FATSCOPY

Quick Start Guide

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INNOVATION DATA PROCESSING

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QUICK START GUIDE

1. INTRODUCTION

FATSCOPY is INNOVATION DATA PROCESSING's consolidation, conversion, and migration tool for z/OS Tape Media, and is part of the FATS/FATAR/FATSCOPY family of products.

The purpose of this Quick Start Guide is to give you a basic overview of FATSCOPY, and to assist you with getting it installed and operational as quickly as possible.

This is not designed as a stand-alone document, and it should be used only in conjunction with the general FATS/FATAR/FATSCOPY User Documentation, to which it makes extensive reference.

Although the User Documentation includes details on FATS, FATAR, and FATSCOPY, this Quick Start Guide focuses only on FATSCOPY.

2. WHAT IS FATSCOPY?

FATSCOPY offers a high-performance and automated process for moving and re-cataloging tape-based data sets. Whether you're consolidating tape data to higher capacity tapes, converting to new tape media, or implementing or replacing a Virtual Tape System, FATSCOPY is an ideal tool for the mass re-location of data from one tape media to another.

- FATSCOPY can **copy** individual files or the entire contents of one or more tape volumes, either to a new tape, or to a VTS. FATSCOPY supports both “tape-based” and “tape-less” systems, including the IBM TS7700, SUN VTS, EMC DLm, Bus-Tech MDL and Fujitsu Centricstor.
- FATSCOPY automatically **stacks and consolidates** files onto the output tapes, and recatalogs the moved files to the new tape.
- Data can be selected for migration through a wide range of criteria, including the full name of the tape volsers to be copied, or the full or generic names of individual tape data sets.
- Data sets can also be selected (or excluded) by other criteria, including expiration date, or the name of the z/OS batch job that created them.

FATSCOPY's ability to select, copy, and re-catalog tape data allows you to quickly and easily consolidate data that is spread across multiple tapes onto fewer or even just one new tape.

FATSCOPY tasks can be initiated either through a standard z/OS batch job, or through a set of supplied ISPF panels.

More background and general information on FATSCOPY can be found in section 30.0 of the User Documentation.

> **Optional**: Read section 30.0 of the FATSCOPY User Documentation for more general background information.

3. INSTALLING FATSCOPY

The installation process for FATSCOPY is described in section 90 of the User Documentation.

> **Action**: Go to section 90 of the User Documentation and follow section 90.1.1, 90.1.2, or 90.1.3 as appropriate, following the step-by-step instructions to install FATSCOPY.

4. ACTIVATING THE TAPE MANAGEMENT INTERFACE

FATSCOPY includes interfaces to IBM's DFSMSrmm (RMM), CA Technologies® TLMS, and CA Technologies® CA-1 (TMS), that allow it to gain access to complete information about the tape volumes and data sets that it is copying.

Before you start using FATSCOPY, you need to install the appropriate interface for your Tape Management system, as described in section 90.3 of the User Documentation.

> **Action**: Activate the Tape Management Interface.
>
> See section 21.5 for background info on the Tape Management Interface.
>
> See section 90.3 for instructions on activating the Tape Management Interface.

5. FATSCOPY SECURITY

By default, FATSCOPY does a security check on each input data set to verify that the user executing FATSCOPY has READ authority to the data set in the DATASET class. This prevents FATSCOPY from selecting tapes for which the user does not have at least READ authority.

You can, if you wish, alter FATSCOPY's security checking, and you can also configure which FATSCOPY functions are made available to which users.

Section 30.1 of the User Documentation describes FATSCOPY security, and section 90.4 describes how to customize FATSCOPY security.

> **Action**: Enable Security for FATSCOPY.
>
> See section 30.1 for a description of FATSCOPY security checking.
>
> See section 90.4 (“Security”) for additional security information.

6. INSTALLING & ACTIVATING THE FATSCOPY ISPF INTERFACE

FATSCOPY includes a full-function ISPF interface, which is included in the general FATS, FATAR and FATSCOPY interface. The dialog libraries required for the ISPF interface have been installed during the installation process, and the interface can be invoked “manually”, at any time, and from any TSO userid that is authorized to read the libraries, by going to ISPF option 6 (TSO COMMAND) and entering:

```
EXEC 'fats.clist.library(FATALLOC)'
```

Several alternatives are available to make the process more automated and convenient, including adding an option on the ISPF main menu (or any sub-menu) or adding an appropriate command to the ISPF command table.

If you're planning on using the ISPF interface to do foreground simulations, you also need to modify member IKJTSO*xx* in SYS1.PARMLIB.

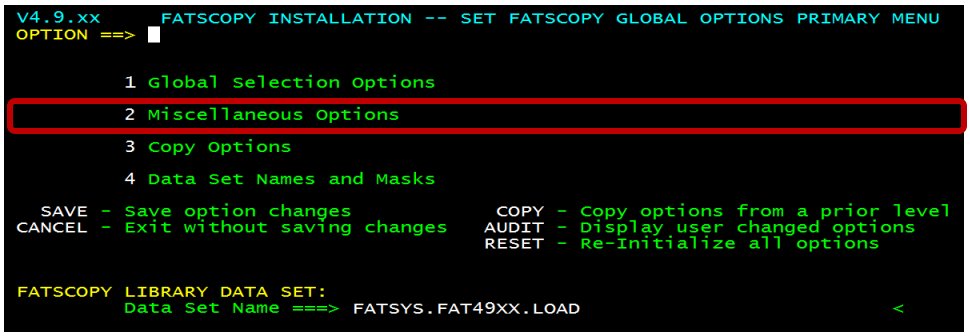
Full details on automating the activation of the ISPF interface, and the changes required to IKJTSO*xx* in SYS1.PARMLIB, can be found in section 90.5 of the User Documentation.

> **Action**: Activate the FATSCOPY ISPF Interface.
>
> See section 90.5 for info on activating the FATSCOPY interface panels.

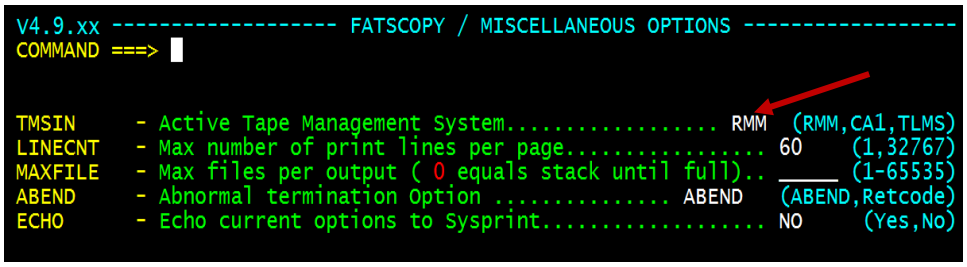
7. CONFIGURING THE FATSCOPY ISPF INTERFACE

As previously described, the FATSCOPY interface is supplied as part of the main FATS, FATAR and FATSCOPY interface. The panels relevant to FATSCOPY are accessed via option “3” of the Main Menu.

Before you begin to use the FATSCOPY dialogs, you need to first select option “S” from the FATSCOPY Main Menu to set up the Tape Management Interface information for your system (if it has not already been activated during installation).

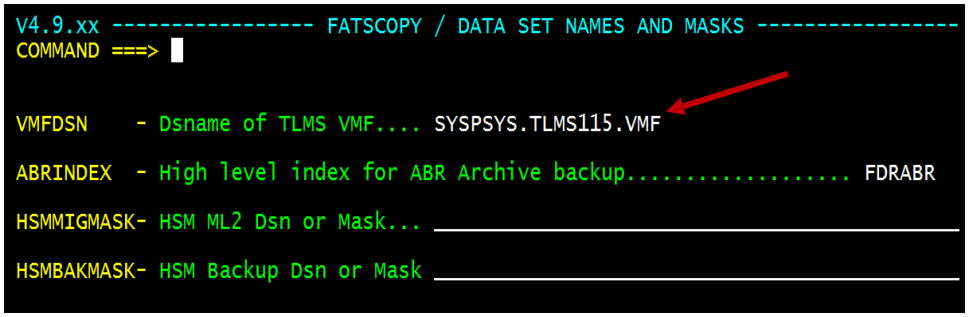


Enter “2” to go to the Miscellaneous Options panel:



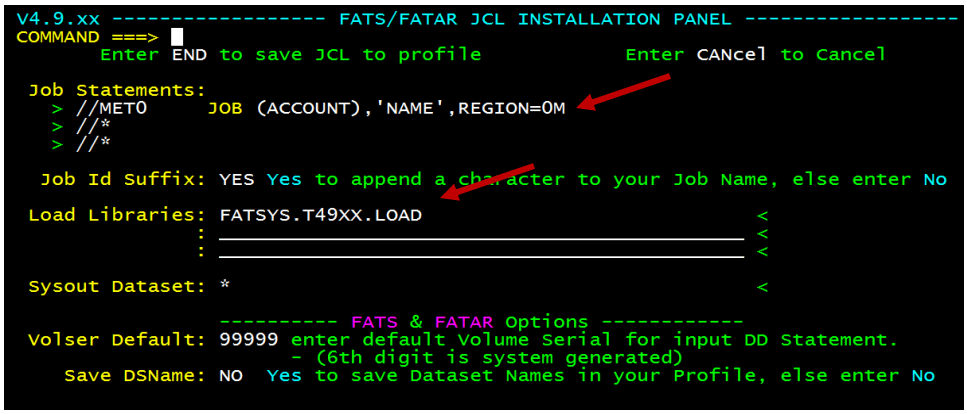
Enter the value for your Tape Management System (RMM, CA1, or TLMS).

If you are using TLMS, hit END to return to the Set FATSCOPY Global Options Primary Menu, then “4” to go to the Data Set Names and Masks panel:



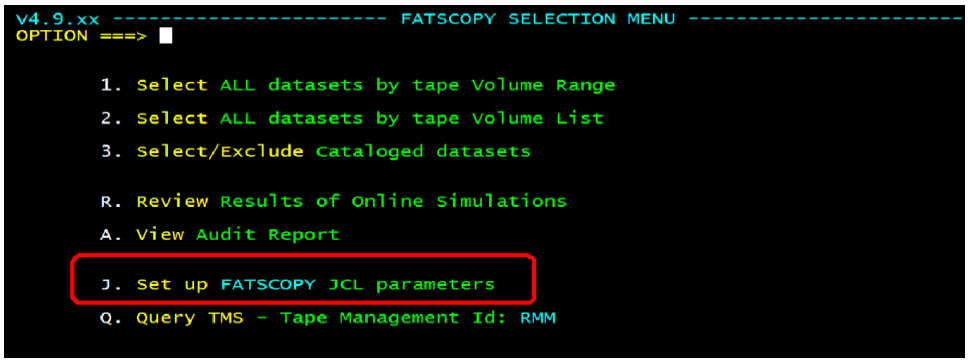
Enter the name of your TLMS Volume Master File, then END.

Hit END again to return to the Main Menu, then select option “J” to set up the FATSCOPY JCL defaults for your TSO USERID.

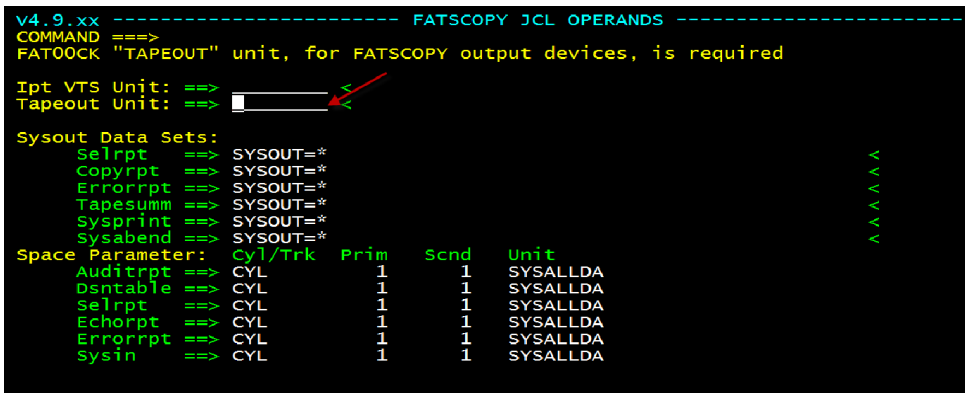


The FATS/FATAR JCL Installation panel allows you to enter any JOB statement parameters required by your installation and other defaults to be used when generating JCL for FATSCOPY. If FATSCOPY is in the system link list, no Load Library is required; if not, you need to provide the name of the FATSCOPY Load Library.

When you have finished entering information on this panel, enter END (PF3) to return to the Main Menu. Select option “3” to proceed to the FATSCOPY Selection Menu.



The first time you use this dialog there is one more configuration step you need to do; select option “J” to set some more JCL parameters for your TSO userid.



You need to specify the Tapeout Unit to specify the unit type to be used to allocate output tape data sets on your system. Then enter “END” to return to the FATSCOPY Selection Menu.

Action: Set the Default JCL Operands.

See section 34.0 (pages 34-1 to 34-4) for full details on setting FATSCOPY JCL operands.

8. GETTING STARTED WITH FATSCOPY

Once you've set up the FATSCOPY JCL Operands, you're ready to start using the FATSCOPY ISPF interface. FATSCOPY offers two main modes of operation:

- **Volume Level** – to copy entire tape volumes (real or virtual), selected by volser through Tape Management. Also referred to as the ALLDSN option. (*Menu Options 1 and 2*).
- **Data Set Level** – to copy specific or generic data sets, selected via the z/OS catalogs. (Menu Option 3).

COPYING ENTIRE TAPE VOLUMES (ALLDSN)

Below, you can see two examples of "Volume Level" (ALLDSN) copying. The tapes to be copied are identified by one or more volsers, which are then located through Tape Management.

- In the first example screen, we are going to copy a range of 20 consecutively named tapes, beginning with BK0012. (*Menu Option 1*).
- In the second example, we are copying two specifically named tapes, CCR071 and 001459. (*Menu Option 2*).

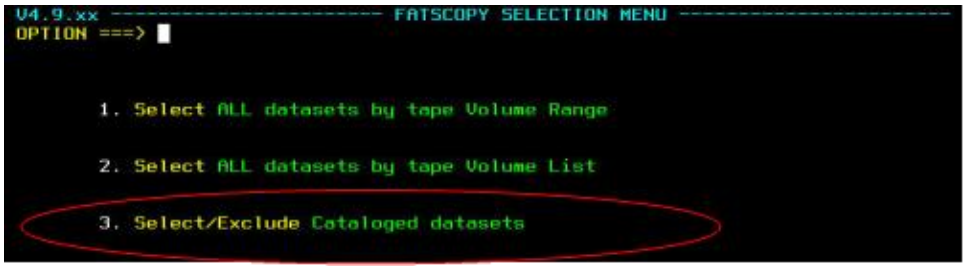
Section 34 of the User Documentation includes a panel-by-panel walk-through showing various aspects of the ALLDSN copying process -

- It shows how to use the SIM command to simulate the copy process (see section 12 later).
- It explains how to use the COPY command when you are ready to copy files for real.
- It shows how to edit (and execute) the FATSCOPY JCL, which is constructed by the panels.

> **Action**: Familiarize yourself with the ALLDSN function.
> See section 34.0 (pages 34-5 to 34-19) for details on the ALLDSN function.

COPYING DATA SETS (WITH CATDSN)

"Data Set level" copying is a selection process driven by tape data set names rather than by tape volsers. This process is also known as "CATDSN copying", because the files to be copied are located through the z/OS catalog. CATDSN copying is achieved through Option 3 on the main FATSCOPY menu.



When working at the data set level, FATSCOPY also accepts additional criteria that can also be used to modify the selection/exclusion process -

- Tape device type (DEVTYPE)
- File Sequence numbers (FILESEQ)
- Creation Date
- Expiration Date
- Size (in MB)
- Name of the job/step/program that created the file
- Name of the job/step/program that last accessed the file

Once selected, the input data sets are dynamically allocated by FATSCOPY and then copied to consecutive files on the output tape. Files from multiple tapes, but with like expiration dates, can be placed onto the same output tape.

Information recorded in the Tape Management System (CA-1, TLMS, and DFSMSrmm) can be propagated to the Tape Management records of the output data sets. The input tapes can be optionally returned to scratch status.

In the example below, we are copying a range of data sets based on the following selection filters:

- MET.FATSCOPY.FILE1*
- MET.*.FBA*.FILE*
- MET.*.*SPAN*.**

A tape file that is named MET.FATSCOPY.FILE11 would match the first of the selection criterion, but we do not wish to copy it, so it is excluded from the copy process via the "X" exclusion criterion, which precedes the "S" selections.

Some additional parameters have been set to control the copying process, including:

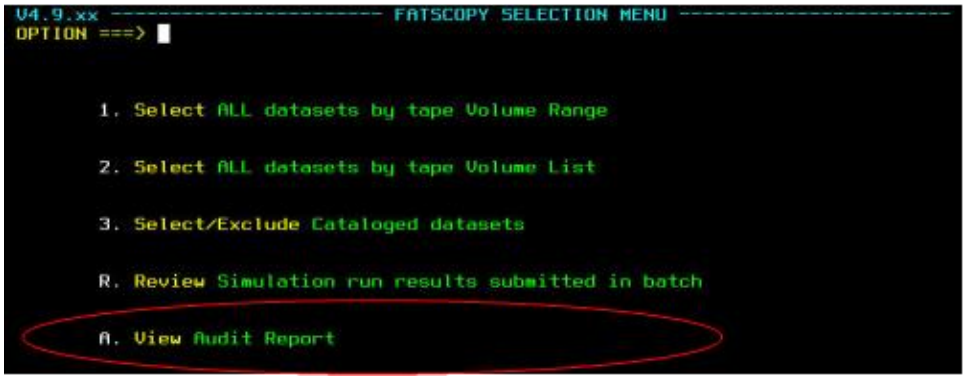
- EXPDTGROUP=7, which ensures that data sets with similar expiration dates are grouped together on the same tape.
- EXPIRED=NO ensures that FATSCOPY doesn't try to copy tape data sets that have expired.
- OFFSITE=NO tells FATSCOPY not to try to copy data sets that are on tape volumes that are currently vaulted off-site.

Section 34 of the User Documentation includes a panel-by-panel walk-through, which shows various aspects of the CATDSN copying process. This includes the easy-to-use (but very powerful) SELECT and EXCLUDE facilities, which help you control the copying process by selecting only the data sets that you wish to copy with FATSCOPY.

> **Action**: Familiarize yourself with the CATDSN function.
> See section 34.0 (pages 34-20 to 34-29) for details on the CATDSN function.

9. INTRODUCING FATAUDIT

FATAUDIT (Menu Option A) is a valuable tool for tracking the copy process.



- The FATAUDIT **Detail Report** contains information for each data set copied, including the job name, the time and date the job was run, the data sets and volumes copied, the number of bytes and blocks copied, and the return code issued by FATSCOPY when each data set is copied.
- The FATAUDIT **Summary Report** shows the total number of files copied, total input and output volumes, and the total blocks and bytes read from the input tapes and written to the output tapes.

As you can see from the sample screen below, you have the choice between viewing the Audit Report in the Foreground (option “F”) or submitting the report as a batch job (option “S”). You also have the option of editing the JCL before it gets submitted (option “E”).

The screen below shows an example of a FATAUDIT **Detail Report**.

The Detail Report provides information about the FATSCOPY job that generated the audit records, including job name, step name, the system where the job ran, and the date and time the job ran. The report shows information for 1 data set.

The first line in the report shows the data set name that was copied (JMK.RMM.MVOLFIL2), the expiration date of the input data set, whether or not the input data set was cataloged, and the volume that contained the data set.

It shows all of the same information for the output data set, and also includes whether the Tape Management information was propagated from the input to the output ("yes" under the TMS heading).

The first line also shows the return code issued when the data set was copied. If a non-zero condition code was issued, additional information appears under the REAS heading.

The next lines show any additional input or output volumes that were read or written, followed by a line showing the total number of bytes read from the input and written to the output.

A Summary Report on a second screen (shown below) provides a summary of the information about the jobs, data sets, and volumes in the Detail Report.

Section 34 of the User Documentation describes the FATAUDIT panels in more detail.

> **Action**: Familiarize yourself with FATAUDIT.
> See section 34.0 (pages 34-31 to 34-32) for details on the FATAUDIT function.

10. RUNNING FATSCOPY AS A BATCH JOB

All of the functions described above can also be executed via a z/OS batch job. Below is a simplified example of a FATSCOPY job to copy entire tape volumes into a VTS.

- FATSCOPY does a copy, selecting all data sets on all virtual volumes that are located on physical volumes STK123 and STK999 in a StorageTek VSM virtual tape system.
- The STEPLIB DD statement for your HSC link library is required, unless this library is in the linklist or on the JOBLIB statement
- The DSNTABLE statement is used so that the copy job can be restarted (by another job using the RESTART keyword) if you need to interrupt this job with a STOP command. The RESTART job would continue copying files starting where the interrupted job stopped.

```
//FATSCOPY EXEC PGM=FATSCOPY,REGION=0M
//STEPLIB  DD DSN=your.sls.prod.linklib,DISP=SHR
//SYSPRINT DD SYSOUT=*
//TAPESUMM DD SYSOUT=*
//SELRPT   DD SYSOUT=*
//COPYRPT  DD SYSOUT=*
//ERRORRPT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//DSNTABLE DD DSN=FATSCOPY.MIG.CHKPOINT,DISP=(,CATLG),
//            UNIT=SYSALLDA,SPACE=(TRK,(15,5),RLSE)
//TAPEOUT  DD DSN=DUMMY,UNIT=VTSOUT,DISP=(,KEEP)
//SYSIN    DD *
 COPY   MULTIFILE=YES,VIRTTYPE=STK
 SELECT ALLDSN,PHYSVOL=STK123
 SELECT ALLDSN,PHYSVOL=STK999
/*
```

The second example below shows FATSCOPY being used to “stack” 5 tape volumes onto a larger tape (in this case, an IBM 3590).

- The tapes to be copied are identified from Tape Management information and all files on those tapes are copied and stacked on the output tape. If any of the tapes are part of a multi-volume tape set, then all files on all tapes in the set are copied.
- All copied files are cataloged to the output tape, regardless of the catalog status of the input files.

```
//STACK    EXEC PGM=FATSCOPY,REGION=0M
//SYSPRINT DD SYSOUT=*
//SELRPT   DD SYSOUT=*
//COPYRPT  DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//TAPEOUT  DD DSN=OUTPUT,UNIT=3590-1,DISP=(,KEEP)
//SYSIN    DD *
 COPY   EXPDTGROUP=999,CAT=RECAT
 SELECT ALLDSN,VOL=A03452
 SELECT ALLDSN,VOL=C19498
 SELECT ALLDSN,VOL=C19502
 SELECT ALLDSN,VOL=R32343
 SELECT ALLDSN,VOL=F00042
/*
```

The JCL and control statements required to run FATSCOPY as a z/OS batch job are described in Sections 31 to 33 of the User documentation.

Action: Familiarize yourself with the FATSCOPY JCL and Control Statements.

- Section 31 describes z/OS JCL Statements required to run FATSCOPY.
- Section 32 describes the FATSCOPY control statements
- Section 33 provides numerous examples of FATSCOPY batch jobs.
- Section 11 below shows how to run some test FATSCOPYs

11. TESTING FATSCOPY

Before you start to run your own FATSCOPY jobs to copy full tapes or data sets to new tape media, you may wish to first run one or more "non-destructive" tests. This allows you to familiarize yourself with the product, ensures that it has been properly installed, and confirms that the Tape Management interface is working correctly.

The best way to do this is to run FATSCOPY to copy the contents of a tape over to a new tape, but rename the tape files on the new tape so that the files on the input tape are unaffected and remain cataloged to the original tape.

In the example below:

- We are going to copy all cataloged data sets whose names match the mask JAT.EE.FATS.*
- We change the second index level for each output data set from "EE" to "TEMP".
- The output data sets are cataloged with their new names (assuming those names are not already cataloged).
- SHOWNEWN instructs FATSCOPY to display the new output data set names in the Copy Report.
- EXPDTGROUP=999 instructs FATSCOPY to stack all the data sets together regardless of their expiration dates.

The input files on the original tape are left <u>unchanged</u> and remain cataloged to the original tape.

```
//RENAME   EXEC PGM=FATSCOPY,REGION=0M
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SELRPT   DD SYSOUT=*
//COPYRPT  DD SYSOUT=*
//TAPESUMM DD SYSOUT=*
//TAPEOUT  DD DSN=DUMMY,UNIT=3590-1,DISP=(,KEEP)
//SYSIN    DD *
 COPY   MULTIFILE=YES,CAT=RECAT,SHOWNEWN,EXPDTGROUP=999
 SELECT CATDSN=JAT.EE.FATS.*
 RENAME LF=ALL,NEWI=.TEMP
/*
```

Action: Run a few **"**test**"** FATSCOPY jobs using RENAME.

- Use the example above to create your own test jobs, substituting the CATDSN with a value that selects some of your tape data sets, and using NEWI to create new copies of those data sets on the output tape(s).
- See Section 32.4 (and 23.3.7) for a description of the RENAME statement and the LF, NEWI and NEWN operands.
- Section 31 describes the z/OS JCL required to run FATSCOPY.

12. USING THE SIMULATION FEATURE

Replacing a COPY statement with a SIMULATE (SIM) statement causes FATSCOPY to simulate a copy operation. FATSCOPY scans the catalogs and Tape Management records according to your SELECT and EXCLUDE statements and it displays the data sets that it would select if run for real, and showing the order that they would be copied to output tapes.

SIM does not open TAPEOUT (which can be omitted) and it does not mount or read any input tapes.

By default, SIM creates an estimate of the number of output tapes needed to copy all of the data sets matching the selection criteria, and a report showing the VOLSERs of the input tapes needed for the job.

As illustrated in the simplified example below, SIM can be used in conjunction with the CHECKPT keyword to create a data set to be used as input to a subsequent FATSCOPY (COPY) job to actually copy the data sets for real. This saves the processing overhead of having to repeat the search of the z/OS catalogs and Tape Management records.

STEP1 does a simulation run, selecting data sets with the high level qualifier of FATSTEST from the system catalog and creating a checkpoint data set on disk that is used as input to a second job that copies all the data sets selected.

```
//STEP1    EXEC PGM=FATSCOPY,REGION=0M
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SELRPT   DD SYSOUT=*
//COPYRPT  DD SYSOUT=*
//TAPESUMM DD SYSOUT=*
//TAPEOUT  DD DUMMY
//DSNTABLE DD DSN=FATSCOPY.CHKPOINT,SPACE=(TRK,(15,5),RLSE),
//UNIT=SYSALLDA,DISP=(,CATLG)
//SYSIN    DD *
 SIM    CHECKPT
 SELECT CATDSN=FATSTEST.**
/*
```

STEP2 copies data sets selected by STEP1, as recorded in the checkpoint data set named on the DSNTABLE DD. The data sets are copied to a 3590 tape. All of the output data sets are recataloged.

```
//STEP2    EXEC PGM=FATSCOPY,REGION=0M
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SELRPT   DD SYSOUT=*
//COPYRPT  DD SYSOUT=*
//TAPESUMM DD SYSOUT=*
//DSNTABLE DD DSN=FATSCOPY.CHKPOINT,DISP=SHR
//TAPEOUT  DD DSN=DUMMY,UNIT=3590-1,DISP=(,KEEP)
 COPY   MULTIFILE=YES,CAT=RECAT,RESTART
/*
```

Action: Try out the SIMULATION feature.

- Use the example above to create your own SIMULATION jobs, substituting the CATDSN with a value that selects some of your tape data sets.
- Section 31 describes z/OS JCL required to run FATSCOPY.
- See section 32.2 for a description of the SIM statement and CHECKPT keyword.

13. SPECIAL CONSIDERATIONS

Section 32.6 of the User Documentation provides additional special considerations, which should be reviewed prior to using FATSCOPY in a production environment.

- Checkpoint/Restart
- Operator commands
- Stacking limitations
- Copying FDR tapes
- Copying DFHSM ML2 tapes
- Copying SMS tapes
- CA-1, TLMS, and RMM considerations.

> **Action**: Review the Special Considerations in section 32.6.