CA Copycat Utility

Best Practices Guide

r12

CA Product References

This document references the following CA products:

- CA Copycat Utility
- CA 1® Tape Management (CA 1)
- CA Earl™ (CA Earl)
- CA Tape Encryption
- CA TLMS® Tape Management (CA TLMS)
- CA Vtape™ Virtual Tape System (CA Vtape VTS)

Contact CA

Contact Technical Support

For your convenience, CA provides one site where you can access the information you need for your Home Office, Small Business, and Enterprise CA products. At http://ca.com/support, you can access the following:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Provide Feedback

If you have comments or questions about CA product documentation, you can send a message to techpubs@ca.com.

If you would like to provide feedback about CA product documentation, complete our short customer survey, which is also available on the CA Support website, found at http://ca.com/docs.

Best Practices Guide Process

These best practices represent years of product experience, much of which is based on customer experience reported through interviews with development, technical support, and technical services. Therefore, many of these best practices are truly a collaborative effort stemming from customer feedback.

To continue and build on this process, we encourage users to share common themes of product use that might benefit other users. Please consider sharing your best practices with us.

To share your best practices, contact us at techpubs@ca.com and preface your email subject line with "Best Practices for *product name*" so that we can easily identify and categorize them.

Contents

Chapter 1: Introduction

This section contains the following topics:

Purpose of this Guide

The guide provides a brief introduction to CA's Mainframe 2.0 strategy and features, and describes the best practices for installing and configuring CA Copycat Utility.

Audience

The intended audience of this guide is systems programmers and administrators who need to install, set up, configure, deploy, and maintain the product.

Mainframe 2.0 Overview

Mainframe 2.0 is our strategy for providing leadership in the mainframe operating environment. We intend to lead the mainframe marketplace for customer experience, Out-Tasking solutions, and solution innovation. After listening to customer needs and requirements to keep the mainframe operating environment viable and cost-effective, we are providing new tools to simplify usage and to energize this operating environment for years to come.

CA Mainframe Software Manager (CA MSM) is an important step in realizing the Mainframe 2.0 strategy. CA MSM simplifies and standardizes the delivery, installation, and maintenance of mainframe products on z/OS systems. CA MSM has a browser-based user interface (UI) with a modern look and feel for managing those solutions. As products adopt Mainframe 2.0 features and CA MSM services, you can acquire, install, and manage your software in a common way.

CA MSM provides software acquisition and installation that make it easier for you to obtain and install CA mainframe products, and apply the recommended maintenance. The services within CA MSM enable you to manage your software easily based on industry accepted best practices. The common browser-based UI makes the look and feel of the environment friendly and familiar.

We follow the IBM z/OS packaging standards using SMP/E, with some additional CA qualities of service added, to make installation simple and consistent. Additionally, through the synchronization of product releases and the use of common test environments, we will declare a yearly mainframe software stack that includes many new releases with enhanced functionality. This stack is certified for interoperability across the CA mainframe product portfolio and the base IBM z/OS product stack.

Mainframe 2.0 Features

Mainframe 2.0 has the following main features:

CA Mainframe Software Manager (CA MSM)

Delivers simplified acquisition, installation, and deployment capabilities using a common z/OS-based web application delivered through a browser-based UI. CA MSM includes the following services:

Product Acquisition Service (PAS)

Facilitates the acquisition of our mainframe products and services, including product base installation packages and program temporary fixes (PTFs). This service integrates the inventory of products available on your system with CA Support, providing a seamless environment for managing and downloading software and fixes onto your system.

Software Installation Service (SIS)

Facilitates the installation and maintenance of our mainframe products in the software inventory of the driving system. This service enables you to browse and manage the software inventory using a web interface, and automates tasks for products that use SMP/E to manage installation. You can browse downloaded software packages, and browse and manage one or more consolidated software inventories (CSIs) on the driving system.

Software Deployment Service (SDS)

Facilitates the deployment of our mainframe products from the software inventory of the driving system. This service enables you to deploy installed products that are policy driven with a set of appropriate transport mechanisms across a known topology. The enterprise system topology can include shared DASD environments, networked environments, and z/OS systems. Policies represent a combination of CA metadata input that identifies the component parts of a product and user-supplied input that identifies the deployment criteria, such as where it will go and what will it be called.

Electronic Software Delivery (ESD)

Enables you to get our products from an FTP server. We have improved this process so that you no longer need to build a tape to install the product.

Best Practices Management

Integrates with IBM Health Checker for z/OS to verify that deployed software follows our best practices. The health checks continually monitor the system and software to provide feedback on whether the software continues to be configured optimally.

Best Practices Guide

Provides best practices for product installation and configuration.

Note: For additional information about the CA Mainframe 2.0 initiative, see http://ca.com/mainframe2.

Chapter 2: Installation and Configuration Best Practices

This section contains the following topics:

Installation

Use CA MSM to acquire, install, and maintain your product.

Business Value:

CA MSM provides a web interface, which works with ESD and standardized installation, to provide a common way to manage CA mainframe products. You can use it to download and install CA Copycat Utility.

CA MSM lets you download product and maintenance releases over the Internet directly to your system from the CA Support website. After you use CA MSM to download your product or maintenance, you use the same interface to install the downloaded software packages using SMP/E.

Additional Considerations:

After you install the product, use the Installation Guide to set it up. CA MSM can continue to help you maintain your product.

More Information:

For more information about CA MSM, see the CA Mainframe Software Manager Guide. For more information about product setup, see the Installation Guide.

Making Optimal Use of CA Copycat Utility

This section covers some configuration options, tips, and hints to optimize the use of CA Copycat Utility.

Backup and Electronic Vaulting

Create identical copies of tapes for backup or vaulting purposes by sending the data electronically. Tape files can be copied to a tape device attached at the offsite location.

Business Value:

By creating identical copies of tapes for backup or vaulting purposes by sending the data electronically, you can:

- Reduce the overhead of vaulting tapes to off-site locations.
- Minimize the tasks of pulling the vaulting list, packaging the tapes, and transporting them.
- Reduce the possibility of losing tapes in transit.

Additional Considerations:

The recommended parameters for backup purposes are:

CTCFLCPY

Processes all files residing on the specified volume(s). Unlike the CTCTPCPY function, which copies an entire volume, CTCFLCPY allows you to selectively copy files from the input tapes.

FILES=ALL

Selects all input files to create an identical copy. When creating a backup tape, use FILES=ALL. This will copy all files on the volume, regardless of their expiration dates.

MERGE=NO

Creates identical file and volume chains.

RECATLG=NONE

Omits any system catalog updates. Because we are creating a backup copy of the tape files, the system catalog should not be updated.

OUTDISP=retention

Sets the desired retention for the output tapes. You can set a different retention for the volumes with the backup file copies.

SAVEINFO=YES

> May be specified to propagate creation information like creation date (CDATE), creating job (CJOB), and creating program (CPGM) from the input to the output tapes.

DUPLEX=YES

> Creates two identical copies. Separate parameters are available to request different allocation options, data set names, catalog operations, expiration dates, and other CA 1 TMC or CA TLMS VMF updates for primary and duplex output files

The following sample JCL control statements will create an identical copy of volume 300017, without recataloging the files. The copy will be retained for two weeks in the tape catalog; the original tape will not be modified:

```
//CTCFLCPY JOB ...
//STEP1 EXEC PGM=COPYCAT,PARM='DATEFMT=(YYYY/MM/DD)
//STEPLIB DD DSN=CAI.CAILINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
//CCRPT DD SYSOUT=*
//SYSUSNAP DD SYSOUT=*

//SYSIN  DD *
CTCFLCPY
FILES=ALL
INUNIT=CART
OUTUNIT=CART
MERGE=NO
RECATLG=NONE
SAVEINFO=YES
INDISP=SAME
OUTDISP=RETPD=14
INPUT=*
300017
/*
```

Media Conversion and Migration to Virtual Tape

Copy tape files from one device type to another including migrating files on physical media to virtual media.

Business Value:

By copying tape files from one device type to another including migrating files on physical media to virtual media, you can:

- Convert tape media with minimal JCL setup

- Retire old tape drives and media by converting to new media

- Provide a simple way to migrate to virtual tape systems such as CA Vtape or IBM VTS

- Unstack physical tapes with multiple data sets, placing each data set on its own virtual volume (using the UNSTACK parameter) to allow a finer level of control over the files on virtual volumes

- Reduce physical hardware requirements

- Save money by improving utilization of existing tape cartridges and facilitating the migration to more efficient virtual tape systems

Additional Considerations:

During media conversion, all files are dynamically allocated and copied under CA 1 or CA TLMS control. Parameters OUTUNIT, STORCLAS, DATACLAS, and MGMTCLAS are provided to direct the allocation of the output files to the desired media and device type or SMS class.

The MERGE parameter can be used to control stacking of the output files. CA Copycat Utility can recatalog the files after successful copy.

Numerous parameters are available to tailor allocation options and tape catalog updates. The PREFIX parameter allows you to add a prefix to the output data set name if DSN standards are changed. If other updates to the DSN are needed, the user exit CTCOPYUX may be coded to alter the DSN at allocation time. The source for CTCOPYUX can be found in CAI.CAISRC and the SMP/E USERMOD itself can be found in CTAPJCL member CUW1101. You could also use an exit to modify TMC or VMF updates. For example, you can code it to propagate accounting data from the input to the output volume.

The recommended parameters for conversion purposes are:

CTCFLCPY

Processes all files residing on the specified volume(s)

FILES=ALL

Selects all input files for the copy

MERGE=NO

Creates identical file and volume chains

MERGE=YES

Stacks all output files together in one multifile chain

UNSTACK

Creates single file output tapes – used for migration to virtual tape systems which perform their own file stacking

VOLCHAIN=NO

Prevents multivolume chaining during stacking; creates multifile single volume tapes

RECATLG=PREV

Recatalogs all files that were previously cataloged

OUTDISP=SAME

Keeps the original input retention on the output files

INDISP=retention

Indicates the new retention of the input files

SAVEINFO=YES

Propagates creation information like CDATE, CJOB, and CPGM from the input to the output files

The following sample JCL control statements can be used to migrate physical volume range 004801-004810 into a virtual tape library with storage class VTS01. Each input file will be copied on a separate volume, to let the virtual tape system perform the stacking according to its standards.

The output files will retain all creation information from the input and will be put under catalog control in CA 1 or CA TLMS. They will all be cataloged or recataloged, regardless of the previous catalog status. The input tapes will be expired two days after successful copy.

```
//CTCFLCPY JOB ...
//STEP1 EXEC PGM=COPYCAT,PARM='DATEFMT=(YYYY/MM/DD)
//STEPLIB DD DSN=CAI.CAILINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
//CCRPT DD SYSOUT=*
//SYSUSNAP DD SYSOUT=*

//SYSIN   DD *
CTCFLCPY
FILES=ALL
INUNIT=CART
STORCLAS=VTS01
UNSTACK
RECATLG=ALL
SAVEINFO=YES
INDISP=RETPD=2
OUTDISP=EXPDT=CATALOG
INPUT=*
004801
004802
004803
004804
004805
004806
004807
004808
004809
004810
/*
```

Media Consolidation

Consolidate active data sets from multiple tape volumes onto fewer volumes to allow volumes to be returned to scratch pools.

Business Value:

Media consolidation improves tape utilization by copying files from multiple tapes together on fewer volumes. Better utilization means fewer cartridges are required, which translates into cost savings.

Additional Considerations:

If the output of an application does not fit on one volume, CA Copycat Utility can either build a multifile/multivolume chain, or create separate multifile volumes.

When files on one tape expire at different times, you can use CA Copycat Utility to perform a forward-merge by only selecting files that are not expired in the tape catalog.

If after one Copycat execution, the output tape is not yet full, the next execution can continue stacking files to the same tape. CTCFLCPY procedures can be set up to automatically restart each copy operation on the last volume used for output by the previous job.

When a certain sort order is desired for the output files, you can instruct CA Copycat Utility to leave the sequence of the specified input tapes or files unchanged. Otherwise, the input is sorted for performance reasons.

The recommended parameters for consolidation purposes are:

CTCFLCPY

Processes all files residing on the specified volume(s)

FILES=ALL

Selects all input files for the copy

FILES=ACTIVE

Selects unexpired input files only

MERGE=YES

Stacks all output files together in one multifile chain

MERGE=MOD

Continues stacking on the last output volume previously used when available; otherwise operates like MERGE=YES

VOLCHAIN=NO

Prevents multivolume chaining during stacking; creates multifile single volume tapes

RECATLG=PREV

Recatalogs all files which were previously cataloged

OUTDISP=SAME

Keeps the original input retention on the output files

INDISP=retention

Specifies the new retention of the input files

SAVEINFO=YES

Propagates creation information like CDATE, CJOB, and CPGM from the input to the output files

The following sample JCL control statements will perform a forward-merge on volumes 110839 and 110824. Only the active files on these volumes will be selected and stacked onto the volume previously used for the application identified by MODHLQ=CCMERGE5. If no such volume is found in the catalog, a scratch tape will be requested.

The original sort order of the input files will be retained; first, the selected files from VOLSER 110839 will be written in ascending file sequence order, then the files from VOLSER 110824 in ascending file sequence order.

The output files will be recataloged according to their previous catalog status. They will keep the original expiration date in the TMC or VMF. The input files will expire two days after successful copy:

```
//CTCFLCPY JOB ...
//STEP1 EXEC PGM=COPYCAT,PARM='DATEFMT=(YYYY/MM/DD)
//STEPLIB DD DSN=CAI.CAILINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
//CCRPT DD SYSOUT=*
//SYSUSNAP DD SYSOUT=*
//SYSIN   DD *
CTCFLCPY
FILES=ACTIVE
SORT=NO
INUNIT=TAPE
OUTUNIT=TAPE
MERGE=MOD
MODHLQ=CCMERGE5
RECATLG=PREV
OUTDISP=SAME
INDISP=RETPD=2
INPUT=*
110839
110824
/*
```

Media Analysis

Use the CTCTPMAP function to display the contents of CA 1 or CA TLMS controlled or foreign tape volumes with standard labels.

Business Value:

By using the CTCTPMAP function to display the contents of CA 1 or CA TLMS controlled or foreign tape volumes with standard labels, you can:

■ Verify the contents of a tape volume

■ Identify tape files encrypted by CA Tape Encryption

■ See how full is a tape volume

■ Assist auditors in compliance

Additional Considerations:

The HEXMAP parameter allows you to choose one of two alternative report formats: With HEXMAP=YES, all tape labels, including UHLx and UTLx user labels, are dumped in character and hexadecimal format. HEXMAP=NO provides a formatted report line which is comprised of label and control unit information for each file on the tape. This includes file sequence, data set name, creation data, expiration date, media and device type, DCB attributes, block count and other statistics. The tape usage information includes:

■ For 3420 reel tapes, the length of the current file and the total length of the current file plus all preceding files on the tape, computed in feet (ft).

■ For cartridge tapes, the high block ID of the current file and the percent utilization of the cartridge, up to and including this file is presented.

■ For 3592 WORM tapes, the Worldwide Identifier (WWID) and the Write Mount Count (WMC) are displayed along with the volume information.

With parameter LIST=YES, the position of data and tape marks is indicated in the report, to provide an accurate image of the tape layout.

Example 1

The following sample JCL control statements will map volume K00084. All labels will be dumped, and tape marks will not be listed.

```
//CTCFLCPY JOB ...
//STEP1 EXEC PGM=COPYCAT,PARM='DATEFMT=(YYYY/MM/DD)
//STEPLIB DD DSN=CAI.CAILINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
//CCRPT DD SYSOUT=*

//SYSUSNAP DD SYSOUT=*

//SYSIN   DD *
CTCTPMAP
INUNIT=3490
HEXMAP=NO
LIST=NO
INPUT=*
K00084
/*
```

The following CTCTPMAP report is created:

```
TAPEMAP                                           CA Copycat Utility r12                              Page=00001
Thursday, January 28, 2010.028              T A P E M A P   D E T A I L                                13:42:28
Requested Volume=K00084   Internal Volume=K00084  Owner=
 File    Data Set        Pass   Create     Expire              Block  Blocks                Length Tot Length    Creator
 Seq#      Name          word    Date       Date    Recfm Lrecl Size  Used  Media Den       Blk ID Percentage Job Name/Stepname

    1   SYST001.CTLFILE  NONE  11/19/2008 12/31/2010 F      80    80     1   3490 36TK          7*       0     SYST001C/COPYCAT
    2   MDU1SP.IPCS.PRINT NONE 11/19/2008 01/07/2010 VB     83  23476   15   3490 36TK         29*       0     SYST001C/COPYCAT
    3   TION.MERGE.OUTPUT NONE 11/19/2008 01/07/2010 FB    200   200    23   3490 36TK         59*       0     SYST001C/COPYCAT
    4   X.CONVERSION.DATA NONE 11/19/2008 01/07/2010 FB    340  23460    8   3490 36TK         74*       0     SYST001C/COPYCAT
    5   PE.FILECOPY.TEST1 NONE 11/23/2008 08/13/2009 F      24    24     2   3490 36TK         83*       0     SYST001F/COPYCAT
    6   PE.FILECOPY.TEST2 NONE 11/23/2008 08/13/2009 F      24    24     2   3490 36TK         92*       0     SYST001F/COPYCAT
    7   PE.FILECOPY.TEST3 NONE 11/23/2008 03/05/2009 F      24    24     2   3490 36TK        101*       0     SYST001F/COPYCAT
    8   Y.CONVERSION.DATA NONE 11/23/2008 11/25/2008 FB    340  23460    8   3490 36TK        116*       0     SYST001F/COPYCAT
    9   MDU7TD.IPCS.PRINT NONE 11/23/2008 03/05/2009 VB     83  23476   15   3490 36TK        138*       1     SYST001F/COPYCAT
   10   TION.MERGE.OUTPUT NONE 11/28/2008 12/31/2010 FB    200   200    23   3490 36TK        168*       1     SYST001C/COPYCAT
   11   T.PATTERN.DATASET NONE 11/28/2008 12/31/2010 FB     80   3120    6   3490 36TK        181*       1     SYST001C/COPYCAT
                                                 Total block count is        105
NOTE:  Length(s) are in feet computed on block size, block count, and density for 3420 devices.
       * High block ID and percent utilization are listed for cartridge devices.
           End of report TAPEMAP    Job=SYST001M  Step=COPYCAT   Genlevel=000AUWC0
```

Example 2

This example shows how to list the user header labels for a tape volume encrypted by CA Tape Encryption in Business to Business (B2B) format. The name of the digital certificate (CERTCRYB) used to protect the encrypted tape file can be seen in the dump of User Header Label (UHL) 1.

Use the following control statements to dump header information for encrypted volume 103793. All labels will be dumped, and tape marks will not be listed.

```
//CTCFLCPY JOB ...
//STEP1 EXEC PGM=COPYCAT,PARM='DATEFMT=(YYYY/MM/DD)
//STEPLIB DD DSN=CAI.CAILINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
//CCRPT DD SYSOUT=*
//SYSUSNAP DD SYSOUT=*
//SYSIN   DD *
CTCTPMAP
INUNIT=3490
HEXMAP=YES
LIST=NO
INPUT=*
103793
/*
```

The following CTCTPMAP report is created:

```
TAPEMAP                                       CA Copycat Utility r12                                              Page=00001
Wednesday, February 03, 2010.034              T A P E   H E A D E R   L I S T I N G                                 12:16:37
Requested Volume=103793  Internal Volume=103793  Owner=
             VOL1103793
             EDDFFFFFFF4444444444444444444444444444444444444444444444444444444444444444444444
             5631103793000000000000000000000000000000000000000000000000000000000000000000000000
             01...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
             HDR1GRP51.P0075.FILE110379300010001     01002801003700000000BTE  12.0
             CCDFCDDFF4DFFFF4CCDCFFFFFFFFFFFFFFFF444444FFFFFFFFFFFFFFFFFFFFCEC49FF4FF0004444444
             849179751B70075B693511037930001000100000001002801003700000002350912B0F0000000000
             01...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
             HDR2F140000008000CRYPTOV3/DGEN1TPEP   B  47000
             CCDFCFFFFFFFFFFFFFFCDEDEDEF6CCCDFEDCD444C444FFFFF44444444444444444444444444444444444
             84926140000008000398736531475513757000200047000000000000000000000000000000000000
             01...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
             UHL1  BC00 12.6   1         ;  -+  _  R                 BA00   CERTCRYB
             ECDF0ECCFF9FF4F444F80000F0005C568649363AD81A9E09F1278B6CA154CCFF00CCDECDEC444444
             483100230091 2B6000102330F00080E6F0E75D4299437B21F942194DA04F2100083593398 2000000
             01...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
             UHL2                        V " S      !$ /          _V)M 2   0   #    #
             ECDF4444444444444444408B12C8005E07B0E98DA4A9955C6614A23DB866E5DF1F9F20758AB7
             483200000000000000000000074EA77D258FF4288B027D4ABA1998680B9D9D5D4CB27A60F8BB850BB
             01...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
             UHL3  E  ¬    N  C Q      #.      R        X  7             $6    G X
             ECDF1ACC4858AA3D87C0DC883B387145D712879D5B7A82B319E68DFFB4D1CD71A5AB5FBFDC4E0000
             4833F5F549F57C75003F8C4CD3ADBBB5002D32998126D1CEF0744A7AE1C5FF344261B64BA7570000
             01...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
             UHL4
             ECDF00000000000000000000000000000000000000000000000000000000000000000000000000000
             483400000000000000000000000000000000000000000000000000000000000000000000000000000
             01...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
             UHL5
             ECDF00000000000000000000000000000000000000000000000000000000000000000000000000000
             483500000000000000000000000000000000000000000000000000000000000000000000000000000
             01...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
             UHL6
             ECDF00000000000000000000000000000000000000000000000000000000000000000000000000000
             483600000000000000000000000000000000000000000000000000000000000000000000000000000
             01...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
```

Copycat and External Data Manager Tapes

To copy tapes that are under External Data Manager (EDM) control in CA 1 or CA TLMS, use the tape copy utilities provided by your EDM product such as CA Disk or IBM DFSMShsm. The tape copy utilities of the respective EDM product keep the EDM's database updated with the correct volume serial number and file sequence for all tape data sets.

Business Value:

Using the tape copy utilities of your EDM product ensures that CA 1 or CA TLMS and your EDM always have the correct volume serial number and the file sequence number recorded in their product databases for files created by the EDM.

Additional Considerations:

External Data Managers typically have their own database to keep track of the tape files they create. If you copy an EDM tape to a new volume using CA Copycat Utility, the TMC or VMF is updated to reflect the new volume that the tape file resides upon, but the EDM database is not updated with the new volume serial number or file sequence number. In this situation, the EDM will not be able to find tape data sets that it has created.

In some cases it may be possible to update the EDM database to record the new volume serial number and file sequence used, however it is best to use the utilities provided with the EDM to insure that the database is always correct.

Configuration for Optimal Performance

The following sections explain the best practices for configuring CA Copycat Utility for optimal performance.

Performance Recommendations

Avoid duplicate specifications and redundant input statements.

Business Value:

By following this best practice, you can improve the performance of CTCFLCPY operations, resulting in less CPU utilization and faster execution times.

Additional Considerations:

The performance of CTCFLCPY operations is affected by the duration of the setup phase and the speed of the actual tape copy process.

In the setup phase, CA Copycat Utility accesses the TMC or VMF and extracts all relevant tape data. Redundant or inappropriately arranged input statements will require extraneous I/Os on the TMC or VMF.

Multivolume Copying

If you include multivolume sets, specify only the base volume.

Business Value:

Specifying only the base volume eliminates duplicate file copies when copying multivolume sets.

Additional Considerations:

For example, parameter FILES=ALL specified along with a list of input volumes causes all files to be selected which are associated with any of the listed volumes. For each specified VOLSER, Copycat extracts all TMC or VMF records which are chained to the volume. If multivolume sets are included, you should specify the base volume only. Otherwise, all files of the chain will be selected multiple times, causing unnecessary overhead. With MERGE=YES, duplicate records are sorted out automatically, while MERGE=NO will actually copy the files multiple times and create unwanted output.

By default, CA Copycat Utility sorts all extracted input statements by media type, base volume and file sequence, to optimize the mount and read process of the tapes. If SORT=NO is used to suppress the sort, the input statements should be set up in appropriate sequence. For example, if FILES=SPECIFC is used to copy files from a large multifile tape, the files should be specified in ascending file sequence order to avoid unnecessary repositioning between the reads.

Files with Small Block Sizes

Specify the BUFFER parameter when copying files with small block sizes (2,000 bytes or less).

Business Value:

Specifying the BUFFER parameter will reduce the number of I/O commands executed to write your tape data, thereby improving the tape copy performance.

Additional Considerations:

The default BUFFER=SINGLE causes one data block to be read or written in one I/O execution.

While block sizes of 2,000 bytes or less are commonly considered small, the BUFFER parameter can have a positive impact for block sizes up to 20,000 bytes. The smaller the block size, the greater the importance to use the BUFFER parameter.

BUFFER=MULTIPLE causes CA Copycat Utility to reduce the EXCP count by reading and writing multiple data blocks per EXCP. Depending on the block size of each file, up to 2048 blocks may be transferred in one I/O execution. BUFFER=MULTIPLE does not take effect for files with a block size greater than 32760.

Interfaces and Integration Points

The following section explains interfaces and integration points required to manage tapes using CA Copycat Utility.

Use of CA EARL for Generation of Volume Selection Lists

Use the CA EARL report writer utility to create Copycat input statements from eligible TMC or VMF records. CA EARL is the standard user-customizable reporting utility used by CA 1, CA TLMS and many other CA products.

Business Value:

By using CA EARL report writer utility to create Copycat input statements from eligible TMC or VMF records, you can:

- Have a powerful and flexible way to select data sets to be copied

- Test any TMC or VMF field

Additional Considerations:

Sample programs are available in the CA Copycat Utility CTAPJCL library in the members CTCERL1C and CTCERL2C.

The layout of the Common Tape data base record can be found in member CTEARLCM of your CAISRC source library.

All fields of the Common Tape data base record can be used as selection criteria for Copycat applications.

All fields of the Common Tape data base record may be used as selection criteria for Copycat applications. In particular, the following fields may be useful to select or exclude volumes:

VOLSER

> Volume serial number (range)

VOLSEQ

> Volume sequence

DSN

> Data set name (qualifier)

FILECNT

> File count

CDATE

> Creation date

CJOB

> Creation job

CREATE_PROGRAM

> Creation program

CLOSE_IND

> Close / abend indicator

USER_DATA

User accounting data

OWNER

Volume owner / External Data Manager

VOL_PERCENTAGE

Percent of volume in use

BLKCNT

File block count

PERM_WRITE_INIT

Permanent write errors

LDATE

Date last used

USECNT

Total use count

EXPDT

Expiration date

ROBOT_TYPE

Robot type

OUTLOC

Offsite location / vault

For example, an EARL program could select all volumes created by a certain job since last week, which are currently in the data center and show a volume sequence of 1.

As CA Copycat Utility retrieves all secondary files and volumes of a chain automatically, one input statement only should be generated for each volume set to be processed (unless all files to be copied are listed explicitly with FILES=SPECIFIC).

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