

# Tape/Copy

*The Industry's Leading Secure Tape Migration & Consolidation Solution*

- ✓ Automate VTL population/migration
- ✓ Reduce tape media usage
- ✓ Lower vault storage costs & amount of offsite media
- ✓ Create secure encrypted copies
- ✓ Recycle under-utilized stacked tapes
- ✓ Maximize investment in robotic and virtual tape libraries

## Improve Your Tape Operations with Tape/Copy

Tape/Copy is a highly developed system for migrating, consolidating and encrypting tape datasets. Tape/Copy's easy-to-use ISPF panels allow users to automatically select candidate datasets and generate JCL to perform tape-to-tape copy functions. Tape/Copy uses the information extracted from the tape management catalog (TMC) and the user-specified criteria to select datasets to be copied or moved to different tape media.

Tape/Copy offers an enterprise encryption solution that allows users to encrypt tape data for application backups, full volume backups, and business-to-business files during the tape copy operation. Tape/Copy contains a proprietary EXCP data movement engine that copies data at the block level, rather than the record level, allowing it to process most proprietary data formats and copy data faster than other copy engines, such as IEBGENER.

The JCL built by Tape/Copy runs without user-modification and performs all required MVS catalog/uncatalog functions, as well as performing the necessary updates to the TMC. Tape/Copy also interfaces with ATL API's provided by major ATL vendors to allow users to target data within individual ATLs.

## Flexible Selection Criteria

Tape/Copy allows users to select the tape datasets to be copied or migrated based on a wide range of customizable options, including but not limited to the following:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Dataset name or pattern | <input checked="" type="checkbox"/> Dataset size                 |
| <input checked="" type="checkbox"/> Expiration date         | <input checked="" type="checkbox"/> Volser/volser range          |
| <input checked="" type="checkbox"/> Creation date           | <input checked="" type="checkbox"/> Creation job name or program |
| <input checked="" type="checkbox"/> Number of days idle     | <input checked="" type="checkbox"/> MVS catalog status           |
| <input checked="" type="checkbox"/> ATL/VTL location        | <input checked="" type="checkbox"/> Outcode                      |

## Primary Selection Panel

```

----- OpenTech Tape/Copy System Rx.x.x -----
----- Candidate Selection -----
COMMAND ==>

Stacked File Qualification:  FIRST
(Process volume set if 1st file selected)

Dataset Size:   Min  ___0 B           Max  _100 G       Select on: GDG DSNs: YES_
Expiration Date: Min  ___30           Max  _99999      Multi-Volume: YES_
Create Date:   Min  ___0             Max  _99999      Stacked Files: YES_
Days Idle:     Min  ___3             Max  _99999      Robotic Tapes: YES_
Volser Range:  From: $_____        To: 999999       Virtual Tapes: NO_
Media Type:    Input: ALL_____      Output: 036_____ Uncataloged DSNs: NO_
Label Format:   Input: ALL_____      Output: ASIS_____ Expiration Type: NO_
Compression:   Input: ALL_____      Output: COMP_____ Volume Age/Use: NO_

Edit  Pattern  Incl
/Sel  Type     /Excl  Dataset (containing the patterns)
S     DSNs     I      OT05.VAULTA.PATTERN.LIST
-----
-----
-----

ENTER to continue, PF3 to exit.

```

# Tape Stacking

Getting maximum value from your high density tape media

Tape/Copy's most feature-rich function is dataset stacking. Tape/Copy can stack tape datasets together to reduce the collective number of tapes used by tape datasets. This function allows data centers to reduce media costs, tape drive requirements and vaulted media cost, as fewer slots are required for stacked tapes. More than a simple tape stacking utility, Tape/Copy offers feature-rich, intelligent stacking.

## Co-Location

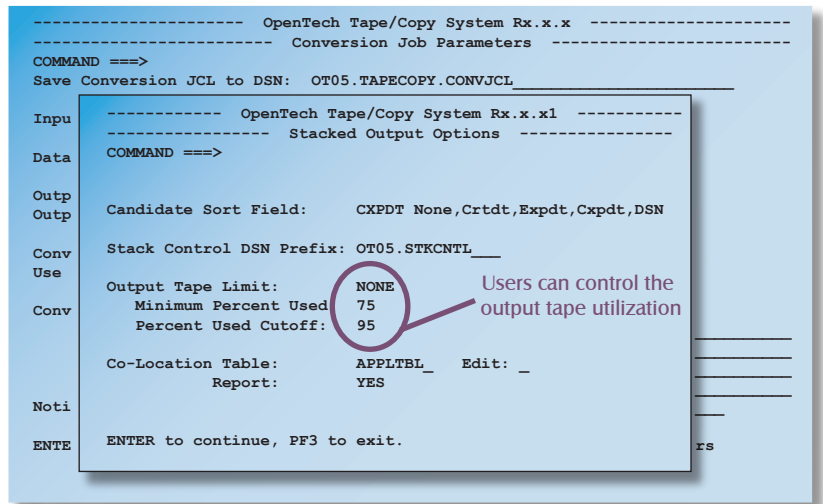
Tape/Copy allows the user to define tables that Tape/Copy can use to determine which datasets should be stacked together, or not stacked together. This allows the user to group stacks by application or other criteria.

## Conflict Avoidance

Tape/Copy can use SMF historical data to determine which datasets are used concurrently so that these datasets are not stacked together.

## Stack Management Control

This feature can be used to control the expiration of the stacked volume sets. Some tape management systems use the first file on the volume set to determine when the volset will expire, and as a result, if the first file on the tape is prematurely expired by a retention rule or manually by a user, the entire volset could be scratched and data could be lost. Tape/Copy can insert a control file at the beginning of the stack and manage that file, only expiring the control file after all other datasets on the tape have expired to avoid data loss.



## Stacked Media Utilization & Control

Tape/Copy parameters are available to allow the user to control the utilization percentage of the stacked output tapes to ensure maximum utilization of expensive high-density media. Users can also choose to sort datasets by expiration date, dataset name or other criteria. Automatically add new datasets to underutilized tapes to maximize usage of tape media. Intelligent copying of input volume sets to multiple output volumes optionally prevents the creation of underutilized high density multi-volume stacked tapes.

## Recycling Stacked Tapes

Tape/Copy can be used to select only certain files on a stacked tape and copy only those selected files to new stacked media. This is very useful for those that have stacked tape with only one or a few unexpired datasets remaining on them, which prevents the tape from being scratched and reused. Tape/Copy can select the unexpired datasets (or other datasets, as defined by the user's selection criteria) and stack them onto a new tape along with other datasets from underutilized volumes.

## Additional Stacking Functions:

- ✓ Unstack stacked datasets to separate media and extract single datasets from stacked tapes to copy to a different tape
- ✓ Calculate the expected expiration date for GDG and Cycle controlled datasets so that users can stack datasets together that expire at approximately the same time, allowing the tape volumes to expire on a more consistent basis
- ✓ Reblock tape data during conversion to maximize I/O when the output datasets are used by production programs
- ✓ Reclaim scratch tapes by selecting multi-volume tape datasets and copying them to high-density media to reduce the number of tape volumes required
- ✓ Select datasets based on media type and/or tape media vendor and copy datasets on those tapes to new media
- ✓ Create forecasting reports that show the number of input datasets and tapes that will be processed based upon the user's selection criteria, and the number of output tapes expected to be used; users can easily see the tape resource savings!

## Tape Conversion Forecast Report

REL x.x.x PTF x		T A P E / C O P Y										PROGRAM OTTCCAND			
DATE:	xx/xx/xxxx	TIME:	xx:xx:xx	TAPE CONVERSION FORECAST REPORT FOR OPENTECH SYSTEMS, INC.										PAGE	1
+---CONVERSION---+		+---FILE		+---DATA USED		+CO-LOC+		+-----INPUT MEDIA STATISTICS-----+				+-----OUTPUT MEDIA FORECAST-----+			
JOB NAME	MEMBER	COUNT	CAPACITY-GB	ID	+MEDIA-	+TAPES	TAPE VOLUME	+USAGE	+2NDRY	+MEDIA-	+TAPES	TAPE VOLUME	+USAGE	+2NDRY	
					TYPE	USED	CAPACITY-GB	%	FILES	TYPE	NEEDED	CAPACITY-GB	%	FILES	
TCCOVJB1	JOB00001	178	13.607	0	NONVTS3	16	960.000	1.4	169	NONVTS3	1	30.000	45.4	177	
TCCOVJB2	JOB00002	2,366	161.654	0	256	83	4,980.000	3.2	2,285	NONVTS3	6	180.000	89.8	2,365	
<b>TOTAL</b>		<b>2,544</b>	<b>175.261</b>			<b>99</b>	<b>5,940.000</b>	<b>3.0</b>	<b>2,454</b>		<b>7</b>	<b>210.000</b>	<b>83.5</b>	<b>2,542</b>	
<b>SECONDARY FILE RECORDS NEEDED:</b>				<b>2,542</b>	<b># of input tapes</b>									<b># of output tapes</b>	

**92 tapes will be reclaimed by this conversion!**

# Populating and Managing Your Virtual Tape Environment

Experience faster ROI on virtual tape and robotic library investments

Tape/Copy is the tool of choice for major ATL and VTL vendors for populating new virtual and robotic libraries that they sell. Once the data has been moved to the new hardware, Tape/Copy can be used to continually manage the scratch levels and allow automated vaulting of virtual tape data.

## Virtual Tape Library Population

Tape/Copy can be used to quickly populate a virtual tape library so that the hardware benefits can be realized faster. Users provide Tape/Copy with selection criteria for the datasets they want to be directed into the new VTL, or Tape/Copy can use the SMS ACS routines to identify the datasets that should be moved into the VTL.

## Vaulting Virtual Tapes

Since virtual tape libraries are “closed systems” and the tapes cannot be physically ejected as they are with ATLs, Tape/Copy provides a solution to the dilemma of how to vault virtual tape data without losing the accessibility of their data. Tape/Copy can copy and stack the virtual tape data to non-virtual tapes that can be shipped to the offsite vault. In this scenario, a copy of the data is still readily available in the virtual tape library for immediate access but the data is still protected by the copy in the offsite vault. The number of dataset recalls from the vault is greatly reduced and by stacking these vaulted tapes, vault costs are kept to a minimum.

## Automated Tape Library Maintenance

Tape/Copy can help maintain the scratch levels in an ATL by selecting inactive datasets that have not been used in a user-specified number of days, and “logically ejecting” those datasets by moving the data to volumes outside of the ATL so that the ATL resident tapes can be scratched and reused. Tape/Copy can also be used to identify frequently accessed datasets kept outside of the ATL, so that the datasets can be copied to ATL resident tapes for faster access.

## Preserving Data Integrity

Safe guards for preventing data corruption or loss during tape-to-tape copying

Tape/Copy’s Candidate Selection and Conversion jobs contain more safe guards against data loss and tape management catalog inconsistencies than any other tape copying tool on the market.

## ESTAE Protection

Tape/Copy provides ESTAE protection for the conversion process. It is inevitable in most media conversion or migration projects, that data checks, I/O errors or other such errors occur due to old media and/or missing input volumes on multi-volume datasets. Tape/Copy’s ESTAE automation ensures a more accurate and less time-consuming solution for these error-handling situations. If an error occurs during the conversion process, Tape/Copy will back out all changes to a tape so that it remains in pre-conversion status. Without the ESTAE capability, the user would need to manually correct abends based on I/O errors, bad data, etc.

Does your staff have the time to manually repair the effects of these process failures?

## Output Tape Characteristics

Tape/Copy does not alter the characteristics of datasets as they are copied. The input tape characteristics and creation information are copied to the output tape unchanged. This ensures that the output tape datasets Tape/Copy creates is a replica of the input tape dataset (unless the user opted to reblock the datasets during conversion, as this will cause the input and output dataset block counts to differ).

## Tape Analysis & Compare Utility

Tape/Copy’s tape analysis & compare utility is a stand-alone process that can be used to analyze the contents of tapes and to compare datasets on tapes or volume sets with multiple datasets. Tape(s) are read using EXCP with channel programming and the data is analyzed and compared block-by-block to produce an accurate analysis or comparison of two tape datasets.

### Dataset Compare Report

```
REL x.x.x PTF x                                T A P E / C O P Y                                PROGRAM OTTC0052
DATE:  xx/xx/xxxx  TIME:  xx:xx:xx  DATASET COMPARE REPORT FOR OPENTECH_SYSTEMS,_INC.  PAGE 1
*****
**** FILE COMPARE NUMBER:      1      BELOW 2 FILES WILL BE COMPARED
*****
DDNAME: DSN1 DSN: OT.DSN1.VB1.BL20000          FIRST VOLSER: 000063 FILE SEQ 00002
DDNAME: DSN2 DSN: OT.DSN2.VB2.BL20000          FIRST VOLSER: 000067 FILE SEQ 00002
HDR2 DCB INFORMATION WAS EQUAL
LAST 17 BYTES OF DSN FROM HDR1 LABELS NOT EQUAL DSN1: DSN1.VB1.BL20000 DSN2: DSN2.VB2.BL20000
TWO JFCB DSNs NOT EQUAL DSN1: OT.DSN1.VB1.BL20000          DSN2: OT.DSN2.VB2.BL20000
THE DATASETS COMPARED ARE NOT EQUAL !!!
THE LAST BLOCK READ ON EACH DATASET WAS NOT EQUAL
DATA IN BLOCK NUMBER:      1 IS DIFFERENT AT BYTE:      117
```

## Tape Utility Features

Tape Browse allows the user to browse the contents of a tape dataset and view the tape label. This allows the user to view the tape label online versus running a batch job to determine the attributes of the foreign tape dataset.

Tape Certify and Label is used to verify a tape's condition by writing test patterns of data to the tape in an attempt to determine whether the tape media is reliable for use as an output tape. Tape label will create SL or NL labels to initialize a tape.

Tape Erase is used to erase data on magnetic tapes using the SecureErase feature of the tape control unit thus not using any CPU cycles or channel to erase the tape.

Partial Dataset Recovery allows users to attempt the recovery of a dataset(s) that resides on a tape volume that has been overwritten. If a tape is scratched and another dataset is written on the tape, Tape/Copy can recover the portion of the dataset that was not overwritten and the datasets following it.

## Why Choose Tape/Copy?

- ✓ Allows extensive criteria for identifying candidate datasets, including flexible wildcarding for dataset names, volser ranges and other criteria
- ✓ Easy to use ISPF panels and customizable PARMLIB members for defining selection criteria and output tape characteristics
- ✓ Ability to calculate the expected expiration date of GDG and Cycle Control datasets
- ✓ Efficient EXCP data movement engine
- ✓ Secure encryption for application backups, full-volume backups, and B2B files
- ✓ Tape dataset reblocking capabilities
- ✓ Processes user-created files, as well as many proprietary data formats
- ✓ Protects the metafile data in the TMC for lifecycle management that is based on create date or creating program
- ✓ Intelligent tape dataset stacking capabilities, including co-location, stack retention control, conflict avoidance and media utilization controls
- ✓ Stacked tape recycling/reclamation to maximize utilization of high-capacity tape media
- ✓ ATL management and VTL population vaulting capabilities to add value to your robotic environment while reducing media and vault storage costs
- ✓ Trusted by data centers worldwide for fast, reliable tape-to-tape copies
- ✓ 24 x 7 technical support
- ✓ Quick and easy installation
- ✓ Fast return on investment

## About OpenTech Systems

OpenTech Systems Inc. is a privately held software company founded in 1994 and is a leading provider of z/OS software for tape data migration, data center consolidation/relocation and disaster recovery.

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## Supported Data

Tape/Copy can migrate your standard application files as well as many proprietary file types, such as:

- ✓ DB2
- ✓ DFSMSdss
- ✓ DFSMSHsm
- ✓ DMS (CA-Disk)
- ✓ FDR/ABR
- ✓ Mobius Infopac
- ✓ SAR (CA=View)
- ✓ SAS
- ✓ OAM

## Product Specifications

Operating Systems Supported:

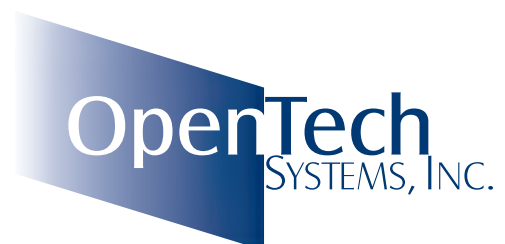
- ✓ z/OS

Tape Management Systems Interfaces:

- ✓ CA-1
- ✓ Control-T (Control-M/Tape)
- ✓ DFSMSrmm
- ✓ TLMS
- ✓ ZARA (Automedica)

Automated Tape Library Interfaces:

- ✓ IBM VTS
- ✓ IBM ProtecTier
- ✓ Oracle VSM
- ✓ EMC DLM
- ✓ Bus-Tech MDL
- ✓ Luminex
- ✓ Fujitsu TS Eternus CS
- ✓ IBM VTFM
- ✓ CA Vtape



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