizer interface.

**REQU_SYSID_INCn=system ID**
Specifies the system ID of a processor on which the tapes that you want to include in the copy request were created. A system ID can be up to four characters long.
You can specify up to four system IDs by incrementing the last digit of the parameter name by one. That is, you can specify REQU_SYSID_INC1, REQU_SYSID_INC2, REQU_SYSID_INC3, and REQU_SYSID_INC4.

Corresponds to the Create System ID field under Include Filters on the Other Filters panel (GTOP02G) in the Tape Optimizer interface.

**REQU_TAPE_TEMP_IOERR_INC=nn**
Specifies the minimum number of temporary I/O errors that must exist on tapes for Tape Optimizer to consider them for inclusion in the copy request. These errors indicate that the tapes are starting to degrade and need to be copied. Valid values are from 1 through 99. Corresponds to the Copy Tapes with Temporary I/O Errors field on the Other Filters panel (GTOP02G) in the Tape Optimizer interface.

**REQU_TAPE_UNIT_INC=tape type**
Specifies the type of input tape media. Tape Optimizer will copy tapes of the specified type and exclude all other tape types. Valid values are:

- 3420 (reel tapes)
- 3480 (16-track cartridge tapes created on a 3480 tape drive without data compression)
- 348x (16-track cartridge tapes created on newer 3480 tape drive models with data compression)
- 3490 (36-track cartridge tapes)
- 3480/3490 (any cartridge tapes other than 3590 tapes)
- 3590 (cartridge tapes that have 128 tracks or greater)

Corresponds to the Input Tape Unit Device Type field on the Other Filters panel (GTOP02G) in the Tape Optimizer interface.

**Other exclusion filter parameters**

You can create exclusion filters based on various tape characteristics, including whether the tapes are copies that you previously created or contain permanent I/O errors. You can also create an exclusion filter based on the system IDs of the processors on which the tapes were created.

**REQU_EXCL_PREVCPY=Y|N**
Indicates whether to exclude tapes that are copies previously created with Tape Optimizer. Valid values are Y (exclude copies) and N (do not exclude copies). Corresponds to the Tapes previously copied field on the Other Filters panel (GTOP02G) in the Tape Optimizer interface.

**REQU_PEND_SCRATCH_EXC=Y|N**
Indicates whether to exclude tapes that have the DFSMSrmm status of PENDING SCRATCH. These tapes are about to be released to the scratch pool for reuse. Valid values are Y (exclude these tapes) and N (do not exclude these tapes). Corresponds to the Tapes Pending Scratch field on the Other Filters panel (GTOP02G) in the Tape Optimizer interface.

**REQU_SYSID_EXCn��统ID**
Specifies the system ID of a processor on which the tapes that you want to exclude from the copy request were created. A system ID can be up to four characters long. You can specify up to four system IDs by incrementing the last digit of the parameter name by one. That is, you can specify REQU_SYSID_EXC1, REQU_SYSID_EXC2, REQU_SYSID_EXC3, and REQU_SYSID_EXC4.

Corresponds to the Create System ID field under Exclude Filters on the Other Filters panel (GTOP02G) in the Tape Optimizer interface.
REQU_TAPE_PERM_IOERR_EXC=Y\|N
Indicates whether to exclude tapes that have permanent I/O errors. These errors indicate that the tape data has been damaged or lost. Valid values are Y (exclude these tapes) and N (do not exclude these tapes). Corresponds to the Tapes with Permanent I/O Errors field on the Other Filters panel (GTOP02G) in the Tape Optimizer interface.

DFSMSrmm parameters

You can specify any of the following DFSMSrmm parameters, as needed.

REQU_DFRM_CNTLVAR_CHECK=Y\|N
Indicates whether Tape Optimizer should check whether the selected DFSMSrmm control variables are supported on the system where you will run the copy request. The control variables determine which tape library information is transferred to the output tape definitions. Tape Optimizer does this checking when you perform a trial run or the actual run of the copy request. You can specify the following values for this parameter:

- Specify Y to perform this checking. If Tape Optimizer finds any unsupported control variables, the copy job will terminate with an error (unless you specified Y for the REQU_DFRM_CON_VARCOPYFAIL parameter). After the copy request terminates, you can resubmit the job on a system that supports these control variables, or deselect the unsupported control variables on the DFSMSrmm Control Variables panel in the Tape Optimizer interface and then run the copy job again.
- Specify N (the default) to skip this checking. If Tape Optimizer finds any unsupported control variables, the copy job will continue, but Tape Optimizer will not transfer the tape library information that is associated with the unsupported control variables to the output tape definitions. No error message is issued to alert you of this situation.

Tip: To avoid the unanticipated loss of tape library information, set this parameter to Y.

Corresponds to the Perform RMM Control Variable Validity Check field on the DFSMSrmm Copy Request Parameters panel (GTOP02I) in the Tape Optimizer interface.

REQU_DFRM_CONT_VARCOPYFAIL=Y\|N
Indicates whether the copy job continues when Tape Optimizer cannot find a selected DFSMSrmm control variable on the system where the job is running. If you specify Y and an unsupported control variable is detected, the copy job will continue, and Tape Optimizer will write a warning message to the copy log. The message will identify the tape library information that was not transferred to the output tape definitions. If you specify N, the copy job will terminate when an unsupported control variable is found.

Corresponds to the Continue After RMM Variable Copy Failure field on the DFSMSrmm Copy Request Parameters panel (GTOP02I) in the Tape Optimizer interface.

REQU_DFRM_LOCA_INCL\[n=location\]
Specifies the DFSMSrmm locations of tapes that you want to include in the copy job. Locations include shelf locations, storage locations, and system-managed library names. A location value can be up to eight characters in length. You can use this parameter to specify up to four locations by incrementing the last digit of the parameter name by one; that is, you can specify REQU_DFRM_LOCA_INCL01 through REQU_DFRM_LOCA_INCL04.

Corresponds to the Locations to Include field on the DFSMSrmm Copy Request Parameters panel (GTOP02I) in the Tape Optimizer interface.
**REQU_DFRM_LOCA_EXCL0n=location**

Specifies the DFSMSrmm locations of tapes that you want to exclude from the copy job. *Locations* include shelf locations, storage locations, and system-managed library names. A location value can be up to eight characters in length. You can specify up to four locations by incrementing the last digit of the parameter name by one. That is, you can specify `REQU_DFRM_LOCA_EXCL01` through `REQU_DFRM_LOCA_EXCL04`. Corresponds to the **Locations to Exclude** field on the DFSMSrmm Copy Request Parameters panel (GTOP02I) in the Tape Optimizer interface.

**REQU_DFRM_USE_VRS=Y|N**

Indicates whether Tape Optimizer should consider VRS retention dates and rules when filtering input tapes or data sets based on expiration dates. Valid values are `Y` (consider VRS retention criteria) and `N` (ignore VRS retention criteria). If you specify `Y` and your site uses VRS retention dates, Tape Optimizer uses the retention dates instead of expiration dates when filtering tapes or data sets. However, if your site uses VRS rules other than retention dates, Tape Optimizer ignores both the VRS rules and expiration dates. If you specify `N`, Tape Optimizer considers expiration dates only. Corresponds to the **Consider VRS Rules for Tape Copy Selection** field on the DFSMSrmm Copy Request Parameters panel (GTOP02I) in the Tape Optimizer interface. For more information about how expiration dates and retention dates are used in date filtering, see Chapter 3, “Getting started with IBM Tivoli Tape Optimizer,” on page 13.

**REQU_USE_DSRET_AS_DSNEXP=Y|N**

Indicates whether to use expired VRS data-set retention dates instead of DFSMSrmm data-set expiration dates when filtering data sets based on expiration dates. This option is useful in the following situation: 1) you specify data-set-name parameters rather than volser parameters for the required tape-selection parameters; 2) you create a date filter by using the `REQU_EXPR_DATE_INC` or `REQU_EXPR_DATE_EXC` parameter; 3) the data sets that you want to include or exclude do not have DFSMSrmm data-set expiration dates or current VRS retention dates, but they do have expired VRS retention dates; 4) the data sets are on tapes that are being retained by VRS retention dates; and 5) you set the `REQU_DFRM_USE_VRS` parameter to `Y` (or accepted the default behavior) to have Tape Optimizer consider VRS retention dates for tape selection. If you specify `Y`, Tape Optimizer will match the expired data-set retention dates against the filter date. If you specify `N`, Tape Optimizer will check how the `REQU_USE_EXP_WHEN_DSNOTRET` parameter is set. If that parameter is set to `Y`, Tape Optimizer will use volume expiration dates for filtering. If that parameter is set to `N`, Tape Optimizer will not filter the data sets based on expiration or retention dates. Corresponds to the **Use Old Data Set Retention Date When No Data Set Expiration Date Exists** field on the DFSMSrmm Copy Request Parameters panel (GTOP02I) in the Tape Optimizer interface.

**REQU_USE_EXP_WHEN_DSNOTRET=Y|N**

Indicates whether to use DFSMSrmm tape-volume expiration dates instead of data-set expiration or retention dates when filtering data sets based on expiration dates. This option is useful in the following situation: 1) you specify data-set-name parameters rather than volser parameters for the required tape-selection parameters; 2) you create a date filter by using the `REQU_EXPR_DATE_INC` or `REQU_EXPR_DATE_EXC` parameter; 3) the data sets that you want to include or exclude do not have DFSMSrmm data-set expiration dates or VRS retention dates; 4) the data sets are on tapes that are being retained by VRS retention dates; and 5) you set the `REQU_DFRM_USE_VRS` parameter to `Y` (or accepted the default behavior) to have Tape Optimizer consider VRS retention dates for tape selection. If you specify `Y`, Tape Optimizer matches the expiration dates of the tape volumes on which data sets reside against the filter date. If you specify `N`, the data sets will...
not be filtered based on expiration or retention dates; they will be considered for copying based on other copy parameters.

Corresponds to the Use Volume Expiration Date When a Volume Is Retained and No Data-Set Expiration Date or Retention Date Exists field on the DFSMSrmm Copy Request Parameters panel (GTOP02I) in the Tape Optimizer interface.

Tip: You can also set the REQU_USE_DSRET_AS_DSNEXP parameter to Y if you want Tape Optimizer to check for old data-set retention dates before attempting to use tape-volume expiration dates.

Other copy parameters

You can specify any of the following copy parameters, as needed.

REQU_ALLOC_WAIT_SECS=nnnn
Specifies the maximum number of seconds that Tape Optimizer should retry allocating input tape units for a copy request when the initial allocation attempt fails. Usually, the initial allocation fails because all tape units are already in use when the copy request starts. Tape Optimizer can retry allocating the input tape units up to the number of seconds that you specify. You can specify a number from 0 through 9999. If you specify the default value of 0, Tape Optimizer makes no retry attempts and the copy request terminates.

Corresponds to the Number of Seconds to Retry Allocation field on the General Parameters panel (GTOP01A) in the Tape Optimizer interface.

REQU_CALL_ADRDSSU_BLK0=Y|N
Indicates whether Tape Optimizer calls the ADRDSSU backup utility to copy a tape data set when the block size of the data set is zero. If you specify Y, Tape Optimizer calls the ADRDSSU utility whenever the block size of an input data set is zero, regardless of the create program name that is recorded in DFSMSrmm. If you specify N (the default), Tape Optimizer might not be able to copy data sets that have a block size of zero.

Note: If the DFSMSrmm create program name is ADRDSSU, Tape Optimizer will always use the ADRDSSU utility to copy tape data sets, even if you specify N for this parameter. If the create program name is some value other than ADRDSSU and the block size of a data set is zero, Tape Optimizer will probably not be able to copy the data set unless you specify Y for this parameter.

Corresponds to the Call ADRDSSU when Blocksize is 0 field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

REQU_CONT_COPY_AFTER_FAIL=Y|N
Indicates whether the copy job should continue when an error (for example, an I/O error) prevents a tape chain from being copied. If you specify Y, the copy request will continue. If the error occurs when a multiple-volume tape chain is being copied, no additional data sets from the tapes in that tape chain are copied; Tape Optimizer continues to the next input tape chain that the copy request identifies. If the error occurs when an individual data set is being copied from a tape, no additional data sets from that tape are copied; Tape Optimizer continues to the next tape chain that contains a data set to be copied.

Important: Tape Optimizer will continue the copy request only if one of the following system abend codes is issued for the input tape error: IEC022I, IEC023I, IEC024I, IEC026I, IEC028I, IEC029I, IEC141I, IEC145I, IEC146I, IEC147I, IEC149I, IEC150I, IEC151I, IEC210I, IEC215I, IEC218I, and IEC222I. If none of these abend codes are issued, the copy request will terminate.

If you specify N (the default), the copy request will terminate if a copy failure occurs, regardless of any system abend code that is issued.
Corresponds to the Continue Copy Following a Copy Utility Failure field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

**REQU_CONT_WHEN_INV_CATENT=Y|N**
Indicates whether the copy job continues when Tape Optimizer determines that a data set is cataloged to an input tape but the data-set sequence (DSSEQ) number of that data set on the tape does not match the sequence number that is recorded in the system catalog. If you specify Y, the copy job will report the data set name and continue. If you specify N (the default), the copy job will report the data set name and terminate. Corresponds to the Continue When Invalid Catalog Entries Found field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

**REQU_DISABLE_TAPEUNIT_CHECK=Y|N**
Indicates whether to override the checking that Tape Optimizer normally performs for the compatibility of input tapes with the input tape devices on which they will be mounted. Valid values are Y (disable checking) and N (perform checking). If you specify Y, Tape Optimizer will attempt to mount tapes on tape devices even when the devices seem to be of an incompatible type. Usually, you specify this option only when you expect that Tape Optimizer will fail to recognize a device type as compatible. Corresponds to the Disable Input Tape Unit/Tape Volume Compatibility Check field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

**REQU_DONT_USE_SINCE=Y|N**
Indicates whether Tape Optimizer should use an assigned date range or a create date range that you specify as a date filter when searching for input tape data sets in the DFSMSrmm tape database. If you specify N, Tape Optimizer uses the assigned date range or (if no assigned date range is specified) the create date range to search the database for the tapes to copy. Tape Optimizer enters an assigned date or a create date in the SINCE (YYYY/DDD) parameter for the DFSMSrmm SEARCHDATASET command. By using this date, Tape Optimizer can search the database faster. Normally, this behavior is preferable. If you specify Y (the default), Tape Optimizer ignores this date filter when searching the DFSMSrmm database. You might want Tape Optimizer to ignore the assigned date filter criteria if a tape contains an incorrect assigned date that is affecting tape selection. Corresponds to the Do Not Use Assign/Create Date for Data Set Searches field on the General Parameters panel (GTOP01A) in the interface.

**REQU_EXPIRE_COPY_BY_DATASET=Y|N**
Indicates whether Tape Optimizer should apply the new expiration date that it calculates to the input tapes that contain the data sets that you selected for copying. For this parameter to apply, you must have specified the required data-set-name parameters for tape selection. Tape Optimizer calculates the new expiration date based on the value that you specify in the REQU_RETAIN_DAYS parameter.

If you specify Y, Tape Optimizer applies the new expiration date to the input tapes. If you specify N (the default), Tape Optimizer does not change the expiration dates of the input tapes, regardless of how the REQU_RETAIN_DAYS parameter is set. You might want to specify N, for example, if you are copying data sets individually (that is, you specified the REQU_TABLE_BY_DSNDSQ_nnnn parameter) and the tapes that contain the selected data sets also contain unselected data sets that might need to be copied in the future.

Corresponds to the Apply New Expiration Date to Input Volume When Copy by Data Set field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.
REQU_JOB_RESTARTABLE=Y | N
Indicates whether Tape Optimizer should lock the Request Database if the copy job terminates abnormally. If you specify Y (the default), Tape Optimizer will lock the Request Database so that you can restart the job later from the point at which it abended. If you specify N, Tape Optimizer will not lock the Request Database. As a result, you will not be able to restart the copy job; instead, you must resubmit the job. However, the Request Database will be available for use by another copy job.

Corresponds to the Enable Job Restart field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

REQU_NO_RECATALOG=Y | N
Indicates whether to copy the input tapes and transfer the DFSMSrmm tape library information for these tapes without recataloging the tape data sets. Valid values are Y (copy without recataloging) or N (copy with recataloging). If you specify Y (the default), Tape Optimizer will not calculate a new expiration date for the input tapes, even if you specify a value between 0 and 999 for the REQU_RETAIN_DAYS parameter or specify Y for the REQU_EXPIRE_COPY_BY_DATASET parameter. Also, Tape Optimizer will ignore the REQU_CONT_WHEN_INV_CATENT and REQU_USE_FSEQ_FOR_CAT parameters, if specified. Corresponds to the Copy tape without recatalog field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

REQU_NUM_CONCURCPY=nn
Specifies the number of copy subtasks that you want to run concurrently for the copy job. A copy subtask copies one tape chain by using two tape drives: an input tape drive and an output tape drive. By default, Tape Optimizer runs only one copy subtask. By using this parameter, you can run up to 10 subtasks on 20 tape drives at the same time. This multi-tasking capability enables you complete a large copy request much faster. If you run more than five concurrent subtasks, you must increase the REGION size in the EXEC statement for the copy request from 20 MB to 40 MB. Corresponds to the Number of Concurrent Copies for This Request field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

Tip: If you run more than one subtask, do not specify a unit address for the input and output tape units. Instead, enter an esoteric, generic unit name, or storage class so that Tape Optimizer can allocate multiple sets of tape drives, if available, for concurrent subtasks.

REQU_PRINT_STATS_REPORTS=Y | N
Indicates whether the Request Summary report should be printed as part of the copy job, after copy processing completes. Specify Y (the default) if you want to print the report as part of the copy job. However, for very large copy jobs, the printing of the report can take a long time; other copy jobs cannot run until the printing completes. If you have a very large copy job and want to avoid this problem, you can specify N instead. You still will be able to print the report from the output queue.

Corresponds to the Print Summary Statistics Reports on the Copy Options (GTOP02D) in the Tape Optimizer interface.

REQU_REALLOC_WAIT_SECS=nnnn
Specifies the maximum number of seconds that Tape Optimizer should retry allocating input tape units when copying tape data sets that span multiple tape volumes. During these copy operations, Tape Optimizer deallocates and reallocates an input tape unit when a new input tape needs to be mounted. If the first attempt to reallocate an input tape unit fails, Tape Optimizer retries the allocation up to the number of seconds that you specify. If a tape unit cannot be reallocated within this period, the copy job terminates. You can specify a value
from 0 through 999. If you specify the default value of 0, Tape Optimizer makes no retry attempts and the copy request terminates.

Corresponds to the **Number of Seconds to Retry Re-Allocation** field on the General Parameters panel (GTOP01A) in the Tape Optimizer interface.

**REQU RETAIN DAYS=nnn**
Specifies the number of days that you want Tape Optimizer to use for calculating a new expiration date for the copied input tapes. When the expiration date is reached, Tape Optimizer releases the tapes to the scratch pool for reuse. Valid values are from 0 through 999. If you specify 0, the copied tapes are released as soon as possible. If you specify 999 (the default value), Tape Optimizer does not update tape expiration dates. If you specify a number between 0 and 999, Tape Optimizer adds this number of days to the date on which the copy job runs to calculate a new expiration date. Corresponds to the **Number of Days to Retain Input Tapes** field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

**REQU_UNIT_NAME_CHECK=Y|N**
Indicates whether Tape Optimizer should check the tape esoteric, generic unit name, or unit address values that you specified for the input and output tape units to determine if they are valid values. Specify **Y** to perform this checking, or specify **N** to skip this checking. You might want to skip this checking if your site allows invalid tape unit names to be passed to ACS routines for translation into SMS storage groups. Corresponds to the **Perform unit name validity check** field on the General Parameters panel (GTOP01A) in the Tape Optimizer interface.

**REQU_USE_EXACT_TDSN=Y|N**
Indicates whether Tape Optimizer uses the exact name of the first data set that is selected for copying when allocating an output tape drive in an SMS-managed environment. Specify **Y** to use the exact name. If you also specify data-set renaming criteria, Tape Optimizer uses the generated name for the first output data set instead. Based on the exact or generated data set name, the SMS storage class, and the SMS data class of the first data set, your ACS routines will determine the proper output tape drive and media to allocate. For example, if these criteria indicate a very large data set, your ACS routines might allocate a 3592 tape drive with Write-Once-Read-Many (WORM) media.

Specify **N** (the default) to have Tape Optimizer generate a unique data set name to be used for allocating a tape drive. The tape drive that is allocated will not conflict with any other tape jobs that are running on the system. However, because the exact data set name of the first data set is not used, your ACS routines might not be able to determine that a certain tape drive, such as a tape drive for high-capacity WORM media, is needed.

If your data sets are not SMS-managed, Tape Optimizer allocates an output tape drive based on the specified output unit name only.

**Important:** Regardless of how this parameter is set, Tape Optimizer allocates only one input tape drive and one output tape drive per copy subtask for an entire copy operation.

Corresponds to the **Use Exact Data Set Name for Tape Unit Allocation** field on the General Parameters panel (GTOP01A) and the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

**REQU_USE_FSEQ_FOR_CAT=Y|N**
Indicates whether Tape Optimizer will attempt to use a file-sequence number (FSEQ) instead of a data-set sequence number (DSSEQ) when copying a data set for which the catalog records a sequence number other than a DSSEQ (that is, when the catalog sequence number does not match any DSSEQs for data sets on the tape but is associated with a data set name in the DFSMSrmm tape library). If you specify **Y**, Tape Optimizer will attempt to use the FSEQ. If you specify **N** (the default), the copy job will either continue or terminate depending on how you set
the REQU_CONT_WHEN_INV_CATENT parameter. If you set that parameter to Y, the copy job will continue. If you set that parameter to N (the default), the copy job will terminate. Corresponds to the **Use FSEQ for Catalog Matches When DSSEQ Match Fails** field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

**REQU_USE_INPUT_BLKSIZE=Y|N**
Indicates whether to preserve the block size that is used on the input tapes and to not reblock data on the output tapes. If you specify Y (the default), the input block size is preserved. If you specify N, Tape Optimizer determines the optimal block size to use for the output tapes and reblocks the data. Corresponds to the **Use Input Block Size for Output Files** field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

**REQU_VERIFY=Y|N**
Indicates whether to perform a trial run of the copy job. Valid values are Y (perform a trial run) or N (do not perform a trial run). If you perform a trial run, you can view the copy log afterwards to find out which tape volumes will be copied. If the results are acceptable, you can perform an actual run of the job. Before you do so, you must reset this parameter to N and set the REQU_NUMBER parameter to the request number that Tape Optimizer generated for the job. Corresponds to the **Perform Trial Run to Verify Tapes to be Copied** field on the Copy Options panel (GTOP02D) in the Tape Optimizer interface.

**Special use parameters**

You use the following parameters only in special situations.

**REQU_DEBUG=Y|N**
Indicates whether you want diagnostic messages to be displayed for debugging purposes. Normally, you enable this option only at the request of IBM Software Support.

**REQU_NUMBER=nnnnn**
Specifies the 5-digit number that Tape Optimizer automatically generates for a manually created copy job each time you submit the job. You should NOT add this parameter to the JCL for a new copy job. Use this parameter only when you need to restart an existing copy request for which you did not specify the REQU_RQDBNUM parameter and that terminated prior to finishing (that is, terminated abnormally or terminated because you issued the Stop operator command or were performing a trial run). To obtain the request number to specify with the REQU_NUMBER parameter, view the job output in SDSF.

**Parameters that should not be manually coded**

The following parameters appear in the JCL that Tape Optimizer generates but you should not add them to the JCL that you are manually creating. These parameters are for Tape Optimizer internal use.

- REQU_CREATE_DATE
- REQU_CREATE_TIME
- REQU_STATE
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Glossary

A

abend. Synonym for abnormal end of task.

abnormal end of task (abend). Termination of a task, job, or subsystem because of an error condition that recovery facilities cannot resolve during execution. Synonym with abend.

ADRDSSU. A DFSMSdss utility that Tape Optimizer can use to copy tape data sets.

automated tape library (ATL). A tape library system that finds and loads stored tapes without tape operator intervention. An ATL system typically includes a large number of tape cartridges, robotic arms for pulling and loading the tapes, multiple tape drives, and controller software. These features enable an ATL to respond to multiple tape-access requests concurrently.

automatic class selection routines (ACS routines). In an SMS environment, a procedural set of statements in the ACS language for assigning a predefined SMS class (data class, storage class, or management class) or storage group to a data set or object based on input variables.

C

catalog. The z/OS catalog that contains information about the data sets known to the system. Synonym for system catalog.

copy request. A batch job that is composed of JCL statements for copying one or more tapes to other tape media or a VTS. You configure and run copy requests from the Tape Optimizer interface.

copy task. In Tape Optimizer, a copy task copies one tape chain for a copy request. You can configure a copy request to run up to 10 tasks concurrently. By running concurrent copy tasks, you can copy tapes faster.

D

data set. The major unit of data storage and retrieval, consisting of a collection of data in one of several prescribed arrangements and described by control information to which the system has access.

Data Facility Storage Management Subsystem data facility product (DFSMSdfp). An basic component of the z/OS operating system that includes features for managing storage resources, tape mounts, data, and input and output devices. It also handles catalog management and access methods, including distributed access to z/OS data for remote systems and users.

Data Facility Storage Management Subsystem removable media manager (DFSMSrmm). An IBM tape management system that is available as a separate, optional component of z/OS. Tape Optimizer can copy the DFSMSrmm tape library information for the input tape volumes to the new DFSMSrmm fields for the output tapes as part of a copy request.

DFSMSrmm control variables. Variables that correspond to DFSMSrmm tape library information. By selecting or deselecting these control variables in the Tape Optimizer interface, you control which DFSMSrmm information is applied to output tape definitions during copy operations. The variables represent information about the tape volumes or data sets, such as tape creation dates and owners. Similar to DFSMSrmm structured fields.

DFSMSrmm locations. Removable media locations that DFSMSrmm can manage, including shelf locations, on- and off-site storage locations, and system-managed libraries.

E

expiration dates. The dates on which Tape Optimizer releases copied tapes to the scratch pool for reuse unless the tapes are held by VRS retention rules. Tape Optimizer calculates new expiration dates for tapes by adding the value that you specify in the Number of Days to Retain Input Tapes field to the date on which the request runs. You also have the option of excluding tapes from a copy request that expire before a certain date.

esoteric. A name for a group of devices such as disks or tape devices. Esoterics are usually defined by a systems programmer and are site-specific. For example, most sites define a group named SYSDA, which identifies the direct-access devices (DASD) available for general use. In Tape Optimizer, you can specify an esoteric to identify the input and output tape devices for a copy request instead of a generic unit name or a system address of a specific tape unit.

G

generation data group (GDG). A chronological collection of historically related data sets that do not use the Virtual Storage Access Method (VSAM); each data set is called a generation data set.

generation data set (GDS). One of the data sets in a generation data group (GDG); a GDS is historically related to the other data sets in the group.

generation number. The number of a generation within a generation data group (GDG). A zero represents the current generation of the group, and a negative integer (-1) represents an older generation.
**generic unit name.** A name for input or output tape drives of the same type, for example, 3490.

**IDCAMS.** An IBM program that is used to process access method services commands. It can be invoked as a job or job step, from a TSO terminal or from within a user’s application program.

**IEBGENER.** A z/OS utility that Tape Optimizer can use to copy tape data sets.

**input tapes.** The physical or virtual tapes that a copy request identifies for Tape Optimizer to copy.

**job control language (JCL).** A control language that is used to identify a job to an operating system and to describe the job’s requirements. Synonym with JCL.

**Language Environment (LE).** A z/OS run-time library that establishes a common execution environment for a number of major programming languages. The library contains run-time services for message and condition handling, storage management routines, and time/date functions.

**log.** A file that contains a record of the events that occur when a Tape Optimizer copy request runs. This information is useful for troubleshooting.

**mask.** In Tape Optimizer, a string of literal characters and wildcards that represent a tape data set name, volser, or tape-creation program name. Tape Optimizer matches the masks that users define against tape information to determine the input tapes to include in or exclude from copy requests.

**output tapes.** The physical or virtual tapes to which Tape Optimizer copies data for a copy request.

**Request Database.** A temporary VSAM file that Tape Optimizer uses internally for storing information about copy requests primarily for restart purposes.

**Resource Access Control Facility (RACF).** An IBM access-control program that identifies and verifies users of an OS/390 or z/OS system, authorizes access to protected resources, logs unauthorized attempts to enter the system, and logs detected accesses to protected resources. RACF is included in OS/390 Security Server and is also available as a separate program for the MVS environment.

**IEBGENER.** A z/OS utility that Tape Optimizer can use to copy tape data sets.

**structured field.** Output from the DFSMSrmm application program interface (API). A structured field is composed of an 8-byte structured field introducer that begins the field and the output data. Tape Optimizer can copy the data in the structured fields that it supports if you select the corresponding DFSMSrmm control variables in the Tape Optimizer interface.

**system catalog.** The z/OS catalog that contains information about the data sets known to the system, including tape data sets. This information includes the data set type, location, size, and format. Usually, this catalog is an Integrated Catalog Facility (ICF) user catalog, Synonym with catalog.

**storage management subsystem (SMS).** A feature of DFSMSdfp that manages storage resources based on user-defined policies. With SMS, data is transparently managed by the computer system rather than being manually managed by a data administrator. Users can access data without having to know where or how the data is stored. SMS can manage storage space, security, data backups, and data movements. With regard to tapes, SMS can manage tape mounts and tape usage.

**tape chain.** A series of tapes that are required to copy the volser or data sets specified for a copy request. If a copy request specifies only one data set that is on one tape, the tape chain is composed of only a single tape. If a copy request specifies a data set that spans multiple tapes or specifies multiple data sets that are on different tapes, the tape chain is composed of multiple tapes. Tape Optimizer copies the tapes in the order that appear in the tape chain. If you run concurrent copy subtasks for a copy request, Tape Optimizer builds a tape chain for each subtask. An input tape chain will be copied to a similar output tape chain unless you specify to stack the data on high-density output tapes.

**tape management system.** A type of software product for managing, protecting, and controlling tapes and tape devices.

**vital record specification (VRS).** A set of policies that users define to DFSMSrmm to manage the retention and movement of data sets and volumes (tape, DASD, or
optical) that are used for disaster recovery or to meet external retention requirements such as service level agreements.

**virtual tape system (VTS).** A type of high-performance storage solution for tape data, which is offered by IBM and other vendors. A VTS uses a disk array in combination with tape drives, tape automation, and intelligent storage management software to manage tape data. A VTS stores data as virtual tape volumes in high-speed disk cache to provide quick access to the data. When the disk cache becomes full, the VTS can transfer the data to a tape drive, where the data can be stacked on tape cartridges. By using a VTS, enterprises can reduce the number of tapes, tape hardware, and floor space needed; eliminate tape-drive contention; and reduce personnel costs.

**VOLSER.** Volume Serial Number. An identifier for a tape or other storage volume. This identifier can be up to six characters long. Most installations use six-digit volser for tape volumes to differentiate them from DASD volumes.

**volume.** A unit of physical storage such as a disk or tape cartridge, or a logical unit of storage such as a logical volume that a VTS stacks on tape.
Index

A
accessibility features x
accessing the product interface 13
Accounting field, assigning input volsers to 41
ADRDSSU utility 34, 69
allocating product VSAM files manually 11
allocating tape units 32, 34
APF-authorization of load library 8
assigned dates, filtering tapes by 58
assigning input volsers to Accounting field 41
authorization requirements 5

B
block size, for output tapes 33, 68

C
canceling a copy request 101
changing a copy request 79
checking job output 89
CNTL library, contents of 10
concurrent copy tasks, specifying 67
copy log
   displaying 98
   log file 10
   setting maximum number of entries 32
copy Options window 66
copy parameters
   setting default values for 30
   specifying for a copy request 65
copy process flow 4
Copy Request Data Set Name Filters window 62
Copy Request Data Set Rename window 73
Copy Request Program Filters window 61
Copy Request VOLSER Filters window 59
copy requests
   canceling 101
   defining 45
   deleting 81
   editing 79
   restarting 101
   running 83
   sample of 83
   stopping 101
Copy Requests panel 50
copy subtasks, specifying 67
create dates
   filtering tapes by 57
Create/Edit Request panel 51, 54
creating a copy request
   based on data set names 53
   based on volsers 49
   considerations 45
   deselecting DFSMSrmm control variables for 77
   specifying copy options 65
   specifying criteria for renaming tape data sets 71, 132
   specifying DFSMSrmm parameters 74
   specifying tape-stacking parameters 69
   task flow 47
customizing the product 7
data-set-name filters, creating 35, 61

D
data-set-name filters, creating 35, 61
Date Filters window 57
date filters, creating 56
Default DFSMS Parameters window 39
default values, setting
   considerations 17
for DFSMSrmm control variables 41
for DFSMSrmm parameters 38
for general copy parameters 30
for input-tape filters 35
defining a copy request
   based on data set names 53
   based on volsers 49
   considerations 45
   deselecting DFSMSrmm control variables for 77
   specifying copy options 65
   specifying criteria for renaming tape data sets 71, 132
   specifying DFSMSrmm parameters 74
   specifying tape-stacking parameters 69
   task flow 47
defining an additional Request Database file 12
deleting a copy request 81
DFSMSrmm control variables
   checking validity of 40, 76
   deselecting for a copy request 77
   setting defaults for 41
DFSMSrmm Control Variables panel 42
DFSMSrmm Copy Request Parameters window 75
DFSMSrmm locations 39, 76
DFSMSrmm parameters
   setting default values for 38
   specifying for a copy request 74
DFSMSrmm Parameters menu window 38
   disabling checking for incompatible tape unit types 67

E
editing a copy request 79
expiration dates
   effects on input tape selection 21
   excluding tapes that expire before a date 58
   option for calculating new dates for tapes 32
   use for releasing copied tapes 25

F
features list 1
Filter Type window 59
filtering input tapes
   based on data set names 61
   based on dates 56
   based on system IDs and tape characteristics 63
   based on tape-creation program names 60
   based on volsers 58
   considerations 18
   default values for 35
Filters pull-down menu 57

G
GDGs 55, 63
General Parameters window 31
generation data sets 55, 63
generation numbers 55, 63
getting started with Tape Optimizer 13
GTODEFML member 10, 104
GTODEFFP member 10, 104
GTODEFRQ member 10
GTODEFST member 10, 104
GTOSTATS member 11, 94
GTOSTDEL member 104
GTOSTKRP member 11, 95
GTOSTREO member 104
GTOUTILR member 11, 25, 103
GTOVSAM member 11

H
hardware requirements 6
Help, displaying 15

I
input tape units
specifying default tape unit 31
specifying for a copy request 51, 54
interface
overview of 3, 13
starting 13
Invalid Unit Name window 31, 51, 54

J
JCL, coding manually for job 127

L
large copy jobs
about 3
strategies for enhancing performance of 26
last-referenced dates, filtering by 58
log file
description of 10
displaying 98
setting maximum number of entries 32

M
main menu 14
maintenance tasks 103
mass-copy operations
about 3
strategies for enhancing performance of 26
menus
primary menu 14
pull-down menus 14
MSGLOG file
description of 10
setting maximum number of entries 32

N
Notices 147

O
online Help 15
Options pull-down menu 66
Other Filters window 64
Other filters, creating 63
output tape units
specifying default tape unit 31
specifying for a copy request 51, 55
overview of product 1

P
panels
Copy Options window 66
Copy Request Data Set Name Filters window 62
Copy Request Data Set Rename window 73
Copy Request Program Filters window 61
Copy Request VOLSER Filters window 59
Copy Requests panel 50
Create/Edit Request panel 51, 54
Date Filters window 57
Default DFSMSrmm Parameters window 39
DFSMSrmm Control Variables panel 42
DFSMSrmm Copy Request Parameters window 75
DFSMSrmm Parameters menu window 38
Filter Type window 59
General Parameters window 31
Invalid Unit Name window 31, 51, 54
Other Filters window 64
Program Filter Defaults window 36
Request Action window 80
Stacked Tape Parameters window (for defaults) 37
Stacked Tape Parameters window (for request) 70
View VOLUME Copy Statistics panel 96
VOLUME Copy Statistics window 96

parameters for copy jobs
optional 131
required 128
PARMS file
description of 10
re-creating 104
performance of large jobs, enhancing 26
performing a trial run of a copy request 67, 85
post-copy processing 3
prerequisites
hardware 6
software 6
tape media 5
primary menu 14
printing the Request Summary report 94
printing the Stacked Tape Summary report 95
privileges required 5
process flow, for a copy operation 4
Program Filter Defaults window 36
program-name filters, creating 35, 60
pull-down menus
about 14
Filters menu 57
Options menu 66

R
RACF privileges 5
recataloging tape data sets
 disabling for copy request 67
relative generation numbers 55, 63
releasing copied tapes for reuse
about 25
releasing tapes held by VRS 103
removing a copy request 81
renaming tape data sets 71, 132
reports
Request Summary report 92
Stacked Tape Summary report 94
Tape Selection Summary report 91
Request Action window 80
Request Database file
defining an additional file 12
description of 10
locking for job restart 34, 69
Request Summary report
description of 92
reprinting 94
sample report 93
restarting a copy request 34, 69, 101
retention period for input tapes, specifying 32
retrieving tape unit allocation 32
return codes 111
RMM control variables
  checking validity of 40, 76
  deselecting for a copy request 77
  setting defaults for 41
RMM parameters
  setting default values for 38
  specifying for copy request 74
RMMVARS file 10
RQDB file
  defining an additional file 12
  description of 10
run-time libraries and files 9
running a copy request 83
scratching copied tapes
  about 25
  releasing tapes held by VRS 103
screen readers and magnifiers x
setting default values
  considerations 17
  for DFSMSrmm control variables 41
  for DFSMSrmm parameters 38
  for general copy parameters 30
  for input-tape filters 35
simulated run of copy request
  enabling 67
  procedure for 85
SMS-managed tape drives, allocation of 26
software requirements 6
Stacked Tape Parameters window
  (for defaults) 37
  (for request) 70
Stacked Tape Summary report
  description of 94
  reprinting 95
  sample report 94
stacking tape volumes
  enabling for a copy request 52, 55
  setting default thresholds for output tapes 36
  setting the default maximum file count 36
  setting the maximum file count 69
  setting thresholds for output tapes 69
starting the product interface 13
STATS file
  backing up and re-creating 104
  description of 10
  updating 103
stopping a copy request 101
submitting a copy request 83
summary copy statistics, displaying 95

tape drives
  allocation of SMS and non-SMS tape drives 26
  specifying default tape drives 31
  specifying for a copy request 51, 54
tape media requirements 5
Tape Selection Summary report
  description of 91
  sample report 91
target libraries 9
task flow for copying tapes 16
trial run of copy request
  enabling 67
  procedure for 85

U
  updating the STATS file 103
  usage scenarios 2
V
  validity checking
    for unsupported DFSMSrmm variables 40, 76
  verifying that tapes were copied properly 89
  View VOLUME Copy Statistics panel 96
  volser filters, creating 58
  VOLUME Copy Statistics window 96
VRS retention criteria
  effects on input tape selection 21
  effects on releasing copied tapes 25
  option to consider for tape selection 39, 75
  releasing tapes held by VRS 103
VSAM files
  log file 10
  parameters file 10, 104
  Request Database file 10
  statistics file 10, 103, 104
VTSs, copy considerations for 27

W
  wildcard characters supported 15