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Systems Guide

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Sterling Software, Inc.
Storage Management Division
625 East Carnegie Drive, Suite 100
San Bernardino, California 92408-3510

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Customer Support

For Users in the United States, contact:

Sterling Software, Inc.
Storage Management Division
10811 International Drive
Rancho Cordova, CA 95670
(800) 889-0226

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Chapter 1. Files Data Set Management

Commands	Program Executed
INITIALIZE (assumed)	ADSDM100
STATUS (assumed)	ADSDM107
UNLOAD	ADSDM177
FRECOVER	ADSDM650
RELOAD	ADSDM192
for RESTART	ADSDM192
for REORG	ADSDM444

The following procedures are available:

- UNLOAD
- RELOAD
- REORG
- RESTART

General Information

SAMS:Disk uses a direct access data set called the Files Data Set to store information about the data sets it operates on. It is a single volume data set that must be in one extent. The files data set contains multiple subfiles of data. The term "subfile" refers to a group of logically related records kept within the files data set. Each subfile is assigned an eight-character name by which it is identified. Subfiles are independent groups of records that do not necessarily have any relationship to records in other subfiles of the data set. They are processed as if they were separate data sets.This technique provides the convenience of having multiple DASD files without the task of having to support each one independently.

An EXCP I/O interface is used to retrieve, insert, update and delete records. Records are referenced by their specific keys within each subfile, but may also be retrieved sequentially by subfile name alone, if desired.

For example, one subfile used by SAMS:Disk is the data set index record subfile (DSNINDEX). This subfile contains one record for each data set currently in the SAMS:Disk archives. When a data set is archived, a record is placed in the DSNINDEX subfile. When the data set is restored, the DSNINDEX subfile is accessed to determine the volume serial of the tape or disk containing the archived version of the data set and its location within that volume. These records remain in the subfile until they are deleted by the MERGE or Index maintenance processing routines.

Integrity

The processing technique implemented ensures data set integrity during concurrent update (see "Basic Conventions and Requirements") in both the Loosely Coupled Multi Processor (LCMP) and Tightly Coupled Multi Processor (TCMP) environments. For greatest efficiency, a cross system enqueue package is recommended.

For related information, please turn to the sysparm description for *RSUPPRES* on page 166.

Except for specified utility functions, all JCL DD statements that reference the files data set may have shared disposition (DISP=SHR) coded in the JCL statement.

Physical Blocks

The physical blocksize of the files data set is the only value common to all of its subfiles. The blocksize is assigned at files initialization time.

Logical Blocks

Internal to SAMS:Disk processing is the concept of Logical Blocks. A logical block is simply a set of contiguous physical blocks accessed by the EXCP interface. The files data set EXCP I/O interface automatically determines the Logical Block based on the capacity requirements used when the files data set is initialized.

The Logical Block is unique to each subfile unlike the physical blocksize which is common to all subfiles. Depending on the capacity requirements for each subfile, the number of physical blocks per Logical Block may vary. The DSNINDEX subfile currently utilizes the maximum Logical Block which is 10 physical blocks per Logical Block.

Each logical block is accessed by Relative Byte Address (RBA). The relative byte address of each logical block is stored in the first four bytes of each block.

Logical Records

This term describes the data records that are stored in the logical data block. One logical record represents one subfile record. The logical data block will contain a fixed number of logical records.

Files Data Set Structure

Control Blocks

The files data set contains 4 major control blocks. The Allocation Control Record, the File Control Block, the Logical Index Block and the Logical Data Block. At file initialization, each subfile is represented by a subfile Logical Index Block and a subfile Logical Data Block. (The files data set control blocks and their contents are further described in the Record Format section, beginning on page 357.)

Allocation Control Record

The Allocation Control Record (ACR) describes the allocation of the entire files data set. It always resides in the first physical block of the files data set and is predefined offsets into the block.

File Control Block

The File Control Block (FCB) is defined for each subfile and contains the subfile definition entry. (Used by the Files Status Report.) The FCB is divided into two parts. A FCB prefix defines the number of subfiles defined and always follows the allocation control record.

Logical Index Block

Only one Logical Index Block (LIB) is created for every subfile defined by the FILEDEFN member. The LIB contains one entry for every logical data block in the subfile. The logical data block entry contains the highest key value and a four byte RBA pointer to the logical data block that contains the key.

To retrieve a specific record, the logical index block is searched to determine the relative byte address of the logical data block that has a high key equal to or greater that the key of the desired record. The RBA is then used to read the logical data block into memory. The logical data block is then searched for find the record.

Logical Data Block

The Logical Data Block (LLB) contains logical records comprising the subfile. The number of logical records that reside in a single logical data block is equal to the blocking factor of the subfile.

Note: A logical data block will never contain a partial record.

Subfiles of the Files Data Set

ARCHCMDS

A record is placed in this file for each ARCHIVE command to be processed on a deferred basis; this includes TSS and batch requests. The deferred command requests are eventually deleted subsequent to a batch DISPOSE job that processes the queued requests.

ARCHVOLS

A record exists in this file for each archive volume (tape or disk) to which one or more data sets were archived. An entry is also present for each backup copy of the archive volumes.

DASDSPCB

The accumulation of DASD space billing statistics are kept in this file.

DMSPARMS

This file is used only if the TSS DYNAMIC (immediate) RESTORE function is used. It is used to control the number of concurrent dynamic restores in progress.

DMSPOOLS

This file maintains the status of all tape volumes defined to various SAMS:Disk tape pools. Each volume is marked as being either an available scratch tape or an in-use tape.

DSNINDEX

This file contains an entry for each data set backed up or archived either EXPLICITLY or IMPLICITLY by the system. The records are keyed by data set name, and multiple versions of a given data set may be present.

MIGRECAT

An entry for each data set placed on the backup tape created during MIGRATION OF SEQUENTIAL data sets to tape is maintained in this file to facilitate recataloging all of the data sets should a primary tape be damaged or lost. SAMS:Disk does not provide any formal automated means for managing the entries in this subfile because there is no way of knowing how long to keep them. For this reason, this subfile will need to be purged occasionally to keep it from becoming excessively large.

RACFENCD

A record is placed in this file to cross-reference each RACF-protected data set and its associated SAMS:Disk-generated profile.

RESTCMDS

A record is placed in this file for each RESTORE command to be processed on a deferred basis; this includes TSS and batch requests. The deferred command requests are eventually deleted subsequent to a batch DISPOSE job.

RETEXCLD

If sysparm RETEXCLD is specified with a value of Y, a record is placed in this file for each data set restored. An installation-defined grace period is assigned to each. An unexpired grace period prevents implicit archive from archiving the data set again.

Restrictions

A maximum of 12 subfiles is presently supported. However, you can limit this even further by specifying sysparm FILESCNT. For more details, please review the sysparm description for *FILESCNT* on page 143.

Subfile Entry Definition

All subfiles to be used are defined to SAMS:Disk by entries in the FILEDEFN member of parmlib. During files initialization, the member entries are read and used to determine how the data set is to be formatted.

A sample set of subfile definition entries is distributed with the system as member FDSAMPLE in parmlib. To activate the definitions, you must create a member named FILEDEFN and copy in the sample values. An entry is required in the FILEDEFN member for each subfile of the files data set that will be used.

With the exception of the DSNINDEX subfile, the capacity values supplied in FDSAMPLE should be sufficient for a substantial period of time. All of the fields within FILEDEFN are described below:

Subfile Definition Parameters

The subfile definition parameters discussed here are found in dsn=dms.parmlib(FILEDEFN). When you are defining subfiles, remember that the maximum number of subfiles that may be defined is 12.

Table 1-1. FILEDEFN Record Format

Positions	Field Name	Description
1-8	Subfile Name	The 8-character name of the subfile being defined
9-11	Logical Record Length	The 3-digit length of the records that will constitute the subfile.

Positions	Field Name	Description
12-14	Key Length	The 3-digit length of the record keys.
15		Character "C" to indicate capacity field follows.
16-23	Capacity (maximum record count) needed	The number of records the subfile must be able to index. This number is the theoretical maximum allowed; for example, if inserts were in the perfect sequence to fill every data block -- in other words, when totally "compressed", this number of records can be indexed. In the real world, inserts are random, resulting in "block splits" which cause embedded freespace (as much as 50 percent) in any given data block (or possibly all blocks). For this reason, it is recommended that you set the capacity value to roughly twice the number of records you estimate will be inserted.
24	Shared DASD	The letter Y in this column indicates the file can be accessed concurrently by multiple tasks.
25	No Duplicates Allowed	The letter "Y" in this column indicates that the file does not permit entries with duplicate keys.
26	Deferred Write	The letter "Y" in this column indicates that the nature of the processing of this file does not require that each record added be written back immediately. This flag should be specified as "Y" only for file name DASDSPCB. All others should be specified as "N".
27	File validate	The letter "Y" in this column indicates that information regarding the file structure is to be validated during file reload.

Files Data Set Management

Formatting the Files Data Set

After the FILEDEFN member has been created, the files data set can be created and formatted with the following FILEINIT. During file initialization, the FILEDEFN member entries are read and used to determine how the files data set is to be formatted. These FILEDEFN member entries are accessed only during file initialization, after which all information is carried within the data set itself. A Files Data Set Status report will be created upon completion of the FILEINIT JCL.

```
//FILEINIT EXEC PGM=ADSMI002,PARM=ADSDM100,REGION=512K
//STEPLIB  DD DISP=SHR,DSN=SAMS.DISK.LOADLIB
//ABNLDUMP DD DUMMY
//FILES    DD DISP=(,CATLG,DELETE),DSN=SAMS.DISK.FILES,
//            UNIT=SYSDA,SPACE=(CYL,10,,CONTIG),
//            DCB=(DSORG=DA)
//MSGPRINT DD SYSOUT=A
//PARMLIB  DD DISP=SHR,DSN=SAMS.DISK.PARMLIB
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
```

Figure 1-1. JCL to Create/Format the Files Data Set

The subfiles are formatted for optimum performance based upon the physical blocksize of the files data set. The physical blocksize of the files data set is the only value common to all of its subfiles. SAMS:Disk automatically assigns the optimum blocksize according to the device type being used. (You may override the default BLKSIZE by specifying a value in your JCL, but it is NOT recommended.) The major concern is to specify an appropriate value in the FILEDEFN entries.

Note: Please review the topic *"Files Data Set Capacity"* beginning on page 10.

Files Data Set Status Report

The following JCL can be used to produce this report.

```
//STATUS   EXEC PGM=ADSMI002,PARM=ADSDM107,REGION=512K
//STEPLIB  DD  DISP=SHR,DSN=SAMS.DISK.LOADLIB
//ABNLDUMP DD  DUMMY
//FILES    DD  DISP=SHR,DSN=SAMS.DISK.FILES
//MSGPRINT DD  SYSOUT=A
//PARMLIB  DD  DISP=SHR,DSN=SAMS.DISK.PARMLIB
//SYSPRINT DD  SYSOUT=A
//SYSUDUMP DD  SYSOUT=A
```

Figure 1-2. JCL for Files Data Set Status Report

This JCL produces a report that indicates the current usage for each subfile defined to the files data set. A critical field that should be inspected regularly is the OVERFLOW BLOCK COUNT. Whenever overflow blocks exist, the definition entry for

each subfile with overflow blocks must have its record capacity increased. The entire files data set should then be reorganized immediately. Failure to do so will result in performance degradation and unpredictable results.

```
1994.029  JAN 29, 1994                        F I L E S   D A T A   S E T   S T A T U S                                  PAGE    1
SATURDAY  11.38 PM                                                                                                   SAMS:Disk  v.r.m
DATA SET NAME WORKSHOP.FILES
PHYSICAL BLOCK SIZE      27998                                                                                  TOTAL BLOCKS           300
BLOCKS IN USE               74                                                                                  BLOCKS REMAINING       226
SUB-FILE     RECORD      KEY     RECORD       MAXIMUM       BLOCK     REC PER      MAX       BLOCK    OVERFLOW  -------OPTION FLAGS--------
  NAME       LENGTH    LENGTH     COUNT       RECORDS      LENGTH      BLOCK     BLOCKS      COUNT     BLOCKS   SHARE NODUP DEFER VALID GEN
--------     ------    ------    ------       -------      ------    -------    ------      -----    --------  --------------------------
DSNINDEX      256        44        4180        254188       55808       218       1166         20          0      Y                Y
ARCHVOLS      110         6           7        710438       27940       254       2797          1          0      Y     Y          Y
DMSPOOLS       60        26           0        434312       27960       466        932          1          0      Y     Y          Y
RETEXCLD       82        50          79        176638       27962       341        518          1          0      Y
MIGRECAT      118        50           0        122766       27966       237        518          1          0      Y
ARCHCMDS      164        45           0         96900       27880       170        570          1          0      Y     Y
RESTCMDS      164        44           0         96900       27880       170        570          1          0      Y     Y
DMSPARMS      100         8           0        650349       27900       279       2331          1          0      Y
DASDSPCB       84        50           0        172494       27972       333        518          1          0                  Y
RACFENCD       90        49           0        163360       27900       310        527          1          0      Y     Y          Y
```

Figure 1-3. Sample Files Data Set Status Report

Field Descriptions — Status Report

SAMS:Disk v.r.m:

The release number will appear where v.r.m is shown.

Physical block size:

The actual block size for the files data set. An optimum value for the device is automatically assigned by SAMS:Disk unless you specify a BLKSIZE value in the initialization JCL.

Total blocks:

The total number of physical blocks within the files data set. Some of these will contain data (blocks in use), and others will be "free blocks", available for record inserts (blocks remaining).

Blocks in use:

When initialized, the files data set is formatted from beginning to end with physical blocks of binary zeros (see *Total Blocks* field on page 8). A minimum of one index block and one data block are then "allocated" to each subfile. All other blocks are "free" (see *Blocks Remaining* field on page 8), and are subsequently allocated only when record inserts require more data blocks. The "blocks in use" number is the total number of physical blocks that have been allocated due to record inserts.

Blocks remaining:

The number of physical blocks initially formatted with binary zeros that have not yet had any records inserted. The number of unused, or free blocks in the data set.

Subfile name:

The name of either a SAMS:Disk or user-defined subfile.

Record length:
The length of the logical record within the named subfile.

Key length:
The length of the key portion within the logical record. For example, the key to the DSNINDEX record is the data set name, which is 44 bytes of the 256-byte record.

Record count:
The current number of records contained within the subfile.

Maximum records:
The maximum number of records that can be inserted and still indexed. This value is computed at initialization time from the capacity fields you specified in the FILEDEFN member of parmlib. When the actual record count exceeds half of this maximum count, you should consider specifying a higher capacity value in the FILEDEFN entry.

Block length:
Records for each subfile are grouped together to form a "logical" block that is also a "best fit" into a physical block (or multiples of physical blocks). Therefore the value displayed should be slightly less than a multiple of the physical block size.

Rec per block:
The number of records grouped together to form a "logical" block for the named subfile.

Max blocks:
The maximum number of logical data blocks that can be indexed for the subfile. Multiplying (max blocks)(rec per block) results in the maximum number of records that can be inserted and still indexed.

Block count:
The number of logical data blocks in use (indexed) for the subfile.

Overflow blocks:
When an additional logical data block is allocated to a subfile but there is no room left in the index to keep track of it, it is called an overflow block. Overflow blocks are chained from the relevant data blocks, and will cause considerable overhead or other unpredictable errors. The capacity for the subfile should be increased, and the files reorganized.

Option flags:

Share: Y indicates that integrity is maintained during concurrent access by multiple tasks.

Nodup: Y indicates that entries with duplicate keys are not allowed.

Defer: Y indicates that I/O can be buffered. This option requires special processing and is supported for only the DASDSPCB subfile.

Valid: Y activates internal validation routines when deemed appropriate.

Files Data Set Capacity

Estimating Capacity Requirements

There are two requirements for estimating files data set capacity. The first requirement is estimating the number of records the files data set should contain (FILEDEFN Specifications). The second requirement is understanding how much space (Physical space) should be allocated on the device based on the first requirement.

Estimating Subfile Capacity Requirements

Since the DSNINDEX subfile contains an entry for every data set backed up or archived, a beginning estimate is simply the number of data sets that are to be backed up with SAMS:Disk. If SAMS:Disk is to be used to back up all of your packs you need to answer three questions.

1. What is the total number of data sets on these packs?
2. How many versions of each data set do you want to keep?
   a. Archives and/or Backups
3. How will my estimates comply to the Index Maintenance policies that manages what remains and/or is deleted from the files data set.

Estimating Physical Space Requirements

$$\text{Total Number of Tracks} = \frac{\text{(Subfile Capacity Requirements)}}{\text{(Records per track)}}$$

Performance Considerations

The files data set EXCP interface is designed to optimize performance at the logical block level. Normally, higher capacity requirements utilize larger blocksizes yet the EXCP interface is designed to access these blocks in a single I/O, without performance penalty.

If your DSNINDEX subfile capacity requirement is substantially less than the maximum capacity requirement for the device type and you are experiencing a high number of block splits and/or performance degradation, use the maximum capacity requirement for the device.

Estimating 8598 Physical Space

If the files data set is to reside on a 8598, the following chart can be used as a guide in estimating the required physical space:

Table 1-2. Files Data Set Physical Space on a 8598

Subfile	Index Record Capacities	LRECL
DSNINDEX	4,479,240	256
ARCHVOLS	12,509,510	110
DMSPOOLS	7,646,005	60
RETEXCLD	3,109,563	82
MIGRECAT	2,159,962	118
ARCHCMDS	1,712,425	164
RESTCMDS	1,712,425	164
DMSPARMS	11,740,767	100
DASDSPCB	3,035,681	84
RACFENCD	2,884,842	90

Minimum Allocation Requirements

Capacity Requested: 4,479,240 DSNINDEX subfile
Number of recs/trk: 183
Number of Tracks: 24,465*
Number of Cylinders: 1,631*

8598 Device Characteristics

Tracksize: 47,968
Max BLKSIZE: 47,476
Halftrack BLKSIZE: (23,476) X (2) / LRECL = Number of recs/trk

* Since logical data blocks are not assigned to a subfile until actually needed, similar to managing a PO data set, you don't need to allocate extra physical space until it is really needed. These numbers are based on each track or cylinder being full.

Table 1-3. 8598 Device Characteristics

MODEL	Cylinders	Trks/Cyl	Number of Trks
A, D & J	885	15	13,275
E	1,770	15	26,550
K	2,655	15	39,825

Note: Please review the topic *"Capacity Considerations"* beginning on page 16.

Estimating 6587 Physical Space

If the files data set is to reside on a 6587, the following chart can be used as a guide in estimating the required physical space.

Table 1-4. Files Data Set Physical Space on a 6587

Subfile	Index Record Capacities	LRECL
DSNINDEX	6,374,376	256
ARCHVOLS	12,509,510	110
DMSPOOLS	7,646,005	60
RETEXCLD	3,109,563	82
MIGRECAT	2,159,962	118
ARCHCMDS	1,712,425	164
RESTCMDS	1,712,425	164
DMSPARMS	11,740,767	100
DASDSPCB	3,035,681	84
RACFENCD	2,884,842	90

Minimum Allocation Requirements

Capacity Requested: 6,374,376 DSNINDEX subfile
Number of recs/trk: 218 records
Number of Tracks: 29,240*
Number of Cylinders: 1,949*

6587 Device Characteristics

Tracksize: 58,786
Max BLKSIZE: 56,664
Halftrack BLKSIZE: (27,998) X (2) = Number of recs/trk

---

* Since logical data blocks are not assigned to a subfile until actually needed, similar to managing a PO data set, you don't need to allocate extra physical space until it is really needed. These numbers are based on each track or cylinder being full.

Table 1-5. 6587 Device Characteristics

MODEL	Cylinders	Trks/Cyl	Number of Trks
MOD 1	1,113	15	16,695
MOD 2	2,226	15	33,390
MOD 3	3,339	15	50,085

Note: Please review the topic *"Capacity Considerations"* beginning on page 16.

Capacity Considerations

Block Splits

Since the logical block is kept in alphabetical order, but the inserts are in random order, an insert may require splitting a FULL logical block into two half-full blocks before the record can be inserted in its proper sequence.

Assume the worst case, that all blocks have been split and are only half full. If a subsequent series of updates requires inserts to the same block (names happen to be alphabetically adjacent), that block will need to be split also, but it cannot be. The insert will fail because all blocks are "in use", even though each is only half full. Notice that at this point, inserts are failing when only half of the theoretical capacity has been reached.

If the insert locations just happen to fall alphabetically into the correct blocks the theoretical capacity could be reached without block splits.

Overflow Blocks

If the logical indexing capacity is actually reached before it is noticed, processing will still continue as long as there is physical space left in the data set to allocate the needed data blocks. These non-indexed data blocks are called overflow blocks, which seriously degrade future processing and can cause unpredictable results. Messages are issued whenever this condition occurs. The Files Data Set Status report will indicate the overflow blocks. You should increase the capacity field for the subfile in the FILEDEFN member, and then use the REORG utility on the files data set as soon as possible.

Extending Allocation

When 100,000 bytes or fewer remain in the entire files data set, a message will be issued every time an entry is added. The message states that the files should be enlarged. This is done by unloading the current records (UNLOAD), and then reloading (RELOAD) them into a data set with a larger space allocation. If these messages go unheeded, an appropriate message is issued and a user abend is issued when the physical space is exhausted.

Please review your policies concerning Index Maintenance. Mis-management of the files data set may impact capacity issues.

Files Data Set Utilities

Unload, Reload, And Reorg

Three utility functions are provided to backup and reorganize the files data set: UNLOAD, RELOAD, and REORG ALL.

- UNLOAD - unloads the files data set to a sequential data set to create a backup.
- RELOAD - reloads the files data set from the sequential data set.
- REORG - reorganizes the files data set by unloading the records to a sequential file, sorting them, and reloading them.

Selection of a subset of the files data set is permissible during both the unload and reload operations. Caution should be exercised, however, when specific subfiles are selected since the ENTIRE files data set is REFORMATTED EVERY time a RELOAD is done (that is, a RELOAD does not insert records at the logical subfile level leaving the other subfiles intact). All subfiles are reformatted and then the unloaded records are reloaded. Care must be taken to ensure that all subfiles with records to be saved are both unloaded and reloaded.

The unload/reload support will normally be used for one of two purposes. One role is to permit the allocation of a larger files data set to accommodate file growth. The new file capacities must be entered in the FILEDEFN member prior to executing the reload program. Since the reload program reformats the entire files data set, destroying the contents of all subfiles, every subfile must first be unloaded.

The other role is to re-order the data blocks and reduce block splits. The files data set itself may be large enough, but growth in one or more subfiles causes an increasing number of block splits which increases the number of I/Os performed.

Unload

JCL — UNLOAD Files

When you UNLOAD ALL subfiles and specify DAYS=(nn), indicating log data set retention, SAMS:Disk will dynamically allocate the sequential data set(s) into which the files will be unloaded. If it is present in the JCL, the SEQFILES DD is used. If you let SAMS:Disk dynamically allocate this file, your unload copy of the files data set will be called *"files.dsname.current-date.current-time"*. If the files data set name exceeds an allowable amount for the date appendage, truncation of the files data set name will take place at position 27 of the files data set name. Note that the enqueue on the files data set is held for the entire UNLOAD process. When the UNLOAD is complete, "B" log files (review the topic *"Naming the Log Data Sets"* on page 22 for details) older than the retention period specified by parameter

DAYS= will be deleted. When the sequential data set is dynamically allocated, the expiration date used for the data set is taken from sysparm DYNEXPDT.

"I" log files, those created by ISPF (review the topic *"Naming the Log Data Sets"* on page 22 for details) are not selected for deletion at this time, as they may represent recovery data for more than one files data set. To delete these log data sets, select them using the DSCL CREDT criteria, and then issue the archive or delete action command.

The SIMULATE parameter is provided with the UNLOAD function of SAMS:Disk. When specified, all reports and messages will be generated, but the actual UNLOAD will not take place until the SIMULATE parameter is removed from the command.

The unloading of the contents of the files data set from disk to tape (a sequential data set on disk works equally well) is accomplished with the following JCL. A DSN=any.gdg(+1) is suggested.

```
//UNLOAD   EXEC PGM=ADSMI000,PARM=ADSDM177
//STEPLIB  DD  DISP=SHR,DSN=SAMS.DISK.LOADLIB
//ABNLDUMP DD  DUMMY
//CMDPRINT DD  SYSOUT=A
//FILES    DD  DISP=SHR,DSN=SAMS.DISK.FILES
//MSGPRINT DD  SYSOUT=A
//PARMLIB  DD  DISP=SHR,DSN=SAMS.DISK.PARMLIB
//SYSPRINT DD  SYSOUT=A
//SYSUDUMP DD  SYSOUT=A
//SEQFILES DD  DISP=(NEW,CATLG,DELETE),
//             DSN=SAMS.DISK.SEQFILES.UNLOAD,
//             DCB=(LRECL=268,BLKSIZE=5900,DSORG=PS,RECFM=VB),
//             SPACE=(6144,(360,360),RLSE),UNIT=SYSDA
//SYSIN    DD  *
 UNLOAD ALL,FILES=,SIM,DAYS=,UNIT=,PRI=,SEC=
```

Figure 1-4. Unload Files JCL

UNLOAD Command and Parameters

`UNLOAD ALL,FILES=,SIM,DAYS=,UNIT=,PRI=,SEC=`

ALL

The presence of the parameter causes ALL subfiles to be unloaded.

FILES=

A list of one or more subfile names may be specified to confine the output to a subset of the files data set. Omission of this OPTIONAL parameter results in all files being unloaded.

SIM

This parameter causes the output reports to be produced as if processing had been performed; however no data sets are unloaded or deleted.

DAYS=

This parameter specifies the retention period for SAMS:Disk-generated recovery log data sets. Log data sets older than the specified number of days will be deleted following completion of the UNLOAD. SAMS:Disk will not delete batch log data sets that are less than 1 day old. If DAYS=0 is entered, SAMS:Disk processes the log data sets using DAYS=1. This prevents SAMS:Disk from deleting log data sets that are currently being built. No processing against archived log data sets is done.

UNIT=

This is a list of names for the units allocated for the UNLOAD data set when the unload is considered a backup (ALL is specified and the DAYS= parameter is used.) If the unit is a disk device, the esoteric name should be used. If the unit is a tape device, TAPE, 6485, DYN1, DYN2 or DYN3, should be entered and the DYNxUNIT sysparm values are used.

PRI=

This is the primary space allocation amount in cylinders for the UNLOAD data set. The default amount is 1 cylinder.

SEC=

This is the secondary space allocation amount in cylinders for the UNLOAD data set. The default amount is 1 cylinder.

RELOAD

JCL — RELOAD Files

The RELOADING of an unloaded set of files to the files data set is accomplished with the following JCL. Care should be taken to ensure that the sequential input file contains all of the needed files, since the reload reformats the entire files data set prior to doing the reload.

```
//RELOAD   EXEC PGM=ADSMI002,PARM=ADSDM192
//STEPLIB  DD  DISP=SHR,DSN=SAMS.DISK.LOADLIB
//ABNLDUMP DD  DUMMY
//CMDPRINT DD  SYSOUT=A
//FILES    DD  DISP=SHR,DSN=SAMS.DISK.FILES
//MSGPRINT DD  SYSOUT=A
//PARMLIB  DD  DISP=SHR,DSN=SAMS.DISK.PARMLIB
//SYSPRINT DD  SYSOUT=A
//SYSUDUMP DD  SYSOUT=A
//SEQFILES DD  DISP=OLD,DSN=SAMS.DISK.SEQFILES.UNLOAD
//SYSIN    DD  *
 RELOAD ALL,FORMAT,MODULES,FILES=,FREESP=
```

Figure 1-5. JCL to RELOAD the Files Data Set

RELOAD Command and Parameters

```
RELOAD ALL,FORMAT,MODULES=,FILES=
```

ALL

This parameter causes all of the unloaded records to be reloaded.

FILES=

A list of one or more subfile names may be specified to confine the load to a subset of the records on the sequential storage medium. Omission of this parameter results in all records from the sequential data set being loaded, regardless of the subfile from which they came.

FORMAT

This parameter causes the files data set to be entirely reformatted prior to loading the records from the specified subfiles.

MODULES=

A list of one or more names of modules to be given control in order to inspect or alter each record reloaded.

FREESP=

By default, RELOAD processing reloads subfile records into each logical data block, until the maximum record limit is reached. Afterwhich a BLOCK SPLIT is required to insert other entries into the logical bock. Specifying this parameter with a percentage value helps alleviate block splits. This parameter is limited to only the DSNINDEX subfile.

For example, a value of 20 allows 20 percent of free space for each logical data block.

REORG Subfiles

If any of the subfiles of the files data set go into overflow blocks and the capacity increase and reorganization are not done (see *"Files Data Set Status Report"* on page 7), the possibility exists that new inserts or deletes may cause the proper key sequence for some records to be DESTROYED. No records are lost, but the improper key sequencing can cause unpredictable results. If this condition occurs, the reorganization utility may be used to reorder all subfile records into their correct sequence.

```
//REORG  EXEC REORG
//SYSIN   DD  *
     RELOAD ALL,FORMAT
```

The RELOAD command as described in "Reload Command for Files Data Set" on the previous page may be used to restrict the reload to a subset of the files.

A message is printed during the REORG to indicate when it starts reloading the files. If the system abends after this message, a RESTART procedure has been provided to complete the reload. The RELOAD command is used during the RESTART PROCESSING.

```
//RESTART EXEC  RESTART
//SYSIN    DD  *
     RELOAD ALL,FORMAT
```

Files Data Set Logging

Activation

To activate the files data set logging feature, you must specify sysparm FILOGNAM with the high-level node of the data set name that will be used for the logs. The default value for FILOGNAM is blanks, which disables the logging feature. FILOGNAM must be placed in member *SYSPARMS* (described on page 455) and must not be overriden in individual job steps. This ensures that all SAMS:Disk processing affecting each files data set will have a log associated with it.

For more information, please review the sysparm description for *FILOGNAM* on page 144.

To direct the size and destination of the files data set logs, see the sysparm descriptions of *FILESPAC* and *FILEUNIT* beginning on page 143.

Naming the Log Data Sets

SAMS:Disk generates data set names for the log data sets as they are created. The high-level node of the data set name is the value you specify for sysparm FILOGNAM. To this node SAMS:Disk will append a second-level node of I or B, indicating how the log was generated:

I — indicates that the log was generated from an ISPF interactive request, or from a restore request (i.e., explicit batch restore, or a DMSAR auto-restore)

B — indicates that the log was generated from a batch job, with the exception of the explicit restore

This is followed by a date/time stamp generated during dynamic allocation of the data set. One batch log data set will be created for each SAMS:Disk job run, but only one ISPF log data set will be created daily.

```
Batch:    BASENAME.B.D1989005.T080319   1 data set per job

  sysparm FILOGNAM B=BATCH
                   I=ISPF

ISPF:     BASENAME.I.D1989005.T080319   1 data set per day

         where: ——→  yyyyddd hhmmss
```

Figure 1-6. Files Data Set Logging DSNAME

Format of the Log Data Sets

In the batch log data set, the first record contains the name of the Files Data Set. In the ISPF log data set, each log record is preceded by the files data set identifier record. This enables SAMS:Disk to support logging and recovery to multiple files data sets.

Managing the Logs

With the logging function activated, SAMS:Disk will create and accumulate a large quantity of log data sets over time. The UNLOAD utility can be run with a DAYS= parameter to delete old files, and retain only those log data sets created more recently than the number of days specified on the parameter. This feature only works with the ALL parameter specified. Running UNLOAD with a list of files specified will cause the processing of the log data sets to be bypassed.

Recovery

Because the files data set is a critical resource, SAMS:Disk also provides a means to recover the files data set should it be lost or corrupted. To perform the recovery, SAMS:Disk optionally creates a log recording all activity, including batch jobs and ISPF activity.

SAMS:Disk provides the ability to recover the files data set should it become lost or damaged. To use the files data set recovery utility, you must first activate the files data set logging feature. The recovery utility uses records from the log data sets as input, and updates the appropriate backup copy of the files data set to achieve the forward recovery.

The FRECOVER command of the files data set recovery utility initiates files data set recovery. The input to FRECOVER is the audit log data sets created during files data set logging. Review the topic *"Activation"* on page 22 for more information.

In the FRECOVER command, you specify the files data set to be recovered and the audit log data sets to be selected. Audit log data sets are selected based on: time and date parameters, and the high level qualifier name of the audit log data sets in the sysparm FILOGNAM. The audit log records from the audit log data sets selected are used to cause forward recovery of the files data set.

Running the Utility

Before you run this utility in live mode, run it in simulate mode to verify that the parameters are correct and that the correct logs are being selected.

To recover a lost files data set, run the FRECOVER utility with the following:

- The most recent backup version of the files data set, from the last UNLOAD job run used to backup the files data set.

- The audit log data sets from the Files Data Set Logging starting from the date and time after the last UNLOAD, and ending at the current time and date.

To recover a damaged files data set, run the FRECOVER utility with the following:

- The most current UNLOAD of the files data set prior to the damage.
- The audit log data sets which contain the subfile records needed to update the files data set, excluding the log where the damage occurred.

Internal Processing

The files data set recovery utility first selects the audit log data sets within the time and date parameters specified in the FRECOVER command. The time and date parameters should not proceed the date and time of the last files data set backup. Next, it looks inside these data sets and selects the records that were created for the files data set to recover, and that are within the time and date parameters. If any of the audit log records in a batch audit log data set do not fall within the specified time and date, the data set is bypassed.

The selected audit log records are sorted by the files data set subfile name and the audit log record time and date. The subfile name, subfile function and subfile record (which are the original parameters used to update the files data set) are extracted from the audit log record. These subfile parameters are then used to update the files data set.

Security Considerations

The utility checks the user access to the subfile you want to recover before it updates the subfile, if you have subfile security set up at your installation. However, the user access to any of the data within the subfile is not checked, such as the data set name within the DSNINDEX record. We recommend that you protect the FRECOVER command using the SECURCMD sysparm and the SECURDSN member of parmlib to prevent unauthorized use of this utility.

JCL — Files Data Set Recovery Utility

The following JCL is used for the forward recovery of the files data set.

```
//FRECOVER EXEC FRECOVER
//SYSIN    DD   *
  FRECOVER FILES=filesdsn,BTIME=hhmmss,BDATE=date,
           ETIME=hhmmss,EDATE=date,SIMULATE
```

Figure 1-7. Files Data Set Recovery Utility JCL

FRECOVER Command and Parameters

```
FRECOVER SIMULATE=,FILES=,BTIME=,BDATE=,ETIME=,EDATE=
```

SIMULATE

Specify this parameter to select the audit log data sets and audit log records which would be used to update the files data set if running in live mode. A report will be printed.

FILES

This parameter is required to specify the files data set to be recovered.

BTIME

This parameter is required to specify the begin time of the audit log data sets and audit log records to be selected for files data set update. It must be in hhmmss format, hh=hour, mm=minutes, and ss=seconds.

BDATE

This parameter is required to specify the begin date of the audit log data sets and audit log records to be selected for files data set update. This may be in any accepted SAMS:Disk format.

ETIME

This parameter is required to specify the end time of the audit log data sets and audit log records to be selected for files data set update. It must be in hhmmss format, hh=hour, mm=minutes, and ss=seconds.

EDATE

This parameter is required to specify the end date of the audit log data sets and audit log records to be selected for files data set update. This may be in any accepted SAMS:Disk format.

Sample - Files Data Set Recovery Report

```
1989.192  JUL 11, 1989                    F I L E S   D A T A   S E T   R E C O V E R Y                          PAGE    1
TUESDAY   10.10 AM                                                                                          SAMS:Disk   8.2

                                              AUDIT LOG DATA SET SELECTION REPORT

FILES DATA SET =  LABS.KSV.FILES
DATA SET NAME                                                                                                          -
-------------------------------------------
LABS.LOG.KSV.B.D1989174.T125102
LABS.LOG.KSV.B.D1989174.T125642
LABS.LOG.KSV.B.D1989174.T131735
LABS.LOG.KSV.B.D1989181.T083227
LABS.LOG.KSV.B.D1989181.T084519
LABS.LOG.KSV.B.D1989181.T090218
LABS.LOG.KSV.B.D1989186.T144516
LABS.LOG.KSV.B.D1989186.T152416
LABS.LOG.KSV.I.D1989192.T094730

1989.192  JUL 11, 1989                    F I L E S   D A T A   S E T   R E C O V E R Y                          PAGE    2
TUESDAY   10.10 AM                                                                                          SAMS:Disk   8.2
                                                 AUDIT LOG RECORD UPDATE REPORT
                                       FILES DATA SET =  LABS.KSV.FILES

 SUBFILE   FILES  DMS        SUBFILE                                          NEXT 50 BYTES OF SUBFILE
 NAME      FUNC   FUNCTION   KEY                                              STARTING AFTER SUBFILE KEY
 --------  ----   --------   ------------------------------------------------ ------------------------------------------------
 ARCHVOLS  SR     ARCHIVE    @99952                                                 WRK003 &          SBKSV.DISKPRIM.DMSC.D19891
 ARCHVOLS  SR     ARCHIVE    @99952                                                 WRK003 &          SBKSV.DISKPRIM.DMSC.D19891
 ARCHVOLS  SR     ARCHIVE    @99950                                                 WRK003 &          SBKSV.DISKPRIM.DMSC.D19891
 ARCHVOLS  SR     ARCHIVE    @99950                                                 WRK003 &          SBKSV.DISKPRIM.DMSC.D19891
 ARCHVOLS  SI     DMS        @99997                                                 WRK003 &          PROD.DMS.ARCHPRIM.DMSC.D19
 ARCHVOLS  SR     DMS        @99997                                                 WRK003 &          PROD.DMS.ARCHPRIM.DMSC.D19
 ARCHVOLS  SI     DMS        @99996                                                 WRK003 &          PROD.DMS.ARCHPRIM.DMSC.D19
 ARCHVOLS  SR     DMS        @99996                                                 WRK003 &          PROD.DMS.ARCHPRIM.DMSC.D19
 ARCHVOLS  SI     DMS        @99995                                                 WRK003 &          PROD.DMS.ARCHPRIM.DMSC.D19
 ARCHVOLS  SR     DMS        @99995                                                 WRK003 &          PROD.DMS.ARCHPRIM.DMSC.D19
 ARCHVOLS  SR     IXUPDATE   @99950                                                 WRK003 &          SBKSV.DISKPRIM.DMSC.D19891
 ARCHVOLS  SR     IXUPDATE   @99949                                                 WRK001 &          SBKSV.DISKCOPY.DMSC.D19891
 DSNINDEX  SF     DMS        LABS.KSV.MULTIV5                                 CAT002         -                    @99997
 DSNINDEX  SF     DMS        LABS.KSV.MULTIV5                                 CAT002         _                    @99996
 DSNINDEX  SF     DMS        LABS.KSV.MULTIV5                                 CAT002         _                    @99995
 DSNINDEX  SF     DMS        LABS.KSV.MULTIV5                                 CAT002         _                    @99999
 DSNINDEX  SF     DMS        LABS.KSV.MULTIV5                                 CAT002         _                    @99998
 RESTCMDS  SD     DERASE     LABS.KSV.LOG2                                    SBKSVRES    ;    ;            LABS.KSV.LOG2
```

Figure 1-8. Sample Files Data Set Recovery Report

Subfile Dump Utility

JCL — Subfile Dump Utility

A batch hex dump of any record from any subfile within the files data set can be achieved by running the following JCL.

```
//DUMP     EXEC PGM=ADSMI002,PARM=ADSDM613,REGION=1024K
//STEPLIB  DD DISP=SHR,DSN=SAMS.DISK.LOADLIB
//ABNLDUMP DD DUMMY
//CMDPRINT DD SYSOUT=*
//FILES    DD DISP=SHR,DSN=SAMS.DISK.FILES
//MSGPRINT DD SYSOUT=*
//PARMLIB  DD DISP=SHR,DSN=SAMS.DISK.PARMLIB
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN    DD *
FILEDUMP FILE=subfilename,KEY=keyofrecord,VERSION=versionnumber
```

Figure 1-9. Subfile Dump Utility JCL

Subfile Dump Command for the Files Data Set

The command to dump one or more of the files is as follows.

```
FILEDUMP FILE= KEY= VERSION=
```

FILE=

This parameter is required and must specify any one of the SAMS:Disk subfiles.

KEY=

This required parameter is used to specify the key of the record desired. Turn to page 31 for information on identifying the keys of the individual subfiles. See the *DSNINDEX* Record Format on page 423 to find out what the keys consist of.

VERSION=

This is an optional parameter, used to specify up to the 99th version of a data set in the DSNINDEX subfile. This parameter is acceptable only for the DSNINDEX subfile. If no version parameter is specified, a default of 0 is used. The version parameter is expressed as a positive number from 0 to 99, with 0 indicating the most current version of the data set.

Sample Subfile Dump Utility

A sample of the command and the output produced by the command can be seen below.

FILEDUMP FILE=DSNINDEX,KEY=LABS.HANEY.CNTL,VERSION=1

```
94.007 JAN 07, 1994          SUBFILE DUMP UTILITY
FRIDAY 3.52 PM
_________________________________

DSNINDEX RECORD DUMP
DEC   HEX         HEXADECIMAL DATA         CHARACTER DATA
0000  0000 D3C1C2E2 4BC8C1D5 C5E84BC3 D5E3D340 *LABS.HANEY.CNTL*
0016  0010 40404040 40404040 40404040 40404040 *            *
0032  0020 40404040 40404040 40404040 D3C1C2E2 *         LABS*
0048  0030 F8F10729 00005401 55540164 02000E80 *81......... ..*
0064  0040 000F0015 00000033 00000256 0003A358 *...............*
0080  0050 0008E2C2 F2F4F0F3 0C00            *..SB2403.   . *
```

Figure 1-10. Sample Subfile Dump Utility

Merging Files Data Sets

The previously described RELOAD ALL / REORG procedure is designed to process a single files data set. On some occasions it may be desirable to merge the contents of two or more files data sets, or to perhaps resequence a single files data set from its unloaded backup copy. The following describes the requirements of such an operation.

1. Ensure that all of the ARCHVOLS records being merged have unique keys; that is, the same key does not appear in more than one files data set. Having the same tape in more than one files data set should be exceedingly rare, but if archiving to disk has been done using more than just one of the files being merged, duplicate keys are probably present. In any case, you must identify all tape and disk keys that appear in more than one of the files.

   You may either purge (with SCRATCH=NO) these duplicates from each files data set, or keep one of them and purge the others. In either case, the objective is to arrive at a status where all keys are unique, before proceeding. When the following steps are completed, use the rebuild function to add them back into the new files data set. The duplicate keys for the disk archives are eliminated because the rebuild function will generate new and unique keys.

2. The DSNINDEX subfile requires different sorting fields from all other subfiles. Therefore, unload the DSNINDEX records from each files data set to a sequential data set of its own. The command for the files unload utility would be:

   ```
   UNLOAD FILES=(DSNINDEX)
   ```

3. Sort these sequential data sets into a single output data set using the following sort control fields.

   ```
   SORT FIELDS=(5,8,CH,A,13,44,CH,A,67,3,CH,D,63,4,CH,D)
   ```

4. Unload the other subfiles from each files data set to a new sequential data set.

   ```
   UNLOAD FILES=(a list of all files except DSNINDEX)
   ```

5. Sort the non-DSNINDEX records into a single output data set using the following sort control fields.

   ```
   SORT FIELDS=(5,8,CH,A,13,50,CH,A)
   ```

6. Concatenate the sorted output from steps 3 and 5 and use as input to the RELOAD utility program, using the command:

   ```
   RELOAD ALL,FORMAT
   ```

7. Execute the LISTD command and visually verify that the new files data set is in correct sequence.

8. As mentioned in item 1, use the rebuild function to reinsert records for any duplicate ARCHVOLS keys that were purged.

Common File Handler Interface

Subfile records in the files data set may be accessed by user- written modules to either read or write records in the same manner as SAMS:Disk modules that interface with the file handler.

Records in the files data set may be referenced both by user exit modules invoked by SAMS:Disk and/or user programs that are run independently of SAMS:Disk. It is only necessary that the file handler be called via the MI interface module that is shipped with the system. For best results, all user programs and modules should be compiled using the High Level Assembler. This release of SAMS:Disk was compiled using version 2.0 of the High Level Assembler using slacmods. Recompiling without slacmods may cause unpredictable results.

It should be noted, however, that most SAMS:Disk modules are neither reentrant nor reusable. When programming for interactive applications, more detailed knowledge of program internals will be required to ensure proper execution.

A unique record, identified by supplying the key to the record, may be retrieved from a subfile within the SAMS:Disk files data set by executing a call in the following manner. If the subfile permits duplicate keys, a request to retrieve a unique record will return the first (most recently added) record for the supplied key.

```
         MVC  DSNKEY,=Cl44'PAY.MASTER'
* Retrieve the data set index record
         CALL MI,(ADSDM095,RU,FILENAME,DSNREC,RESULT),VL
         CLC  RESULT,=H'1'
         BH   NOTFOUND
*
ADSDM095 DC   CL8'ADSDM095'  file handler control module
RU       DC   CL2'RU'        service type = retrieve unique
FILENAME DC   CL8'DSNINDEX'  subfile name to access
DSNREC   DS  0CL256
DSNKEY   DC   CL44' '        key of record to retrieve
         DC   CL212' '       data from retrieved index rec
RESULT   DC   H              result
```

Figure 1-11. Call to Retrieve Data Set Index Record

File Handler Interface

```
CALL MI,(ADSDM095,FUNCTION,FILENAME,KEY&RECAREA,RESULT),VL
```

Where:

ADSDM095

Is always the 8-character name of the File Interface Control module. ADSDM095 DC CL8'ADSDM095'

FUNCTION

A 2-character mnemonic specifying the type of service to be performed.

FILENAME

The 8-character name of the logical subfile to be accessed. It must be in the file definition entries.

KEY& RECAREA

A work area for record placement, the length of which is specified in the corresponding file definition entry. For unique retrieval of a record, the key of the desired record must be placed in the high-order portion.

RESULT

The halfword return code set by the file handler to reflect the conclusion of the requested service.

Function service types

RU - RETRIEVE UNIQUE

This service will return the first occurrence of one or more records having the key that is left-justified in the work area. The length of the key is indicated in the file definition entry.

1. requested record returned
2. key not found

The logical position within the file for the purpose of sequential retrieval when a return code of 2 is passed is the point at which the requested record would have been.

Other than the first occurrence of a given key may be uniquely retrieved by appending to the key in the record area a suffix that consists of a number in parentheses. The number specifies the desired relative occurrence of the designated key where the most recent version is 0.

RN - RETRIEVE NEXT

The next sequential record will be returned by use of this service. It is required that the key for the previous service be present in the record area for maintaining logical position.

To retrieve the first record in a file, it is necessary that the key portion of the record area be initialized with spaces prior to this type of call.

1. next record returned
2. end of file

SI - STORE INSERT

A record is added to the file with the use of this service. Duplicate keys are permitted based on the file definition, with the most recently inserted record being presented first on sequential retrieval.

1. record inserted
2. insert of duplicate keyed record not allowed

SR - STORE REPLACE

A record is updated by use of this service after it has been retrieved. However, a record may be replaced without a preceding retrieval. If you are accessing a subfile that allows duplicate keys, you should position to the correct record before doing the SR function. You can position to a particular record by using the RU function with a relative record number in parentheses or by using the RU function to position to the first record and using the RN function interactively until positioned correctly.

1. record replaced
2. record not found

SD - STORE DELETE

This service is provided for elimination of records from a file.

1. record deleted
2. record not found

There is no requirement for a record to be retrieved prior to a delete call.

CL - CLOSE THE FILES

This service closes the files data set and frees all associated buffers. There are no other parameters for this option. (The other service requests will automatically (re)open the files if needed.)

DW - DEFERRED WRITE BUFFER PURGE

This service applies only to the DASD billing subfile DASDSPCB. Service requests to modify records in this subfile are kept in memory until a different data block is to be updated. Therefore update programs must do a final call using this option to write out the last updated buffer. The record area and result parameters are ignored, if specified, and may be omitted for this service.

For example:

```
CALL MI, (ADSDM095,DW,DASDSPCB),VL
```

Interface for Sequential Reads

SAMS:Disk also provides an alternative to a series of RN calls to the common file handler interface, which provides much **higher performance** for reading a large number of records sequentially. This high-performance file handler interface keeps each block of records in a buffer until all records have been returned. Once the block has been read into the buffer, this interface will not see any updates done to the block on disk by the ADSDM095 interface.

The intent of this faster interface is for programs that list or scan the files data set, without concern for intermixed updates. The structure of this interface's parameter list is identical to that just presented. However, the interface module is ADSDM463 instead of ADSDM095, and only two function types are valid: RN and RP.

```
CALL MI,(ADSDM463,FUNCTION,FILENAME,KEY&RECAREA,RESULT),VL
```

Where:

ADSDM463

Is always the 8-character name of the File Interface Control module. ADSDM463 DC CL8'ADSDM463'

FUNCTION

A 2-character mnemonic specifying the type of service to be performed, either RP or RN.

RP — REPOSITION

Use this service to start a series of RN calls. It resets internal pointers so that you may provide a different key (that is, a new starting location) in subsequent series of read next (RN) calls. Any other parameters specified on an RP call are ignored.

RN — RETRIEVE NEXT

This service will return the next sequential record. To start a series of RN calls, you must provide the key of the starting location in the KEY&RECAREA parameter of the first call. Any key value, including SAMS:Disk pattern-matching characters, may be used to establish a starting location. A key of spaces identifies the starting position as the very

first record in the file. This initial call will return the first record in the KEY&RECAREA parameter.

If you do not alter the key at this point, subsequent RN calls will read the following records in ascending key sequence. If you wish to start reading another series of records, issue a reposition (RP) call, then provide the key for the new starting position in the KEY&RECAREA parameter in the first RN call in the series. Continue the series with the remaining RN calls.

Return Code	Meaning
1	next record returned
2	end of file

Processing Support

In the event that an invalid service or file name is passed to the file handler, it will abend the task with a user code of 0016 after printing an appropriate message.

To facilitate the reuse of DASD space within the files data set, a free queue of data blocks is maintained for each subfile. Blocks are assigned to this queue when they contain no more records. Conversely, when a block split occurs during record insertion, the free queue will be inspected before additional space is acquired from the common free area.

When an insert attempt that requires a new data block is made, but both the free queue chain for the subfile and the common area free queue are exhausted, the task will be abended with an appropriate message. Prior to such termination, warning messages will be produced each time an allocation to a subfile occurs when the residual free space falls below the 100,000- byte threshold.

A warning message will appear each time a block split occurs for a file and no capacity remains in the index block. This condition does not render the respective file inoperative, but will result in additional overhead when referencing blocks without index entries. The condition is remedied by reorganizing the file after updating the maximum record count field in the file definition entry for the appropriate subfile.

Support Modules and Functions

ADSDM095 — COMMON FILE HANDLER INTERFACE

This module accomplishes the following:

- Reads in FCB (FCB entries for all subfiles).
- Locates proper FCB entry for requested subfile.
- Identifies requested service type.
- ENQ/RESERVE issued for all non-deferred store/update requests.
- Calls subcontrol modules to perform requested service.
- DEQ/RELEASE issued for all non-deferred store/update requests.

ADSDM463 — INTERFACE FOR SEQUENTIAL READS

This *High Performance* module accomplishes the following:

- ADSDM106 — SUBCONTROL MODULE
  - Reads in index block(s) for requested subfile unless

    1. Subfile is using deferred writes (DW)
       or
    2. Sysparm INDXREADN is specified

  - Calls appropriate service level module.
- ADSDM087 — SI, STORE INSERT

  Note: This is the only service type that can cause block splits.

  ADSDM088 ... SR, STORE REPLACE
  ADSDM089 ... SD, STORE DELETE
  ADSDM096 ... RN, RETRIEVE NEXT
  ADSDM097 ... RU, RETRIEVE UNIQUE

Service Level Supporting Modules

ADSDM083 — Physical DASD block processor

OPTIONS = open; close; read; write; blksize; dsname

ADSDM081 — Read logical (subfile) block

ADSDM082 — Write logical (subfile) block

ADSDM580 — Locate record by key

Note: This module checks for a deferred write (DW) subfile being processed. If the input key maps to a data block not currently in the buffer and if the current buffer has been updated (write pending flag is on), it purges/writes out the updated block and then reads in the new block needed for the specified key. Since an updated block is held in memory for perhaps several updates, protection against loss of data due to a concurrently running task cannot be provided and the ENQ/RESERVE are not done.

ADSDM086 — Block split handler

Note: A block split is caused by a record insert into a full block. A free block is obtained from the free chain off the subfile's index block or, if none exists there, then from the free area controlled by the allocation control record. The "top half" (high key portion) of the existing block is moved to the "free" block. The record insert is then made to the appropriate upper or lower half-block.

ADSDM084 — Construct keyed file index block

ADSDM079 — Allocate free space control module

ADSDM093 — Validate the file control blocks

This module follows all data block chains and:

- Verifies block count
- Checks for loops in the block pointers
- Checks for logical EOFs
- Checks for ascending keys
- Checks that index key equals block key
- Verifies overflow block chains

Chapter 2. Tape Management

This section describes the following topics regarding the management of archive/backup tapes:

- Allocation Considerations (page 38)
  - DDNAMES Used (page 38)
  - Dynamic Allocation Versus Supplied JCL (page 38)
  - Allocation Support for Masstor's M860 Device (page 39)
  - Producing Duplicate Archive Tapes Concurrently (page 39)
  - Specifying Blocksizes for Archive/Backup Tapes (page 40)
  - Creating Multivolume Tape Data Sets (page 40)
  - Running Archive/Backup Functions in Simulate Mode (page 40)
  - Running Multiple Archive/Backup Jobs Concurrently (page 40)
  - Cataloging the Tape Archives (page 41)
  - Tape GDG Support (page 41)
  - Assigning Tape Expiration Dates (page 42)
- Tapepool Considerations (page 43)
- Tape and Cartridge Switching — Length Considerations (page 46)
- Tape Format (page 47)

Additional information related to managing tapes can be found in the following:

User's Guide

The following sections of the *User's Guide* should be reviewed:

- Files Data Set IXMAINT section (begins on page 279 in the *User's Guide*)
  - Archive Index Rebuild Utility (begins on page 303 in the *User's Guide*)

- MERGE section (begins on page 313 in the *User's Guide*)

Systems Guide

The following section in the *Systems Guide* should be reviewed:

- Archive/Backup Considerations (page 55)

Allocation Considerations

DDNAMES Used

SAMS:Disk uses the following DDNAMES for tape and cartridge units:

- //ARCHIVE0 — to create the primary archive tape/cartridge
- //ARCHIVEC — to create the duplicate copy tape/cartridge
- //ARCHIVEn — to create the primary merge output tape/cartridge
- //ARCHIVCn — to create the duplicate copy merge tape/cartridge
- //ARCHIVES — to read an archive 6485 tape (i.e., restore or merge)
- //ARCHIVER — to read an archive cartridge (i.e., restore or merge)

Dynamic Allocation Versus Supplied JCL

In the VOS3 environment, SAMS:Disk will dynamically allocate tape units to the above DDNAMES whenever they are needed, whether for output tapes being created or input tapes to be read. The types of units dynamically allocated are controlled by system parameters ARC0TYPE, MERPnTYP, ARCCTYPE and MERCnTYP. For information on these sysparms, turn to the topic *"Specifying the Archive Medium"* on page 56.

Supplying the tape dd statements in the JCL will override dynamic allocation. However, dynamic allocation does provide the following advantage. If the job will not actually use the tape units (for example, a simulate run, no data sets are selected to be archived, or the job is limited to reporting functions), the tape units will not be allocated, and unneeded waits are avoided. It also keeps the units free for use by other tasks.

Since dynamic allocation often calls for a different tape unit address for each allocation, you should also review the use of sysparm DYNUKEEP with a value of Y. This causes a tape unit to be allocated when needed, but then kept and reused throughout the remainder of the job step, rather than the system allocating and freeing a tape unit for each tape that is needed. Reusing the same tape unit may benefit the tape operators, but it also increases run time. Before the next tape can be

mounted, SAMS:Disk is forced to wait for the prior tape to be rewound. Dynamic allocation of a different unit allows some of the processing to be overlapped.

Alternatively, you may also supply the tape dd statements in the JCL (they exist as comment statements in the distributed JCL procedures). This also ensures that the needed tape units are available and allocated before the job starts. If the units are not available when a dynamic allocation request is made, the operator will be prompted for the necessary units.

Note: When supplying the tape dd statements in JCL or sysparms ARC0NAME, ARCCNAME, MERPnNAM, or MERCnNAM, make sure that the value you specify for the data set name does not exceed 22-characters. This will allow SAMS:Disk to append the required date/time at the end of the ARCHVOL data set. For related information, review the *Figure* on page 59 and the sysparm description for *ARCTNAME* on page 120.

Allocation Support for Masstor's M860 Device

Masstor Systems Corporation's M860 device is sysgen'd as a 6485 device. The M860, however, treats the cartridge as a 6485 tape device as it was sysgen'd. Just as the native 6485 device requires different unit names to prevent requests for conventional tapes to be mounted on a 6485 drive, the M860 also requires this separation.

Providing the unit name of the type of device you want is very straightforward when new "tapes" are being created. SAMS:Disk saves this distinction so that RESTORE, RECOVER, XCOPY, and MERGE can dynamically request the proper type of device. If you use the M860 device, you should review and implement the support technique described in topic *"Implementing Support for Masstor M860"* on page 79.

Producing Duplicate Archive Tapes Concurrently

When you run archive or backup jobs, two copies of archive volumes are produced concurrently unless you nullify the allocation of the //ARCHIVEC dd statement. To suppress the duplicate copy, specify sysparm ARCCTYPE with a value of NULL, or provide the dd statement in your JCL as //ARCHIVEC DD DUMMY.

The volume serial number of a duplicate copy tape is carried in the archive volume record for the primary tape. The duplicate copy tape also has an archive volume record built for it. If another copy is made (the triplicate copy), the volume record for the duplicate will point to the triplicate. In each case, the volume record points to the copy record, which points to the next copy, and so on until the end of the chain is reached, indicated by blanks in the volume serial field for the next copy tape.

In the event that a primary archive tape is damaged or otherwise becomes unavailable, the RESET command can be used to flag it as disabled, and cause subsequent RESTORE or MERGE requests to automatically call for the duplicate copy backup tape.

If you produce an archive volume without a duplicate copy, it is possible to create a copy after the fact, just as you can produce the triplicate from the duplicate. See *"Making Additional Copies of Archive Tapes"* described on page 309 in the *User's Guide*.

Specifying Blocksizes for Archive/Backup Tapes

The following rules govern the blocksize value used for the archive data sets, whether they are on tape or disk.

1. If archive tapes are being dynamically allocated, a blocksize of 32,760 is used. To use a smaller blocksize, supply the dd statements in your JCL with the blocksize as desired.

2. When archiving to disk, the most efficient blocksize is assigned by SAMS:Disk based upon the device type being used. You may override this value by specifying sysparm ARCDSKBZ.

3. If either the primary copy or the duplicate copy is on disk, the blocksize for the copy on disk dictates the blocksize used for the tape.

4. The blocksize for the primary copy dictates that of the duplicate copy, if both are on tape.

5. When copying user data sets from disk to the archive medium, SAMS:Disk will split user data blocks across archive data blocks (similar to the concept of "spanned records"). This means that the blocksize of the archive medium may indeed be less than the blocksize of a data set being archived.

Creating Multivolume Tape Data Sets

If an extremely large data set on disk is to be archived (or backed up), or if very short tapes are mounted, several tapes may be required to hold the data set. SAMS:Disk permits a data set to span as many as 35 volumes, and automatically allows for this when dynamically allocating the tapes. But if you provide the tape dd statements in your JCL, you must also allow for up to 35 volumes. This is done by adding the volume count parameter, VOL=(,,,35), to your JCL.

Running Archive/Backup in Simulate Mode

When you run archive or backup functions in the simulate mode, the tape drives do not need to be allocated. If you are using dynamic allocation options, the tapes will not be allocated. If you are supplying the archive dd statements in your JCL, you may dummy them out for simulate mode.

Running Multiple Archive/Backup Jobs Concurrently

It may be desirable to execute multiple archive or backup jobs concurrently on either the same or different CPUs in order to reduce the elapsed time needed for the process. If these jobs are to be run on the same CPU, or if you have a cross-system enqueue facility in place, the DSNAME parameter on the //ARCHIVEC and //ARCHIVE0 dd statements must be different for each concurrently executing job. This prevents the standard DSNAME enqueue lockout that will occur if the same name is used with DISP=NEW in more than one job.

By default, SAMS:Disk generates unique names (see *"Naming the Archives"* on page 59), and dynamically allocates them to these two ddnames, avoiding the enqueue lockout. If you select the option of using non-unique names during backup or archive processing, you must manually supply different DSNAMES for each job by either putting them in the JCL or by overriding sysparms ARC0NAME and ARCCNAME.

Each of your concurrent backup jobs should also process a list of volumes different from the other jobs. It is also advantageous if these volume lists achieve as much channel separation as possible in order to reduce channel contention among the jobs.

Cataloging the Tape Archives

As previously described, if you want to catalog your archive tapes, specify a value of C for sysparm ARCTNAME. If you also use a security system, please heed the authorization requirement documented in the sysparm description for *ARCTNAME* on page 120.

To uncatalog tapes that are expired by MERGE or IXMAINT, specify sysparm UNCATARC with a value of Y.

Tape GDG Support (No Longer Recommended)

Prior to Release 7.2, users desiring to catalog archive tapes had to use GDG support. Although the GDG support is no longer needed, it may still be used by specifying sysparm ARCTNAME with a value of G. This option is not recommended; it is maintained strictly to provide compatibility with prior releases.

The following paragraphs document how this option works. This explanation is provided strictly for existing users who do not choose to change to the enhanced (default) method of generating tape archive data set names, and as such is not applicable to new users.

GDG support may be invoked by SAMS:Disk to generate unique tape archive data set names. This is done by appending the GDG name to the base name specified in sysparms ARC0NAME (for the primary copy) and ARCCNAME (for the duplicate

copy). This generation name is also kept synchronized with the archive volume index. Two special sysparms are provided for this support:

1. ARCTNAMEG must be specified to synchronize the creation of index entries and catalog entries.

2. UNCATARCY is used to cause a tape whose index entry has been deleted in MERGE or IXMAINT to be uncataloged.

If ARCTNAMEG is specified, a generation index for the appropriate number of entries must first be built into the supporting catalog. Since SAMS:Disk creates a generation number for each tape created, the number of entries is equal to the maximum number of archive tapes at any given time. Once this generation index level is established, it must be specified as the data set name on all of the dd statements without an appended level number or absolute generation number. SAMS:Disk will build the correct level number and catalog the tape. The JCL disposition parameter for the archive tape(s) should always be coded as DISP=(NEW,KEEP,KEEP).

If a duplicate copy tape is being produced, a generation index must also be built for it. The default index is DMS.ARCHCOPY, but you may use any name you desire in sysparm ARCCNAME for dynamic allocation or supply it in the JCL.

Assigning Tape Expiration Dates

Expiration dates may be assigned to archive tapes either explicitly or implicitly. An explicit expiration date is created by hard-coding its value in sysparm DYNEXPDT for dynamic allocation or by specifying the EXPDT= or RETPD= parameter in the JCL for the //ARCHIVE0 dd statement.

The implicit assignment of an expiration date to the archive tape volume is accomplished by finding and using the highest expiration date that is assigned to any individual data set being archived. SAMS:Disk does this by determining what data sets are to be processed, assigning each its archive retention period, and then internally queuing the archive request. The value of the retention period assigned is supplied by sysparm ARCRETPD for explicit archives, sysparm RETRETPD for backup/archive, or parameters RETPD= and EXPDT=, which may be supplied on the ARCHIVE or RETAIN command. When all data sets to be processed have been scanned, the highest retention date is known. This date is then used as the expiration date for the archive tape, and is recorded in the archive volume index. The internally queued requests are then processed.

SAMS:Disk will honor any non-zero expiration date and place it in both the tape label and in the archive volume index record. Hard-coding an expiration date, however, does create the possibility of expiring archive tape volumes prior to the expiration of all archived data sets on the archive volume.

We recommend using an explicit expiration date of "99365" on your archive tapes. This is considered a "never scratch" date by SAMS:Disk and protects against the previously mentioned case of a tape being written over before all of its data sets

have expired. This is the technique called for by the distributed JCL procedures and system parameter default.

If you have implemented tape management support, it is recommended that all archive tape dd statements use the default EXPDT=99365. SAMS:Disk will notify the tape management interface as soon as any given tape can be returned to scratch status.

Tapepool Considerations

The SAMS:Disk tapepool support provides you with the ability to define up to 30 different pools of tapes. (You may define 30 pools in parmlib member POOLDEFS. However, this member is also used to define disk archive pools. The sum of tape and disk pool definitions cannot exceed 30.) Each pool name is associated with (mapped to) a data set name on an archive dd statement. Thus, if all archive tapes have the same name or prefix, one pool is sufficient. However, if the duplicate copy tapes have different names than the primary tapes (as in the default), it is possible to define a separate pool of tapes for each. Similarly, backup tapes can be separated from archive tapes by giving them different names and associated pools.

The association (or mapping) of pool names to archive data set names is made by entries in member POOLDEFS in the parmlib data set. Each entry consists of an eight-character pool name (of your choice) and the tape data set name. (Remember, the data set names are generated from sysparms ARC0NAME and ARCCNAME or are provided in the JCL.) Each entry must be enclosed in quotes, with one or more blanks between the pool name and data set name. For example:

```
'ARCHPRIM DMS.ARCHPRIM/'          pool for primary archives
'ARCHCOPY DMS.ARCHCOPY/'          pool for duplicate archives
                       or perhaps
'ARCHPOOL DMS.ARCH/'              pool for all archive tapes
'BKUPPOOL DMS.BACK/'              pool for all backup tapes
```

The first step in establishing tapepool support is to decide how many different data set names (categories of tapes) you have a real need for. One suggestion is to separate your archive from your backup tapes, and if you create duplicate copy tapes, to separate them from the primary tapes as well. Once decided, make sure that the names you have chosen are provided to SAMS:Disk via overriding sysparms for each job, or in the JCL for each job. Then create member POOLDEFS in your parmlib data set with the appropriate entries. You may copy in member SAMPDEFS as a starting point.

The next step is to place scratch tapes into the pools in preparation for use. This can be done by using the *Tapepool Update Utility* documented on page 45. The *ADD Command* (described on page 46) provides the means to do any maintenance functions that may be required, such as listing, adding or deleting entries.

At this point you are ready to activate the support. This is done by adding sysparm TAPEPOOLy to member SYSPARMS in the parmlib data set. Once this is done, new scratch tapes to be used for archive, backup or merge functions will be located in the appropriate pool, and their status updated to show that they are in-use. When subsequent merge or index maintenance functions determine that no unexpired data sets remain on a tape volume, its status is updated to indicate that it is available again for use as a scratch tape.

When a group of tapes are entered into a tapepool, they are entered at the bottom of the current list of scratch tapes for the named pool. Tapes that are scratched by MERGE or IXMAINT processing are also put at the bottom of the tapepool scratch list, in the order in which they are scratched. Scratch tapes needed by ARCHIVE, RETAIN, or MERGE are taken from the top of the scratch list. This ensures that the tapes are cycled, much like tape drives are cycled. Due to the complex logic that MERGE and IXMAINT use to scratch SAMS:Disk archive tapes, the tapepool scratch list quickly loses its initial VOLSER order. This causes no problems for SAMS:Disk, however. The tapepool LIST command described below can be used to inspect the status of the tapepools.

Tapepool support is also designed to maintain the integrity of the pools in the following manner:

1. The same volume cannot be placed into more than one pool.

2. Only the batch utility program will add a volume into a pool; that is, scratch tapes mounted by operators or expired tapes being "returned to scratch status" by index maintenance are never added to a pool. The volume must already exist in the pool such that SAMS:Disk merely updates its status.

3. When creating new output tapes with the pool support active, a valid pool name to use must be found or processing terminates.

Tape volumes may be supplied by any combination of the following three techniques. It should be noted that these methods are progressive, in that processing begins with the first that is applicable and continues until either no more tapes are needed or the operator is unable to supply an acceptable volume serial.

From JCL:

If tapepool support is being used, from 1 to 5 volumes may be listed in the VOL=SER= parameter of the //ARCHIVE0 and //ARCHIVEC dd statements. These volumes are used before accessing the defined tapepool.

For non-tapepool support, up to five volumes may be supplied on the VOL=SER= parameter of the //ARCHIVE0 and //ARCHIVEC dd statements. If more than five volumes are required, the operator will be requested to mount scratch tapes.

From a tapepool:

If the tapepool support is being used, volume serial entries are taken from the pool when the VOL=SER= parameter is not specified in the JCL, or when the JCL list of volume serials has been exhausted.

From the operators:

If the tapepool support is being used but the pool is out of scratch tapes, a WTOR message is issued to allow the console operator to enter the volume serial of the next scratch tape to be used.

It is permissible to CANCEL an archive run when a volume serial cannot be supplied in response to the WTOR message, since the processing for any volume written up to that point is complete.

Tapepool Update Utility

The following batch utility provides an easy means of listing and maintaining your tapepools. The available commands and there functions are:

- LIST - generate a volume status list for a requested pool.
- ADD - add one or more volumes to a pool.
- DELETE - delete a specific volume from a pool
- ERASE - remove all volumes from a specified pool.

```
//TAPEPOOL EXEC DMSPOOL
//SYSIN    DD  *
   LIST POOLNAME=,VOLUME=,STATUS=
   ADD  POOLNAME=,VOLUME=,NUMBER=,STATUS=
   DELETE VOLUME=
   ERASE  POOLNAME=
```

Figure 2-1. Sample JCL to

LIST Command

```
LIST POOLNAME=,VOLUME=,STATUS=
```

POOLNAME=

Specify one or more eight-character pool names. (A maximum of 25 entries supported.)

VOLUME=

This optional parameter specifies one or more volume serials in the tape pool. The status report is restricted to just the named volumes. (A maximum of 25 entries supported.)

STATUS=

Specify "S" if you wish to list only scratch volumes, or "U" for in-use volumes. The default is to list both scratch and in-use volumes.

ADD Command

```
ADD POOLNAME=,VOLUME=,NUMBER=,STATUS=
```

POOLNAME=

Specify the eight-character name of the tape pool into which volumes are to be added.

VOLUME=

Specify the volume serial to be added to the named pool.

NUMBER=

Specify a value of from 1 to 32767 for this optional parameter to indicate the number of volumes to be added, beginning with the volume specified. The numeric portion of the volume serial is incremented by one, the new volume serial is added to the pool, and the process repeated until the requested number of tapes has been inserted. For example, to add volume serials DMS001 through DMS025, specify:

```
ADD POOLNAME=TAPEPOOL,VOLUME=DMS001,NUMBER=25,
    STATUS=S
```

STATUS=

This optional parameter specifies the status of the volume(s) to be added. Use "S" for scratch volumes and "U" for volumes in-use by SAMS:Disk. It defaults to S, and normally you should never have a need to insert in-use tapes.

DELETE Command

```
DELETE VOLUME=
```

VOLUME=

The specified volume will be deleted regardless of the pool it is in.

ERASE Command

```
ERASE POOLNAME=
```

POOLNAME=

The eight-character pool name specified will have all of its volumes deleted. The pool ceases to exist.

Tape Swapping — Length Considerations

Sysparm TAPEFEET designates the feet of tape that can be used on each reel (default of 2300). Sysparm CARTFEET is used for the 3480 cartridge (default is 494). When SAMS:Disk calculates that there is not enough room remaining on the current archive tape for the next data set to be archived, the current tape is closed, a new tape called for, and the archive continues. This minimizes the need to mount two tapes in order to restore a single data set. If data compression is being used, also specify sysparm DCAVGCMP. It provides your estimate of the compression value SAMS:Disk will achieve (an average from prior analysis, or just a pure guess), which SAMS:Disk is to assume when predicting how much tape the next data set will use.

Tape Format

The data archived is stored on standard labeled tapes as a sequential data set in undefined record format. The specific SAMS:Disk record types are presented in the topic *"Archive Tape Format"* on page 429.

Chapter 3. Tailoring Options

General Information

SAMS:Disk provides two primary means of tailoring the system to more specific needs. You should become familiar with the capabilities each provides so that you may find relatively simple solutions to conditions that are unique to your installation.

1. SAMS:Disk provides for system parameters (sysparms) to be specified in member=SYSPARMS of the parmlib data set. The contents are retrieved at execution time and processing paths are varied accordingly. Default values for all sysparms are generated internally. You need to create member=SYSPARMS and specify a sysparm value ONLY IF YOU WANT TO CHANGE A DEFINED DEFAULT. The *Sysparms* section, beginning on page 95, provides a complete list of the sysparms and their defaults. There is no need to read and review every one of them until an actual need is made evident from your use of the various functions. Some of the more commonly used ones, or ones that are more important to consider in advance, are presented here to acquaint you with their use.

2. User exits are also supported. A complete list of these and their defined capabilities may be found in the *User Exits* section, beginning on page 195.

In addition to sysparms and user exits, the following topics are highlighted in this section:

- Performance Tips (page 53)
- Archive/Backup Considerations (page 55)
  - Activating Data Compression (page 56)
  - Specifying the Archive Medium (page 56)
  - Using Multiple Types of Media (page 57)
  - Naming the Archives (page 59)
  - JCL Overrides and Data Set Name Usage (page 60)
  - Assigning an Expiration Date to the Archive Data Set (page 60)
  - Archiving to Disk: Requirements and Recommendations (page 60)

- Using Archive Functions to Manage Active Data (page 65)
- Archiving the Archives is Not Allowed (page 66)
- Archive Integrity and Security (page 66)
  - Archive Tape Protection (page 67)
  - Checks Against Overwriting Valid Tapes (page 67)
  - Tape Status After Abends (page 68)
  - Archive Disk Protection (page 68)
- Processing PDSs that Contain Anomalies (page 69)
- Implementing Support for the MASSTOR M860 (page 79)
- User-Specified Condition Codes (page 81)
- DASD Threshold Manager (page 83)

Suggested System Parameters

System Parameters for Reports:

The Data Set Utilization report can be produced in three different sequences. By default it is produced in sequence by date-of-last-use. The following options are available:

Table 3-2. DSUTIL Report Sorting Options

Sysparm	Description
DSUTILSQ	In data set name sequence
DSUTILCF	By date-of-last-use within index

Both the explicit and the implicit archiving functions can produce reports in one to three sequences simultaneously. By default they are produced in both data set name and data set name within volume sequences. See sysparm *ARCHSORT*, described on page 119, to select a different option.

The sequential migration to tape function has this same ability. See sysparm *MIGRSORT*, described on page 152, to adjust its defaults.

The SMF report requires its input from a sequential data set. If your SMF records reside in a VSAM cluster, add an Hitachi JSCVSUT utility step to REPRO the records into a sequential data set to be passed to SAMS:Disk.

System Parameters for Messages

The following sysparms affect the number of informational messages that are printed for their respective functions, and should be kept in mind when initially testing and setting up SAMS:Disk runs.

Table 3-1. Message Suppression Sysparms

DSCLMSGS	DSCL Data Set Selection Messages
RLSEDIAG	Idle Space Release messages
MIGBYPAS	Sequential Migration to Tape messages
VCBYPASS	Move/Copy messages

System Parameter for Lines Per Page

The number of lines per page on SAMS:Disk—generated output can easily be changed from its default of 58. For details, turn to the sysparm description for *RPTLINES*, located on page 165.

System Parameter for Separator Pages

The number of separator pages can be changed or suppressed via sysparm *FLYCOUNT*, described on page 144.

User Exit for All Sysout Print Lines

For more extensive monitoring or modifications of printed output, such as special routing for certain messages, consult the description of user exit *SYSOUTEX*, located on page 250.

System Parameter for Files Data Set Logging

Three sysparms provide support for the files data set logging capability.

Table 3-3. Files Data Set Logging Activation Sysparms

Sysparm	Description
FILOGNAM	for specifying the name of the log data sets and to activate the feature.
FILEUNIT	for specifying the unit type allocated for the log data sets.
FILESPAC	for specifying the number of blocks allocated to the log data sets.

System Parameters for Archive/Backup

The following sysparms are commonly specified by many users and should be reviewed for applicability in your installation:

Table 3-5. Common Archive/Backup Sysparms

Sysparm	Description
ARCBLKSI	for processing data sets that have BLKSIZE=0
ARCDSORG	for processing data sets with unknown DSORGs
ARCEMPTY	for processing empty data sets
ARCMODEL	for processing model DSCBs
ARCRETPD	change retention period for explicit archives
RETRETPD	change retention period for implicit archives

System Parameters for Restore/Recover

By default, SAMS:Disk will issue a catalog locate for each data set being explicitly restored, unless a specific target volume is given. For volume recovery functions, these catalog locates are bypassed. Another locate is done in preparing the restore report. Both restore and recovery tasks will normally skip any preallocated version of a data set. Sysparms to review in order to change these defaults are:

Table 3-4. Common Restore/Recover Sysparms

Sysparm	Description
RESCHCAT	for volume selection for non-VSAM during Restore
RECCHCAT	for volume selection for non-VSAM during Recover
PREALLOC	controls whether or not to overwrite preallocated data sets

Performance Tips

Report Processing

Review the sysparms for the reporting function listed earlier that control the use of the LOCATE macro. This macro causes a high level of system overhead. Elapsed time values will be reduced significantly if the locate function is suppressed for runs that process a high number of data sets.

PDS Compress

Sysparm IOTRACKS also affects PDS directory processing. Tests have also shown that for directories in the range of one track or less (which is 46 directory blocks or less on a 8598), setting IOTRACKS to 1 can improve performance. If tests verify this in your environment, you should supply this value as a permanent sysparm override to the PDS Compress function.

Previous recommendations to exclude SMP data sets still being kept as PDSs (rather than VSAM data sets) are no longer applicable. The revisions allow all partitioned data sets to be processed equally well.

Files Data Set

Since the files data set contains the archive indexes, it is an active and critical data set when doing implicit archiving, backup, or any index maintenance function. ENQ and RESERVE macros are also issued against the data set and its containing volume. Improper selection of the containing volume may result in performance degradation of SAMS:Disk or other jobs trying to access the volume.

For important information, please review the sysparm description for *RSUPPRES* on page 166.

I/O Buffering and Memory Requirements

A sysparm that can have a dramatic effect on SAMS:Disk performance and the amount of memory that will be required is IOTRACKS. IOTRACKS controls the maximum number of tracks read or written at one time by the SAMS:Disk EXCP access method, which is used for all but exception case handling of non-VSAM data sets. Review the sysparm description for *IOTRACKS* on page 147.

Ideally, optimum performance is achieved when IOTRACKS allows a cylinder to be processed by a single I/O request; for example, 15 tracks for 8598 devices. The default value for IOTRACKS accomplishes this. You should test different values of this sysparm to find the best to suit your environment. As with most performance issues, there may be several factors to consider, such as the memory constraints, I/O contention, and page and swap activity.

First consider the size of these buffers themselves. A 15-track buffer on a 8598 is (15)*(47,476) or 712,140 bytes. SAMS:Disk double buffers, which means 1,424,280 bytes (or roughly 1.4 megabytes). For the Move/Copy function, which is reading and writing to disk at the same time, this means 2.8 megabytes merely for basic I/O data buffers. Memory is required for many other items as well, such as space for the loaded programs themselves and buffers for reading VTOCs, PDS directories, and control information from the SAMS:Disk parameter library. Many of these memory tables reside above the 16 MB line. A five- to six-megabyte region will usually be sufficient for all SAMS:Disk jobs, including Move/Copy. If real memory is very limited, however, this region requirement may be too high, and must be lowered by reducing the value of sysparm IOTRACKS.

Buffers are acquired based upon the values specified, but a single I/O request never exceeds a cylinder in size or crosses a cylinder boundary. If the number of tracks in a data set (or technically the number of tracks in each extent) is less than a cylinder in size, part of the buffer will always remain unused (wasted). It follows that if the average data set size in tracks is less than the value specified for the appropriate sysparm, you may set the sysparm to a lower value to reduce memory constraints without noticeably increasing the number of I/Os (which would degrade performance).

If the amount of available real memory is limited, having this sysparm set to a high value can cause jobs to be swapped frequently and/or paging rates to be high, which will degrade performance instead of improve it.

If the "to" and "from" volumes are on the same channel when using the Move/Copy function to relocate data sets, the job may perform better by setting IOTRACKS to a much smaller value, perhaps even 1. This is due to the inherent channel contention in this particular case, combined with the paging and swapping problem described above. Again, testing within your environment will demonstrate whether this case warrants special treatment.

Another sysparm to review when considering memory requirements is *IOMAXREC*, described on page 146. This sysparm sets the maximum allowable record size for data sets to be processed by SAMS:Disk. It is used to acquire buffer space to contain the records during backup and data compression/decompression. The higher this value is set, the greater the memory requirements. It is recommended that this sysparm be set to the lowest value possible that will still allow SAMS:Disk to process. The default value is 65,000.

Archive/Backup Considerations

SAMS:Disk permits numerous tailoring options for archiving and backup functions. Some of the more important options to consider are discussed in this section.

Activating Data Compression

As an optional feature, SAMS:Disk can compress data as it is being written to the archive or backup data sets, whether they are on tape or disk.

If you activate data compression, the default technique is technique number 0. SAMS:Disk-supplied technique number 0 will typically reduce the space used by 40 to 50 percent, which will yield the same reduction in the amount of tape used. However, if you archive to disk instead of tape, the disk savings achieved may be closer to three or four to one, or even much higher. This is due to the optimized storage techniques in the archives, as well as wasted space in the original data sets.

As a direct result of compression, the number of I/Os to the archive media is also reduced by the same percentage, which may provide a significant improvement if I/O contention is a problem in your installation.

To achieve these benefits, however, you should also expect the CPU time to increase. For more information, turn to the topic *"Data Compression/Decompression"* beginning on page 342.

The following sysparms are used by data compression. Review them for applicability in your installation:

Table 3-6. Data Compression Sysparms

Sysparm	Description
DCDATACP	turns data compression off or on
DCCOMPTC	indicates the compression technique number
DCCMPEXn	exit for compression technique n
DCDCPEXn	exit for decompression technique n
DCDSNDEX	user exit for deciding if data compression is to be done for each data set, and what technique is to be used.
DCEXCTBL	exclusion table name
DCINCTBL	inclusion table name (overrides DCDATACP"N")
DCRTSTAT	turns compression statistics off, on, or on with details for each data set compressed.

Specifying the Archive Medium

By default, SAMS:Disk dynamically allocates both the primary and duplicate copy to tape. The DD statement used for the primary is //ARCHIVE0 and for the duplicate copy is //ARCHIVEC. Sysparms ARC0TYPE and ARCCTYPE allow you to change the defaults from tape to either disk or 6485 cartridge units. Specify these sysparms with a value of DISK, TAPE or 6485, and place them in the SYSPARMS member of the parmlib data set. There are 2 ways to indicate that no duplicate copy is to be made:

1. Specify "NULL" to sysparm ARCCTYPE as "NULL"

2. In JCL, specify "DUMMY" to the //ARCHIVEC DD statement

For example, to direct the primary copy to disk and the duplicate copy to a 6485 cartridge unit, specify ARC0TYPEDISK and ARCCTYPE6485.

You may also specify the archive medium through JCL. If tape or 6485 devices are specified via JCL, the devices allocated at job initiation will be used throughout the run; that is, the device will not be deallocated at the end of each tape, but only at the end of the job. (The dynamic allocation option can be made to behave in much the same way by specifying sysparm DYNUKEEP.) The only exception is when more than five volumes are needed to contain a single archive data set, in which case dynamic allocation is used.

You may also specify archival to disk in JCL by allocating any disk device to the //ARCHIVE0 DD statement. For example:

```
//ARCHIVE0 DD UNIT=SYSDA,VOL=SER=anyvol,DISP=SHR
```

Notice that this only indicates to SAMS:Disk to use disk archive. The volume (or data set) named on the DD statement has no meaning to SAMS:Disk, and dynamic allocation of the ARCHVOL will still be done.

Using Multiple Types of Media

This section describes how SAMS:Disk can utilize multiple types of media (i.e., 6485s, SILOs, etc.), sysparms to use, data compression, and MERGE processing.

Selecting the Output Media

The user selects the media SAMS:Disk will write to by specifying a value to the following sysparms, which are often entered as overrides in SAMS:Disk jobs, or kept in the SYSPARMS member in PARMLIB.

Table 3-7. Output Media Sysparms

Function	Primary SYSPARM	Copy SYSPARM	Notes
ARCHIVE	ARC0TYPE	ARCCTYPE	
BACKUP	ARC0TYPE	ARCCTYPE	
MERGE	MERPnTYP	MERCnTYP	Refer to the *LIMITS* parameter on page 325 of the *User's Guide* for detail information.

The following table shows the media options that can be specified with the above sysparms. The primary and its copy can be directed to different media. These two output media types are synchronized so that if one is shorter than the other and fills up, both are closed and new tapes are mounted and/or new disk archive data sets are allocated. Other sysparms that are in effect when the respective media option is used are shown below:

Table 3-8. Available Values for Media Option Sysparms

Media Option	Type of Device	Unit for Writing or Reading	Unit for Auto-Restore	Tape Length
TAPE	"Round" tape (default)	DYNTUNITtape	ARESUNITtape	TAPEFEET2300
6485	6485 cartridge	DYNCUNITCART	ARESUNICCART	CARTFEET0494
DYN1	Special device type 1	DYN1UNIT	ARESUNI1	TAPEFEET2300
DYN2	Special device type 2	DYN2UNIT	ARESUNI2	TAPEFEET2300
DYN3	Special device type 3	DYN3UNIT	ARESUNI3	TAPEFEET2300
DISK	DASD volumes	n/a	n/a	n/a
NULL	Disables Copy sysparms	n/a	n/a	n/a

Specifying the ESOTERIC Unit Name

The media options shown above relate to sysparms that provide the esoteric unit name SAMS:Disk uses to allocate the proper device for writing, reading and auto

restoring. These sysparms are placed in the SYSPARMS member in PARMLIB and should not be changed unless the esoteric name changes, or a media type has been totally removed from SAMS:Disk control. The DYNn sysparm provides the flexibility of defining additional device types to SAMS:Disk that may be installed at various sites.

When a tape is created, SAMS:Disk stores the device type in the ARCHVOLS record along with a flag if the DYN1, DYN2, or DYN3 option was used. With this information, SAMS:Disk retrieves the esoteric unit name from the DYN_UNIT or ARESUNI_ sysparm so the proper device can be allocated.

Naming the Archives

In theory, the names you assign to archive data sets are of no consequence to SAMS:Disk. SAMS:Disk will keep track of the archive data sets regardless of their names. However, other issues dictate that naming conventions be observed, including the Hitachi operating system and tape management concerns. SAMS:Disk generates unique archive data set names, providing flexibility in managing the archives and allowing them to be cataloged. Unique data set names also eliminates contention during dynamic allocation that would occur if non-unique data sets were used.

SAMS:Disk sysparm defaults generate unique archive data set names. The base names are taken from either sysparm ARC0NAME or ARCHIVE0 DD statement (for the primary copy) and sysparm ARCCNAME or ARCHIVEC DD statement (for the duplicate copy). If both copies are being produced, the base names should be different — such as DMS.ARCHPRIM and DMS.ARCHCOPY.

Specify up to 22 characters for the base name and SAMS:Disk will generate a 22-character appendage as follows:

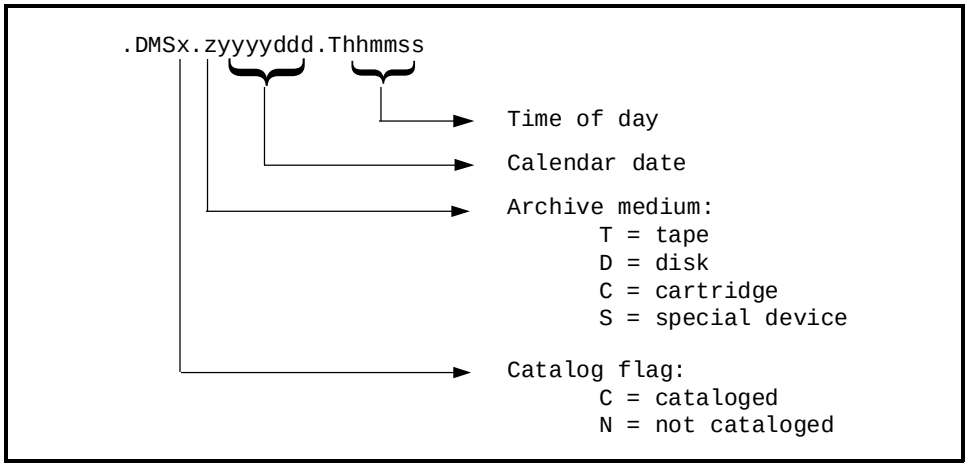


Figure 3-1. Generated 22 Character DSNAME

The calendar date above is the current date in Julian format, and the time of day is in hours/minutes/seconds. Hence the archive data set name provides the date and time it was created, and will always be unique.

For disk archive data sets, this generated name is always used and is always cataloged. For tape and cartridge archive data sets, the default is to use the generated name but not to catalog it. You may tell SAMS:Disk to catalog the tape or cartridge archive data set name by specifying a value of C for sysparm ARCTNAME.

JCL Overrides and DSNAME Usage

As just explained, SAMS:Disk defaults to using dynamic allocation for the archive data sets. For tape and 6485 devices, however, you may override dynamic allocation by supplying the needed information on the appropriate DD statements in the JCL. SAMS:Disk will create the data set name from the DSNAME you provide in the JCL unless you omitted it completely or specified a temporary name (DSN=&&anyname). In both of these cases, SAMS:Disk will use the appropriate sysparm (ARC0NAME, ARCCNAME, MERPnNAME or MERCnNAME) to create the data set name.

Assigning an Expiration Date to the Archive Data Set

By default, SAMS:Disk assigns the "never expire" date of 99365 to each of the archive volumes. This guarantees that an archive volume is never expired before all of the data sets that it contains. Therefore your only concern is the retention period being assigned to each data set being archived. This is recommended if you are using the EDM interface of your Tape Management System.

When SAMS:Disk determines that all data sets on an archive volume have expired, it automatically expires the volume as well. You can, however, specify a different expiration date through dynamic allocation with sysparm DYNEXPDT, or in JCL through the LABEL= parameter. Append either Eyyddd or Rddddd, where E indicates a Julian date follows and R indicates a 5-digit retention period follows.

Archiving to Disk: Requirements and Recommendations

Traditionally, backup and archive copies of data sets have been directed to tape. SAMS:Disk also provides the option of writing backup and archive data sets to disk. Using disk devices rather than tape or cartridge units for archive data sets eliminates the need for an operator to mount a tape when the backup or archive task is performed or when restoring data. This is particularly attractive for users implementing the auto-restore capability of SAMS:Disk.

Note: When archiving to disk, you should consider activating software compression to save on DASD space. To activate software compression, refer to the sysparm description of DCDATACP, beginning on page 129.

The following summary outlines the steps necessary to implement archival to disk. Where necessary, an expanded explanation is provided for sime of the summary items.

1. Specify archival to disk by one of the following methods:

- If your ARCHIVE and DMS JCL procedures do not contain //ARCHIVE0 or //ARCHIVEC DD statements, specify sysparm ARC0TYPE with a value of DISK for the primary, and/or ARCCTYPE with a value of DISK for the copy, to allocate them dynamically.

- Supply JCL statements for the ddnames above that will cause allocation to any disk device. SAMS:Disk will deallocate and then allocate the device as needed to perform the archive. For example, the following DD statement activates archival to disk for the primary copy:

  ```
  //ARCHIVE0 DD UNIT=8598,VOL=SER=anyvol,DISP=SHR
  ```

2. Specify the base name for the disk archive data sets using the following sysparms. SAMS:Disk will append a unique name to the end of the base name, based on the current date and time.

   ```
   ARC0NAME – for the name of the primary
   ARCCNAME – for the name of the copy
   ```

3. Map the names you gave above to proper diskpools (members in your parmlib data set) from which target volumes will be selected. This mapping is specified with entries in member POOLDEFS of the parmlib data set. The general form of the entries is:

   ```
   'VOLU8598 DMS/'
   ```

4. Place target volumes in your defined pools by creating the parmlib member by the same name as your pool, in this case "VOLU8598", and inserting statements such as:

   ```
   VOL=(vol001,vol002,vol/)
   ```

5. Specify an expiration date using sysparm DYNEXPDT, or by JCL. SAMS:Disk will assign the default expiration date of 99365 if none is specified.

6. Determine if the default values blocksize is appropriate. If not, override the default with the sysparm ARCDSKBZ.

7. Determine if the default manner of calculating primary and secondary space allocation is appropriate. If not, override the default by specifying sysparms:

   ```
   SPACEPRImmm – megabytes to allocate for primary
   SPACESECmmm – megabytes to allocate for secondary
   ```

8. Determine if default values for index maintenance, merge and rebuild functions are appropriate, and if not, specify sysparm to override the defaults.

Step 1 — Specifying Archival to Disk

SAMS:Disk is distributed with default sysparms that cause archive and backup copies of data sets to be written to tape, creating both a primary and a duplicate copy tape concurrently. You may tell SAMS:Disk to write archive and backup copies of archive data sets to disk instead. You may write both the primary and duplicate copies to disk, or assign them to different media. You may also "dummy out" the duplicate copy. Indicate your choice of archive media either through JCL or SAMS:Disk sysparms ARC0TYPE and ARCCTYPE.

Step 2 — Naming the Disk Archive Data Set

For further discussion of this step, see *"Naming the Archives"* on page 59.

Step 3 — Map Data Set Names to Diskpools

Candidate volumes for archiving to disk must be provided via "diskpools", which reside as members in the parmlib data set. The name of the diskpool is simply the member name. SAMS:Disk determines which diskpool (member) to use in the same manner in which tapepool names are determined. That is, the POOLDEFS member of parmlib is used to associate (map) a data set name to a poolname. For example:

```
'ARCPOOL0 DMS.ARCHPRIM/'
'ARCPOOLC DMS.ARCHCOPY/'
'BKPPOOL0 DMS.BKUPPRIM/'
'BKPPOOLC DMS.BKUPCOPY/'
```

Step 4 — Place Target Volumes in Defined Pools

Next, designate your candidate volumes in diskpool=ARCPOOL0 by creating a member in the parmlib data set with that name and inserting entries. For example:

```
VOL=(VOL001,VOL002,........,VOL011)
VOL=(VOLA/,VOLB/,..........,VOLZ/)
```

A maximum of 100 volumes or patterns may be entered, with one or more volumes allowed per statement. Do not try to continue the volume list on multiple lines (that is, continuation lines are not supported). Instead, enter multiple VOL= statements.

If both the primary and the duplicate copy are being directed to disk, each pool must contain volumes of the same device type(s) as the other pool; that is, if pool 1 has both 8598s and 8595s, pool 2 must also have some 8598s and 8595s. This is required because a volume from pool 1 is selected first, and then pool 2 is searched for a volume of the same device type.

By default, SAMS:Disk automatically separates the copy from the primary; that is, if a volume appears in both pools, SAMS:Disk will not select the same volume for the copy as is used for the primary. (Obviously, this is to prevent the loss of both copies if the disk pack is destroyed, whether it be due to oxidation, head crashes, or other reasons.) If you wish to allow both copies to go to the same volume, specify sysparm ARCSEPC0 with a value of N.

Step 5 — Specifying an Expiration Date

For further information about this step, see *"Assigning an Expiration Date to the Archive Data Set"* on page 60.

Step 6 — Specifying Blocksize

When archiving to disk, SAMS:Disk automatically adjusts the optimal blocksize value for the device type of the volume; that is, half track blocking on 3375s and 8598s, and full track blocking on other devices. You may override the defaults by specifying sysparm ARCDSKBZ. The blocksize selected for a disk device is also used for any tape or 6485 copy that is being created concurrently.

If you have more than one device type in your archive pool, use sysparm ARCDSKBZ to specify a blocksize appropriate for all devices; that is, one that provides optimal performance and space usage on all the devices.

Step 7 — Specifying Space Allocation

SAMS:Disk determines the amount of space to allocate (the amount of space it needs on a diskpool volume) in the following manner. It assumes that quite frequently the primary copy will be on disk and the duplicate will be on tape or a 6485 cartridge. As stated earlier, the target volume leads SAMS:Disk to the device type, which in turn dictates the blocksize to be used. This, coupled with the density and length of tape being used, allows an easy and very accurate calculation of the tape capacity. (Since the ends of 6485 tapes cannot be clipped off, the most common variable in the calculation has been removed!)

The optimal disk allocation is the exact same capacity as its backup medium, such that when one is filled and both must be closed, nothing is wasted on the other medium. To do this on an exact equivalence, however, would require very large amounts of free space to be available. Therefore SAMS:Disk selects 1/16th of that value as default primary and secondary space allocations. In many cases, an archive run will not need a full tape, and one or two extents will be more than enough space. However, when a large archive run is made and the diskpool volumes contain plenty of free space, SAMS:Disk will obtain as many as possible of the 16 extents before closing the archive data set. This maintains high tape usage as well. Any excess (unused) disk space is, of course, released immediately when the data set is closed.

SAMS:Disk also considers the size of the data sets being archived when determining how much space to allocate. If the first data set to be archived is larger than the default primary space, the primary space is reset to the size of the data set. If free space equal to this new primary value is not available but the default value is, SAMS:Disk will attempt to archive the input data set to a multivolume output data set. This is done only as a last resort.

Once the target archive data set is allocated and the first data set to be archived is copied to it, SAMS:Disk will continue to copy additional data sets (the second through nth) as long as there is sufficient space to hold them. To determine whether sufficient space is available, SAMS:Disk examines the unused space in the current

extent, and checks to see if additional extents can be obtained. If there is not sufficient space, the current disk archive data set is closed and a new one is allocated (like swapping to a new tape).

If your analysis or practical experience indicates that the default method of calculating space allocations should be changed, specify sysparms SPACEPRI and SPACESEC with a three-digit number representing the number of megabytes of disk space to allocate for each.

When archiving to disk, you will normally want the archive data sets to be large, as restoring from a large data set is as fast -- or faster -- than restoring from several small data sets. SAMS:Disk provides options for balancing the need to conserve storage space with the need to keep overhead to a minimum. If you set the primary space value (sysparm SPACEPRI) to the size you want to use for staging, then set the secondary space value (sysparm SPACESEC) to 000, SAMS:Disk will create smaller archive data sets, but more of them.

Step 8 — IXMAINT, MERGE and REBUILD

To accommodate archival to disk, the following options are available within the functions listed below.

- **IXMAINT**

  Parameter SCRATCH=YES/NO is available on the DSNDELETE, VOLDELETE, and PURGE commands. DSNDELETE and VOLDELETE default to SCRATCH=YES, which means to scratch and uncatalog the disk archive data set when the archvols record is being deleted. PURGE defaults to SCRATCH=NO, because it is frequently used just prior to running REBUILD. If a disk archive data set is scratched, there is nothing from which to rebuild. If you do not intend to follow PURGE with a REBUILD command, specify SCRATCH=YES. Otherwise you will be creating "disconnected" archive data sets on disk that will never be used or deleted by any other means.

- **MERGE**

  The following parameters have been added.

  TYPE=(DISK,TAPE,3480) — specify any of the three types listed to restrict the merge to archvols of those types.

  CREDT=date — only those archvols created on or before the specified date will be merged forward.

  DAYSOLD=dddd — an "alternative form" of the CREDT parameter that limits the merge to those archvols that were created dddd or more days ago.

- **REBUILD**

  Rebuild accepts the archive data set to be read as input from either tape or disk. The supplied JCL procedure requires that you provide the correct //ARCHIVES DD statement pointing at the tape or disk data set to be rebuilt. No input cards are required. If they are provided, only the expiration date parameter is used.

Using Archive Functions to Manage Active Data

Traditionally, most archived data sets have been truly "inactive" data, and a very small percentage of archived data sets were ever restored. As users begin to use archive functions to manage active as well as inactive data, the number of data sets being restored increases dramatically.

Conceptually, it is probably more accurate to think of these archived active data sets as just temporarily compressed versions, not truly archived versions. In general, users do not want to keep the compressed versions archived very long, if at all, after the data set has been restored, as this wastes disk space.

SAMS:Disk provides sysparms that allow you to balance the need to manage active data sets with the need to use disk space most efficiently. This is accomplished by creating one archive data set for each data set processed, then allowing the disk space to be reclaimed quickly after the data set is restored from its compressed archive copy.

Here is how this process works. Sysparm RESIXRPD allows you to determine whether to keep the archived version of a data set after it has been restored, and if so, for how many days, by resetting its expiration date. The default value is 99, indicating no change is to be made to the expiration date. Specifying a value of 1 will cause the DSNINDEX entry to be kept one day after the restore. A value of zero will cause it to be deleted immediately. Note that this affects only the DSNINDEX entry. An exception to this rule is that no change will be made to the expiration date, nor will the DSNINDEX record be deleted, if the NEWNAME, NOLOAD, MEMBER or AIXNAME parameters are specified on a RESTORE command.

Sysparm RESIXDLB may be used in conjunction with RESIXRPD to indicate if DSNINDEX records are also to be deleted (or the expiration date reset) whenever a backup copy is restored. A backup copy will not have the scratch flag turned on in its DSNINDEX record (the data set was not scratched at archive time). The default value N tells SAMS:Disk not to reset or delete backup DSNINDEX records; that is, only the restore of an archived data set will cause the index record to be deleted. A value of Y tells SAMS:Disk to process all DSNINDEX records alike; that is, the value set in RESIXRPD will also control processing of DSNINDEX records for backup copies.

Then sysparm ARCHPACK can be specified with a value of N during the archive run, telling SAMS:Disk that "data set packing" is not to be used. The default value Y tells SAMS:Disk to pack all of the data sets being archived into a single data set. This packing feature alone saves, on the average, one half track of space for every data set processed. When N is specified, packing is not used (that is, SAMS:Disk creates one archive data set for each data set processed), and disk space is wasted. However, the benefit is that the disk space can be reclaimed quickly after the data set is restored.

Note: This sysparm should be specified as N only for archiving or merging to disk. If used when archiving or merging to tapes or cartridges, each tape will contain only one data set!

As an alternative to turning off the archive packing function as just described, you should consider using the disk-to-disk ability of the merge function to reclaim space occupied by expired data sets in the disk archives. A job to merge only the disk archives will not require any operator intervention, and can therefore be scheduled to run on a regular basis. This implementation maintains the advantages of data set packing, keeps the number of ARCHVOLS entries to a much smaller number, and still reclaims the expired "dead" space.

Archiving the Archives is Not Allowed

Traditional concepts naturally create a desire to use retention control to create more backups of the archive data sets being placed on disk -- or to "archive the archives." If this were permitted, it could lead to mass confusion in trying to manage the archives. For example, you might need to restore the archive copy of the archives in order to restore an archived data set. And if the archive copy of the archives was given a different retention period than the original archives, then it may have expired, and hence you can’t get the original archives back, unless maybe you took a backup copy that was given a different expiration date, etc., etc. The desire for backups is well placed, but the method is wrong. Instead, SAMS:Disk allows you to create a duplicate backup copy at the time of the original archive run. Then, if the primary copy is lost, the ARCHVOLS record for it is disabled, and the backup copy will be used. If you need additional backup copies, use the archive copy utility.

Note: Creating the duplicate backup copy during the original archive run also requires less processing. The input (user) data is read once and then written to two different output devices -- read, write, write. Using ARCHIVE or RETAIN to create another copy means an additional read -- read and write for the first copy, then read and write it again, increasing I/O by one third.

For the above reasons, SAMS:Disk will not allow archive and retention control to process the archive data sets written to disk. They are automatically detected and bypassed. The Move/Copy function can be used to copy them, however, since it will not introduce confusion to the archive/restore process. Moving the archives to other disk volumes may indeed be desirable if you are installing new devices, or perhaps just changing volumes within the archive diskpools.

Archive Integrity and Security

Archive Tape Protection

You can set your security package to assign WRITE (UPDATE) authority to users who must run backup, archive or merge jobs to SAMS:Disk archive data sets on tape. You can then assign an authority of NONE to all other users. This allows only authorized users to read, modify or delete these archives through utilities outside of SAMS:Disk.

SAMS:Disk Restore processing will take care of its own access to the archives, if the SAMS:Disk sysparm TAPEPRTR is specified with the default Y. To determine the data set names of the SAMS:Disk archives, see the discussion under *"Naming the Archives"* on page 59.

SAMS:Disk password-indicates each archive tape, but does not create any passwords for them, if you specify the SAMS:Disk sysparm TAPEPROT with a value of Y. Also, this password-indication will not allow users to read, modify or delete these archives through utilities outside of SAMS:Disk. This protection is selectable, and would supplement any protection provided by your security package.

Checks Against Overwriting Valid Tapes

When a new archive or backup tape is to be created, SAMS:Disk always checks the archive index to see if it is already listed as having valid archive data. This may happen under the following conditions:

- An operator mounts the wrong tape in response to a request to mount a scratch tape.
- You have placed tapes into a pool for the first time, but they have already been used.
- The status of the SAMS:Disk archive index has not been kept synchronized with your tape management control data set. Your tape management system may have indicated that the tape is an available scratch, but SAMS:Disk maintenance jobs to indicate it as such have not yet been run.

SAMS:Disk will reject a tape that is mounted but found to be already in use (it still has valid data on it), and call for a new tape. Additionally, if short tapes are mounted and tapepools are being used, the next tape will be selected from the appropriate pool.

For non-DFP systems (which exist only in the VOS3 M-series environment) there are two different cases:

- If tapepools are being used, the tapes are validated just as in DFP systems.

- When tapepool support is not being used, however, SAMS:Disk does not know the volume serial of the tape until after the operator has mounted it in response to the "mount scratch tape" request. If SAMS:Disk sees that it is already in the archives at this point, data that is possibly very valuable is on the verge of being overwritten. In fact, since the tape label has already been written, the first data set on the tape may be unrecoverable. To prevent any further damage, SAMS:Disk issues appropriate messages for the tape that may need to be recovered, and then shuts down, keeping the remaining data sets on the tape intact.

Tape Status After Abends

The SAMS:Disk archive index is updated immediately after each disk data set has been successfully copied to a tape. With this implementation, every archive or backup tape created by SAMS:Disk is a good tape, even though a system failure or job cancel may have occurred.

Note that if you are using a tape management system, its default action may be the opposite, that is, it may return a tape in use at abend time to scratch status. Consult with your tape management personnel to either change this action for tapes created by SAMS:Disk or take other precautions to ensure that a partial archive or backup tape is not marked as a scratch tape, and therefor possibly written over by some other job.

Using the External Data Manager (EDM) interface of a tape management system with SAMS:Disk is highly recommended. It provides the best method of securing SAMS:Disk tapes, including those being created as a result of an abend.

If the SAMS:Disk tapepool support is used, tapes are usually indicated to the tape management system as being assigned permanently to SAMS:Disk and physically separated form the general scratch pool available to non-SAMS:Disk jobs. Since SAMS:Disk knows that the partial tape was written, it will not be called from the pool until its expiration date has passed. See *"Tapepool Considerations"* on page 43 for more details.

Archive Disk Protection

You may set your security package to assign all users the authority of NONE to all SAMS:Disk archive data sets on disk. This will prevent utilities other than SAMS:Disk from reading, modifying or deleting these archives. SAMS:Disk will take care of its own access to the archives. To determine the data set names of the SAMS:Disk archives, see the discussion under *"Naming the Archives"* on page 59.

Unless you set SAMS:Disk sysparm DISKPROT to a value of N, SAMS:Disk will also password-indicate each archive data set on disk, but without creating any pass-

words for these archive data sets on disk. This password-indication will also prevent utilities other than SAMS:Disk from reading, modifying or deleting these archives. SAMS:Disk will take care of its own access to the archives. This protection is selectable, and would supplement any protection from your security package.

Processing PDSs that Contain Anomalies

To maintain data integrity for partitioned data sets, SAMS:Disk performs extensive validity checking against the VTOC entry, the directory and the member data itself. In practice, several inconsistencies may exist at the same time, or a single error may produce multiple error symptoms. In some of these circumstances it may be impossible to distinguish actual causes from the one or more effects, or to determine a "proper" course of action if an attempt to proceed is to be made.

If anomalies are found that may affect processing, SAMS:Disk will (by default) issue appropriate diagnostic messages and bypass the data set, relying on the assumption that someone will review the messages and correct the data set. However, provisions have also been made to allow processing to continue for certain types of errors, as defined below.

For each specific PDS error that SAMS:Disk detects, a 3-digit code has been assigned. The first digit is used to group similar errors together into a common "class" (which is associated with a particular stage of SAMS:Disk processing), and the last two digits are the specific anomaly code. As each stage of SAMS:Disk processing is completed, the decision to proceed to the next stage is determined by an error threshold associated with each specific anomaly, and another threshold associated with the class as a whole.

The threshold value is a percentage from 000 to 100, which represents the number of items in error compared to the total number of items in the class. Class "0" items are directory blocks, so threshold values refer to the percent of directory blocks that contain errors. Class "1" and "2" items are the members, so threshold values refer to the percent of members that contain errors.

The default threshold of 000 for each anomaly code causes SAMS:Disk to bypass any PDS in which an error is detected. Specifying 100 (or any value up to 999) causes SAMS:Disk to "accept" all errors of that type and continue processing as defined for that error. Threshold percentages between 000 and 100 therefore represent a "degree of error" which you are willing to accept before causing the data set to be bypassed. Every bypassed data set should be examined closely to determine what corrective action is needed.

The first code in each class does not represent a specific type of error itself. Instead, it represents a summary or composite entry for the entire class of errors, for which you can provide a different threshold. For example, you might want to allow processing to continue if a PDS has I/O errors on 5 percent or fewer of its members (threshold 005 for code 201), and with no more than 2 percent of its members diag-

nosed as disconnected aliases (threshold 002 for code 207). If there is no overlap between these two error groups, 7 percent of the members could be in error. A threshold of 007 for summary code 200 would allow processing to continue for such a data set. A threshold of 005 for code 200 would allow your "worst case" for either code, but not for different members in the same data set.

If you set the summary threshold below any of the specific error thresholds, you effectively lower them to the same value. (A special case is that of leaving the summary threshold at 000, which nullifies all thresholds for its class.)

Specifying your Options for PDS Error Handling

For some specific error types, SAMS:Disk provides more than one processing option. You specify both the processing options and the error thresholds in a member of the parmlib data set. This member may be given any name, and is identified to SAMS:Disk by sysparm PDSANMLYmmmmmmmm.

To change the default PDS anomaly options, create a new member with a name of your choice, and copy SAMPPDSA into it. This sample anomaly table contains all of the error codes and default options in the required format. It will look like the following:

```
'*PARTITION DATA SET ANOMALY CODE AND OPTION SPECIFICATIONS '
'*                                                          '
'*ANOMALY  THRES-  PROCESS  ERROR                            '
'*CODE     HOLD    OPTION   DESCRIPTION                      '
'*----------------------------------------------------------'
'000       000              DIRECTORY SUMMARY                '
'001       000             *DIRECTORY I/O ERROR              '
'002       000             *ILLEGAL DIRECTORY FORMAT         '
'003       000              DIRECTORY KEY 8X"FF" MISSING     '
'004       000              DIRECTORY BLOCK KEY SEQUENCE     '
'005       000              DIRECTORY KEY NOT IN BLOCK       '
'006       000              DIRECTORY MEMBER(S) SEQUENCE     '
'007       000              DIRECTORY BLOCK ACTIVE BYTES     '
'100       000              EXTENT VIOLATION SUMMARY         '
'101       000              MEMBER BEYOND EXTENTS            '
'102       000     0        MEMBER BEYOND LSTAR              '
'*                 0/A      .exclude member                  '
'*                 1/A      .attempt to process member       '
'103       000              MEMBER IN DIRECTORY              '
'200       000              MEMBER SUMMARY                   '
'201       000     0        MEMBER I/O ERROR                 '
'*                 0/R      .restore whatever data was saved'
'*                 1/R      .bypass the member               '
'202       000     0        MEMBER NOT FOUND                 '
'*                 0/R      .member restored with EOF only   '
'*                 1/R      .member not restored             '
'203       000              DUPLICATE REAL MEMBER(S)         '
'204       000              NOTE LIST BLOCK, SIZE ERROR      '
'205       000              NOTE LIST UNRESOLVED TTRXs       '
'206       000              MEMBER UNRESOLVED TTRNs          '
'207       000     0        DISCONNECTED ALIAS               '
'*                 0/R      .restore as disconnected         '
'*                 1/R      .restore, but convert to real    '
'*                 2/R      .delete on restore               '
'208       000     0        MEMBER RECORD GT BLKSIZE         '
'*                 0/A,R    .display size of largest record  '
'*                 1/A,R    .display largest size per member'
'209       000              NOTE LIST NOT FOUND              '
'210       000              OVERLAPPING MEMBER DATA          '
'211       000              INCONSISTENT USER TTR COUNT      '
'*                 0/R      .leave user TTR count unchanged  '
'*                 1/R      .adjust user TTR count           '
'*                 2/R      .set user TTR count to zero      '
'212       000              PREMATURE END OF MEMBER (EOE)    '
```

Figure 3-2. PDS Anomaly Table

PDS Anomaly Code Descriptions and Notes

For each anomaly code, the threshold must be raised above 000 if processing for the data set is to continue after encountering the associated error. For anomaly codes 102, 201, 202, 207 and 208, SAMS:Disk provides a choice of processing options as described by the comments beneath each. The /A, /R and /A,R indicate whether the option applies to archive, restore, or both. The digit for the selected option must be placed on the line with the anomaly code and threshold.

Anomalies 001 and 002 will always result in the data set being bypassed, regardless of the threshold value. The threshold value for anomaly 208 is always ignored (forced to a value of 100), since data integrity is maintained in all cases. Its processing option simply gives control over the number of messages that will potentially be issued.

An important consideration for recovery purposes is the possibility for SAMS:Disk to, by default, never backup a PDS because of anomalies. Therefore, any PDS anomalies discovered should be corrected in a timely fashion.

Password protection is in effect only when not overridden by other security systems.

Processing Defined for Each Anomaly

For each anomaly with a threshold above 000, SAMS:Disk will continue processing as defined below.

Table 3-9. PDS Anomaly Codes and Descriptions

Code	Processing Description
000	*Percentage of directory blocks with errors* This code does not represent a specific error type, but allows a threshold to be specified representing an acceptable (to you) percentage of directory blocks that can be found to contain errors, regardless of the type of error, and still allow processing to continue. Specific error types and a threshold for each one are defined below. The processing that will take place for each error that is "accepted" is also defined.
001	*Directory I/O error* Logical processing for the data set is terminated whenever an I/O error occurs processing the directory, regardless of the threshold value.

Code	Processing Description
002	*Illegal directory format* A PDS directory is defined as containing one or more records with a key length of 8 bytes and data length of 256 bytes followed by an end-of-file record. It begins at TTR=0000.01, the first record in the data set, and ends within the first extent of the data set. Logical processing for the data set is terminated whenever the above conditions are not found, regardless of the threshold value.
003	*Directory key of 8X'FF' is missing* The end of the active directory is signified by a directory block with a key length of 8 bytes with all bits on, 8X'FF'. A non-zero threshold allows processing to continue even though this key is not found.
004	*Directory block is out of sequence* PDS member names should be unique and in ascending sequence. The key of each directory block should be the value of the last member name in the block. Therefore, directory block keys should also be unique and in ascending sequence. If a non-zero threshold is specified, a directory block whose key is out of sequence will be skipped.
005	*Directory block key is not the high member name* Each directory block key should be the value of the last member name in the block. If it is not but a non-zero threshold is specified, processing continues but member names greater than the block key are bypassed, effectively deleting them from the copy being taken.
006	*Directory member names are out of sequence* Directory member names should be unique and in ascending sequence. If they are not but the threshold value is non-zero, duplicate and descending member names will be skipped.

Code	Processing Description
007	*Directory block active byte count is wrong* The directory block active byte count is located in the first two bytes of each directory block. Its value is the sum of the lengths of all member entries, plus two for the length of the active byte count field itself. For all active directory blocks, the valid range for this field is 14 to 256. As each entry is processed, a residual byte count is computed by subtracting the length of the entry from the active byte count. Processing of the entries in the block stops when the residual count goes to zero or becomes negative. If all is well, the count will be zero. If it is negative, the active byte count was wrong and processing will be terminated for the data set unless a non-zero threshold has been specified.
100	*Summary of extent violations* The TTR value of each member entry is tested to see that it points within the data set, within the used space, and not within the directory itself. Each error is logged against its specific code below, but all are logged against this summary entry as well. This permits a threshold value to be specified for this code that represents the percent of members in each data set that can have extent violations, regardless of type, before processing for the data set should be terminated.
101	*Member is beyond the extents* If a member's TTRC points outside the data set's allocated space, a non-zero threshold causes the member entry to be ignored (it will not appear in the copy being taken).
102	*Member is beyond the LSTAR address* If a member's TTRC points outside the data set's used space and a non-zero threshold is specified, a 0 in the option field causes the member entry to be ignored (it will not appear in the copy being taken). A 1 causes SAMS:Disk to attempt to process it, for which the results are unpredictable.
103	*Member points within the directory itself* PDS member data should start immediately after the end-of-file record for the directory. Any TTR that points into the directory itself is invalid. (One exception is permitted, which is that alias entries may have a TTR=0000.01; that is, they may point to the very first directory block.) If a non-zero threshold is specified, the invalid entries will be bypassed, effectively deleting them from the copy.

Code	Processing Description
200	*Percentage of members with internal errors* As the data for each real member (and its associated alias entries) is processed, one or more of the errors as described below may be detected. The error threshold for this code represents the total percent of members that can have internal errors of any type before processing for the data set will be bypassed.
201	*Member I/O error* If an I/O error occurs while processing member data and a non-zero threshold is specified, processing for the member will continue on the next track. At restore time, processing will occur in one of two ways. If a 0 is specified as the processing option, whatever member data was read and saved successfully, if any, will be restored. It should be noted that some records (and potentially all of them) may have been lost. If a 1 is specified, no attempt is made to restore the member.
202	*Member not found* Each directory entry specifies a TTR location where the first block of its member data should be found. This error is indicated when an attempt to read the specified block results in a "record not found" condition. (A special case in which this condition is not regarded as an error is described under the topic *"Anomalous Conditions Not Regarded as Errors"* on page 78.) Two options are available when a non-zero threshold permits processing to continue. A 0 causes the member entry to be maintained, but as a null entry (no data, just an end of file). A 1 causes the member entry to be bypassed, effectively deleting it from the copy.
203	*Duplicate real members detected* Real members should have unique TTR values to identify their locations. In this case, two or more have been found to point to the identical area. An examination of the data is required to determine which are correct and which are in error. If a non-zero threshold permits execution to continue, the duplicate entries will be maintained.

Code	Processing Description
204	*Note list size error detected* A user TTRN in the directory entry identifies a note list block at location TTR if the N field has a value not equal to zero. This value also indicates the size of the note list block; that is, the data length is the quantity N times four. An error is detected when the block at that location is read but does not have the proper length. If a non-zero threshold permits processing to continue, the block in question is treated as a standard data block; that is, no attempt will be made to treat it as a note list block and resolve internal TTRXs.
205	*Unresolved note list TTRXs* If a note list block of the proper length is found, it should contain TTRXs pointing internal to the member data itself. SAMS:Disk validates these TTR values such that they can be updated when the member is moved. SAMS:Disk also permits TTR values less than or equal to 0000.01 to remain unchanged. An error is detected when the TTR fails to satisfy the above tests. If a non-zero threshold is specified, these invalid TTRs are left unresolved when the member is moved, which may lead to unpredictable results in the future.
206	*User TTRN can't be resolved* A directory entry for a member may contain up to three user TTRs that point to records within the associated member data. Unlike the member's TTRC, these TTRs must always point to the exact location of a data record. (SAMS:Disk also permits TTR values less than or equal to 0000.01 to remain unchanged.) An error is detected when the TTR fails to satisfy the above tests. If a non-zero threshold is specified, these invalid TTRs are left unresolved when the member is moved, which may lead to unpredictable results in the future.

Code	Processing Description
207	*Disconnected alias detected* An alias entry has a TTRC that points within its associated real member. (For load modules, the TTRC of an alias entry is the same as the real member's, but the entry point addresses may differ.) An error is detected when the TTR value of an alias entry fails to point internal to any real member data. (These are commonly caused by improper specification of alias names when using the linkage editor or JSDCOPY to process a member that has aliases. The "old" alias entries were left unresolved, and therefore point to what probably should be considered "down-level" copies of the original member data.) If a non-zero threshold permits processing to continue, there are three options that may be taken, all of which apply at the time the member is restored. A 0 causes the entry to be maintained as a disconnected alias. A 1 will cause it to be converted to a real member. And a 2 will cause the member to be omitted, effectively deleting it from the new data set.
208	*Member record greater than the blocksize* The F1-DSCB specifies the maximum size of all member records in the PDS. An error is detected when a data block is read whose length exceeds the stated value. SAMS:Disk maintains data integrity by processing the entire data block, regardless of its length. Other applications may, however, truncate these records, which will cause unpredictable results. For the above reasons, SAMS:Disk always continues processing for this error type, regardless of the threshold value. A processing option of 0 causes a warning message to be issued, indicating the blocksize of the largest block for the data set in error. Option 1 will provide this information, plus messages indicating the blocksize for information, plus messages indicating the blocksize for the largest block for each individual member in error.
209	*Note list block not found* A user TTRN in the directory entry identifies a note list block at location TTR if the N field has a value not equal to zero. This error is detected when an attempt to read the block at that location results in a "record not found". If a non-zero threshold is specified, processing will continue but the invalid user TTRN will be left unresolved, which may lead to unpredictable results in the future.

Code	Processing Description
210	*Overlapping members* When processing members in their ascending TTR sequence, the end of file for each member should occur prior to the TTRC for the beginning of any subsequent members. An error is detected when this is not the case. The member that has just been read is considered good. All subsequent members whose beginning TTRs have been overlapped are considered invalid. If a non-zero threshold is specified, processing will continue but the invalid members will not be restored.
211	*Inconsistent user TTR count* More user TTRs are indicated than can be contained within the user data field of this member. When the member is read, all user TTRs outside of the range of the user data fields are ignored. When the member is restored, three processing options are available. If processing option 0 is specified, the directory entry for the member is written back unchanged. If option 1 is specified, the directory entry for the member is restored with the user TTR count adjusted to reflect only the TTR count that can exist in that member's user data field length. If option 2 is specified, the user TTR count is set to zero when the directory entry is restored.
212	*End of extents encountered prior to end of file* The end of every PDS member is indicated by an end of file record. This error is detected when the end of the data set is reached before encountering the end of file. If a non-zero threshold is specified, the member will be processed as if the end of file had been reached instead of the end of the data set; that is, the member is assumed to consist of the data processed up to that point.

Anomalous Conditions Not Regarded as Errors

The following anomalous conditions can be found in PDSs, but their interpretation and processing is common among Hitachi and many vendors, and are therefore not regarded as errors.

1. Member TTRC not found on track

   A member's TTRC should point to the relative location within the data set of the member's first record. Occasionally this TTRC will point incorrectly to the end of a track (to a record that does not exist) instead of pointing to the beginning of the next track where it was actually written.

   This is usually caused by a PDS update program thinking it can start a member at the end of a track but then discovering that the data block is too large to fit in the remaining space on the track. It therefore writes on the next track, but "forgets" to go back and update its starting location, resulting in the TTRC value being technically in error.

   Knowing how this condition arises, read routines will automatically switch to the next track and return the first record, without indicating an error condition.

2. Alias entries with TTR=0000.01

   Although technically invalid for a standard PDS, this TTR value can be left unchanged without any integrity exposure, and is therefore not regarded as an error. (Even when moved to a different device type and location, the TTR value never needs to be resolved -- record one will still be record one. Even if the size of the directory is reduced, its minimum size is at least the one block.)

   Other vendor products (for example, STROBE) are known to create and use these entries intentionally.

Error Messages and Associated Processing for Anomalies

When an anomaly is detected and a message issued, the error will be identified by its associated code and an appended letter. An appended A indicates that the error was detected at archive time, reading the input data set. An R indicates that the error was detected at restore time in the target PDS. An F indicates that the error was in the data contained on the archive medium itself, which means that the errors were allowed previously when the data set was being archived.

When anomalies are detected but your threshold options have allowed the data set to be archived anyway, a "logical error flag" in the index record is set for the data set and "logs" the errors with the archived data set. This permits restore processing to inform you of those facts whenever you restore a copy that contained errors.

Implementing Support for Masstor M860

Masstor Systems Corporation's M860 device is sysgen'd as either a 8487 or a 6485 device. The M860, however, treats the cartridge as either the 8487 or 6485 tape device as it was sysgen'd. Just as native 8487 and 6485 devices require different unit names to prevent requests for conventional tapes to be mounted on a 6485 drive, the M860 also requires this separation.

Providing the unit name of the type of device you want to use is very straightforward when new "tapes" are being created. SAMS:Disk needs to save this distinction, such that the restore, recover, or merge functions can dynamically request the proper type of device. If this is not done, SAMS:Disk will issue requests to mount M860 cartridges on either 8487 or 6485 tape drives!

Distinguishing the M860 Device

SAMS:Disk supports the M860 as a distinct device only through the use of dynamic allocation. If archives are written to the M860 by referencing it on a DD statement in your JCL, it will appear that it is a 8487 or 6485 and will be recorded as such in the ARCHVOLS record (which is subsequently used by restore, recover, and merge processing to allocate what is thought to be the proper type of device).

You inform SAMS:Disk that an M860 device is being used and should be tracked in the ARCHVOLS as requiring special allocation by providing the proper value for sysparms ARC0TYPE, ARCCTYPE, MERPnTYP, and MERCnTYP. The standard values for these sysparms are TAPE, CART, or DISK. For the M860, a value of DYN1 must be specified. This causes the "DYN1 special unit flag bit" to be set in the ARCHVOLS record. Subsequent SAMS:Disk dynamic allocation processing examines this bit and, if on, uses the unit name provided by sysparm ARESUNI1 for auto-restore, and sysparm DYN1UNIT for all other functions. (DYN2 and DYN3 options are also provided, but are explained later.)

The following table indicates which sysparms you use to provide the unit name for each device type value of sysparm ARC0TYPE. Unit names for the auto-restore function are provided by sysparms beginning with "ARES", while all other functions take their unit names from sysparms beginning with "DYN".

Table 3-10. Possible M860 Values for ARC0TYPE

ARC0TYPE	Sysparms for providing your unit names
TAPE	DYNTUNITuuuu ARESUNITuuuu — for your 8487s
CART	DYNCUNITvvvv ARESUNICvvvv — for your 6485s
DYNn	DYNnUNITxxxx ARESUNInxxxx — for special unit 1

Additional Implementation Needs for the M860

SAMS:Disk tapepools should be created that consist solely of M860 cartridges, and all cartridges within each tapepool must physically be within the same M860 unit.

If you have multiple M860 units and a unique unit name or unit address can be used to reference each of them, you should use DYN1 to map allocations to tapepools defined in one unit, DYN2 for the second, and DYN3 for the third. DYN2 and DYN3 work in exactly the same manner as described for DYN1, and together provide the ability to identify and access up to three different groups of devices with special allocation requirements.

M860 Unit 1:

Use DYN1 when archiving, and use archive data set names that map to tapepools in this unit. Sysparm DYN1UNITuuuu provides its unit name/address.

M860 Unit 2:

Use DYN2 when archiving, and use archive data set names that map to tapepools in this unit. Sysparm DYN2UNITvvvv provides its unit name/address.

M860 Unit 3:

Use DYN3 when archiving, and use archive data set names that map to tapepools in this unit. Sysparm DYN3UNITwwww provides its unit name/address.

User-Specified Condition Codes

SAMS:Disk assigns a step completion condition code to every step. The code accompanies a message and indicates the circumstances under which the step finished. In most cases, this SAMS:Disk-generated condition code will be the best value for your installation. However, you can override these generated condition codes if your installation has special requirements. This override allows you to select the code that accompanies a message upon the completion of a step. These user-specified condition codes are optional.

To specify user condition codes, you must create a member in PARMLIB called CCSET. This member is not provided with the system, although a member called SAMPCSET is provided as a sample, and can be copied to create your initial CCSET. User condition codes are then specified by an entry in this member.

When using this option, several technical points must be kept in mind with respect to user condition code processing.

1. Once an N (no-override) is encountered during processing, SAMS:Disk will determine, set and assign condition codes for all the message number entries that follow without regard for the overrides specified in member CCSET.

2. Whenever a message is issued during step processing, the highest condition code will be set without regard to its origin.

3. Before SAMS:Disk returns control to the operating system, a check of the SAMS:Disk-generated return code is made. If the SAMS:Disk return code is odd and the user condition code option is in effect, then the user override condition code will be incremented by one. For example, if the user specified an override condition code of 4 and the SAMS:Disk generated condition code was found to be odd, then the user override condition code of 4 would be incremented to 5. This is needed to produce sorted report listings.

4. No duplicate message number entries will be allowed in member CCSET. If duplicates are detected at table initialization, the program will abend with a user 200.

Each CCSET entry is composed of a message number, a state flag (O=override or N=no-override), and one of five possible condition codes. The message number is the first four positions followed by a blank. The next two positions consist of the state flag and a condition code respectively.

To add, change or delete entries in the CCSET member, use your online editor or other conventional means for updating a PDS member in the following manner:

1. Create a member named CCSET in the parmlib data set by copying and renaming the sample member SAMPCSET.

2. Specify the message display control entry in CCSET. This must be the FIRST entry in CCSET and is required. This entry controls the display of the message which notifies users that the user condition code option is in effect. It is recommended that you try the default first which displays the message in BATCH and TSS. The format for this entry is:

Table 3-11. Format of $FLGXyz

Field	Meaning		
$FLG	$FLG		
X	BLANK		
y	BATCH FLAG	B	display message under BATCH
		BLANK	do not display message
z	TSS FLAG	T	display message under TSS
		BLANK	do not display message

In order to suppress the display of the notify message under BATCH or TSS processing, simply blank out the respective flag. If you wish to

suppress the display of the notify message under BATCH and TSS processing, blank out both flags.

3. Specify the message number, state flag and condition code enclosed by apostrophes in the CCSET member. An example could be:

```
'3179 OE'
```

The format for message number, state code and condition code is:

Table 3-12. Format of MMMMBsc

Field	Meaning
MMMM	message number
B	blank
s	state flag
c	condition code

The valid entries for these are:

Table 3-13. Valid entries for MMMMBsc

Field	Possible Values	
MMMM	any valid four-digit SAMS:Disk message number	
B	must be blank	
s	O	override
	N	no-override
c	G	0, good, successful completion
	I	4, informational message
	R	8, resource error
	E	12, error occurred during SAMS:Disk processing
	C	16, command error, DSCL command error detected

DASD Threshold Manager

Overview

The SAMS:Disk DASD Threshold Manager is a program that can help you maintain an acceptable level of freespace on DASD volumes or within a pool of DASD volumes. This program enhances the usefulness of SAMS:Disk without reducing or altering its functionality.

Most implicit SAMS:Disk storage management tasks scan VTOCS or catalogs to determine what data sets will be archived or moved, based on data set attributes. Data sets are archived or moved with the assumption that this action will achieve desirable storage management objectives.

The Threshold Manager begins with the aim of achieving a stated storage management objective: to maintain a specified percentage of freespace balance across a volume or a pool of volumes. Instead of examining data set attributes, the program examines volume (or volume pool) freespace. If the data on the volume increases beyond a specified threshold, causing the freespace to decrease below the desirable percentage, the program determines what data sets could be archived or moved to achieve the balance objective across the volume or pool.

Based on user-specified criteria, the program then generates explicit DSCL Archive or Move Migrate commands for input into SAMS:Disk. It does not invoke SAMS:Disk to perform the Archives and Moves directly, but acts as a front-end to SAMS:Disk.

The Threshold Manager determines the least amount of data to archive or move in order to achieve the balance. If you are processing a pool of volumes, the program will archive or move the least required amount of data. The remaining data sets will be distributed within the pool. Each volume will finish with an optimum balance of data and freespace.

The Threshold Manager procedure (THRSHMGR) dynamically allocates two sequential data sets for the DSCL Archive and Move commands it generates. These sequential data sets are specified on the //ARCHOUT and //MIGROUT DD cards in the procedure.

These files will become the SYSIN data sets for the DMS procedure. They will have an LRECL of 80 and will be large enough to handle three records for each complete Archive or Move command generated.

The Threshold Manager is driven by keywords and parameters supplied through the execution of the THRSHMGR procedure and the SYSIN DD statement. The keywords and parameters define the scope of the processing and the criteria used to determine the DSCL commands generated.

The Threshold Manager keywords, parameters and subparameters used in the job control statements use a different syntax than standard SAMS:Disk processing. This syntax is as follows:

Threshold Manager Control Statement Syntax

- A line is considered to begin at the first non-blank character.
- The line will be considered a comment if it begins with an asterisk or contains only blanks through column 72.
- A line will be scanned from column 1 through column 72 only.
- After the beginning character, each line is terminated either by a blank character or column 72.
- A line is continued if and only if its end character is a comma.
- A line and all of its continuation lines will be considered a statement. Only a keyword can begin a statement.
- Keywords and parameters can be abbreviated to their smallest unique leading characters.
- Keywords, parameters or values may not contain any blank characters. The only exception to this is when the USEREXIT parameter is present, its null value requests that an JDJDUMMY lookalike be used.
- Any list of parameters or parameter values must be separated by commas and enclosed in parentheses. Parentheses are not required when using a single parameter or value.
- Keywords and parameters must be delimited with an equal sign which must be followed with its appropriate value or list of values.

Table 3-14. Threshold Manager Syntax Error Messages

Error Number	Message
100	’CONTINUATION EXPECTED’
101	’KEYWORD DELIMITER "=" NOT FOUND’
102	’MISSING KEYWORD’
103	’INVALID NUMERIC FIELD’
104	’MISSING VALUE’

Error Number	Message
105	’DUPLICATE POOLNAME’
106	’UNPAIRED PARENTHESIS’
107	’INVALID DSN’
108	’INVALID MEMBER NAME’
109	’DYNAMIC ALLOCATION FAILURE’
110	’INVALID PARAMETER FOR KEYWORD - keyword-’
111	’INVALID DATE’
112	’DSN PARAMETER IS REQUIRED’
113	’MISSING VALUE FOR PARAMETER’
114	’"/" CAN ONLY BE LAST CHAR OF A DSN PATTERN’
115	’DSN NAME EXCEEDS 44 CHARS’
116	’INVALID DSN VALUE’
117	’CONTINUATION NOT ALLOWED’
118	’INVALID KEYWORD’
119	’"YES" OR "NO" EXPECTED’
120	’DUPLICATE OR MUTUALLY EXCLUSIVE KEYWORD’
121	’DSNAME REQUIRED’
122	’MULTIPLE VALUES NOT ALLOWED’
123	’LINE CANNOT TERMINATE WITH "("’
124	’"GLOBAL" CANNOT FOLLOW A "POOLDEF"’
125	’DDNAME STATEMENT DOES NOT EXIST’
126	’DDNAME MUST BE 1 TO 8 CHARS LONG’
127	’DUPLICATE OR CONFLICTING KEYWORDS’
128	’KEYWORD TRUNCATION IS NOT UNIQUE’
129	’INVALID CONTINUATION OF KEYWORD LINE’
130	’POOLNAME MUST BE 1 TO 8 CHARS LONG’

Error Number	Message
131	’THRESHOLD VALUE MUST BE IN THE RANGE 1-99’
132	’IS PRECEDED BY VOLSER DEFINITION’
133	’EXIT NAME MUST BE FROM 1 TO 8 CHAR’
134	’EXIT MODULE -modname- FAILED TO LOAD’
135	’INVALID CHANNEL ADDRESS VALUE’
136	’INVALID DEVICE’
137	’INVALID MOUNT STATUS’
138	’INVALID VOLSER PATTERN’
139	’INVALID SUBPARAMETER FOR PARAMETER -parmname’
140	’EXPDT MUST BE AFTER TODAY’
141	’LAST REFERENCE MUST BE BEFORE TODAY’
142	’NEITHER "MIGROUT" NOR "ARCHOUT" DD IS PRESENT’
143	’MIGRATE=YES BUT "MIGROUT" DD IS NOT PRESENT’
144	’ARCHIVE=YES BUT "ARCHOUT" DD IS NOT PRESENT’

Threshold Manager Control Hierarchy

Below is a summary of the keywords, parameters and subparameter hierarchy, and their default values. This is followed by sample JCL to execute the program. A more complete description of the keywords, parameters and subparameters is provided following the JCL.

GLOBAL=parameter/parameter list
- ARCHIVE=y/n
- EXPDT=+180/date format
- LASTREF=-7/date format
- VSAM=n/y
- THRESHOLD=80/1-99
- RECATALOG=y/n
- DELETE=n/y
- MIGRATE=y/n

USEREXIT=user exit module name
EXCLUDE=DSN=dsn/dsn list/dsn pattern/dsn pattern list
INCLUDE=parameter
DDNAME=ddname/ddname list
or
FILENAME=file name/file name list
MULTIVOL=n/y
POOLDEF=parameter/parameter list
ARCHIVE=y/n
EXPDT=date
LASTREF=date
VSAM=n/y
THRESHOLD=80/1-99
RECATALOG=y/n
DELETE=n/y
MIGRATE=y/n
USEREXIT=user exit module name
NAME=pool name
CHANADDR=channel address/channel address list
DEVICE=device type/device type list
MOUNT=pu/pr/s (mount status - public, private, storage)
VOLSER=volser number/volume pattern/threshold values

JCL - Threshold Manager

The following figure illustrates the JCL required for a successful execution of the Threshold Manager:

```
//S2       EXEC THRSHMGR
//S2.SYSIN DD   *
GLOBAL=(ARCHIVE=,MIGRATE=,VSAM=,EXPDT=,LASTREF=,
RECATALOG=,DELETE=,THRESHOLD=,USEREXIT=)
EXCLUDE=(DSN=a.b.c/
         DSN=d.e.f/)
INCLUDE=DDNAME= OR INCLUDE=FILENAME=
MULTIVOL=
POOLDEF=(threshold=,name=,vol=(,),chanaddr=,device=,mount=,archive=,migrate=,
         recatalog=,delete=,vsam=,expdt=,lastref=,userexit=)
```

Figure 3-3. Threshold Manager JCL

Keyword, Parameter, and Subparameter Definitions

The Threshold Manager procedure uses five keywords. Each control statement must begin with a keyword. Although none of the keywords are required, at least one keyword must be supplied.

Each keyword is followed by a parameter, parameter list or value, as follows:

GLOBAL=

The GLOBAL= keyword is used to specify a series of parameters that set global default values. These default values will be honored unless they are overridden by a different value supplied on the POOLDEF= keyword. The GLOBAL= keyword may be specified only once, and must precede any POOLDEF keywords.

ARCHIVE= The default value of this parameter is NO, causing the program to bypass generation of Archive commands. A value of YES causes the program to generate DSCL Archive commands.

MIGRATE= The default value of this parameter is YES, causing the program to generate DSCL MOVE commands. Specify NO to bypass generating MOVE commands.

EXPDT= Specify a retention period or date that will be applied to the generated Archive commands. If this parameter is not specified, a default retention period value of +180 will be used. @COL2.7 = Valid retention period format is "+nnnn", indicating today plus nnnn days. The date calculated from the retention period cannot exceed the year 2155.

Valid date formats are:

ccYYDDD	
ccYY.DDD	
ccYY/MM/DD	cc= Century (optional)
SYYDDD	S= Special Julian Dates
SYY.DDD	
SYYYYDDD	
SYYYY.DDD	

LASTREF= Specify a time period or a date to cause data sets to become candidates for Archive that have not been referenced during this time or since this date. To specify a time period, use a negative number to indicate the number of days in the past.

If this parameter is not specified, the default time period value of -7 is used, indicating the data set has not been referenced for seven days.

If you specify a date, it must be in the past. Valid date formats are:

ccYYDDD	
ccYY.DDD	
ccYY/MM/DD	cc= Century (optional)

RECATALOG= The default value of YES causes archived data sets to be recataloged to the SAMS:Disk pseudo-volume. If you specify a value of NO, no recatalog action is taken at archive time. This parameter is mutually exclusive with DELETE. For related information, please turn to the *DISP=* parameter description on page 191 of the *User's Guide*.

DELETE= The default value of NO prevents any catalog action or scratch from occurring during archive time. If you specify a value of YES, archived data sets will be scratched and uncataloged. This parameter is mutually exclusive with RECATALOG. For related information, please turn to the *DISP=* parameter description on page 191 of the *User's Guide*.

THRESHOLD= The default value of this parameter is 80, which indicates that the desired freespace threshold is 80 percent (that is, 80 percent of the volume's tracks are allocated). You may specify any value from 1 to 99.

VSAM= The default value of this parameter is NO, which excludes DMF/EF Type-2 VSAM clusters from being candidates for Archive or Move processing. If you specify a value of YES, DMF/EF Type-2 VSAM clusters may be considered candidates for Archive.

USEREXIT= Specify the name of a user exit module that exists and can be programmatically loaded. The default value is null and a routine equivalent to JDJDUMMY will be linked as the user exit.

EXCLUDE=

The EXCLUDE= keyword is used to exempt specified data sets from processing.

The EXCLUDE= keyword must precede any POOLDEF= keywords.

DSN= The DSN= parameter is the only valid parameter for the EXCLUDE= keyword. It may not be truncated. Specify for this parameter a data set name or pattern or a list of data set names or patterns that are to be exempted from processing. Some examples of valid data set patterns are:

prefix/ exclude all data sets that begin with "prefix"
*.prod/ exclude production data sets
!abcd! exclude data sets that end with "abcd".

You may supply one DSN= parameter on an EXCLUDE= keyword, or a list of DSN= parameters.

INCLUDE=

The INCLUDE= keyword is used to insert a sequential file or DD statement into the SYSIN. The file to be inserted will be substituted for the INCLUDE= statement, and must have a logical record length of 80. The include file's syntax must obey all syntax rules, as it will be interpreted in exactly the same manner as the instream control statements. Any number of INCLUDE= statements may be used or nested.

DDNAME= This parameter is used with the INCLUDE= keyword. Specify the DDNAME of the DD statement to be inserted into the SYSIN.

FILENAME= This parameter is used with the INCLUDE= keyword. Specify the data set name for a sequential file, or the PDS(member) name of the file to be inserted into the SYSIN.

MULTIVOL=

The default value of this keyword is NO, which excludes multivolume data sets from being considered as candidates for Archive processing.

If this keyword is specified with a value of YES, only those multivolume data sets with all of their volumes defined in the specified pool will be considered as candidates for Archive processing. If a multivolume data set is contained in part on a volume not defined within the specified pool, the data set will not be considered a candidate.

POOLDEF=

The POOLDEF= keyword is used to define a pool of volumes, limit the Threshold Manager's processing to volumes within the pool (or pools if multiple POOLDEF= keywords are supplied), and to indicate the processing criteria to use in selecting data sets on volumes in the pool to Archive or Move. By specifying a VOLSER= parameter, you may also define subpools within a pool of volumes and specify a THRESHOLD= subparameter to set a different threshold limit for volumes in the subpool. If this keyword is omitted, all volumes defined in the system's UCB table are candidates for processing.

The POOLDEF=keyword must be specified following any GLOBAL= or MULTIVOL=keywords. It can be repeated as necessary to define multiple pools.

Volumes will be selected and assigned to pools (and subpools, if a VOLSER= parameter is specified) in the order of definition. Once an online volume is assigned, it will be flagged so that it will not be reselected.

The 10 parameters defined above for the GLOBAL= keyword may be specified on the POOLDEF= keyword. If specified, they will override the global parameters for volumes in this pool. In addition to the 10 global parameters, six other parameters may be specified for the POOLDEF= keyword.

NAME= Specify a 1- to 8-character name to be assigned to the defined pool. If not supplied, a unique default name will be assigned to the pool.

CHANADDR= This parameter restricts the volumes that can be assigned to this pool by supplying valid volume channel addresses. If this parameter is not supplied, then all channel addresses are candidates for selection.

Specify one or a list of channel addresses, as defined in the UCB table. Each entry must be four characters in length. Each character must be a valid hexadecimal character (0-F) or the wildcard character "?".

DEVICE= This parameter restricts the volumes that can be assigned to this pool by supplying valid device types. If this parameter is not supplied, all device types are candidates for selection.

Specify one or a list of device types. You may also specify the devices with the following character device codes:

Table 3-15. Device Type Character Code Values

Device Type	Code
8595	B
8559	D
8598	E
6587	F

Note: These character device codes may be used only in specifying this parameter. They are not applicable elsewhere in SAMS:Disk processing.

MOUNT= This parameter restricts the volumes that can be assigned to this pool by supplying valid mount status types. If this parameter is not supplied, all mount status types are candidates for selection.

Supply PUBLIC, PRIVATE, STORAGE in any combination for mount status selection.

VOLSER= Supply a 6-character volume serial or pattern, or combinations of both, to specify a subpool of volumes within this pool definition. Pattern characters are the wildcard "?" and the pad to the right "/". If less than six characters are specified, the pad is assumed.

THRESHOLD= You may specify one THRESHOLD= subparameter on a VOLSER= parameter, provided it follows the volume serial name or pattern, to set a different threshold for volumes in the subpool.

Implementation Considerations

Although the EXCLUDE= keyword can specify data sets to be excluded from processing, you may also wish to exempt certain volumes from processing by the Threshold Manager. Assign these volumes to a pool, then specify ARCHIVE=NO and MIGRATE=NO. This in effect prevents volumes from being selected by a subsequent pool definition.

When a pool is defined with ARCHIVE=NO and MIGRATE=YES, the DSCL Move commands will be generated with the objective of distributing the data across the volumes in the same proportion as the relative thresholds. This is the default setting.

When a pool is defined with ARCHIVE=YES and MIGRATE=N0, data sets are selected as archive candidates based only on the threshold limit defined for the volume on which they reside. If MULTIVOL=YES, then the decision to archive is based on the threshold limit of each containing volume. If archive is required to bring any volume to its threshold, the multivolume data set will be selected, regardless of whether or not archive is required for the other containing volumes.

When a pool is defined with ARCHIVE=YES and MIGRATE=YES, the Threshold Manager processes volumes in the pool in two phases. During the first phase, candidates for archiving are selected. The threshold limit used is the average threshold of the pool (the sum of the individual volume thresholds, divided by the number of volumes in the pool). Archive candidates are selected from any of the volumes to achieve the pool's average threshold limit. If the volume pool is already at its average threshold limit, no archive commands are generated.

The second phase of processing begins once sufficient archive commands have been generated to bring the pool down to or below its threshold. Using the individual volume threshold values, data sets are selected for migrating, such that each volume will end up at or below its individual threshold.

Threshold Manager User Exit

The Threshold Manager program calls a user exit after a data set or VSAM cluster is determined to be a candidate for archive or move processing. A logical 32-bit preference weight has already been assigned as an archive preference weight. This number is the logical inverse of the right justified 3-byte last reference date. Candidates will be placed on a list in ascending order of this preference weight.

At this point the user exit can make the following decisions.

1. Reject the candidate for archiving.
2. Reject the candidate for move.
3. Reject the candidate for both archiving and moving.
4. Change the archive weight, thereby changing the placement of the candidate on the archive list. (Archive candidates are used in the order in which they appear on the candidate list until the desired threshold is attained or the list is exhausted.)

A user exit may be implemented for all processing by specifying the unique member name in the USEREXIT= parameter of the GLOBAL= keyword. At the pool level, this value may be overridden by specifying the unique member name in the USEREXIT= specify and call any user exit load module by supplying its parameter of the POOLDEF= keyword.

Any number of pools may use the same user exit module, but different pools may used different exits. If no user exit module is specified for a pool, it will use the equivalent of an JDJDUMMY.

The exit module will be made available to the precessor by a standard load. This means it must be located in the library specified by the JOBLIB or STEPLIB DD statement.

A skeleton user exit module is provided by the name THRESEXT and is included in the installation library. It can be compiled by any assembler compiler and needs no special macros.

This skeleton contains the layout for a candidate record and provides addressability. Your decision can be based on attributes of the data set name or cluster name that is provided in the record. After you have made your decision, you need only to branch to the label in the exit program that affects your decision.

Chapter 4. Sysparms

General Information

Each installation using SAMS:Disk to manage data storage has unique needs, requiring a variety of techniques for implementing SAMS:Disk to provide compatibility with each environment. To meet these various needs, SAMS:Disk was developed to use system parameters (sysparms) to control various aspects of each function. The default value of each sysparm may be altered by users to meet the operating requirements of each installation. Most system parameters can also be specified temporarily, through overriding dd statements, to accommodate any special circumstances of a particular job run.

Each function in SAMS:Disk has logic to access a sysparm when it is necessary to determine the value in effect. Once the value has been retrieved, program logic will invoke the code to perform the function according to the sysparm value specified.

SAMS:Disk assigns a default value to every system parameter and will execute according to this default value unless a different value is assigned through an entry in the parmlib data set member SYSPARMS or through an overriding dd statement.

The SAMS:Disk default value of a sysparm is assigned, based on the “typical” installation needs. In many cases, the default value will be the best value for your installation and no adjustments are required. Only if the default value does not meet your installation’s needs will you need to make any changes.

To change a sysparm to a value other than its default value, first create a member in the parmlib data set called SYSPARMS. This member is not provided with the system. However, a member called SAMPARMS is provided as a sample, and can be copied in to create your initial SYSPARMS member. System parameters are then specified in the SYSPARMS member, one parameter per line. If more than one entry is entered on a line, all but the first will be treated as comments.

Each system parameter is composed of a parameter name and a parameter value. The name is the first eight characters and the value is appended immediately after the name. All parameters have unique names; the length and type of data required in the value differ. The default value and the acceptable user-specified values for each sysparm are documented later in this section under each sysparm name.

To add, change or delete entries in the SYSPARMS member, use any online editor or other conventional means for updating a member of a partitioned data set.

System Parameter Names Reserved for Users

Occasionally you may need to create your own system parameters, perhaps in conjunction with a user exit or for user-supplied applications using SAMS:Disk modules. (See the *Modifying SAMS:Disk* section beginning on page 307.) In order to ensure that sysparms you create will not conflict with SAMS:Disk-supplied sysparms in a future release, specify sysparms you create with a name beginning with a dollar sign ($). By definition, all sysparm names beginning with a $ are created and specified by the user or installation.

Overriding Sysparms Instream

To provide maximum flexibility, SAMS:Disk also permits the user to supply an input stream of overriding system parameters through the //SYSPARMS dd statement. Sysparms thus supplied will either supplement those specified in your SYSPARMS member of parmlib or override them if already present.

The dd statement must point to a sequential file with DCB attributes of LRECL=80 and RECFM=F or FB. It may be a dd * type input stream. Sysparms start in column 1 of the record image, as shown in the example below:

```
//SYSPARMS  DD  *
* COMMENTS HAVE ASTERISK IN COLUMN ONE.
ADPCTPDS025
FLYCOUNT0
PRIEXMODMYEXIT                    ADD A USER EXIT
'DSDISPEX '                       BLANK OUT USER EXIT
/*
```

Figure 4-1. JCL to Override SYSPARMS

The capability to override sysparms through an input stream is enabled by specifying sysparm SYSPARMO with a value of Y or S in the SYSPARMS member of parmlib. (See *SYSPARMO* description on page 172 for details.) The default value of N disables this feature.

Note that the sysparm values specified in the input stream are temporary overrides. They do not update the contents of the SYSPARMS member of the parmlib data set. To protect against unauthorized use of restricted functions or operations, certain sysparms may not be overridden by this technique.

A cross-reference matrix of all sysparms and a more detailed discussion of each, including the default value, is provided in the remainder of this section.

System Parameters

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
ADPCTOTH			•	•		•				•							•			
ADPCTPDS			•	•		•				•							•			
ADTRACKS			•	•		•				•							•			
ALLOCPRI	•	•													•	•	•			
ALLOEXIT			•	•		•				•										
ALLOVBLK			•	•		•				•							•			
ALOCATEX			•	•		•				•						•	•			
ALOPOSEX			•	•						•						•	•			
ALTTRKAS			•	•	•					•							•			
ARBACKUP			•																•	
ARCATOPT		•																		
ARCBLKSI		•																		
ARCCNAME		•			•															
ARCCTYPE		•			•															
ARCDSKBZ		•																		
ARCDSNEX		•			•															
ARCDSORG		•																		
ARCEMPTY		•																		
ARCEODEX		•			•															
ARCFDEFR		•																		
ARCHIVEX		•																		
ARCHPACK		•	•	•		•		•	•	•										

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
ARCHSORT		•			•															
ARCMODEL																				
ARCMULTI		•																		
ARCRETPD		•																	•	
ARCSEPC0		•																		
ARCTNAME		•			•			•	•											
ARCVOLID		•																		
ARC0NAME		•			•															
ARC0TYPE		•			•															
ARDDNEXC			•							•										
ARDIAGNM			•							•										
ARDSNPOL			•							•										
ARESCRDT			•							•										
ARESPREX			•							•										
ARESUNIC			•							•										
ARESUNIT			•							•										
ARESUNIn			•							•										
ARESTENQ			•							•										
ARJOBEXC			•							•										
ARPOOLEX			•							•										
ARSECURE			•							•								•		
ARTAPEOK			•							•										
ARTASKNM			•							•										
ARVOLPOL			•							•										

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
CARTFEET		•							•						•					
CARTPRCT		•							•						•					
CATBKDEL				•		•														
CATBKNAM				•		•														
CATBKSPC				•		•														
CATBKUNT				•		•														
CATLOCWA																				
CATPURGE		•																		
CCINITEX																				
CNVATCYL			•	•		•				•										
DARCHIEX		•																	•	
DARCKEEP		•																	•	
DASDPMAX			•	•						•										
DASDVMAX			•	•		•				•										
DATECUTO	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DBDSNCFD																				•
DBDSNINX																				•
DCAVGCMP		•																		
DCCMPEX0		•			•															
DCCMPEX1		•																		
DCCMPEX2		•																		
DCCMPEX3		•																		
DCCMPEX4		•																		
DCCMPEX5		•																		

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
DCCMPEX6		•																		
DCCMPEX7		•																		
DCCMPEX8		•																		
DCCMPEX9		•																		
DCCMPEXA		•																		
DCCMPEXB		•																		
DCCMPEXC		•																		
DCCMPEXD		•																		
DCCMPEXE		•																		
DCCMPEXF		•																		
DCCOMPTC		•			•															
DCDATACP		•		•	•	•														
DCDCPEX0			•	•	•	•				•										
DCDCPEX1			•	•		•				•										
DCDCPEX2			•	•		•				•										
DCDCPEX3			•	•		•				•										
DCDCPEX4			•	•		•				•										
DCDCPEX5			•	•		•				•										
DCDCPEX6			•	•		•				•										
DCDCPEX7			•	•		•				•										
DCDCPEX8			•	•		•				•										
DCDCPEX9			•	•		•				•										
DCDCPEXA			•	•		•				•										
DCDCPEXB			•	•		•				•										

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
DCDCPEXC			•	•		•				•										
DCDCPEXD			•	•		•				•										
DCDCPEXE			•	•		•				•										
DCDCPEXF			•	•		•				•										
DCDSNDEX		•																		
DCEXCTBL		•			•															
DCINCTBL		•			•															
DCRTSTAT		•																		
DEFARCEX																				
DELETEOK		•																		
DERASEEX		•	•							•									•	
DFLTPOOL			•	•		•				•										
DIAGALOC			•	•												•	•			
DIAGAUTH	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DIAGEXCP		•	•	•		•				•							•			
DIAGVSRL														•						
DINXUFEX		•	•	•	•	•				•										
DISKPROT		•			•				•											
DLVOLMSG	•																			
DRESARCH			•							•										
DRESKEEP			•							•									•	
DRESTOEX			•							•									•	
DSBALTRT																				•
DSBCATSZ																				•

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
DSBSELVS																				•
DSBTRKSZ																				•
DSBUNITS																				•
DSBUSREX																				•
DSBVOLCT																				•
DSCBCVEX			•	•		•				•						•	•			
DSCBJBNM	•	•	•							•										
DSCBLMOD	•																			
DSCBLUSD	•																•			
DSCBOPCD	•																			
DSCBSVMD	•		•	•						•						•	•			
DSCBUSRD																				•
DSCLMSGS	•	•			•									•			•			
DSCLOWRC		•			•									•			•			
DSCLSCEX	•	•	•		•					•				•						
DSDISPEX		•																		
DSNDELEX								•												
DSNDLPEX								•												
DSNDUPVL			•	•				•		•			•							
DSNSELRE	•	•			•									•			•			•
DSSMSGDD																		•		
DSUTILCF	•																			
DSUTILSQ	•																			
DYNCUNIT		•	•	•		•			•	•										

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
DYNEXPDT		•			•				•											
DYNTUNIT		•	•	•		•			•	•										
DYNUKEEP		•	•	•	•	•			•	•										
DYNVREQD		•							•											
DYNnUNIT		•	•	•		•			•	•										
ENQADDTL		•	•	•	•	•				•				•	•	•	•			
ENQDSSIM																•				
ENQGDGBY		•	•	•	•	•				•								•		
ENQMSGES		•	•	•						•				•	•	•	•			
ENQSTPOK	•	•	•	•	•	•				•				•	•	•	•		•	
ENQVOLWT		•	•	•		•			•	•	•									
ENQWAITD	•	•	•	•	•	•				•				•	•	•	•		•	
EXPARSOP		•																		
EXPASCOP		•																		
EXPDTUSE		•																		
FASTCOMP																•				
FILESCNT													•							
FILESPAC		•	•	•	•			•	•	•	•	•	•		•			•	•	•
FILEUNIT		•	•	•	•			•	•	•	•	•	•		•			•	•	•
FILOGNAM		•	•	•	•			•	•	•	•	•	•		•			•	•	•
FLYCOUNT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•
FMSSAFEX			•	•						•										
FMSSPREX			•	•						•										
FORCPOOL		•						•	•			•								

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
GDGCATEX			•	•						•						•	•			
GDGDSNCT															•					
HONORTTR			•	•		•				•							•			
IDRCUSED		•			•				•											
IGNLSTAR		•															•			
IOERRLIM					•															
IOMAXREC		•	•	•	•	•				•										
IOTRACKS		•	•	•		•				•							•			
ISAMRECO		•															•			
IXCTLGEX																				
IXMCLEAN								•					•							
IXMREVEX								•												
IXMVOLON								•	•											
IXUSRNOT								•												
LISTDMEX																			•	
LISTDVEX							•												•	
LISTREEX																			•	
LISTSORT			•																	
LISTVTOC				•																
MERCnNAM									•											
MERCnTYP									•											
MERDSNEX									•											
MERFASTS									•											
MERPnNAM									•											

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
MERPnTYP									•											
MERREPLY									•											
MERVOLEX									•											
MIGBYPAS															•					
MIGCATLG															•					
MIGCREDT															•					
MIGCTGDG															•					
MIGDISEX															•					
MIGDSMAX															•					
MIGDSORG															•					
MIGEXPDT															•					
MIGFXPDT															•					
MIGGDGEX															•					
MIGMODEL															•					
MIGNOEXP															•					
MIGNXPDT															•					
MIGPSCOP															•					
MIGPSDEN															•					
MIGREXIT															•					
MIGRSORT															•					
MIGYRCHG															•					
NOBLKMSG																	•			
OFFLDASD			•							•										
ONCCFAIL		•															•			

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
PASSNEWN			•							•							•			
PASSWORD	•	•	•	•	•	•				•				•	•	•	•		•	
PDSANMLY		•	•	•		•				•										
PDSENQSH																•				
PDSEXSIM																•				
PDSMAXPR																•				
PDSMAXSE																•				
PDSMINDB																•				
PDSMINPR																•				
PDSMINSE																•				
PDSRRMAX																	•			
PDSSETBS																•				
POINTABS			•	•		•			•	•										
PREALLOC			•	•		•				•										
PRIALLOC			•	•						•						•	•			
PRTSORTF	•																			
PSUDEVTP		•																		
REBLIMIT																	•			
REBLKBIT			•	•						•							•			
REBYPASS																				
RECATPSU		•																		
RECATVOL		•	•	•		•		•		•										
RECCHCAT				•		•														
RECPRIEX				•																

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
REDEVDEF		•	•	•		•				•										
RESAFTEX			•	•		•				•										
RESCHCAT			•							•										
RESCOPYT			•	•		•				•										
RESCRCAT			•	•						•										
RESIXDLB			•	•		•		•	•	•										
RESIXRPD			•	•		•		•	•	•										
RESPRIEX			•	•		•				•										
RESRETPD			•	•		•				•										
RESTCTLG			•	•		•				•										
RETAFTEX																				
RETDSNCD																				
RETDSNCL																				
RETDSNDF																				
RETDSNLU																				
RETEXCLD			•	•		•				•										
RETEXCMD			•	•		•				•										
RETGDGEX																				
RETGDGNM																				
RETMULTI																				
RETNODSP																				
RETNOMIG															•					
RETPREFT																				
RETPRIEX																				

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
RETRETPD					•															
RLSEAFEX														•						
RLSEDIAG														•						
RLSEMAXS														•						
RLSEMINS														•						
RLSESECR														•						
RLSESYS1														•						
RLSEUNMV														•						
RPTCLSEL																				
RPTDSBEX	•																			
RPTDSNEX	•																			
RPTDSUEX	•																			
RPTLINES	•															•				
RPTMVDEX	•																			
RPTNMTSZ	•																			
RSCHGBIT			•	•						•										
RSUPPRES								•												
SAMSYSNM			•							•										
SCRASYS1		•	•	•		•				•					•	•	•		•	
SCRTCHEX		•	•	•		•				•					•	•	•		•	
SECARVOL		•	•	•	•	•	•	•	•	•								•	•	
SECFRVOL			•	•		•				•								•		•
SECURAEX	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SECURCMD	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
SECURDRS			•							•										
SECURFIL		•	•	•	•	•	•	•	•	•	•	•	•		•			•	•	
SECURLIM	•	•	•	•	•	•	•	•	•	•	•	•	•		•			•	•	
SECURLOG	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
SECURPEX	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SECURRPT	•						•											•	•	
SECURVOL	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	
SECUSUPP	•	•	•	•	•	•				•				•	•	•	•		•	
SELECTRE	•	•			•									•			•			•
SHRNKFDT		•	•	•	•	•				•										
SHRNKSYS		•	•	•						•										
SMFCDATD	•																			
SMFCTIMD	•																			
SMFDFLAG	•																			
SMFDSNMD	•																			
SMFJDATD	•																			
SMFJTIMD	•																			
SMFTYP14	•																			
SMFTYP15	•																			
SMFVLSRD	•																			
SORTPADD	•																			
SPACECEX			•	•		•				•							•			
SPACEPRI		•							•											
SPACESEC		•							•											

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
SPFAUNIT																				
SPFDSNAM	•																			
SPFENQQN	•																			
SPFENQTY	•																			
SPFENQWT		•	•	•		•				•										
SPFHDGEX	•																			
SPFHILVN																				
SPFORDEX																				
SPFORSEX																				
SPFORSPC																				
SPFORSPE																				
SPFRPTDT																				
SPFSYSIN																				
SPFUSRID																				
SVCNODMS		•	•	•		•				•	•			•	•	•	•		•	•
SYSOUTEX	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SYSPARMO	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SYSPARMS	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TAOPPOEX		•			•												•			
TAOPPREX		•			•												•			
TAPCTLEX								•	•		•	•								
TAPEDLEX								•	•											
TAPEFEET		•							•											
TAPEFSCR		•			•				•											

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
TAPEPOOL		•			•			•	•										•	
TAPEPROT		•			•				•											
TAPEPRTR		•							•											
TAPEVVER		•			•				•											
TAPMFEET															•					
TERMCLER																			•	
TMSCTLEX								•	•			•								
TPOOLCHG																				
TPOOLSEQ		•						•	•											
TRKOVCHG																	•			
TSODACAT																			•	
TSODARES																			•	
TSODASCR																			•	
TSOTULMT																			•	
TSOTUNIT																			•	
TSOUSRID																			•	
TSOVOLOF																			•	
TTRULMOV																	•			
UCBALLOC	•	•	•	•		•			•	•	•			•	•	•	•		•	•
UCC6CPDS	•	•														•	•			
UNCATARC								•	•											
UNCATDEL		•			•		•	•	•											
UNCATFDR								•	•											
UNCATPSU								•	•											

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
UNLOADEX													•							
UNMOVEAR		•	•	•		•				•										
UNMOVEVC																	•			
USERSENQ		•	•	•	•	•				•				•	•	•	•			
USERVENQ					•															
USRCDLEN																				•
USRCODEX																				•
VCBYPASS																	•			
VCCHGBIT																	•			
VCCOPYEX																	•			
VCDMIGEX																	•			
VCUDSORG																	•			
VOLSELRE	•	•			•									•			•			•
VSACCESS		•																		
VSACESEX		•																		
VSAIXDEF			•	•		•				•										
VSALLOEX			•	•		•				•										
VSALOSHR		•	•	•		•				•										
VSAMSUPP		•																		
VSAPPEND			•	•		•				•										
VSARCAIX		•																		
VSARCFMT		•	•	•		•				•										
VSATTREX			•	•		•				•										
VSATTRIB			•	•		•				•										

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
VSBIXCAT			•	•		•				•										
VSBIXPSW			•	•		•				•										
VSBLDINX			•	•		•				•										
VSCATMAX																				
VSCATPTN																				
VSCIACAT	•																			
VSCIADET	•																			
VSCOMPNM	•																			
VSCRIMAX																				
VSDATEFT			•	•		•				•										
VSDATSUF			•	•		•				•							•			
VSDEFCAT			•	•		•				•										
VSDSPACE	•	•															•			
VSIDCUTP			•	•		•				•										
VSIDCUTV			•	•		•				•										
VSINXSUF			•	•		•				•										
VSMAFTEX	•																			
VSMPRIEX	•																			
VSMPURGE		•	•	•		•				•										
VSMSGEMP		•																		
VSMSGTOT		•																		
VSMSGWRN		•																		
VSMSPWEX	•	•	•	•		•				•										
VSMSTATS																				

Sysparms	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	XCOPY	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING
VSNEWNEX			•	•		•				•										
VSNOERAS			•	•		•				•										
VSNOSCRO			•	•		•				•										
VSONLINE																				
VSPREDEF			•	•		•				•										
VSRESCLD			•	•		•				•										
VSSEQCNT			•	•		•				•										
VSSEQERR		•																		
VSSETUSE			•	•		•				•										
VSSPEEDO			•	•		•				•										
VSSPUSED			•	•		•				•										
VSSTUMPL	•	•	•	•		•				•										
VSSYSVER		•																		
VSUSEBLK																				
VSUSEMOD																				
VSVERIFY		•												•						
VTOCREAD	•					•								•	•				•	•
WTORESRL																•				

Sysparm Definitions

To place in effect a value other than the default value for any of the following system parameters, create a one-line entry in member SYSPARMS of the parmlib data set, enter the name of the sysparm and append the appropriate value.

ADPCTOTHnnn

Specify a numeric value from 000 to 100 to represent the percent increase to be added to the SAMS:Disk-computed space value when allocating a non-PDS data set to a different device type than it was archived from. This percentage value is added after the SAMS:Disk-computed value, allowing for device type changes and any other command parameters that apply to space conversion. The default value is 000.

ADPCTPDSnnn

Specify a numeric value from 000 to 100 to represent the percent increase to be added to the SAMS:Disk-computed space value when allocating a PDS data set to a different device type than it was archived from. This percentage value is added after the SAMS:Disk-computed value, allowing for device type changes and any other command parameters that apply to space conversion. The default value is 000.

ADTRACKSnnnn

Specify a numeric value from 0000 to 9999 to represent the number of tracks to be added to the SAMS:Disk-computed space value when allocating both VSAM and non-VSAM data sets to a different device type than they were archived from. For a VSAM KSDS, the tracks will be added to both the data and index components. The default value is 0000.

ALLOCPRIy

When a data set is archived (or backed up), a “space allocated” value is saved in the DSNINDEX record and can subsequently be displayed. This sysparm indicates whether the size of the first extent (primary allocation value) or the sum of all extents (total allocation) is to be saved. The default value for this sysparm is Y (save the primary allocation). A value of N causes the total allocation to be saved.

Several of the SAMS:Disk reports have both the PRIM field (first extent value) and an ALLOC field (total allocation value). Setting this sysparm to N will cause the PRIM field to be equivalent to the ALLOC field, which is probably not very useful. Therefore it is recommended that a value of N be used only for backup or archive processing.

ALLOEXITmmmmmmmm

Specifying this sysparm causes SAMS:Disk to call a user exit. The module named by “mmmmmmmm” is given control at data set allocation time during restore or recover processing. The format-1 DSCB of the data set to be allocated is passed to the module to allow the CREDT, EXPDT, last used date, last MOD date, or open count fields to be reset. Turn to the user exit description for *ALLOEXIT* on page 202 for more information.

ALLOVBLKn

Specify this sysparm with a value of Y to allow data sets with no track overflow and a blocksize larger than the track capacity to be allocated on the volume. The default is N, which causes SAMS:Disk to not allocate the data sets.

ALOCATEXmmmmmmmm

Specify this sysparm with the module name to be invoked for the ALOCATEX user exit. Turn to the user exit description for *ALOCATEX* on page 202 for more information

ALOPOSEXmmmmmmmm

Specify this sysparm with the module name to be invoked for the ALOPOSEX user exit. Turn to the user exit description for *ALOPOSEX* on page 203 for more information.

ALTTRKASy

This sysparm controls the assignment of alternate tracks if an error is encountered during a write to disk operation. The default value for this sysparm is Y, which allows alternate tracks to be assigned. Specify a value of N to prevent assignment of alternate tracks.

ARBACKUPy

This sysparm allows you to determine which DSNINDEX records may be candidates for autorestore. This sysparm may be useful in 2 situations:

1. If you use the MFILES DD statement and considerations regarding order of concatenation is important

2. Whether backup and archive copies are kept in separate files data sets

There are 3 possible values for this sysparm:

Table 4-1. Possible Values for ARBACKUP

Value	Description
Y	This default value allows the first DSNINDEX record found to be used. Users who ensure the latest copy of a data set will be found first in the MFILES concatenation will normally use this setting. Users who use the DSCL DELETE DISP=RECAT command may also see benefit in this setting.
N	Will only allow archive copies to be considered, and will ignore or skip any backup DSNINDEX records as MFILES are searched.
1	Will scan for the first DSNINDEX record found, but will insist that that first record ALSO be an archive copy. If it is not, the restore will fail. This ensures that only the latest archive copy will be used when MFILES are expected to have archive copies found before any backups. This might be the case in shops emulating DFHSM or similar processing.

Note: This sysparm will add a TIMEDATE= parameter to the generated autorestore command, and this TIMEDATE will be used for Immediate or Deferred requests. In previous releases of SAMS:Disk, DISPOSE would use the first available DSNINDEX at the time the DISPOSE job executed.

ARCATOPTu

The default value of this sysparm is U, which causes catalog action in batch explicit archive (not retention control or VSAM implicit processing) to uncatalog the data set. Specify a value of R to recatalog to the pseudo-volume serial ARCIVE. Specify a value of N to use no-catalog action. Any of these options may be overridden by the RECATALOG, UNCATALOG or NOCATALOG parameters on the ARCHIVE command.

ARCBLKSIn

The default value of this sysparm is N, which causes SAMS:Disk to bypass processing for data sets with zero blocksize. Specify a value of Y to allow data sets with zero blocksize to be archived. They will be processed as physical sequential data

sets. For data sets with no extents (model DSCBs), sysparm ARCMODEL will take precedence, even when the blocksize is zero.

ARCCNAMEnnn

If VOS3 dynamic allocation is used to allocate the //ARCHIVEC dd statement (for the duplicate copy being written to the archives), this sysparm provides the data set name to be used. The nnn value is the 1- to 22-character base name, the complete name or the tape GDG index, depending on installation JCL and other sysparm options. The default value is DMS.ARCHCOPY. See *"Archive/Backup Considerations"* on page 55 for more information on the generation of this data set name.

ARCCTYPEtape

If the //ARCHIVEC dd statement is not provided in the JCL, this sysparm indicates the type of device to be dynamically allocated. It must specify one of the following: TAPE, 6485, DISK, DYN1, DYN2, DYN3 or NULL. TAPE is the default. (This feature is for VOS3 users only.)

ARCDSKBZbbbbb

SAMS:Disk assigns an optimal blocksize to an archive data set being written to disk, based upon the disk device type. To override the computed value, specify the desired blocksize for the bbbbb value. The default of 00000 indicates that the computed value is to be used.

ARCDSNEXmmmmmmmm

This sysparm indicates the module to be given control after a SAMS:Disk archive data set name is generated. Turn to the user exit description for *ARCDSNEX* on page 204 for more information.

ARCDSORGn

Specify this sysparm to allow data sets that have no DSORG specified in the format-1 DSCB to be eligible for processing by either archive or backup functions. The default is N, which causes SAMS:Disk to bypass data sets that have no valid DSORG specification.

ARCEMPTYy

Specify this sysparm with a value of N to suppress the archival of empty data sets. The default is Y, which causes SAMS:Disk to archive empty data sets if they are selected for processing.

ARCEODEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the ARCEODEX user exit. Turn to the user exit description for *ARCEODEX* on page 205 for more information.

ARCFDEFRn

Specify this sysparm with a value of Y to queue a deferred archive request for a data set that would otherwise be bypassed when an enqueue cannot be obtained. The default value is N, which causes SAMS:Disk to bypass the data set when an enqueue cannot be obtained. This sysparm is not intended to requeue requests during dispose processing.

ARCHIVEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the ARCHIVEX user exit. Turn to the user exit description for *ARCHIVEX* on page 206 for more information.

ARCHPACKy

Specify this sysparm to control archive data set packing. The default value is Y, which causes each archive data set to contain multiple data sets. A value of N causes SAMS:Disk to create one archive data set for each data set processed. This sysparm controls data set packing for both the merge and archive functions.

Warning: For archival to tape or cartridge, do not specify a value of N, or every archive tape or cartridge will contain only one data set.

For further discussion of this sysparm, see *"Using Archive Functions to Manage Active Data"* on page 65.

ARCHSORTudv

Specify this sysparm to change the selection of archive reports produced. The default value of UDV will cause archive reports to be sorted by different fields as described below:

Table 4-1. Possible Values Available for ARCHSORT

Value	Description
U	print unsorted archive report
D	print archive report in dsn/volume sequence
V	print archive report in volume/dsn sequence
N	Specify N for any report not desired

ARCMODELn

Model DSCBs may be archived (and restored) during archive processing if this sysparm is specified with a value of Y. The default value is N.

ARCMULTIn

Specify a value of Y for this sysparm if multivolume PS and DA data sets are to be processed by explicit archive requests processed by the ARCHIVE proc. The default value is N, not to process multivolume data sets.

ARCRETPDnnnnn

This sysparm controls the number of days that an explicitly archived data set is to be retained in the archives. The default value is 00030. You may specify any 5-digit value. If the user has specified the RETPD parameter on the ARCHIVE command, its value will override the one specified here.

ARCSEPC0y

When both the primary and the duplicate copy archive data sets are being written to disk, the default value for this sysparm is Y, which instructs SAMS:Disk to always separate the copy from the primary; that is, never put the backup copy on the same disk volume as the primary. Specifying N (no separation) permits allocation to the same volume.

ARCTNAMEd

By specifying one of the 4 values for this parameter, you may tell SAMS:Disk how to generate archive tape data set names, and whether or not they are to be cataloged.

Table 4-2. Possible Values Available for ARCTNAME

Value	Meaning
D	generates a unique tape data set name but not catalog it (default value)
C	generates a unique tape data set name and catalog it
G	will use GDG support to generate a unique tape data set name and catalog it
U	uses data set name specified in JCL, or the exact value of sysparm ARCxNAME

Options D (default value) or C are preferable to G or U and should be used wherever possible. These options generate unique data set names for each tape data set created. They provide significantly enhanced flexibility if you are using a tape management program, and eliminate data set name contention during allocation. Option C also catalogs the tape data set names. For more information about the benefits of using these options, see *"Cataloging the Tape Archives"* on page 41, and *"Naming the Archives"* on page 59.

Setting this sysparm to a value of G provides the benefits of generating unique tape data set names, requires building of GDG indexes, and is limited to 255 generations per index. It is maintained strictly to provide compatibility with prior releases.

Setting this sysparm to a value of U forces SAMS:Disk to create output archvols based on either:

1. The value specified for DSN= in JCL

2. The value specified for ARCxNAME

The value of U is not allowed in Merge due to allocation contention if the same dsname were to be mounted as both input and output. Its also not permitted in Archive/Backup if the same dsname is specified for both ARCxNAMEs.

If you have specified either a value of C or G, you should also specify sysparm UNCATARC with a value of Y to tell SAMS:Disk to uncatalog the archive data set when it expires the volume.

If your security system protects tape volumes and you wish to specify options C or G for this sysparm, you must also ensure that all users running backup or archive jobs have access to tape volume DMSTMP for the following reason.

To serialize tape names, SAMS:Disk will temporarily catalog the data set name to the fictitious volume DMSTMP. SAMS:Disk will then open the tape, determine the actual tape volume that was mounted, and then add it to the catalog entry, replacing the temporary value of DMSTMP. For this catalog action to take place correctly, the user running SAMS:Disk must have authority to tape volume DMSTMP.

ARCVOLID@#$+-%&[

When archival to disk is being used, the key to the ARCHVOLS record is generated by SAMS:Disk. Each key is built by taking the first character of this sysparm and appending 99999 to it. Each successive key is decremented by 1 to make it unique. When 00000 is reached, the second character from this sysparm is used and the process started over.

The default value for this parameter is @#$+-%&[. You may change the order, or specify other special characters. However, you must not specify any characters that are used in volume serial numbers at your data center, or any of the SAMS:Disk pattern characters (*,?,/,!). Valid characters are:

[+] & $; ^ - | % _ : # @ ~ \

ARC0NAMEnnn

If VOS3 dynamic allocation is used to allocate the //ARCHIVE0 dd statement (for the primary copy being written to the archives), this sysparm provides the data set name to be used. The nnn value is either the 1- to 22-character base name, the complete name or the tape GDG index, depending on installation JCL and other sysparm options. The default value is DMS.ARCHPRIM. See *"Archive/Backup Considerations"* on page 55 for more information on the generation of this data set name.

ARC0TYPEtape

If the //ARCHIVE0 dd statement is not provided in the JCL, this sysparm indicates the type of device to be dynamically allocated. It must specify one of the following: TAPE, 6485, DISK, DYN1, DYN2 or DYN3. TAPE is the default. (This feature is for VOS3 users only.)

ARDDNEXC_ddname

This sysparm is intended to assist with the IVP process of the test auto-restore function (TSTAR). For the value of this sysparm, specify the DD statement name you want to invoke TSTAR. Jobs displaying this DD statement will have explicit access to the TSTAR started task. For related information, please review the sysparm description for *ARJOBEXC* on page 123.

The default value for this sysparm is _DDNAME.

ARDIAGNM_jobname

This sysparm is intended for debugging purposes of the auto-restore function and is inactivated by default, which provides no diagnostic information. For the value of this sysparm, specify the jobname in which you want to invoke these diagnostics.

The default value for this sysparm is _JOBNAME.

ARDSNPOLxxxxxxxx

Use this sysparm to identify to SAMS:Disk the name of the member in your parmlib that contains the data set name pool for auto-restores. If you choose to use pool support for Auto-Restores, we recommend that you use the name ARDSNPOL for your member. To specify this, code the sysparm as ARDSNPOLARDSNPOL. See the topic *"The Auto-Restore Function"* on page 33 in the *Installation Guide* for more information regarding pool support.

ARESCRDTn

This parameter, which is valid for Auto-Restore only, allows selection of the date to be used for the data set catalog and format-1 creation date. This parameter provides the same capability as the CREATE parameter does for Restore. The default value of N sets the catalog and format-1 creation dates to the original date. Specifying a value of Y sets the catalog and format-1 creation dates to the current date.

ARESPREXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the ARESPREX user exit. Turn to the user exit description for *ARESPREX* on page 207 for more information.

ARESUNICxxxxxxxx

Specify for “xxxxxxxx” the 1- to 8-character unit name for the class of 6485 devices to be used for dynamic allocation of SAMS:Disk archive cartridges in the auto-restore function. The default unit name is “6485". A specific unit address may also be

supplied to force all auto-restores from cartridges to be performed on a single 6485 device.

ARESUNITxxxxxxxx

Specify for "xxxxxxxx" the 1- to 8-character unit name for the class of tape devices to be used for dynamic allocation of SAMS:Disk archive tapes in the auto- restore function. The default unit name is TAPE. A specific unit address may also be supplied to force all auto-restores from tapes to be performed on a single tape device.

ARESUNInxxxxxxxx

Specify a 1- to 8-character unit name associated with special device type DYN1 (2 or 3). This unit name is used for dynamic allocation of archive volumes during auto-restore whenever the DYN1 (2 or 3) flag is on in the ARCHVOLS record. (This flag will have been set by prior archive or merge runs that created the archive volume specifying DYN1 (2 or 3) for sysparm ARC0TYPE, ARCCTYPE, MERPnTYP, OR MERCnTYP.) A specific unit address or an esoteric name that maps only to the special devices is recommended as a value for these sysparms. They default to unit names DYN1, DYN2, and DYN3, which are probably invalid for your installation, and therefore need to be changed to the unit names as generated for your system.

Note: An intended use is to relate MASSTOR M860 devices, which may appear to be tape or 6485 devices to the operating system, to the special unit names that are required to obtain proper device allocation.

These sysparms are identical in purpose to DYN1UNIT, DYN2UNIT and DYN3UNIT, but are used exclusively by the auto-restore function.

ARESTENQy

Specify 'Y' or 'N' to indicate if DMSAR is to perform data set enqueues or not, respectively. The default value is 'Y'. Such enqueues have QNAME='SYSDSN' and RNAME=*dsname*.

CAUTION: The SYSDSN enqueue is VOS3' way of serializing access to a data set. Disabling SYSDSN enqueues is usually not advisable. However, some installations may want to do this in some unusual circumstances.

ARJOBEXC_jobname

This sysparm is intended to assist with the IVP process of the test auto-restore function (TSTAR). For the value of this sysparm, specify the job name or task name (i.e., userid) you want to have invoke TSTAR. All submissions of jobs or tasks by this name will have explicit access to the TSTAR started task. For related information, please review the sysparm description for *ARDDNEXC* on page 122.

The default value for this sysparm is _JOBNAME.

ARPOOLEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the ARPOOLEX user exit. Turn to the user exit description for *ARPOOLEX* on page 208 for more information.

ARSECUREn

This sysparm allows you to specify the level of access a user must have to restore a data set using the SAMS:Disk auto-restore function. It can be used only if your installation has installed CA-Top Secret or RACF, and has also installed and activated the corresponding SAMS:Disk security interface. It does not apply to CA-ACF2 users.

Since the SAMS:Disk auto-restore started task cannot be identified by a job statement or a LOGON procedure, most security packages have a Started Procedures Table to associate started task names with user IDs and possible group names. Most users with security packages supply an entry in this table to associate the SAMS:Disk auto-restore started task name with a user ID with unlimited access to data sets in your shop. However, these users will find that any system user can auto-restore any user data sets in the SAMS:Disk archives. Although this causes no security exposure (after an auto-restore completes, OPEN, SCRATCH, RENAME or JSCVSUT processing prevents user access to data sets to which they are not authorized), this can cause confusion. This is the case if the default value, N, is in effect.

Specify this sysparm with a value of Y to have the SAMS:Disk auto-restore function convert the user ID (and group name, if it exists) of the SAMS:Disk auto-restore started task to that of the originating user. This means that to auto-restore a user data set in the SAMS:Disk archives, a user would need the same access to the data set as would be required by a batch restore run by the same user: ALLOCATE, and open for OUTPUT.

Specify this sysparm with a value of R to have the SAMS:Disk auto-restore function convert the user ID (and group name, if it exists) of the SAMS:Disk auto-restore started task to that of the originating user and check for INPUT authority. If the user is authorized, SAMS:Disk will convert back to the original user ID (and group name, if it exists). If the entry in the Started Procedures Table gives sufficient authority, the auto-restore task can then allocate the data set and open it for OUTPUT (to put the data in), even if the originating user has only INPUT authority. This means that to auto-restore a user data set in the SAMS:Disk archives, a user would need INPUT authority to the data set.

To minimize user confusion, we recommend that you set this sysparm to a value of R.

ARTAPEOKy

The default value of Y allows tape mounts to be requested for the auto-restore facility. A value of N disallows all auto-restore requests that would require a tape mount. A value of B allows tape mounts only if a batch program invoked auto-

restore — it would reject any request from a TSS user. A value of D allows tape mounts for both batch and TSS users, but changes immediate restore requests from TSS to deferred requests if a tape mount is needed.

Note that this parameter has no effect on data sets that have been archived to disk. They may always be restored unless the user screening exit specifically rejects the request.

ARTASKNMdmsar

This sysparm indicates the started task name to be used by the Auto-Restore facility. The default value is DMSAR. The value of this sysparm takes effect the moment the started task is installed. If you want to use a different name for Auto-Restore, update the value of this sysparm to reflect the new name, and issue a REFRESH.

The syntax of the REFRESH command is as follows:

```
S DMSAR,DMSAR=REFRESH
```

ARVOLPOLxxxxxxxx

Use this sysparm to identify to SAMS:Disk the name of the member in your parmlib data set that contains the source volume pool for auto-restores. If you choose to use pool support for auto-restores, we recommend that you use the name ARVOLPOL for your member. To specify this, code this sysparm as ARVOLPOLARVOLPOL. See the topic *"The Auto-Restore Function"* on page 33 in the *Installation Guide* for more information regarding pool support.

CARTFEETnnnn

The default value for this sysparm is 0494, approximately the uncompressed size of a 200MB 6485 cartridge.

CATBKDELn

When an DMF/EF Type-2 catalog is being recovered but the “damaged” catalog is still on disk, the damaged version will be overlaid only if its “export temporary” flag is on. If this flag is not on, the catalog must be deleted before it can be recovered. The default value of N for this sysparm causes SAMS:Disk to bypass the recovery under this condition; that is, SAMS:Disk will not delete the catalog. It must be deleted manually before rerunning the recovery.

Specify the sysparm with a value of Y to allow SAMS:Disk to delete an existing DMF/EF Type-2 catalog in order to continue with the recovery.

CATBKNAMnnnnnnnnnnnnnnnnnn

When EXPORTF=YES has been specified for recovering an DMF/EF Type-2 catalog, the SAMS:Disk backup copy is written to a sequential data set on disk that you can then use as direct input to a native JSCVSUT IMPORT. This sysparm specifies a base name for SAMS:Disk to use to generate the data set name when allocating the sequential data set. The base name may be from 1 to 19 characters in length.

SAMS:Disk appends “EXPTCAT” and the date and time to the base name to make it unique.

The default value is DMS.CATEXPT, which results in the name “DMS.CATEXPT.EXPTCAT.Dxxxxxxx.Txxxxxxx”. As an example, if this sysparm were specified with the value “AAA.BBB.”, the resulting name would be “AAA.BBB.EXPTCAT.Dxxxxxxx.Txxxxxxx”.

CATBKSPCnnn

When EXPORTF=YES has been specified for recovering an DMF/EF Type-2 catalog, the SAMS:Disk backup copy is written to a sequential data set on disk that you can then use as direct input to a native JSCVSUT IMPORT. This sysparm specifies the number of blocks to allocate for the sequential data set. Both the primary and secondary quantities are allocated in blocks, each block being 2048 bytes. The default value is 500.

CATBKUNTunitname

When EXPORTF=YES has been specified for recovering an DMF/EF Type-2 catalog, the SAMS:Disk backup copy is written to a sequential data set on disk that you can then use as direct input to a native JSCVSUT IMPORT. This sysparm specifies the unitname SAMS:Disk is to use when allocating the sequential data set. The default is SYSALLDA.

CATLOCWAnnnnnnn

This sysparm indicates the maximum number of bytes of memory to provide to Catalog Management for catalog work space when SAMS:Disk backs up DMF/EF Type-2 catalogs, creates a selection list of cataloged data sets, or processes a FIND command with a DSN parameter containing a SAMS:Disk pattern name.

SAMS:Disk will start with a work area of 20,000 bytes. If the initial work area is not large enough for Catalog Management, SAMS:Disk will create a larger work area based on the requirements returned by Catalog Management, then retry the request.

SAMS:Disk will not create a work area larger than the size specified by this sysparm. The default value of 0262144 allows SAMS:Disk to use up to a quarter megabyte if necessary. You may specify any other 7-digit number consistent with the memory and region constraints at your installation.

Keep in mind that SAMS:Disk also needs region for programs, I/O buffers and the like, and that most installations have more restrictive region constraints on TSS sessions than on batch jobs or started tasks.

CATPURGEn

This sysparm indicates whether or not an unexpired catalog entry may be purged. VSAM catalogs allow an expiration date to be placed in the catalog entry for non-VSAM entries as well as VSAM. An unexpired entry causes an uncatalog request to fail, unless “purge” has been requested. Specify the sysparm with a value of Y

(the default is N) to cause SAMS:Disk archive processing to purge a catalog entry even if it is found to be unexpired.

Hitachi message JBB331I 084-000 will still appear in the log to indicate that the initial attempt failed because of the date protection. However, no SAMS:Disk message will be issued unless the subsequent "purge" attempt also fails.

CNVATCYLn

This sysparm controls whether or not the data set's original allocation type (tracks or cylinders) will be used during VSAM restores. The allocation type might change when, for example, the device type changes from the original archived device, or restore parameters (CISZ, IMBED/NOIMBED, SPAN/NOSPAN or RECSZ) alter the data set's original archived values.

The default value of this sysparm is N, meaning no change will be made to the allocation type. Specifying a value of Y allows SAMS:Disk to determine whether or not the allocation type needs to be altered. If the calculated CA-size is less than a cylinder, the allocation will be made in tracks; if equal to a cylinder, the allocation will be made in cylinders.

DARCHIEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the DARCHIEX user exit. Turn to the user exit description for *DARCHIEX* on page 209 for more information.

DARCKEEPxxx

Specify for "xxx" the number of days a deferred archive request is to be kept in the ARCHCMDS file. This number applies only after the archive has been completed. This allows the results to be inspected by the TSS LISTREQ command. The default is 005 days.

DASDPMAXnnn

Specify a 1- to 3-digit value indicating the total number of pools that may be defined in the DASDPOOL member of parmlib. This value is used to determine memory requirements before building a table with the number of pools and volumes available for non-VSAM volume pooling. See also sysparm DASDVMAX. The default value is 60.

DASDVMAXnnnn

Specify a 1- to 4-digit value indicating the total number of volumes that may be included in defined DASD pools (sum of volumes in all different pools). This also represents the maximum number of volumes that may be specified for a single pool. The default value is 100.

DATECUTO75

This sysparm instructs SAMS:Disk on how to treat 2 digit year values entered from command input parameters or sysparms. Its purpose is to provide the user some flexibility in testing or implementing Year 2000 strategies. The default value is 75, indicating that any 2 digit year value of 75 or less will be considered as 20YY, these dates will be stored as MM/DD/20YY. If the ''YY'' portion of the date is greater than 75, the dates will be stored as MM/DD/19YY. You may specify any numeric value ranging from 00 to 99.

This allows the use of 2 digits for input to continue, or you may use 4 digit notations as desired. Examples with default value of 75:

- EXPDT=01/01/00 or 00001 will be saved as 2000.001
- EXPDT=01/01/75 or 75001 will be saved as 2075.001
- EXPDT=01/01/76 or 76001 will be saved as 1976.001
- EXPDT=01/01/99 or 99001 will be saved as 1999.001

Caution: There is no 'special date' exclusion on inputs. Except for special testing needs, DO NOT set DATECUTO to values of 97, 98, or 99.

For related information, please see "Year 2000 Considerations" on page 9 in the User's Guide.

DBDSNCFDx

Specify for "x" the index level of the data set name that is to be used as a user code. The default value is 1. This sysparm is activated only if sysparm DBDSNINX has been specified with a value of Y. This sysparm is used in DASD space billing.

DBDSNINXn

Specify a value of Y to indicate that the user code is an index level from the data set name. The default value is N, indicating that the user code is found by sysparms DSCBUSRD and USRCDLEN. This sysparm is used in DASD space billing.

DCAVGCMPnn

Specify for this sysparm the average amount of compression realized when using data compression. To determine this value, run archive or backup with sysparm DCRTSTAT specified with a value of S or D. This value, given as a percent, will be used to estimate the size of a data set while allowing for compression. As a result, a better prediction can be made regarding how many feet of tape or 6485 cartridge will be needed. The default value is 40, or 40 percent average compression.

DCCMPEX0ADSUT371

This sysparm names the module to call for data compression technique number 0. For more information, see the topic *"Data Compression/Decompression"* on page 342. Technique number 0 is reserved for SAMS:Disk.

DCCMPEX1ADSUT410

This sysparm names the module to call for data compression technique number 1. This technique is for SAMS:Disk users who are also licensed to use Sterling Software's SAMS:Compress data compression product, and are using it to compress the SAMS:Disk archives. For more information, see *"Activating Data Compression"* on page 56. Technique number 1 is reserved for SAMS:Disk.

DCCMPEXnmmmmmmmm

These sysparms name the modules to call for data compression technique numbers 2 - F. Technique numbers 2 through 7 are reserved for future SAMS:Disk-supplied data compression modules. Technique numbers 8 through F are for user-supplied data compression modules. Turn to the user exit description for *DCCMPEXn* on page 211 for more information.

DCCOMPTCn

Specify the technique number to be used for data compression during Archive/Backup/Vbackup processing. This sysparm setting is used when sysparm DCDATACP is specified with a value of Y.

When specified, the default technique number 0 is used for data compression. For more information about how compression is done with this technique, see the topic *"Data Compression/Decompression"* on page 342.

Technique number 1 is for SAMS:Disk users who are also licensed to use Sterling Software's SAMS:Compress data compression product. See *"Activating Data Compression"* on page 56.

Technique number 2 is like technique 0, though not as efficient. However, it requires less CPU overhead than technique 0. Consider using technique number 2 when job performance is more important than compression efficiency.

Technique numbers 0 through 7 are reserved for SAMS:Disk-supplied data compression modules. Technique numbers 8 through F are for user-supplied data compression modules.

For volume-level backup functions, only techniques 0 and 2 are valid. If data compression is turned on (sysparm DCDATACP specified with a value of Y) and a different compression technique is specified, technique 2 will be used.

DCDATACPn

The default value of this sysparm is N, which causes SAMS:Disk to not compress data. Specify a value of Y to activate data compression. For more information, see *"Activating Data Compression"* on page 56.

Note: This sysparm is overridden by specification of sysparms DCEXCTBL and DCINCTBL. That is, regardless of the setting of this sysparm, if a data set is in the data compression exclusion table in parmlib, it will not be compressed. If a data set is in the data compression inclusion table, it will be compressed, even if this

sysparm is specified with a value of N. See the topic *"Data Compression/Decompression"* on page 342.

DCDCPEX0ADSUT372

This sysparm names the module to call for data decompression technique number 0. For more information see the topic *"Data Compression/Decompression"* on page 342. Technique number 0 is reserved for SAMS:Disk.

DCDCPEX1ADSUT411

This sysparm names the module to call for data decompression technique number 1. This technique is for SAMS:Disk users who are also licensed to use Sterling Software's SAMS:Compress data compression product, and are using it to compress the SAMS:Disk archives. For more information, see *"Activating Data Compression"* on page 56. Technique number 1 is reserved for SAMS:Disk.

DCDCPEXnmmmmmmmm

These sysparms name the modules to call for data decompression technique numbers 2 through F. Technique numbers 2 through 7 are reserved for future SAMS:Disk-supplied data decompression modules. Technique numbers 8 through F are for user-supplied data decompression modules. Turn to the user exit description for *DCDCPEXn* on page 211 for more information.

DCDSNDEXmmmmmmmm

Specify this sysparm to provide the module name to be used for screening data sets for data compression. Turn to the user exit description for *DCDSNDEX* on page 211 for more information on this user exit. Turn to page 342 for more information about the data compression/decompression algorithm. Also see *"Activating Data Compression"* on page 56 if you are using data compression technique 1.

DCEXCTBLxxxxxxxx

Specify the SAMS:Disk parmlib member name for "xxxxxxxx" that contains the list of data set or pattern names not to be compressed during the archive/backup. If you are using data compression technique 1, include in this list all data sets that are under the control of Sterling Software's SAMS:Compress data compression product. For further information, see *"Activating Data Compression"* on page 56.

DCINCTBLxxxxxxxx

Specify the SAMS:Disk parmlib member name for "xxxxxxxx" that contains the list of data set or pattern names to be compressed during the archive/backup.

DCRTSTATn

The default value of N for this sysparm suppresses the informational messages about data compression. Specify a value of S to see archive volume compression totals or D to see individual data set compression totals and archive volume compression totals. See message numbers *2805* and *2806*, beginning on page 210 in the *Message Manual*, for format.

DEFARCEXmmmmmmmm

This sysparm causes SAMS:Disk to call a user exit. Specify for “mmmmmmmm” the name of a user-supplied exit module that is to be given control during dispose processing of deferred (queued) archive requests. Turn to the user exit description for *DEFARCEX* on page 212 for more information.

DELETEOKn

The default value of this sysparm is N, which causes SAMS:Disk to reject the DSCL DELETE command with message 2663. To activate the DSCL DELETE command, specify a value of Y.

DERASEEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the DERASEEX user exit. Turn to the user exit description for *DERASEEX* on page 214 for more information.

DFLTPOOLxxxxxxxx

Specify an 8-character name to be used as the name of the default DASD pool for data set allocation. This name specifies the name of a pool defined in the DASDPOOL member of the parmlib data set. For syntax information, see *"DASD Pool List"* on page 444. If this sysparm is not specified or is specified as blanks, SAMS:Disk will not use a default pool during data set allocation. Note that the pool used in restore and recover applies to non-VSAM data sets only.

DIAG0001n

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAG0002n

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGALOCn

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGAUTHn

Normally the SAMS:Disk Security Interfaces print messages only for exceptions to normal processing. Specify this sysparm with a value of Y to have the SAMS:Disk Security Interfaces print additional messages regarding actions and key decisions. The default value of N causes SAMS:Disk to not print these messages. Because this is a diagnostic feature, the content and format of the messages may or may not be documented.

DIAGDCTCn
This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGENQDn
This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGENQFn
This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGENQVn
This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGEXCPn
This sysparm governs printing of special error diagnostic messages during EXCP processing. The default value is N, which suppresses the additional messages. If specified with a Y, SAMS:Disk will include the IOB control block, the channel program and the data transmitted or received by the CCW, with any I/O error message returned from the EXCP access method.

DIAGLSTRn
This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGNOSEn
This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGRECDn
This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGSHRKn
This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGSTAEn

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGSTMPn

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGTHRSn

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DIAGVSRLn

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

DINXUFEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the DINXUFEX user exit. Turn to the user exit description for *DINXUFEX* on page 215 for more information.

DISKPROTy

This sysparm provides password protection for archive data sets. The default value of this sysparm is Y, which causes SAMS:Disk to password-protect, but not generate passwords for, archive data sets on disk and bypass the normal security checks when opening them. SAMS:Disk password- protects these data sets by setting the password indicator DS1IND10 bit in the format-1 DSCB.

When this sysparm is specified with a value of N, SAMS:Disk does not set the password indicator. Users with READ access can browse disk archive data sets. To prevent this access, specify to your security package to grant NO access for ALL users for SAMS:Disk archive data sets.

For password-protection of archive tapes, see sysparm *TAPEPROT* on page 174.

DLVOLMSGy

The default value for this sysparm is Y, which causes a message to be issued when processing begins for a given volume using DSCL. Specify a value of N to suppress this message.

DRESARCHy

The default value of Y causes the volsers that a data set is archived on to be displayed in message 2401 during a deferred restore request. To determine the volsers that the data set is archived on, the ARCHVOLS subfile must be accessed for INPUT authority.

Specify this sysparm with a value of N to prevent display of the volsers that the data set is archived on and to prevent access to the ARCVHOLS subfile.

DRESKEEPxxx

Specify for “xxx” the number of days a deferred restore request is to be kept in the RESTCMDS file. This number applies only after the restore has been completed. This allows the results to be inspected by the TSS LISTREQ command. The default is 5 days.

DRESTOEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the DRESTOEX user exit. Turn to the user exit description for *DRESTOEX* on page 215 for more information.

DSBALTRTn

SAMS:Disk DASD space billing uses a decimal-place unit for accumulating charges when this sysparm is specified with the default value of N. If your installation requires that charges for DASD space be expressed in a different unit, such as for Japanese yen or Italian lire, specify this sysparm with a value of 1. This changes the billing rates assigned in the DSBRATEC member from a dollars and cents type value to a unit of currency without decimal places.

If this feature is used, specifying “993.25" as an entry in the DSBRATEC member would indicate that either 3.25 lire or 3.25 yen are to be charged for each track or kilobyte day for all volumes assigned to category code 99. The amounts and totals shown on billing reports will be shown as full numbers with no decimal places. The rate value shown on the billing reports will be shown as 5 digits with 2 decimal places.

Note that this alternate rate specification may also be used for other forms of currency as appropriate.

The only valid values for this sysparm are N and 1.

DSBCATSZxxxxx

This sysparm is used in DASD space billing to specify the buffer size for the category table. The default value is 00500.

DSBSELVSn

SAMS:Disk provides the ability to bill at the data set level for both VSAM and non-VSAM. Specify this sysparm with a value of Y to select VSAM data spaces

and unique clusters within the non-VSAM billing runs. The default of N causes SAMS:Disk to not to select any VSAM spaces during non-VSAM selection, on the assumption that data set (cluster) level VSAM billing will be done also.

DSBTRKSZt

Specify a value of 'M' to use the maximum data block in determining the kilo-byte days for a data set for billing purposes. The default value of 'T' uses the track capacity value.

DSBUNITSxxx

This sysparm is used in DASD space billing to specify the units used for computing billing cost.

K/B - kilobyte days (default value)
TRK - track days

DSBUSREXmmmmmmmm

This sysparm causes SAMS:Disk to call a user exit. Specify for "mmmmmmmm" the module name to be given control on every DASD billing record insert or update. The exit is passed the function type and the billing record. Turn to the user exit description for *DSBUSREX* on page 216 for more information.

DSBVOLCTnnnn

This sysparm is used in DASD Space Billing to indicate the maximum number of volumes to be processed in the Extend report. The default is 300. If SAMS:Disk issues a message indicating this value is too small, specify a value sufficiently large to allow for some growth. The maximum value allowed is 9999.

DSCBCVEXmmmmmmmm

Specify this sysparm with the module name to be invoked when SAMS:Disk maintained fields must be moved to new offsets within the format-1 DSCB. This user exit is used to move the SAMS:Disk maintained fields during any processing which allocates a user data set on DASD. Turn to the user exit description for *DSCBCVEX* on page 217 for more information.

DSCBJBNMxxx

The displacement of the jobname in the DSCB is expressed as a three-digit number. If this field is not present, zeroes should be specified. The default is 062.

SAMS:Disk maintains this jobname in the OPEN SVC. It can be one of the following four values as determined in the OPEN SVC.

1. Creating jobname
2. Last modified jobname
3. Last using jobname

4. Accounting information

DSCBLMODnnnp

The displacement of the last modification date in the DSCB is expressed as a three-digit number. If the date is carried in packed instead of binary format, the letter “p” should follow. If this date is not present in the DSCB, the “nnn” field should be 000. The default displacement is 070.

DSCBLUSDnnnp

The displacement of the last used date in the DSCB is expressed as a three-digit number. If the date is carried in packed instead of binary format, the letter “p” should follow. If this date is not present in the DSCB, the “nnn” field should be 000. The default displacement is 075.

Note: This is the SU 60 compatible offset. Early SAMS:Disk users who have not converted to the SU 60 compatible location (that is, are still using offset 045) must specify a value of 045.

DSCBOPCDnnnh

The displacement of the data set open count is indicated as a three-digit number. If this value is carried as a halfword instead of a fullword, the letter “h” should be placed after the number. If an open count is not maintained in the DSCB, zeros should be entered. The default displacement is 078*b*.

DSCBSVMDnnn

The SAMS:Disk Open SVC maintains the SVC mode field in the format-1 DSCB. This sysparm indicates the displacement of this field in the format-1 DSCB. The default offset value is 103.

DSCBUSRDxxx

This sysparm is used in DASD space billing, and is the displacement of the user code in the DSCB. The default value is 000.

DSCLMSGSy

This sysparm controls the issuance and suppression of “broken” data set error messages encountered during DSCL SCAN REALVOLS and SCAN CATALOG processing. When this sysparm is specified with the default value of Y, SAMS:Disk is allowed to issue the messages. When this sysparm is specified with a value of N, SAMS:Disk suppress the “broken” data set messages, without affecting the job step return code. Following is a list of the messages that may be issued or suppressed depending on the setting of DSCLMSGS.

2505, 2664, 3262, 3273, 3316, 3397, 3435, 3436, 3437, 3438, 3439, 3440 and 3467.

DSCLOWRCn

This sysparm provides the option of reducing the return code from 4 to 0 when data sets are not selected for processing. When this sysparm is specified with a value of Y, SAMS:Disk will lower the return code in certain circumstances. For details on how to customize this facility, turn to the topic *"User-Specified Condition Codes"* on page 81.

DSCLSCEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the DSCLSCEX user exit. Turn to the user exit description for *DSCLSCEX* on page 218 for more information.

DSDISPEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the DSDISPEX user exit. The exit module is passed a format-1 DSCB and the TASC field as defined by the retention control VOLSPEC table. Turn to the user exit description for *DSDISPEX* on page 220 for more information.

DSNDELEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the DSNDELEX user exit. Turn to the user exit description for *DSNDELEX* on page 221 for more information.

DSNDLPEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the DSNDLPEX user exit. Turn to the user exit description for *DSNDLPEX* on page 222 for more information.

DSNDUPVLn

This sysparm is used during IXMAINT, DSCL, and RECOVER processing. IXMAINT processing uses it when the COPIES= parameter is specified. DSCL selection processing uses it when information from the files data set (that is, ARCDATE) is needed. RECOVER processing uses it in the same way.

When this sysparm is specified with the default value of N, SAMS:Disk processing considers DSNINDEX records for data sets with the same name that reside on different volumes to be different data sets and handles them separately for version checking, and retrieval of files data set information.

When this sysparm is specified with a value of Y, SAMS:Disk processing considers them to be the same data set. This allows SAMS:Disk to properly process data sets as they are moved from volume to volume.

See the description of sysparm RESCRCAT on page 159 for related information.

DSNSELREy

The intention of this sysparm is to help prevent runaway jobs from occurring. With the default of Y specified, DSCL requires that a DSNAMES= parameter be specified on each SELECT statement within the DSCL command stream. (This sysparm has no effect on the FMS PROC) Regardless of its value, no SELECT statements are required for the FIND command. However, if you specify a value of N and fail to provide a DSNAMES= parameter on the SELECT statement, SAMS:Disk will attempt to process ALL data sets found by the SCAN. This can allow runaway jobs to occur! For example, if a user unintentionally runs:

```
SCAN REALVOLS
  SELECT VOL=/
    DELETE
```

Note: For other related sysparms, refer to the descriptions of SELECTRE (page 169) and VOLSELRE (page 181).

DSSEIOTRn

This sysparm controls whether or not SAMS:Disk is to trace entries into the DFSMSdss exits. The default value of N deactivates the trace. Specifying a value of Y will cause a series of WTO's to be issued.

DSSMSGDDxxxxxxxx

Specifying this sysparm instructs SAMS:Disk to store a collection of DFSMSdss messages. For the value of this sysparm, specify an 1- to 8-character DDname. The default is blanks, which disables the facility.

The use of this sysparm requires that the user add a DD statement in the backup or restore jobstep equal to that of this sysparm. For example, either of the following would be valid:

```
//TESTDD  DD  SYSOUT=*
         OR
//DSSMSGDD  DD  DSN=output.data.set,DISP=OLD
```

Note: The value you choose for this sysparm should not be any DDname that is already in use by SAMS:Disk.

DSUTILCFn

The one-digit number designates which index level within the data set name is to be used as the control field for the Data Set Utilization report. The default value is 0, indicating no page breaks on index level change.

DSUTILSQd

The letter N may be specified to designate that the Data Set Utilization report should appear in data set name sequence. The default value is D for date of last use sequence.

DYNCUNITxxxxxxxx

Specify for “xxxxxxxx” the 1- to 8-character unit name for the 6485 device to be used for dynamic allocation of SAMS:Disk archive cartridges needed for the archive, backup, restore, recover or merge functions. The default unit name is “CART". A specific unit address may also be supplied to force all of these functions to use a single 6485 device. For additional information, see the sysparm description for *ARESUNIC* on page 122.

Note: While simulating the MERGE command and for reporting purposes only, you can specify a different cartridge density. This is only valid in simulate mode. In live mode, the actual density of the device is used. For instance, if you want to simulate other devices, change this sysparm to one of the following values:

Table 4-3. List of Possible Value for DYNCUNIT

Value	Device Simulated	Capacity
CART	6485 Cartridge	200 MB

For related information, please turn to the topic *Simulate Mode Considerations* on page 319 of the *User’s Guide*.

DYNEXPDTeeeeeeee

If the //ARCHIVE0 or //ARCHIVEC dd statements for the Archive/Retain functions, or the //ARCHIVE1-5 or //ARCHIVC1-5 dd statements for the Merge function, must be dynamically allocated, this sysparm provides the equivalent of specifying either the EXPDT or the RETPD value in the JCL. For the “eeeeeeee” value, specify either Eyyddd, Eyyyyddd or Rddddd, where E indicates a Julian date follows, and R indicates the following 5 digits are a retention period. A value of E00000 is not valid. The default value is E99365, which has a specific meaning to SAMS:Disk. See *“Assigning Tape Expiration Dates”* on page 42 for applicable rules.

DYNTUNITxxxxxxxx

Specify for “xxxxxxxx” the 1- to 8-character unit name for the tape devices to be used for dynamic allocation of SAMS:Disk archive tapes needed for the archive, backup, restore, recover or merge functions. The default unit name is TAPE. A specific unit address may also be supplied to force all of these functions to use a single tape device. For additional information, see the sysparm description for *ARESUNIT* on page 123.

Note: While simulating the MERGE command and for reporting purposes only, you can specify a different cartridge density. This is only valid in simulate mode. In live mode, the actual density of the device is used. For instance, if you want to simulate other devices, change this sysparm to one of the following values:

Table 4-4. List of Possible Values for DYNTUNIT

Value	Device Simulated
01600	8487 at 1600 BPI
06250	8487 at 6250 BPI

For related information, please turn to the topic *Simulate Mode Considerations* on page 319 of the *User's Guide*.

DYNUKEEPn

This sysparm is used with dynamic allocation in all of the archive, backup, restore, recover and merge functions to determine whether or not the tape device should be released each time a new tape volume is needed. It applies to both input and output tapes. If this sysparm is specified with a value of N, the default value, the device is freed at completion of each archvols tape. If the sysparm is specified with a value of Y, the same device is kept for the entire job step.

Keeping the same device may aid the operations staff in knowing where tape mounts will be needed, but it may also increase run time since the next tape cannot be mounted until the prior one is rewound and dismounted.

DYNVREQDn

When dynamic allocation is being used, this sysparm controls whether mount requests for output archive volumes will occur at allocation time or at OPEN time. The default value of N means the archive volumes are mounted at OPEN time. If this sysparm is specified with a value of Y (and sysparm DYNUKEEP is also specified with a value of N), archive volumes are mounted at allocation time.

Note: If you are using MASSTOR M860 devices for your output archive volumes, you must specify this sysparm with a value of Y and DYNUKEEP with a value of N.

DYNnUNITxxxxxxxx

Specify a 1- to 8-character unit name for special device type DYN1 (2 or 3). This unit name is used for dynamic allocation of archive volumes during archive, backup, restore, recover, retain and merge functions, whenever DYN1 (2 or 3) has been specified as the device type to be used via one of the sysparms ARC0TYPE, ARCCTYPE, MERPnTYP, or MERCnTYP. When DYN1 (2 or 3) is used, a flag is set in the ARCHVOLS record and the unit name specified in DYN1UNIT (DYN2UNIT or DYN3UNIT) is used for all functions relating to that archive volume. A specific unit address or an esoteric name that maps only to the special devices is recommended as a value for these sysparms.

An intended use is to relate MASSTOR M860 devices, which may appear to be tape or 6485 devices to the operating system, to the special unit names that are required to obtain proper device allocation.

Note: While simulating the MERGE command and for reporting purposes only, you can specify a different cartridge density. This is only valid in simulate mode. In live mode, the actual density of the device is used. For instance, if you want to simulate other devices, change this sysparm to one of the following values:

Table 4-5. List of Possible Value for DYNnUNIT

Value	Device Simulated	Capacity
01600	8487 at 1600 BPI	
06250	8487 at 6250 BPI	
64850	6485 Cartridge	200 MB

For related information, please turn to the topic *Simulate Mode Considerations* on page 319 of the *User's Guide*.

ENQADDTLn

If this sysparm is set to a value of Y and the USERSENQ user exit is supplied with a value of DMSNOENQ, an additional enqueue will be performed to determine if a data set is in use. If so, a message will be issued stating which data sets were in use at the time of the backup. The default value is N.

ENQDSSIMn

This sysparm controls data set ENQUEUES issued during PDS Compress processing in simulate mode. The default value of this sysparm is N, which causes SAMS:Disk to bypass data set ENQUEUES in simulate mode. This eliminates data set contention and improves performance, but the report will include data sets that would not have been selected and processed in a live run because they were in use by another task.

If you need a more accurate report from the simulate run, specify this sysparm with a value of Y. SAMS:Disk will perform data set ENQUEUES during the simulate run, and thus select and report the same data sets that would have been selected in a live run.

ENQGDGBYn

This sysparm affects the enqueuing on GDG data sets. It allows you to optionally bypass the enqueue on the base name of a GDG.

The default value for this sysparm is N. Per Hitachi integrity conventions for generation data groups, SAMS:Disk enqueues on the base name before enqueuing on the full data set name. Therefore the enqueue on the base name, whether by SAMS:Disk or another application, can prevent other jobs from accessing any generation within the group; for example, SAMS:Disk will bypass all generations within the group until the other task releases (dequeues) the base name.

If you specify this sysparm with a value of Y, SAMS:Disk will bypass the enqueue on the base name of the GDG data set and process individual generations, based upon their enqueue status. Since Hitachi conventions are not being used, unpredictable integrity exposures may arise for which SAMS:Disk is no longer responsible.

Note: 3 customers must specify this sysparm with a value of Y because the SAMS:Disk 3 enqueue allocation technique automatically causes an enqueue of the GDG base.

ENQMSGESn

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

ENQSTPOKn

When this sysparm is specified with the default value of N, SAMS:Disk will not process data sets allocated in the job step that is currently running. Enqueues for these data sets normally fail. This is to prevent SAMS:Disk from processing (that is, archive, delete, etc.) the data sets it has in use which may sometimes cause unpredictable results.

Specifying this sysparm with a value of Y will allow SAMS:Disk to process data sets in the job step that is currently running. Problems mentioned above may occur, however. Other errors may also occur. For example, you may receive SVC99 errors if you attempt to restore a data set which is also allocated to the currently running step.

This sysparm does not apply to auto-restore processing.

ENQVOLWTnnn

This sysparm controls the length of time between issuance of WTOR message 3017, which tells the operator how long SAMS:Disk has been waiting for a tape volume that is being used by another job. The default value is 8, for 8 minutes. You may specify a value from 1 to 999 minutes.

ENQWAITDn

This sysparm controls the Enqueue action when SAMS:Disk is processing its selection criteria. The default value of N allows SAMS:Disk to process non-VSAM and VSAM data sets when enqueues can be immediately obtained.

Other possible values are:

V — wait on enqueues for VSAM data sets only

Y — wait on enqueues for non-VSAM data sets only

B — wait on enqueues for both VSAM and non-VSAM data sets

EXPARSOPy

The default value for this sysparm is Y, which causes the change bit to be reset (turned off) after an explicit batch archive that does not scratch the data set. Specify a value of N to change the default to no reset.

EXPASCOPs

Specify a value of N to change the option to no scratch in explicit batch archive. The default is S, for scratch.

EXPDTUSEn

When data sets are archived, SAMS:Disk assigns an expiration date from either the SAMS:Disk command or from a default value set by a sysparm. If you wish to use the expiration date from the data set's VTOC entry (or its catalog entry for VSAM), if one exists, specify this sysparm with a value of Y. The default value is N, which disables this feature.

If Y is specified and the expiration date from the VTOC entry (catalog entry for VSAM) is less than the calculated default value, the default value will still be used.

Warning: This option applies to the expiration date being assigned to each DSNINDEX record, and does not directly affect the expiration date of associated ARCHVOLS records. All archive functions should use an expiration date of 99365 for the archive volumes if this sysparm option is used. Failure to do so may result in archive volumes expiring before the data sets contained on them are expired. Supply this expiration date in the JCL or by using sysparm DYNEXPDT.

FASTCOMPy

The default value of Y causes SAMS:Disk to compress PDSs using a newer faster method. Specify a value of N only if directed by the Technical Support Center.

FILESCNT12

This sysparm controls how many subfiles can be contained in the files data set. The default value is 12.

FILESPAC1500

This sysparm is active only when the files data set logging feature of SAMS:Disk has been activated (see sysparm FILOGNAM). This sysparm controls the number of blocks allocated when the files log data sets are created. The default value is 1500, causing 1500 blocks to be allocated. You may specify this sysparm with any 4-digit numerical value.

FILEUNITnnnnnnnn

This sysparm is active only when the files data set logging feature of SAMS:Disk has been activated (see sysparm FILOGNAM). This sysparm controls the type of unit allocated when the files log data sets are created. The default unit name is SYSALLDA. You may specify any valid unit type for your installation.

FILOGNAMxxxxxxxxxxxxxxxxxxxxxxxxxx

Specify this sysparm to activate the files data set logging feature of SAMS:Disk. For the value of this sysparm, specify the base name (high-level node) to be used to create the files log data set name. The base name can be 1 to 25 characters. When this sysparm is specified, SAMS:Disk will dynamically allocate data sets to log activity to the files data set.

The default is blanks, which disables logging for the files data set.

FLYCOUNT2

SAMS:Disk prints report separator pages on the SYSPRINT dd statement for all SAMS:Disk executions. It appears as the first page(s) printed before SAMS:Disk-generated output. We refer to the separator pages as “fly sheets”. They provide two benefits for SAMS:Disk users; first, as a separator page for different report steps, and second, to provide useful information about the environment in which SAMS:Disk is running.

This sysparm controls the printing of SAMS:Disk fly sheets. It specifies the number of fly sheets to be printed. To suppress their printing, specify a value of 0 for this sysparm. To obtain two fly sheets before printed output, specify a value of 2, the default value. The value must be a single numeric digit.

FORCPOOLnnnnnnnn

When tape or disk archive pools are being used, the pool names associated with the archive tapes and disk volumes are specified in the POOLDEFS member of the parmlib data set. A pool name supplied in the “nnnnnnnn” field of this sysparm will override the normal definitions, forcing all archive volumes to be taken and returned to the named pool. This sysparm is intended for use in special testing or recovery environments only.

FMSSAFEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the FMSSAFEX user exit. Turn to the user exit description for *FMSSAFEX* on page 224 for more information.

FMSSPREXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the FMSSPREX user exit. Turn to the user exit description for *FMSSPREX* on page 224 for more information.

GDGCATEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the GDGCATEX user exit. Turn to the user exit description for *GDGCATEX* on page 224 for more information.

GDGDSNCT00000200

SAMS:Disk builds an incore table of GDG data set names when processing functions that need to determine the relative generation numbers of GDG data sets. This table allows SAMS:Disk to keep track of the base generation number of a GDG data set. By keeping this table, SAMS:Disk minimizes catalog access during scans of DASD volumes, thus improving performance.

This sysparm specifies the number of GDG base names that are to be kept in the incore table (the default is 200). If more GDG names are processed than there are entries in the table, old entries will be deleted to make room for new ones. They are deleted in a least- recently used fashion. Each entry in the table requires about 50 bytes of storage.

HONORTTRn

This sysparm controls whether SAMS:Disk Restore or Move/Copy processing will honor the TTR value of records in data sets of DA, PS and unknown organization types.

The default value for this sysparm is N. This causes SAMS:Disk to honor the TTR for all data sets with DSORG=DA and a RECFM=U or V. At archive time, any other DA, PS or unknown DSORG data set in which an empty track is encountered prior to the end-of-file is also marked as requiring this processing at restore time. For other attribute combinations of DA, PS and unknown DSORG data sets, SAMS:Disk will copy the records in correct order but, depending on the data and device characteristics, the records may be moved to different relative track and record locations, per standard Hitachi conventions.

Note: For PS data sets with RECFM=FBS, this sysparm should be set to N.

If you specify this sysparm with a value of Y, Restore and Move/Copy processing will preserve the TTR value for data sets of these organizations (DSORGs), regardless of what the record formats (RECFMs) are. Specifying a value of Y for this sysparm is intended only for those exception cases in which the data sets do not follow/allow conventional access techniques for the attributes that are indicated.

IDRCUSEDx

This sysparm indicates whether or not IDRC (Improved Data Recording Capability) is activated when creating output tapes. The values that can be assigned are blank, Y, or N. When the sysparm is specified with the default value of blank, it means that whatever system setting exists as a result of the installation default and/or JCL parameter specification should be used. When the sysparm is specified with a value of Y, it means that the compaction feature (IDRC) should be activated if the capability is available. When the sysparm is specified with a value of N, it

means that the compaction feature should not be activated when creating output tapes.

IGNLSTARy

With this sysparm, SAMS:Disk determines if a non-VSAM Data set is empty for the purposes of archiving, backing up, or Move/Copy processing.

When SAMS:Disk checks if a non-VSAM data set is empty, it applies the following tests:

- the DS1LSTAR value in the format-1 DSCB is zero
- the DS1TRBAL value in the format-1 DSCB is non-zero
- the DS1VOLSQ value in the format-1 DSCB is one

The last test is based on the above sysparm setting. If the sysparm is set with a value of Y, the next test is also applied. The default value is Y.

bit 0 of the DS1DSIND field in the format-1 DSCB is zero

If the value of this sysparm is N, this last check is not done.

If the data set meets all of these criteria, it is backed up or copied as empty. If the data set does not meet these criteria, it is not considered empty and is processed accordingly.

Some data sets meeting all but the last criterion could have been opened for output. So, data may exist if the program that wrote to the data set did not update the DS1LSTAR field. To capture data sets that may not be truly empty, specify this sysparm with a value of Y.

This sysparm does not apply to direct access data sets with variable or undefined record formats. These data sets are never considered empty and are always backed up or copied until an end-of-file is detected.

IOERRLIMnnnnn

This sysparm determines the number of I/O errors allowed during a VBACKUP run before the volume should be bypassed. The default for this sysparm is 0, indicating that a volume is to be bypassed if any I/O error is encountered. Specify a 1- to 5-digit value to indicate the number of allowable I/O errors.

During VBACKUP, the number of I/O errors as specified in this sysparm up to a maximum of 100, are saved. For example, if an user specifies 150 for the IO-ERRLIM sysparm, 100 of the I/O errors will be saved. SAMS:Disk will continue processing the volume until more than 150 I/O errors have been encountered. SAMS:Disk saves the CCHH value for the track in error, along with two sense bytes indicating the type of error. The I/O errors detected are written to the archive tape as one record.

IOMAXRECnnnnnn

This sysparm specifies the maximum logical record size for data sets processed by SAMS:Disk. The default value is 65,000 bytes. The maximum value for this sysparm is 999,999 bytes. To save real storage, this sysparm should be set to the lowest value possible that still allows normal SAMS:Disk processing.

IOTRACKSxx

This sysparm controls the number of tracks that SAMS:Disk can read (for input processing) or write (for output) with a single I/O request. Since a buffer is required to hold the data for each I/O, this sysparm also establishes the buffer size. To allow I/O and CPU processing to be overlapped, SAMS:Disk always acquires two buffers for each data set that is opened. As should be evident, the value of this parameter has a very dramatic affect upon the amount of memory that will be required.

The default value is 30, which allows 30 tracks to be read or written with a single I/O. If the value specified is larger than the number of tracks per cylinder for the device being processed, SAMS:Disk sets it to the tracks per cylinder value; that is, 15 for a 8598, 30 for a 8595, etc.

Processing multiple tracks per I/O reduces the total I/O activity against the channels, control units and devices, and generally “improves” performance. However, memory requirements, paging activity, and many other factors affect performance and must also be considered when selecting and testing a value for this parameter.

ISAMRECOc

This sysparm indicates what SAMS:Disk is to do after encountering an abend during processing of an ISAM data set. When an abnormal condition in an ISAM data set causes ISAM access methods to terminate with a system abend, SAMS:Disk intercepts the system abend, prints messages, and attempts to continue processing. The abend may have left ISAM system control blocks in a status that does not allow further ISAM processing. If SAMS:Disk attempts to process another ISAM data set, unpredictable results can occur. This sysparm indicates what SAMS:Disk is to do if an attempt is made to process another ISAM data set after an ISAM abend has previously occurred. The valid values are:

C	Continue and attempt to process additional ISAM data sets. Processing another ISAM data set may cause SAMS:Disk to abend (default value).
A	Abend SAMS:Disk if another ISAM data set is selected for processing.
B	Bypass processing for any additional ISAM data sets selected for processing.

IXCTLGEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the IXCTLGEX user exit. Turn to the user exit description for *IXCTLGEX* on page 225 for more information.

IXMCLEANy

This sysparm indicates if the SAMS:Disk archive index maintenance utility (IXMAINT JCL procedure) is to remove invalid records from the DSNINDEX and ARCHVOLS subfiles during processing. ARCHVOLS records must relate to existing DSNINDEX records, and DSNINDEX records must relate to existing ARCHVOLS records. Invalid records are those for which corresponding records do not exist in the opposite file.

The default value is Y, which indicates that invalid records are to be removed when found. A value of N indicates that records are to remain in the files.

IXMDUPDTn

Normally, SAMS:Disk archive index maintenance does not consider data sets archived on the same date to be different versions. For this reason the COPIES= parameter will not dispose of them as desired when this sysparm is specified with a value of N, the default value. If data sets with duplicate data set names archived on the same date are to be considered as different versions, specify this sysparm with a value of Y.

IXMREVEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the IXMREVEX user exit. Turn to the user exit description for *IXMREVEX* on page 227 for more information.

IXMVOLONn

The default value of this sysparm is N, which causes SAMS:Disk index maintenance (DSNDELETE, VOLDELETE, PURGE) and merge processing to uncatalog obsolete catalog entries (see sysparm UNCATPSU on page 178 for related information) for data sets on offline volumes. Specify a value of Y to not uncatalog data sets on offline volumes.

IXUSRNOTn

This sysparm indicates if the SAMS:Disk archive index maintenance utility (IXMAINT JCL procedure) is to send a TSS message to a userid if only one copy of a data set is left in the files data set and that data set is uncataloged.

The default value is N, which indicates that no message is to be sent.

A value of Y indicates that a warning TSS message is to be sent. The TSS message warns that there is only one copy of the data set left. It is sent to the userid that either archived or backed up the data set, or if the expiration date for the data set in the files data set has been updated, to the userid that last did the update.

LISTDMEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the LISTDMEX user exit. Turn to the user exit description for *LISTDMEX* on page 227 for more information.

LISTDVEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the LISTDVEX user exit. Turn to the user exit description for *LISTDVEX* on page 228 for more information.

LISTREEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the LISTREEX user exit. Turn to the user exit description for *LISTREEX* on page 229 for more information.

LISTSORTn

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

LISTVTOCn

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

MERCnNAMnnnnnnnnnnnnnnnnnnnnn

Merge processing can intelligently redistribute archived data sets on the basis of their expiration dates, by the use of the LIMITS= parameter. Two limit values cause a 2-way split, three a 3-way split, with a 5-way split being the maximum. Each of these new primary archive data sets may also have a duplicate copy created concurrently (duplexing). The new primary data sets are referenced via //ARCHIVE1 (2, 3, 4, 5) dd statements, and the copies by //ARCHIVC1 (2, 3, 4, 5).

If VOS3 dynamic allocation is used to allocate the //ARCHIVC1 (2, 3, 4, 5) dd statements, these sysparms provide the data set names to be used. The nnn value is either the 1- to 22-character base name, the complete name or the tape GDG index, depending on installation JCL and other sysparm options. The default values are DMS.MERGCOP1 (2, 3, 4, 5) for the duplicate copy data sets created by the merge process.

MERCnTYPtape

If the //ARCHIVC1 (2, 3, 4, 5) dd statement is not provided in the JCL, these sysparms indicates the type of device to be dynamically allocated. It must specify one of the following: TAPE, CART, DISK, DYN1, DYN2, DYN3 or NULL. TAPE is the default. (This feature is for VOS3 users only.)

MERDSNEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the MERDSNEX user exit. Turn to the user exit description for *MERDSNEX* on page 230 for more information.

MERFASTSy

Normally, simulate processing of the merge function does not invoke SAMS:Disk user exits. This is done to improve the performance of processing. To cause simulate processing to invoke the user exits, specify this sysparm with a value of N.

MERPnNAMnnnnnnnnnnnnnnnnnnnnn

Merge processing can intelligently redistribute archived data sets on the basis of their expiration dates, by the use of the LIMITS= parameter. Two limit values cause a 2-way split, three a 3-way split, with a 5-way split being the maximum. Each of these new primary archive data sets may also have a duplicate copy created concurrently (duplexing). The new primary data sets are referenced via //ARCHIVE1 (2, 3, 4, 5) dd statements, and the copies by //ARCHIVC1 (2, 3, 4, 5).

If VOS3 dynamic allocation is used to allocate the //ARCHIVE1 (2, 3, 4, 5) dd statements, these sysparms provide the data set names to be used. The nnn value is either the 1- to 22-character base name, the complete name or the tape GDG index, depending on installation JCL and other sysparm options. The default values are DMS.MERGPRI1 (2, 3, 4, 5) for the primary data sets created by the merge process.

MERPnTYPtape

If the //ARCHIVE1 (2, 3, 4, 5) dd statement is not provided in the JCL, these sysparms indicate the type of device to be dynamically allocated. It must specify one of the following: TAPE, CART, DISK, DYN1, DYN2 or DYN3. TAPE is the default. (This feature is for VOS3 users only.)

MERREPLYn

SAMS:Disk merge processing may be instructed to allow the operator to terminate the merge process normally through operator reply, between any input tape mount. If you wish to activate this feature, specify Y for the value of this parameter. The default value is N. Review the topic *"Operation Concerns"* on page 316 in the *User's Guide* for more details about this feature.

MERVOLEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the MERVOLEX user exit. Turn to the user exit description for *MERVOLEX* on page 230 for more information.

MIGBYPASn

Specify a Y for this sysparm if you desire to see the reasons why the sequential migrate to tape function has bypassed a data set. The default value of N means that no messages are given for data sets not meeting selection criteria specified.

MIGCATLGy

The default value of Y for this sysparm will cause all uncataloged non-GDG data sets to be cataloged when migrated to tape. Specifying a value of N will cause no change to the catalog.

MIGCREDTn

Specify a value of Y for this sysparm to cause all data sets migrated to tape to have their creation date equal to the creation date the data set was assigned on DASD. The default value of N indicates that SAMS:Disk is to reset all creation dates to the current date.

MIGCTGDGn

Specify a value of Y for this sysparm to cause all uncataloged GDG data sets to be cataloged when migrated to tape. The default value of N will cause no change to the catalog. If a GDG data set is not in the catalog, no attempt is made to catalog it because VSAM catalogs will uncatalog the oldest generation when the index is full. (See NOEMPTY parameter for the DEFINE GENERATIONDATAGROUP command in Hitachi's Access Method Services manual.)

MIGDISEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the MIGDISEX user exit. Turn to the user exit description for *MIGDISEX* on page 231 for more information.

MIGDSMAXnnnn

This sysparm specifies the maximum number of data sets that may be migrated to a single tape volume. The default value is 9999.

MIGDSORGn

Specify this sysparm with a value of Y if data sets with a null DSORG are to be migrated during sequential migration as if they were physical sequential. The default value is N, which causes SAMS:Disk not to migrate null DSORG data sets. This parameter applies only to the implicit SCAN command.

MIGEXPDTn

Specify a value of Y for this sysparm if the expiration date is to be taken from the JCL. The default value is N, causing SAMS:Disk to use the data set expiration date.

MIGFXPDTy

Specify a value of N for this sysparm to cause SAMS:Disk, in sequential migrate, to not add one day to the expiration date of the data set when it is equal to the current date. Tape management systems consider data sets on tape with an expiration date of the current date to be a tape work file and will not log the data set in the tape management catalog.

MIGGDGEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the MIGGDGEX user exit. Turn to the user exit description for *MIGGDGEX* on page 232 for more information.

MIGMODELn

This sysparm's default value of N causes model DSCBs to be bypassed during implicit SCAN processing for sequential migration to tape. Specify Y to permit model DSCBs to be migrated.

MIGNOEXPn

This sysparm's default value of N causes expired data sets (non-zero expiration dates less than current date) to be bypassed during implicit SCAN processing for sequential migration to tape. Specify Y to permit expired data sets to be migrated.

MIGNXPDTy

This sysparm's default value of Y allows data sets with zeroes in the expiration date field to be selected during implicit SCAN processing for sequential migration to tape. Specify N to cause these data sets to be bypassed.

MIGPSCOPn

Specify a value of Y to create a duplicate backup tape concurrently with the primary sequential migration tape. The default value is N, for no duplicate.

MIGPSDENddddd

The default is 06250, which is appropriate for standard 8487 devices. By changing this value, you can specify a different tape density while simulating a **Sequential Migrate to Tape** job. It is only used for simulation purposes. In live mode, the actual density of the device is used. For instance, if you want to simulate other devices, change this sysparm to one of the following values:

Table 4-6. List of Possible Values for MIGPSDEN

Value	Device Simulated	Capacity
01600	8487 at 1600 BPI	
06250	8487 at 6250 BPI	
64850	6485 Cartridge	200 MB

MIGREXITmmmmmmmm

This sysparm allows you to specify the 8-character name of the user-supplied exit module to receive control after a data set has been selected for migration from disk to tape. Turn to the user exit description for *MIGREXIT* on page 233 for more information.

MIGRSORTndv

Specify this sysparm to change the selection of sequential migration reports produced. Specifying values of UDV will cause SAMS:Disk to produce migration reports sorted by different fields as describes below:

Table 4-7. Possible Values for sysparm MIGRSORT

Value	Description
U	print unsorted sequential migration report
D	print migration report in dsn/volume sequence
V	print migration report in volume/dsn sequence

Specify N for any report not desired. The default values are NDV.

MIGYRCHGn

Specify a value of Y if you want to have sequential migrate to tape mount a new tape volume when the expiration year changes for the data sets being migrated. The default value of N causes no tape switching to be done.

NOBLKMSGn

Specify a value of Y if you want to see the reason why a data set was not reblocked by the Move/Copy function. The default value of N means no messages are issued explaining why reblocking was not done.

OFFLDASDn

Specifying a value of Y instructs the RESTORE command to issue a DELETE NOSCRATCH catalog action prior to restoring the data set. This catalog action helps prevent abends in cases where the data set being restored has ONLY a catalog entry, or when the target volume is offline (no valid UCB). The default value of N bypasses any catalog action.

Note: This sysparm is not valid for the RECOVER command.

PASSNEWNn

Specify a value of Y if you wish to allow password- indicated non-VSAM user data sets to be renamed. Since SAMS:Disk does not update the password control data set itself, renaming a password-indicated data set can be a security exposure. The default value of N prevents this condition.

PASSWORDn

The default value for this sysparm is N, which causes SAMS:Disk to bypass processing for all password-indicated data sets when they are encountered. Whenever a password-indicated data set is bypassed, a message to that effect will be issued.

Specifying a value of Y allows SAMS:Disk to process password- indicated data sets. The user may also have to use the PASSWORD parameter on the appropriate SAMS:Disk command. Processing of password-indicated data sets is supported in all functions.

If you have the security package SECURE installed, you should also specify sysparm SECUSUPP with a value of Y. You should also consider specifying sysparm PASSNEWN.

If sysparm SECUSUPP is not specified with a value of Y, SAMS:Disk supports processing for password-indicated data sets only in the VOS3 and SVS environments (SVS requires the installation of a system zap modification and the SAMS:Disk SVC). If the above conditions are not met, the value of N for this parameter will always be assumed.

PDSANMLYmmmmmmmm

This sysparm allows you to specify the 8-character name of a member in the parmlib data set that contains the PDS Anomaly Code and Options Specifications. Review the topic *"Processing PDSs that Contain Anomalies"* on page 69 for further information regarding SAMS:Disk-provided options to bypass or continue processing partitioned data sets in which SAMS:Disk has detected errors.

PDSENQSHn

The default value for this sysparm is N, which causes SAMS:Disk to obtain an EXCLUSIVE ENQ during PDS Compress processing.

If this sysparm is specified with a value of Y and the USE parameter is specified for the compress command, a SHARED ENQ is maintained for the data set during compression. (Without the USE parameter, a value of Y for this sysparm is ignored.)

Using a SHARED ENQ might be desirable, for example, to recover dead space in TSS PDSs during high use periods, since the SHARED ENQ could be obtained more readily. And because SAMS:Disk also issues the linkage editor enqueues when using a SHARED ENQ, processing between TSS and PDS Compress are serialized, preserving the data set's integrity.

Specifying this sysparm with a value of Y has no effect on the RESERVE command parameter for PDS compress processing.

Note: Specifying this sysparm with a value of Y can cause an integrity exposure if a batch job (other than the linkage editor) is updating a PDS that has only a SHARED ENQ.

Also, if a SHARED ENQ is used in an environment in which other batch jobs are using the PDS concurrently, unpredictable results may occur; for example, member not found, S806-04 and S106 abends, and so on. In this case, rerun the batch jobs when compress processing has completed.

PDSEXSIMy

Specify a value of N for this sysparm if the exclusion table should be nullified during simulated PDS compression. The default value of Y indicates that the table is active even in simulate mode.

PDSRRMAXnnnnn

The specified "nnnnn" value determines how many 3-byte TTR entries will be reserved in an internal SAMS:Disk table. The table is used to maintain relative block numbers when processing PDS members with user TTR entries. The default value is 03000. If this value is too small, an error message will indicate to increase its value.

PDSSETBSy

The default value of Y allows SAMS:Disk to set an optimal blocksize for the work file used by the PDS Compress function. Specify a value of N if you want SAMS:Disk to honor the blocksize supplied on the //COMPWORK DD statement of the COMPRES step.

PDSMAXPR00000

This sysparm is used during PDS Compress to set the maximum number of primary tracks to be calculated for reallocation of the PDS. If the SAMS:Disk calculation for primary tracks generates a number greater than this number, the value of this sysparm will be used unless it is less than the number of tracks used in the PDS. In this case, the actual number of used tracks will be used. If the value of this sysparm is set to zero, no maximum limit is set. This sysparm is in effect only if the user has specified a value other than 0 in the primary space specification of the ALLOCATE= parameter. The default value of this parameter is 00000.

If the PDS being compressed is allocated in cylinders, this value will be converted to a cylinder value. During this calculation it may be necessary to round the value up to a higher value that will fall on a cylinder boundary.

PDSMAXSE99999

This sysparm is used during PDS Compress to set the maximum number of secondary tracks to be calculated for reallocation of the PDS. If the SAMS:Disk calculation for secondary tracks generates a number greater than this number, the value of this sysparm will be used. If the value of this sysparm is set to zero, the secondary extent allocation amount will be set to zero. This sysparm is in effect only if the user has specified a value other than 0 in the secondary space specification of the ALLOCATE= parameter. The default value of this parameter is 99999 tracks.

If the PDS being compressed is allocated in cylinders, this value will be converted to a cylinder value. During this calculation it may be necessary to round the value up to a higher value that will fall on a cylinder boundary.

PDSMINDB00000

This sysparm is used during PDS Compress to set the minimum number of directory blocks to be calculated for reallocation of the PDS. If the SAMS:Disk calcula-

tion for directory blocks generates a number of directory blocks to allocate less than this number, the value of this sysparm will be used instead. This sysparm is in effect only if the user has specified a value other than 0 in the directory block specification of the ALLOCATE= parameter. The default value of this parameter is 00000.

PDSMINPR00000

This sysparm is used during PDS Compress to set the minimum number of primary tracks to be calculated for reallocation of the PDS. If the SAMS:Disk calculation for primary tracks generates a number less than this number, the value of this sysparm will be used instead. This sysparm is in effect only if the user has specified a value other than 0 in the primary space specification of the ALLOCATE= parameter. The default value of this parameter is 00000.

If the PDS being compressed is allocated in cylinders, this value will be converted to a cylinder value. During this calculation it may be necessary to round the value up to a higher value that will fall on a cylinder boundary.

PDSMINSE00000

This sysparm is used during PDS Compress to set the minimum number of secondary tracks to be calculated for reallocation of the PDS. If the SAMS:Disk calculation for secondary tracks generates a number less than this number, the value of this sysparm will be used instead. This sysparm is in effect only if the user has specified a value other than 0 in the secondary space specification of the ALLOCATE= parameter. The default value of this sysparm is 00000.

If the PDS being compressed is allocated in cylinders, this value will be converted to a cylinder value. During this calculation it may be necessary to round the value up to a higher value that will fall on a cylinder boundary.

POINTABSy

The default value of Y allows SAMS:Disk to determine if a 6485 is in full function mode or not, and to use POINT TYPE=ABS (high speed search) whenever possible. You may specify N to instruct SAMS:Disk not to use the high speed search facility.

PREALLOCn

The default value for this sysparm is N, which causes SAMS:Disk not to allow restore or recover operations to overwrite preallocated non-VSAM data sets. Specify a value of Y to allow Restore operations to overwrite pre-existing non-VSAM data sets (providing the DSORG of the target data set matches the DSORG of the data set being restored, otherwise the restore will fail). Specify a value of C to allow the overwrite only if the preallocated data set's create date is the same as that of the archived version.

See sysparm *VSPREDEF* on page 191 for restore of VSAM data sets.

In order to allow concurrent SAMS:Disk member-level restore processing of a PDS, SAMS:Disk internally assigns and uses a value of “Y” for this sysparm when the MEMBER= parameter is specified and the ERASE parameter is not specified.

(To protect integrity, the SAMS:Disk auto-restore function internally assigns and uses a value of “N” for this sysparm; that is, an auto-restore will not overlay an existing data set.)

PRIALLOCn

Specify a value of ’Y’ to use the original primary allocation amount of the data set for allocation during the PDS Compress, RESTORE, RECOVER, COPY, and MOVE functions. The default value of ’N’ uses the consolidated allocation amount unless it would exceed the volume capacity.

PRTSORTFy

The default value of Y causes a footing line showing the sort order to be printed for online reporting. Specify N to not print the sort footing line.

PSUDEVTPn

When recataloging archived data sets to the volume specified in the RECATVOL sysparm, the default is to put an invalid device type in the catalog entry for that data set. This is done on the assumption that the RECATVOL volume is a pseudo-volume, and you want to prevent the operating system from calling for a mount of the pseudo-volume when the data set is referenced. A JCL error results indicating the data set must be restored first. If you desire to keep the original device type of the data set, specify a value of Y for this sysparm. The default value is N.

If you specify a value of Y for this sysparm and SAMS:Disk attempts to recatalog a data set to its original device but this device is offline, sysparm REDEVDEF can be specified to cause SAMS:Disk to use a default device (8598) rather than issue an error message. See sysparm *REDEVDEF* on page 159 for further information.

If you have implemented only the IFG0EX0A (S213 abend) hook of the auto-restore support and wish to direct the restored data sets to a common “staging” volume, you must specify a real online volume for the RECATVOL sysparm and specify this sysparm with a value of R. This causes SAMS:Disk to obtain the correct device type to be placed in the catalog entry.

If you are using the catalog management hook provided by SAMS:Disk for your auto-restores, this sysparm should be left with the default value of N and the RECATVOL sysparm should specify a non-existent (pseudo) volume. The default value for the RECATVOL sysparm is ARCIVE.

REBLIMITnnnnn

The value of this sysparm controls which technique SAMS:Disk will use to find a new blocksize when reblocking data sets. If the target blocksize specified is below this value, the algorithm is very straightforward; simply combine logical records into a block until one more would exceed the target blocksize.

If the target blocksize is above the value specified, SAMS:Disk uses a “best fit per track” algorithm, taking into account the key lengths and overhead bytes per block that may vary for each data set. The track size for the target device is divided by the target blocksize to give a target goal of xx blocks per track. SAMS:Disk then uses the LRECL, key length and overhead values to find the actual blocksize that will still yield the goal of xx blocks per track.

The default value of this parameter is 99999, such that the first algorithm is always used.

REBLKBITn

For DFP release 3.1 and above the system may determine what the blocksize of a data set should be during allocation. Data sets that may be reblocked by the system have the DS1REBLK bit on in the DS1SMSFG field of the format-1 DSCB. SAMS:Disk will honor this bit during allocation depending on sysparm REBLKBIT.

When this sysparm is specified with the default value of N, SAMS:Disk does not honor the reblock bit. The data set is not reblocked by the system.

When this sysparm is specified with a value of Y, SAMS:Disk honors the reblock bit during allocation. During a restore allocation, the reblock bit is honored only if the data set was archived with release 8.1 or above.

REBYPASSy

Specify a value of N for this sysparm if no messages are to be issued to explain why retain has bypassed a data set. The default value of Y causes these messages to be printed. This default value was chosen because the retain function is used for backup, and any data sets being bypassed should be known. Once these are determined to be all right, it may be desirable to suppress the messages.

RECATPSUr

When recataloging to the pseudo-volume, this sysparm’s default value of R will cause SAMS:Disk to recatalog all data sets, whether or not they were originally cataloged. Specify a value of N to not recatalog data sets if they were not cataloged originally.

RECATVOLvvvvvv

Specify the volume serial to be used when the RECATALOG parameter is specified either on an ARCHIVE command or in the RETAIN volume specification table. The default volume serial is ARCIVE. If the value of the parameter is blanks (for example, “RECATVOL ”), recatalog processing is not done. For related information, see sysparm PSUDEVTP on page 157.

RECCHCATn

This sysparm is used for volume selection for non-VSAM data sets during the Recover function. Usage of the VOL= parameter will bypass this sysparm. When the default

setting of ’N’ is used, the volume recovery request will recover each data set to the specified volume, volume pool, or to the original volume. Specify a value of ‘Y’ to instruct SAMS:Disk to recover the data set using its cataloged volume.

RECPRIEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the RECPRIEX user exit. Turn to the user exit description for *RECPRIEX* on page 233 for more information.

REDEVDEFn

This sysparm is used in conjunction with sysparm PSUDEVTP described on page 157. When PSUDEVTP is specified with a value of Y, SAMS:Disk attempts to use the original volume’s device type when recataloging a data set. This can cause a problem if the original volume is no longer online. (This condition applies primarily to the IXCATLG utility described in *“Auto-Restore Implementation Guidelines”*, beginning on page 50 of the *Installation Guide*).

If this sysparm is specified with a value of N, the default value, and the original volume is no longer online when SAMS:Disk attempts to recatalog a data set, SAMS:Disk will issue an error message. When this sysparm is specified with a value of Y, SAMS:Disk will use a default device type (8598) if the original volume is not online.

RESAFTEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the RESAFTEX user exit. Turn to the user exit description for *RESAFTEX* on page 234 for more information.

RESCHCATy

This sysparm is used for volume selection for non-VSAM data sets during the Restore function. Usage of the VOL= parameter will bypass this sysparm. When the default setting of ’Y’ is used, the restore request will restore the data set to its cataloged volume(s). Specify a value of ‘N’ to instruct SAMS:Disk to skip the catalog check and to restore the data set to the specified volume, volume pool, or its original volume(s).

The value of this sysparm does not affect the auto-restore function since auto-restore uses different logic to determine the target volume during restore. For further information, review the topic *"The Auto-Restore Function"* beginning on page 33 of the *Installation Guide*.

RESCOPYTn

Specify a value of Y to instruct SAMS:Disk to use the duplicate copy tapes for all data set restores, including volume recovery. Default processing calls for the primary archive tape unless it has been disabled.

RESCRCATn

This sysparm controls scratch processing for both Restore and Recover functions for preallocated non-VSAM data sets. Invocation of this sysparm occurs when the SCRATCH parameter is specified.

Table 4-8. Possible Results when using RESCRCAT

Data Set Type	Results
Uncataloged data sets	When the default setting of 'N' is used, SAMS:Disk will scratch the uncataloged preallocated data set if it resides on the same volume as the one to which allocation is being directed
Cataloged data sets	When the default setting of 'N' is used, SAMS:Disk will delete the cataloged data set if the cataloged volume is the same as the one to which allocation is being directed
Cataloged data sets only	When 'Y' is specified, SAMS:Disk will delete the cataloged data set prior to volume selection

See the description of sysparm DSNDUPVL on page 137 for related information.

RESIXDLBn

This sysparm is used only in conjunction with RESIXRPD, and controls processing of the backup DSNINDEX record following a successful restore or recover. Backup DSNINDEX records do not have the scratch flag turned on (the data set was not scratched at archive time). The default value of N indicates no change is to be made to the backup DSNINDEX record. Specify a value of Y to cause the backup DSNINDEX record to be processed in the same manner as the archive DSNINDEX record after a successful restore or recover (as controlled by RESIXRPD).

For discussion of this sysparm, see *"Using Archive Functions to Manage Active Data"* on page 65.

RESIXRPDnn

This sysparm helps control the management of active data sets through the archive function; that is, placing data sets that are used only occasionally in the SAMS:Disk archives in order to conserve disk space. (These "active" data sets are usually archived to disk in a compressed format, and should be thought of as temporarily compressed rather than archived. See *"Using Archive Functions to Manage Active Data"* on page 65 for a more detailed explanation of this procedure.)

The default value of 99 for this sysparm indicates that restore processing should not change the expiration date of a data set in the SAMS:Disk archives.

Specify a value of 00 to delete the data set from the SAMS:Disk archives after an archived data set is restored or recovered successfully under its original name.

Specify a value of 01 to 98 to have SAMS:Disk assign a new expiration date to the data set in the SAMS:Disk archives after it is restored or recovered successfully under its original name. (See also sysparm *IXMCLEAN* on page 147). The new expiration date for the archived data set is the date it is restored plus the number of days specified by this sysparm. (You might choose this last option to allow the data set to be backed up before the earlier archive rolls out of the SAMS:Disk archives.)

To prevent a potential loss of archived data, if any of the NOLOAD, NEWNAME, MEMBER or AIXNAME parameters are specified on a Restore command, this function is not active and no change is made to the expiration date of the DSNINDEX record.

This sysparm may be used in conjunction with RESIXDLB to control the processing of DSNINDEX records associated with backup copies; that is, should the DSNINDEX record be deleted or reset after a restore from a backup copy of the data set.

RESPRIEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the RESPRIEX user exit. Turn to the user exit description for *RESPRIEX* on page 235 for more information.

RESRETPDnnnnn

This sysparm controls the number of days that a restored data set is to be exempt from archive disposition, and can be specified with a 5-digit numerical value. The default “grace period” is 00030, but is activated only if sysparm RETEXCLD is specified with a value of Y.

RESTCTLGy

This sysparm may be specified with a value of N to suppress catalog referencing during preparation of the Restored Data Set report. The default value of Y will cause SAMS:Disk to do catalog locates for every data set restored.

Note: If a large number of data sets are being restored (for example, volume recovery), checking the catalog incurs significant overhead. If this information is not needed on the report, change the value to N to cause significant performance improvements in report processing.

RETAFTEXmmmmmmmm

Specify this sysparm to provide the 8-character name of the user-supplied exit module to receive control after data set disposition determination by SAMS:Disk. Turn to the user exit description for *RETAFTEX* on page 236 for more information.

RETDSNCDccasc

This sysparm controls retention control at the data set level, based on the creation date. Specify for “cc” the year code that must be matched to the data set’s expiration year (code). Specify for “asc” the desired archive, scratch and catalog actions to be

taken if the data set's create date plus (ddd) days (from the expiration date field) has expired.

RETDSNCLccas

This sysparm controls retention control at the data set level, based on catalog status. Specify for "cc" the year code that must be matched to the data set's expiration year (code). Specify for "as" the desired archive and scratch actions to be taken if the data set is not cataloged.

RETDSNDFccddd

This sysparm is used only within the data set level control processing option of retention control. Specify for "ccddd" the default expiration date that is to be given to all data sets that have a zero expiration date field. This control code and retention period are then used to control the analysis and processing as called for by the three data set level parameters.

RETDSNLUccasc

This sysparm controls retention control at the data set level, based on last used date. Specify for "cc" the year code that must be matched to the data set's expiration year (code). Specify for "asc" the desired archive, scratch and catalog actions to be taken if the data set's last used date plus (ddd) days (from the expiration date field) has expired.

RETEXCLDn

Specifying this sysparm with a value of Y causes a "grace period" record to be placed in the RETEXCLD file each time a data set is restored. The presence of such a record will prevent retention control from automatically disposing of a restored data set until the grace period of 30 days has elapsed. The default value of this sysparm is N. The default grace period value is controlled by sysparm RESRETPD.

The grace period record contains the data set name and the volume to which it was restored. A data set with the same name but on a different volume is regarded as a different data set, and will therefore not be exempt from retention control processing. For this reason, moving a restored data set to a new volume effectively terminates its grace period.

RETEXCMDn

This sysparm only has effect when sysparm RETEXCLD is specified with a value of Y. The default value of N indicates that users cannot override the restore default grace period (specified by sysparm RESRETPD) with the RETPD and EXPDT restore command parameters. If a value of Y is specified for this sysparm, the RETPD and EXPDT command parameters will override the default grace period.

The RETPD and EXPDT command parameters are not documented for the RESTORE and DRESTORE commands. They may be specified if this sysparm is specified with a value of Y.

RETPD is the number of days that the data set remains excluded from archive processing from the date of the restore. Specify 1 to 5 numeric digits (that is, RETPD=7). EXPDT is a Julian date that may be specified instead of RETPD. It has the same effect but is expressed in the form of a date (that is, EXPDT=1983.365).

RETGDGEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the RETGDGEX user exit. Turn to the user exit description for *RETGDGEX* on page 237 for more information.

RETGDGNMxxxxxxxx

When the G selection criteria is used in the retain function, different limits for different generation base names may be specified in a GDG DASD generations member of the parmlib data set. To activate the list, specify this sysparm with the name of the member.

RETMULTIn

Specify a value of Y for this sysparm if multivolume PS and DA data sets are to be processed by requests processed by the RETAIN proc. The default value is N, not to process multivolume data sets.

See sysparm *ARCMULTI* on page 119 for controls on archives done by the ARCHIVE proc. There are no controls on archives done by the DMS proc.

RETNODSPyy

Specifying a year value in this sysparm will preclude retention control disposition of any type for any data set having the same year code with zero (ddd) in its expiration date field.

RETNOMIGyy

Specifying a year value in this sysparm will preclude sequential migration to tape of any data set having the same year code with zero (ddd) in its expiration date field.

RETPREFTc

The default value of C will cause SAMS:Disk to use the creation date for the data set from the VTOC entry for retention date calculation. Specify a value of U to have the retain volume specification type R selection criteria use the last use date from the VTOC entry for retention date calculation.

RETPRIEXmmmmmmmm

Specify for “mmmmmmmm” the name of a user-supplied exit module to receive control prior to inspection of the DSCB during retention control processing. Turn to the user exit description for *RETPRIEX* on page 238 for more information.

RETRETPDnnnnn

When data sets are selected to be archived during archive or backup processing, the 5-digit value of this sysparm is added to the current date to designate the archive retention period. This value is used unless an overriding parameter has been specified on the ARCHIVE or BACKUP command. The default value of this sysparm is 00030, to keep each data set in the archives for 30 days. See also sysparm *EXPDTUSE* on page 143.

RLSEAFEXmmmmmmmm

Specify the 8-character name of the user-supplied exit module to receive control after a data set has been selected for idle space release processing. Turn to the user exit description for *RLSEAFEX* on page 239 for more information.

RLSEDIAGn

Specify a value of Y to cause a message to be printed stating why a data set was bypassed for Idle Space Release. The default value of N suppresses such messages.

RLSEMAXSnnnnn

This sysparm is used to specify the maximum number of tracks allowed when resetting the secondary space allocation for any given data set. The default value is 99999 tracks. Since the resetting of secondary allocation is based on a percentage of the new primary allocation, this allows the user to specify a ceiling secondary allocation value on data sets with a large primary allocation.

Note: This value is in tracks. Should the data set be allocated in cylinders, this value will be rounded up to the next whole cylinder, thus actually allocating more space than the maximum amount specified by this sysparm.

Example: On a 8595, there are 30 tracks per cylinder. The user specifies a value of 00045 for this sysparm. If the data set is allocated in cylinders and the secondary allocation is computed to be equivalent to 35 tracks, this amount will be converted to cylinders and rounded up to the nearest whole cylinder, which would be two cylinders. On a 8595, this is equivalent to 60 tracks, which is actually over the maximum amount specified by this sysparm.

RLSEMINSnnnnn

This sysparm specifies a minimum number of tracks allowed when resetting the secondary space allocation for any given data set. The default value is 00000 tracks. Since the resetting of secondary allocation is based on a percentage of the new primary allocation, this allows the user to specify a default secondary allocation value on data sets with a small primary allocation.

Note: This value is in tracks.

RLSESECRa

The default value, A, will cause SAMS:Disk to reset the secondary space allocation on all data sets (which meet all other RELEASE criteria) whenever specified via the

PCTSECONDARY parameter for DSCL or through the PSSEC= or POSEC= parameters for batch. Specify a value of Z to reset only those secondary allocations with current value of zero, or a value of N to reset only those secondary allocations that currently have non-zero values.

RLSESYS1n

Specify a value of Y to allow idle space release processing of SYS1 data sets. The default value of N prevents idle space release processing of SYS1 data sets.

RLSEUNMVy

Specify a value of N to prevent idle space release processing of unmovable data sets. The default value of Y will permit idle space release processing of unmoveable data sets.

RPTCLSELxx...x

This sysparm may be used to specify the default group codes to be listed on the VSAM Cluster Detail report. Specify for the "xx..xx" string the desired groups, and the order in which they are to appear on the report. When this sysparm is not specified, a default value of U is assumed, causing use statistics to be printed.

For additional information, see the *CLDOPT* parameter description on page 102 in the *User's Guide*.

RPTDSBEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the RPTDSBEX user exit. Turn to the user exit description for *RPTDSBEX* on page 240 for more information.

RPTDSNEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the RPTDSNEX user exit. Turn to the user exit description for *RPTDSNEX* on page 240 for more information.

RPTDSUEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the RPTDSUEX user exit. Turn to the user exit description for *RPTDSUEX* on page 242 for more information.

RPTLINES

This sysparm, which defaults to 058, controls the number of lines per page for the following reports:

ALLOCS	**LISTD**	**PDS COMPRESS**
ATTRBS	**LISTV**	
DISTRS	**MAPPER**	**Utilization by DATE and TIME**
DSINDX	**MEMBER**	
DSUTIL	**MVDICT**	
FREESP	**PDSTAT**	
ISAMDS	**SVDICT**	
LAYOUT		

Figure 4-2. List of Reports Controlled by RPTLINES

All other reports may be controlled via the following zap.

```
NAME ADSUT190 LINEMAX
VER 0000 058C        58 lines per page
REP 0000 0nnC        nn lines per page
```

RPTMVDEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the RPTMVDEX user exit. Turn to the user exit description for *RPTMVDEX* on page 242 for more information.

RPTNMTSZxxx

Specify this sysparm with a numeric value to represent the number of reports included in the parmlib member REPORTNM. The default value is 100. If the value of this sysparm is exceeded, an error message will be issued stating that this value should be increased.

RSCHGBITn

Specify a value of Y to cause SAMS:Disk to set the change bit on each restored data set. Setting the change bit on each restored data sets may increase the number of data sets backed up in implicit archive runs, but may simplify the recovery of packs. The default value of N causes SAMS:Disk to leave the change bit set the same as before the data set was archived or backed up. See also sysparm *VCCHGBIT* on page 180.

RSUPPRESn

Specify a value of Y to suppress issuance of the RESERVE macro on the volume where the files data set resides during index maintenance functions. The integrity of the files data set cannot be guaranteed if this parameter is specified with a Y. In a 2 environment, the user is responsible for ensuring that no other updates are occurring through a cross system enqueue package. The default value is N.

SAMSYSNMaim

This sysparm indicates the subsystem name of Sterling Software's SAMS:Vantage product. The default value is AIM. If you use a different name for this subsystem, update the value of this sysparm to reflect the new name. For more information, see *"Activating the Subsystem"* in the SAMS:Vantage Reference Manual.

SCRASYS1n

With the default value of N in effect for this sysparm, SAMS:Disk will not allow users to scratch any data sets prefixed by "SYS1." through its facilities. This is to prevent users from inadvertently scratching data sets critical to the operating system. To override this feature and allow SAMS:Disk to scratch data sets prefixed by "SYS1.", specify a value of Y.

SCRTCHEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the SCRTCHEX user exit. Turn to the user exit description for *SCRTCHEX* on page 243 for more information.

SECARVOLarcive

This sysparm specifies a volume to be used for SAMS:Disk security-checking of data sets that exist in the SAMS:Disk archives. It is currently used only in conjunction with the SAMS:Disk CA-ACF2 and CA-Top Secret Security Interfaces. When authorization to process an archived data set is being checked, this volume will be passed to the security routine as the volume on which the archived data set exists. The default volume is ARCIVE.

SECFRVOLn

The default value of N for this sysparm passes the dummy volume (specified by sysparm SECARVOL) to the security routine during restore processing. To pass instead the volume from which the data set was originally archived, specify a value of Y.

SECURAEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the SECURAEX user exit. Turn to the user exit description for *SECURAEX* on page 244 for more information.

SECURCMDn

To activate the security validation of SAMS:Disk commands, specify Y as the value of this sysparm. The default value of N indicates that no security checking is to be done on SAMS:Disk commands.

SECURDRSaaaaaaaa

This sysparm allows the user to specify the level of authority SAMS:Disk will check for in a deferred RESTORE request. Authority levels of OUTPUT, SCRATCH, and ALLOCATE may be specified. The default is OUTPUT. If

SECURDRS is set to OUTPUT, and the SCRATCH parameter has been specified on the command, SAMS:Disk will check for both OUTPUT and SCRATCH authority to the data set. OUTPUT, ALLOCATE and SCRATCH are internal SAMS:Disk authorization levels.

SECURLIMnnnn

This sysparm may be used to limit the number of security violations permitted by the SAMS:Disk Security Interface. The default value of 0000 will allow SAMS:Disk to continue processing, regardless of the number of violations detected by the Security Interface.

Specify a non-zero 4-digit value for this sysparm to have SAMS:Disk issue message 2582 and abend user 913 if the SAMS:Disk Security Interface detects more violations than the value of this sysparm. Security violations generated by system operations, such as OPEN or SCRATCH, will not be counted by this processing, and will not cause the message 2582 and abend to occur.

SECURLOGy

In each SAMS:Disk Security Interface, SAMS:Disk queries your security package for authority to process a resource. SAMS:Disk then examines the return code from your security package. If authorized, SAMS:Disk continues with the processing of that resource. If not authorized, SAMS:Disk prints an appropriate message and bypasses that resource. Either way, SAMS:Disk continues processing the next resource as required by the SAMS:Disk commands.

In addition to the SAMS:Disk authorization failure message, by default each security package issues its own authorization failure message to the system log, the security console, and to the TSS user or job log. It may also create SMS records for a report writer indicating access violations. If you wish to inhibit CA-Top Secret or RACF from issuing their own authorization failure messages or creating SMS records during queries from their respective SAMS:Disk Security Interfaces running as APF-authorized tasks, specify this sysparm with a value of N.

To prevent system abends, if SAMS:Disk is running as a non- APF-authorized task, such as under most TSS, SAMS:Disk will ignore the setting of this sysparm and allow system logging.

This control does not apply to users of the CA-ACF2 Security Interface.

Regardless of the value of this sysparm, each security package will continue to issue its own authorization failure messages for authorization failures in SAMS:Disk processing that are not part of the SAMS:Disk Security Interfaces, or for authorization failures in non- APF-authorized tasks, such as under most TSS sessions.

SECURPEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the SECURPEX user exit. Turn to the user exit description for *SECURPEX* on page 245 for more information.

SECURRPTn

To activate security validation during SAMS:Disk report generation (including the reports that list the ARCHVOLS records), specify a value of Y for this parameter. The default value of N indicates that no security checking is to be done.

SECURVOLy

If this sysparm is specified with the default value of Y, and you have sysparm RACFSUPP or TOPSSUPP specified with a value of Y, and you have the RACF or CA-Top Secret DASDVOL class active, SAMS:Disk will query your security package for volume-level (SCRATCH operations only) authority during data set-oriented functions and volume-oriented functions.

If you specify this sysparm with a value of N, or you do not have sysparm RACFSUPP or TOPSSUPP specified with a value of Y, or you have the RACF or CA-Top Secret DASDVOL class inactive, SAMS:Disk will not query your security package for volume-level (SCRATCH operations only) authority during data set-oriented functions and volume- oriented functions.

SECUSUPPn

The default value for this sysparm is N which, in conjunction with sysparm PASSWORD, causes SAMS:Disk to bypass security processing for all password-indicated non-VSAM user data sets when they are encountered. This avoids prompting of the operator for the passwords to password-indicated non-VSAM user data sets.

If this sysparm is specified with a value of Y, SAMS:Disk will not bypass security processing for password- indicated non-VSAM user data sets. This will allow the security package SECURE to check authorization in OPEN of user data sets if you have SECURE installed. It will also allow the operator to be prompted for passwords in OPEN of user data sets if you do not have SECURE installed.

If you have the security package SECURE installed, you should specify this sysparm with a value of Y. You should also consider specifying sysparm PASSNEWN. Please refer to the topic *"Activating SAMS:Disk Security Features and Interfaces"* on page 18 of the *Installation Guide*.

SELECTREy

The intention of this sysparm is to help prevent runaway jobs from occurring. With the default of Y specified, DSCL requires that at least one SELECT statement be included on every SCAN command. (This sysparm has no effect on the FMS PROC). Regardless of its value, no SELECT statements are required for the FIND command. However, if you specify a value of N and fail to provide a SELECT statement on the SCAN command, SAMS:Disk will attempt to process ALL data sets found by the SCAN. This can allow runaway jobs to occur! For example, if a user unintentionally runs:

```
SCAN REALVOLS
DELETE
```

Note: For other related sysparms, refer to the descriptions of *DSNSELRE* (page 137) and VOLSELRE (page 181).

SHRNKFDTdmsosfdt

This sysparm is used with the SAMS:Disk data compression technique number 1, which uses Sterling Software's SAMS:Compress data compression product to compress the SAMS:Disk archives. (See also sysparms DCCOMPTC and DCDATACP beginning on page 129.)

This sysparm provides the name of the SAMS:Compress FDT used to compress the SAMS:Disk archive data sets. The default value is "DMSOSFDT". If you are using a different FDT name, specify this sysparm with your FDT name. For more information on this subject, see *"Activating Data Compression"* on page 56.

SHRNKSYSxxxx

Supply the name of your SAMS:Compress for VOS3 subsystem. The default is blanks. When this sysparm contains a value the SAMS:Compress subsystem is queried for every VSAM data set to determine if it is under the control of SAMS:Compress. If the data set is under the control of SAMS:Compress, its attributes and FDT table entry are saved at archive/backup time and the data set is archived/backed up in its compressed format and SAMS:Disk compression is bypassed. At scratch time the data set is deleted from SAMS:Compress. At restore time, it is re-defined to SAMS:Compress.

SMFCDATDnnn

The displacement of the close date in the SMS record is indicated as the 3-digit value for this sysparm. The default value is 006.

SMFCTIMDnnn

The displacement of the create time in the SMS record is indicated as the 3-digit value for this entry. The default value is 002.

SMFDFLAGnnn

The displacement of the flag byte in the SMS record that indicates a DASD data set is specified by the 3-digit value of this sysparm. When 000 is specified, all records will be treated as DASD. The default value is 038.

SMFDSNMDnnn

The displacement of the data set name in the SMS record is indicated as the 3-digit value for this entry. The default value is 064.

SMFJDATDnnn

The displacement of reader/interpreter job date in the SMS record is indicated as the 3-digit value for this entry. The default value is 026.

SMFJTIMDnnn
The displacement of reader/interpreter job time in the SMS record is indicated as the 3-digit value for this entry. The default value is 022.

SMFTYP14nnn
The value specified for this sysparm identifies the TYPE 14 data set activity record. The value must be specified from the range of 001 through 255. The default value is 014.

SMFTYP15nnn
The value specified for this sysparm identifies the TYPE 15 data set activity record. The value must be specified from the range of 001 through 255. The default value is 015.

SMFVLSRDnnn
The displacement of the volume serial in the SMS record is indicated as the value of this parameter. The default value is 182.

SORTPADDy
If the installation sort routine allows a sort key length greater that the actual record length for variable-length records, you may specify a value of N for this sysparm to prevent SAMS:Disk from padding all report records to a length equal to the key. The default value of Y permits the padding of the report records.

SPACECEXmmmmmmmm
Specify this sysparm to provide the module name to be invoked for the SPACECEX user exit. Turn to the user exit description for *SPACECEX* on page 249 for more information.

SPACEPRInnn
When archiving to disk, you must specify a primary space allocation value for the archive data set. The default value of 999 causes SAMS:Disk to set the primary quantity equal to 1/16 of an assumed backup tape. You may specify a value from 1 to 998, which represents the number of megabytes to allocate.

SPACESECnnn
When archiving to disk, you must specify a secondary space allocation value for the archive data set. The default value of 999 causes SAMS:Disk to set the secondary quantity equal to 1/16 of an assumed backup tape. You may specify a value from 0 to 998, which represents the number of megabytes to allocate.

SVCNODMSnnn
Specify for “nnn” the decimal number of the SAMS:Disk SVC as installed. The default value is 244.

SYSOUTEXmmmmmmmm

Unlike other SAMS:Disk user exits, the SYSOUT exit is not activated by specifying a sysparm. The module name must be superzapped into the SAMS:Disk output writer module. This entry in the sysparm section is maintained solely as a reference aid. Turn to the user exit description for *SYSOUTEX* on page 250 for more information.

SYSPARMOn

SAMS:Disk provides the capability for users to override default sysparm values and entries in the SYSPARMS member of the parmlib data set at execution time via the //SYSPARMS dd statement. This provides the flexibility of tailoring parameter values for various executions without having to update the parmlib data set. Since sysparms can affect the security and integrity of user data sets, this feature is controlled through this sysparm.

The default value of N prevents all users from overriding sysparms. To allow all users to override some or all sysparms, or to allow only authorized users this ability, specify this sysparm with a value of Y.

For a further discussion on overriding sysparms, see *"Overriding Sysparms Instream"* on page 96.

SYSPARMSn

This sysparm controls the display of system parameters on the message dd statement during SAMS:Disk executions. It gives the user the option of seeing what sysparms were active during the SAMS:Disk run.

The sysparm contains a 1-byte value. The default value of N indicates no display is to be generated. Other valid values are:

Table 4-9. Possible Values Available for SYSPARMS

Value	Meaning
O	print only those sysparms overridden by SYSPARMS DD
S	print only those sysparms supplied by user
D	print only the default sysparms
B	print all sysparms in effect

TAOPPOEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the TAOPPOEX user exit. Turn to the user exit description for *TAOPPOEX* on page 251 for more information.

TAOPPREXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the TAOPPREX user exit. Turn to the user exit description for *TAOPPREX* on page 252 for more information.

TAPCTLEXmmmmmmmm

Specify this sysparm to provide the module name, other than ADSTH016, to be invoked for the TAPCTLEX user exit if more than one tape management system is used. For related information, turn to the sysparm description of TMSCTLEX on page 175, and the user exit description for *TAPCTLEX* on page 253.

TAPEDLEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the TAPEDLEX user exit. Turn to the user exit description for *TAPEDLEX* on page 253 for more information.

TAPEFEETnnnn

The 4-digit value specified for this sysparm is the number of feet to be used for writing data sets on each reel of tape. In the event that a reel that has less than the specified number of feet is mounted, it is possible that a data set will overflow onto a second reel. However, the following data set will be archived to the beginning of another reel, precluding the possibility that more than one reel of tape would have to be passed to accommodate a subsequent restore request. The default value for this sysparm is 2300.

TAPEFSCRn

For systems with DFP 1.1 and above, specifying a value of Y allows SAMS:Disk to bypass expiration date and security checking when writing to a tape — in other words to “force” its use as a valid scratch tape. The standard operator prompt for permission to write on a date- protected tape will not be issued. Similarly, the operating system will not abend the job when a security-protected tape is mounted for output. This can be particularly useful when SAMS:Disk tape pools are used. (Tapes are recycled, and by definition, SAMS:Disk knows that it is okay to write on them again.) The default value is N, however, since using this facility with general scratch tapes represents the loss of a safety check, not to mention the data, if wrong tapes are mounted.

Keep in mind that Hitachi will not allow you to change tape data set names after they have been protected. You must initialize the tapes to change the data set names.

For example, if your archive tape data set name is DMS.ARCHPRIM and your backup tape data set name is DMS.BACKPRIM, you must initialize your protected archive tapes before they can be recycled and used for backup tapes.

TAPEPOOLn

Specify a value of Y to cause SAMS:Disk to take output tapes for archiving out of the TAPEPOOL table in the DMSPOOLS subfile. The default value of N will call for the operator to mount any available scratch tape.

TAPEPROTn

When this sysparm is specified with the default value of N, SAMS:Disk does not password-protect archive data sets on tape and allows normal security checking when opening them.

When this sysparm is specified with a value of Y, SAMS:Disk sets the password-indicator on the tape label, but does not generate any passwords. Also, SAMS:Disk bypasses all security checking on the archive output tape volumes.

If this sysparm is specified with a value of Y, sysparm TAPEFSCR must also be specified with a value of Y to allow SAMS:Disk to reuse tapes. If a SAMS:Disk archive tape was created with sysparm TAPEPROT specified with a value of Y, you must relabel the tape when it is released from the SAMS:Disk archives to turn off the password-indication of the tape label. This applies to SAMS:Disk as well as other applications.

For password-protection of archive data sets on disk, review the sysparm description for *DISKPROT* on page 133.

TAPEPRTRy

Specify a value of N for this sysparm to cause SAMS:Disk to use normal security checking on reading archive tapes. SAMS:Disk will prompt the operator for the password for archive tapes created with sysparm TAPEPROT specified with a Y.

The default value of Y will cause SAMS:Disk to bypass security checking when reading archive tapes. SAMS:Disk will read archive tapes created with the sysparm TAPEPROT specified with a Y without operator intervention.

TAPEVVERy

The default value of Y causes SAMS:Disk to use the IBM DFP volume verification exit to verify that each tape mounted for output is indeed a scratch tape, (not in the SAMS:Disk archives already) and, if it is not, to dynamically request another tape. All of this can be done without damaging the mounted tape, and processing can continue.

If vendors of other products used in your installation state that they do not support this exit, this sysparm should be specified with a value of N to deactivate its use. When a “wrong tape” is mounted under these conditions, SAMS:Disk will issue appropriate messages and terminate processing in an effort to preserve the data already on the tape.

TAPMFEETnnnn

This sysparm specifies the number of feet to be used for writing data sets on each tape reel in the sequential migration to tape function. The default value is 2300. If a reel that has fewer than the specified number of feet is mounted, a data set could overflow onto a second reel.

TERMCLERy

The default action in TSS is to clear the terminal screen before displaying the output. Specifying a value of N will cause SAMS:Disk to not clear the terminal screen before displaying the output.

TESTMSGSn

This sysparm is intended for debugging purposes only and is inactivated by default, which provides no debugging information. Specifying a value of Y is not recommended unless requested by Technical Support.

TMSCTLEXmmmmmmmm

Specify this sysparm to provide a module name for the TMSCTLEX user exit. Turn to the user exit description for *TMSCTLEX* on page 254 for more information.

Note: In order to activate the RMM support, this sysparm must be specified with a value of ADSTH016. See sysparm *TAPCTLEX* on page 173 if more than one tape management system is used.

TPOOLCHGn

This sysparm applies only to the ISPF support. The online facility to list the tapes in a tape pool does not normally allow the “scratch” or “in-use” status of a tape to be changed. The entry may only be deleted (by placing a “D” beside it) and then added again as a scratch tape if desired. Specifying a value of Y for this sysparm permits you to enter an “A” beside the tape entry to change it to an available (scratch) status, or an “I” beside the entry to mark it as in-use. (Use this feature with extreme caution! Careless use can wreak havoc upon the tape pools in very short order.)

TPOOLSEQs

The default value of S for this sysparm keeps scratch tapes in the tape pool in sequence by when they were scratched. Specify a value of V to keep them in volume serial sequence. If you use the EDM interface, you should not set this sysparm to a value of V because SAMS:Disk may attempt to use the tape again before it has been scratched by the nightly TMSCLEAN run.

TRKOVCHGn

Specify a value of Y for this sysparm to cause SAMS:Disk to allow the track overflow attribute of a data set to be dropped when the target device does not support that feature (for example, 8598 devices) but the blocksize will fit on the target track without the attribute. This sysparm applies only to the MOVE/COPY DSCL commands.

The default value of N will cause SAMS:Disk to bypass these data sets with a diagnostic message such that the user may decide if these data sets are to be copied.

TSODACATu

The default value of U for this sysparm causes SAMS:Disk to uncatalog a data set when performing a TSS deferred archive. This action can be changed by specifying either a value of N for no catalog change, or a value of R to recatalog to the SAMS:Disk pseudo-volume.

TSODARESy

The default value of Y for this sysparm causes SAMS:Disk to reset (turn off) the change bit when doing a TSS deferred archive without scratching the data set. This action can be changed to not reset the change bit by specifying a value of N.

TSODASCRs

The default value of S causes SAMS:Disk to scratch a data set when doing a TSS deferred archive. This action can be changed to “no scratch” by specifying a value of N.

TSOTULMTnn

Specify for “nn” the maximum number of tape units that may allocated concurrently for TSS dynamic (immediate) restores. The default value is 01. When this number is reached, any subsequent TSS dynamic restore request will be denied with a message that the maximum numbered of tape units are already allocated.

TSOTUNITnnnnnnnn

Specify for “nnnnnnnn” the 1- to 8-character unit name for the class of tape devices to be used for dynamic allocation of SAMS:Disk archive tapes under VOS3. The default unit name is TAPE.

TSOUSRIDn

This sysparm applies to the TSS support. It may be specified with a value of Y to restrict users queueing archive and restore requests to only those data sets that begin with their user ID. You may exempt selected users from this restriction by placing their user IDs in the TSOUSERI member of the parmlib data set. The default value for this sysparm is N, which allows all users access to all data sets.

TSOVOLOFn

The default value of N for this sysparm causes the TSS command processors to reject requests issued against volumes that cannot be found online. Specify a value of Y to allow requests to be made against data sets that cannot be found online (they are assumed to be contained on offline volumes).

TTRULMOVn

The default value of N for this sysparm prohibits SAMS:Disk from moving a data set with TTR addressing to a different device type. Specifying a value of Y allows SAMS:Disk to move a data set with TTR addressing to a different device type.

Note: Because of the unique nature of these types of data sets, it is imperative that the user verify the integrity of the data set after the move.

UCBALLOCxx

This sysparm controls the maximum number of volumes that a SAMS:Disk job may have dynamically allocated at one time. This corresponds to the number of UCBs in an VOS3 environment. The default value is 21. Change this limit by specifying a value of from 1 to 64 for this sysparm. We recommend specifying this sysparm to a value no lower than 3 (higher if you have specified sysparm RETMULTI).

UCC6CPDSn

Because data sets produced by the UCC6 program product contain non-standard control blocks within some of their members, SAMS:Disk cannot maintain them properly.

The default value of this sysparm is N, which causes SAMS:Disk to reject processing for UCC6-controlled PDSs in all functions except archive, backup, restore and recover. When a UCC6 PDS is restored, it will be in standard Hitachi PDS format, not UCC6 format.

If you want SAMS:Disk to attempt to process these data sets in other functions, specify a value of Y for this sysparm.

Note: The default value of N will also prevent SAMS:Disk from producing the PDS status report on UCC6 PDSs. To obtain the PDS status report, this value must be specified as Y.

UNCATARCn

This sysparm determines the catalog action to be taken for any archive tape dropped (deleted) in the index maintenance functions (merge/purge/delete) processing. The default value of N causes SAMS:Disk to leave the catalog status unaltered. A value of Y causes SAMS:Disk to uncatalog any tape that is deleted from the archives. This sysparm is intended for joint use with sysparm ARCTNAME.

UNCATDELn

If you let sysparm UNCATDEL default to a value of N, SAMS:Disk treats DSNINDEX Julian expiration date “99000" as a never scratch date. This is equivalent to the other ”never scratch" dates of 99365, 99366 and 99999.

But if you set sysparm UNCATDEL to a value of Y, SAMS:Disk treats Julian expiration date “99000" as a ”catalog control date." That is, data sets backed up or archived with an expiration date of 99000 will be deleted automatically by the SAMS:Disk function IXMAINT when the data sets become uncataloged. What this

means is, if your catalog goes bad or someone uncatalogs some data sets, that all backups and archives of these data sets will be deleted on the next IXMAINT run. Although you may use EXPDT=99000 for any purpose, it was intended for use with archiving generation data groups (GDGs), the generations of which are managed by the catalog. For example, to archive all GDG generations, leaving the two most recent on disk, deleting generations that roll off of the catalog, specify sysparm UNCATDEL with a value of Y and:

```
SCAN REALVOLS SELECT CRITERIA=(GDGGEN,LE,-2) ARCHIVE RECAT,EXPDT=99000
```

UNCATFDRn

If this sysparm is specified with the default value of N, SAMS:Disk does not do additional catalog checking during UNCATPSUy processing. This avoids the additional overhead caused by the catalog checking. If this sysparm is specified with a value of Y, SAMS:Disk does additional catalog checking prior to deleting a catalog entry during UNCATPSUy processing. The additional catalog checking is in the form of a catalog locate to determine if the catalog entry may have been created by FDRABR. Once the catalog locate has been done, the first byte of DSCB TTR information is tested for a x'80' value. If the test is true, SAMS:Disk assumes the entry was created by FDRABR and does not uncatalog the data set.

UNCATPSUn

If you are recataloging archived data sets to the SAMS:Disk pseudo-volume, or if archived data sets are being left cataloged to permit auto-restores, specify a value of Y for this sysparm to remove obsolete catalog entries during merge, index maintenance, or ixupdate processing when the last DSNINDEX record is deleted with that data set name. SAMS:Disk uncatalogs data sets from the pseudo-volume only if the DSNINDEX record being deleted is an archive copy (that is, the data set was scratched at the time the copy was made), and a value of R is specified for this sysparm.

When this sysparm is specified with a value of Y, SAMS:Disk determines if this is an "obsolete" catalog entry by verifying that this is the last DSNINDEX entry for the specific data set being deleted (that is, this copy of the data set has expired and no other copies exist). At that time, it checks to see if the data set is still cataloged. If so, the following actions are taken:

a. If it is cataloged to the SAMS:Disk pseudo-volume, SAMS:Disk uncatalogs it.

b. If it is still cataloged to its original source volume or to the "staging volume" being used for auto-restores, SAMS:Disk issues an OBTAIN macro to see if the data set is still there. It may have been restored or re-created since it was archived and scratched). If the data set is found, the catalog is left unchanged; otherwise the entry is deleted.

c. If it is cataloged to a volume other than those mentioned above, no further processing is done. The catalog entry is left unchanged. For

sysparm UNCATPSU, the value will no longer be internally set for auto-restore. When the sysparm is set to a value of Y, the catalog entry for a data set will be deleted in the event a DSNINDEX does not exist for the data set. If the sysparm is set to its default value of N, the catalog entry will not be deleted.

Care should be taken when using this sysparm in a shop where offline production volumes exist. For if sysparm IXMVOLONn (which is the default), is also specified the OBTAIN will fail for data sets cataloged to offline volumes. These data sets will be uncataloged. Please refer to sysparm *IXMVOLON* on page 148 for more information.

If this sysparm was specified with a value of R, SAMS:Disk follows the above steps only if the DSNINDEX record being deleted is the LAST ARCHIVE copy in this files data set. No uncatalog action is done if this is a backup copy, even if it is the last DSNINDEX record of this data set name in the files data set.

If this sysparm is specified with a value of X, all catalog actions for processed data sets will be bypassed during IXMAINT. This will leave the cataloged entries intact for any subsequent REBUILD processing.

UNLOADEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the UNLOADEX user exit. Turn to the user exit description for *UNLOADEX* on page 256 for more information.

UNMOVEARn

The default value of N for this sysparm prevents SAMS:Disk from moving unmoveable data sets during archive/backup and restore processing. SAMS:Disk does not officially support unmoveable data sets and therefore cannot guarantee the integrity of the data set after processing it. To permit archive/backup and restore processing of unmoveable data sets, specify this sysparm with a value of Y.

UNMOVEVCn

The default value of N for this sysparm prevents SAMS:Disk from moving unmoveable data sets using the Move/Copy function. SAMS:Disk does not officially support unmoveable data sets and therefore cannot guarantee the integrity of the data set after processing it. To move unmoveable data sets using the Move/Copy function, specify this sysparm with a value of Y.

USERSENQmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the USERSENQ user exit. Turn to the user exit description for *USERSENQ* on page 256 for more information.

To perform its intended task, the SAMS:Disk auto-restore function internally assigns and uses value “DMSNOENQ” for this sysparm.

USERVENQmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the USERVENQ user exit. This exit is used to monitor and/or update the allocation type (DISP=SHR or OLD) SAMS:Disk will use to allocate VSAM data sets. Turn to the user exit description for *USERVENQ* on page 257 for more information.

USRCDLENxx

This sysparm specifies the LEN of the user code in the DSCB. The default value is 12. This sysparm is used in DASD Space Billing.

USRCODEXmmmmmmmm

This sysparm specifies the module name to be invoked for the USRCODEX user exit. Turn to the user exit description for *USRCODEX* on page 258 for more information.

VCBYPASSn

The default value of this sysparm is N, which suppresses printing of messages stating the reason why the Move/Copy function bypassed a data set for migration. To cause such messages to be printed, specify a value of Y. Note: The COPY command will always print a message stating the reason why it bypassed a data set.

VCCHGBITn

The default value of this sysparm is N, which causes SAMS:Disk, when it moves a data set, to leave the change bit the same as it was before the data set was moved. To cause SAMS:Disk to set the change bit on each moved data set, specify a value of Y. Setting the change bit on each moved data set may increase the number of data sets backed up in implicit archive runs, but may simplify the recovery of packs. See also sysparm *RSCHGBIT* on page 166.

VCCOPYEXmmmmmmmm

This sysparm specifies the module that is given control by the Move/Copy function just prior to copying an explicitly named data set (using the COPY command). All selection screening by SAMS:Disk has been completed and the user's exit module is given a chance to override the copying. A return code of 2 from the exit causes SAMS:Disk to bypass the data set. Turn to the user exit description for *VCCOPYEX* on page 259 for more information.

VCDMIGEXmmmmmmmm

This sysparm specifies the module that is given control by the Move/Copy function just prior to the migration of a data set (using the MIGRATE command). All selection screening by SAMS:Disk has been completed and the user's exit module is given a chance to override the migration. A return code of 2 from the exit causes SAMS:Disk to bypass the data set. Turn to the user exit description for *VCDMIGEX* on page 260 for more information.

VCUDSORGn

The default value of N for this sysparm causes the Move/Copy function to bypass data sets with unknown organization types. If you want the Volume Configurator to treat such data sets as sequential data sets, specify a value of Y.

VOLSELREn

Specifying a value of Y for this sysparm will require the user to code a VOLUME= parameter on all SELECT statements. The default value of N is equivalent to coding VOLUME=/ on a SELECT statement which causes SAMS:Disk to attempt to process ALL data sets selected by the SELECT command. This can allow unwanted processing to occur. For example, if a user unintentionally runs:

```
SCAN REALVOLS
  SELECT CRITERIA=(DSORG,EQ,VSAM)
    DELETE
```

Note: For other related sysparms, refer to the descriptions of SELECTRE (page 169) and DSNSELRE (page 137).

VSACCESSc

The default value for this sysparm is “C”, which instructs SAMS:Disk to read VSAM clusters with control interval access. Specify this sysparm with a value of “L” to force SAMS:Disk to read VSAM clusters using logical access methods. When specifying this sysparm, also look at the value specified for sysparm VSARCFMT.

VSAM clusters that do not observe logical record definitions can only be read with control interval access. SAMS:Disk automatically detects these data sets, and reads them using control interval access, regardless of the value specified in this sysparm.

VSAM clusters that have been compressed with SOFTWORK’s VDC product can only be read with logical access methods. SAMS:Disk automatically detects these data sets, and reads them using logical access methods, regardless of the value specified in this sysparm.

RACF users should note that using control interval access requires having CONTROL authority for the VSAM clusters. This is higher than UPDATE authority, which is higher than READ authority required by logical access methods. If it is unacceptable to require CONTROL access to read VSAM clusters, specify this sysparm with a value of “L”.

Note: If the CIARPT parameter on the REPORT command is present in the same SYSIN as the BACKUP or ARCHIVE command, control access is required and VSACCESSC will be used.

VSACESEXmmmmmmmm

This sysparm specifies the name of the user exit that is given control prior to any read of a VSAM cluster. The purpose of the user exit is to interrogate (and change if desired) both the access type that SAMS:Disk will use on a given data set, and

also the format in which to write the data set when archiving it either to tape or disk. Turn to the user exit description for *VSACESEX* on page 261 for more information.

VSAIXDEFy

This sysparm is used during VSAM restore and recover processing to determine if the alternate indexes that were associated with a VSAM cluster are to be defined after the base cluster is restored by SAMS:Disk. The default value of Y causes the indexes to be defined. Specify a value of N to cause SAMS:Disk to only restore the base cluster, without redefining the alternate indexes. This sysparm can be overridden on the RESTORE and RECOVER commands by specifying the parameters AIXDEF or NOAIXDEF. Refer to the topic *"Parameters for VSAM Clusters"* on page 228 in the *User's Guide* for further information regarding these parameters. See also sysparm *VSBLDINX* on page 184 for information regarding building the alternate index after it is defined.

VSALLOEXmmmmmmmm

This sysparm specifies the module that is given control prior to all VSAM defines in SAMS:Disk. The purpose of the user exit is to interrogate (and change if desired) the primary and secondary space allocation amounts to be used in the define. Turn to the user exit description for *VSALLOEX* on page 262 for more information.

VSALOSHRn

This sysparm controls the disposition used for allocating VSAM data sets. The default value is N, which causes SAMS:Disk to allocate only those data sets defined with share options (1 3) with DISP=SHR, and all others with DISP=OLD. To cause SAMS:Disk to use DISP=SHR for all VSAM data set allocations, specify a value of Y. Note that specifying a value of Y can cause an integrity exposure since SAMS:Disk does no ENQ for VSAM resources.

To perform its intended task, the SAMS:Disk auto-restore function internally assigns and uses a value of "Y" for this sysparm, which causes DISP=SHR to be used for all VSAM data set allocations.

VSAMSUPPn

The default value for this sysparm is N, which indicates to SAMS:Disk that the VSAM support is not active. Specify a value of Y to activate the VSAM support.

VSAPPENDn

This sysparm is used during restore and recover of VSAM data sets. Its purpose is to generate new data and index component names for those clusters originally defined with VSAM-generated component names based on timestamp information. Data and index components that were given explicit names when originally defined are not affected by this sysparm.

If a value of Y is specified, SAMS:Disk generates each new name (to replace the timestamp version) using the base cluster's data set name, with ".DATA" appended for the data component, and ".INDEX" appended for the index component.

For example, if a base cluster of LABS.TJP.PMRFILE is being restored, the data component's name will be LABS.TJP.PMRFILE.DATA and the index component's name will be LABS.TJP.PMRFILE.INDEX. If the base cluster's name is too long to add the suffix (.DATA or .INDEX), SAMS:Disk will let VSAM generate a new name based on timestamp information.

Two other sysparms, VSDATSUF and VSINXSUF, can also be used for this same purpose, with or without specifying VSAPPEND. They control the new name for each component independently, and require you to specify the suffix to be appended. Therefore they are normally used only if suffixes other than .DATA and .INDEX are desired.

If the default value of N is in effect, and neither VSDATSUF nor VSINXSUF is specified, SAMS:Disk will instruct VSAM to generate another component name based on timestamp information.

See sysparms VSDATSUF and VSINXSUF on pages 186 and 187 respectively.

VSARCAIXn

When this sysparm is specified with the default value of N for an archive or backup run, SAMS:Disk bypasses processing alternate indexes and clusters as separate entries. This sysparm has no effect for an explicit archive or backup of a base cluster.

When specified with a value of Y for an implicit backup run, SAMS:Disk processes the alternate indexes as separate data sets. And, entries are placed in the files data set for the alternate indexes. This sysparm must be specified with a value of Y for an explicit archive or backup of the alternate index.

Note: This sysparm is ignored for an implicit archive run. This is because all AIX associations and DEFINE information is saved with the base cluster before the delete takes place, not as a separate data set.

VSARCFMTl

This sysparm controls the format of archive data for VSAM, if VSACCESSc has been specified. If VSACCESSl is specified, this sysparm is not considered and the data is archived in the logical record format. When the default value of L is specified, logical records are written to the archive medium. Specify a value of C to force control interval image format for all ESDS clusters, regardless of the naming convention they observe. When specifying this sysparm, also look at the value specified for sysparm VSACCESS.

VSAM clusters that do not observe logical record definitions cannot use logical formats. These VSAM data sets are automatically detected by SAMS:Disk and formatted in control interval images, regardless of the value specified in this sysparm.

VSAM data sets that have been compressed with SOFTWORK's VDC product can only use logical formats. SAMS:Disk automatically detects these data sets, and formats them in logical records, regardless of the value specified in this sysparm.

When a control interval image format is used, the control interval size cannot be changed when the data set is restored.

VSATTREXmmmmmmmm

This sysparm specifies the module that is given control prior to all VSAM defines in SAMS:Disk. The purpose of the user exit is to interrogate (and change if desired) the BUFFERSPACE AND CISZ values to be used in the define. In addition, certain data set attributes can be changed by this exit: RECOVERY vs. SPEED, UNIQUE vs. SUBALLOC, REUSABLE vs. NONREUSABLE, and data set SHARE OPTIONS. Turn to the user exit description for *VSATTREX* on page 264 for more information.

VSATTRIBn

The default value of this sysparm is N, which causes SAMS:Disk to use the original CISZ and BUFFERSPACE values found on the archive copy when processing data sets. By specifying a value of Y, all data sets that are defined by SAMS:Disk in the job step will have CISZ and BUFFERSPACE calculated by AMS. These values may or may not correspond to the original values with which the cluster was defined.

This sysparm should not be used when processing ESDS clusters. Therefore, SAMS:Disk automatically detects these data sets and will not modify the CISZ for them.

Note: This sysparm should not be used if IMS data bases are restored by SAMS:Disk. If the CISZ is changed inadvertently, the data base becomes inoperable. It must be restored with its original CISZ!

VSBIXCATxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Specify the name of the catalog into which the workfiles are to be defined to build alternate indexes when restoring VSAM clusters. If this sysparm is not specified, the catalog will be determined by the following order: (1) any user catalog specified in a STEPCAT or JOBCAT dd statement, or (2) if the data set names on the JSCUT1 and JSCUT2 dd statements are identified with qualified entry names and the first qualifier is the same as the name of a user catalog or the alias of a user catalog, the user catalog so identified is used, or (3) the master catalog is used.

VSBIXPSWnnnnnnnn

If the catalog specified in the VSBIXCAT sysparm is password-protected, specify this sysparm with the catalog's update (or higher-level) password. If this sysparm is not specified with the password, the operator may be prompted to supply the correct password.

VSBLDINXy

This sysparm is used during VSAM restore and recover processing to determine if alternate indexes are to be built automatically after they are defined by SAMS:Disk. The default value of Y causes SAMS:Disk to build the indexes. Specify a value of

N to cause SAMS:Disk to only define the alternate index without actually rebuilding it. This sysparm can be overridden on the RESTORE and RECOVER commands by specifying the parameters BLDINX or NOBLDINX. Refer to the topic *"Parameters for VSAM Clusters"* on page 228 in the *User's Guide* for further information regarding these parameters.

VSCATMAXnnnn

Specify a 4-digit number at least one greater than the number of user catalogs defined in the master catalog. This value is used to build a dynamic table of user catalog names in the implicit VSAM support. Note that this table is only built when sysparm VSCATPTN is specified as Y (or C) and a catalog data set name pattern is specified (as opposed to an explicit catalog name) on the CATALOG= parameter of the SCAN command. The default value for this sysparm is 0050.

VSCATPTNy

The default value for this sysparm is Y, which allows the user to enter a catalog data set name pattern (along with explicit names) on the CATALOG= parameter of the SCAN command in the implicit VSAM support. Specify a value of N to disallow this feature.

If a value of Y (or C) is specified and the user specifies a catalog data set name pattern, the master catalog is searched for all user catalogs defined in it. These user catalogs, along with the master catalog, are compared to the specified pattern for a match. All catalog names that match will be processed as if they had been explicitly named on the CATALOG parameter. Note: This feature does incur the additional overhead required to search the master catalog.

When a value of Y is specified and a catalog pattern is entered on the SCAN CAT= command, SAMS:Disk will verify that at least one catalog matches the pattern specified. If none match, processing is terminated and none of the commands in the job stream are executed. If you wish to fail only this SCAN command and allow any others to complete, specify a value of C for this sysparm. This causes SAMS:Disk to continue processing other commands even though an invalid catalog pattern name was specified.

VSCIACATy

The default value of this sysparm is Y, which causes catalog information to be printed on the cluster internal analysis report (CIA) of the VSAM support. Specifying a value of N causes the information to be suppressed; it can then only be printed by explicit specification on the CIAOPT= parameter.

VSCIADETn

The default value of this sysparm is N, which causes the graphic analysis section of the cluster internal analysis report (CIA) of the VSAM support to be suppressed. Specify a value of Y to have the graphic analysis section of the report printed.

VSCOMPNMn

The default value of this sysparm is N, which suppresses printing of the data set name associated with the data and index components on the Cluster Data Report of VSAM. Specify a value of Y to cause SAMS:Disk to print the data set name in this report. If this parameter is specified in the job stream, it must be specified in the PRINT step of the job.

VSCRIMAXnnnn

Specify as "nnnn" the maximum number of subparameters to be allowed on the SELECT and EXCLUDE commands for the implicit VSAM support. The default value is 0150. Normally the default value should not require any change. The maximum value that may be specified is 0255.

VSDATEFTn

The default value of this sysparm is N, which causes SAMS:Disk to use the Hitachi formats and names supporting 4-digit year numbers for VSAM Restore and Recover. Specify a value of Y if it is determined that your system does not support the default date formats.

VSDATSUFxxxxxxxx

This sysparm specifies a 1- to 8-character suffix to be used by SAMS:Disk at Restore time or in the Move/Copy function at COPY newname time to generate new data component names for those clusters that have VSAM-generated component names based on the timestamp. The sysparm defaults to a value of blanks, such that the newname function is inactive. To activate the newname function, specify a non-blank value for this sysparm or specify sysparm VSAPPEND with a value of Y. If both sysparms are specified, VSDATSUF will override VSAPPEND.

For example, if this sysparm is specified with a value of D, and cluster LABS.TJP.XREFFILE is being restored, the data component will be named LABS.TJP.XREFFILE.D.

Note: Specifying sysparm VSAPPEND with a value of Y is the same as specifying this sysparm with a value of DATA and sysparm VSINXSUF with a value of INDEX.

VSDEFCATy

The default value of this sysparm is Y, which allows catalog management to determine the catalog in which to put the cluster, based on Hitachi-documented catalog selection criteria. Specify a value of N to cause SAMS:Disk to not let catalog management determine the catalog. Instead, SAMS:Disk will define the cluster in the same catalog from which it was archived. If this catalog is not the same one that catalog management would have used, a STEPCAT dd statement for the catalog will probably be needed also. Note: This sysparm has no effect when the catalog is explicitly named on the RESTORE or RECOVER command.

VSDSPACEn

This sysparm lets you specify if sub-allocated VSAM data sets in VSAM data spaces should be bypassed for processing using the DSCL SCAN REALVOLS command. This sysparm is only relevant for the DSCL SCAN REALVOLS command, and not the DSCL SCAN CATALOG command. Processing the sub-allocated VSAM data sets incurs extra overhead for SCAN REALVOLS, due to additional catalog processing.

When this sysparm is specified with the default value of N, SAMS:Disk processing bypasses sub-allocated VSAM data sets when using the DSCL SCAN REALVOLS command.

When this sysparm is specified with a value of Y, SAMS:Disk processing allows selection of sub-allocated VSAM data sets when using the DSCL SCAN REALVOLS command.

VSIDCUTPxxxxxxxx

If desired, specify a one- to eight-character prefix to be used by SAMS:Disk if it needs to generate data set names for the JSCUT1 and JSCUT2 dd statements during restore or recover operations. If a value is not specified, the high-level qualifier of the first alternate index being built will be used. For more details, refer to the topic *"Activating VSAM Support"* on page 23 of the *Installation Guide*.

VSIDCUTVxxxxxxxx

If you do not specify the JSCUT1 and JSCUT2 dd statements directly in your restore or recover JCL, you must specify this sysparm with the volume(s) that SAMS:Disk can use for the sort work data sets required by BLDINDEX processing. For more details, refer to the topic *"Activating VSAM Support"* on page 23 of the *Installation Guide*. Specify from 1 to 10 volumes in the list, all of which must be the same device type.

VSINXSUFxxxxxxxx

This sysparm specifies a 1- to 8-character suffix to be used by SAMS:Disk at Restore and in the Move/Copy function at COPY newname time to generate new index component names for those clusters that have VSAM-generated component names based on the timestamp. The sysparm defaults to a value of blanks, such that the newname function is inactive. To activate the newname function, specify this sysparm with a non-blank value, or specify sysparm VSAPPEND with a value of Y. If both sysparms are specified, the value specified for this sysparm will override VSAPPEND.

For example, if this sysparm is specified with a value of INX, and cluster LABS.TJP.XREFFILE is being restored, the index component will be named LABS.TJP.XREFFILE.INX.

Note: Specifying sysparm VSAPPEND with a value of Y is the same as specifying this sysparm with a value of INDEX and sysparm VSDATSUF with a value of DATA.

VSMAFTEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the VSMAFTEX user exit. Turn to the user exit description for *VSMAFTEX* on page 266 for more information.

VSMPRIEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the VSMPRIEX user exit. Turn to the user exit description for *VSMPRIEX* on page 267 for more information.

VSMPURGEy

The default value of this sysparm is Y, which causes SAMS:Disk to delete unexpired data sets. Specify a value of N to instruct SAMS:Disk to not allow deletion of unexpired data sets. The default value of Y is equivalent to the use of the PURGE parameter when issuing a DELETE via Access Method Services.

VSMSGEMPn

The default value of this sysparm is N, which causes SAMS:Disk to bypass issuing message 2517 for empty VSAM clusters that are being archived. Specify a value of Y to have the message be issued whenever the condition is encountered. For more information, refer to the message description for *2517* on page 168 of the *Message Manual*.

VSMSGTOTn

The default value of this sysparm is N, which causes SAMS:Disk to bypass issuing message 2562 when a difference in record totals is detected between SAMS:Disk processing and the catalog. Specify a value of Y to have the message issued whenever the condition is encountered. For more information, refer to the message description for *2562* on page 183 of the *Message Manual*. Note that message 2832 might not be issued, depending on the value specified for sysparm VSMSGWRN.

VSMSGWRNn

The default value of this sysparm is N, which causes SAMS:Disk to bypass issuing message 2832 when the SAMS:Disk record total is less than the value found in the catalog for the data set. Specify a value of Y to have the message issued whenever the condition is encountered. For more information, refer to the message description for *2832* on page 214 of the *Message Manual*.

VSMSPWEXmmmmmmmm

This sysparm specifies the module that is invoked during initialization processing in the VSAM support. The purpose of the module is to allow the user to change the default SAMS:Disk master password (currently implemented only in the VSAM support). Turn to the user exit description for *VSMSPWEX* on page 269 for more information.

VSMSTATSn

The default value of this sysparm is N, which causes SAMS:Disk to bypass printing of additional data and index component statistics on the Cluster Detail Analysis report. Specify a value of Y to force printing of these additional statistics. The statistics for each component will be printed on an additional print line. Included with these statistics are the component's high used and high allocated RBAs, along with tracks allocated. Note: If this parameter is overridden in the user's job stream, the override must be specified in the PRINT step.

VSNEWNEXmmmmmmmm

This sysparm specifies the module that is given control prior to all VSAM defines in SAMS:Disk. The purpose of the user exit is to interrogate (and change if desired) the data set name with which the component will be defined. The exit can either change a name that SAMS:Disk will use, or it can instruct SAMS:Disk to let AMS generate a name for the component. Turn to the user exit description for *VSNEWNEX* on page 270 for more information.

VSNOERASn

The default value of this sysparm is N, which causes SAMS:Disk to honor the erase option when deleting a VSAM cluster. Specify a value of Y to cause SAMS:Disk to override the erase option when deleting a VSAM cluster. If SAMS:Disk attempts to delete a cluster that was defined with the erase option and an error prevents its deletion, this sysparm will cause SAMS:Disk to reattempt the delete with a no erase option. This causes the cluster to be deleted from the catalog without overwriting the data component with binary zeroes. Note that even if this sysparm is specified as a Y, the default erase/no erase value will be attempted first. The delete with no erase will only be attempted if the first delete fails.

VSNOSCROn

The default value for this sysparm is N, which causes SAMS:Disk not to honor the SCRATCH option if it has been specified and the delete fails. This would most likely occur when a data sets catalog entry is pointing to an unavailable volume.

Specify a value of Y to cause SAMS:Disk to retry a delete that failed. The second attempt to delete will be performed with the NO SCRATCH option specified. This causes the entry to be deleted from the catalog (BCS or basic catalog structure) without trying to access the volume. SAMS:Disk will only retry a SCRATCH for the following JSC0009I-S return codes:

Return Code	Reason Code	Meaning
8	214	Unit(s) not available
8	218	Specified volume is not mounted
50	18	I/O error occurred
102	5	I/O error occurred

Typically this sysparm would be set to Y when restoring a VSAM data set that you want to restore to a different volume. Issuing a standard delete (either by SAMS:Disk or JSCVSUT) will fail because the BCS still contains an entry for the data set. When this occurs, the NOSCRATCH option is required to clean up the catalog entry without requiring access to an unavailable volume.

We recommend that you use the default value of this sysparm (N) for normal SAMS:Disk processing, and only specify a value of Y during a volume recovery situation. Note that even if this sysparm is specified as Y, a standard delete request will be attempted first; the delete with NOSCRATCH will be attempted only if the first delete fails with a specific set of reason codes.

VSONLINEn

This sysparm controls the amount of checking done to determine if the volumes containing VSAM clusters are online to the system. It applies only to the implicit mode of processing VSAM data sets.

Since removable volumes and offline volumes (or even obsolete/garbage entries pointing to currently invalid volumes) are generally exceptions rather than the rule, the default value of this sysparm is N. SAMS:Disk will avoid the overhead of checking, and assume that needed volumes (the volumes associated with each cluster in the catalog) are available. Mount requests may occur if some are not available. This may be desirable if you know a few volumes are offline, but you want them mounted for backup processing, for example.

Specify a value of Y if you want SAMS:Disk to verify that needed volumes are online. This will prevent unexpected mount requests for volumes that are not available. Verification is done by dynamically allocating the cluster with the “NOMOUNT” attribute. If the allocation of the cluster fails, processing for cluster will be bypassed.

The Y option will eliminate unexpected mount requests for VSAM data sets residing on offline volumes, but unusual catalog conditions and entries may cause other unexpected mounts before SAMS:Disk gains control. These are usually exception cases. Examine the catalog entry, the alias pointers in the master catalog, and other relevant information to determine and correct the condition causing the unexpected mount request.

Note: The verification done as a result of this sysparm being set to a value of Y may increase the run time for your job. It may also increase the number of messages written to your job log. Adjusting the value of the MSGLEVEL parameter on your JOB card may reduce the number of messages.

VSPREDEFn

The default value of this sysparm is N, which will cause SAMS:Disk to not allow restore or recover commands to overwrite preallocated VSAM clusters. Specify a value of Y to allow a restore to overwrite preallocated VSAM clusters with the REUSE attribute. Note that SAMS:Disk cannot be held responsible for the integrity of the restored data when a value of Y is specified.

You should not specify a value of Y during VSAM volume recover after an DMF/EF Type-2 catalog recovery failed.

See sysparm PREALLOC on page 156 for restore of non-VSAM data sets.

(To protect integrity, the SAMS:Disk auto-restore function internally assigns and uses a value of “N” for this sysparm, which prevents VSAM data sets being auto-restored into existing clusters.)

VSRESCLDn

The default value for this sysparm is N, which causes SAMS:Disk to suppress dynamic printing the VSAM cluster detail report. Specify a value of Y to cause SAMS:Disk to print a cluster detail report dynamically whenever a VSAM cluster is recovered or restored. This report will be printed on the restore report that is normally produced at restore time. The lines that are printed are based on the values specified for sysparm RPTCLSEL.

VSSEQCNTnnn

This sysparm allows you to specify a numeric quantity from 1 to 999 to indicate the number of “key out of sequence” errors SAMS:Disk should tolerate (per data set) at restore time before terminating the restore for that data set. If the default value of 0 is used, the first such error will cause the restore to be terminated for that data set. If you specify a value greater than 0, and the number of errors is less than the value specified, the data set will be restored but the records that were out of sequence must be loaded manually back into the cluster. A dump of every record that is out of sequence will be printed to the MSGPRINT error report for user inspection.

This sysparm will normally be required only if you have used sysparm VSSEQERR to allow a VSAM cluster with such problems to be archived.

VSSEQERRy

This sysparm has a default value of Y, which causes SAMS:Disk to stop processing a VSAM cluster if an out-of-sequence key is encountered. Specify a value of N to cause SAMS:Disk to ignore out-of-sequence keys in a key-sequence data set and to continue processing the data set. Message 2839 will be issued regardless of the value specified for this sysparm. If a value of N is specified, no records will be lost

on the archive medium but the data set may have to be restored by non-conventional means (such as extract, sort, and then using the REPRO facility of JSCVSUT) since the keys are not in sequence.

VSSETUSEn

This sysparm controls the way the last use date is updated in the format-1 DSCB when VSAM clusters defined in an DMF/EF Type-2 catalog are restored. The default value of N causes the last use date to be updated according to Hitachi rules for DMF/EF Type-2 catalogs.

Specifying a value of Y causes SAMS:Disk to set the last use date as follows: If the last use date was non-zero when the data set was archived, SAMS:Disk will use that date when it is restored. If the last use date was zero when the data set was archived, SAMS:Disk will set the last use date to equal the creation date of the data set when it is restored.

VSSPEEDOy

The default value of this sysparm is Y, which causes SAMS:Disk to use the “speed” option, regardless of the value with which the cluster was defined. Specify a value of N to cause SAMS:Disk to use the “speed” or “recovery” option with which the cluster was defined.

VSSPUSEDy

The default value of this sysparm is Y, which causes SAMS:Disk to consolidate secondary extents in the original cluster and increase the primary allocation (when required) accordingly. This results in defragmentation of the data set. However, if the pack is badly fragmented already, the larger amount of space may not be available for the primary request. In this case, specify a value of N to cause SAMS:Disk to use the original allocation amounts for all DEFINE requests.

VSSTUMPLnnnnnn

This sysparm allows you to specify the number of bytes required to hold the largest catalog entry returned from a catalog locate. The default value is 026000. Specify this sysparm only in response to message 2561.

VSSYSVERn

This sysparm is applicable only to those users who have implemented the Data Facility/Extended Function program product from Hitachi. Normal OPEN processing of a VSAM data set in this environment will cause a VERIFY to be issued against any cluster with an out-of-sync end-of- file marker. This is internal to OPEN processing and causes the VERIFY to be issued prior to the application program receiving control back from OPEN. This sysparm’s default of N turns off this automatic VERIFY feature. Specify a value of Y to allow the automatic VERIFY to take place.

VSUSEBLKn

The default value of this sysparm is N, which causes SAMS:Disk to use the control interval size (CISZ) of the data component for selection criteria BLKSZ and to be printed under the BLKSZ header in the VSAM MVD and SVD reports. Specify a value of Y to use the cluster's physical block size instead of the CISZ.

VSUNOPENn

The default value of this sysparm is N, which causes SAMS:Disk to ignore a defined but never opened VSAM cluster when the criteria (MODIFIED,EQ,YES) is specified. Specifying a value of Y forces SAMS:Disk to select such clusters once, but never again until it is actually modified.

There is one exception, and that occurs on the day the cluster is defined. On that day, SAMS:Disk will select "defined, but never opened" clusters every time the criteria (MODIFIED,EQ,YES) is executed.

The standard way to detect if a VSAM cluster has been modified is reviewing the TIMESTAMP information and/or the DS1DSCHA (Change bit) in the format-1 DSCB. AMS sets neither of these for a never-opened cluster. So, when the TIMESTAMP is zero, SAMS:Disk compares the CREDT to the ARCDT. If CREDT is greater than or equal to the ARCDT, SAMS:Disk considers the cluster modified.

Specifying VSUNOPEN with a value of Y ensures that a "defined, but never opened" cluster is backed up when the criteria MODIFIED,EQ,YES is executed.

VSUSEMODn

The default value for this sysparm is N, which causes SAMS:Disk to print the last use date from the format-1 DSCB for the data component of a VSAM cluster under the USEDT heading in the VSAM MVD and SVD reports (DMF/EF Type-2 only). For a standard VSAM catalog data set using the default value, blanks are printed in this column. Specify a value of Y to cause a VSAM cluster's last modified date to be printed under the USEDT heading.

VSVERIFYn

The default value for this sysparm is N, which causes SAMS:Disk to bypass processing of a cluster when the need to verify it is detected at OPEN time. The cluster must be verified manually. Specify a value of Y to instruct SAMS:Disk to issue a VERIFY when the need is detected at OPEN time. If the VERIFY succeeds, SAMS:Disk will then attempt to OPEN the data set again and continue processing.

VTOCREADe

This sysparm controls which of three VTOC readers SAMS:Disk will use. Although these VTOC readers are functionally equivalent, they perform quite different. The default value is E.

Table 4-10. Vtoc Reader Names and Descriptions

Reader	Description
E	Causes SAMS:Disk to use EXCP processing and is quite fast.
B	Causes SAMS:Disk to use the BSAM reader. This is a standard Hitachi facility, but is quite slow. This can increase SAMS:Disk processing time up to 200 percent on some report writers.
O	Causes SAMS:Disk to use the OBTAIN macro VTOC reader. This also is a standard Hitachi facility and is even slower than option B. This can increase SAMS:Disk processing time up to 1100 percent on some report writers.

Use options B or O only when VTOC problems prohibit the use of the SAMS:Disk EXCP VTOC reader.

Note: Refer to the appropriate Hitachi manuals for detailed information on the sensitivities of these VTOC readers.

WTORESRLy

The default value of this sysparm is Y, which causes SAMS:Disk to issue a WTO message for each RESERVE issued on a pack during PDS Compress in a shared-DASD environment. Specify a value of N to cause SAMS:Disk to not issue a WTO message under these circumstances.

XCPARCEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the XCPARCEX user exit. Turn to the user exit description for *XCPARACEX* on page 271 for more information.

XCPDSNEXmmmmmmmm

Specify this sysparm to provide the module name to be invoked for the XCPDSNEX user exit. Turn to the user exit description for *XCPDSNEX* on page 272 for more information.

Chapter 5. User Exits

General Information

Modules may be incorporated in SAMS:Disk to satisfy unique processing requirements of an installation. These modules are identified to SAMS:Disk by appropriate system parameter entries in member SYSPARMS of the parmlib data set. During execution of SAMS:Disk, the exit modules are dynamically loaded when they are called for the first time.

User exit modules may directly invoke SAMS:Disk functions by use of the MI dynamic interface, as illustrated in the topic *"Module Call Interface"* on page 309. User exits using the MI dynamic interface must be link-edited with the MI interface module from the SAMS:Disk library. Instructions for doing this are under the *"Assembly and Link-Edit of SAMS:Disk Modules"* topic on page 307.

If your exit is written in COBOL or PL1 rather than assembler, and calls other routines, it is recommended that you use the MI2 interface rather than MI (fast path). See *"MI Fast Path"* on page 286 for more information about MI2.

Note: User exits may need to be re-assembled each time you upgrade your SAMS:Disk release level (i.e., source code to ADSMI002 has changed).

In order to provide compatibility for existing SAMS:Disk modules with 24-bit addressing, only the following AMODE/RMODE combinations are valid for user exits:

```
AMODE 24, RMODE 24
AMODE 31, RMODE 24
AMODE ANY, RMODE 24
```

Each of the user exits is discussed under the sysparm entry name that is necessary to define the respective module to SAMS:Disk for invocation.

Assembler language conventions are followed in passing parameters to the exit module. Register 1 will point to a list of addresses, each of which points to a specific parameter as defined for the exit. In most cases, the exit module must return a halfword code via the designated parameter to indicate to SAMS:Disk what further actions are to be taken.

If you use the Common File Handler Interface (described on page 30), and you are not already executing a SAMS:Disk function, and files data set logging is activated, the function you are running needs to be stumped within your user exit prior to any file updates. This is necessary for files data set logging as the current function is part of the information captured during logging.

To implement this, add the following to your user exit (this call need only be executed once):

```
* Stump the function to retrieve during files data set logging
  #CALL ADSUT077,($ISRT,FUNCTION,CTYPE,K08,USRFUNC,UT077RC),VL
*
$ISRT    DC CL5'$ISRT'    Service = Insert
FUNCTION DC CL8'FUNCTION' Field name for retrieval
CTYPE    DC CL2'C'        Service type = character data
K08      DC H'8'          Length of field
USRFUNC  DC CL8'        ' Fill in user function name
UT077RC  DC H'0'          Return code
```

Figure 5-1. Code to Stump User Exit Functions

Using Previous Releases of User Exits

User exits built for previous releases of SAMS:Disk are compatible with release 9.0 with one exception:

1. If the SAMS:Disk provided PROC macro is used to begin the exit program, verify whether or not the PROC macro is specified with an OPTIONS=(blank) parameter. For example:

   ```
   csectname PROC OPTIONS=
   ```

   If this OPTIONS= parameter (without a value) is found in any user exit, that exit <u>must</u> be reassembled.

Note: Modifications to the user exit are not necessary, reassembly alone will use an updated version of the PROC macro provided with release 9.0, thus creating a release 9.0 compatible module.

Use of PROC statements with other values are all compatible with release 9.0 and can be moved directly into the 9.0 libraries. All user exits using standard assembly entry and exit code are also fully compatible with release 9.0. For example, typical uses of the PROC macro that generate code compatible with release 9.0 are:

```
csectname PROC OPTIONS=STATIC
csectname PROC OPTIONS=NOSAVE
csectname PROC OPTIONS=MAIN
csectname PROC
```

Finally, if you have not correctly implemented the PROC macro, attempting to invoke a user exit from SAMS:Disk will result in User Abend 1547-16 followed by:

MTF005I OBSOLETE MIVT SERVICE REQUESTED

User Exits Cross Reference Matrix

Exit Name	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING	XCOPY
ALLOEXIT			•	•		•														
ALOCATEX			•	•		•											•			
ALOPOSEX			•	•													•			
ARCDSNEX		•														•				
ARCEODEX		•			•															
ARCHIVEX		•														•				
ARESPREX			•																	
ARPOOLEX			•																	
DARCHIEX		•																	•	
DCCMPEX0		•			•															
DCCMPEX1		•																		
DCCMPEX2		•																		
DCCMPEX3		•																		
DCCMPEX4		•																		
DCCMPEX5		•																		
DCCMPEX6		•																		
DCCMPEX7		•																		
DCCMPEX8		•																		
DCCMPEX9		•																		
DCCMPEXA		•																		
DCCMPEXB		•																		
DCCMPEXC		•																		

Exit Name	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING	XCOPY
DCCMPEXD		•																		
DCCMPEXE		•																		
DCCMPEXF		•																		
DCDCPEX0		•			•	•														
DCDCPEX1		•				•														
DCDCPEX2		•				•														
DCDCPEX3		•				•														
DCDCPEX4		•				•														
DCDCPEX5		•				•														
DCDCPEX6		•				•														
DCDCPEX7		•				•														
DCDCPEX8		•				•														
DCDCPEX9		•				•														
DCDCPEXA		•				•														
DCDCPEXB		•				•														
DCDCPEXC		•				•														
DCDCPEXD		•				•														
DCDCPEXE		•				•														
DCDCPEXF		•				•														
DCDSNDEX		•																		
DEFARCEX																				
DERASEEX																			•	
DINXUFEX		•	•	•	•	•														
DRESTOEX			•																•	

Exit Name	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING	XCOPY
DSBUSREX																			•	
DSCBCVEX			•	•											•	•				
DSCLSCEX	•	•			•								•			•				
DSDISPEX		•																		
DSNDELEX								•												
DSNDLPEX								•	•											
FMSSAFEX				•																
FMSSPREX				•																
GDGCATEX			•	•											•	•				
IXCTLGEX			•										•							
IXMREVEX								•												
LISTDMEX																			•	
LISTDVEX							•												•	
LISTREEX																			•	
MERDSNEX									•											
MERVOLEX									•											
MIGDISEX														•						
MIGGDGEX														•						
MIGREXIT														•						
RECPRIEX				•																
RESAFTEX			•	•		•														
RESPRIEX			•	•		•														
RETAFTEX																				
RETGDGEX																				

Exit Name	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING	XCOPY
RETPRIEX																				
RLSEAFEX														•						
RPTDSBEX	•																			
RPTDSNEX	•																			
RPTDSUEX	•																			
RPTMVDEX	•																			
SCRTCHEX		•	•	•		•									•	•	•		•	
SECURAEX	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	
SECURPEX	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	
SPACECEX			•	•													•			
SPFHDGEX	•																			
SPFORDEX																				
SPFORSEX																				
SYSOUTEX	•	•	•	•		•	•	•	•	•	•		•	•	•	•	•	•	•	
TAOPPOEX		•			•				•							•				
TAOPPREX		•			•				•							•				
TAPCTLEX								•	•	•	•									
TAPEDLEX								•	•											
TMSCTLEX								•	•	•	•									
UNLOADEX					•								•							
USERSENQ		•	•	•	•	•									•		•			
USERVENQ																•				
USRCODEX																			•	
VCCOPYEX																•	•			

Exit Name	REPORTS	ARCHIVE/BACKUP	RESTORE	RECOVER	VBACKUP	VRECOVER	LISTD/V	IXMAINT	MERGE	REBUILD	IXUPDATE	FILES MGT	RELEASE	SEQ MIGRATE	PDS COMPRESS	MOVE/COPY	SECURITY	TSS	BILLING	XCOPY
VCDMIGEX																•	•			
VSACESEX		•														•				
VSALLOEX			•	•		•										•				
VSATTREX			•	•		•										•				
VSMAFTEX																•				
VSMPRIEX																•				
VSMSPWEX	•	•	•	•		•										•				
VSNEWNEX			•	•												•				
XCPARCEX																				•
XCPDSNEX																				•

User Exit Descriptions

ALLOEXIT — Restore/Recover Data Set Allocation

The module named by the sysparm entry is invoked at allocation time during restore or recover processing for non-VSAM data sets. The format-1 DSCB for the data set being restored is passed to the exit to allow the following fields to be updated prior to its allocation:

- CREATE DATE
- EXPIRE DATE
- LAST USED DATE
- LAST MOD DATE
- OPEN COUNT

Use sysparm ALLOEXIT to specify the module name to be invoked for this exit.

Table 5-1. Parameters Passed to ALLOEXIT

Type	Size	Description
INPUT	XL140	Data Set Identifier - Format-1 DSCB for data set to be processed

ALOCATEX — Data Set Allocation Preprocessing

The module name supplied for this exit will receive control from any SAMS:Disk routine that allocates non-VSAM data sets on DASD. It receives control prior to allocation (SVC 32 or SVC 99).

The user may request that SAMS:Disk reject the allocation request or continue processing. The format-1 DSCB to be allocated is also provided to the exit for examination and changes.

Use sysparm ALOCATEX to specify the module name to be invoked for this exit.

Table 5-2. Parameters Passed to ALOCATEX

Type	Size	Description		
IN/OUT	XL256	DATA SET IDENTIFIER - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.		
IN/OUT	XL140	VOLUME IDENTIFIER - Format-4 DSCB for data set. VOLUME SERIAL in positions 1 - 6.		
IN/OUT	XL4	ALLOCATION AMOUNTS - This parameter contains 2 values indicating how much space to allocate. HW - Number of tracks to be allocated HW - Number of directory blocks (if PDS).		
INPUT	XL2	DEVICE TYPE - Device type as documented for UCBTYP field in UCB control block		
OUTPUT	CL100	If user to reject request by setting return code to 2, optionally a message may be placed here. It will be printed by SAMS:Disk. If this field is spaces, no message will be printed.		
OUTPUT	HW	Specify return code:	H’1’	Continue Normal Processing
			H’2’	Reject Allocation Request

ALOPOSEX — Data Set Allocation Post-Processing

The module name supplied for this exit will receive control from any SAMS:Disk routine that allocates non-VSAM data sets on DASD. It receives control after SVC99 allocation.

This exit allows the user to retain the format-1 DSCB data required by their applications in the 13-byte System Code field and the 2-byte Reserved field at offset +103. These are the only two fields where data may be altered and then moved to the actual DSCB. Specify the correct return code to activate update processing.

Use sysparm ALOPOSEX to specify the module name to be invoked for this exit.

Table 5-3. Parameters Passed to ALOPOSEX

Type	Size	Description	
IN/OUT	XL256	SOURCE data set IDENTIFIER - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.	
INPUT	XL140	SOURCE VOLUME IDENTIFIER - Format-4 DSCB for data set. VOLUME SERIAL in positions 1 - 6.	
IN/OUT	XL256	TARGET data set IDENTIFIER - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.	
INPUT	XL140	TARGET VOLUME IDENTIFIER - Format-4 DSCB for data set. VOLUME SERIAL in positions 1 - 6.	
INPUT	XL2	DEVICE TYPE - Device type as documented for UCBTYP field in UCB control block	
OUTPUT	HW	RETURN CODE - Specify return code as indicated to have both the System Code field and the Reserved field of the format-1 DSCB updated with user data.	
		H’1’	Perform Update Processing
		OTHER	Continue Normal Processing

ARCDSNEX — Archive Data Set Name Generation Exit

The module name supplied by this exit is invoked at archive data set name generation time. This exit allows you to alter the SAMS:Disk archive data set name to meet special user requirements.

When this user exit is invoked, a unique data set name is created and passed as input. You must make sure that the data set name created by the exit is unique (even across shared operating systems), and that the name selects valid archive pools.

Use sysparm ARCDSNEX to specify the module name to be invoked for this exit.

Table 5-4. Parameters Passed to ARCDSNEX

Type	Size	Description
IN/OUT	CL44	UNIQUE ARCHIVE DATA SET NAME
INPUT	CL8	JOBNAME
INPUT	CL4	SYSTEM ID as identified to SMS

ARCEODEX — Archive Tape End Of File (CLOSE) Exit

The module name supplied for this exit will receive control after each archive tape is closed. It is used for informational purposes only.

The user is passed the DDNAME in order to determine if it is a close for the primary or the copy tape, and the JFCB in order to see the actual tape volumes used. The data set name and volume serials in the JFCB may be useful for interfacing to tape management systems that read the JFCB at job termination time only, rather than hooking directly into tape open and close routines. It may also be useful for generating tape labels, or for detecting when a multiple volume archive tape was created.

Use sysparm ARCEODEX to specify the module name to be invoked for this exit.

Table 5-5. Parameters Passed to ARCEODEX

Type	Size	Description		
INPUT	H	OPTION - Type of CLOSE call	H'1'	Regular tape close
			H'2'	Final tape close - job is ending
INPUT	CL8	DDNAME	CL8'ARCHIVE0'	Close for primary tape
			CL8'ARCHIVEC'	Close for copy tape
INPUT	XL176	JFCB - The JFCB for the named DDNAME after the tape close has been done		
INPUT	XL110	ARCHVOLS - Image of the ARCHVOLS record as it will be stored in the ARCHVOLS subfile		

ARCHIVEX — Process Archive Request

The module name supplied for this exit will receive control from the SAMS:Disk archive function after it has retrieved the format-1 DSCB and verified the data set exists and is OK to process. The user may request that SAMS:Disk reject the data set for processing or continue on to process the archive request.

Use sysparm ARCHIVEX to specify the module name to be invoked for this exit.

Table 5-6. Parameters Passed to ARCHIVEX

Type	Size	Description			
INPUT	CL8	COMMAND IDENTIFIER - CL8'ARCHIVE'			
INPUT	CL1	ENVIRONMENT	'B'	BATCH	
			'T'	TSS	
OUTPUT	HW	Specify return code	H'1'	Continue Normal Processing	
			H'2'	Terminate Processing For Data Set	
INPUT	XL256	DATA SET IDENTIFIER - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.			
INPUT	CL44	NEW NAME - If not spaces, NEWNAME for data set			
INPUT	XL140	VOLUME IDENTIFIER - Format-4 DSCB. VOLUME SERIAL in positions 1 - 6.			
IN/OUT	XL3	EXPIRATION DATE - XL3'yydddd' (BINARY)			
IN/OUT	CL4	DISPOSITION INDICATORS	CL1	S	SCRATCH
				N	NOSCRATCH
			CL1	U	UNCAT
				N	NOCAT
				R	RECAT
			CL1	E	Explicit ARCHIVE
			CL1	Y	SIMULATE
				NOT Y	LIVE
INPUT	HW	MEMBER COUNT - If MEMBERS specified			
INPUT	nXL8	MEMBER LIST - List of PDS member names			
INPUT	CL8	Password from PASSWORD command parameter			
INPUT	CL1	RESET parameter	Y	YES	
			N	NO	

ARESPREX — Auto-Restore Screening Exit

The module name supplied for this exit will receive control during the auto-restore function of SAMS:Disk. It is invoked by the auto-restore system task after SAMS:Disk has verified that an index record exists for the data set being restored. It is invoked prior to allocation of the archive device, so if this exit rejects the restore request, no device will be allocated.

The purpose of this exit is to let you screen the auto-restore request and, if desired, reject it. You may also put a logging facility in this exit to track the number and type of auto-restores being processed, or check the device type in the ARCHVOLS record to see if the data set was archived to tape or disk. The only parameter that may be modified by the exit is the result code. Although this exit is invoked by a system task, it is not required that it be reentrant. Take care in coding the exit to ensure that it will not cause an abend. Although the system task will recover and post the waiting task, the restore will not be processed. Your exit should issue an ESTAE macro to set up a recovery environment of its own.

Use sysparm ARESPREX to specify the module name to be invoked for this exit.

Table 5-7. Parameters Passed to ARESPREX

Type	Size	Description		
INPUT	CL44	DATA SET NAME		
INPUT	CL6	VOLUME from which data set was archived		
INPUT	CL6	PSUEDO VOLUME (if the catalog management hook is installed) or TARGET VOLUME (if the s213 hook is installed)		
INPUT	XL256	DSNINDEX RECORD		
INPUT	HW	ADDRESS SPACE ID OF ORIGINATING TASK		
INPUT	CL8	JOB NAME OR TSS ID OF ORIGINATING TASK		
OUTPUT	HW	Specify return code	H’0’	Continue Normal Processing
			H’1’	Defer (queue) the Request
			H’8’	Terminate Processing For Request
INPUT	XL110	ARCHVOLS RECORD		
INPUT	XL167	Auto-restore control block (ARCB) as described by the ARCB macro in the SAMS:Disk macro library		

ARPOOLEX — Auto-Restore DASD Pool Exit

The module name supplied for this exit will receive control during the auto-restore function of SAMS:Disk. It is called only when the auto-restore is driven from the SAMS:Disk catalog management exit, and not the S213 exit. This exit allows the user to inspect the DASD pool that SAMS:Disk has assigned for the restore (if any). If the pool name is blanks on input to the exit, either no pools were defined, or none of the pool definitions matched either the data set name or source volume of the data set.

The exit can either modify the pool name passed on input, or it can pass back an explicit volume to which the data set should be restored. If an explicit volume is returned, the pool name will be ignored. The volume on input will always be blank. If a pool name is returned, it must be a valid pool name defined in the DASDPOOL member of your parmlib data set.

For more information on the use of DASD pools in the auto-restore feature, review the topic *"Setting Up DASD Pools for Auto-Restore"* on page 43 of the *Installation Guide*.

Although this exit is invoked by a system task, the module need not be re-entrant. However, care should be taken in coding the exit so that it will not cause an abnormal termination.

Use sysparm ARPOOLEX to specify the module name to be invoked for this exit.

Table 5-8. Parameters Passed to ARPOOLEX

Type	Size	Description
INPUT	CL44	DATA SET NAME
INPUT	CL6	VOLUME DATA SET WAS ARCHIVED FROM
INPUT	XL256	DSN ARCHIVE INDEX RECORD
INPUT	XL110	DSN ARCHIVE VOLUME RECORD
IN/OUT	CL8	POOL NAME (must be valid dasdpool)
OUTPUT	CL6	EXPLICIT VOLUME TO RESTORE TO

DARCHIEX — Process Deferred Archive Request

The module name supplied for this exit will receive control from the SAMS:Disk DARCHIVE function after it has retrieved the DARCHIVE COMMAND and before the command is placed on the DARCHIVE request queue.

The user may request that SAMS:Disk reject the data set for processing or continue on to queue the DARCHIVE request.

Use sysparm DARCHIEX to specify the module name to be invoked for this exit.

Table 5-9. Parameters Passed to DARCHIEX

Type	Size	Description			
INPUT	CL8	COMMAND IDENTIFIER - CL8'DARCHIVE'			
INPUT	CL1	Environment	'B'	BATCH	
			'T'	TSS	
OUTPUT	HW	Specify Return Code	H'1'	Continue Normal Processing	
			H'2'	Terminate Processing For Data Set	
INPUT	CL44	DATA SET NAME			
INPUT	CL44	NEW NAME - If not spaces, NEWNAME for data set			
INPUT	CL6	VOLUME - What DASD volume contains data set			
IN/OUT	XL3	EXPIRATION DATE - XL3'yy0ddd' (BINARY)			
IN/OUT	HW	RETENTION PERIOD - Number of days to retain DSN			
IN/OUT	CL4	Disposition Indicators	CL1	S	SCRATCH
				N	NOSCRATCH
			CL1	U	UNCAT
				N	NOCAT
				R	RECAT
			CL1	(unused)	
			CL1	Y	SIMULATE
				NOT Y	LIVE
INPUT	HW	MEMBER COUNT - If MEMBERS specified			
INPUT	nXL8	MEMBER LIST - List of PDS member names			
INPUT	CL8	Password from PASSWORD command parameter			
INPUT	CL1	RESET parameter	Y	YES	
			N	NO	

DCCMPEXn — Data Compression

The module name supplied for this exit will be given control to compress archive records. Technique number (n) is specified by sysparm DCCOMPTC. Only technique numbers 8 through F may be specified for user exits.

Use sysparm DCCMPEXn to specify the module name to be invoked for this exit.

Table 5-11. Parameters Passed to DCCMPEXn

Type	Size	Description
INPUT	FW	INPUT RECORD LENGTH — length of the record in parameter 2
INPUT	XL	ARCHIVE RECORD — data record to be compressed
OUTPUT	FW	OUTPUT RECORD LENGTH — place the length of compressed record here
OUTPUT	XL	OUTPUT RECORD BUFFER — A 45,056-byte buffer to receive the compressed record

Note: Your exit must be able to process records with input length of zero.

DCDCPEXn — Data Decompression

The module name supplied for this exit will be given control to decompress archive records. The exit is passed the record and the length of the record. The exit must decompress the record into the buffer being passed, and return the length of the decompressed record.

Use sysparm DCDCPEXn to specify the module name to be invoked for this exit.

Table 5-10. Parameters Passed to DCDCPEXn

Type	Size	Description
INPUT	FW	INPUT RECORD LENGTH - length of compressed record
INPUT	XL	COMPRESSED RECORD
OUTPUT	FW	OUTPUT RECORD LENGTH - place the length of the decompressed record here
OUTPUT	XL	OUTPUT RECORD BUFFER - A 45,056-byte buffer to receive the decompressed record

Note: Your exit must be able to process records with input length of zero.

DCDSNDEX — Screen Data Sets for Data Compression

The module name supplied for this exit is given control before doing data compression for a data set, to determine:

1. should compression be done on this data set
2. what technique to use for compression

Use sysparm DCDSNDEX to specify the module name to be invoked for this exit.

Table 5-12. Parameters Passed to DCDSNDEX

Type	Size	Description		
INPUT	CL44	DATA SET NAME		
IN/OUT	C	TECHNIQUE NUMBER - change this to indicate the data compression technique used (C'0' - C'F')		
IN/OUT	C	DATA COMPRESSION INDICATOR - change this to whether or not data compression is to be done	C'Y'	DO data compression
			C'N'	NO data compression

DEFARCEX — Screen Disposal of Deferred Archive Requests

During dispose processing of deferred (queued) archive requests, the module named for this exit is given control after an entry is retrieved from the queue, but before it has been selected for disposal (just before the data set is processed). The return code indicates if SAMS:Disk should archive the data set or flag this command and retrieve the next one. If the command is flagged as rejected, it will not be reviewed again, and will be dropped from the ARCHCMDS file when the hold period (specified in sysparm DARCKEEP) has expired.

Use sysparm DEFARCEX to specify the module name to be invoked for this exit.

Table 5-13. Parameters Passed to DEFARCEX

Type	Size	Description			
INPUT	CL44	DATA SET NAME			
INPUT	CL6	VOLUME SERIAL NUMBER			
INPUT	CL2	Disposition ACTION	CL1	S	SCRATCH
				N	NOSCRATCH
			CL1	U	UNCATALOG
				N	NOCATALOG
				R	RECATALOG
OUTPUT	HW	Specify Return Code	H’1’	Continue Normal Processing	
			H’2’	Reject Processing For Command	

DERASEEX — Process Erase TSS Deferred Processing Request

The module name supplied for this exit will receive control from the SAMS:Disk DERASE function after it has retrieved the DERASE command and before the specified request is deleted.

The user may request that SAMS:Disk reject the data set for request or continue on to delete the request.

Use sysparm DERASEEX to specify the module name to be invoked for this exit.

Table 5-14. Parameters Passed to DERASEEX

Type	Size	Description		
INPUT	CL8	COMMAND IDENTIFIER - CL8’DERASE’		
INPUT	CL1	Environment	’T’	TSS
			’B’	Batch
OUTPUT	HW	Specify Return Code	H’1’	Continue Normal Processing
			H’2’	Terminate Processing For Request
INPUT	CL44	DATA SET NAME - DSN for record to be deleted		
INPUT	CL1	TYPE TO BE DELETED	A	DARCHIVE
			R	DRESTORE

DINXUFEX — Update DSNINDEX User Field

The module name supplied for this exit will receive control from SAMS:Disk before creating or updating the DSNINDEX record in the Files Data Set. It is invoked during processing for the ARCHIVE, BACKUP, VBACKUP, RESTORE, RECOVER and VRECOVER functions. For each data set being processed by one of these functions, this exit is invoked, just before the DSNINDEX record is written to the Files Data Set.

SAMS:Disk allows only one field in the DSNINDEX record to be updated by this exit; the 25-byte DSNUSERF user field. SAMS:Disk ignores any other changed fields passed back in the DSNINDEX record.

Use sysparm DINXUFEX to specify the module name to be invoked for this exit.

Table 5-15. Parameters Passed to DINXUFEX

Type	Size	Description		
IN/OUT	XL256	DSNINDEX RECORD - This is the archive data set index record from the files data set. DSNUSERF in positions 231 - 256 is the only field for which updates will be honored. Turn to page 423 for a complete description of this record.		
INPUT	CL8	SAMS:Disk Function - This is the function processing when the exit is invoked.	Valid Values:	CL8’ARCHIVE ’
				CL8’BACKUP ’
				CL8’VBACKUP ’
				CL8’RESTORE ’
				CL8’RECOVER ’
				CL8’VRECOVER’

DRESTOEX — Screen Deferred Restore Request

The module name supplied for this exit will receive control from the SAMS:Disk DRESTORE function after it has retrieved a DRESTORE command and before the command is placed on the DRESTORE request queue.

The user may request that SAMS:Disk reject the data set for processing, or continue on to queue the DRESTORE request.

Use sysparm DRESTOEX to specify the module name to be invoked for this exit.

Table 5-16. Parameters Passed to DRESTOEX

Type	Size	Description			
INPUT	CL8	Command Identifier	CL8’DRESTORE’		
INPUT	CL1	Environment	’B’	Batch	
			’T’	TSS	
OUTPUT	HW	Specify Return Code	H’1’	Continue Normal Processing	
			H’2’	Data Set Processing Terminated	
INPUT	CL44	DATA SET NAME			
INPUT	CL44	NEW NAME - If not spaces, NEWNAME for data set			
IN/OUT	CL6	VOLUME - What DASD volume contains data set			
IN/OUT	XL3	EXPIRATION DATE - XL3’yydddd’ (BINARY)			
IN/OUT	HW	Retention Period - Number of days to retain DSN			
IN/OUT	CL4	Disposition Indicators	CL1	S	SCRATCH specified
			CL1	N	NOCAT specified
				R	RECAT specified
			CL1	C	CREATE specified
			XL1	X’01’	ERASE specified
INPUT	HW	MEMBER COUNT - If MEMBERS specified			
INPUT	nXL8	MEMBER LIST - List of PDS member names			
INPUT	CL9	Data from TIMEDATE parameter			
IN/OUT	CL8	DASDPOOL name from POOL parameter			
INPUT	CL8	Password from PASSWORD command parameter			

DSBUSREX — Screen Billing Record Inserts

This module is given control during DASD billing just prior to inserting or updating a data set billing record in the files data set. Its intended use is to allow the user code field to be reset.

Use sysparm DSBUSREX to specify the module name to be invoked for this exit.

Table 5-17. Parameters Passed to DSBUSREX

Type	Size	Description		
INPUT	CL2	Type Of Function	'SI'	Insert record into file
			'SR'	Replace existing record
IN/OUT	XL	Dasd Billing Record - Turn to page 420 for a complete description of the fields in this record		
OUTPUT	HW	Specify Return Code	H'1'	Continue Normal Processing
			H'2'	Ignore This Insert / Replace Request

DSCBCVEX — Format-1 DSCB Conversion Exit Location

The module name supplied for this exit will receive control after a new user data set has been allocated on DASD (for example, during Restore, Move/Copy, and PDS Compress processing) and by the DSCB Update Utility. This exit may update or move values of SAMS:Disk maintained fields kept in the format-1 DSCB.

A sample conversion exit has been provided in member ADSEX016 of the installation library. This sample exit will convert format-1 DSCBs maintained with an Open SVC from a release prior to 8.1 to the Release 8.1 offsets.

By default, the supplied conversion exit will retain the last using job name, move the last modified date, reset the open count, and update the SVC MODE. This will only do conversion if the current SVC mode is 1, 2 or 3 (indicating that it has not be converted before).

Conversion is done using the old default offsets. If you have modified the Open SVC and maintained fields at different offsets, you must modify this exit to reflect your changes. Also, if you wish to maintain the creating job name instead of the last using job name, you must update the exit to reflect this.

You should not begin using this conversion exit until you have the new Open SVC installed. Since the old Open SVC does not know of the new offsets, these fields can become corrupted after they are converted.

Once you have determined that this exit will work as desired, specify sysparm DSCBCVEX with the value of ADSEX016 or whatever you have named your con-

version exit. This value will cause conversion to take place as SAMS:Disk reallocates data sets during its processing.

Table 5-18. Parameters Passed to DSCBCVEX

Type	Size	Description		
IN/OUT	XL140	Data Set Identifier. Format-1 DSCB to be converted. This format-1 DSCB is as it was prior to the current SAMS:Disk processing. You must update this format-1 DSCB to reflect the proper values at the new offsets.		
IN/OUT	XL140	Data Set Identifier. Format-1 DSCB to be converted. This format-1 DSCB also needs to be converted. This format-1 DSCB also contains other updates made by SAMS:Disk function currently processing the data set.		
IN	H	Count Of Fields To Be Changed. This was input to the calling module. It identifies the number of other fields to be updated at the same time as the fields being converted.		
IN	nCL8	Field Name List. This is a list of the field names to be updated at the same time as the fields being converted by this exit. The values of these fields are already in the format-1 DSCB identified in parmeter 2.		
OUT	H	Return Code	H’1’	Continue Normal Processing
			Other	Indicates Errors

DSCLSCEX — DSCL Screening Exit

The module name supplied for this exit will receive control when processing any DSCL command. Control is passed after the screening tests have been applied, and directly prior to processing the DSCL action command. The screening tests are based on the DSCL selection criteria, after the volume and data set name filtering has been completed. The user may request that SAMS:Disk reject or process the request, regardless of what value was found in the result code parameter.

When the DS1CPOIT bit in the VTOC is set to 1 (on), the user exit DSCLSCEX allows the action commands ARCHIVE, MOVE, EXPIRE, RELEASE, or DELETE to take place only if an installation determined *number of days* has passed since the data set was last referenced. The default value of 0 allows the data set to be moved regardless of the value in the last used date.

Use system parameter DSCLSCEX to specify the module name to be invoked for this exit.

Table 5-19. Parameters Passed to DSCLSCEX

Type	Size	Description		
IN/OUT	HW	The value on input informs the exit what SAMS:Disk action will take place if unmodified by the exit. The value on output (if changed) instructs SAMS:Disk to take the new action.	H'0'	Continue Normal Processing
			H'8'	Terminate Processing For Request
INPUT	XL256	Data Set Identifier. Format-1 DSCB and appendage, for data set to be processed. Turn to page 467 for a description of this area.		
INPUT	XL140	Volume Identifier. Format-4 DSCB for data set. Volume serial is in position 1 to 6. If the data set to be processed is VSAM, only the volume serial will be passed.		
INPUT	CL44	Catalog Name - If VSAM, the catalog name in which the component is defined (if catalog scan)		

Type	Size	Description		
INPUT	CL8	Function Code	’ARCHIVE’	archive the data set
			’BACKUP’	backup the data set
			’COPY’	copy the data set
			’DELETE’	delete the data set
			’EXPIRE’	expire the data set
			’MOVE’	move the data set
			’RELEASE’	release space from the data set
			’REPORT’	report on the data set
			’VBACKUP’	backup a volume
INPUT	CL8	Disposition Value of DISP= DSCL ARCHIVE action command parameter.	’DELETE’	delete data set
			’KEEP’	do not scratch or recatalog set
			’RECAT’	recatalog data set to the SAMS:Disk pseudo volser
OUTPUT	F	This optional parameter indicates the number of days since last referenced for the data set to be eligible for processing. The default value is ’0’.		

DSDISPEX — Post Data Set Disposition Action

A post-disposition exit, this exit is given control during backup and archive processing, after dispose processing is complete.

Use sysparm DSDISPEX to specify the module name to be invoked for this exit.

Table 5-20. Parameters Passed to DSDISPEX

Type	Size	Description		
INPUT	XL256	DATA SET IDENTIFIER - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.		
INPUT	CL4	DISPOSITION FIELD - Disposition field in the TASC format, found in RETVOLSPEC table, indicates the action SAMS:Disk performed on the data set.		
INPUT	XL140	VOLUME IDENTIFIER - Format-4 DSCB for data set. Volume serial is in positions 1 to 6.		
INPUT	XL1	SIMULATION indicator	X’01’	If in SIMULATE mode
			X’00’	otherwise it will contain this

DSNDELEX — Screen Index Maintenance Deletes (Prior Exit)

The module name supplied for this exit will receive control from the SAMS:Disk index maintenance functions VOLDELETE, DSNDELETE and PURGE prior to making a decision to delete an index record for an archived data set from the DSNINDEX. The exit routine will receive control for every index record scanned, prior to any SAMS:Disk decisions to determine if it should be kept or deleted.

The user may request that SAMS:Disk continue to decide what to do with the record, to delete it, or to keep it in the DSNINDEX.

The Common File Handler Interface (described on page 30), should not be used from this exit to update a record. The update you perform can be lost when you return control and the original function rewrites the record as initially passed to the exit.

Use sysparm DSNDELEX to specify the module name to be invoked for this exit.

Table 5-21. Parameters Passed to DSNDELEX

Type	Size	Description		
INPUT	XL256	DSNINDEX RECORD - This is the archive data set index record from the files data set. DSNAME is in positions 1 - 44. Turn to page 423 for a complete description of this record.		
INPUT	XL1	SIMULATION indicator	X’01’	If in SIMULATE mode
			X’00’	otherwise it will contain this
OUTPUT	HW	Specify Return Code	H’1’	Continue Normal Processing
			H’2’	Keep Record, Do Not Delete It
			H’3’	Delete Record

DSNDLPEX — Screen Index Maintenance Deletes (After Exit)

The module name supplied for this exit will receive control from the SAMS:Disk index maintenance functions VOLDELETE, DSNDELETE and PURGE, the SAMS:Disk index update function DELETE, and the SAMS:Disk function MERGE after SAMS:Disk has determined whether an index record is to be deleted, but prior to actually deleting it from the DSNINDEX. The user may request that SAMS:Disk continue to take the indicated action against the data set or override the decision made by SAMS:Disk. The action to be taken by SAMS:Disk is indicated in the third parameter RESULT.

The Common File Handler Interface (described on page 30), should not be used from this exit to update a record. The update you perform can be lost when you return control and the original function rewrites the record as initially passed to the exit.

Use sysparm DSNDLPEX to specify the module name to be invoked for this exit.

Table 5-22. Parameters Passed to DSNDLPEX

Type	Size	Description			
INPUT	XL256	DSNINDEX Record - This is the archive data set index record from the files data set. DSNAME is in positions 1 - 44. Turn to page 423 for a complete description of this record.			
INPUT	XL1	Simulation indicator	X’01’	If in simulate mode	
			X’00’	otherwise it will contain this	
IN/OUT	HW	RESULT - SAMS:Disk Input is H’1’ or less indicating delete the DSNINDEX record, and H’2’ to keep the record.		H’0’	Delete the DSNINDEX record, and reposition it
		If the user wishes SAMS:Disk to reject the delete request and keep the DSNINDEX record, place a value of 2 in this parameter and return to SAMS:Disk; otherwise place a H’1’ in this parameter.		H’1’	Delete the DSNINDEX record
		If the Common File Handler Interface (described on page 30) is used in this exit, use the return codes that specify repositioning required.		H’2’	Keep the DSNINDEX record
				H’3’	Keep and reposition the DSNINDEX record

FMSSAFEX — FMS After Selection Exit

The module name supplied for this exit receives control after standard FMS selection processing is complete for the DSNINDEX record. This exit is passed a copy of the DSNINDEX record selected for recovery, and a Y/N flag byte.

The initial setting of the flag is either C'Y' or C'N', indicating whether or not DSCL processing selected the data set. By setting this flag to C'Y', the data set will be selected regardless of any further DSCL statements. This flag can also be set to C'N', forcing a bypass of the data set regardless of any further DSCL statements.

Use sysparm FMSSAFEX to specify the module name to be invoked for this exit.

Table 5-23. Parameters Passed to FMSSAFEX

Type	Size	Description		
INPUT	CL256	Copy of the DSNINDEX record		
IN/OUT	CL1	Flag Byte Return	C'Y'	Select the data set
			C'N'	Bypass the data set

FMSSPREX — FMS Prior Selection Exit

The module name supplied for this exit receives control prior to FMS performing any selection processing for the DSNINDEX record. This exit is passed a copy of the DSNINDEX record selected for recovery, and a Y/N flag byte.

The initial setting of the flag is a hex value of zero (X'00'), indicating normal selection processing will continue. By setting this flag to C'Y', the data set will be selected regardless of any further DSCL statements. This flag can also be set to C'N', forcing a bypass of the data set regardless of any further DSCL statements.

Use sysparm FMSSPREX to specify the module name to be invoked for this exit.

Table 5-24. Parameters Passed to FMSSPREX

Type	Size	Description		
INPUT	CL256	Copy of the DSNINDEX record		
IN/OUT	CL1	Flag Byte Return	C'Y'	Select the data set
			C'N'	Bypass the data set

GDGCATEX — GDG Data Set Catalog Action

The module name supplied for this exit will receive control during functions RESTORE, RECOVER, MOVE, COPY, PDS COMPRESS, and IXCATLG prior to any catalog action for GDG data sets. A sample coding of this exit can be found in member GDGCATEX in the INSTALL library.

Default processing will not force a GDG catalog entry out of a full GDG sphere, but instead will leave the processed GDS in a deferred or uncataloged status. This exit gives the user the ability to either force the catalog action, or allow normal processing to take it course.

The GDG Status parameter, described in the following table, indicates the catalog status of the source data set (i.e., BACKUP, MOVE, or COPY).

Use sysparm GDGCATEX to specify the module name to be invoked for this exit.

Table 5-25. Parameters Passed to GDGCATEX

Type	Size	Description		
INPUT	CL44	Data set name or NEWNAME (if specified)		
INPUT	CL1	GDG Status	H	Active
			N	Deferred
			M	Rolled Off
OUTPUT	CL1	Catalog Action requested	C	Unconditionally catalog (or Roll-in) the GDS
			' '	Continue with normal processing
OUTPUT	H	Results:	0	Process according to Catalog Action setting
			1+	Bypass any catalog action. M3729 will be issued.

IXCTLGEX — User Exit for IXCATLG Utility

This module is invoked after all selection testing has been performed by the IX-CATLG procedure. It can be used either to monitor those data sets selected by the maintenance program or to change the selection flag to either include or exclude the data set.

When this exit is invoked, the selection flag has already been set to the value SAMS:Disk has determined is correct. If the value is Y, the data set will be cataloged to the SAMS:Disk pseudo-volume as specified by sysparm RECATVOL, to enable it as a candidate to be auto-restored. If the value is N, the data set will not be processed. This exit can change the selection flag to either a Y or an N, regardless of which input value was passed to the exit.

Use sysparm IXCTLGEX to specify the module name to be invoked for this exit. (A sample exit is provided in the SAMS:Disk installation library as member IXCTLGEX.)

Table 5-26. Parameters Passed to IXCTLGEX

Type	Size	Description		
INPUT	XL256	DSNINDEX record		
IN/OUT	CL1	Selection flag	Y	data set has been selected for processing
			N	data set has been excluded from processing

IXMREVEX — Screen Index Maintenance Deletes (Post Exit)

Use sysparm *IXMREVEX*, described on page 148, to specify the module name to be invoked for this exit. This exit receives control from the DSNDELETE, PURGE, and VOLDELETE commands after SAMS:Disk has determined what action to take on the DSNINDEX record, but prior to actually taking the action. The action to be taken by SAMS:Disk is indicated in the third parameter RETURN CODE. The user may request that SAMS:Disk continue to take the indicated action against the data set, or you can override the action entirely.

Caution: The *Common File Handler Interface* described beginning on page 30 in the Systems Guide, should **NOT** be used from this exit to update a record. If you use this interface to update a record, the update you perform can be lost when returning control and the original function rewrites the record initially passed to the exit.

The DSNDLPEX user exit must not be specified at the same time as this exit. If both are specified, the job will abend with a U100 accompanied by an appropriate message.

Table 5-27. Parameters Passed to IXMREVEX

Type	Size	Description		
INPUT	XL256	DSNINDEX record		
INPUT	XL1	Simulation Flag	X’01’	Simulation mode
			X’00’	Live mode
IN/OUT	HW	Return Code	H’0’	Record will be kept — Input
			H’1’	Record will be deleted — Input
			H’2’	Record will be kept — Input
			H’3’	Record will be updated — Input
			H’1’	Delete DSNINDEX record — Output
			H’2’	Keep DSNINDEX record — Output
		Note: Do not set this field unless you want to alter its disposition. An output return code of other than its original input return code or 1 or 2 will result in an abend.		
INPUT	CL16	WHYFLAGS		
INPUT	XL256	Catalog locate work area		

Note: If a Catalog Locate was performed on the data set, then its workarea is contained in parm 5. Offset 6 contains the data set’s cataloged volser.

LISTDMEX — Screen TSS LISTDMS Command

The module name supplied for this exit will receive control from the SAMS:Disk LISTDMS function after it has retrieved the LISTDMS command and before it is processed.

The user may request that SAMS:Disk reject the request or continue processing it.

(Turn to page 228 for related information.)

Use sysparm LISTDMEX to specify the module name to be invoked for this exit.

Table 5-28. Parameters Passed to LISTDMEX

Type	Size	Description			
INPUT	CL8	Command Identifier - CL8'LISTDMS'			
INPUT	CL1	Environment	'T'	TSS (always)	
OUTPUT	HW	Specify Return Code	H'1'	Continue Normal Processing	
			H'2'	Terminate Processing For Request	
INPUT	CL44	Data Set Name - DSN for record to be listed			
INPUT	CL3	Data To Be Listed	N	DON'T LIST	
			Y	CL1	List Data Set Status
				CL1	List Data Set Allocation Data
				CL1	List Data Set Archive Data

LISTDVEX — List Archive Index (LISTD/LISTV) Exit

The module name supplied for this exit will receive control after each ARCHVOLS or DSNINDEX entry has been selected for printing. The exit, if used, is also active under the TSS LISTDMS function.

The user is passed the file name (ARCHVOLS or DSNINDEX), the index record itself, and a one-character switch that can be set to suppress the printing of the record.

Use sysparm LISTDVEX to specify the module name to be invoked for this exit.

Table 5-29. Parameters Passed to LISTDVEX

Type	Size	Description			
INPUT	CL8	Filename	CL8’ARCHVOLS’		
			CL8’DSNINDEX’		
INPUT	XLnnn	Index Record For Named File - Turn to page 419 for field lengths within the ARCHVOLS subfile, or page 423 for field lengths within the DSNINDEX subfie.			
IN/OUT	CL1	Print Switch	CL1	’Y’	Display the index entry
			CL1	’N’	Do NOT display the entry

LISTREEX — Screen TSS LISTREQ Command

The module name supplied for this exit will receive control from the SAMS:Disk LISTREQ function after it has retrieved the LISTREQ command and before it is processed.

The user may request that SAMS:Disk reject the request or continue processing it.

Use sysparm LISTREEX to specify the module name to be invoked for this exit.

Table 5-30. Parameters Passed to LISTREEX

Type	Size	Description		
INPUT	CL8	Command Identifier - CL8'LISTREQ'		
INPUT	CL1	Environment	'T'	TSS (always)
OUTPUT	HW	Specify Return Code	H'1'	Continue Normal Processing
			H'2'	Terminate Processing For Request
INPUT	CL44	Data Set Name - DSN for record to be listed		
INPUT	CL1	Type To Be Listed	A	DARCHIVE
			R	DRESTORE

MERDSNEX — Data Set Being Deleted Through Merge Processing

The module name supplied for this exit will receive control from the SAMS:Disk MERGE function after an archive DSNINDEX record has been deleted from the files data set.

No return code is accepted by this exit. The MERGE process cannot be altered.

Use sysparm MERDSNEX to specify the module name to be invoked for this exit.

Table 5-31. Parameters Passed to MERDSNEX

Type	Size	Description		
INPUT	XL256	DSNINDEX RECORD - This is the archive data set index record from the files data set. Data set name is in positions 1 to 44. Turn to page 423 for a complete description of this record.		
INPUT	XL1	Simulation Indicator	X'01'	If in SIMULATE mode
			X'00'	otherwise it will contain this

MERVOLEX — Archive Volume Being Deleted By Merge Processing

The module name supplied for this exit will receive control from the SAMS:Disk MERGE function after an ARCHVOLS record has been deleted from the files data set. (If a multivolume ARCHVOLS entry was deleted, only the first ARCHVOLS record in the chain is passed to this exit. Use exit TAPEDLEX (documented on page 253) instead of this one if you need to get the list of all ARCHVOLS that were in the chain.)

No return code is accepted by this exit. The MERGE process cannot be altered.

Use sysparm MERVOLEX to specify the module name to be invoked for this exit.

Table 5-32. Parameters Passed to MERVOLEX

Type	Size	Description		
INPUT	XL110	ARCHVOLS RECORD - This is the archive VOLUME index record from the files data set. Volume is in positions 1 - 6. Turn to page 419 for a complete description of this record.		
INPUT	XL1	Simulation indicator	X’01’	If in SIMULATE mode
			X’00’	otherwise it will contain this

MIGDISEX — Screen Sequential Migrate Disposition Request

The module name supplied for this exit will receive control from sequential migrate after it has copied a data set to tape, but before it has scratched/recataloged it. The exit may examine disposition fields and optionally reject the disposition request.

Use sysparm MIGDISEX to specify the module name to be invoked for this exit.

Table 5-33. Parameters Passed to MIGDISEX

Type	Size	Description		
INPUT	XL1	Simulate Mode Indicator - X'01' implies a SIMULATE execution of SAMS:Disk. X'00' implies a LIVE run.		
INPUT	XL147	Disposition Record - This record contains information about the data set copied to tape. Its format is as follows:		
		+00	CL30	1 to 5 OUTPUT TAPE VOLSERS
		+30	CL44	DATA SET NAME
		+74	XI1	DS1DSIND field from the FMT 1 (contains RACF & PASSWORD bits)
		+75	XI3	(RESERVED)
		+78	HW	NUMBER TAPE VOLUMES USED
		+80	CL30	VOLSERS OF COPY TAPES
		+110	HW	DATA SET SEQUENCE NUMBER ON TAPE
		+112	XL3	(RESERVED)
		+115	XL3	EXPIRATION DATE XL3'YYDDDD'
		+118	CL8	(RESERVED)
		+126	CL6	VOLUME MIGRATED FROM
		+132	XL2	DATA SET LRECL
		+134	XL2	DATA SET BLKSIZE
		+136	XL2	TRACKS ALLOCATED
		+138	XL2	DEVICE TYPE OF DASD
		+140	XL1	DATA SET RECFM
		+141	XL1	DATA SET KEY LENGTH
		+142	XL1	DATA SET OPTCD
		+143	CL4	REASON DATA SET MIGRATED
OUTPUT	HW	Specify Return Code	H'1'	Continue Normal Processing
			H'2'	Do Not Take Disposition For Data Set

MIGGDGEX — Return GDG Limit to Sequential Migrate for a DSN

This module is given control after sequential data set migration has failed to obtain a generation limit from the GDGDASDG table for a GDG data set.

The user may supply the GDG limit for the data set.

Use sysparm MIGGDGEX to specify the module name to be invoked for this exit.

Table 5-34. Parameters Passed to MIGGDGEX

Type	Size	Description		
INPUT	CL44	DATA SET NAME		
OUTPUT	HW	GDG LIMIT COUNT to use for the data set		
OUTPUT	HW	Specify Return Code	H'1'	Generation Limit Returned
			H'2'	Use Default Generation Limit

MIGREXIT — Sequential Migration Disposition Screening

This module is invoked after a data set has been selected for sequential data set migration, but before a disposition control record has been built.

The user may reject migration of the data set or alter DSCB information for a data set to be migrated.

Use sysparm MIGREXIT to specify the module name to be invoked for this exit.

Table 5-35. Parameters Passed to MIGREXIT

Type	Size	Description		
IN/OUT	XL256	Data Set Identifier - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area. Only the expiration date may be modified; all other changes will be ignored.		
INPUT	L140	Volume Identifier - Format-4 DSCB for data set. VOLSER is in positions 1 to 6.		
OUTPUT	HW	Specify Return Code	H'1'	Continue Normal Processing
			H'2'	Terminate Processing For Data Set

RECPRIEX — Screen Recover Requests

The module name supplied for this exit will receive control from the RECOVER proc before selecting data sets to recover. Different selection criteria can be applied to the RECOVER function based on the fields in the DSNINDEX record. Use sysparm RECPRIEX to specify the module name to be invoked for this exit.

Table 5-36. Parameters Passed to RECPRIEX

Type	Size	Description		
INPUT	XL256	DSNINDEX record for the data set to be recovered.		
OUTPUT	HW	Specify return code	H’0’	Continue Processing Data Set Through Normal Selection Criteria (command parms)
			H’1’	Select this Data Set and Bypass the Normal Selection Criteria (command parms)
			H’2’	Do not Select this Data Set, Bypass Normal Selection Criteria (command parms)

RESAFTEX — Post Restore Exit

The module name supplied for this exit will receive control from the RESTORE, DEFERRED RESTORE and RECOVER after restoring the data set or cluster. Use sysparm RESAFTEX to specify the module name to be invoked for this exit.

Table 5-37. Parameters Passed to RESAFTEX

Type	Size	Description				
INPUT	XL256	DSNINDEX record for the data set to be restored				
INPUT	XL140	Format-1 DSCB for restored data set				
INPUT	HW	Return code of restore	H’1’	Data Set Restored Okay		
			H’2’	Data Set Restored Okay, But Disposition Failed		
			H’4’	Data Set Restore Failed		
INPUT	XL4	Disposition indicators	CL1	Scratch	U	no scratch
					S	scratch
			CL1	Catalog	C	catalog
					N	no catalog
					R	recatalog
			CL1	Create Date	N	no reset of create date
					C	reset of create date
			XL1	Erase	x’00’	no erase
					x’01’	erase
INPUT	HW	Return code of disposition processing				
INPUT	CL8	Function issuing restore				
INPUT	HW	Count of volumes supplied in VOLUME parameter				
INPUT	nCL6	Volume(s) supplied in VOLUME parameter or blank				
INPUT	CL1	Auto-restore indicator	N	not an auto-restore		
			Y	is an auto-restore		
INPUT	CL1	TSS task indicator	N	not a TSS task		
			Y	is a TSS task		
INPUT	CL8	Jobname				

RESPRIEX — Screen Restore Requests

The module name supplied for this exit will receive control from RESTORE, DEFERRED RESTORE and RECOVER prior to restoring the data set or cluster. The user may request that SAMS:Disk reject the restore request or continue processing.

Use sysparm RESPRIEX to specify the module name to be invoked for this exit.

Table 5-38. Parameters Passed to RESPRIEX

Type	Size	Description				
INPUT	XL256	DSNINDEX record for the data set to be restored				
OUTPUT	CL50	Message Field - Place message here when return code is set to 2 to reject request. The message will be printed with SAMS:Disk output.				
OUTPUT	HW	Specify return code	H’1’	Continue Normal Processing		
			H’2’	Terminate Processing for Restore		
INPUT	CL8	Function issuing restore				
IN/OUT	CL44	New name for data set				
IN/OUT	HW	Count of volumes supplied in VOLUME parameter				
IN/OUT	nCL6	Volume(s) supplied in VOLUME parameter or blank. Current SAMS:Disk processing limits the volume list to one volume. Do not enter more than one.				
IN/OUT	CL8	Pool name specified on command or blank				
IN/OUT	XL4	Disposition indicators	CL1	Scratch	U	no scratch
					S	scratch
			CL1	Catalog	C	catalog
					N	no catalog
					R	recatalog
			CL1	Create date	N	no reset of create date
					C	reset of create date
			XL1	Erase	x’00’	no erase
					x’01’	erase
INPUT	CL1	Auto-restore indicator	N	not an auto-restore		
			Y	is an auto-restore		
INPUT	CL1	TSS task indicator	N	not a TSS task		
			Y	is a TSS task		
INPUT	CL8	Jobname				
INPUT	CL8	Password supplied in PASSWORD parameter				

RETAFTEX — Retention Control Data Set Screening (Post-validate)

The module name supplied for this exit will receive control from the SAMS:Disk retention control function after it has retrieved the format-1 DSCB and qualified it for processing. The disposition of the data set is shown in field (PARM 3).

The user may request that SAMS:Disk reject the data set for processing or continue on to process the data set as normal.

Use sysparm RETAFTEX to specify the module name to be invoked for this exit.

Table 5-39. Parameters Passed to RETAFTEX

Type	Size	Description	
INPUT	XL256	Data Set Identifier - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.	
INPUT	XL140	Volume Identifier - Format-4 DSCB for data set. Volume serial is in positions 1 to 6.	
IN/OUT	Xl14	The DISPOSITION field to be used to process the data set. Portions of this field have been taken from the SAMS:Disk RETVOLSPEC table.	
		1 — 4	TASC FIELD from RETVOLSPEC table entry
		1	Retention selection criteria that caused the data set to be selected for processing. Modification of this field will not affect any SAMS:Disk processing or output contents.
		2 — 4	The ASC values from the RETVOLSPEC table entry causing the data set to be processed. These values may be modified with valid ASC values to change the way in which SAMS:Disk will process the data set.
		5	RESERVED
		6 — 8	XL3’yydddd’ Current Date (BINARY)
		9 — 10	RESERVED
		11 —14	Archive Reason Codes - The four characters of reason codes that indicate on the RETAIN report why the data set was selected for processing. This field may be modified to reflect different values on the RETAIN report.

RETGDGEX — Return GDG Limit to Implicit Archival for a DSN

This module is given control after implicit archival has failed to obtain a generation limit from the GDGDASDG table for a GDG data set.

The user may supply the GDG limit for the data set.

Use sysparm RETGDGEX to specify the module name to be invoked for this exit.

Table 5-40. Parameters Passed to RETGDGEX

Type	Size	Description		
INPUT	CL44	DATA SET NAME		
OUTPUT	HW	GDG LIMIT COUNT to use for the data set		
OUTPUT	HW	Specify Return Code	H’1’	Generation Limit Returned
			H’2’	Use Default Generation Limit

RETPRIEX — Retention Control DSN Screening (Pre-validation)

The module name supplied for this exit will receive control from the SAMS:Disk retention control function after it has retrieved the format-1 DSCB from disk and prior to qualifying it for processing. The user may request that SAMS:Disk reject the data set for processing, continue on to qualify the data set for processing, and/or change the disposition action SAMS:Disk is to use for the data set.

Use sysparm RETPRIEX to specify the module name to be invoked for this exit.

Table 5-41. Parameters Passed to RETPRIEX

Type	Size	Description		
INPUT	XL256	Data Set Identifier - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.		
INPUT	XL140	Volume Identifier - Format-4 DSCB for data set. Volume serial is in positions 1 to 6.		
OUTPUT	Xl14	DISPOSITION field. If the RETURN CODE is set to 3, positions 2 through 4 must contain valid ASC values to be used in place of the values normally taken from the RETVOLSPEC table.		
		1 — 4	TASC FIELD (like RETVOLSPEC table)	
		1	T value of TASC field. This value is set to N upon entry to the exit. Modification of this field will not affect any SAMS:Disk processing or output contents.	
		2 — 4	This field is initialized to C’NNN’ upon entry to the exit. If the exit routine sets the value of parameter 4 to H’3’, this field must be filled with valid ASC values to determine how to process the data set.	
		5	RESERVED	
		6 — 8	XL3’yydddd’ Current Date (BINARY)	
		9 — 10	RESERVED (DO NOT CHANGE)	
		11 — 14	ARCHIVE REASON CODES - The 4 characters of reason codes that indicate on the RETAIN report why the data set was selected for processing. This field may be modified to reflect different values on the RETAIN report.	
OUTPUT	HW	Specify Return Code	H’1’	Continue Normal Processing
			H’2’	Terminate Processing For Data Set
			H’3’	Initiate Disposition Per Disposition Field

RLSEAFEX — Idle Space Release Screening Exit

The module name supplied for this exit is given control after a data set has been selected for processing by idle space release.

The user may request that SAMS:Disk either continue normal processing or bypass the data set. When VSAM data sets are being processed, the entire cluster will be bypassed if this exit determines that either the data or index component was bypassed.

Use sysparm RLSEAFEX to specify the module name to be invoked for this exit; the EXIT= parameter on the command will override this default value.

Table 5-42. Parameters Passed to RLSEAFEX

Type	Size	Description		
INPUT	CL256	Data Set Identifier - Format-1 DSCB and appendage for data set to be processed. Turn to page 467 for a description of this area.		
INPUT	XL256	Volume Identifier - Format-4 DSCB and appendage for data set to be processed. Turn to page 467 for a description of this area. The volume serial is in positions 1 to 6.		
INPUT	XL1	Simulation Flag	X’01’	simulate mode
			X’00’	live mode
OUTPUT	HW	Specify Return Code	H’1’	Continue Normal Processing
			H’2’	Bypass Processing for Data Set
INPUT	CL44	Vsam Cluster Name - For non-VSAM data sets, this field is filled with blanks. For VSAM data sets, it contains the cluster name for the component passed in the format-1 DSCB and the format-4 DSCB. **Note:** Not valid in Hitachi VOS3 environments.		

RPTDSBEX — Process Data Set Billing Report Records

The module name supplied for this exit will receive control from the SAMS:Disk billing EXTEND processing. It is passed the report record (see the mapping for report record format RPTNDSNDSB on page 373).

When this exit is specified, the standard SAMS:Disk report record is not written.

Use sysparm RPTDSBEX to specify the module name to be invoked for this exit.

Table 5-43. Parameters Passed to RPTDSBEX

Type	Size	Description
INPUT	H'1'	OPTION - always a halfword of 1.
INPUT	CL6	VOLUME
INPUT	CL44	DATA SET NAME
INPUT	XL159	REPORT RECORD - See RPTNDSNDSB on page 373 for more information.

RPTDSNEX — Screen Data Sets to be Reported On

The module name supplied for this exit will receive control from the SAMS:Disk reports function prior to generating report records for any data set.

The user may request that SAMS:Disk reject the data set for processing, or continue on to report on the data set.

Use sysparm RPTDSNEX to specify the module name to be invoked for this exit.

Table 5-44. Parameters Passed to RPTDSNEX

Type	Size	Description		
INPUT	XL256	Data Set Identifier - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.		
INPUT	XL140	Volume Identifier - Format-4 DSCB for data set. Volume serial is in positions 1 to 6.		
OUTPUT	HW	Specify Return Code	H'1'	Continue Normal Processing
			H'2'	Terminate Processing for Data Set

RPTDSUEX — Data Set Utilization Report Record Screening

The module name supplied for this exit will receive control from the Data Set Utilization report generator. It is passed each record generated for the report.

The user may request that SAMS:Disk reject the record for printing or continue processing as normal.

Use sysparm RPTDSUEX to specify the module name to be invoked for this exit.

Table 5-45. Parameters Passed to RPTDSUEX

Type	Size	Description		
INPUT	XL140	Volume Identifier - Format-4 DSCB for data set. Volume serial is in positions 1 to 6.		
INPUT	XL256	Data Set Identifier - Format-1 DSCB and appendage for data set to be processed. Turn to page 467 for a description of this area.		
IN/OUT	XL	DSU Report Record. Turn to page 381 for a complete description of this record.		
OUTPUT	HW	Specify Return Code	H’1’	Continue Normal Processing
			H’2’	Do not Print Line for this Record

RPTMVDEX — Multiple Volume Dictionary Record Screening

The module name supplied for this exit will receive control from the MVD report generator. It is passed each record generated for the report.

The user may request that SAMS:Disk reject the record for printing or continue processing as normal.

Use sysparm RPTMVDEX to specify the module name to be invoked for this exit.

Table 5-46. Parameters Passed to RPTMVDEX

Type	Size	Description		
INPUT	XL140	Volume Identifier - Format-4 DSCB for data set. Volume serial is in positions 1 to 6.		
INPUT	XL256	Data Set Identifier - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.		
IN/OUT	XL	MVD Report Record. Turn to page 359 for a complete description of this record.		
OUTPUT	HW	Specify Return Code	H’1’	Continue Normal Processing
			H’2’	Do Not Print Line for this Record

SCRTCHEX — Screen SAMS:Disk Scratch Data Set Request

The module name supplied for this exit will receive control from any SAMS:Disk function requesting to scratch a user's data set. It is invoked before scratch processing has started.

The user may request that SAMS:Disk reject the request to scratch the data set, or continue to process it.

Use sysparm SCRTCHEX to specify the module name to be invoked for this exit.

Table 5-47. Parameters Passed to SCRTCHEX

Type	Size	Description		
INPUT	CL44	Data Set Name - Name of data set to be scratched.		
INPUT	HW	Volume Count - Count of volumes on which data set to be scratched resides.		
INPUT	nCL6	Volume List - A list of 6-character volume serials that contain the data set to be scratched. Parameter 2 contains a count of the number of volumes in this list.		
OUTPUT	CL100	Message - If desired, the exit routine may place a message here to be printed. The message will be printed if the return code parameter contains a 2 and the message area is non-blank.		
OUTPUT	HW	Specify Return Code	H'1'	Continue Normal Processing
			H'2'	Reject Request to Scratch Data Set

SECURAEX — Security Validation Exit, Post-SAMS:Disk Decision

The module name supplied for this exit will receive control whenever SAMS:Disk security routines are called to validate access to a protected resource. This is the post-processing exit. It will receive control after SAMS:Disk has invoked the user security system or SAMS:Disk security module and has made a decision as to whether the data set can be processed by SAMS:Disk.

The exit routine has a chance to examine the decision made by SAMS:Disk and, optionally, override the decision. Note that if SAMS:Disk has rejected the data set for processing and messages are to be written to the user, the messages have already been written at this point. To intercept security before messages have been issued, see the SECURPEX (pre-processing) exit.

The parameters to this exit are exactly the same as to the pre-processing exit (SECURPEX) except that the return code field has been set to reflect the decision SAMS:Disk has made regarding processing of the data set. See the documentation

for SECURPEX for exit module parameter descriptions. The user exit may change the return code to any valid value before returning control to SAMS:Disk.

Use sysparm SECURAEX to specify the module name to be invoked for this exit.

SECURPEX — Security Validation Exit, Pre-SAMS:Disk Decision

The module name supplied for this exit will receive control whenever SAMS:Disk security routines are called to validate access to a protected resource. This is the pre-processing exit. It will receive control before SAMS:Disk invokes the user security system or SAMS:Disk security module to make a decision as to whether the data set can be processed by SAMS:Disk.

The exit routine has a chance to make the decision itself by setting the return code to one of the valid values. If the exit decides to leave the decision to SAMS:Disk, it can return without changing the return code.

Note: When security checking is being made for a data set that exists in the SAMS:Disk archives, the volume serial passed will be “*ARCH*”. This is not a real DASD volume. It has special meaning to SAMS:Disk.

Use sysparm SECURPEX to specify the module name to be invoked for this exit.

Table 5-48. Parameters Passed to SECURPEX

Type	Size	Description	
INPUT	HW	Resource Type - The first parameter to this exit indicates the resource type for which security is being checked. It is in a halfword binary count format. The following list indicates the resource types protected and the value corresponding to that type:	
		H’1’	Data Set Name
		H’2’	reserved
		H’3’	Dasd Volume Serial
		H’4’	Vsam Catalog Name
		H’5’	SAMS:Disk Command
		H’6’	Vsam Component (cluster) Name
		H’7’	SAMS:Disk Subfile Of The Files Data Set
		H’8’	Member Of SAMS:Disk Parmlib Data Set

Type	Size	Description	
Parameters 2 through 4 passed to the exit are always the same regardless of the resource type for which they are being called. They are:			
INPUT	CL8	Access Request - This field contains an character identifier of the type of access being requested for the resource. The numbers following indicate what RESOURCES are passed the ACCESS TYPE. The following is a list of valid ACCESS TYPES:	
		L8’INPUT ’	1,3,4,6
		CL8’OUTPUT ’	1,4,5,6,7,8
		CL8’ALLOCATE’	1,6
		CL8’SCRATCH ’	1,6
		CL8’CATALOG ’	1,6
		CL8’RENAMEF ’	1,6
		CL8’RENAMET ’	1,6
		CL8’IN/OUT ’	1,6
INPUT	CL1	Message Indicator - This 1-character field indicates if SAMS:Disk has been requested to issue a message if the request to process the resource is rejected. Value Y indicates a message is to be issued. Value N indicates no messages are to be issued.	
OUTPUT	HW	Return Code - This field indicates whether the request to process is to be accepted or rejected. The value is in halfword binary count format. It is initialized to zero. If not modified, SAMS:Disk will continue security checking for the resource and make the decision to accept or reject it. If the user exit routine makes the decision, this field is set to reflect it. The valid values for this field are:	
		H’0’	Let SAMS:Disk make the decision (SECURPEX ONLY)
		H’1’	Let user process resource
		H’8’	Reject request to process

Additional parameters for SECURPEX are Resource Type = 1 (Data Set Name) parameters below:

Table 5-49. Parameters 5 - 8 (DSNAME) for SECURPEX

Type	Size	Description
INPUT	XL256	Data Set Identifier - Format-1 DSCB and SAMS:Disk appendage for the data set to be processed. Turn to page 467 for a description of this area. Note: Reading the directory of a PDS requires security clearance that has not been performed yet. Therefore the PDS directory fields in the appendage area have not been filled at the time of this exit.
INPUT	HW	Volume Count - The number of volumes on which this data set resides.
INPUT	nCL6	List Of Volumes - A list of volumes on which the data set resides. The number of entries in this list depends on the count from parameter 6.
INPUT	CL 1	Password Indicator - A 1-character flag whose value indicates if password-protected data sets are to be processed. A Y indicates the user has requested to process password- protected data sets. An N indicates the user has not specifically requested for process password-protected data sets. If the PASSWORD parameter is available on the SAMS:Disk command, this indicates if it has been supplied or not.

Additional parameters for SECURPEX are Resource Type = 3 (DASD Volume Serial) described below:

Table 5-50. Resource Type = 3 (VOLSER) for SECURPEX

Type	Size	Description
INPUT	CL6	Volume Serial Name - The 1- to 6-character volume serial that the user is requesting to process.

Additional parameters for SECURPEX are Resource Type = 4 (VSAM Catalog Name) described below:

Table 5-51. Resource Type = 4 (VSAM Catalog Name)

Type	Size	Description
INPUT	CL44	Vsam Catalog Name - The 1- to 44-character data set name of the VSAM catalog.
INPUT	CL8	Catalog Password - If the user has supplied the PASSWORD for the catalog in the SAMS:Disk command, it will be present here.
INPUT	CL6	Catalog Volser - The volume serial name on which the VSAM catalog resides.

Additional parameters for SECURPEX are Resource Type = 5 (SAMS:Disk Command) described below:

Table 5-52. Resource Type = 5 (Commands) for SECURPEX

Type	Size	Description
INPUT	CL12	SAMS:Disk COMMAND - The 1- to 12-character name of the SAMS:Disk command the user is attempting to use. This is the full command name regardless of how it was entered.

Additional parameters for SECURPEX are Resource Type = 6 (VSAM Component) described below:

Table 5-53. Resource Type = 6 (VSAM Component)

Type	Size	Description	
INPUT	CL44	VSAM Component Name - The 1- to 44-character data set name of the VSAM component to be accessed.	
INPUT	CL8	VSAM Component Type - This field indicates the type of component for which the request applies. The valid values are:	CL8'CLUSTER'
			CL8'DATA '
			CL8'INDEX '
			CL8'PATH '
			CL8'AIX '
INPUT	CL8	VSAM Password - The VSAM password specified for the component name.	
INPUT	Xl2	VSAM Security Flags - This is the VSAM security flags from the VSAM CATALOG record for the component. See the IBM CATALOG MANAGEMENT PLM for a complete description of these flags.	
INPUT	HW	Volume Count - A count of 1. This value never changes for the exit.	
INPUT	HW	Catalog Volume Serial - The DASD volume serial that contains the VSAM catalog that describes this component.	

Additional parameters for SECURPEX are Resource Type = 7 (SAMS:Disk Subfile) described below:

Table 5-54. Resource Type = 7 (Subfile) for SECURPEX

Type	Size	Description
INPUT	CL8	Subfile Name - The 8-character name of the subfile in the SAMS:Disk files data set for which access is being requested.
INPUT	CL8	Member Name - The 8-character name of the member of the parmlib data set for which access is being requested.

SPACECEX — Space Conversion Exit (Non-vsam)

The module name supplied for this exit will receive control from any SAMS:Disk function requesting allocation of DASD space for a non-VSAM data set.

The user may inspect or modify the number of tracks that SAMS:Disk has chosen to allocate for the data set.

Use sysparm SPACECEX to specify the module name to be invoked for this exit.

Table 5-55. Parameters Passed to SPACECEX

Type	Size	Description
IN/OUT	HW	New tracks to allocate for the data set
INPUT	CL44	Data set name being allocated
INPUT	CL6	Volume on which allocation will occur
INPUT	FW	Original Tracks for the data set on its original device type
INPUT	XL2	Original Source Device Type as expressed in the UCBTYPE field
INPUT	XL2	Target Device Type as expressed in the UCBTYPE field
INPUT	FW	Tracks Per Cylinder on SOURCE device type
INPUT	FW	Tracks Per Cylinder on TARGET device type
INPUT	FW	Original Blocksize
INPUT	FW	New Blocksize
INPUT	XL2	DSORG as defined in the VTOC entry
INPUT	XL1	RECFM as defined in the VTOC entry
INPUT	HW	KEY LENGTH for a key-sequenced data set
INPUT	XL1	SCALO field as defined in the VTOC entry
INPUT	XL1	OPTCD field as defined in the VTOC entry

SYSOUTEX — SYSOUT Exit

The module name supplied for this exit will receive control for every line of printed output being directed to CMDPRINT, MSGPRINT or SYSPRINT.

The user may instruct SAMS:Disk to either print or bypass the line of output. Suppression of heading lines may yield unpredictable results, however, in that line count and paging are affected. You also must not attempt to use any of the standard SAMS:Disk techniques to issue an additional message from your exit. This recursiveness will be detected, and the message will be written to the operator instead of its designated location. You may of course redirect the line of output to any new target, such as a disk data set or a special operator console.

Unlike other SAMS:Disk exits, the module name to be invoked for this exit must be superzapped into the SAMS:Disk output module as follows:

```
NAME ADSUT190 SYSOUTEX
VER 0000 40404040,40404040
REP 0000 xxxxxxxx,xxxxxxxx
```

where xxxxxxxx,xxxxxxxx is the EBCDIC representation of the module name. If the module name is less than 8 characters, left justify and pad with blanks.

Warning: You must reapply this zap each time you install a new release of SAMS:Disk if that new release will overlay module ADSUT190.

Table 5-56. Parameters Passed to SYSOUTEX

Type	Size	Description		
INPUT	CL8	DDNAME (CMDPRINT, MSGPRINT or SYSPRINT)		
INPUT	CLxx	Print Line		
INPUT	CL1	Carriage Control for the print line:	C’ ’	single space
			C’0’	double space
			C’-’	triple space
			C’1’	new page, first line
INPUT	HW	LENGTH of the PRINT LINE		
INPUT	XL2	TYPE of PRINT LINE:	X’0000’	regular data line for printing
			C’H’—C’H9’1’	a heading line
			C’F1’—C’F9’	a footing line
OUTPUT	HW	Specify The Return Code	H’1’	continue (print the line)
			H’4’	skip the print line

TAOPPOEX — Archive Tape Processing Exit (Post-Open)

The module name supplied for this exit will receive control from SAMS:Disk functions that process archive tape data. It is invoked immediately after an archive tape volume has been opened.

The user exit allows the user to inspect and/or change the system control blocks related to the open.

Use sysparm TAOPPOEX to specify the module name to be invoked for this exit.

Table 5-57. Parameters Passed to TAOPPOEX

Type	Size	Description		
INPUT	CL8	SAMS:Disk Function - Indicates the SAMS:Disk function invoking the exit (that is, archive, restore, merge)		
INPUT	CL6	Type Of Open	“input”	indicating read
			“output”	indicating write
INPUT	CL1	Type Of Tape	M	indicates primary archive tape being processed
			C	indicates copy archive tape being processed
INPUT	XL	DCB - Data Control Block used for the open		
INPUT	XL	JFCB - Job File Control Block used for the open		

TAOPPREX — Archive Tape Processing Exit (Pre-Open)

The module name supplied for this exit will receive control from SAMS:Disk functions that process archive tape data. It is invoked prior to opening an archive tape volume.

The user exit allows the user to inspect and/or change the system control blocks related to the open.

Use sysparm TAOPPREX to specify the module name to be invoked for this exit.

Table 5-58. Parameters Passed to TAOPPREX

Type	Size	Description		
INPUT	CL8	SAMS:Disk FUNCTION - Indicates the SAMS:Disk function invoking the exit (that is, archive, restore, merge)		
INPUT	CL6	Type Of Open	“input”	indicating read
			“output”	indicating write
INPUT	CL1	Type Of Tape	M	indicates primary archive tape being processed
			C	indicates copy archive tape being processed
INPUT	XL	DCB - Data Control Block to be used when opening the tape volume. It is set up to open when the exit is called		
INPUT	XL	JFCB - Job File Control Block to be used when opening the tape. It is also set up for the open		

TAPCTLEX — Tape Management System Control Interface Exit

This exit is identical to TMSCTLEX. The module name supplied for this exit enables users to run more than one tape management system during a conversion process. See user exit TMSCTLEX for a full description, and a complete list of input and output parameters available.

TAPEDLEX — Archive Volume Being Deleted from Archives

The module name supplied for this exit will receive control from any SAMS:Disk function that is deleting TAPE/CARTRIDGE archive volumes from the archive index.

The archive volume record passed to this exit is always sequence #1. Parm 2 indicates the total number of archvols records in the list and Parm 3 is the address of the list of arckeys for this archive data set. (For example, if a multivolume archive data set is being deleted, parm 2 will be GT H'1' and parm 3 will have more than one arckey in the list.)

No return code is accepted by this exit. SAMS:Disk processing cannot be altered.

Use sysparm TAPEDLEX to specify the module name to be invoked for this exit.

This exit is bypassed in SIMULATE mode.

Table 5-59. Parameters Passed to TAPEDLEX

Type	Size	Description
INPUT	XL110	Archvols Record - This is the archive volume index record from the files data set. ARCKEY is in positions 1 - 6. The true volser is in position 12 - 17. Turn to page 419 for a complete description of this record.
INPUT	H	List Count - Number of archive keys in the list that follows (maximum of 35 for any given multivolume archive data set).
INPUT	AL4	List Address - The address of the list of archive keys for the specified archive data set. (The number of keys in the list is specified in parm 2).

TMSCTLEX — Tape Management System Control Interface Exit

The module name supplied for this exit receives control from any SAMS:Disk function that is updating the status of an existing archive tape volume. This exit may then make the appropriate updates in whatever tape management data base is used to control the tapes. When SAMS:Disk changes the status of a tape volume, only the files data set is updated. This exit must provide the interface to the tape management system.

Note: User Exit TAPCTLEX enables support for sites that use more than one tape management system.

There are two options that correspond to the two reasons for an update:

1. SAMS:Disk no longer needs the tape. The tape can be returned to scratch status within the tape management system data base. This option is invoked when SAMS:Disk is going to expire or delete an archive volume.

2. The expiration date for a tape must be updated. This option is invoked when SAMS:Disk is going to alter the expiration date of an archive volume. When option 2 is invoked, a seventh parameter is passed. This parameter is the new expiration date that SAMS:Disk is going to reset for the archive volume. This parameter does not exist for option 1.

No messages are issued based on the return code passed back from this exit. The exit must provide these messages. The exit must also ensure the integrity of the tape management system data base and ensure that tapes are not prematurely expired.

Use sysparm TMSCTLEX to specify the module name to be invoked for this exit.

Table 5-60. Parameters Passed to TMSCTLEX

Type	Size	Description		
INPUT	H	OPTION:	1	Expire Tape
			2	Reset Expiration Date
INPUT	CL44	Tape DSN		
INPUT	H	Number of tape volumes Will always be 1		
INPUT	CL6	Tape volume		
OUTPUT	H	Return Code:	1	Update successful
			2 or more	update failed
OUTPUT	H	Reason Code:	Not used at this time. Can be set to any HW value.	
INPUT	PL4	New EXPDT - (option 2 only)		

Although you may choose to write this exit yourself, two exit programs are supplied as part of the SAMS:Disk system. This first program, “ADSTH014", is the interface to the CA1 External Data Manager (EDM) Interface which is supported in Release 4.8 or higher of CA1. The second program, ”ADSTH025", is a direct interface for Release 4.7 and below of CA1.

UNLOADEX — Process Unloaded Files Data Set Record

The module name supplied for this exit will receive control after a record has been selected for unload in the files unload process. The entire record is passed to the module and the user may modify any field desired. If the length of any record is altered, the user must ensure that the FILEDEFN table and files data set entries conform to the change. The exit may also be used to selectively eliminate records by setting a return code of 2.

Note: When record length is referenced, it means the file-defined record length plus decimal 12; for example, if a DSNINDEX record is passed and its file-defined length is 256, the length passed is 268.

Table 5-61. Parameters Passed to UNLOADEX

Type	Size	Description		
IN/OUT	CL8	Subfile Name		
IN/OUT	CL256	Files Record (maximum length of 256 bytes)		
IN/OUT	HW	Record Length (may be modified)		
OUTPUT	HW	Return Code	H’1’	Unload the record
			H’2’	Bypass the record

USERSENQ — ENQ/DEQ Exit

The module name supplied for this exit will receive control for each ENQ, DEQ, RESERVE or RELEASE to be issued. Its intended use is to allow the user to monitor, modify or replace the normal SAMS:Disk ENQ processing. It does not affect processing specified by the SAMS:Disk sysparms SPFENQQN, SPFENQTY or SPFENQWT. (To perform its intended task, the SAMS:Disk auto-restore function internally assigns and uses the module name “DMSNOENQ” for this user exit.)

A return code set by the exit module indicates what further action SAMS:Disk is to take.

Use sysparm USERSENQ to specify the module name to be invoked for this exit.

Table 5-62. Parameters Passed to USERSENQ

Type	Size	Description		
IN/OUT	CL2	Type Of Enq Request	CL2’E ’	ENQ Exclusive
			CL2’S ’	ENQ Shared
			CL2’C ’	Change Shared to Exclusive
			CL2’D ’	DEQ
			CL2’RE’	RESERVE and ENQ Exclusive
			CL2’RS’	RESERVE and ENQ Shared
			CL2’RC’	RESERVE and Change Shared to Exclusive
			CL2’RD’	RELEASE and DEQ
			CL2’TE’	Tape ENQ
			CL2’TD’	Tape DEQ
INPUT	CL44	DSNAME (the resource name)		
INPUT	CL6	VOLUME (for RESERVE requests)		
OUTPUT	H	Return Code	H’0’	Skip normal ENQ processing. DO NOT perform ENQ/DEQ processing.
			H’4’	Continue with normal SAMS:Disk ENQ/DEQ processing per the request type in parameter 1
			H’5’	Reject the ENQ/DEQ request

USERVENQ — VSAM DISP=SHR/OLD Exit

The module name supplied for this exit will receive control for each VSAM cluster to be allocated in a task. Its intended use is to allow the user to monitor or replace the DISP=SHR or DISP=OLD value.

A return code set by the exit module indicates what further action SAMS:Disk is to take.

Use sysparm USERVENQ to specify the module name to be invoked for this exit.

The USERVENQ user exit is not called for empty VSAM clusters. SAMS:Disk obtains all pertinent information from the catalog thereby removing the necessity of an enqueue.

Table 5-63. Parameters Passed to USERVENQ

Type	Size	Description		
IN/OUT	CL2	Type Of Enq Request	CL2’E ’	ENQ Exclusive (DISP=OLD)
			CL2’S ’	ENQ Shared (DISP=SHR)
INPUT	CL44	DSNAME (the resource name)		
INPUT	CL6	VOLUME		
OUTPUT	H	Return Code Value	H’0’	Continue with normal SAMS:Disk processing. Use the ENQ type returned in the first parameter.
			H’5’	Skip normal SAMS:Disk processing. Bypass processing of the cluster.

USRCODEX — User Code Substitution Exit

This module is invoked by DASD billing just prior to a table lookup to obtain a user code for a given data set name. The data set name is in a work area and may be modified by the exit module. If the data set name is modified, it will be used to search the USERCODTBL.

Use sysparm USRCODEX to specify the module name to be invoked for this exit.

Table 5-64. Parameters Passed to USRCODEX

Type	Size	Description		
INPUT	CL44	DSNAME For Data Set		
INPUT	CL12	Usercode Value		
OUTPUT	HW	Specify Return Code	H’1’	Obtain Code From Table and Continue
			H’2’	Use User Code Returned by Exit Module

VCCOPYEX — Move/Copy Screening

This module is invoked just prior to the copying a data set. The exit is the equivalent of the VCDMIGEX exit except it is invoked for the COPY command instead of the MIGRATE command. The exit may override the migration attempt.

Use sysparm VCCOPYEX to specify the module name to be invoked for this exit.

Table 5-65. Parameters Passed to VCCOPYEX

Type	Size	Description		
INPUT	XL256	Data Set Identifier - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.		
INPUT	XL140	Volume Identifier - Format-4 DSCB for data set. Volume serial is in positions 1 - 6.		
INPUT	XL16	Option Indicators - 16 one-character fields that indicate the options active at the time the exit is invoked. If the byte contains X'00', the option is not active. If it contains X'01', the option is active.	XL1	SIMULATE
			XL1	NOCATALOG
			XL1	NOSCRATCH
			XL1	FILL
			XL1	REDUCE
			XL1	PREALLOC
			XL1	CYLINDER
			XL1	PASSWORD
			XL1	ABSOLUTE
			XL1	TRACK
			XL1	CATALOGALL
			XL1	CONTIG
			XL1	CREATE
			XL1	reserved for future expansion
			XL1	reserved for future expansion
			XL1	reserved for future expansion
		The VCFLAGS macro is available in the SAMS:Disk macro library to map these flags		
OUTPUT	HW	Specify Return Code	H'1'	Continue Normal Processing
			H'2'	Terminate Processing For Data Set

VCDMIGEX — Move/Copy Screening

This module is invoked just prior to the relocation of a data set. All selection screening by SAMS:Disk has been done and the exit is given a chance to override the migration.

Use sysparm VCDMIGEX to specify the module name to be invoked for this exit.

Table 5-66. Parameters Passed to VCDMIGEX

Type	Size	Description		
INPUT	XL256	Data Set Identifier - Format-1 DSCB, and appendage, for data set to be processed. Turn to page 467 for a description of this area.		
INPUT	XL140	Volume Identifier - Format-4 DSCB for data set. Volume serial is in positions 1 - 6.		
INPUT	XL16	Option Indicators - 16 one-character fields that indicate what options are active at the time the exit is invoked. If the byte contains X'00', the option is not active. If it contains X'01', the option is active.	XL1	SIMULATE
			XL1	NOCATALOG
			XL1	NOSCRATCH
			XL1	FILL
			XL1	REDUCE
			XL1	PREALLOC
			XL1	CYLINDER
			XL1	PASSWORD
			XL1	ABSOLUTE
			XL1	TRACK
			XL1	CATALOGALL
			XL1	CONTIG
			XL1	CREATE
			XL1	reserved for future expansion
			XL1	reserved for future expansion
			XL1	reserved for future expansion
		The VCFLAGS macro is available in the SAMS:Disk macro library to map these flags		
OUTPUT	HW	Specify Return Code	H'1'	Continue Normal Processing
			H'2'	Terminate Processing For Data Set

VSACESEX — Change VSAM Read/Write Processing Options

The module name supplied for this exit will receive control prior to every open of a VSAM data set. The purpose of the exit is to allow you to change the method SAMS:Disk will use to read VSAM clusters. It can also specify whether the format of the archived cluster should be in logical records or in control interval image copy format (ESDS clusters only). The values passed to the exit are those that SAMS:Disk has selected, based on sysparms in effect. If not modified, the values passed will be used when SAMS:Disk processes the cluster.

This exit would be used typically when your installation has either a systems or application program that formats VSAM entry-sequenced clusters (ESDS) in a non-standard format. Examples of this would be data bases created by the MSA product line. These data sets must be archived in a control interval image copy format, so that they may be restored in the same manner. If you can recognize these data sets based upon data set naming conventions, this exit can be used to select image format for their archival, while all other data sets would use logical record format. The only advantage of using logical record format is that the control interval size of the data set can be changed when restoring the data set, whereas a control interval image copy must be restored to the same control interval size. If this flexibility is not required, you may specify sysparm VSARCFMT with a value of C to force all ESDS clusters to be archived in image copy format, and this exit would not be required.

Use sysparm VSACESEX to specify the module name to be invoked for this exit.

Table 5-67. Parameters Passed to VSACESEX

Type	Size	Description		
INPUT	CL44	Data Set Name		
INPUT	CL1	Cluster Type	'K'	Key-sequenced data set
			'E'	Entry-sequenced data set
			'R'	Relative record data set
IN/OUT	CL1	VSAM Read Access Type	'C'	Read the cluster with control interval processing
			'L'	Read the cluster with logical record processing
IN/OUT	CL1	Archive Format Of Data	'L'	Logical record format
			'C'	Control interval image copy format

Type	Size	Description		
Notes:	1.	Format type C will be honored only for ESDS clusters.		
	2.	If you specify format type C but specify access type L (parameter 3), SAMS:Disk will change the access type to C.		
OUTPUT	HW	Result Code	0	Process the data set
			Non-zero	bypass the data set

VSALLOEX — Change VSAM Space Allocation Amounts

The module name supplied for this exit will receive control prior to all defines of VSAM components. The purpose of the exit is to allow the user to inspect the allocation amounts to be used in the DEFINE and change these values if desired. The exit not only receives the original allocation amounts used for the DEFINE, but also the new allocation amount that SAMS:Disk has calculated. It will be invoked for each component of the cluster.

The exit can either change the new allocation amount calculated by SAMS:Disk, or leave it alone, in which case that value will be used as the allocation amount. There is no RETURN CODE from this exit.

Note: This exit will not receive control if the allocation amounts for the cluster are specified on the RESTORE command.

Use sysparm VSALLOEX to specify the module name to be invoked for this exit.

Table 5-68. Parameters Passed to VSALLOEX

Type	Size	Description	
INPUT	XL7	ORIGINAL ALLOCATION AMOUNT	
		XL3	Primary Allocation Amount
		XL3	Secondary Allocation Amount
		X	Allocation Type
		`1... ....`	Allocation Is In Tracks
		`11.. ....`	Allocation Is In Cylinders

IN/OUT	XL7	New Allocation Amount (calculated By SAMS:Disk)		
		XL3	Primary Allocation Amount	
		XL3	Secondary Allocation Amount	
		X	Allocation Type	
		`1... ....`	Allocation Is In Tracks	
		`11.. ....`	Allocation Is In Cylinders	
INPUT	F	Total Of All Allocated Extents In Original Data Set (total Is Always In Tracks)		
INPUT	F	Total Amount Of Used Space (total Number Of Tracks Actually Required By Original Data Set)		
INPUT	XL4	Original Device Type		
INPUT	XL4	New Device Type		
INPUT	F	High Used RBA Of Original Data Set		
INPUT	F	High Allocated RBA Of Original Data Set		
INPUT	F	Physical Block Size		
INPUT	F	Control Interval Size		
INPUT	CL1	Component Type	'D'	Data Component
			'I'	Index Component
INPUT	CL44	Data Set Name		
INPUT	H	Number Of Old Volumes		
INPUT	20CL6	List Of Old Volumes		
INPUT	H	Number Of New Volumes		
INPUT	20CL6	List Of New Volumes		

VSATTREX — VSAM Bufferspace and CI Size Exit

T he module name supplied for this exit will receive control for each VSAM cluster to be defined in a task. Its intended use is to allow the user to monitor or replace the BUFFERSPACE, CISZ, and certain data set attributes prior to any DEFINE issued by SAMS:Disk.

Use sysparm VSATTREX to specify the module name to be invoked for this exit.

Table 5-69. Parameters Passed to VSATTREX

Type	Size	Description		
INPUT	CL44	Data Set Name		
INPUT	CL1	Component Type	CL1'D'	Data Component
			CL1'I'	Index Component
IN/OUT	F	Buffer Space Amount		
		Note: Value can be changed to specific amount on output, or can be set to zero to let AMS calculate new value.		
IN/OUT	F	Control Interval Size		
		Note: Value can be changed to specific amount on output, or can be set to zero to let AMS calculate new value.		
IN/OUT	XL2	Data Set Attribute Bytes		
		XL1	Data Set Attribute Byte (ATTR1)	
		`1... ....`	Use Speed Option When Loading Data Set	
		`0... ....`	Use Recover Option When Loading Data Set	
		`.1.. ....`	Define The Data Set As Unique	
		`.0.. ....`	Define The Data Set As Suballocated	
		`..1. ....`	Define The Cluster As Reusable	
		`..0. ....`	Define The Cluster As Not Reusable	
		`...X XXXX`	User Exit Should Not Modify These Flags	
		XL1	Data Set Sharing Attributes (ATTR2)	
		`00.. ....`	Data Set Can Be Shared By Read Users Or By One Update/Output User	

Type	Size	Description	
		`01.. ....`	Data Set Can Be Shared By Read Users And By One Update/Output User
		`10.. ....`	Data Set Can Be Fully Shared
		`11.. ....`	Data Set Can Be Fully Shared With VSAM's Assistance
		Data Set Sharing Attributes Across Systems, As follows:	
		`..00 ....`	RESERVED
		`..01 ....`	RESERVED
		`..10 ....`	Data Set Can Be Fully Shared
		`..11 ....`	Data Set Can Be Fully Shared With VSAM's Assistance
		`.... XXXX`	User Exit Should Not Modify These Fields

VSMAFTEX — Implicit VSAM Data Set Screening (Post-Validate)

The module name supplied for this exit will receive control from the implicit VSAM support after it has retrieved all information from catalog management regarding the cluster, and also after all screening tests are applied. If the VSMPRIEX user exit is also specified, this exit gets control after the VSMPRIEX exit has screened the request, regardless of the result returned by that exit. The result code passed as input represents the action that SAMS:Disk will take. This exit will also get control when processing requests that scan volumes using the SCAN command. As of Release 8.0, this is limited to only the ISPF reporting function. When a data set name is supplied as a result of a SCAN REAL command, the catalog name passed as the fourth parameter will be nulls.

The user may request that SAMS:Disk reject or process the request, regardless of what value was found in the result code parameter. Use sysparm VSMAFTEX to specify the module name to be invoked for this exit.

Table 5-70. Parameters Passed to VSMAFTEX

Type	Size	Description		
IN/OUT	HW	Action Code. This parameter is both an input and an output parameter. The value on input informs the exit what action SAMS:Disk will take if unmodified by the exit. The value on output (if changed) instructs SAMS:Disk to take the new action.		
		H’0’	Data set will be processed	
		H’8’	Data set will be bypassed	
INPUT	CL8	Function Code	’REPORT’	report on the component
			’DELETE’	delete the component
			’BACKUP’	backup the component
			’ARCHIVE’	archive the component
INPUT	CL44	Data Set Name		
INPUT	CL6	Volser - primary volume of data component		
INPUT	CL44	Catalog Name - the catalog name in which the component is defined (if catalog scan)		
INPUT	CL1	DSNTYPE	’C’	Cluster component
			’I’	Index component
			’D’	Data component
			’ ’	Component type unknown
INPUT	CL6	Volser - volume serial number of this component		

VSMPRIEX — Implicit Data Set Screening (Pre-Validate)

The module name supplied for this exit will receive control from the implicit VSAM support after it has retrieved all information from catalog management regarding the cluster, but before any screening tests are applied. If the VSMAFTEX user exit is also specified, it will get control after the VSMPRIEX exit has screened the request, regardless of the result returned by this exit.

This exit will also get control when processing requests that scan volumes using the SCAN command. This is limited to only the ISPF reporting function. When a data set name is supplied as a result of a SCAN REAL command, the catalog name passed as the fourth parameter will be nulls.

The user may request that SAMS:Disk continue with normal processing, reject the request, or unconditionally process the request.

Use sysparm VSMPRIEX to specify the module name to be invoked for this exit.

Table 5-71. Parameters Passed to VSMPRIEX

Type	Size	Description	
OUTPUT	HW	Result Code. This parameter instructs SAMS:Disk as to what action to take. Its value on input is always 1, so if this module does not modify its value, normal processing will be carried out.	
		H’1’	Continue normal processing. This means that if any SELECT and/or EXCLUDE commands were specified, those tests will be applied after this exit returns control to SAMS:Disk.
		H’2’	Terminate processing for the data set. Note that if the VSMAFTEX is also specified, that exit will still get control and can reverse the rejection request. Any SELECT and/or EXCLUDE commands are ignored.
		H’3’	Unconditionally select the data set for processing. Note that if VSMAFTEX is also specified, that exit will still get control and can reverse the selection request.Any SELECT and/or EXCLUDE commands will be ignored.

Type	Size	Description		
INPUT	CL8	Function Code	’REPORT’	report on the component
			’DELETE’	delete the component
			’BACKUP’	backup the component
			’ARCHIVE’	archive the component
INPUT	CL44	Data Set Name		
INPUT	CL6	Volser - primary volume of data component		
INPUT	CL44	Catalog Name - the catalog name in which the component is defined (if catalog scan)		
INPUT	CL1	DSNTYPE	’C’	Cluster component
			’I’	Index component
			’D’	Data component
			’ ’	Component type unknown
INPUT	CL6	Volser - volume serial number of this components		

VSMSPWEX — VSAM Master Password Exit

The module name supplied for this exit will receive control after the SAMS:Disk master password is extracted. Its intended use is to allow the user to monitor or replace the SAMS:Disk master password with a user-supplied password.

Use sysparm VSMSPWEX to specify the module name to be invoked for this exit.

Table 5-72. Parameters Passed to VSMSPWEX

Type	Size	Description
INPUT	CL8	Function Being Executed
IN/OUT	CL8	SAMS:Disk Master Password

VSNEWNEX — VSAM New Name Exit

The module name supplied for this exit will receive control prior to every DEFINE of a VSAM component issued by SAMS:Disk. It is invoked whether or not a NEWNAME parameter was specified on the input command. Its intended use is to allow the user to monitor or replace the data set name for each component.

Use sysparm VSNEWNEX to specify the module name to be invoked for this exit.

Table 5-73. Parameters Passed to VSNEWNEX

Type	Size	Description		
INPUT	CL1	Component Type	C'C'	Cluster Component
			C'D'	Data Component
			C'I'	Index Component
INPUT	CL44	Base Component's Original Data Set Name		
INPUT	CL44	Base Component's New Name		
INPUT	CL44	Current Component's Data Set Name		
IN/OUT	CL44	New Data Set Name For Component		
IN/OUT	H	Return Code. Note that this is both an input and output parameter. If the value on input is greater that one, SAMS:Disk will let AMS generate a data set name for the component. If the value is less than or equal to one, the name passed as input will be used in the DEFINE. This value can be reset by the exit to either let AMS generate a name, or to indicate that the exit is supplying a name.		
		'1'	Use data set name supplied	
		'4'	Let AMS generate a component name	

XCPARCEX — XCOPY Archive Volume Selection Exit

This module is called during XCOPY processing to allow selection processing based on criteria other than that available through SELECT and XCOPY parameters.

This exit is called during volume level selection for all archive volumes in the input files data set. The user may use any and all data in the ARCHVOLS record provided to determine if the volume should be selected for XCOPY processing. The ARCHVOLS record passed to the user exit is a copy of the ARCHVOLS record used during the process and is discarded on return from the user exit. The Flag byte passed to the exit may contain a 'Y' or 'N' depending on whether the volume has been selected for processing via the selection criteria specified on the SELECT and XCOPY command lines. In this way the exit can know if the volume was to be selected and override processing if desired.

Table 5-74. Parameters Passed to XCPARCEX

Type	Size	Description	
INPUT	XL110	Input ARCHVOLS Record	
IN/OUT	CL1	Flag, C 'Y'	Select volume
		Flag, C 'N'	Do not select volume

XCPDSNEX — XCOPY Data Set Level Selection Exit

This module is called during XCOPY processing to allow selection processing based on criteria other than that available through SELECT and XCOPY parameters.

This exit is called for all data sets that exist on the Archive Volumes that have previously been selected for processing. The user may use any and all data in the ARCHVOLS and DSNINDEX records provided, to determine if the data set should be selected for XCOPY processing. The ARCHVOLS and DSNINDEX records passed to the user exit are copies of records used during the process and are discarded on return from the user exit. The Flag byte passed to the exit may contain a 'Y' or 'N' depending on whether the data set has been selected for processing via the selection criteria specified on the SELECT and XCOPY command lines. In this way the exit can know if the volume was to be selected and override processing if desired.

Table 5-75. Parameters Passed to XCPDSNEX

Type	Size	Description	
INPUT	XL110	Input ARCHVOLS Record	
INPUT	XL256	Input DSNINDEX Record	
IN/OUT	CL1	Flag, C 'Y'	Select data set
		Flag, C 'N'	Do not select data set

Chapter 6. Message Formatting

Module ADSUT028 is available to allow user-written programs (for example, a user exit) to write messages to the same //MSGPRINT dd statement used by SAMS:Disk. The user program merely formats the message text as desired into a 115-character print line (with trailing blanks for messages shorter than 115 characters). Module ADSUT028 is then called, passing the name of the user's program, a message number to be assigned to the message, and the message text to be printed.

The module must be invoked through the SAMS:Disk module intercept interface (MI). The example shows how to do this. To use this interface, the SAMS:Disk load library must be available when you link-edit your program, as documented beginning on page 307.

The module and its interface are as follows:

Module Name — ADSUT028

Module function - Print message to MSGPRINT dd statement:

Table 6-1. Parameters Available to Module ADSUT028

Parm #	Type	Size	Description
1	Input	CL8	Name of program issuing the message
2	Input	CL3	Message number to be used (Will be prefixed with "U")
3	Input	CL115	Message text

Example Use of ADSUT028

Assembler language call -

```
CALL MI, (DMSPGM,USERPGM,MSGNBR,MSGTEXT),VL
```

Assembler constants for call -

```
DMSPGM   DC    CL8'ADSUT028'
USERPGM  DC    CL8'xxxxxxxx'
MSGNBR   DC    CL3'001'
MSGTEXT  DC    CL115'message text'
```

Message Formatting

All printed messages are prefixed with a 13-character identifier, consisting of the 8-character name of the module issuing the message, an asterisk or a space, and the 4-character message number.

Some of the messages issued by SAMS:Disk modules are constructed by a parameter-driven module that uses a combination of passed parameters and values in an appropriate entry in the DMSMSGES member of the parmlib data set. Prior to Release 7.0, the module called to format these messages was ADSDM190. In Release 7.0, all calls to DM190 were changed to call ADSDM590 instead, using a slightly different parameter structure.

If you have written programs to call DM190, your messages will now be prefixed with USRDM190*nnnn (where nnnn is your message number). An additional message will then be issued as follows: ADSDM190 9999 IF MI CONTROL STACK IS ACTIVE, MODULE ISSUING PRIOR MESSAGE WAS mmmmmmmm. To eliminate these extra messages you must change your programs to call DM590 instead of DM190, and insert the 8-character name of your module as the first parameter being passed to DM590. For example, assume your program named USRPGM03 has the following call:

```
CALL MI,(DM190,MSG5021,PARM1,PARM2),VL
```

It should be changed to:

```
CALL MI,(DM590,USRPGM03,MSG5021,PARM1,PARM2),VL
```

with the following definitions needed as well:

```
DM590 DC CL8'ADSDM590'
USRPGM03 DC CL8'USRPGM03'
```

Each entry in the DMSMSGES member of the parmlib data set consists of a message number, post-message construction action code, and a series of one or more field and literal specifications. The format of each entry, which is variable in length, is described below.

Table 6-2. Format of the DMSMSGES Member of PARMLIB

Colums	Description		
1-4	Message Number - A four-digit zoned decimal number that uniquely identifies the particular message		
5	Action Code - A one-character designation of action to be taken after the message is constructed and printed. It may be one of the following:	C	Continue by returning to the calling module
		T	Terminate Without A Dump and user code 16
		D	Terminate With A Dump and user code 20

Colums	Description		
6 - n	Field / Literal - One or more variable-length entries may appear, with the first character of each item describing the type of data to be inserted next in the message:	C	Designates a CHARACTER field of a length specified by the next one or two digits. The next parameter points to the value to be moved to the message.
		D	Indicates that a DATE in the (ydd) discontinuous binary format is to be processed as the next parameter
		X	Specifies a HEXADECIMAL field of length specified by the next digit. The value to be unpacked and translated is at the location pointed to by the next parameter. It may be 1 to 4 bytes in length.
		F	Specifies a FULLWORD field. The value to be unpacked and translated is at the location pointed to by the next parameter.
		H	Specifies a HALFWORD field. The value to be unpacked and translated is at the location pointed to by the next parameter.
		/	Indicates that a LITERAL begins with the next character and continues up to a terminating slash or the end of the member entry

Whenever an error is encountered by the message processing module, it will print an error message consisting of the prefix (ADSDM590) followed by appropriate error text. It will then print the completed portion of the message it was directed to construct. Depending on the nature of the error, this may be only the identification of the calling module.

Chapter 7. Problem Analysis/Aids

Sterling Software, Inc. takes pride in providing leading edge products using state of the art software technology. Providing high quality technical support is of equal importance. In an effort to maintain this standard for an increasing customer base, we request your assistance in performing as many of the following diagnostic steps as are relevant prior to contacting the Technical Support Center.

- ☐ Read the documentation carefully.
- ☐ Reconstruct the events and write them down.
- ☐ Run some simple test cases.
- ☐ If the job abended, find the name of the data set that SAMS:Disk was processing at the end of the Module Control Stack (refer to topic *"Module Intercept Control Stack"* on page 284 for details). If you were running an implicit function (that is, DMS), try an explicit run (that is, ARCHIVE) against the offending data set. If this abends, bypass the data set in your implicit run until you find out what is special about the offending data set.

If a problem arises that requires technical programming or analysis support, contact us at the following telephone number.

(800) 889-0226

We recommend that you not ask for a specific support representative unless you are already working with that individual on your particular problem.

When You Call In

When you call in, you will need to provide the following information:

☐ Your organization name: _____.

☐ Your name: _____.

☐ A phone number where you can be reached: (___) ___-_____ x_____.

☐ The CASE number or PI tracking system number _____, if one was assigned to the problem previously by a support rep.

For new problems, you will need to provide:

☐ The release of SAMS:Disk that you are running: _____.

☐ The machine type on which you are running (that is, Hitachi 3090, Siemens): _____.

☐ The operating system and release on which you are running (that is, VOS3 5.2): _____.

☐ If the request is for a SAMS:Disk Open SVC zap, the PTF UZ number that you are running under: _____.

☐ The function(s) of SAMS:Disk that you are running: _____ _____.

☐ If this is a security-related problem, the security package type, release, options installed, and the authority level of the user: _____ _____.

☐ Can you recreate the problem? _____.

☐ Has the problem occurred before? _____.

☐ Has the function ever worked correctly? _____.
For how long?_____.
Under what conditions?
_____.

☐ Any changes made to your system between the time that SAMS:Disk worked and it didn't work: _____ _____

☐ The exact sequence of events that led to the error:
_____
_____
_____
_____
_____
_____
_____.

☐ The JCL from all jobs involved.

☐ The module name, message numbers and complete text of any SAMS:Disk messages that were issued.

☐ If you are running auto-restore, examine the message output from the DMSAR started task. If you are not getting any message output, set the //MSGPRINT DD SYSOUT= statement in the DMSAR proc to be printed or routed to your favorite spooling package. Debugging of auto-restore cannot be accomplished without the MSGPRINT output.

☐ The message numbers and complete text of any system messages that were issued (that is, from the JES2 log).

☐ The console log from around the time of the error, if it contains messages that do not appear on the JES2 log. For instance, I/O errors or bad data sets may result in IEA000I messages, and 806 abends may result in other IEAxxxi messages that will appear on the console log and not on the JES2 log.

☐ If there is a dump, the abend code and module intercept control stack information. Locate the SAMS:Disk control stack in user subpool zero, and identify the failing module. See *"Module Interface Control Stack"* on page 284 for details.

Note: Because SAMS:Disk uses GETMAIN areas for much of its processing, an ABEND-AID dump is almost never sufficient to troubleshoot problems in SAMS:Disk. Therefore, SAMS:Disk uses the ABNLDUMP dd statement to get a complete SYSUDUMP in addition to an ABEND-AID dump.

SVC dumps have an IEA911E message on the JES log, or the second word of the PSW in the dump points to a location not contained in the SYSUDUMP. If you have such an SVC dump, print it using the LPAMAP, LOGDATA, and PRINT CURRENT commands of the program AMDPRDMP. Also use the LISTLPA command of the program JSNMLST to get the locations of the system modules (ES users must follow other procedures.)

The programs AMDPRDMP and JSNMLST are described in the Hitachi manual *OS/VS2 VOS3 System Programming Library: Service Aids*. See your systems programmer for details.

If you encounter a problem while running SAMS:Disk Stand-Alone Restore (DMSSAR), vary a printer online and retry the restore. If you go into a wait state, record the contents of the PSW. If a dump is produced, let the entire dump print. If you need to contact the Technical Support Center for assistance, please try to call from a phone near the console you are using for the restore because the support representative may need you to display certain portions of memory or other information at the console.

☐ A list of all active system parameters. You can specify sysparm SYSPARMS with a value of S to get this list.

☐ A list of all user exits that you have installed in SAMS:Disk.

☐ A list of all user exits in other products at your site, if they are related to the SAMS:Disk function that you are trying to run.

☐ Results from tests that you have run.

☐ Any other related output.

☐ Any other information that may help to solve the problem.

☐ What exactly do you want the Technical Support Center to do?_____
_____
_____.

Incomplete information may delay or prevent solutions to problems. If we do not receive a response within four weeks for a request for more information, we will consider the problem closed. If it is not possible to provide the information within four weeks, let us know so we can keep the problem open.

When you receive a fix to a problem, please confirm, good or bad, the results of the fix to the support rep. If we do not receive a response within two weeks, we will consider the problem closed.

This policy is to help us give you better service by responding to your problems in a timely manner. If you have any suggestions for changes to this policy, please contact the Technical Support Center. We always welcome suggestions to provide better service.

Sending Information to the Technical Support Center

In some cases the SAMS:Disk Technical Support Center representatives may request that you send information regarding a problem directly to them. Please document the problem completely before sending it, including:

☐ Your organization name and address.

☐ Your name.

☐ A telephone number where you can be reached.

☐ The PI problem tracking system number assigned by the support rep. Write this PI number on ALL documents and on the OUTSIDE of the package.

☐ Other information from the list above. The list itself may be photocopied and included with the package.

☐ The importance of the problem, so that we may assign it a priority.

If you have to send a dump in to the Technical Support Center, please provide the dump on paper (or if it is large, on tape). Dumps on microfiche will be accepted only if your installation cannot provide it on paper or on tape. Organizations that cannot ship dumps or other listings due to security restrictions may or may not receive assistance over the phone.

You may fax small numbers of pages to our facsimile machine at (916) 852-8601. If you cannot use the fax, send all information to the following address:

Sterling Software, Inc.
Storage Management Division
11050 White Rock Road, Suite 100
Rancho Cordova, CA. 95670-6095

Diagnostic Tools

SAMS:Disk is composed of numerous callable modules, each of which performs a separate unique function. SAMS:Disk components are driven by executing a control module which, in turn, calls all the lower-level modules necessary to complete the desired task.

Module Intercept Control Stack

Calls between all modules are done through a common interface routine, MI. This routine not only provides an interface between modules, but also provides the base for detailed debugging facilities. Three major functions are provided by the MI interface.

For each call, MI is passed the name of an executable load module. MI first determines if the module is already in storage. If it is, linkage is established, and control is passed to it. If it is not in storage, MI issues a load for the module and then passes control to it. Upon return to MI from the subroutine, MI returns control to the original caller.

During this process of interfacing between driver and subroutine modules, MI also keeps track of all modules currently active. Information about all active modules is kept in a table referred to as the module intercept control stack. The control stack is not maintained when MI fast path is used, which will be discussed shortly.

At the time of the first call through the interface, a control block is dynamically constructed in subpool zero. To facilitate finding it in a memory dump and making use of its contents, it is allocated on a 32-byte boundary and is enclosed with graphic headings.

This control area includes a complete description of the active portion of the hierarchic control structure of the executing program. It collects in a structured format information that is scattered through the user partition or region.

Finding the Module Intercept Control Stack

The module intercept control stack may be found in any SAMS:Disk abend SYSUDUMP listing. Instructions for getting a dump during abends of TSS functions are supplied in the SAMS:Disk installation library in the member SPFTRACE. Use the following steps to find the module intercept control stack:

1. Find the INDEX for the dump. It is the last page of the dump.

2. Go to the page for entry “USER SUBPOOLS”.

3. Within the next few pages you should see the STACK in the right-hand portion of the listing. It will look like the example shown.

Example of Module Intercept Control Stack

The following example shows how the module intercept control stack will appear in SAMS:Disk SYSUDUMP listings:

```
00000 00000000   *...............................*
00000 00000000   *...............................*
00000 00000000   *...............................*
0E2E3 C1C3D240   * MODULE INTERCEPT CONTROL STACK *
5D740 40D7D340   *LVL MODULE   RS  SA  RT  EP  PL *
00000 00000000   * 0 EXTERNAL ...................*
95128 00000000   * 1 ADSMI048 ...................*
A4BA0 0009565C   * 2 ADSDM180 ...................*
B6498 000A5880   * 3.ADSDM181 ...................*
B27A0 000B6A00   * 4 ADSDM008 ...................*
A1678 000A4014   * 5          ...................*
                   .    .     .
                   .    .     .
                   .    .     .
                   .    .     .
00000 00000000   *49          ...................*
44040 40404040   *      0000033 CALLS ISSUED      *
7E7E7 E7E7E7E7   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX*
04040 40404040   *                                *
04040 40404040   *      DMS DIAGNOSTIC AREA       *
04040 40404040   *                                *
440C9 E2406040   * DSNAME OR F1DSCB AT ABEND IS . *
04040 40404040   *ADS.DMS.TEST.DSN01              *
04040 40404040   *                                *
04040 40404040   *                                *
440C9 E2406040   * VOLUME OR F4DSCB AT ABEND IS . *
04040 40404040   *WORK01                          *
04040 40404040   *                                *
04040 40404040   *                                *
5C140 40404040   *     END OF DIAGNOSTIC AREA     *
7E7E7 E7E7E7E7   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX*
00000 00000000   *...............................*
00000 00000000   *...............................*
```

Figure 7-1. Module Intercept Control Stack Listing

A brief description of each of the fields comprising a stack entry is described below:

Table 7-1. Module Intercept Control Stack Fields

Field Name	Description
Control Level (lvl)	The hierarchic level of function with the operating system being considered level 0. Up to 26 control levels can be accommodated
Module Name (module)	The eight-character name of the module most recently invoked at that level in the stack. A flag of hex FF will appear in front of the module name that is active at the time of the dump. This will print as a period on the graphic side of the dump listing.

Field Name	Description
Save Area (sa)	The second fullword following module name contains the address of the SAVEAREA of that module. Until the first call, it is zero.
Return Address (rt)	The third fullword following the module name contains the return address from the most recent call to a subordinate module. As with the save area pointer, it will be zero until the first call.
Entry Point (ep)	The fourth fullword following the module name is the address of the entry point for the module. This value can be subtracted from the return address to determine the displacement of the most recent call made by a module (CLIST).
Parameter List (pl)	The fifth fullword following the module name, and the last value on each line of the dump listing, is the address of the parameter list passed to the module. It will point to the address of the parameter following the name of the module being invoked.

At the bottom of the STACK is the NUMBER OF CALLS issued prior to abnormal termination. It can be used in conjunction with the Module Trace Facility to obtain a trace of module names and parameter values for a reasonable number of calls prior to the failure.

MI Fast Path

Introduced in Release 7.0 was a streamlined path through MI that we call “MI fast path”. As the name implies, the purpose of this facility is to reduce the overhead associated with tracing and control stack maintenance. Although this can improve system performance up to 30 percent (depending on the function being executed), it also eliminates the debugging capabilities of MI. The fast path is keyed off the dd statements supplied in the JCL.

How does fast path work, and how does it affect debugging? Basically, the first call that any module issues to another goes through the standard MI interface. Prior to passing control to the called module, however, MI replaces the VCON to MI with an address to an offset inside a branching table. This causes all subsequent calls to be routed directly to the called module (with four intervening instructions) without MI seeing the call. This causes the control stack to be maintained only on the first call from one module to another, which is useless for debugging purposes. We therefore overlay the control stack heading line (LVL MODULE RS, etc.) with a literal “** CONTROL STACK UNRELIABLE **”. This also causes the “number of calls issued” value to be considerably less than the actual value.

There are occasions where this path cannot be used to pass program control. The primary one to be aware of is when the called module name can change dynamically throughout the course of execution, as in the following example:

```
IF (CLI,OPTION,EQ,C'1')
      MVC MODNAME,=CL8'ADSDM415'
ELSE
      MVC MODNAME,=CL8'ADSUT208'
ENDIF
      #CALL MODNAME,(PARM1,PARM2),VL
```

This causes a problem in fast path processing because the VCON that points to MI will be replaced with an address that points directly to the module being called. Unfortunately, this will cause all of the following calls through this code to be passed to the first module that was called, even if the module name changes. This can be circumvented in two ways. This will cause SAMS:Disk to use the slow path through MI for all program transfers. Although this will achieve the desired results, you will also be giving up the performance improvements in fast path.

This leads us to the second — and preferred — alternative of changing the linkage of MI to MI2. This tells the module intercept facility to not replace the VCON to MI for this particular call, but to go ahead and use fast path in any other calls. So the updated code for the call above would look like this:

```
#LINK MODNAME,(PARM1,PARM2),VL
```

The other area of concern may be if you are using the MI facility to transfer calls between your own modules. If you have any assembler routines such as the one above, they should be changed to call MI2. Also, if you are using macros that have a hard-coded "=V(MI)" to transfer control, these will quite possibly cause a problem.

Another area to watch out for is if you are using MI to transfer control between programs written in a high-level language, such as COBOL or even PL/1. The compilers for these languages generally produce only one VCON to MI, which can lead to the same problem as that described above where the module name in an assembler program can change dynamically. In these languages you should always transfer control through MI2, although specific code was put in the module intercept facility to detect calls originating from COBOL programs so that the address of MI would not be replaced.

DMS Diagnostic Area

Immediately below the module intercept control stack in SAMS:Disk dumps is the DMS diagnostic area. This area contains a data set name and volume serial pertaining to the data set being processed at the time SAMS:Disk abended. This data is maintained whether or not MI fast path being used.

Following the literal "DSNAME OR F1DSCB AT ABEND IS - " is the name of the data set being processed. Following the literal "VOLUME OR F4DSCB AT ABEND IS - " is the volume serial of the volume on which the data set resides.

Turn to page 284 for an example of the SAMS:Disk diagnostic area as it will appear in SAMS:Disk dumps.

Archive Tape Analysis Utility

This utility is provided to aid in determining the validity of an archive tape volume. In the event that an archive tape volume becomes damaged, this utility can be used to help determine the extent of the problem. It will indicate what data sets are still valid and which ones have been lost or damaged. This information can then be used to determine if data sets can be recovered from the volume and, if so, which ones.

This utility operates independently from other functions. To perform its function it simply:

- Scans the archive tape volume
- Retrieves information from the files data set that it finds in both the archive tape and the files data set
- Compares the BLKID for each data set (if available) and indicates any discrepancies by:
  - placing a *D at the end of the printed line that contained the discrepancy
  - placing an * at the end of the printed line if the values compared equally
- Interprets its contents
- Produces a printed report

Executing the Utility

Use the following JCL as an example to execute the utility:

```
//STEP1    EXEC   PGM=ADSMI002,PARM='ADSDM455',REGION=1024K
//STEPLIB   DD   DSN=SAMS.DISK.LOADLIB,DISP=SHR
//ABNLDUMP  DD   DUMMY
//FILES     DD   DSN=SAMS.DISK.FILES,DISP=SHR
//PARMLIB   DD   DSN=SAMS.DISK.PARMLIB,DISP=SHR
//CMDPRINT  DD   SYSOUT=A  —- commands
//MSGPRINT  DD   SYSOUT=A  —- error messages
//SYSPRINT  DD   SYSOUT=A  —- report
//SYSUDUMP  DD   SYSOUT=A
//SYSUT1    DD   DSN=the.archive.tape.data set.name,
//               UNIT=TAPE,VOL=SER=vvvvvv,DISP=OLD
//SYSIN     DD   *
  ANALYZE ....
/*
```

Figure 7-2. JCL to Execute Archive Tape Analysis

Modifying the SYSUT1 DD Statement

The SYSUT1 dd statement refers to the archive tape volume to be scanned. If the archive tape volume is a multivolume data set, include all volumes in the JCL. You must provide the correct name of the "archive tape" on the SYSUT1 dd statement.

If the beginning portion of your SAMS:Disk tape has been accidentally overwritten, the operating system will no longer recognize the SAMS:Disk archives as the first standard label file on the tape. If you have this condition, an attempt can still be made to process any remaining SAMS:Disk archive data, by adding the following parameter to the SYSUT1 dd statement:

```
//        LABEL=(5,BLP),
```

This will cause the OPEN SVC to go past enough tape marks to get to the remaining portion (if any) of the SAMS:Disk archive data set. You may have to experiment with the number on this parameter, depending on the exact nature of the problem. If additional errors occur trying to read the tape (such as wrong length records), you can attempt to bypass these by adding the following DCB parameter to the same SYSUT1 dd statement:

```
//        DCB=(BLKSIZE=32760,DSORG=PS,RECFM=U),
```

If SAMS:Disk is still unable to read this tape, analysis and recovery of any remaining data cannot be done. If you have other tape copy/salvage utilities in your installation, you may be able to use them to create a new tape from the damaged one, from which SAMS:Disk can then analyze and recover as much data as possible.

Command Input

The utility accepts a command as input. It allows the user to specify parameters to control tape processing. Only ANALYZE is required. The command format and parameter descriptions follow:

```
ANALYZE COUNT=nnn,ERRORMAX=nnn,DUMPMAX=nnn,EXITNAME=xxxxxxxx,
         FILENBR=nnn
```

COUNT=

Specify a 1- to 5-digit number to limit the maximum number of tape records to be scanned. It cannot be larger than 32,767. When this number of records has been read, processing will terminate. Due to error recovery, this number may be exceeded. It defaults to 9,999,999 records, causing the entire tape to be processed. This parameter is optional.

ERRORMAX=

Specify a number between 0 and 32767 indicating the maximum number of errors to be encountered before processing is terminated. It defaults to a limit of 10 errors before termination. This parameter is optional.

DUMPMAX=

As errors with data blocks are encountered, the data blocks are dumped to the MSGPRINT DD SYSOUT stream. Specify a 1- to 5-digit number to limit the number of data blocks to be dumped. When this number is reached, processing will continue, but no more blocks will be dumped. It defaults to a limit of 10 blocks. This parameter is optional.

EXITNAME=

Specify a 1- to 8-character user exit module name to be invoked. This optional parameter can be used to cause the utility to pass logical records from the archive tape to a user's processing routine. When specified, the user exit module will be invoked once for each archive tape logical record processed (logical record formats are described in this manual beginning on page 423). Compressed records will be decompressed before being passed to the exit.

FILENBR=

Specify the 1- to 5-digit file number with which to start tape analysis. It defaults to the first file. This parameter is optional.

Sample Report

In addition to the printed report, error messages will be generated for all detected error conditions.

```
JUL   1, 1996                    A R C H I V E   T A P E   V E R I F I C A T I O N                                  PAGE    1
    ARCHIVE TAPE VOLUME = 200328, CREDT = 07/01/1996, EXPDT = 00/00/0000, DSNAME = ISPDLM1.DMSN.C1996183.T131910
                   ARCFLAG=00, ARCFLAG2=03, ARCBKCNT=          25, ARCDSCNT=      16, ARCBTCNT=     460,058
 FILE                                                SOURCE    ARC     ARC     STARTING    STARTING    ENDING        TOTAL  PHYSICAL
 NBR. ------------- D S N A M E ------------------ VOLUME    DATE    TIME    BLK-PHYS    BLK-REC     BLOCK NO      BLOCKS BLOCK-ID
                  DSN->ARVOL  FLAG1  FLAG2  BLKCO  BLKCT                                                                   BLKNO
    1 ISPDLM1.DMS.FILES                              SSL807 07/01/1996 1319           1           1           1           1 01000004
                      200328  08     00    0001   00000001                                                                  01000004*
    2 ISPDLM1.DMS.PARMLIB                            SSL807 07/01/1996 1319           2           2           8           7 01000005
                      200328  08     00    0007   00000007                                                                  01000005*
    3 ISPDLM1.DMSORCMD.D08NOV95.T100656              MVSS02 07/01/1996 1319           9           9           9           1 0100000C
                      200328  08     00    0001   00000001                                                                  0100000C*
    4 ISPDLM1.DMSORCMD.D09NOV95.T104110              MVSS02 07/01/1996 1319          10          10          10           1 0100000D
                      200328  08     00    0001   00000001                                                                  0100000D*
    5 ISPDLM1.DMSRRPTS.D08NOV95.T162717              SY9SY2 07/01/1996 1319          11          11          11           1 0100000E
                      200328  08     00    0001   00000001                                                                  0100000E*
    6 ISPDLM1.D950504.T081521.CTLF.INPUT             SSL804 07/01/1996 1319          12          12          12           1 0100000F
                      200328  08     00    0001   00000001                                                                  0100000F*
    7 ISPDLM1.D950508.T110808.CTLF.INPUT             SSL805 07/01/1996 1319          13          13          13           1 01000010
                      200328  08     00    0001   00000001                                                                  01000010*
    8 ISPDLM1.ISPF.ISPPROF                           SSL804 07/01/1996 1319          14          14          15           2 01000011
                      200328  08     00    0002   00000002                                                                  01000011*
    9 ISPDLM1.ISPF.PROFILE                           SSL802 07/01/1996 1319          16          16          16           1 01000013
                      200328  08     00    0001   00000001                                                                  01000013*
   10 ISPDLM1.LOGON.CLIST                            SSL805 07/01/1996 1319          17          17          17           1 01000014
                      200328  08     00    0001   00000001                                                                  01000014*
   11 ISPDLM1.PROFILE.CLIST                          SSL805 07/01/1996 1319          18          18          18           1 01000015
                      200328  08     00    0001   00000001                                                                  01000015*
   12 ISPDLM1.SPFLOG1.LIST                           SSL802 07/01/1996 1319          19          19          19           1 01000016
                      200328  08     00    0001   00000001                                                                  01000016*
   13 ISPDLM1.SPFTEMP0.CNTL                          SSL803 07/01/1996 1319          20          20          20           1 01000017
                      200328  08     00    0001   00000001                                                                  01000017*
   14 ISPDLM1.SPFTEMP1.CNTL                          SSL805 07/01/1996 1319          21          21          21           1 01000018
                      200328  08     00    0001   00000001                                                                  01000018*
   15 ISPDLM1.TSOMAIL                                SSL803 07/01/1996 1319          22          22          22           1 01000019
                      200328  08     00    0001   00000001                                                                  01000019*
   16 ISPDLM1.UTIL.CNTL                              SSL807 07/01/1996 1319          23          23          25           3 0100001A
                      200328  08     00    0003   00000003                                                                  0100001A*

ADSDM455 2110 ARCHIVE TAPE SCAN ENDED, TOTAL BLOCKS (          25), TOTAL FILES(          16), TOTAL LOGICAL RECORDS (         597)
```

Figure 7-3. Sample Archive Tape Verification Report

User Exit — Archive Analysis

A user exit may optionally be invoked to provide user programs access to archive tape data. This may be useful in recovering data. The user exit for logical records is passed the following parameters:

Table 7-2. Archive Analysis User Exit

Type	Size	Description	
INPUT	HW	Call Type	When the user exit is called with this halfword containing a value of 1, a logical record from the archive tape is being passed to the exit module. When the halfword contains a value of 2, an end-of-file (not end-of-volume) condition has been encountered on the input tape. No record is being passed. This gives the exit a chance to perform end-of-file processing.
INPUT	variable	Data Record	When parameter 1 contains a 1, this parameter contains a logical record from the archive tape. The contents should not be used in other cases. Do not use this parameter when parameter 1 is equal to 2.
OUTPUT	HW	Return Code	This parameter indicates if the user exit routine wants processing to continue passing more records or to terminate processing.
		H’1’	Continue Passing Records to the Exit
		H’2’	Terminate Processing, Close File and End

Archive Extract Utility

This utility extracts data records from SAMS:Disk archive volumes. It is normally used to recover data for a data set on damaged archive tapes. It scans the archive tape volume for the specified data set, and then copies the data records or blocks to a sequential data set. For sequential data sets, the output data set is the same format as before it was archived. It may be used directly by application programs. For other data set organizations, the extracted data must be processed by other utilities to reload and recreate the original data set.

This program actually functions as a user exit through the archive analysis utility. The program reviews logical records from the archives, and writes the selected ones

to an output sequential file. The user provides the output sequential file to be written to. It must contain proper DCB attributes for the data set to be extracted. Partitioned data sets cannot be recovered by this utility. Only one data set may be extracted for each execution of the utility.

This program places in the output file data that can most easily be processed by the user. In many cases the data is extracted into the exact format from which it was archived. In other cases the data will be input to a reload utility to actually recover the data into a usable format.

Also note that when SAMS:Disk encounters data sets with records longer than 32,760 bytes, those records will be split up into records of 32,760 bytes, and message 2961 issued to let you know this occurred.

Output from the Extract Utility

Following are descriptions of the contents of the output file for the different data set organizations processed:

```
DSORG=PS and DA (PHYSICAL SEQUENTIAL and DIRECT ACCESS)
```

The data blocks from these files are written sequentially in the same order that they were originally read from disk. The DCB attributes are taken from the archived data set's VTOC information that was stored in the archives. For a DA file being extracted, you should also specify DCB=DSORG=DA on the //SYSUT2 dd statement.

Sequential data sets and DA files with fixed-length records should be usable directly as extracted, although for DA files you must also ensure that all special attributes needed are assigned to the data set before being used by application programs.

However, DA files with variable or undefined-length records (RECFM=V or U) will probably not be usable directly as extracted. These data sets usually have special formatting requirements. All records can be extracted, but the formatting needs are not known by the extract function.

If the data set was originally in the unmovable format, care must be taken to ensure it is allocated properly on the DASD device. These data sets must be extracted to the same device type from which they were archived.

```
DSORG=IS and AM (INDEXED SEQUENTIAL and VSAM)
```

The logical records archived from the original data set are written to the sequential output file. The output file is written with the DCB attributes specified on the JCL statement for the output file.

To recover the data set, the extracted logical records must be processed by the JSDDG and JSCVSUT utilities. These utilities will use the logical records to re-create the data set. If the VSAM records are out of sequence, sort the records on their appropriate key fields before using JSDDG/JSCVSUT to load them.

Executing the Extract Utility

To recover a data set, the user must know the name of the data set and the volume serial of the archive tape volume on which it resides. The EXTRACT command is to be placed in the command input stream of the archive tape analysis utility. Place it immediately after the ANALYZE command. (Turn to page 287 for a discussion on how to specify and process the ANALYZE command.) Specify ADSDM460 as the value to the EXITNAME parameter in the ANALYZE command to cause the EXTRACT utility to be invoked.

EXTRACT command

```
EXTRACT DSNAME=,TIME=
```

DSNAME=

This required parameter specifies the name assigned to the data set to be extracted.

TIME=

If there is a possibility that more than one data set resides on the archive tape with the data set name specified, specify this parameter to further qualify the data set. Specify the time the data set was archived. This value must be equal to the archive time displayed in the DSNINDEX record for the data set. Use the SAMS:Disk LISTD function to determine this information.

JCL Example

Use the following JCL as an example to execute the utility:

```
//STEP1    EXEC  PGM=ADSMI002,PARM='ADSDM455'
//STEPLIB   DD   DSN=SAMS.DISK.LOADLIB,DISP=SHR
//ABNLDUMP  DD   DUMMY
//CMDPRINT  DD   SYSOUT=A  —- commands
//MSGPRINT  DD   SYSOUT=A  —- error messages
//PARMLIB   DD   DSN=SAMS.DISK.PARMLIB,DISP=SHR
//SYSPRINT  DD   SYSOUT=A  —- report
//SYSUDUMP  DD   SYSOUT=A
//SYSUT1    DD   DSN=archive.tape.data.set.name,
//               UNIT=TAPE,VOL=SER=vvvvvv,DISP=OLD
//SYSUT2    DD   DSN=dms.test,DISP=(,CATLG),
//               UNIT=DISK,VOL=SER=vvvvvv,
//               SPACE=(TRK,(5,5))
//SYSIN     DD   *
  ANALYZE EXITNAME=ADSDM460
  EXTRACT DSNAME=SAMS.DISK.TEST
/*
```

Figure 7-4. JCL to Execute the Extract Utility

Modifying the SYSUT1 and SYSUT2 DD Statements

The SYSUT1 dd statement refers to the archive tape volume to be scanned. If the archive tape volume is a multivolume data set, include all volumes in the JCL. You must provide the correct name of the “archive tape” on the SYSUT1 dd statement. If the beginning portion of the tape has been accidentally overwritten, turn to topic *"Modifying the SYSUT1 DD Statement"* on page 288 for additional notes.

The SYSUT2 dd statement refers to the output data set to contain the extracted data. Specify data set name, volume, and allocation parameters for the output data set. You may use any data set name for the output data set on the SYSUT2 dd statement. For DA files, add DCB=DSORG=DA to the dd statement. For VSAM, supply

```
DCB=(DSORG=PS,LRECL=ll,BLKSIZE=bb,RECFM=rr)
```

where ll, bb, and rr are appropriate for the logical records being extracted.

Archive Fix Utility

This utility is provided to aid in correcting errors that exist within archive tape volumes. It consists of a single job step that accepts input transactions and, based on their contents, copies all or specific archive data set files from the input archive tape volume to a new output volume. As the copy process continues, errors that are detected on the archive tape are corrected.

Of course, errors cannot always be corrected without loss of data because all the original data may not be present or is not complete. In cases where the error is simply a bad file number, it can be corrected without data loss. If the error is a truncated or missing record, the rest of the block and any split record at the beginning of the next block will be bypassed. The file may or may not be able to be restored by normal SAMS:Disk restore processing. It is then the user’s responsibility to inspect the restored data set for errors and correct them manually. When records of an archived PDS member are corrected, messages are printed to indicate the members that may contain data errors.

It accepts as input a SAMS:Disk archive tape volume. It does not use the files data set for processing the input tape, so the tape need not be currently defined to SAMS:Disk. The SYSUT1 dd statement points to the archive volume to be scanned.

The output volume is referred to by the ARCHIVE0 and ARCHIVEC dd statements. They are coded exactly as they are for normal archive executions (see the *DMS PROC* example on page 24 in the *User’s Guide* for details).

The input command specifies what files are to be copied from the input volume to the output volume. It may optionally specify a file number at which to start and a maximum number of records to process.

A user exit may optionally be invoked to provide user programs access to archive tape data at logical record level (EXITNAME). This may be useful in recovering data.

Note 1: The fix utility uses the standard SAMS:Disk archive modules to create the new output data set. This means that all applicable system parameters are used. If data compression is active, the new archive data set will be in compressed format, whether or not the input was. Conversely, the input may be in compressed format. But if compression is not active for this utility, the output will be in decompressed (expanded) format.

Note 2: For the same reasons as stated in the note above, a record is added to the ARCHVOLS subfile of the files data set for the new volume(s) created. This archive volume record is not complete and must be deleted from the file after the job has completed. This can be done through the use of the IXMAINT JCL procedure and the PURGE VOLUME= command. This may be avoided by creating a special temporary files data set to be used by this utility.

Use the following JCL as an example to execute the utility:

```
//STEP1   EXEC PGM=ADSMI002,PARM='ADSDM554'
//STEPLIB  DD  DSN=SAMS.DISK.LOADLIB,DISP=SHR
//ABNLDUMP DD  DUMMY
//CMDPRINT DD  SYSOUT=A  —- commands
//MSGPRINT DD  SYSOUT=A  —- error messages
//SYSPRINT DD  SYSOUT=A  —- report
//SYSUDUMP DD  SYSOUT=A
//PARMLIB  DD  DSN=SAMS.DISK.PARMLIB,DISP=SHR
//FILES    DD  DSN=SAMS.DISK.FILES,DISP=SHR
//ARCHIVEC DD  DUMMY
//ARCHIVE0 DD  DISP=(NEW,KEEP,DELETE),DSNAME=archvol.dsn,
//             DCB=(BLKSIZE=20000,DSORG=PS,RECFM=U),
//             LABEL=EXPDT=00000,UNIT=(TAPE,,DEFER)
//SYSUT1   DD  DSN=archive.tape.data set.name,
//             UNIT=TAPE,VOL=SER=vvvvvv,DISP=OLD
//SYSIN    DD  *
  COPY  .......
```

Figure 7-5. JCL to Execute Archive Fix Utility

Modifying the SYSUT1 DD Statement

The SYSUT1 dd statement refers to the archive tape volume to be scanned. If the archive tape volume is a multivolume data set, include all volumes in the JCL. You must provide the correct name of the “archive tape” on the SYSUT1 dd statement. If the beginning portion of the tape has been accidentally overwritten, turn to topic *"Modifying the SYSUT1 DD Statement"* on page 288 for additional notes.

The ARCHIVE0 and ARCHIVEC dd statements refer to the output archive volumes. When specifying an installation-defined DASD esoteric name for the UNIT= parameter, do not specify a data set name in the override JCL. Instead, use the POOLDEFS member in PARMLIB to specify a data set name for ARCNAME0.

Command Input

The utility accepts a command as input. It allows the user to specify parameters to control tape processing. The command format and parameter descriptions follow:

```
COPY COUNT=nnn,FILENBR=(nnnnn,nnnnn,...),ALL,EXITNAME=
```

COUNT=

If this simple parameter is supplied, all files on the input tape will be copied to the output file.

FILENBR=

Specify up to 100 tape file numbers to be copied from the input volume.

ALL

Specify a 1- to 5-digit number to indicate the maximum number of tape records to be scanned. When this number of records has been read, processing will terminate. Due to error processing, this number may be exceeded. Default is 32,760. Maximum is 32,767.

EXITNAME=

Specify a 1- to 8-character user exit module name to be invoked. This optional parameter can be used to cause the utility to pass logical records from the archive tape to a user's processing routine. When specified, the user exit module will be invoked once for each archive tape logical record processed (logical record formats are described in this manual beginning on page 423). Compressed records will be decompressed before being passed to the exit.

Note: - COUNT, FILENBR, or ALL must be specified.

User Exit — Fix Utility: Parameters Passed

The user exit for logical records is passed the following parameters:

Table 7-3. Archive Fix Utility User Exit

Type	Size	Description	
INPUT	HW	Call Type	When the user exit is called with this halfword containing a value of 1, a logical record from the archive tape is being passed to the exit module. When the halfword contains a value of 2, an end-of-file (not end-of-volume) condition has been encountered on the input tape. No record is being passed. This gives the exit a chance to perform end-of-file processing.
INPUT	variable	Data Record	When parameter 1 contains a 1, this parameter contains a logical record from the archive tape. The contents should not be used in other cases. Do not use this parameter when parameter 1 is equal to 2.
OUTPUT	HW	Return Code	This parameter indicates if the user exit routine wants processing to continue passing more records or to terminate processing.
		H’1’	Continue Passing Records To The Exit
		H’2’	Terminate Processing, Close File And End

Repair Archvols (REPARCH) Utility

This utility (REPARCH) provides the ability to analyze and synchronize the archive volume (ARCHVOLS) records and the tape pool (DMSPOOLS) records in the files data set. Its repair activities include:

- deleting corrupted ARCHVOLS records (broken chains)
- deleting unchained ARCHVOLS records
- synchronizing DMSPOOLS record status with ARCHVOLS records

It also provides for a user exit that can be used to modify (convert) the device type field in the ARCHVOLS records.

Processing Considerations

For estimating purposes, allow approximately 30 seconds to process 1,000 ARCHVOLS records. For integrity reasons, this utility also has exclusive control of the files data set during processing, which should be considered along with the time estimate before running the utility.

Output

This utility generates a report listing all deleted ARCHVOLS records and the reason for deletion, and a total of the ARCHVOLS records that were processed and deleted.

JCL — REPARCH Utility

Use the following JCL to execute this utility. (A sample copy is in member REPARCH in the install library.)

```
//REPARCH EXEC PGM=ADSMI002,PARM=ADSDM636,REGION=3072K
//STEPLIB  DD DISP=SHR,DSN=SAMS.DISK.LOADLIB
//ABNLDUMP DD DUMMY
//CMDPRINT DD SYSOUT=*
//FILES    DD DISP=SHR,DSN=SAMS.DISK.FILES
//MSGPRINT DD SYSOUT=*
//PARMLIB  DD DISP=SHR,DSN=SAMS.DISK.PARMLIB
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN    DD *
  Specify command as described below:
```

Figure 7-6. JCL to Execute the REPARCH Utility

REPARCH Command and Parameters

```
REPARCH SIMULATE,PURGE=,DEVTEXIT=,POOL=,
```

Table 7-4. REPARCH Command Parameter Descriptions

Parameter	Description			
SIMULATE	This parameter causes informational messages and report statistics to be issued, but no updates will be made.			
PURGE=	This parameter restricts the scope of ARCHVOL records that are to be examined and reconciled. Values that may be specified, and their meanings are:	VOLUME (the default)	All ARCHVOL records will be candidates for reconciliation.	
		NOPROCESS	No ARCHVOL records will be reconciled.	
DEVTEXIT=	If you have a need to modify the device type field in one or more ARCHVOLS records, use this optional parameter to specify the name of the module you have written to perform the conversion. Parameters Passed To Exit:	**Type**	**Size**	**Description**
		INPUT	XL1	Simulation indicator X'01'
		INPUT	XL110	ARCHVOLS record image
		IN/OUT	XL4 4	byte device code
POOL=	This parameter restricts the scope of the SAMS:Disk tape pool records (in the DMSPOOLS subfile) that are to be examined and reconciled. Values that may be specified, and their meanings are:	SYNCH (the default)	This parameter synchronizes the status of each record in the DMSPOOLS subfile with the ARCHVOLS subfile. It returns to "scratch" status any pool records indicated as "in-use" but not having a matching ARCHVOLS record. It assigns "in-use" status to any DMSPOOLS records that have a matching ARCHVOLS record.	
		FORMAT	Format tape pool based on the value specified for sysparm TPOOLSEQ.	
		NOPROCESS	No DMSPOOLS records will be reconciled.	

Load Library Status Utility

This utility is a diagnostic facility intended for use by the Technical Support Center. It reports on the current status of the SAMS:Disk load library, indicating:

- Superzap fixes applied to modules
- Modules that have been modified since the base release
- Modules that are down-leveled from the base release

The report has two sections. The first lists the modules that have Superzaps. It also shows the zap date and IDRDATA information. The second lists the modules that are different from the base release. They may be different because of local modifications, maintenance, or library corruption. It also shows status (MODIFIED or DOWN LEVELED), current link date, and delivered link date.

JCL — Load Library Status Utility

Use the following JCL to execute this utility. (A sample copy is in member LOADLIB in the install library.)

```
//LOADLIB EXEC PGM=ADSMI002,PARM=ADSDM636,REGION=3072K
//STEPLIB  DD DISP=SHR,DSN=SAMS.DISK.LOADLIB
//ABNLDUMP DD DUMMY
//CMDPRINT DD SYSOUT=*
//FILES    DD DISP=SHR,DSN=SAMS.DISK.FILES
//MSGPRINT DD SYSOUT=*
//PARMLIB  DD DISP=SHR,DSN=SAMS.DISK.PARMLIB
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN    DD *
  Specify command as described below:
```

Figure 7-7. JCL to Execute Loadlib Status Utility

Loadlib Command and Parameters

```
LOADLIB DSN=,VOLUME=,STATUS=,
```

DSN=

Supply the data set name of the SAMS:Disk load library in this required parameter.

VOLUME=

If the SAMS:Disk load library is not cataloged, supply its volume serial number with this optional parameter.

STATUS=

This parameter is used to specify the type of status operation to be done. The following option is available:

LIST (default)	Report on superzaps applied to modules, and modules not synchronized with the base release of SAMS:Disk.

Track Dump Utility

The TRACK DUMP utility allows you to dump the data on a DASD track exactly as it appears on the track. It should be used in problem analysis if you question what data exists on a track.

This utility reads and prints the contents of a track from a DASD volume. The DASD volume can either be online or offline; however, a path must be available to the device (that is, the device must not be “boxed”).

For each track, this utility prints the home address, the capacity (R0) record and all data records on the track. The count information is also printed for the capacity and data records.

The utility accepts either a single absolute track address or a range of absolute track addresses. If the volume is offline, the channel unit address for the volume (CUU) must be supplied; if the volume is online, only the volser need be supplied.

Command parameters NOR and NOD are provided to control the amount of data actually printed.

Use the following JCL to execute this utility. (A sample copy is in member TRACKDMP in the install library.)

```
//TRACKDMP EXEC PGM=ADSMI002,PARM=ADSFH114,REGION=2048K
//STEPLIB  DD DSN=SAMS.DISK.LOADLIB,DISP=SHR
//ABNLDUMP DD  DUMMY
//SYSUDUMP DD  SYSOUT=*
//CMDPRINT DD  SYSOUT=*
//MSGPRINT DD  SYSOUT=*
//SYSPRINT DD  SYSOUT=*
//PARMLIB  DD  DSN=SAMS.DISK.PARMLIB,DISP=SHR
//SYSIN    DD  *
 Specify command as described below:
```

Figure 7-8. JCL to Execute Trackdmp Utility

TRACKDMP Command and Parameters

```
DUMP CCHH=,VOL=,NOD,NOR,CUU=
```

CCHH=

Specify an absolute track value, a list of values, a range, a list of ranges, or any combination. The track value is input as cccchhhh (cccc is the cylinder and hhhh is the head). These values are entered in hexadecimal format. Examples of acceptable input are:

CCHH=cccchhhh
CCHH=(cccchhhh,cccchhhh,...)
CCHH=cccchhhh-cccchhhh
CCHH=(cccchhhh-cccchhhh,cccchhhh-cccchhhh,cccchhhh)

Up to ten values may be provided in the list. A track range counts as one value.

VOL=

The volume serial for the DASD volume you are processing. This parameter is required only for an online volume.

CUU=

The channel unit address for the DASD volume you are processing. This parameter is required only if the volume is offline. If both the CUU= and the VOL= parameters are specified and the volume is online, the supplied volser is compared to the real volser and an error message is issued if they are not the same.

NOD

If this parameter is specified, the home address, R0 record and count fields for all data records on the track are printed. The data portion of the records are not printed.

NOR

If this parameter is specified, the home address and R0 record values are printed for each track. No portion of the data records are printed.

Diagnostic DD Statements

Certain SAMS:Disk functions will provide additional diagnostic data whenever they detect a specific dd statement being present. The Technical Support staff may request that you supply one or more of these dd statements when researching a reported problem.

//ARESDIAG DD SYSOUT=A

This dd statement causes the auto-restore function to interpret the control block that is used to initiate the started task; that is, the environment that invoked the auto-restore and the options that are in effect.

Archive Tape Recovery Utility

The Archive Tape Recovery Utility is intended to perform the function of recovering SAMS:Disk archive tapes which have been damaged or partially overwritten. It will read a single archive tape as input and bypass I/O errors and optionally skip tapemarks to retrieve any archive data blocks which are still intact.

Each complete data set encountered will then be transferred to a new archive tape volume. This tape volume can then be used by the REBUILD utility to identify it to the files data set. The Archive Tape Recovery Utility is designed to recover only archive tapes. It does not use disk data sets as input or output.

The JCL to run this utility is:

```
//*********************************************************
//* TAPE RECOVERY UTILITY PROGRAM
//*********************************************************
//S1EXCP  EXEC PGM=ADSMI002,PARM=ADSDM563
//STEPLIB  DD DISP=SHR,DSN=your.dms.loadlib
//PARMLIB  DD DISP=SHR,DSN=your.dms.parmlib
//CMDPRINT DD SYSOUT=*
//MSGPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSUT1   DD DISP=SHR,VOL=SER=xxxxxx,LABEL=(1,BLP),
//            UNIT=TAPE,DSN=your.old.archive.tape.dsn
//SYSUT2   DD DISP=(NEW,KEEP),VOL=SER=(xxxxxx,xxxxxx),
//            LABEL=(1,SL),UNIT=(TAPE,,DEFER),
//            DCB=(DSORG=PS,RECFM=U,LRECL=0,BLKSIZE=32760),
//            DSN=your.new.archive.tape.dsn
//SYSIN DD *
TRECOVER ERRLIMIT=4050,EOFSTOP
```

Figure 7-9. JCL to Execute Tape Recovery Utility

Note: DDNAME SYSUT1 points to the input archive tape volume while SYSUT2 points to the output archive tape volume(s).

If the output tape cannot hold all information from the input tape, you may specify more than one output volume. If you specify only one tape volser and an additional tape is needed, this utility will issue a mount request for a scratch tape. If you create two output volumes, be aware that these tapes are not related to one another. That is, they are not part of a multi-volume group.

The command used to direct the execution is:

```
TRECOVER ERRLIMIT= EOFSTOP
```

ERRLIMIT=

This parameter indicates the maximum number of errors to allow before terminating the job. When this limit is reached, processing is stopped and the output tape is closed. The default value is 100.

EOFSTOP

This parameter causes processing to stop when double tape marks are encountered, indicating the end of volume (EOV). Specify this parameter if your archive tape has been damaged.

Do not specify the EOFSTOP parameter if your archive tape has been overwritten or you want to recover past the current end of volume. Processing will continue until the end of the input tape is reached. If any tape marks are encountered, they will be treated as embedded tape marks.

Expected return codes from this utility are as follows:

Table 7-5. Archive Tape Recovery Condition Codes

Code	Description
0	All data sets have been recovered successfully from the input tape
4	The entire input tape has been processed successfully. However, errors encountered have prevented the recovery of all data sets.
8	The error limit specified on the ERRLIMIT= parameter has been exceeded. Processing of the input tape has been halted; not all data sets have been recovered.
12	Either critical I/O errors have occurred which prevent further processing of the input tape, or OPEN errors for either the input or output tapes have occurred. Not all data sets have been recovered.
16	Command error or an invalid output device type has been specified.

If you receive a return code of less than 16, you still may have recovered some of the data sets to the output tape.

After you have run this utility, run the Archive Tape Analysis Utility to verify that the new archive tape is good. (Just because the Archive Tape Recovery Utility completes successfully does not guarantee the tape is a good archive tape.) If the Archive Tape Analysis Utility indicates the tape is good, use the tape as input to the REBUILD utility. Then run PURGE on the damaged archive tape.

Chapter 8. Modifying SAMS:Disk

We hope that the combination of system parameters and user exits provided will eliminate the need to modify any of the SAMS:Disk source modules. Doing so obviously adds to the difficulty of installing any updated version of the system, since the same or comparable changes will have to be made to the new system as well. Should a source change be needed, however, concerns unique to the assembly and link-edit of SAMS:Disk modules are presented here.

A common interface module (MI) has been statically linked with each SAMS:Disk module that calls any other module. A second interface module (MI2) is also available, and should be used in programs you write that call other SAMS:Disk programs. Turn to the topic *"MI Fast Path"* on page 286 for more information about usage of MI2 versus MI. Both are included in the SAMS:Disk load module library for linkage editor processing when assembling modules at your site.

The addressing mode and residency mode of the SAMS:Disk module that you have modified should remain unchanged. If you change the original program attributes, unexpected results could occur.

You are responsible for changes you make to SAMS:Disk. This applies to any change to a SAMS:Disk module, whether made through source code changes or zaps. If you change a SAMS:Disk module, you are also responsible for properly installing any fixes provided for that module. This means, in part, removing any usermods you have installed to the affected module.

We recommend you make changes as usermods if you install SAMS:Disk using SMP/E.

Assembly and Link-Edit of SAMS:Disk Modules

If changes are made to the SAMS:Disk source modules, and for user- written programs using the MI or MI2 interface, the following steps must be taken to obtain proper assembly and link-editing.

1. SAMS:Disk source code uses structured programming macros. The SAMS:Disk macro library must therefore be concatenated to the assemble macro library as defined on the //ASM.SYSLIB dd statement. The SAMS:Disk macro library should be placed first in the concatenation to avoid the possibility of duplicate macro names in conflict with your installation's macros.

2. Hitachi's XASM-E2 Assembler must be used to assemble SAMS:Disk modules. We will try to allow source members in the SAMS:Disk.INSTALL library to be assembled with Assembler.

However, other SAMS:Disk programs may have incompatibilities that will require HITACHI's HLASM.

3. At link-edit time the parameters should specify LET, but not NCAL.

4. At link-edit time the SYSLIB dd statement must point to the SAMS:Disk load library (DSN=SAMS.DISK.LOADLIB).

The following assembly JCL is provided on the distribution tape in the INSTALL library. You will need to customize several DD statements: STEPLIB, SYSLIB, SYSPUNCH, SYSLIN, SYSIN, SYSLMOD.

```
//************************************************************
//* SAMS DISK MODULES HIGH LEVEL COMPILE AND LINKEDIT MODULES
//************************************************************
//* USE THIS JCL FOR SAMS DISK LOAD MODULE UPDATES.
//*
//* USE LKED PARMS (RENT|REUS|REFR).
//************************************************************
//HLASM EXEC HLASMCL,REGION.ASM=3072K,
//            PARM.ASM=(OBJ,NODECK,'PC(UHEAD,GEN)',NORLD),
//            PARM.LKED='LIST,MAP',  <--- REUS,REFR,RENT
//            REGION.LKED=3072K
//ASM.SYSLIB   DD DISP=SHR,DSN=SAMS.DISK.RNNN.MACLIB
//            DD DISP=SHR,DSN=SYS1.MACLIB
//            DD DISP=SHR,DSN=SYS1.MODGEN
//ASM.SYSIN    DD DISP=SHR,DSN=SAMS.DISK.RNNN.SOURCE(MODNAME)
//ASM.SYSTERM  DD SYSOUT=*
//LKED.SYSLMOD DD DISP=SHR,DSN=SAMS.DISK.RNNN.LOADLIB(MODNAME)
//LKED.SYSLIB  DD DISP=SHR,DSN=SAMS.DISK.RNNN.ADMSLOAD
```

Figure 8-1. Assembly JCL: Member ASMDISK

The following link JCL is provided on the distribution tape in the INSTALL library. You will need to customize several DD statements: STEPLIB, SYSLIB, SYSPUNCH, SYSLIN, SYSIN, SYSLMOD.

```
//************************************************************
//*  LINK A LOAD MODULE                                      *
//************************************************************
//*                                                          *
//* INSTRUCTIONS:                                            *
//*    REPLACE "CALL" WITH "RENT", "REUS" OR "REFR"          *
//************************************************************
//LINK       EXEC PGM=JSAXLNK,
//                REGION=3072K,
//                PARM='XREF,LET,LIST,CALL'
//SYSPRINT     DD SYSOUT=*
//SYSLMOD      DD DISP=SHR,DSN=SAMS.DISK.RNNN.LOADLIB
//SYSLIB       DD DISP=SHR,DSN=SAMS.DISK.RNNN.OBJECT
//SYSUT1       DD UNIT=SYSALLDA,SPACE=(CYL,3)
//SYSLIN       DD DISP=SHR,DSN=SAMS.DISK.RNNN.LINKCNTL(MODNAME)
//
```

Figure 8-2. Link JCL: Member R900LINK

Issuing Messages

Please turn to the *"Message Formatting"* section beginning on page 275 for a description of how to issue messages from a user program or exit module.

Relinking TSS Control Modules

Each TSS command processor is associated with a module of the same name in the SAMS:Disk source library. They and all of the subordinate (or called) modules are dynamically loaded by the MI interface as they are needed. As a result, each module supporting these online functions can be reassembled and linked into the SAMS:Disk load library independently.

If you write user exit routines that affect the TSS functions, they too can simply be assembled and linked independently into the SAMS:Disk library. MI will dynamically load and execute your exit routines the same as any other SAMS:Disk modules, as soon as you supply the sysparms to activate them.

Adding Non-SAMS:Disk Modules

It is also possible to modify the system without changing or replacing modules, in the sense that SAMS:Disk modules may be invoked by non-SAMS:Disk calling modules. Each module given control through the common interface brings into memory those subordinate modules not already loaded. In this manner any function can be initiated in any environment as long as the required dd statements are present.

The Module Interface (MI) Trace aids in testing and verifying changes made to the system. It makes available a printed display of all calls and returns made through the interface module. It also displays the first “n” characters of each parameter value on both module entry and exit.

Coding for an Interactive Environment

If SAMS:Disk modules are to be used for interactive applications, special programming constraints are often imposed. A good technical understanding of the constraints of the environment as well as the design and constraints of the SAMS:Disk modules is required. The MI control modules account for these. Programming in other environments may introduce unexpected results.

Module Call Interface

Because of its dynamic nature, SAMS:Disk installation modules may use the internal interfaces in the same manner as SAMS:Disk system modules. To dynamically transfer control to a SAMS:Disk module, the installation module must call via the MI interface with the name of the SAMS:Disk module to be invoked as the first parameter.

The use of the SAMS:Disk call interface is illustrated below with an example in assembly language, since it will normally be the language used to invoke the various modules; however, COBOL may also be used to accomplish the invocation. Please note, however, the additional concerns regarding *"MI Fast Path"* as documented on page 286 of this manual.

Example — Call Interface

A unique record may be retrieved from a file in the SAMS:Disk files data set by executing a call in the following manner. This is an example only. Turn to the topic *"File Handler Interface"* on page 30 for specific information on using the DM095 interface.

```
         MVC  DSNKEY,=CL44'PAY.MASTER'
* RETRIEVE THE DATA SET INDEX RECORD
         CALL MI,(DM095,RU,FILENAME,DSNREC,RESULT),VL
         CLC  RESULT,=H'1'
         BH   NOTFOUND
*
DM095    DC    CL8'ADSDM095'  FILE HANDLER CONTROL MODULE
RU       DC    CL2'RU'        SERVICE TYPE
FILENAME DC    CL8'DSNINDEX'  IN - PARM 1 (FILENAME)
DSNREC   DC   0CL256          IN/OUT AREA
DSNKEY   DC    CL44' '        IN  - PARM 2 (KEY)
         DC    CL212' '       OUT - INDEX DATA
RESULT   DC    H'0'           OUT - RETURN CODE
```

Figure 8-3. Example of Call Interface

User Exits

Turn to the *"User Exits"* section beginning on page 195 for a description of the modifications available via exits. A sample of user exit code is also provided in that section.

Parameter Library Support - Common Parmlib Interface

All functions of SAMS:Disk require various parameters to guide their execution. These parameters are maintained in a partitioned data set referred to as “parmlib”. This is a “read-only” data set for all SAMS:Disk functions. Any changes to be made to the parameter library must be done with an online editor or some other traditional means of updating a PDS.

User-written modules may read entries from a parameter library member in the same manner as SAMS:Disk modules, by using the common parmlib interface module. The syntax rules for parmlib entries begin on page 437. The following illustrates reading an entry from member=EXMTLIST that may contain a list of data set names that are exempt from processing.

```
         MVC  MBRNAME,=CL10’EXMTLIST’
* Retrieve an entry from the parmlib member
         CALL MI,(ADSTS048,RESULT,MBRNAME,ENTRY#,MAXLEN,  X
              IOAREA),VL
         CLC  RESULT,=H’1’
         BH   NOTFOUND
*
ADSTS048 DC   CL8’ADSTS048’  parmlib interface module
RESULT   DS   H              result
MBRNAME  DC   CL10’ ’        member name to be read
ENTRY#   DC   H’0’           entry number - 0 retrieves 1st
*                            record, 1 retrieves 2nd, etc.
MAXLEN   DC   H’46’          length of I/O area
IOAREA   DS  0CL46           data from retrieved entry
LENGTH   DS   H              length of record + 2
RECORD   DS   CL44           actual record
```

Figure 8-4. Common Parmlib Interface Module Example

The parmlib common interface module has the following call structure.

```
CALL MI,(ADSTS048,RESULT,MBRNAME,ENTRY#,MAXLEN,IOAREA),VL
```

Table 8-1. Description of the MI CALL Structure

Name	Description
ADSTS048	Is always the eight-character name of the common interface module to the parmlib: ADSTS048 DC CL8’ADSTS048’
RESULT	The halfword return code set by the control module to reflect the conclusion of the requested service. 1 indicates record found, 2 indicates end of file, and 3 indicates an invalid member name.
MBRNAME	The name of the member in the parameter library in a ten-character field.

Name	Description
ENTRY#	The number of the entry within the member that is to be read. Note that all numbers are relative to zero. The entry number is incremented within the interface module. An entry number of zero will retrieve the first record and the returning entry number will be one. An entry number of seven will retrieve the eighth record and the returning entry number will be eight.
MAXLEN	A halfword containing the length of the I/O area.
I/OAREA	An area in which to place the entry. The data from the entry is actually placed at an offset of two bytes into this area, with the first two bytes serving as a length descriptor. The halfword length field will contain the true length of the specific entry just returned, plus two bytes for the descriptor itself.

Common Sysparms Interface

Besides the TS048 interface to data in any of the parmlib members, a special common interface (DM175) is available for accessing system parameters from member=SYSPARMS. User-written modules may read sysparm values in the same manner as SAMS:Disk modules by using the common interface. For more information on sysparms, including sysparm names reserved for your use, turn to the *"Sysparms"* section beginning on page 95. The following illustrates reading the VSAMSUPP sysparm.

```
 * GET VSAMSUPP SYSTEM PARAMETER
       CALL  MI,(DM175,PARMNAME,LEN,PARMVALU,DM175RC),VL

DM175    DC    CL8'ADSDM175'
DM175RC  DC    H'0'
LEN      DC    H'1'
PARMNAME DC    CL8'VSAMSUPP'    name of sysparm desired
PARMVALU DC    CL1' '           sysparm value returned here
```

Figure 8-5. Common Interface DM175 Example

The following table helps explain the fields within the Common Interface DM175.

Table 8-2. Field Descriptions within DM175

Field	Description	
DM175	Is always the eight-character name of the common interface module: DM175 DC CL8'ADSDM175'	
PARMNAME	Is the eight-character name of the sysparm whose value is to be returned.	
LEN	Is the halfword field specifying the length (number of bytes) of the output value being returned. It must correspond to the length defined for the PARMVALU field.	
PARMVALU	The area where the value of the sysparm will be returned. Its length must equal the maximum number of characters allowed for the parameter, and agree with the value specified for the LEN parameter.	
DM175RC	The halfword return code from module ADSDM175.	
	0	Indicates that the system parameter was specified and has been returned.
	4	Indicates that it was not specified and the default value has been returned.

System Parameter Validation - Parmedit Member

For editing purposes, each SAMS:Disk sysparm has a system default value and validation criteria associated with it. Default information indicates the value to be used for each sysparm if you have not specified your installation values in member SYSPARMS of the parmlib data set.

Validation criteria indicate valid values for each sysparm. They are used when SAMS:Disk loads the sysparm entries into memory. This is done whenever a SAMS:Disk function is executed in either batch or TSS processing. The value of each sysparm supplied in the SYSPARMS member is checked against the validation criteria specified in the PARMEDIT member. If an improper value is supplied, SAMS:Disk issues an appropriate message. If the sysparm in error is subsequently accessed, SAMS:Disk will abend.

One entry is maintained in the PARMEDIT member for each SAMS:Disk sysparm. The PARMEDIT member is supplied with the SAMS:Disk system as part of the distributed parmlib data set, and may change with each release.

Although the PARMEDIT member entries can be modified, normally they should not be.

Note: Changes to defaults should be specified in your SYSPARMS member, NOT by changing the PARMEDIT member. The only common need for an update to the PARMEDIT member is to allow or disallow the overriding of a parameter in the input stream. The PARMEDIT member is replaced with each new release of SAMS:Disk. The SYSPARMS member is user-defined, and not replaced with each release.

Each entry contains the following fields:

Table 8-3. Format of PARMEDIT Entries

Cols	Description
1 - 8	System parameter name
10 - 12	Minimum number of characters required for parameter value.
14 - 16	Maximum number of characters allowed for parameter value.
18 - 20	Number of characters to be returned to SAMS:Disk module requesting the value of the system parameter.

Cols	Description		
22 - 23	Validation criteria:	'Y'	The system parameter value requires a Y or N value indicating either "yes" or "no" for the specified option.
		'N'	
		'NM'	The data for this parameter is of a numeric format. The user must enter numeric data but may enter only significant digits left-justified after the system parameter name.
		' '	No data validation will be done on data entered for this parameter value.
25	Enter Y if this system parameter is to be marked obsolete. Blank indicates valid system parameter.		
26	Enter Y if this system parameter may be overridden through the SAMS:Disk SYSPARMS dd input stream. Enter N if the parameter may not be overridden.		
28 - 29	(reserved for future use)		
31 - 100	The default value to be returned if the system parameter is not supplied by the user.		

Chapter 9. DSCL Processing

During the development of the DSCL support, one of the foremost concerns of the project was to develop a product that is user-friendly. Four major areas needed to be addressed:

1. Provide validation of all input commands prior to processing

2. Issue meaningful error messages whenever an error is encountered

3. Provide the flexibility that the user requires to make DSCL a workable tool

4. Provide maximum efficiency in execution time by scanning any catalog only once, regardless of the order of input commands entered by the user.

In an attempt to deal with human factors in the use of the IMPLICIT VSAM support, all commands are validated prior to any action being performed. If any errors are detected, the validation of commands continues, but no action is taken after validation is completed. As each command is read in and validated, an appropriate control block is built (discussed later) containing the pertinent data to the command. As processing continues, the control blocks are linked together to form the processing sequence that will be followed if all validation tests are satisfactory.

The execution order of commands is not necessarily the same order as they are entered by the user — the program performs all of the actions required in a single catalog scan prior to scanning the next catalog/volume (if any). This ensures that a catalog/volume is scanned only once in any given job run, regardless of the number of actions specified by the user. This can be somewhat confusing to the user who might expect results in exactly the same order as which the commands were entered.

Control Block Structure

Six different control blocks are employed by DSCL processing. Five of the control blocks relate directly to the input commands entered by the user. The sixth is the JOB Control Block (JOBCB), which contains informational data regarding the status of the job run. The JOBCB is built during initialization processing in ADSST001, and is linked to all of the other control blocks in the system by the field xxxJOB@ (where xxx is the control block type, such as CAR or LOC). The JOBCB contains such information as the job return code and the highest DSN expiration date encountered during archival processing. It also contains the highest RETPD specified on all ARCHIVE and BACKUP commands.

The Locate Control Block (LOCCB) corresponds directly to the SCAN command and is responsible for keeping track of which volumes(s)/catalog(s) to scan. For each SCAN command entered, one LOCCB is built. An exception is made if a SCAN command names the same catalog/volume as a previous SCAN request, such that any subsequent commands are chained off the initial LOCCB for that catalog. The LOCCB also contains any password supplied by the user necessary to open the catalog.

The Command Activation Request Control Block (CARCB) is built for each action command entered (such as BACKUP, ARCHIVE, or DELETE). It is linked directly under the LOCCB and is pointed to by the field LOCDOWN in the LOCCB. This control block informs the program which function to perform on a given catalog in the LOCCB. Multiple actions can be taken on a single catalog/volume scan, which is accomplished by linking multiple CARCBs to each other under a LOCCB. The link is provided by the CARNEXT field in the CARCB. The CARCB contains such information as the action type (DELETE, ARCHIVE or BACKUP), a call list that is executed by ADSST201, and command parameter information.

The Select Control Block (SELCB), illustrated in the Figure below, is built whenever any SELECT or EXCLUDE commands are encountered. It is pointed to by the CARDOWN field in the CARCB. It contains such information as a table name containing DSNs to include or exclude, and a list of volumes to be included or excluded. In addition, it contains a pointer (SELDSN@) to the DSN Control Block (DSNCB) and a pointer (SELDOWN) to the CRIteria Control Block (CRICB). The DSNCB contains a list of data set names entered by the user in the DSN parameter of the SELECT or EXCLUDE command. The CRICB contains the criteria comparison to be performed as specified in the CRITERIA parameter of the SELECT or EXCLUDE command.

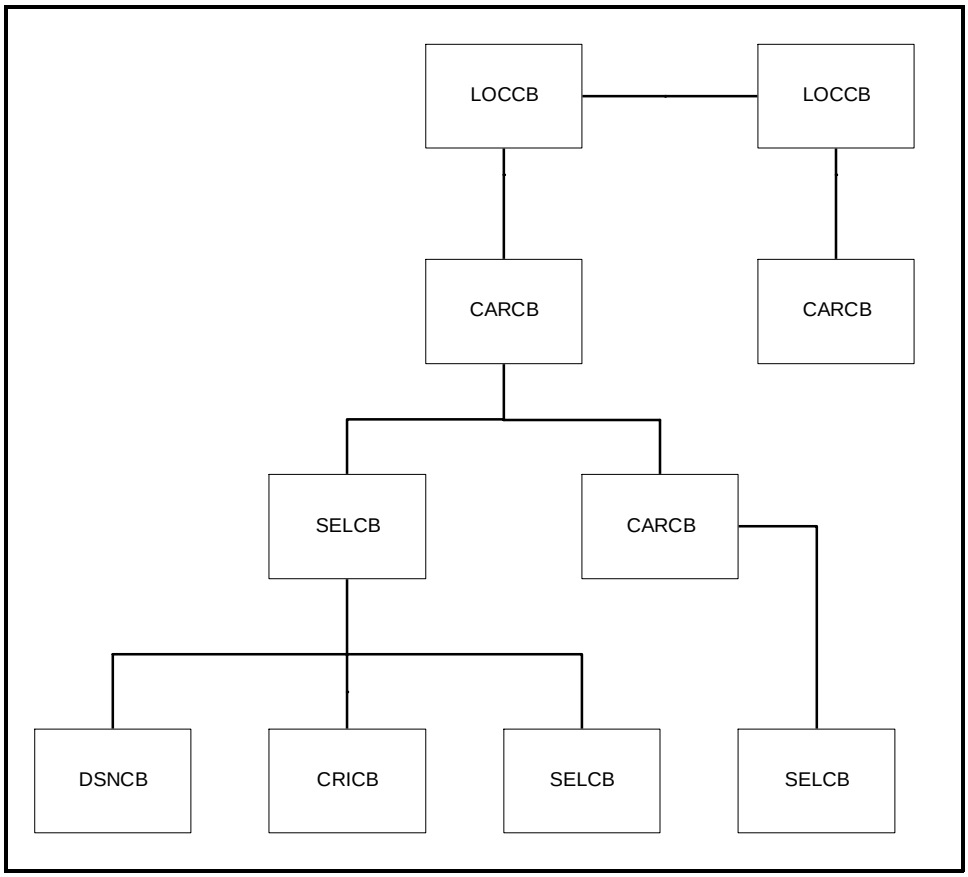


Figure 9-1. Control Block Sample Structure

The following Figure displays typical input commands that would build structure pictured above:

```
SCAN CATALOG=ADS050.AUSERCAT
SELECT DSN=(ADS.TJP/,ADS.DMS40.PMRFILE),CRITERIA=(TODAY-ARCDT,GE,5)
EXCLUDE TABLE=SAMPLE
BACKUP
SELECT VOLUME=ADS050
ARCHIVE RETPD=60 SCAN CATALOG=ADS050.SYSTMCAT
BACKUP
```

Figure 9-2. Sample Input Command Structure

Chapter 10. Report Processing

SAMS:Disk report processing is accomplished by generating report detail records, sorting them, and passing them to a common report writer routine. Each report detail record is prefixed by its 10-byte report table name and its report sequencing control field. The sequencing control field may optionally be used to provide page control breaks for the report. Only one control field may be used to generate page control breaks.

SAMS:Disk places report detail records for all reports requested into one common output data set. After all detail report records are generated, a sort step is executed to order the records by report table name/control field sequence. These records are then passed to the common report writer routine.

The report writer uses the report table name to retrieve the proper table to use to format the report. The format control table contains all information needed to build the printed report line from the supplied detail records. The contents and field definitions for the formatting control tables is documented later in this section. When a detail record is read for a different report, the new format control table is loaded and the processing continues. A flow diagram describing this process is also presented in a later section.

REPORTNAME Table — Member REPORTNM

The report name table (member REPORTNM in the parmlib data set) relates modules that construct output records to the tables used by the report writer to format the respective reports. The content of the entries in the report name table is identified below.

Table 10-1. REPORTNM Content Descriptions

Cols	Description		
1-8	Name of module that produces report output records		
9	Character indicating which type of DSCB during VTOC SCAN is to be passed to the module:	1	Format-1 DSCB only.
		5	Format-5 DSCB only. - All DSCB types when blank.
		V	Do not pass any DSCB - Invoke at end of volume for extraction of summary data.
10-19	10-character name of the report table to be used by the report writer in formatting the report		

The last six characters of each report table name serve as the name of the respective report for the REPORT and DISPLAY commands.

REPORTNAME Table Example:

TE = ’ADSDM0521RPTNMVDICT’

Table 10-2. REPORTNM Example

Value	Definition
ADSDM052	Name of module to be given control to produce the Multiple Volume Dictionary Report records
1	Format-1 DSCBs are the only ones passed to the report module
RPTNMVDICT	Table used to format the Multiple Volume Dictionary Report

Format-1 / Format-4 DSCB Appendage Fields

Allocation information regarding individual data sets that is not available in the format-1 DSCB is maintained as an appendage to the DSCB, which is passed to the modules that assemble the data for the report record. Allocation information that has been accumulated from the processing of all DSCB types is available as an appendage to the format-4 DSCB, which is also passed as one of the parameters to the report assemble modules. The fields are described in the appendix of this manual.

Tables for Report Formatting

The majority of the SAMS:Disk reports are formatted by the use of tables that are stored in the parmlib data set. Any change made to a table will be reflected the next time the subject report is printed, since tables are loaded at execution time.

Four types of table entries, or records, are used in report preparation. These are the CONTROL, HEADER, DETAIL, and TOTAL types that are described below.

1. Control Entry

   Only one occurrence of this type may be present for each report format control table. It contains control information about the layout of a specific report.

   Table 10-3. Control Entry Description

Cols	Description
1	'C' for entry type
2-4	(not used)
5-7	Limit number of lines per page for overflow. (Overridden by RPTLINES sysparm).
8-10	Rows of detail lines per page*
11-13	Columns of detail per page*
14-16	Length of print detail to be replicated*
17-19	Length of source record for each detail set*
20-22	Length of control field that will force page overflow (control breaks)

   * Required for N-up reports.

2. Header Entry

   An entry of this type is required for each field and literal to be printed on a report heading line.

   Table 10-4. Header Entry Description

Cols	Description
1	'H' for entry type

Cols	Description
2	The character placed in this position is the identifier for all entries comprising the given heading line
3	The carriage control character for the heading line in question must be specified in this position for only the first entry of each line
4	Field type code
7	Length of the source field in bytes
10	Position of field in source record — left blank for literals
11-13	Position on print line for field placement
14-16	Target length of field where different from source length (halfword to zoned)
17-nn	Field type dependent

3. Detail Entry

An entry of this type is required for each field and literal to be placed on a report detail line.

Table 10-5. Detail Entry Description

Cols	Description
1	’D’ for entry type
2	’1’ is normally placed in the identifier field since only one type of detail line is presently supported
3	The carriage control character to be used for all detail lines is specified here
4	Field type code
7	Length of the source field in bytes
10	Position of field in source record — left blank for literals
11-13	Position on print line for field placement
14-16	Target length of field where different from source length (halfword to zoned)
17-nn	Field type dependent

Fields and literals are specified in the same manner for both of the applicable line types.

Table 10-6. Possible Line Type Values and Descriptions

Cols	
4	Field type code
7	Length of the source field in bytes
10	Position of field in source record — left blank for literals
11-13	Position on print line for field placement
14-16	Target length of field where different from source length (halfword to zoned)
17-nn	Field type dependent

4. Total Entry

An entry of this type is required for each field and literal to be placed on a report total line.

Table 10-7. Total Entry Descriptions

Cols	Description
1	'T' for entry type
2	Numeric indicator of total line occurrence to which this entry applies
3	The carriage control character to be used for all total lines is specified here
4	Field type code
5-7	Length of the source field that is to be accumulated. The source field must be either a halfword or fullword in the record. If this value is zero, a length of 2 is assumed. Valid values are 000, 002 or 004.
8-10	Position of field in source record — left blank for literals. If this value is zero, the accumulator is assumed to be a count of records processed.
11-nn	All remaining fields have the same meanings as for detail type records. (See the description of the detail entry for their formats and use.)

Described below are the various field types and special considerations for their use (position 4 in table entry).

Table 10-8. Special Field Types for Position 4

Value	Description
A	Accumulator for Report Totals
B	Binary
C	Character
D	Date
E	Security
F	Fullword
H	Halfword
I	Installation Name
J	Create/Expire Date Expanded Form
K	Constant / Literal
M	Mask
N	Page Number
P	Packed Decimal
R	Device Type
S	SAMS:Disk System Header
T	Time
U	Allocation Type
V	Data Set Organization
W	Record Format
X	Hexadecimal
Y	Create/Expire Date
Z	Zoned Decimal
1	Mount Status
2	Use Status
3	Standard Header Line 1
4	Standard Header Line 2
$	Dollars and Cents

Format Table Examples

The following table entry examples are taken from the RPTNOMVDIC table (member RPTNOMVD in the parmlib data set).

Control Entry Example

TE = ’C1 058054001132126020’

Table 10-9. RPTNOMVD Example

Cols	Sample	Description
1		C entry type
4		(not used)
5-7	058	Lines per page
8-10	054	Detail lines per page
11-13	001	Columns of detail
14-16	132	Length of detail line
17-19	126	Length of source record
20-22	020	Length of control field that will force page overflow; in this case, when the 20 characters of the owner name change, the detail record is printed on a new page.

Header Entry Examples

TE = ’H5 K013 006 DATA SET NAME’

Table 10-10. Header Entry Example

Cols	Sample	Description
1	H	Entry type - header
2	5	Line 5 of the header
3		(not used)
4	K	Literal - “DATA SET NAME”
5-7	013	Length of literal
8-10		Blanks - not used with a literal
11-13	006	Position in print line where literal begins
14-16		Blanks - not used with a literal
17-28	DS...ME	The literal value that is placed in the print line

Detail Entry Examples

TE = ’D1 C006071033 VOL’

Table 10-11. Detail Entry Example #1

Cols	Sample	Description
1	D	Entry type - detail
2	1	Line 1 of detail
3		Blank - single space
4	3	Literal in source
5-7	006	Length of literal in source
8-10	071	Position of literal in source relative to table name
11-13	033	Position in print line were the literal is to begin
14-19		Blanks - not used with a literal
20-22	VOL	Comments

TE = ’D1 H002082069005Z BLKSIZE’

Table 10-12. Detail Entry Example #2

Cols	Sample	Description
1	D	Entry type - detail
2	1	Line 1 of detail
3		Blank - single space
4	H	Data in source is a halfword
5-7	002	Length of data in source
8-10	082	Position of data in source relative to the table name
11-13	069	Position in print line where data is to begin
14-16	005	Maximum length of data in print line is five characters
17	Z	Suppress leading zeros
18-19		Blanks - not used
20-26	BLKSIZE	Comment

Total Entry Examples

TE = ’T10K015 005 TOTAL DATA SETS’

Table 10-13. Total Entry Example #1

Cols	Sample	Description
1	T	Entry type - total
2	1	Line 1 of total
3	0	Double space
4	K	Constant total header
5-7	015	Length of constant
11-13	005	Position in print line where the literal is to begin
17-28	xxx	The constant value that is placed in the print line

TE = ’T1 A000000021005Z BLKSIZE’

Table 10-14. Total Entry Example #2

Cols	Sample	Description
1	T	Entry type - total
2	1	Line 1 of total
3		Blank - single space
4	A	This is an accumulator field
5-7	000	Due to the type of accumulator (count), this value is ignored
8-10	000	Accumulator is to count number of records passed to reporting routine
11-13	069	Position in print line where total is to begin
14-16	005	Maximum length of data in print line is five characters
17	Z	Suppress leading zeros
18-19		Blanks - not used
20-26	BLKSIZE	Comment

Note: Each source record begins with two halfwords followed by the name of the table to be used to print the record.

```
REC          TABLE        Position in SOURCE
LEN          NAME         1            21        27
01260000     RPTNOMVDIC   OWNER NAME...PROJNO    DSN...
```

Report Modification Example

If a change were to be made to the Multiple Volume Dictionary Report, such as putting an owner in the heading, the following changes will need to be made.

1. Add an entry to the SYSPARMS member in parmlib.

   RPTMVDEX*exitname* - where *exitname* is the name of the module to be given control to write an owner record.

2. Add a new formatting table as a member in parmlib that is to be used for printing the report.

3. Add the following entry to the report name table (member REPORTNM in parmlib).

   ADSDM0521RPTNOMVDIC

4. Write an exit module that will call ADSDM033 to write the new record based on the following parameters passed to the exit module:

Table 10-15. Parameters Passed to module ADSDM033

Parameters	Description		
P1	format-4 DSCB and appendage fields volume serial is in positions 1 to 6		
P2	format-1 DSCB and appendage fields		
P3	standard report record for Multiple Volume Dictionary Report		
P4	Halfword return code	1	WRITE standard Multiple Volume Dictionary record
		2	DO NOT WRITE standard MVD record

The report may be invoked using the following command:

```
REPORT RPT=NOMVDIC,VOL=VOL001
```

Example of Owner Table

In this table provision has been made for an OWNER in the header and a PROJECT NUMBER in each detail line.

MEMBER=RPTNOMVD in the parmlib data set

```
'C1 058051001132116020'
'H113132 001 standard header - line 1'
'H1 K007 122 PAGE '
'H1 N004 130'
'H1 K032 032 M U L T I P L E V O L U M E '
'H1 K037 064 D A T A S E T D I C T I O N A R Y'
'H2 4132 001 standard header - line 2'
'H3 K001 001132'
'H4 K005 001 OWNER'
'H4 C020001008 OWNER'
'H5 K011 038 PSWD DEVICE'
'H5 K029 081 —-ALLOCATION—- —TRACKS—-'
'H6 K013 001 DATA SET NAME'
'H6 K035 027 VOLUME CAT PROT TYPE PROJ DSORG'
'H6 K029 063 RECFM BLKSZ LRECL TYPE PRIM'
'H6 K016 094 SEC ALLOC IDLE'
'H6 K021 112 EXT CREDT EXPDT USED'
'H7 K040 001 ————————————- ——— —- —-'
'H7 K040 041 - ——— ——— ——- ——- ——- ——- '
'H7 K040 081 ———————— ————— —- ——-'
'H7 K012 121 ——- ——'
'D1 C044027001025 DSN'
'D1 C006071027 VOL'
'D1 C001108035 CAT'
'D1 E001099040 SEC'
'D1 R002077043 DEVICE TYPE'
'D1 C006021050 PROJECT NUMBER'
'D1 V002079059 DSORG'
'D1 W001081064 RECFM'
'D1 H002082069005Z BLKSIZE'
'D1 H002084075005Z LRECL'
'D1 U001086082003 ALLO TYPE'
'D1 H002100086005Z ALLO PRI'
'D1 B003087092005Z ALLO SEC'
'D1 B003090099005Z ALLO SUM'
'D1 H002102105005Z ALLO IDL'
'D1 B001112112002Z EXT NO' .
'D1 Y002093116 CREATE'
'D1 Y002096122 Z EXPIRE'
'D1 Y003109128 Z LAST USED'
'T1 K040 001——————————————————————-'
'T1 K040 041 ————————————————'
'T1 K040 081 ————————————————'
```

```
'T1 K012 121 ———————'
'T2 K015 010 TOTAL DATA SETS'
'T2 A000000026007Z COUNTER'
'T2 K022 072 TOTAL ALLOCATED TRACKS'
'T2 A000091095009Z ACCUMULATOR'
'T3 K017 072 TOTAL IDLE TRACKS'
'T3 A000102095009Z ACCUMULATOR'
```

Compare the RPTNOMVD member table with the standard MVD table below.

Standard Multiple Volume Dictionary Report Table

MEMBER=RPTNMVDI in the parmlib data set.

```
'C1 058052001132090'
'H113132 001'
'H1 K007 122 PAGE '
'H1 N004 130'
'H1 K032 032 M U L T I P L E V O L U M E '
'H1 K037 064 D A T A S E T D I C T I O N A R Y'
'H2 4132 001'
'H3 K001 001132'
'H4 K011 040 PSWD DEVICE'
'H4 K029 081 —-ALLOCATION—- —TRACKS—-'
'H5 K013 001 DATA SET NAME'
'H5 K033 029 VOLUME CAT PROT TYPE ADDR DSORG'
'H5 K029 063 RECFM BLKSZ LRECL TYPE PRIM'
'H5 K016 094 SEC ALLOC IDLE'
'H5 K021 112 EXT CREDT EXPDT USED'
'H6 K040 001 ——————————- ——— —- -'
'H6 K040 041 —- ——— —— ——- ——- ——- ——- '
'H6 K040 081 ———————— ———————- —- ——-'
'H6 K012 121 ——- ——'
'D1 C044001001028 DSN'
'D1 C006045029 VOL'
'D1 C001082037 CAT'
'D1 E001073042 SEC'
'D1 R002051045 DEVICE TYPE'
'D1 C003078052 ADDRESS'
'D1 K001 055 '
'D1 C001081056 SUB-MODULE'
'D1 V002053059 DSORG'
'D1 W001055064 RECFM'
'D1 H002056069005Z BLKSIZE'
'D1 H002058075005Z LRECL'
'D1 U001060082003 ALLO TYPE'
'D1 H002074086005Z ALLO PRI'
'D1 B003061092005Z ALLO SEC'
'D1 B003064099005Z ALLO SUM'
'D1 H002076105005Z ALLO IDL'
'D1 B001086112002Z EXT NO'
```

```
'D1 Y002067116 CREATE'
'D1 Y002070122 Z EXPIRE' . .
'D1 Y003083128 Z LAST USED'
'T1 K040 001 ———————————————————'
'T1 K040 041 ———————————————————'
'T1 K040 081 ———————————————————'
'T1 K012 121 ———————'
'T2 K015 010 TOTAL DATA SETS'
'T2 A000000026007Z COUNTER'
'T2 K022 072 TOTAL ALLOCATED TRACKS'
'T2 A000065095009Z ACCUMULATOR'
'T3 K017 072 TOTAL IDLE TRACKS'
'T3 A000076095009Z ACCUMULATOR'
```

Example of Record Format for Owner Record

The following table describes the record format of the Owner Record:

Table 10-16. Record Format for the Owner Record

Name	Type	Size	Offset	Description
ownrecrd	DS	0F		
	DC	h'126,0'		Record length
owntable	DC	CL10'RPTNBMVDIC'		Report table name
ownid	DC	CL20' '	1	Owner ID
ownprojn	DC	CL6' '	21	Project number
owndsnam	DC	CL44' '	27	Data set name
ownvolno	DC	CL6' '	71	Volume
owndevcl	DC	XL2'0000'	77	Device class
owndsorg	DC	XL2'0000'	79	DSORG
ownrecfm	DC	XL1'00'	81	RECFM
ownblksi	DC	XL2'0000'	82	BLKSIZE
ownlrecl	DC	XL2'0000'	84	LRECL
ownscalo	DC	XL1'00'	86	Allocation (trk,cyl,..)
ownscqty	DC	XL3'000000'	87	Second alloc quantity
owntksum	DC	XL3'000000'	90	Total allocation
owncredt	DC	XL3'000000'	93	Creation date

Name	Type	Size	Offset	Description
ownexpdt	DC	XL3’000000’	96	Expiration date
owndsind	DC	XL1’00’	99	Security
ownprmal	DC	XL2’0000’	100	Primary allocation
ownidlet	DC	XL2’0000’	102	Idle
ownvolad	DC	CL4’ ’	104	Volume address
owncatlg	DC	CL1’ ’	108	Cataloged
ownlusdt	DC	XL3’000000’	109	Last used date
ownnoext	DC	XL1’00’	112	Number of extents

Compare the OWNER RECORD to the standard MVD record that follows.

Standard Multiple Volume Dictionary Record Format

The following table describes the record format of the Standard Multiple Volume Dictionary:

Table 10-17. Record Format of the Standard MVD

Name	Type	Size	Offset	Description
rptrecrd	DS	0f,		
	DC	h’100,,0’		Record length
rpttable	DC	CL10’REPTNMVDICT’		Report table name
rptdsnam	DC	CL44’ ’	1	Data set name
rptvolno	DC	CL6’ ’	45	Volume
rptdevcl	DC	XL2’0000’	51	Device class
rptdsorg	DC	XL2’0000’	53	DSORG
rptrecfm	DC	XL1’00’	55	RECFM
rptblksi	DC	XL2’0000’	56	BLKSIZE
rptlrecl	DC	XL2’0000’	58	LRECL
rptscalo	DC	XL1’00’	60	Allocat (trk,cyl,etc)
rptscqty	DC	XL3’000000’	61	Second alloc quantity

Name	Type	Size	Offset	Description
rpttksum	DC	XL3’000000’	64	Total allocation
rptcredt	DC	XL3’000000’	67	Creation date
rptexpdt	DC	XL3’000000’	70	Expiration date
rptdsind	DC	XL1’00’	73	Security
rptprmal	DC	XL2’0000’	74	Primary allocation
rptidlet	DC	XL2’0000’	76	Idle
rptvolad	DC	CL4’ ’	78	Volume address
rptcatlg	DC	CL1’ ’	82	Cataloged
rptlusdt	DC	XL3’000000’	83	Last used date
rptnoext	DC	XL1’00’	86	Number of extents

Report Logic Diagram

```
REPORT RPT=(MVD,SVD,DSI),VOL=(VOL001,VOL002)
```

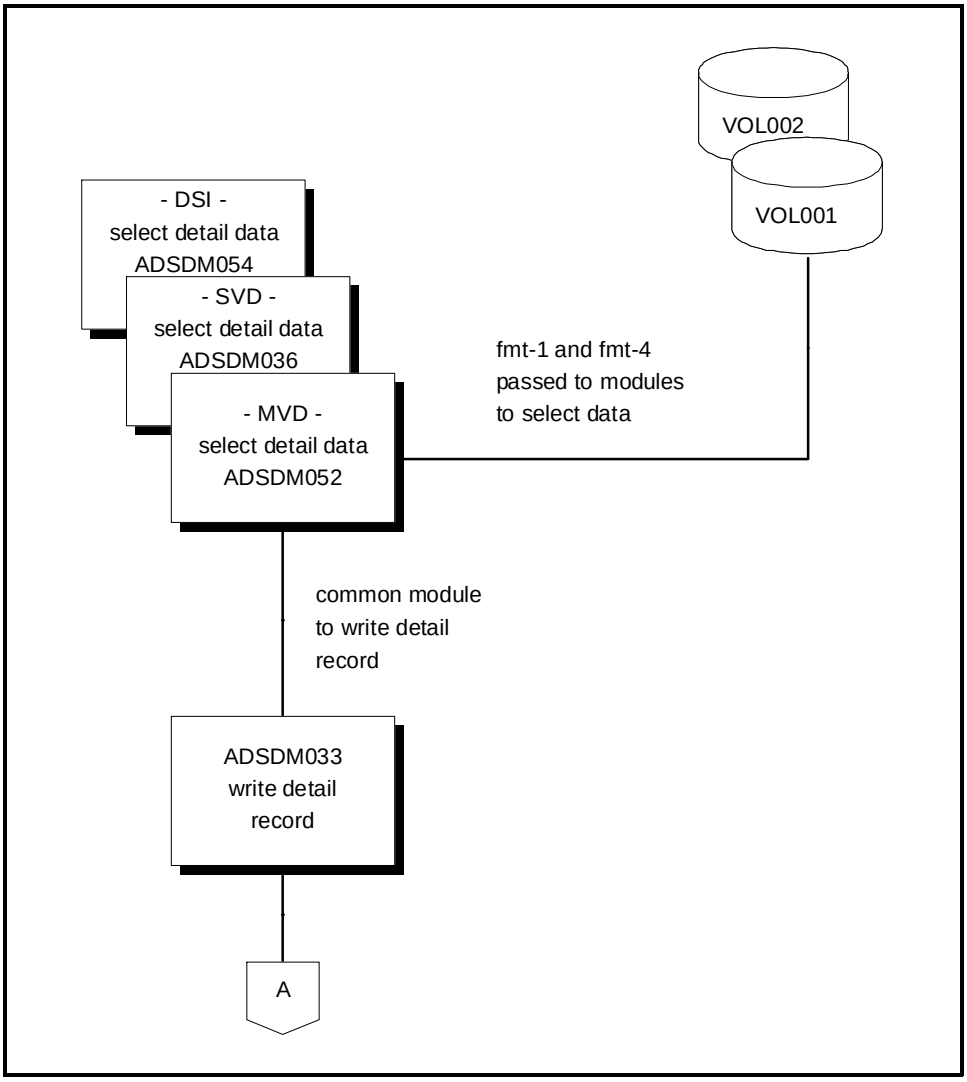


Figure 10-1. Report Logic Diagram

Each record is a detail line in a report as illustrated below:

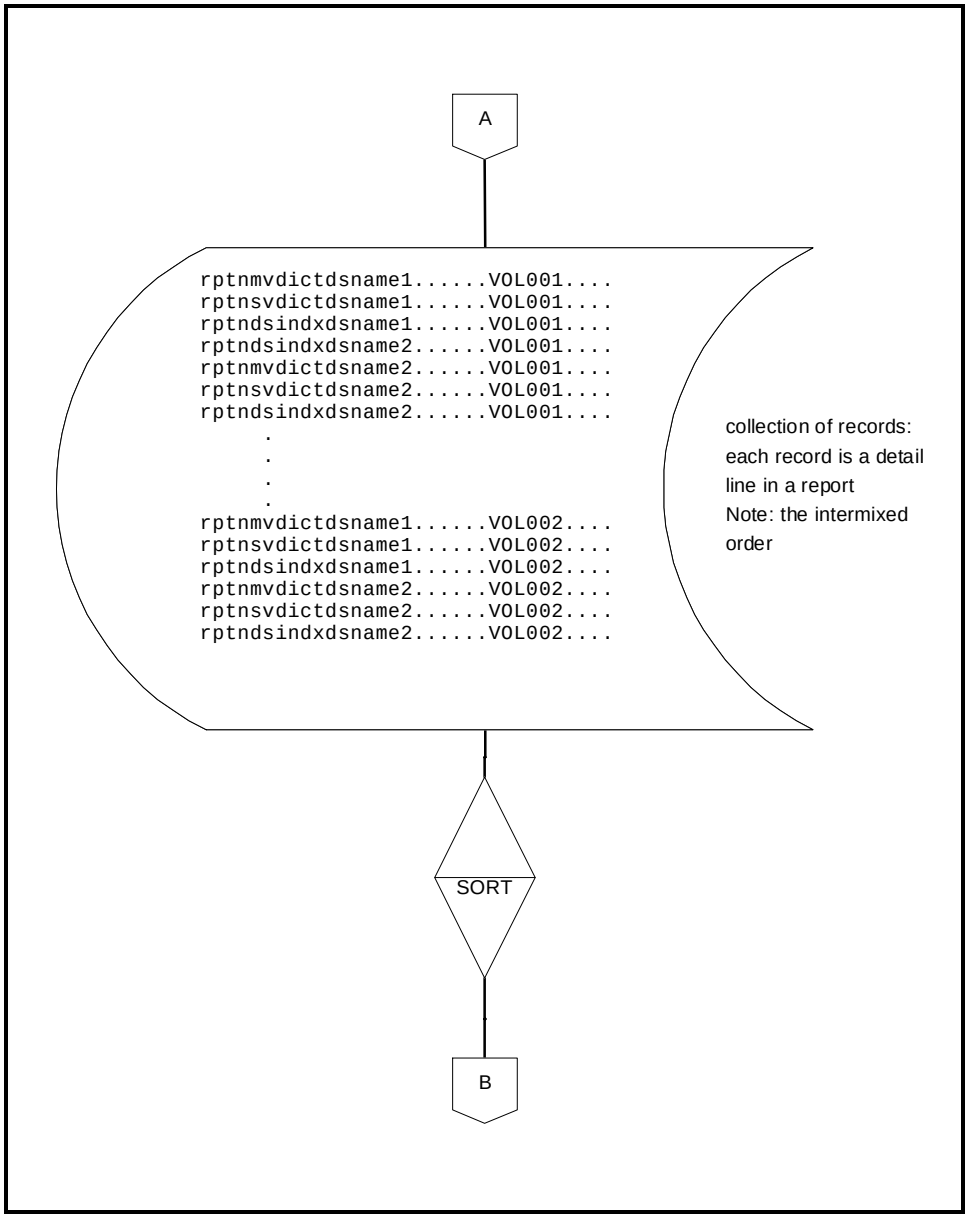


Figure 10-2. Record Collection portion of Report Logic

All detail records for each report are then grouped together as illustrated below:

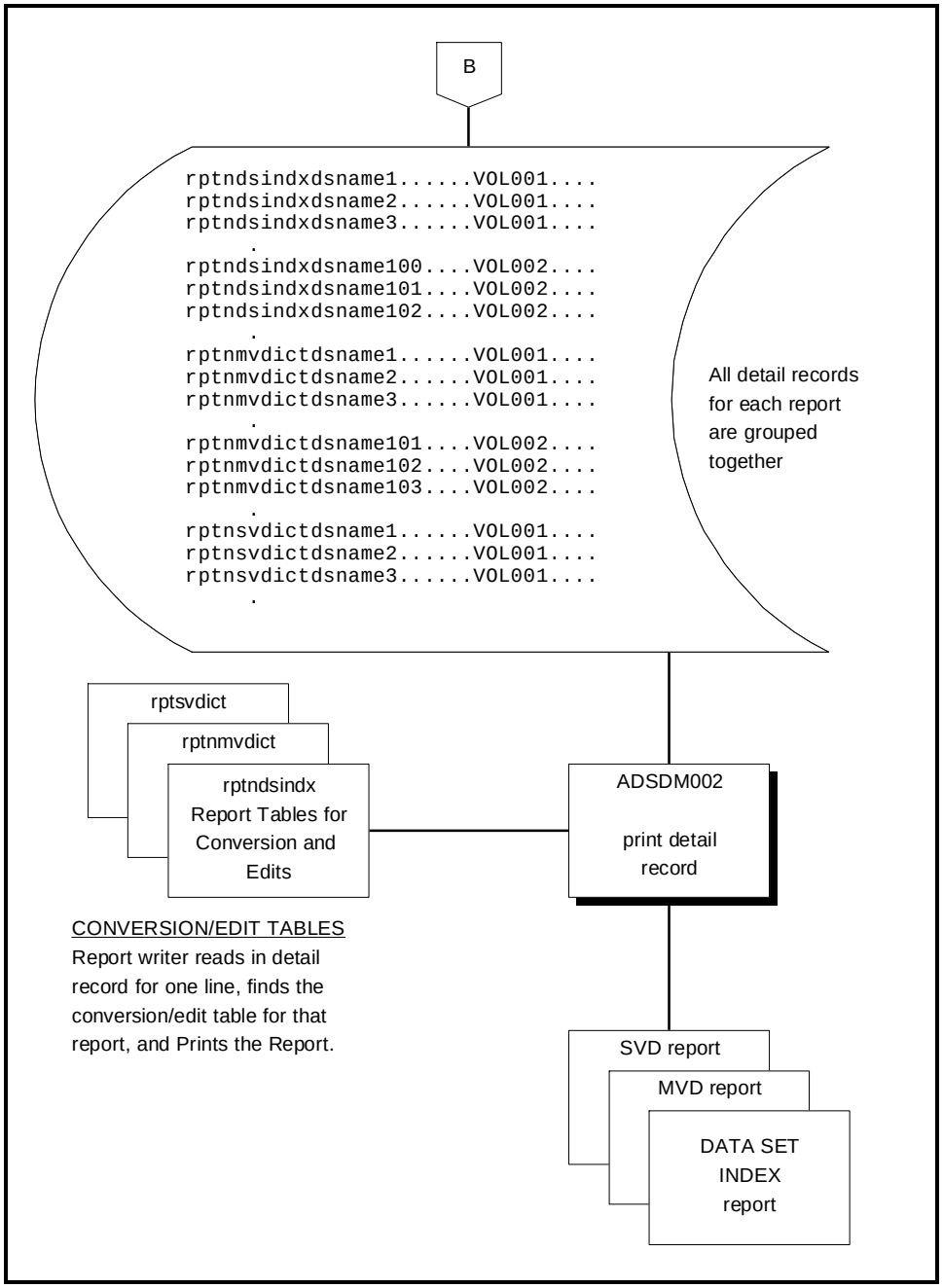


Figure 10-3. Detail Records Grouped Together Example

Chapter 11. Algorithms

Space allocation for a non-VSAM data set is computed in the following manner.

$$\text{\# of new tracks} = \frac{\text{total bytes of user data in input data set}}{\text{bytes of user data that fits on 1 out track}}$$

A SIZEIN subroutine computes the *(TOTAL BYTES IN INPUT data set)*. A SIZEOUT subroutine computes the *(BYTES FITTING ON 1 OUT TRK)* and then performs the division.

Note that the largest result is obtained by maximizing the numerator and minimizing the denominator for this calculation.

After the computation is done, a percentage increase will be made based on sysparm values for ADPCTPDS and ADPCTOTH. The number of tracks as indicated by sysparm ADTRACKS is then added. Finally, if CYL or ROUND allocation is required, the total tracks is rounded up to an even multiple of cylinders.

Subroutine SIZEIN performs its calculations in the following manner:

```
User Data Bytes = (user data bytes per trk)(# of tracks)
```

1. *(# of tracks)* is a specific value passed as input.

2. *(user data bytes per trk)* depends on several items and is estimated as follows, with varying degrees of accuracy.

   a. (blksize)(blks per track), — if 0 < BLKSIZE <= MAXBLK or

   b. (maxblksz to fit)(1 per trk), — if not the above or

   c. track size, — if DSORG=PS/PO,RECFM=V/U, and DEVTYPE changed.

Note: PS data sets will always fit on the same number of tracks if the same device type is used. If a device-type change occurs, variable and undefined-length records may fit unpredictably, so an attempt is made to error on the safest side possible; that is, assume every single byte on the track was a user data byte.

All PO data sets are much like PS RECFM=V/U simply because of multiple members with each member's last block truncated, and the end-of-file marks embedded throughout the data set. Even if the members are copied to the same device type, more space may be required if the order in which the members are physically arranged on the tracks is changed. A device type change further complicates the ability to accurately predict the correct space requirements. For this reason, sysparms ADPCTPDS and ADTRACKS have been provided to automate a dynamic increase in the predicted space quantity.

Bytes that Fit on an Output Track

The number of bytes to fit on an output track is determined as follows:

1. (blksize)(blks per track), — if 0 < BLKSIZE <= MAXBLK or
2. (maxblksz to fit)(1 per trk), — if not the above

Special Case:

Number of tracks needed = number of tracks on input, if the DSORG=DA and relative track addressing is used. SAMS:Disk attempts to maintain the TTR position of the data records and hence requires the same number of TT tracks.

VSAM Idle Space Calculation

The idle space that is printed on the VSAM cluster detail report (CLD) and on the multiple and single volume dictionary reports (MVD and SVD), are estimates of free space based on catalog information for the cluster. Its calculation is based on the high used and high allocated relative byte addresses for each of the extents in the data set. It must be kept in mind that this value is only an estimate of idle space, and its accuracy will be dependent on the type of cluster being processed. This value will always express the MINIMUM amount of free space that a cluster has. Even if the idle space displayed is zero, the cluster may indeed have a large amount of embedded free space, especially in a KSDS that was defined with freespace percentages.

To calculate the amount of estimated free space a cluster has, SAMS:Disk retrieves all of the extent information for the data component of the cluster (and also for the index component if the cluster is a KSDS). The high used and high allocated relative byte addresses (RBA's) for each extent are compared to determine the percentage idle space in the extent. A running total is kept for all extents in the cluster. For the MVD and SVD reports, the percentage is applied at the volume level. The CLD report, however, applies the percentage to the data set as a whole, regardless of the number of volumes on which the data set resides. Because of this fundamental difference in reporting algorithms, the idle space total found at the end of the CLD report may vary slightly from that found in the MVD and SVD reports for the same clusters. This variation is insignificant and should be viewed in the light that these values are indeed only estimates. None of the reports can be considered the "most reliable" since the accuracy will vary between clusters.

The accuracy of the estimated idle space value depends on the type of cluster being viewed and the data that comprises the cluster. For an entry-sequence data set (ESDS), the value will be quite accurate. Because there can not be any embedded free space in this type of cluster, the high used and high allocated RBAs will give an accurate depiction of the amount of space being used in the cluster. For a relative- record data set (RRDS), the accuracy will depend on the individual cluster. The idle space will reflect the amount of space available BEYOND the last record

in the data set — it does not account for any empty record slots embedded in the cluster.

The calculation for key-sequenced data sets (KSDS) gives only the amount of idle space beyond the high used relative byte address in each extent. If a cluster is defined with embedded free space, or if the cluster has gone through numerous control interval and control area splits, the amount of actual idle space in the cluster may be significantly more than that calculated. Again, the idle space displayed will be the minimum amount that can be expected in the cluster.

Obviously this idle space calculation cannot be relied upon to give an absolute estimate of unused space in a cluster. Its true value is in pointing out clusters that may, in fact, be overallocated. If the idle space displayed is high, and the cluster is a KSDS or RRDS, then the chances are good that the cluster has too much space allocated to it. These particular clusters should then be examined to determine if they should indeed be reduced in size.

VSAM New Name Algorithm

When a cluster is restored with a new name, SAMS:Disk must determine a new name to use for the data component of the cluster. In addition, if the cluster is a key-sequenced data set, a new name must be generated for the index component. If the data (or index) component name was originally generated by VSAM (that is the NAME parameter was not specified for the data and index components when the cluster was defined), SAMS:Disk will let VSAM generate new name(s) for the cluster's components.

If the data and index components were defined with explicit names when the cluster was created, SAMS:Disk must generate new names for the components to avoid a "duplicate entry" error when defining the new cluster. The base cluster will be named whatever is specified on the NEWNAME= parameter. The data and index component names will be generated based on a comparison of the original cluster name and the newname that was specified. The base portion of the component name will be identical to the newname specified on the input command. The remainder of the name will be generated by comparing the original base cluster name with the original component name. SAMS:Disk will compare the two names until a difference is detected. The portion of the component name that is different is then appended to the base cluster's new name to determine the new name for the component. Note that if the comparison between the original base cluster name and the original component name is at other than a ".", a "." will be inserted into the component new name before appending the remaining portion of the component name. This is done to ensure that the node being generated will not exceed eight characters in length.

As an example, let's look at how the following new name would be generated:

```
Original cluster name = LABS.TJP.PMRFILE
Original data component name = LABS.TJP.PMRFILE.DATA
```

If the new name specified is LABS.NEW.PMRFILE, the new name for the data component would be created as follows:

1. The new name is moved into a work area: LABS.NEW.PMRFILE

2. The original cluster name is compared to the original data component name. A difference is detected after the PMRFILE node. The differing characters are: .DATA

3. The differing characters are appended to the base cluster's new name in the work area to determine the component's new name: LABS.NEW.PMRFILE.DATA

Data Compression/Decompression

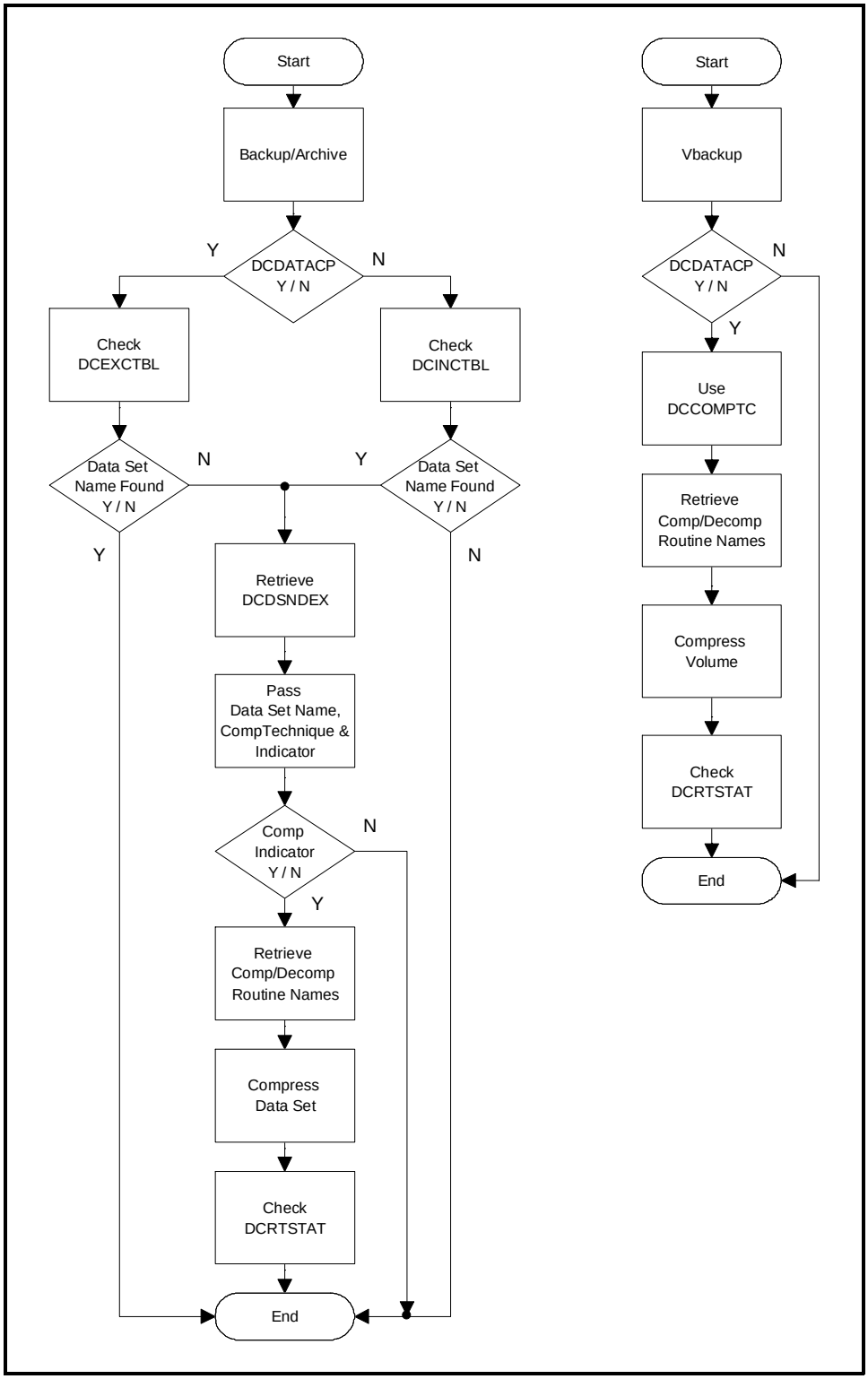


Figure 11-1. General flow of data compression

SAMS:Disk does data compression and decompression at the archive logical record level. Only the data after the eight-byte prefix is compressed (see the archive record format). A high- level control module is called before moving the archive record to the archive block. It decides whether or not to do data compression when it begins processing for each data set.

Sysparm DCDATACP is used to set the initial value of the compression indicator. If this is not a volume-level backup, the exclusion/inclusion table is referenced. If DCDATACP is specified with a value of Y but the data set is in the exclusion table, the compression indicator will be set to N (no). If sysparm DCDATACP is specified with a value of N but the data set is in the inclusion table, the compression indicator will be set to Y (yes). Inclusion and exclusion tables can not be used at the same time.

The compression technique number is indicated by sysparm DCCOMPTC. The sysparm default is always selected for volume-level backup.

If user exit DCDSNDEX is active, the technique number, yes/no compression indicator, and the data set name are passed for the exit to make the decision. Each technique number corresponds to two exits—one for compression (DCCMPEXn) and one for decompression (DCDCPEXn). Both must be present at compression time.

If compression statistics are desired, sysparm DCRTSTAT can be specified with a value of Y for archive volume totals or D for data set totals and archive volume totals.

Each compressed record is returned with a two-byte prefix. The first character is X’EE’. It is for doublechecking and indicates the record is in compressed format. The second character is X’Fn’, n being any character A-F or 0-9, to indicate the compression routine used. This character allows multiple compression routines to be implemented for the same application. This is useful when you have knowledge of the data and know that specific routines handle specific kinds of data more efficiently. Once data has been compressed using a given compression technique, that technique must remain the same.

Data Compression Techniques

There are 16 data compression/decompression exits to chose from. Technique exits 0-7 are reserved for SAMS:Disk, while technique exits 8-F are available to the user. The following table is a list of the 16 exits:

Table 11-1. Data Compression Techniques available

Technique	Compression Exit	Decompression Exit
0	DCCMPEX0-ADSUT371	DCDCPEX0-ADSUT372
1	DCCMPEX1-ADSUT410	DCDCPEX1-ADSUT411
2	DCCMPEX2	DCDCPEX2
3	DCCMPEX3	DCDCPEX3
4	DCCMPEX4	DCDCPEX4
5	DCCMPEX5	DCDCPEX5
6	DCCMPEX6	DCDCPEX6
7	DCCMPEX7	DCDCPEX7
8	DCCMPEX8	DCDCPEX8
9	DCCMPEX9	DCDCPEX9
A	DCCMPEXA	DCDCPEXA
B	DCCMPEXB	DCDCPEXB
C	DCCMPEXC	DCDCPEXC
D	DCCMPEXD	DCDCPEXD
E	DCCMPEXE	DCDCPEXE
F	DCCMPEXF	DCDCPEXF

Data Compression Technique 0 (DCCMPEX0)

This compression routine compresses replicated spaces, binary zeros and other replicated character strings. It starts with a 126-byte fixed-length character string (or the length of the data, whichever is shorter).

Typical flow of this process is illustrated in the figure below:

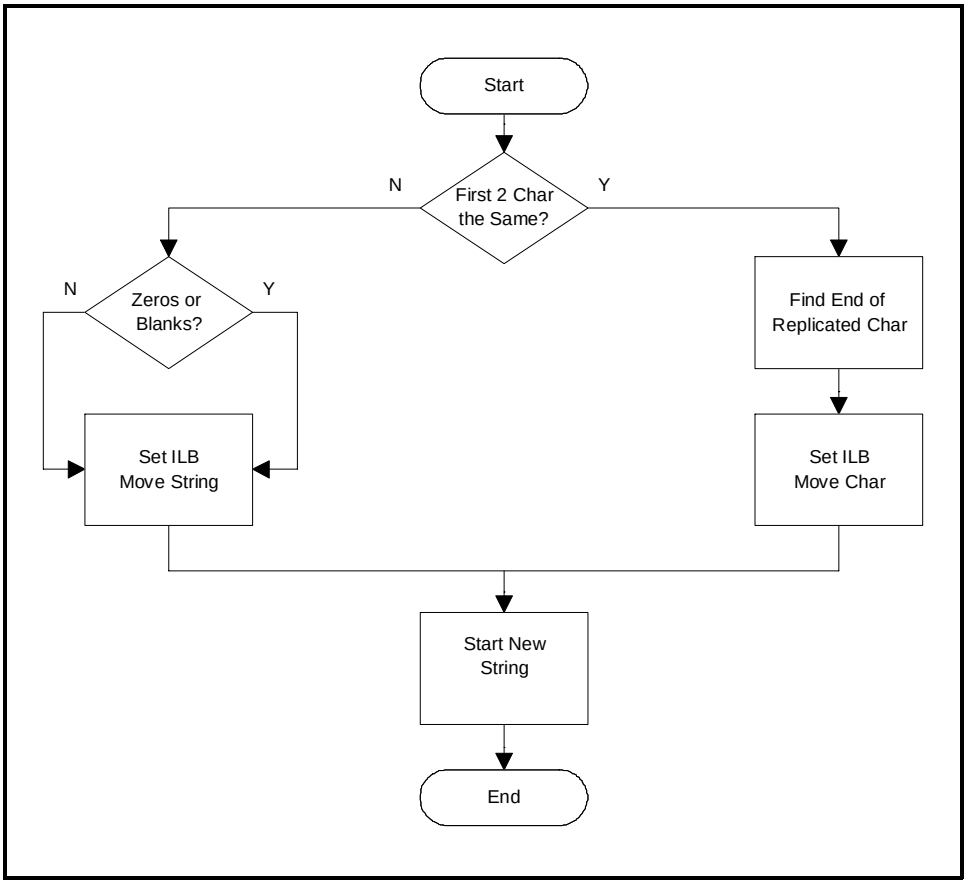


Figure 11-2. Data Compression Technique 0 Flowchart

INDICATOR/LENGTH BYTE

ILLLLLLL

I - String indicator bit

1 - Replicated string
0 - Non-replicated string

LLLLLLL - LENGTH BITS

The max string length is 126 characters. If there are more than 126 characters in a string, a new character string is started.

Due to the storage technique used, it is possible to compress almost all replicated character strings to 2 characters. For performance reasons, it is not practical to test for all possible replicated character strings. This routine specifically looks only for replicated spaces and binary zeros.

Example 1:

The following string will be compressed as shown. This example shows compressing 40 bytes to 30.

```
                 MVC   RESULT,=H'1'        SET CC
      ----.----1----.----2----.----3----.----4

      |  |  |  |MVC|  |  |  |RESULT,=H'1'|  |  |  |SET CC|
      |8B|40|03|___|83|40|12|____________|87|40|06|______|
   BYTE 1  2  3 4-6  7  8  9    10-21     22 23 24  25-30
```

Example 2:

The following string will be compressed as shown. This example shows compressing 130 bytes to 7. The 126 spaces are compressed to a replicated string. The space and the 3 asterisks become a 4-byte literal.

```
                                                 ***
      ----.----1----.----2---...---1----.----1
                                   2         3
                                   0         0
       |  |  |  | ***|
       |FE|40|04|____|
   BYTE 1   2  3  4-7
```

Example 3:

The following string will be compressed as shown. this example shows compressing 130 bytes to 4. The 126 spaces are compressed to a replicated string. The 4 asterisks are compressed to a replicated string.

```
                                              ****
     ----.----1----.----2---...---1----.----1
                                   2         3
                                   0         0
      |  |  |  |*|
      |FE|40|84|_|
  BYTE 1   2  3 4
```

Compression Results

Our TSS type packs averaged 55 percent savings in space. The CPU time almost doubled, but the elapsed time remained about the same. Our system packs averaged 30 percent savings in space. The CPU time increased by a fifth and the elapsed time increased by a third.

Overview of Space Allocation for Archival to DISK

SAMS:Disk determines the amount of space to allocate (the amount of space it needs on a disk pool volume) in the following manner. Quite frequently the primary output will be on disk and the duplicate will be on tape or a 6485 cartridge. The output archive type dictates the block size to be used. This, coupled with the density and length of tape being used, allows an easy and very accurate calculation of the tape capacity. (Since the ends of 6485 tape cannot be clipped off, the most common variable in the calculation has been removed!)

The optimal disk allocation is exactly the same capacity as its backup medium, such that when one is filled and both must be closed, nothing is wasted on the other medium. To do this on an exact equivalence, however, would require that very large amounts of free space be available. Therefore SAMS:Disk selects 1/16th of that value as the default primary and secondary space allocations. In many cases, an archive run will not need a full tape, and one or two extents will be more than enough space. However, when a large archive run is made and the disk pool volumes contain plenty of free space, SAMS:Disk will obtain as many as possible of the 16 extents before closing the archive data set. This maintains high tape usage as well. Any excess (unused) disk space is, of course, released immediately when the data set is closed.

SAMS:Disk also considers the size of the data sets being archived when determining the amount of space to allocate. If the first data set to be archived is larger than the default primary space, the primary space is reset to the size of the data set. If free space equal to this new primary value is not available but the default value is, as a last resort SAMS:Disk will attempt to archive the input data set to a multivolume output data set.

Once the target archive data set is allocated and the first data set to be archived is copied to it, SAMS:Disk will continue to copy additional data sets (the second through nth) as long as there is sufficient space to hold them. To determine whether sufficient space is available, SAMS:Disk examines the unused space in the current extent, and checks to see if additional extents can be obtained. If there is not sufficient space, the current disk archive data set is closed and a new one is allocated, much like swapping to a new tape.

Space Allocation Algorithm

To begin the creation of a disk archive data set SAMS:Disk issues an enqueue against the SAMS:Disk DASD POOL to make sure that other SAMS:Disk jobs wait until allocation to a volume within the pool is complete. SAMS:Disk then saves the input data set size, and determines the minimum primary and secondary allocation requirements specified by sysparms SPACEPRI and SPACESEC. When these sysparms are set to their default values, minimum allocation requirements are determined by tape capacity in bytes divided by 16. Tape capacity is calculated based on device type and density to get bytes per foot and multiplied by the number of feet indicated by sysparms TAPEFEET or CARTFEET. The default for this cal-

culation is TAPEFEET unless 6485s are indicated on the ARCHIVEC dd card. If SPACEPRI and SPACESEC are not set at their default values, the minimum allocation requirement is the value * 1024 * 1024. If packing is not used (sysparm ARCHPACKn) the input data set size becomes the minimum allocation requirement. Otherwise the input data set size is used only if it is greater than the calculated minimum value.

If the primary and copy cannot reside on the same volumes as indicated by sysparm ARCSEPC0 then the primary volume list is added to an exclude volume list used during volume selection to insure they are not selected for the copy.

SAMS:Disk now begins to build a list of volumes, the volume with the largest amount of free space being first, the next largest being second and continuing until the number of bytes in the data set has been satisfied or until the maximum number of volumes, or the number of volumes in the pool if less than 35, has been reached.

The allocation satisfied the first time through is the primary amount, if successful, the volume is added to the list and to the exclusion list, and the allocation to satisfy becomes the secondary allocation. If the primary amount cannot be satisfied with the first volume returned, and the free space associated with that volume is less than the minimum allocation amount for primary, an abend will occur. If the available free space is greater than the calculated minimum allocation, the data set size is divided by 35, or the number of volumes in the pool if less than 35, and becomes the new minimum primary amount. If the returned free space is still less than the new minimum primary amount, an abend will occur. If not, the primary amount will be set to the returned free space, and will be subtracted from the data set size. The remaining bytes will be divided by 35 (or the number of volumes in the pool if less than 35) minus one to become the new minimum secondary amount. If the new minimum secondary amount is greater than the calculated secondary allocation, the value to satisfy is the minimum secondary allocation. The volser is added to the volume and exclusion lists and processing continues.

The secondary allocations begin when the primary has been satisfied. Only when a volume's free space cannot satisfy the secondary allocation amount or if the input data set size has been satisfied will the volume list be complete. If there are no volumes in the list at this time, an abend will occur. If there is a list of volumes, they are returned to the calling program so that allocation can take place. When allocation is complete a dequeue is issue against the SAMS:Disk DASD POOL.

General Comparison of Allocation in Prior Releases

1. The primary allocation value is still set to 1/16 of tape/cart, or the value of SPACEPRI if specified. (No change here.)

2. Release 7.6 and prior SAMS:Disk takes the first volume from the pool that satisfies SPACEPRI for contiguous free space. If more than one SAMS:Disk job looks at the same pool of volumes, each may examine volume space at the same time, unaware that the other sees the identical "space status" for the volume. The first job to allocate should be

successful, but the others risk even a primary allocation error. If all concurrent primaries succeed, the probability of getting a secondary allocation is certainly decreased for all of the jobs!

Release 7.7 or higher begins by serializing the examination of the archive pool and the actual allocation of the space. This is done by an ENQ on Major=DMSOS, Minor=ARCHPOOL when the pool is examined, with the DEQ done after the allocation has taken place. Release 7.7 or higher also examines all volumes in the pool and selects the volume with the greatest contiguous free space. This ensures the primary allocation and increases the probability of getting extra extents if needed.

By serializing the selection and allocation among concurrent SAMS:Disk jobs, each job will see a different "space status" for the pool volumes, increasing the distribution across different volumes. If different primary volumes are selected (with increased probability), contention for secondary extents is reduced.

3. If the size of the input data set is larger than the size in item 1 above (1/16 tape or SPACEPRI), the data set size is compared to the largest contiguous free space that was found. If the free space is big enough, the primary is set to the data set size and allocated. This is the same as in prior releases, except that the probability is greater that the data set will fit, because the volume with the largest contiguous free space was selected first.

   If the data set size is greater than the largest contiguous free space, additional volumes are selected with the 2nd, 3rd, and so on largest contiguous free space until the size of the data set can be satisfied, and a multivolume allocation is done. If the pool is exhausted without finding enough contiguous space to satisfy the data set, the archive is still attempted on the theory that additional extents from non contiguous free space on each of the selected volumes may be able to satisfy the request. If they do not, a B37 abend for the data set being processed will occur. It will be bypassed as "too large" for the archive pool, and processing continues with the next data set. Again, the significant difference in 7.7 or higher is that each volume selected from the pool is the one with the largest contiguous free space, the next largest, and so on. In 7.6, it was a sequential search of the pool, taking any volume that met the minimum secondary space need. Now we get the volume with the most space that meets that need.

Creating a Disk Archive Data Set

1. SAMS:Disk issues an enqueue against the SAMS:Disk DASD POOL, major name = DMSOS, minor name = ARCHPOOL.

2. Determine the primary and secondary values for the archive data set. If sysparms SPACEPRI and SPACESEC are defaulting they are recalculated to tape capacity in bytes divided by 16. If a value is specified, it is multiplied by 1024 and again by 1024 (SPACEPRI*1024*1024).

3. Determine the starting primary allocation. Primary will be the above calculated SPACEPRI value unless data sets are not packed and the data set size is less than the calculated SPACEPRI value, in which case primary will be set to the data set size. If SPACEPRI is still smaller than the data set size, primary will be set to the data set size.

4. Begin an exclusion list of volsers to ensure integrity as selections are being made. If this archive data set is for the copy, and sysparm ARCSEPC0 is set to yes, then the list of primary volsers are added to the exclusion list to insure they are not re-selected to be the copies.

5. Set the desired number of bytes to the calculated primary value.

6. Build the volume list. Continue building until the limit of 35 (or the number of volumes in the pool if less than 35) has been reached, or the number of bytes in the initial data set has been satisfied in either single or multiple volumes. The building of the volume list abends under the following conditions:

   a. If the returned volume does not satisfy the desired number of bytes, and it is the first volume, and returned free space does not satisfy SPACEPRI needs.

   b. If the returned volume does not satisfy the desired number of bytes, and it is the first volume, and the data set size divided by 35, or the number of volumes in the pool if less than 35, does not satisfy the minimum primary allocation specification.

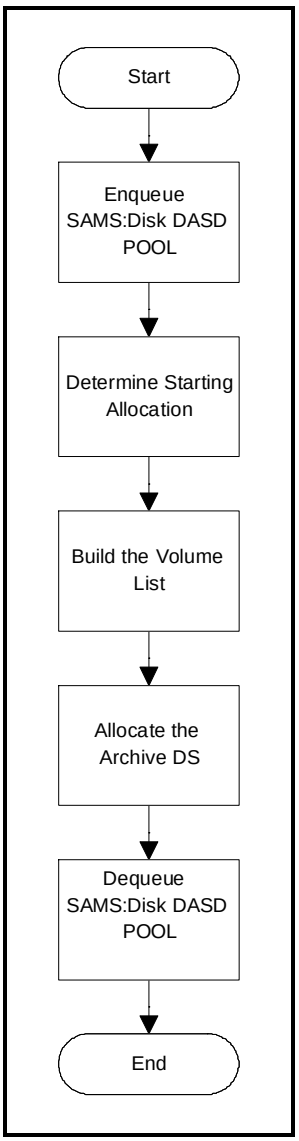
   c. If a volume was not found that was not in the exclude list or of the correct device type or if it's largest contiguous space could not satisfy the desired number of bytes requested.

7. Return the list of volumes.

8. Allocate the archive data set.

9. Issue a dequeue against the SAMS:Disk DASD POOL.

This process is illustrated below:



PDS Compression Threshold Calculations

Calculating compression thresholds for a PDS is divided up into two categories:

1. Directory Used Space Percentage
2. Member Data Used Space Percentage

Directory Used Space Percentage

$$PCT\ Used = \frac{((DBUSE-1)*256+NOBDB-14)*100}{(DBUSE+DMBTY)*256}$$

or

$$PCT = \frac{\begin{array}{l}(total\ bytes\ used\ in\ all\ full\ directory\ block)\\ +\ (total\ bytes\ used\ in\ last\ used\ directory\ block)\\ -\ (14\ bytes\ for\ the\ directory\ end\text{-}of\text{-}file)\end{array}}{total\ bytes\ allocated}$$

Where:

PCT USED — percentage of used directory block space calculated in bytes

DBUSE — number of used directory blocks

NOBDB — number of bytes used in the last used directory block

DBMTY — number of empty directory blocks

Member Data Used Space Percentage

$$PCT\ Used = \frac{((DSNTRK-DIRTRK)*TRKLN-DSNBAL+DIRBAL)*100}{(EXTTRK-DIRTRK)*TRKLN+DIRBAL}$$

or

$$PCT = \frac{\begin{array}{l}(total\ bytes\ used\ for\ all\ full\ data\ tracks)\\ -\ (unused\ bytes\ on\ last\ used\ data\ track)\\ +\ (used\ memeber\ data\ bytes\ on\ track\ sharing\ the\ directory)\end{array}}{total\ bytes\ for\ all\ tracks\ allocated}$$

Where:

PCT USED — percentage of member data used space calculated in bytes

DSNTRK — relative track of the last data record

DIRTRK — relative track of the directory end-of-file

TRKLN — track capacity of the device

DSNBAL — track balance of the last data record or DS1TRBAL

DIRBAL — track balance of the directory end-of-file

EXTTRK — relative track of the last allocated track

PDS Compression Space Calculations

Calculating compression space for a PDS is divided up into three categories:

1. Directory Block Allocation
2. Member Data Space Allocation
3. Secondary Space Allocation

Directory Block Allocation

$$DIRBLKS = \frac{(((DBUSE-1)*256+NOBDB-14)*100)+(14*DD)}{DD*256}$$

or

$$DIRBLKS = \frac{\begin{array}{ll} & (total\ bytes\ used\ in\ all\ full\ directory\ blocks) \\ + & (total\ bytes\ used\ on\ last\ used\ directory\ block) \\ - & (14\ bytes\ for\ the\ directory\ end\text{-}of\text{-}file) \\ * & 100 \\ + & (directory\ end\text{-}of\text{-}file\ length) \\ * & (percentage\ requested) \end{array}}{percentagerequested * directory\ block\ size}$$

Where:

DIRBLKS — number of directory blocks to be allocated

DBUSE — number of used directory blocks

NOBDB — number of bytes used in the last used directory block

DD — requested percentage of directory space to be used after reallocation

Member Data Space Allocation

$$EXTRKS = \frac{\frac{((DS1TRK - DIRTRK) * TRKLN + DIRBAL - DS1BAL) * 100)}{PP} - DIRBAL}{TRKLN} + DIRTRK$$

or

$$DIRBLKS = \left\{ \frac{\left[\begin{array}{l} (total\ bytes\ used\ in\ all\ full\ data\ tracks) \\ + (total\ bytes\ used\ on\ partial\text{-}data\ track) \\ * \ 100 \\ \hline (percentage\ requested) \end{array} \right] - bytes\ remaining\ after\ the\ last\ directory\ track}{track\ capacity} \right\} + DIRTRK$$

Where:

EXTTRK — total number of tracks to allocate for primary space, including space for the directory

TRKLN — track capacity of the device

DS1TRK — relative track of the last record written for the compressed PDS.

DIRTRK — calculated relative track for the new directory's end-of-file

DS1BAL — track balance of the last record written for the compressed directory

PDS DIRBAL — calculated track balance of the new directory's end-of-file

PP — requested percentage of member space to be used after reallocation

Secondary Space Allocation

$$SECTRKS = \frac{((MBRTRK * TRKLN) + (TRKLN - MBRBAL))}{SS * TRKLN}$$

or

$$SECTRKS = \frac{\begin{array}{l} (total\ bytes\ used\ in\ all\ full\ data\ tracks) \\ +\ (total\ bytes\ used\ on\ the\ last\ used\ data\ track) \\ *\ 100 \end{array}}{percentagerequested * track\ capacity}$$

```
          ((MBRTRK*TRKLN)+(TRKLN-MBRBAL))*100
SECTRKS = ———-------------------------------——
          SS*TRKLN
```

or

```
          total bytes used in all full data tracks
          + total bytes used on the last used data track
          * 100
SECTRKS = ————-------------------------------————————-
          percentage requested * track capacity
```

Where:

SECTRKS — number of tracks to request for the secondary allocation amount

TRKLN — track capacity of the device

MBRTRK — relative track of the last record written for the compressed PDS.

MBRBAL — track balance of the last record written for the compressed PDS.

PDS SS — requested percentage of secondary space as a function of the member space used after compression

Notes:

- Percentages are rounded up to the nearest whole point.
- Percentages are based on data size prior to compression.
- One directory block = 256 bytes.
- Allocations are rounded up to the nearest track.

Chapter 12. Record Formats

Report Record Format - (RPTNALLOCS)

Volume Allocation Summary Report — ALLOCS

```
ALLOCS
*
*     Mapping of Report record used to print VOLUME
*     ALLOCATION SUMMARY report
*
DETREC   DS    0F
DETCONLN DS    H            RECORD LENGTH, 74 BYTES
         DS    H            (FILLER, ZEROS)
DETTABLE DS    CL10         REPORT NAME 'RPTNALLOCS'
DETTYPE  DS    XL2          DEVICE TYPE
DETSERAL DS    CL6          VOLUME SERIAL
DETDSCB0 DS    H            DSCB 0 COUNT
DETDSCB1 DS    H            DSCB 1 COUNT
DETDSCB2 DS    H            DSCB 2 COUNT
DETDSCB3 DS    H            DSCB 3 COUNT
DETDSCB4 DS    H            DSCB 4 COUNT
DETDSCB5 DS    H            DSCB 5 COUNT
DETDSCB6 DS    H            DSCB 6 COUNT
DETDEVTK DS    XL4          TRACKS PER DEVICE
DETTKALC DS    XL4          TRACKS ALLOCATED
DETTKAVL DS    XL4          TRACKS AVAILABLE
DETFREXT DS    XL2          EXTENTS
DETTKIDL DS    XL4          TRACKS IDLE
DETFRSPL DS    XL4          1ST LARGEST FREE SPACE
DETFRSPS DS    XL4          2ND LARGEST FREE SPACE
DETFRSPT DS    XL4          3RD LARGEST FREE SPACE
DETVOLAD DS    CL4          VOLUME ADDRESS
DETSMS   DS    CL4          SMS VOLUME STATUS
DETRECLN EQU   * DETREC     LENGTH OF RECORD, 74 BYTES
*
```

Table Used for Printing ALLOCS Report

```
MEMBER = RPTNALLO
    'C1  058052001132050'
    'H113132   001   STANDARD HEADER - LINE 1'
    'H1 K007   122     PAGE '
    'H1 N004   129   PAGE NO'
    'H1 K049   041   V O L U M E   A L L O C A T I O N   S U M M A R Y'
    'H2 4132   001   STANDARD HEADER - LINE 2'
    'H3 K001   001132'
    'H4 K015   009   DEVICE UNIT SMS'
    'H4 K046   027   ----DATA SET CONTROL BLOCKS (DSCB) COUNTS-----'
    'H4 K027   075   -----------TRACKS----------'
    'H4 K030   104   ---------FREE SPACE----------'
    'H5 K006   001   VOLUME'
    'H5 K015   010   TYPE  ADDR STAT'
    'H5 K046   027   FREE     F1     F2     F3     F4     F5     F6'
    'H5 K027   075   DEVICE  ALLOC  AVAIL   IDLE'
    'H5 K027   104   EXTENTS       THREE LARGEST'
    'H6 K040   001   ------  ------ ---- ----  --------------'
    'H6 K040   041   --------------------------------  ------'
    'H6 K040   081   ---------------------  -----------------'
    'H6 K012   121   ------------'
    'D1 R006001009      DEV TYPE'
    'D1 C006003001      SER'
    'D1 C004053016      ADDR'
    'D1 K001   020    '
    'D1 C004057021      SMS STAT'
    'D1 H002009026005Z  0'
    'D1 H002011033005Z  1'
    'D1 H002013040005Z  2'
    'D1 H002015047005Z  3'
    'D1 H002017054005Z  4'
    'D1 H002019061005Z  5'
    'D1 H002021068005Z  6'
    'D1 F004023075006Z  TRKS DEV'
    'D1 F004027082006Z  TRKS ALLOC'
    'D1 F004031089006Z  TRKS AVAIL'
    'D1 F004037096006Z  TRKS IDLE'
    'D1 H002035106005Z  EXTENTS'
    'D1 F004041113006Z  L'
    'D1 F004045120006Z  S'
    'D1 F004049127006Z  T'
    'T1 K040   001   ----------------------------------------'
    'T1 K040   041   ----------------------------------------'
    'T1 K040   081   ----------------------------------------'
    'T1 K012   121   ------------'
    'T2 K010   001   TOTAL VOLS'
    'T2 A000000012004Z  VOL CNT'
    'T2 A000009025006Z  0 DSCB CNT'
```

```
'T2 A000011032006Z  1 DSCB CNT'
'T2 A000013039006Z  2 DSCB CNT'
'T2 A000015046006Z  3 DSCB CNT'
'T2 A000017053006Z  4 DSCB CNT'
'T2 A000019060006Z  5 DSCB CNT'
'T2 A000021067006Z  6 DSCB CNT'
'T2 A000035104007Z  TOTAL NUMBER OF EXTENTS'
'T3 K040   001   ----------------------------------------'
'T3 K040   041   ----------------------------------------'
'T3 K040   081   ----------------------------------------'
'T3 K012   121   ------------'
'T4 K023   040   TOTAL TRACKS PER DEVICE'
'T4 A004023072009Z  TOTAL TRKS'
'T5 K040   001   ----------------------------------------'
'T5 K040   041   ----------------------------------------'
'T5 K040   081   ----------------------------------------'
'T5 K012   121   ------------'
'T6 K022   046   TOTAL TRACKS ALLOCATED'
'T6 A004027079009Z  TOTAL TRKS ALLOC'
'T7 K009   059   AVAILABLE'
'T7 A004031086009Z  TOTAL TRKS AVAIL'
'T8 K004   059   IDLE'
'T8 A004037093009Z  TOTAL TRKS IDLE'
```

Report Record Format — RPTNAMVDIC

A-FORM of MVDICT Report

```
AMVDIC
*
*     Mapping of report record used to print A-FORM of MULTIPLE
*     VOLUME DICTIONARY report with owner
*     Note: The RPTDSORG field has
*               1. X'02' for PDS and X'FE' for PDSE
*               2. X'40' for PS and X'FC' for PSE
*
AMVDREC DS 0F
RPTRDW DS 2H
RPTTABLE DC CL10'RPTNAMVDIC'
RPTAINFO DS 0CL86
RPTDSNAM DS CL44 DATA SET NAME
RPTVOLNO DS CL6 VOLUME SERIAL
RPTDEVCL DS XL2 DEVICE CLASS
RPTDSORG DS XL2 DSORG
RPTRECFM DS XL1 RECFM
RPTBLKSI DS XL2 BLOCKSIZE
RPTLRECL DS XL2 LRECL
RPTSCALO DS XL1 SECONDARY ALLOCATION
RPTSCQTY DS XL3 AMOUNT OF SECONDARY ALLOCATION
RPTTKSUM DS XL3 TOTAL TRACKS ALLOCATED
RPTCREDT DS XL3 CREATION DATE
RPTEXPDT DS XL3 EXPIRATION DATE
RPTDSIND DS XL1 SECURITY
RPTPRMAL DS XL2 PRIMARY ALLOCATION
RPTIDLET DS XL2 IDLE TRACKS
RPTVOLAD DS CL4 VOLUME ADDRESS
RPTCATLG DS CL1 CATALOG STATUS
RPTLUSDT DS XL3 LAST USED DATE
RPTNOEXT DS XL1 NUMBER OF EXTENTS
RPTAOWNR DS CL11 OWNER
```

Table Used to Print MVD Report by Owner

```
MEMBER = RPTNAMVD
     'C1 058052001132101'
     'H113132 001 STANDARD HEADER - LINE 1'
     'H1 K007 122 PAGE '
     'H1 N004 130'
     'H1 K033 032 M U L T I P L E V O L U M E D'
     'H1 K037 065 A T A S E T D I C T I O N A R Y'
     'H2 4132 001 STANDARD HEADER - LINE 2'
     'H3 K001 001132'
     'H4 K006 046 DEVICE'
     'H4 K029 081 -ALLOCATION - TRACKS-'
     'H5 K013 001 DATA SET NAME'
     'H5 K005 030 OWNER'
     'H5 K006 039 VOLUME'
     'H5 K016 046 TYPE CAT DSORG'
     'H5 K029 063 RECFM BLKSZ LRECL TYPE PRIM'
     'H5 K016 094 SEC ALLOC IDLE'
     'H5 K021 112 EXT CREDT EXPDT USEDT'
     'H6 K040 001 ______________________'
     'H6 K040 041 __________________________'
     'H6 K040 081 _________________________'
     'H6 K012 121 ________'
     'D1 C044001001025 DSN'
     'D1 C011087027 OWNER'
     'D1 C006045039 VOL'
     'D1 R002051046 DEVICE TYPE'
     'D1 C001082054 CAT'
     'D1 V002053058 DSORG'
     'D1 W001055064 RECFM'
     'D1 H002056069005Z BLKSIZE'
     'D1 H002058075005Z LRECL'
     'D1 U001060082003 ALLO TYPE'
     'D1 H002074086005Z ALLO PRI'
     'D1 B003061092005Z ALLO SEC'
     'D1 B003064099005Z ALLO SUM'
     'D1 H002076105005Z ALLO IDL'
     'D1 B001086112003Z EXT NO'
     'D1 Y002067116 CREATE'
     'D1 Y002070122 Z EXPIRE'
     'D1 Y003083128 Z LAST USED'
```

```
'T1 K040 001 ____________________'
'T1 K040 041 ____________________'
'T1 K040 081 ____________________'
'T1 K012 121 ______'
'T2 K015 010 TOTAL DATA SETS'
'T2 A000000026007Z COUNTER'
'T2 K022 072 TOTAL ALLOCATED TRACKS'
'T2 A000065095009Z ACCUMULATOR'
'T3 K017 072 TOTAL IDLE TRACKS'
'T3 A000076101009Z ACCUMULATOR'
```

Report Record Format — (RPTNATTRBS)

Volume Attribute Summary Report

```
ATTRBS
*
*     Mapping of report record used to print VOLUME ATTTRIBUTE
*     report
*
DETREC   DS    0F
DETCONLN DS    H           RECORD LENGTH, 60 BYTES
         DS    H           (FILLER, ZEROS)
DETTABLE DS    CL10        REPORT NAME, 'RPTNATTRBS'
DETDEVCL DS    XL2         DEVICE CLASS
DETVOLNO DS    CL6         VOLUME SERIAL
DETADDRS DS    CL3         UNIT ADDRESS
DETSUBMD DS    C           SUB MODULE
DETDEVST DS    XL1         DEVICE STATUS
DETVOLST DS    XL1         VOLUME STATUS
DETDSOIS DS    H           ISAM DATA SET COUNT
DETDSOPS DS    H           PS DATA SET COUNT
DETDSODA DS    H           DA DATA SET COUNT
DETDSOPO DS    H           PO DATA SET COUNT
DETDSOAM DS    H           VSAM DATA SET COUNT
DETDSOOT DS    H           UNKNOWN DATA SET COUNT
DETDSTOT DS    H           TOTAL DATA SETS
DETDSCBV DS    H           DSCB COUNT
DETDSCBA DS    H           ALLOCATED DSCB COUNT
DETDEVTK DS    XL4         TOTAL TRACKS FOR DEVICE
DETALOTK DS    XL4         TOTAL TRACKS ALLOCATES
DETALPCT DS    H           PERCENT ALLOCATED
DETSMS   DS    CL4         SMS VOLUME STATUS
DETRECLN EQU   * DETREC    LENGTH OF RECORD, 60 BYTES
*
```

Table Used to Print ATTRIBS Report

```
MEMBER = RPTNATTR
    'C1  058052001132'
    'H113132   001'
    'H1 K007   122     PAGE '
    'H1 N004   129   PAGE NO'
    'H1 K047   043   V O L U M E   A T T R I B U T E   S U M M A R Y'
    'H2 4132   001'
    'H3 K001   001132'
    'H4 K039   009   DEVICE UNIT  SMS    MOUNT    ALLOCATION'
    'H4 K039   050   ---------DATA SET ORGANIZATION---------'
    'H4 K009   092   --TOTAL--'
    'H4 K013   104   ----DSCBS----'
    'H4 K013   120   ---TRACKS----'
    'H5 K006   001   VOLUME'
    'H5 K004   010   TYPE'
    'H5 K031   016   ADDR  STAT   STATUS   ATTRIBUTE'
    'H5 K037   052   PS     DA     PO     IS     AM     UN'
    'H5 K009   092   DATA SETS'
    'H5 K013   104   VTOC    ALLOC'
    'H5 K013   120   DEVICE  ALLOC'
    'H6 K040   001   ------  ------ ----  ----  --------  ---'
    'H6 K040   041   -----    -------------------------------'
    'H6 K040   081   --------   ---------   -------------   -'
    'H6 K012   121   ------------'
    'D1 C006003001      SER'
    'D1 R002001009      DEVICE TYPE'
    'D1 C004009016      ADDRESS'
    'D1 K001   020    '
    'D1 C004043022      SMS STATUS'
    'D1 1001013028      MOUNT STAT'
    'D1 2001014039      ALLOC ATTRIB'
    'D1 H002017049005Z  PS'
    'D1 H002019056005Z  DA'
    'D1 H002021063005Z  PO'
    'D1 H002015070005Z  IS'
    'D1 H002023077005Z  AM'
    'D1 H002025084005Z  UN'
    'D1 H002027094005Z  DATA SETS'
    'D1 H002029104006Z  VTOC'
    'D1 H002031111006Z  ALLOC'
    'D1 F004033120006Z  DEVICE'
    'D1 F004037127006Z  ALLOC'
    'T1 K040   001   ----------------------------------------'
    'T1 K040   041   ----------------------------------------'
    'T1 K040   081   ----------------------------------------'
    'T1 K012   121   ------------'
    'T2 K010   001   TOTAL VOLS'
    'T2 A000000012004Z  VOL CNT'
```

```
'T2 K006   035   TOTALS'
'T2 A000017048006Z  PS CNT'
'T2 A000019055006Z  DA CNT'
'T2 A000021062006Z  PO CNT'
'T2 A000015069006Z  IS CNT'
'T2 A000023076006Z  AM CNT'
'T2 A000025083006Z  UN CNT'
'T2 A000027093006Z  DS CNT'
'T3 K040   001   ----------------------------------------'
'T3 K040   041   ----------------------------------------'
'T3 K040   081   ----------------------------------------'
'T3 K012   121   ------------'
'T4 K016   085   TOTAL DSCBS VTOC'
'T4 A000029104006Z  DSCBS IN VTOC'
'T5 K005   097   ALLOC'
'T5 A000031111006Z  DSCBS ALLOCATED'
'T6 K040   001   ----------------------------------------'
'T6 K040   041   ----------------------------------------'
'T6 K040   081   ----------------------------------------'
'T6 K012   121   ------------'
'T7 K023   091   TOTAL TRACKS PER DEVICE'
'T7 A004033117009Z  DEVICE'
'T8 K005   104   ALLOC'
'T8 A004037124009Z  ALLOC CNT'
```

Report Record Format — (RPTNBMVDIC)

B-FORM MVDICT Report

```
BMVDIC
*
*     Mapping of report record used to print B-FORM of MULTIPLE
*     VOLUME DICTIONARY report with owner/project
*     Note: The RPTDSORG field has
*        1. X'02' for PDS and X'FE' for PDSE
*        2. X'40' for PS and X'FC' for PSE
*
BMVDREC  DS   0F            B FORM OF MVD REPORT (BMVD)
RPTBRDW  DS    2H
RPTBTABL DC    CL10'RPTNBMVDIC'
RPTBOWNR DS    CL20         OWNER
RPTBPROJ DS    CL06         PROJECT NUMBER
RPTBINFO DS   0CL86
RPTDSNAM DS    CL44         DATA SET NAME
RPTVOLNO DS    CL6          VOLUME SERIAL
RPTDEVCL DS    XL2          DEVICE CLASS
RPTDSORG DS    XL2          DSORG
RPTRECFM DS    XL1          RECFM
RPTBLKSI DS    XL2          BLOCKSIZE
RPTLRECL DS    XL2          LRECL
RPTSCALO DS    XL1          SECONDARY ALLOCATION
RPTSCQTY DS    XL3          AMOUNT OF SECONDARY ALLOCATION
RPTTKSUM DS    XL3          TOTAL TRACKS ALLOCATED
RPTCREDT DS    XL3          CREATION DATE
RPTEXPDT DS    XL3          EXPIRATION DATE
RPTDSIND DS    XL1          SECURITY
RPTPRMAL DS    XL2          PRIMARY ALLOCATION
RPTIDLET DS    XL2          IDLE TRACKS
RPTVOLAD DS    CL4          VOLUME ADDRESS
RPTCATLG DS    CL1          CATALOG STATUS
RPTLUSDT DS    XL3          LAST USED DATE
RPTNOEXT DS    XL1          NUMBER OF EXTENTS
```

Table Used to Print MVDICT Report

```
MEMBER = RPTNBMVD
     'C1  058051001132116020'
     'H113132   001   STANDARD HEADER - LINE 1'
     'H1 K007   122     PAGE '
     'H1 N004   130'
     'H1 K032   032   M U L T I P L E   V O L U M E   '
     'H1 K038   064   D A T A   S E T   D I C T I O N A R Y'
     'H2 4132   001   STANDARD HEADER - LINE 2'
     'H3 K001   001132'
     'H4 K005   001   OWNER'
     'H4 C020001008      OWNER'
     'H5 K006   034   DEVICE'
     'H5 K004   052   DATA'
     'H5 K029   081   —-ALLOCATION—-  —TRACKS—-'
     'H6 K013   001   DATA SET NAME'
     'H6 K035   027   VOLUME  TYPE   PROJ  CAT PROT DSORG'
     'H6 K029   063   RECFM BLKSZ LRECL  TYPE  PRIM'
     'H6 K016   094   SEC  ALLOC  IDLE'
     'H6 K021   112   EXT CREDT EXPDT USEDT'
     'H7 K040   001   ————————————- ——— ——— '
     'H7 K040   041   ——— —- —— ——- ——- ——- ——- '
     'H7 K040   081   ————————  ——————-  —- ——-'
     'H7 K012   121    ——- ——-'
     'D1 C044027001025   DSN'
     'D1 C006071027      VOL'
     'D1 C001108049      CAT'
     'D1 E001099053      SEC'
     'D1 R002077034      DEVICE TYPE'
     'D1 C006021041      PROJECT NUMBER'
     'D1 V002079058      DSORG'
     'D1 W001081064      RECFM'
     'D1 H002082069005Z  BLKSIZE'
     'D1 H002084075005Z  LRECL'
     'D1 U001086082003   ALLO TYPE'
     'D1 H002100086005Z  ALLO PRI'
     'D1 B003087092005Z  ALLO SEC'
     'D1 B003090099005Z  ALLO SUM'
     'D1 H002102105005Z  ALLO IDL'
     'D1 B001112112003Z  EXT NO'
     'D1 Y002093116      CREATE'
     'D1 Y002096122   Z  EXPIRE'
```

```
'D1 Y003109128   Z  LAST USED'
'T1 K040   001   ____________________'
'T1 K040   041   ____________________'
'T1 K040   081   ____________________'
'T1 K012   121   ______'
'T2 K015   010   TOTAL DATA SETS'
'T2 A000000026007Z  COUNTER'
'T2 K022   072   TOTAL ALLOCATED TRACKS'
'T2 A000091095009Z  ACCUMULATOR'
'T3 K017   072   TOTAL IDLE TRACKS'
'T3 A000102101009Z  ACCUMULATOR'
```

Report Record Format — (RPTNDEVDSB)

BIlling Device Report

```
DEVDSB
*
*     Mapping of report record used to print BILLING DEVICE
*     report
*
DEVREC   DS   0F
         DC    H'84,0',CL10'RPTNDEVDSB'
DEVENTRY DS   0CL56
DEVCLASS DS    XL2          DEVICE CLASS
DEVOLCNT DS    H            VOLUME COUNT
DEVDSCNT DS    F            DATA SET COUNT
DEVACCUM DS    F            ACCUMULATED AMOUNT FOR DEVICE
DEVTOTAL DS    F            TOTAL $ AMOUNT FOR DEVICE
DEVDESCR DC    CL40' '      DESCRIPTION
DEVUNITS DC    CL9'K/B DAYS '  or   CL9'TRK DAYS '
DSBRELSE DC    CL6' '       RELEASE 9.9 = C'   9.9'
```

Table Used for Printing Billing Device Report

```
MEMBER = RPTNDEVD
     'C1  058053001132'
     'H113132   001   STANDARD HEADER - LINE 1'
     'H1 K010   123             '
     'H1 K011   071     PAGE     '
     'H1 N004   079'
     'H1 K042   028          DASD BILLING BY DEVICE TYPE
     'H2 4132   001   STANDARD HEADER - LINE 2'
     'H2 K013   120                '
     'H2 K006   070   SAMS:Disk'
     'H2 C006066076   RELEASE NO'
     'H3 K001   001132'
     'H4 K011   001   DEVICE TYPE'
     'H4 K007   035   VOLUMES'
     'H4 K009   045   DATA SETS'
     'H4 C009057058      K/B TRK M/B'
     'H4 K012   070   TOTAL CHARGE'
     'H5 K040   001   ________________    ___'
     'H5 K041   041   -   ____-    ____    ______
     'D1 C040017001030   DESCRIPTION'
     'D1 H002003034005Z  VOLUME CNT'
     'D1 F004005047005Z  DATA SET CNT'
     'D1 F004009056010Z  K/B TRK M/H'
     'D1 $004013069011Z  TOTAL CHR'
     'T1 K040   001   ______________________'
     'T1 K041   041   ______________________-
     'T2 K013   001   TOTAL DEVICES'
     'T2 A000   015004Z TOTAL DEVICES'
     'T2 K013   022   TOTAL VOLUMES'
     'T2 A002003035004Z DSN CNT'
     'T3 K015   022   TOTAL DATA SETS'
     'T3 A004005046006Z DSN CNT'
     'T4 K005   022   TOTAL'
     'T4 C008057028     K/B TRK'
     'T4 A004009055011Z K/B CNT'
     'T5 K013   022   TOTAL CHARGES'
     'T5 A004013070012$ CHRG CNT'
```

Report Record Format — (RPTNDISTRS)

Volume Distribution Summary Report

```
DISTRS
*
*     Mapping of report record used to print VOLUME
*     DISTRIBUTION report
*
DETREC   DS    0F
DETCONLN DS    H            RECORD LENGTH, 74 BYTES
         DS    H            (FILLER, ZEROS)
DETTABLE DS    CL10         REPORT NAME, 'RPTNDISTRS'
DETTYPE  DS    XL2          DEVICE TYPE
DETSERAL DS    CL6          VOLUME SERIAL
DETDSCB0 DS    H            DSCB 0 COUNT
DETLT1   DS    H            COUNT OF DATA SETS OF   1 TRACK
DETLT51  DS    H            COUNT OF DATA SETS LT  51 TRACKS
DETLT126 DS    H            COUNT OF DATA SETS LT 126 TRACKS
DETLT301 DS    H            COUNT OF DATA SETS LT 301 TRACKS
DETGT300 DS    H            COUNT OF DATA SETS GT 300 TRACKS
         DS    H            (FILLER)
DETDEVTK DS    XL4          TRACKS PER DEVICE
DETTKALC DS    XL4          TRACKS ALLOCATED
DETTKAVL DS    XL4          TRACKS AVAILABLE
DETFREXT DS    XL2          FREE EXTENTS
DETTKIDL DS    XL4          TRACKS IDLE
DETFRSPL DS    XL4          1ST LARGEST FREE SPACE
DETFRSPS DS    XL4          2ND LARGEST FREE SPACE
DETFRSPT DS    XL4          3RD LARGEST FREE SPACE
DETVOLAD DS    CL4          VOLUME ADDRESS
DETSMS   DS    CL4          SMS VOLUME STATUS
DETRECLN EQU   * DETREC     LENGTH OF RECORD, 74 BYTES
*
```

Table Used for Printing DISTRS Report

```
MEMBER = RPTNDIST
    'C1  058052001132'
    'H113132   001   STANDARD HEADER - LINE 1'
    'H1 K007   122     PAGE '
    'H1 N004   129   PAGE NO'
    'H1 K040   039   V O L U M E   D I S T R I B U T I O N   '
    'H1 K013   079   S U M M A R Y'
    'H2 4132   001   STANDARD HEADER - LINE 2'
    'H3 K001   001132'
    'H4 K015   008   DEVICE UNIT SMS'
    'H4 K004   026   FREE'
    'H4 K035   033   --DISTRIBUTION BY SIZE OF DATA SET-'
    'H4 K033   071   --------------TRACKS-------------'
    'H4 K027   106   ---------FREE SPACE--------'
    'H5 K006   001   VOLUME'
    'H5 K015   009   TYPE  ADDR STAT'
    'H5 K005   026   DSCBS'
    'H5 K035   033   ZERO    1-50  51-125 126-300  301->'
    'H5 K033   071   DEVICE    ALLOC    AVAIL     IDLE'
    'H5 K023   106   EXTENTS   THREE LARGEST'
    'H6 K040   001   ------ ------ ---- ----  -----  --------'
    'H6 K040   041   ---------------------------   ----------'
    'H6 K040   081   -----------------------  ---------------'
    'H6 K012   121   ------------'
    'D1 R006001008      DEV TYPE'
    'D1 C006003001      SER'
    'D1 C004053015      ADDR'
    'D1 C004057020      SMS STAT'
    'D1 H002009026005Z  BLANK DSCBS'
    'D1 H002011032005Z  0'
    'D1 H002013040005Z  1-50'
    'D1 H002015048005Z  51-125'
    'D1 H002017056005Z  126-300'
    'D1 H002019063005Z  GR 300'
    'D1 F004023071006Z  TRK DEV'
    'D1 F004027080006Z  TRK ALLOC'
    'D1 F004031089006Z  TRK AVAIL'
    'D1 F004037098006Z  IDLE'
    'D1 H002035106005Z  EXT'
    'D1 F004041113006Z  L'
    'D1 F004045120006Z  S'
    'D1 F004049127006Z  T'
    'T1 K040   001   ----------------------------------------'
    'T1 K040   041   ----------------------------------------'
    'T1 K040   081   ----------------------------------------'
    'T1 K012   121   ------------'
    'T2 K010   001   TOTAL VOLS'
    'T2 A000000012004Z  VOL CNT'
```

```
'T2 A000009024007Z  BLANK DSCB CNT'
'T2 A000011031006Z  ZERO CNT'
'T2 A000013038007Z  TO 50 CNT'
'T2 A000015046007Z  TO 125 CNT'
'T2 A000017054007Z  TO 300 CNT'
'T2 A000019062006Z  GT 300 CNT'
'T2 A004023068009Z  TRKS TOTAL'
'T2 A004027077009Z  TRKS ALLOC'
'T2 A004031086009Z  TRKS AVAIL'
'T2 A004037095009Z  TRKS IDLE'
'T2 A000035104007Z  EXT CNT'
```

Report Record Format — (RPTNDSNDSB)

Billing by User Code

```
DSNDSB
*
* Mapping of report record used to print BILLING BY USER CODE
*
DETREC   DS   0F
         DC    H'159,0',CL10'RPTNDSNDSB'
DETDSBLR DS   0CL86
DETUSRCD DS    CL12         USER CODE
DETVOLNO DS    CL6          VOLUME SERIAL
DETDSNAM DS    CL44         DATA SET NAME
DETACCUM DS    F            ACCUMULATE AMOUNT
DETNOSCN DS    H            NUMBER OF SCANS
DETCREDT DS    XL3          CREATION DATE
DETSCNDT DS    XL3          LAST SCAN DATE
DETUSEDT DS    XL3          LAST USED DATE
DETFLAGS DS    XL1          FLAGS
DETDEVCL DS    XL2          DEVICE CLASS
DETALLOC DS    H            CURRENT TRACKS ALLOCATED
DETMAXUS DS    H            LARGEST NUMBER OF TRKS ALLOCATED
         DS    H
DETRATE  DS    F            BILLING RATE
DETCOST  DS    F            COST
DETNOSCR DS    H            NUMBER OF TIMES SCRATCHED
DETUSRDS DS    CL40         USER DESCRIPTION
DETUNITS DS    CL9          BILLING UNITS
```

Table Used for Printing Billing by User Code

```
MEMBER = RPTNDSND
     'C1  058050001132147012'
     'H113132   001   STANDARD HEADER - LINE 1'
     'H1 K049   043 D A S D  B I L L I N G   B Y   U S E R
     'H1 K007   122     PAGE '
     'H1 N004   129   PAGE NO'
     'H2 4132   001   STANDARD HEADER - LINE 2'
     'H3 K001   001132'
     'H4 K011   001   USER CODE -'
     'H4 C012001013      CODE'
     'H4 K013   030   DESCRIPTION -'
     'H4 C040097044      DESCRIPTION'
     'H5 K001   001132'
     'H6 K006   043   DEVICE'
     'H6 K015   081   ——-TRACKS——'
     'H7 K013   001   DATA SET NAME'
     'H7 K026   033   VOLUME     TYPE   CREDATE '
     'H7 K026   060   USEDATE   LAST SCAN  ALLOC'
     'H7 K008   088   MAX USED'
     'H7 K016   108   RATE            '
     'H7 C009137097   K/B TRK'
     'H7 K006   127   AMOUNT'
     'H8 K040   001   ———————————————    ———  '
     'H8 K040   041     ———  ———— ————  —————-  '
     'H8 K040   081   ——-  ————  ————  ——  ———-'
     'H8 K012   121   —-   ———'
     'D1 C044019001028   DSN'
     'D1 C006013033      VOL'
     'D1 R002079043      DEVICE'
     'D1 J003069051   Z  CREATE'
     'D1 J003075060   Z  LAST USE'
     'D1 J003072070   Z  LAST SCAN'
     'D1 H002081081005Z  TRKS ALLOCATED'
     'D1 H002083091005Z  MAX USED'
     'D1 F004063097009Z  K/B TRK M/H'
     'D1 F004087107006   RATE'
     'D1 $004091123010   AMOUNT'
     'T1 K040   001   ————————————————————'
     'T1 K040   041   ————————————————————'
     'T1 K040   081   ————————————————————'
     'T1 K012   121   ————————'
     'T2 K015   005   TOTAL DATA SETS'
     'T2 A000000021005Z DSN CNT'
     'T2 K022   057   TOTAL ALLOCATED TRACKS'
     'T2 A000081080010Z ALLOCATED TRK CNT'
     'T3 K005   057   TOTAL'
     'T3 C008138063   K/B TRK'
     'T3 A004063094012Z K/B CNT'
```

```
'T4 K012   057   TOTAL AMOUNT'
'T4 A004091121012$ AMT CNT'
```

Report Record Layout — (RPTNDSNX)

```
'C   058051001127128'
'H113132   001   STANDARD HEADER - LINE 1'
'H1 K041   045   X C O P Y   D A T A   S E T   S T A T U S'
'H1 K007   122     PAGE '
'H1 N004   129   PAGE NO'
'H2 4132   001   STANDARD HEADER - LINE 2'
'H3 K001   001132 '
'H4 K025   054   ------OLD---------   KILO'
'H4 K005   084   BLOCK'
'H4 K006   099   ACTION'
'H4 K024   108    -------NEW------ OUTPUT'
'H5 K013   001   DATA SET NAME'
'H5 K036   045   ARCDATE  KEY    FILE  BLOCK   BYTES '
'H5 K020   084   COUNT EXPDATE  TAKEN'
'H5 K024   108   KEY    FILE  BLOCK    DD'
'H7 K040   001   ----------------------------------------'
'H7 K040   041   --- -------- ------------------   ----- '
'H7 K040   081      ----- -------- -------  -------------'
'H7 K011   121   ----- -----'
'H607008115001     SIMULATE'
'D1 C044003001038   DSNAME'
'D1 J003057045      ARCDT'
'D1 C006085054      VOLSER'
'D1 H002073060005Z  FILE NO'
'D1 F004075065007Z  BLOCK'
'D1 F004079073007Z  BYTES'
'D1 H002083082005Z  BLOCKS'
'D1 J003060090      EXPDT'
'D1 C008093099      ACTION'
'D1 C006101108      VOLSER'
'D1 H002111114005Z  FILE NO'
'D1 F004107119007Z  BLOCK'
'D1 C001113131      DEVICE'
```

Record Report Format

```
*
* REPORT RECORD FOR COPY DSNINDEX PROCESSING
*
         DS    0F
RPTREC   DS    0CL136
RPTLEN   DS    H,H
RPTNAME  DS    CL12                    RPTDSNXCP
RPTLRDSN DS    CL90                    USE ONLY THE FIRST 90 BYTES
DISPOSIT DS    CL8
RPTARKEY DS    CL6
RPTBLKNO DS    F
RPTFILNO DS    H
RPTTUNIT DS    AL1
         DS    X
RPTSIM   DS    CL8
```

Report Record Layout — (RPTNVOLX)

```
'C   058048001132150'
'H113132   001   STANDARD HEADER - LINE 1'
'H1 K037   047   X C O P Y   V O L U M E   S T A T U S'
'H1 K007   122     PAGE '
'H1 N004   129   PAGE NO'
'H2 4132   001   STANDARD HEADER - LINE 2'
'H3 K001   001132 '
'H4 K036   052           ---------ORIGINAL----------'
'H4 K027   106   -----------COPIED----------'
'H5 K011   001   ARCHIV  VOL'
'H5 K004   061   DATA'
'H5 K005   069   BLOCK'
'H5 K004   077   KILO'
'H5 K002   085   NO'
'H5 K004   106   DATA'
'H5 K005   114   BLOCK'
'H5 K004   122   KILO'
'H5 K002   130   NO'
'H6 K026   001   KEY     CNT  DATA SET NAME'
'H6 K007   052   EXPDATE'
'H6 K042   061   SETS    COUNT   BYTES  FEET   ACTION TAKEN'
'H6 K027   106   SETS    COUNT   BYTES  FEET'
'H7 K040   001   ------  ---  ---------------------------'
'H7 K040   041   ---------- -------- --------------------'
'H7 K040   081   -------   ------------   ---------------'
'H7 K012   121   ------------'
'H807008137001     SIMULATE'
'D1 C006003001      VOLSER'
'D1 B001099010001   VOLCOUNT'
'D1 C044033014037   VOLDSNAM'
'D1 J003094052      VOLEXPDT'
'D1 H002077060005Z  VOLDSCNT'
'D1 F004079066007Z  VOLBKCNT'
'D1 F004083074007Z  VOLBYCNT'
'D1 H002097082005Z  VOLFEET'
'D1 H002117105005Z  NEWDSCNT'
'D1 F004119112007Z  NEWBKCNT'
'D1 F004123120007Z  NEWBYCNT'
'D1 H002115128005Z  NEWFEET'
'D1 C008127091      ACTION TAKEN'
```

Report Record Format

```
*
** XCOPY VOLUME REPORT RECORD
*
RPTREC   DS    0F
         DS    H,H
RPTNAME  DS    CL12                      RPTNVOLXCP
RPTLRVOL DS    CL110
         DS    H
UNEXFEET DS    H
UNEXFILE DS    H
UNEXBLKS DS    F
UNEXBYTS DS    F
DISPOSIT DS    CL8
         DS    H
RPTSIM   DS    CL8
RPTLENTH EQU   *-RPTREC
```

Report Record Format — (RPTNDSINDX)

Data Set Index Report

```
DSINDX
*
*     Mapping of report record used to print DATA SET INDEX
*     Report
RPTBUILD DS   0F
         DC    H'86,0'
RPTTABLE DC    CL10'RPTNDSINDX'
RPTDSNAM DC    CL44         DATA SET NAME
RPTVOLNO DC    CL6          VOLUME SERIAL
RPTDEVCL DC    XL2          DEVICE CLASS
RPTDSORG DC    XL2          DSORG
RPTRECFM DC    XL1          RECFM
RPTBLKSI DC    XL2          BLOCKSIZE
RPTLRECL DC    XL2          LRECL
RPTSCALO DC    XL1          ALLOCATION
RPTSCQTY DC    XL3          SECONDARY QUANTITY
RPTTKSUM DC    XL3          TOTAL TRACKS ALLOCATED
RPTCREDT DC    XL3          CREATION DATE
RPTEXPDT DC    XL3          EXPIRATION DATE
```

Table Used for Printing Data Set Index Report

```
MEMBER = RPTNDSIN
     'C1  058053003045086'
     'H113132   001   STANDARD HEADER - LINE 1'
     'H1 K007   122     PAGE '
     'H1 N004   130   PAGE NO'
     'H1 K027   053   D A T A   S E T   I N D E X'
     'H2 4132   001   STANDARD HEADER - LINE 2'
     'H3 K001   001132'
     'HC K013   001   DATA SET NAME'
     'HC K006   036   VOLUME'
     'H4 K045   001   ———————————————————-
     'H4 K045   046   ———————————————————-
     'H4 K045   091   ———————————————————-
     'D1 C044001001033   DSN'
     'D1 C006045036      VOL'
     'T1 K040   001   ———————————————————'
     'T1 K040   041   ———————————————————'
     'T1 K040   081   ———————————————————'
     'T1 K012   121   ———————'
     'T2 K015   015   TOTAL DATA SETS'
     'T2 A000000031009Z  DSN CNT'
```

Report Record Format — (RPTNDSUTIL)

Data Set Utilization Report

```
DSUTIL
*
*   Mapping of report record used to print DATA SET UTILIZATION
*   report
RPTBUILD DS   0F
         DC    H’127,0’
RPTTABLE DC    CL10’RPTNDSUTIL’
RPTDSNCF DC    CL8’ ’              1
RPTSQFLD DC    XL3’000000’         9
RPTDSN   DC    CL44’ ’            12
RPTVOL   DC    CL6’ ’             56
RPTCDATE DC    XL3’000000’        62
RPTEDATE DC    XL3’000000’        65
RPTOPENS DC    XL4’00000000’      68
RPTJOBNM DC    CL8’ ’             72
RPTTRKS  DC    XL2’0000’          80
RPTUSED  DC    XL2’0000’          82
RPTIDLE  DC    XL2’0000’          84
RPTLUPDT DC    XL3’000000’        86
RPTLUSED DC    XL3’000000’        89
RPTLUFLG DC    C’ ’               92
RPTCATLG DC    C’ ’               93
RPTSECTY DC    C’ ’               94
RPTOWNER DC    CL11’ ’            95
```

Table Used for Printing DSUTIL Report

```
MEMBER = RPTNDSUT
     ’C1  058052001132116008’
     ’H113132   001   STANDARD HEADER - LINE 1’
     ’H1 K007   122     PAGE ’
     ’H1 N004   129   PAGE NO’
     ’H1 K039   047   D A T A   S E T   U T I L I Z A T I O N’
     ’H2 4132   001   STANDARD HEADER - LINE 2’
     ’H3 K003   080   C P’
     ’H4 K004   001   FLAG’
     ’H4 K035   007   ——————DATES——————-’
     ’H4 K010   080   A R   OPEN’
     ’H4 K019   114   ———TRACKS———-’
     ’H5 K004   001   DAYS’
     ’H5 K035   007   USEDATE  MODDATE  CREDATE  EXPDATE ’
     ’H5 K013   043   DATA SET NAME’
     ’H5 K017   073   VOLUME T O  COUNT’
     ’H5 K007   098   JOBNAME’
```

```
'H5 K019   114   ALLOC   USED   IDLE'
'H6 K040   001   __  _________________'
'H6 K040   041   - ___________-  ___ ___ -'
'H6 K040   081   _  __-        ____        ___-'
'H6 K012   121   ______'
'D1 C001100003      USE'
'D1 J003089007      USEDT'
'D1 J003086016      MODDT'
'D1 J003062025      CREDT'
'D1 J003065034      EXPDT'
'D1 C044012043029   DSN'
'D1 C006056073      VOL'
'D1 C001093080      CAT'
'D1 E001094082      SEC'
'D1 F004068085005Z  OPENS'
'D1 C008072098      JOBNAME'
'D1 H002080113006Z  ALLOC'
'D1 H002082120006Z  USED'
'D1 H002084127006Z  IDLE'
'T1 K040   001   ____________________'
'T1 K040   041   ____________________'
'T1 K040   081   ____________________'
'T1 K012   121   ______'
'T2 K015   005   TOTAL DATA SETS'
'T2 A000000021005Z  DSN CNT'
'T2 K018   091   TOTAL TRACKS ALLOC'
'T2 A000080110009Z  ALLOC CNT'
'T3 K043   001   * - DATA SET HAS NOT BEEN USED WITHIN VALUE
'T3 K032   045   SPECIFIED IN FLAGDAYS PARAMETER.'
'T3 K004   104   USED'
'T3 A000082117009Z  USE CNT'
'T4 K041   001   $ - LAST USE DATE IS ZERO; VALUE SHOWN IS
'T4 K014   043   CREATION DATE.'
'T4 K004   104   IDLE'
'T4 A000084124009Z  IDLE CNT'
```

Report Record Format — RPTNDAYWEK

Utilization by Date and Time Report

```
SMFRPT
*
*     Mapping of Report record used to print UTILIZATION BY
*     DATE AND TIME REPORT
*
RECORD   DS   0CL76
DSNAME   DC    CL44’ ’   DATA SET NAME
VOLSER   DC    CL6’ ’    VOLUME SERIAL NUMBER
         DC    CL2       BLANKS
JOBTIME  DC    XL4’00’   DURATION OF JOB
JOBDATE  DS   0PL4       DATE (JULIAN) OF JOB RUN
         DC    PL1’0’
         DC    PL3’0’
SMFTIME  DC    XL4’00’   SMF JOB TIME
SMFDATE  DC    PL4       SMF (JULIAN) DATE OF JOB RUN
         DC    X’0’
START    DC    XL3’00’   START DATE
         DC    X’0’
STOP     DC    XL3’00’   STOP DATE
```

Table Used for Printing DAYWEK Report

```
  MEMBER = RPTNDAYW
’C1  058051’
’H113132   001   STANDARD HEADER - LINE 1’
  ’H1 K055   037   U T I L I Z A T I O N   B Y   D A T E   A N D ’,
  ’T I M E’
  ’H1 K007   122     PAGE ’
  ’H1 N004   129   PAGE NO’
  ’H2 4132   001   STANDARD HEADER - LINE 2’
  ’H3 K001   001132’
  ’H4 K011   064   DAY OF WEEK’
  ’H4 K021   098   H O U R   O F   D A Y’
  ’H5 K027   105   1 1 1 1 1 1 1 1 1 1 2 2 2 2’
  ’H6 K013   001   DATA SET NAME’
  ’H6 K006   046   VOLUME’
  ’H6 K019   060   S  M  T  W  T  F  S’
  ’H6 K047   085   0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3’
  ’H7 K040   001   ----------------------------------------’
  ’H7 K040   041   ---------------------------------------- ’
  ’H7 K040   081   ----------------------------------------’
  ’H7 K012   121   ----------- ’
  ’D1 C044001001      DSN’
  ’D1 C006045046      VOL’
```

```
'D1 C001051060      SUN'
'D1 C001052063      MON'
'D1 C001053066      TUE'
'D1 C001054069      WED'
'D1 C001055072      THR'
'D1 C001056075      FRI'
'D1 C001057078      SAT'
'D1 C001058085      0'
'D1 C001059087      1'
'D1 C001060089      2'
'D1 C001061091      3'
'D1 C001062093      4'
'D1 C001063095      5'
'D1 C001064097      6'
'D1 C001065099      7'
'D1 C001066101      8'
'D1 C001067103      9'
'D1 C001068105      10'
'D1 C001069107      11'
'D1 C001070109      12'
'D1 C001071111      13'
'D1 C001072113      14'
'D1 C001073115      15'
'D1 C001074117      16'
'D1 C001075119      17'
'D1 C001076121      18'
'D1 C001077123      19'
'D1 C001078125      20'
'D1 C001079127      21'
'D1 C001080129      22'
'D1 C001081131      23'
```

Report Record Format — (RPTNFREESP)

Volume Freespace Report

```
FREESP
*
*  Mapping of report record used to print FREESPACE report
*
DETREC   DS    0F
DETCONLN DS    H           RECORD LENGTH, 61 bytes
         DS    H           (FILLER   ZEROS)
DETTABLE DS    CL10        REPORT NAME 'RPTNFREESP'
DETDEVCL DS    XL2         DEVICE CLASS
DETVOLNO DS    CL6         VOLSER
DETBEGTK DS    XL4         BEGINNING TRACK
DETENDTK DS    XL4         ENDING TRACK
DETLENTK DS    XL4         TRACK COUNT
DETVOLAD DS    CL4         VOLUME UNIT ADDRESS
DETSMS   DS    CL21        SMS VOLUME STATUS
DETEXTNO DS    XL2         EXTENT NUMBER
DETRECLN EQU   * DETREC    LENGTH OF RECORD, 61 BYTES
```

Table Used to Print Volume Freespace Report

```
MEMBER = RPTNFREE
    'C1  058051008017090008'
    'H113132   001   STANDARD HEADER - LINE 1'
    'H1 K007   122     PAGE '
    'H1 N004   129   PAGE NO'
    'H1 K047   042   V O L U M E   F R E E   S P A C E   D E T A I L'
    'H2 4132   001   STANDARD HEADER - LINE 2'
    'H3 K001   001132'
    'H4 K006   001   VOLUME'
    'H4 C006003008      VOL NO'
    'H4 K006   016   DEVICE'
    'H4 R002001023      TYPE'
    'H4 K004   031   ADDR'
    'H4 C004021036      ADDRESS'
    'H4 K015   043   THIS VOLUME IS '
    'H4 C021025058021   SMS STATUS '
    'H5 K001   001132'
    'HC K013   001   TRACK     LEN'
    'H6 K040   001   -------------    -------------    ------'
    'H6 K040   041   -------    -------------    ------------'
    'H6 K040   081   -    -------------    -------------    -'
    'H6 K012   121   ------------'
    'D1 F004009001006Z  TRK'
    'D1 F004017008006Z  LEN'
    'T2 K040   001   ----------------------------------------'
    'T2 K040   041   ----------------------------------------'
    'T2 K040   081   ----------------------------------------'
    'T2 K012   121   ------------'
    'T3 K001   001132 '
    'T4 K017   014   TOTAL FREE TRACKS'
    'T4 A004017032009Z  FR SP CNT'
```

Report Record Format — (RPTNLAYOUT)

Volume Layout Report

```
LAYOUT
*
*     Mapping of report record used to print VOLUME LAYOUT
*     report
*
DETREC   DS    0F
DETCONLN DS    H            RECORD LENGTH, 106 BYTES
         DS    H            (FILLER, ZEROS)
DETTABLE DS    CL10         REPORT NAME 'RPTNLAYOUT'
DETDEVCL DS    XL2          DEVICE CLASS
DETVOLNO DS    CL6          VOLUME SERIAL
DETBEGTK DS    XL4          BEGINNING TRACK
DETENDTK DS    XL4          ENDING TRACK
DETLENTK DS    XL4          TRACK LENGTH
DETEXTNO DS    HL2          EXTENT NUMBER
DETDSNAM DS    CL44         DATA SET NAME
DETEXTYP DS    CL1          EXTENT TYPE
DETVOLAD DS    CL4          VOLUME ADDRESS
DETSMS   DS    CL21         SMS VOLUME STATUS
DETRECLN EQU   * DETREC     LENGTH OF RECORD, 106 BYTES
*
```

Table Used for Volume Layout Report

```
MEMBER = PRTNLAYO
    'C1  060051008017096008'
    'H113132   001   STANDARD HEADER - LINE 1'
    'H1 K007   122     PAGE '
    'H1 N004   129   PAGE NO'
    'H1 K026   053   V O L U M E   L A Y O U T '
    'H2 4132   001   STANDARD HEADER - LINE 2'
    'H3 K001   001132'
    'H4 K006   001   VOLUME'
    'H4 C006003008      VOL NO'
    'H4 K006   016   DEVICE'
    'H4 R002001023   DEVICE'
    'H4 K004   031   ADDR'
    'H4 C004068036      ADDRESS'
    'H4 K014   043   THIS VOLUME IS'
    'H4 C021072058021   SMS VOLUME STATUS '
    'H5 K015   001   D - DATA EXTENT'
    'H5 K019   020   S - SHARED CYLINDER'
    'H5 K014   043   F - FREE SPACE'
    'H5 K008   061   V - VTOC'
    'H6 K001   001132'
    'HC K017   001   TYP  LEN         '
    'H7 K040   001   --------         --------         ------'
    'H7 K040   041   --         --------         --------    '
    'H7 K040   081        --------         --------         -'
    'H7 K012   121   -------     '
    'D1 C001067001      TYPE'
    'D1 F004017003006Z  LEN'
```

Report Record Format — (RPTNMAPPER)

Volume Mapping Report

```
MAPPER
*
*     Mapping of report record used to print VOLUME MAPPING
*     report
*
DETREC   DS    0F
DETCONLN DS    H            RECORD LENGTH, 110 BYTES
         DS    H            (FILLER, ZEROS)
DETTABLE DS    CL10         REPORT NAME, 'RPTNMAPPER'
DETDEVCL DS    XL2          DEVICE CLASS
DETVOLNO DS    CL6          VOLUME SERIAL
DETBEGTK DS    XL4          BEGINNING TRACK
DETENDTK DS    XL4          ENDING TRACK
DETLENTK DS    XL4          TRACK COUNT
DETEXTNO DS    H            EXTENT NUMBER
DETDSNAM DS    CL44         DATA SET NAME
DETEXTYP DS    CL1          EXTENT TYPE
DETVOLAD DS    CL4          VOLUME ADDRESS
DETCCVAL DS    XL2          CC VALUE
DETHHVAL DS    XL2          HH VALUE
DETSMS   DS    CL21         SMS VOLUME STATUS
DETRECLN EQU   * DETREC     LENGTH OF RECORD, 110 BYTES
*
```

Table Used to Print Volume Mapping Report

```
MEMBER = RPTNMAPP
    'C1  058051002066100008'
    'H113132   001   STANDARD HEADER - LINE 1'
    'H1 K024   056   V O L U M E   M A P     '
    'H1 K007   122     PAGE '
    'H1 N004   129   PAGE NO'
    'H2 4132   001   STANDARD HEADER - LINE 2'
    'H3 K001   001132'
    'H4 K006   001   VOLUME'
    'H4 C006003008      VOL NO'
    'H4 K006   016   DEVICE'
    'H4 R002001023   DEVICE'
    'H4 K004   031   ADDR'
    'H4 C004068036      ADDRESS'
    'H4 K014   043   THIS VOLUME IS'
    'H4 C021076058      SMS STATUS'
    'H5 K001   001132'
    'HC K013   001   DATA SET NAME'
    'HC K002   043   CC'
    'HC K002   047   HH'
    'HC K005   051   TRACK'
    'HC K003   059   LEN'
    'HC K003   063   EXT'
    'H6 K040   001   ----------------------------------------'
    'H6 K040   041   ------------------------- --------------'
    'H6 K040   081   ----------------------------------------'
    'H6 K011   121   -----------'
    'D1 C044023001040   DSN'
    'D1 X002072042004   CC'
    'D1 X001075047004   HH'
    'D1 F004009050006Z  TRK'
    'D1 F004017057006Z  LEN'
    'D1 H002021063003Z  EXT NO'
```

Report Record Format — (RPTNMEMBER)

PDS Directory / Member Report

```
MEMBER
*
*     Mapping of report record used to print MEMBER report
*
MEMREC   DS   0F
         DC    H'74'
         DS    H
MEMTBLNM DC    CL10'RPTNMEMBER'
MEMDSN   DS    CL44         DATA SET NAME
MEMVOL   DS    CL6          VOLUME
MEMNAME  DS    CL8          MEMBER NAME
MEMALIAS DS    C            ALIAS
MEMRENT  DS    C            RE-ENTRANT
```

Table Used to Print MEMBER Report

```
MEMBER = RPTNMEMB
    'C1  058051010013066050'
    'H113132   001   STANDARD HEADER - LINE 1'
    'H1 K059   036   P A R T I T I O N E D   D A T A   S E T   D I R E',
    ' C T O R Y'
    'H1 K007   122     PAGE '
    'H1 N004   129   PAGE NO'
    'H2 4132   001   STANDARD HEADER - LINE 2'
    'H3 K001   001132'
    'H4 K013   001   DATA SET NAME'
    'H4 C044001016       DSN'
    'H4 K006   062   VOLUME'
    'H4 C006045069      VOL'
    'H4 K006   077   DEVICE'
    'H4 R002061084   DEVICE'
    'H4 K004   092   ADDR'
    'H4 C004063098      ADDRESS'
    'H5 K001   001132'
    'HC K006   002   MEMBER'
    'H7 K040   001   --------     --------     --------     -'
    'H7 K040   041   -------     --------     --------     --'
    'H7 K040   081   ------     --------     --------     ---'
    'H7 K012   121   -----       '
    'D1 C008051001    MBR'
    'D1 C001059010    ALIAS'
    'T2 K040   001   ----------------------------------------'
    'T2 K040   041   ----------------------------------------'
    'T2 K040   081   ----------------------------------------'
    'T2 K012   121   ------------'
    'T4 K013   015   TOTAL MEMBERS'
    'T4 A000000029006Z  MBR CNT'
```

Report Record Format — (RPTNMVDICT)

Multiple Volume Data Set Dictionary Report

```
MCDICT
*
*     Mapping of report record used to print MULTIPLE VOLUME
*     DATA SET DICTIONARY report
*
*
RPTBUILD DS   0F
         DC    H’100,0’
RPTTABLE DC    CL10’RPTNMVDICT’
RPTAINFO DS   0CL86
RPTDSNAM DS    CL44         DATA SET NAME
RPTVOLNO DS    CL6          VOLUME SERIAL
RPTDEVCL DS    XL2          DEVICE CLASS
RPTDSORG DS    XL2          DSORG
RPTRECFM DS    XL1          RECFM
RPTBLKSI DS    XL2          BLOCKSIZE
RPTLRECL DS    XL2          LRECL
RPTSCALO DS    XL1          SECONDARY ALLOCATION, (TRK CYL)
RPTSCQTY DS    XL3          AMOUNT OF SECONDARY ALLOCATION
RPTTKSUM DS    XL3          TOTAL TRACKS ALLOCATED
RPTCREDT DS    XL3          CREATION DATE
RPTEXPDT DS    XL3          EXPIRATION DATE
RPTDSIND DS    XL1          SECURITY
RPTPRMAL DS    XL2          PRIMARY ALLOCATION
RPTIDLET DS    XL2          IDLE TRACKS
RPTVOLAD DS    CL4          VOLUME ADDRESS
RPTCATLG DS    CL1          CATALOG STATUS
RPTLUSDT DS    XL3          LAST USED DATE
RPTNOEXT DS    XL1          NUMBER OF EXTENTS
```

Table Used to Print MVDICT Report

```
MEMBER = RPTNMVDI
    ’C1  058052001132090’
    ’H113132   001’
    ’H1 K007   122     PAGE ’
    ’H1 N004   129’
    ’H1 K032   033   M U L T I P L E   V O L U M E   ’
    ’H1 K038   065   D A T A   S E T   D I C T I O N A R Y’
    ’H2 4132   001’
    ’H3 K003   048   C P’
    ’H4 K015   036   DEVICE UNIT A R’
    ’H4 K031   074   ---ALLOCATION-- ----TRACKS-----’
    ’H5 K013   001   DATA SET NAME’
```

```
'H5 K006   029   VOLUME'
'H5 K011   036   TYPE   ADDR'
'H5 K007   048   T O DSO'
'H5 K026   056   RECFM BLKSZ LRECL TYP PRIM'
'H5 K016   084   SEC   ALLOC IDLE'
'H5 K030   102   EXT CREDATE  EXPDATE  USEDATE '
'H6 K040   001   ---------------------------- ------ -----'
'H6 K040   041   - ---- --- --- ----- ----- ----- --- ---'
'H6 K040   081   -------- --------------- ---------------'
'H6 K012   121   ------------'
'D1 C044001001027   DSN'
'D1 C006045029      VOL'
'D1 R002051036      DEVICE TYPE'
'D1 C004078043      ADDRESS'
'D1 C001082048      CAT'
'D1 E001073050      SEC'
'D1 V002053052      DSORG'
'D1 W001055056      RECFM'
'D1 H002056062005Z  BLKSIZE'
'D1 H002058068005Z  LRECL'
'D1 U001060074003   ALLO TYPE'
'D1 H002074078005Z  ALLO PRI'
'D1 B003061084005Z  ALLO SEC'
'D1 B003064090005Z  ALLO SUM'
'D1 H002076096005Z  ALLO IDL'
'D1 B001086102003Z  EXT NO'
'D1 J002067106   Z  CREATE'
'D1 J002070115   Z  EXPIRE'
'D1 J003083124   Z  LAST USED'
'T1 K040   001   ----------------------------------------'
'T1 K040   041   ----------------------------------------'
'T1 K040   081   ----------------------------------------'
'T1 K012   121   ------------'
'T2 K015   010   TOTAL DATA SETS'
'T2 A000000026007Z  COUNTER'
'T2 K022   063   TOTAL ALLOCATED TRACKS'
'T2 A000065086009Z  ACCUMULATOR'
'T3 K017   063   TOTAL IDLE TRACKS'
'T3 A000076092009Z  ACCUMULATOR'
```

Report Record Format — (RPTNPDSTAT)

Partitioned Data Set Status Report

```
PDSTAT
*
*     Mapping of report record used to print PARTITIONED DATA
*     SET STATUS report
*
DETPDSTB DS   0F
         DC    H'92,0'             record length
DETTABLE DC    CL10'RPTNPDSTAT'
DETDSNAM DS    CL44         DATA SET NAME
DETDEVIC DS    XL2          DEVICE CLASS
DETVOLSR DS    CL6          VOLSER
DETEXTNT DS    XL1          NUMBER OF EXTENTS
DETTRKAL DS    XL2          TRACKS REQUESTED WHEN CREATED
DETTRKUS DS    XL2          TRACKS USED
DETTRKID DS    XL2          TRACKS IDLE
DETDIRAL DS    XL2          DIRECTORY BLOCKS ALLOCATED
DETDIRUS DS    XL2          DIRECTORY BLOCKS USED
DETDIREM DS    XL2          DIRECTORY BLOCKS EMPTY
DETMBRCU DS    XL2          MEMBER COUNT
DETMBRPO DS    XL2          MEMBER LIMIT
DETMBRGR DS    XL2          AVAILABLE ENTRIES
DETMBLEN DS    XL2          ENTRY LENGTH
DETALPRI DS    XL2          TRACKS ALLOCATED
DETALSEC DS    XL2          SECONDARY ALLOCATION
DETALTYP DS    XL1          ALLOCATION TYPE
```

Table Used to Print PDS Status Report

```
MEMBER = RPTNPDST
     'C1  058052001132092'
     'H113132   001   STANDARD HEADER - LINE 1'
     'H1 K007   122     PAGE '
     'H1 N004   130'
     'H1 K052   040   P A R T I T I O N E D   D A T A   S E T
 S T A T U S'
     'H2 4132   001   STANDARD HEADER - LINE 2'
     'H3 K001   001132'
     'H4 K006   038   DEVICE'
     'H4 K016   045   —SPACE REQUEST-'
     'H4 K017   063   ——-TRACKS———'
     'H4 K018   089   -DIRECTORY BLOCKS-'
     'H4 K022   111   —DIRECTORY ENTRIES—-'
     'H5 K013   001   DATA SET NAME'
     'H5 K006   030   VOLUME'
```

```
'H5 K004   039   TYPE'
'H5 K004   045   TYPE'
'H5 K004   051   PRIM''
'H5 K003   058   SEC'
'H5 K005   063   ALLOC'
'H5 K004   070   USED'
'H5 K004   076   IDLE'
'H5 K003   083   EXT'
'H5 K005   089   ALLOC'
'H5 K004   096   USED'
'H5 K004   103   IDLE'
'H5 K005   111   ALLOC'
'H5 K004   118   USED'
'H5 K004   124   IDLE'
'H5 K003   130   LEN'
'H6 K040   001   ______________ ___  _-'
'H6 K040   041   _- ________  ________- '
'H6 K040   081     _-   _________    _____'
'H6 K012   121   ______'
'D1 C044001001     DSNAME'
'D1 C006047030     VOLSER'
'D1 R006045038     DEVICE'
'D1 U001078046003  ALLOC TYPE'
'D1 H002074050005Z ALLOC PRIM'
'D1 H002076056005Z ALLOC SEC'
'D1 H002054063005Z TRKS ALLOC'
'D1 H002056069005Z TRKS USED'
'D1 H002058075005Z TRKS IDLE'
'D1 B001053084002Z EXTENTS'
'D1 H002060089005Z DIR BLKS ALLOC'
'D1 H002062095005Z DIR BLKS USED'
'D1 H002064102005Z DIR BLKS - IDLE'
'D1 H002068111005Z MBR LIMIT - ALLOC'
'D1 H002066117005Z MBR - CURRENT - USED'
'D1 H002070123005Z MBR - GROWTH - IDLE'
'D1 H002072130003Z AVE LEN'
'T1 K040   001   ____________________'
'T1 K040   041   ____________________'
'T1 K040   081   ____________________'
'T1 K012   121   ______'
'T2 K015   005   TOTAL DATA SETS'
'T2 A000000021006Z  DSN CNT'
'T2 K018   040   TOTAL TRACKS ALLOC'
'T2 A000054059009Z  ALLOC CNT'
'T3 K004   053   USED'
'T3 A000056065009Z  USE CNT'
'T4 K004   053   IDLE'
'T4 A000058071009Z  IDLE CNT'
```

Report Record Format — (RPTNPOCCHH, RPTNPODUMP, and RPTNPOTTRD)

Partitioned Data Set Directory (CCHHR, DUMP, TTRD)

```
*
*    Mapping of report record used to print the POCCHH,
*    PODUMP, AND POTTRD reports.
*
RECORD   DS   0F
RECLEN   DS    H              Length of record (86 to 148)
         DS    H
RPTPGM   DS    CL10           Name of module to format the rpt
DSNAME   DS    CL44           Data set name
VOLUME   DS    CL6            Volume
KEY      DS    CL8            Key
CCHHR    DS    XL5            CCHHR of member
ALIAS    DS    C              Member name is an alias
DEVTYPE  DS    XL2            Devtype
VOLAD    DS    CL4            Volume address
#ENTLEN  DS    H              Length of user data
#DIRENT  DS    XL62           User data
```

Report Record Format — (RPTNPOXREF, RPTNPO1REF, and RPTNPO2REF)

Data Set Name Cross-Reference for PDS Member Names

```
*    Mapping of report record used to print the POXREF,
*    PO1REF, and PO2REF reports.
*
*
POXREC   DS   0F
POXLEN   DS    H              Length of record
         DS    H
POXTBLN  DS    CL10           Name of module to format the rpt
POXMBR   DS    CL8            Member name
POXDSN   DS    CL44           Data set name
POXVOL   DS    CL6            Volume serial
POXALIAS DS    C              Member name is an alias
POXDEV   DS    XL2            Device type
POXVADDR DS    CL4            Volume address

I          RACF PROFILE TO ARCHIVE DSNAME X-REF
```

Report Record Format — (RPTNRACFDN)

RACF Profile X-REF in Dsname Sequence

```
RPTNRACFDN
*
*   Mapping of report record used to print RACF PROFILE TO
*   ARCHIVE DSNAME X-REF, in archive dsname/date/time sequence
*
RDNRECD  DC    H'106,0'
         DC    CL10'RPTNRACFDN'
RDNDSN   DC    CL44' '           Data set name
RDNDATE  DC    XL3'0'            Archive date
RDNTIME  DC    CL4' '            Archive time
RDNPROF  DC    CL41' '           Profile name
```

Table Used to Print X-REF Report

```
MEMBER = RPTNRFDN
    'C1  058052001132104'
    'H113132   001   STANDARD HEADER - LINE 1'
    'H1 K007   122     PAGE '
    'H1 N004   129   PAGE NO'
    'H1 K045   030   R A C F   P R O F I L E   T O   A R C H I V E'
    'H1 K026   075      D S N A M E   X - R E F'
    'H2 4132   001   STANDARD HEADER - LINE 2'
    'H2 K033   049   ARCHIVE DSNAME/DATE/TIME SEQUENCE'
    'H3 K001   001132'
    'H4 K007   001   ARCHIVE'
    'H4 K007   049   ARCHIVE'
    'H4 K007   062   PROFILE'
    'H5 K013   001   DATA SET NAME'
    'H5 K010   047   TIME  DATE'
    'H5 K013   062   DATA SET NAME'
    'H6 K040   001   ____________________'
    'H6 K040   041   __  ______-  __________-'
    'H6 K022   081   ___________'
    'D1 C044001001      DSN'
    'D1 C004048047      ARCHIVE TIME'
    'D1 J003045052   Z  ARCHIVE DATE'
    'D1 C041052062      PROFILE NAME'
    'T1 K040   001   ____________________'
    'T1 K040   041   ____________________'
    'T1 K040   081   ____________________'
    'T1 K012   121   ______'
    'T2 K015   005   TOTAL DATA SETS'
    'T2 A000000021005Z  DSN CNT'
```

Report Record Format — (RPTNRACFPF)

RACF Profile X-REF in Profile Name Sequence

```
RPTNRACFPF
*
*   Mapping of report record used to print RACF PROFILE TO
*   ARCHIVE DSNAME X-REF, in profile name sequence
*
RPFRECD  DC    H'106,0'
         DC    CL10'RPTNRACFPF'
RPFPROF  DC    CL41' '           Profile name
RPFDSN   DC    CL44' '           Data set name
RPFDATE  DC    XL3'0'            Archive date
RPFTIME  DC    CL4' '            Archive time
```

Table Used to Print X-REF Report

```
MEMBER = RPTNRFPF
    'C1  058052001132104'
    'H113132   001   STANDARD HEADER - LINE 1'
    'H1 K007   122     PAGE '
    'H1 N004   130   PAGE NO'
    'H1 K045   030   R A C F   P R O F I L E   T O   A R C H I V E'
    'H1 K026   075      D S N A M E   X - R E F'
    'H2 4132   001   STANDARD HEADER - LINE 2'
    'H2 K021   055   PROFILE NAME SEQUENCE'
    'H3 K001   001132'
    'H4 K007   001   PROFILE'
    'H4 K007   047   ARCHIVE'
    'H4 K007   097   ARCHIVE'
    'H5 K013   001   DATA SET NAME'
    'H5 K013   047   DATA SET NAME'
    'H5 K010   095   TIME  DATE'
    'H6 K040   001   ———————————————————'
    'H6 K040   041   -     ——————————————'
    'H6 K024   081   ——————    ——————'
    'D1 C041001001      PROFILE NAME'
    'D1 C044042047      DSN'
    'D1 C004089095      ARCHIVE TIME'
    'D1 Y003086100005Z  ARCHIVE DATE'
    'T1 K040   001   ———————————————————'
    'T1 K040   041   ———————————————————'
    'T1 K040   081   ———————————————————'
    'T1 K012   121   ———————'
    'T2 K015   005   TOTAL DATA SETS'
    'T2 A000000021005Z  DSN CNT'
```

Report Record Format — (RPTNSVDICT)

Single Volume Dictionary Report

```
SVDICT
*
*     Mapping of report record used to print SINGLE VOLUME
*     DICTIONARY report
*     Note: The RPTDSORG field has:
*               1. X'02' for PDS and X'FE' for PDSE
*               2. X'40' for PS and X'FC' for PSE
*
RPTBUILD DS   0F
         DC    H'100,0'
RPTTABLE DC    CL10'RPTNSVDICT'
RPTDEVCL DS    XL2          DEVICE CLASS
RPTVOLNO DS    CL6          VOLUME SERIAL
RPTDSNAM DS    CL44         DATA SET NAME
RPTDSORG DS    XL2          DSORG
RPTRECFM DS    XL1          RECFM
RPTBLKSI DS    XL2          BLOCKSIZE
RPTLRECL DS    XL2          LRECL
RPTSCALO DS    XL1          SECONDARY ALLOCATION
RPTSCQTY DS    XL3          SECONDARY ALLOCATION QUANTITY
RPTTKSUM DS    XL3          TOTAL TRACKS ALLOCATED
RPTCREDT DS    XL3          CREATION DATE - YYDDD
RPTEXPDT DS    XL3          EXPIRATION DATE - YYDDD
RPTDSIND DS    XL1          SECURITY
RPTPRMAL DS    XL2          PRIMARY ALLOCATION
RPTIDLET DS    XL2          IDLE TRACKS
RPTVOLAD DS    CL4          VOLUME ADDRESS
RPTCATLG DS    CL1          CATALOG STATUS
RPTLUSDT DS    XL3          LAST USED DATE - YYDDD
RPTNOEXT DS    XL1          EXTENT COUNT
```

Table Used to Print SVDICT Report

```
'MEMBER = RPTNSVDI
    'C1  058052001132096008'
    'H113132   001'
    'H1 K007   122     PAGE '
    'H1 N004   129'
    'H1 K028   034   S I N G L E   V O L U M E   '
    'H1 K038   062   D A T A   S E T   D I C T I O N A R Y'
    'H2 4132   001'
    'H3 K003   048   C P'
    'H4 K015   036   DEVICE UNIT A R'
    'H4 K031   074   ---ALLOCATION-- ----TRACKS-----'
    'H5 K013   001   DATA SET NAME'
```

```
'H5 K006   029   VOLUME'
'H5 K011   036   TYPE   ADDR'
'H5 K007   048   T O DSO'
'H5 K026   056   RECFM BLKSZ LRECL TYP PRIM'
'H5 K016   084   SEC   ALLOC IDLE'
'H5 K030   102   EXT CREDATE  EXPDATE  USEDATE'
'H6 K040   001   ---------------------------- ------ -----'
'H6 K040   041   - ---- --- --- ----- ----- ----- -------'
'H6 K040   081   -------- --------------- ---------------'
'H6 K012   121   ------------'
'D1 C044009001027   DSN'
'D1 C006003029      VOL'
'D1 R002001036      DEVICE TYPE'
'D1 C004078043      ADDRESS'
'D1 C001082048      CAT'
'D1 E001073050      SEC'
'D1 V002053052      DSORG'
'D1 W001055056      RECFM'
'D1 H002056062005Z  BLKSIZE'
'D1 H002058068005Z  LRECL'
'D1 U001060074003   ALLO TYPE'
'D1 H002074078005Z  ALLO PRI'
'D1 B003061084005Z  ALLO SEC'
'D1 B003064090005Z  ALLO SUM'
'D1 H002076096005Z  ALLO IDL'
'D1 B001086102003Z  EXT NO'
'D1 J002067106   Z  CREATE'
'D1 J002070115   Z  EXPIRE'
'D1 J003083124   Z  LAST USED'
'T1 K040   001   ----------------------------------------'
'T1 K040   041   ----------------------------------------'
'T1 K040   081   ----------------------------------------'
'T1 K012   121   ------------'
'T2 K015   010   TOTAL DATA SETS'
'T2 A000000026007Z  COUNTER'
'T2 K022   063   TOTAL ALLOCATED TRACKS'
'T2 A000065086009Z  ACCUMULATOR'
'T3 K017   063   TOTAL IDLE TRACKS'
'T3 A000076092009Z  ACCUMULATOR
```

Report Record Format — (RPTNVOLDSB)

Billing Volume Report

```
VOLDSB
*
*     Mapping of report record used to print BILLING VOLUME
*     report
*
VOLREC   DS   0F
         DC    H'76,0',CL10'RPTNVOLDSB'
VOLENTRY DS   0CL24
VOLSERNO DS    CL6          VOLSER
VOLDSCNT DS    H            DATA SET COUNT
VOLACCUM DS    F            ACCUMULATED AMOUNT FOR VOLUME
VOLTOTAL DS    F            VOLUME TOTAL - $
VOLDEVCL DS    XL2          DEVICE CLASS
VOLNOSCN DS    H            NUMBER OF SCANS
VOLSCNDT DS    XL3          SCAN DATE - YY DDDD
         DS    XL1          RESERVED
VOLUNITS DC    CL9'K/B DAYS '  or  CL9'TRK DAYS '
VOLRELSE DC    CL6' '       RELEASE 9.9 = C'   9.9'
         DC    CL23' '      FILLER FOR SORT MINIMUM LENGTH
```

Table Used for Printing Billing Volume Report

```
MEMBER = RPTNVOLD
     'C1  058053001132'
     'H113132   001   STANDARD HEADER - LINE 1'
     'H1 K010   123             '
     'H1 K011   071    PAGE      '
     'H1 N004   078'
     'H1 K046   025   D A S D   B I L L I N G   B Y   V O L U M E'
     'H2 4132   001   STANDARD HEADER - LINE 2'
     'H2 K013   120                '
     'H2 K006   069   SAMS:Disk'
     'H2 C006034075   RELEASE NO'
     'H3 K001   001132'
     'H4 K028   001   VOLUME   DEVTYPE    NO SCANS'
     'H4 K009   033   LAST SCAN'
     'H4 K009   044   DATA SETS'
     'H4 C009025056      K/B TRK M/B'
     'H4 K012   069   TOTAL CHARGE'
     'H5 K040   001   ___   ___-    ____    ____'
     'H5 K040   041   -  ____-   ____     ______'
     'D1 C006001001      VOL'
     'D1 R002017011      DEV CLASS'
     'D1 H002019022005Z  NO SCANS'
     'D1 Y003021035      SCAN DATE'
     'D1 H002007045005Z  DATA SET CNT'
     'D1 F004009054010Z  K/B TRK M/H'
     'D1 $004013069012Z  TOTAL CHG'
     'T1 K040   001   ____________________'
     'T1 K040   041   ____________________'
     'T2 K013   001   TOTAL VOLUMES'
     'T2 A000000015005Z VOL CNT'
     'T2 K015   027   TOTAL DATA SETS'
     'T2 A000007044006Z DATA SET CNT'
     'T3 K005   027   TOTAL'
     'T3 C008025033     K/B TRK'
     'T3 A004009053011Z K/B CNT'
     'T4 K013   027   TOTAL CHARGES'
     'T4 A004013069012$ CHRG CNT'
```

Report Record Format — (ARCHDSNVOL)

Archive / Retain Report

```
ARCHDSNVOL
*
*   Mapping of report record used to print ARCHIVE/RETAIN
*   report in DSN/VOL order
*
ARCHRECN DC    H'215,0'
         DC    CL10'ARCHDSNVOL'
NETAILIN DC    CL176' '
NOLDSNAM DC    CL44' '           OLD DATA SET NAME
NNEWNAME DC    CL44' ',CL3' '    NEW DATA SET NAME
NVOLSER  DC    CL6' '            VOLUME SERIAL
NASTRICH DC    C' '              * ASTERISK
NDEVTYPE DC    CL6' '            DEVICE TYPE
NDSORG   DC    CL3' '            DSORG
NRECFM   DC    CL2' '            RECFM
NBLKSIZE DC    CL6' '            BLKSIZE
NLRECL   DC    CL5' '            LRECL
NOPTCD   DC    CL2' '            OPTCD
NKEYLEN  DC    CL3' '            KEY LEN
NACT     DC    C' '              ACTION TAKEN
NSCRATCH DC    C' '              SCRATCHED
NCATALOG DC    C' '              CATALOGED
NCRIT1   DC    C' '              REASON
NCRIT2   DC    C' '              REASON
NCRIT3   DC    C' '              REASON
NCRIT4   DC    C' '              REASON
NKILOBYT DC    CL6' '            KILOBYTES
NTRACKS  DC    CL6' '            TRACKS
NSIMULAT DC    CL8' '            SIMULATE
NTOTARCH DC    XL2'0'            DATA SET ARCHIVED
NTOTSCR  DC    XL2'0'            DATA SET SCRATCHED
NTRKARCH DC    XL2'0'            TRACKS ARCHIVED
NTRKSCR  DC    XL2'0'            TRACKS SCRATCHED
NBYTARCH DC    XL4'0'            KILOBYTES ARCHIVED
NBYTSCR  DC    XL4'0'            KILOBYTES SCRATCHED
NTITLE   DC    C' '              REPORT TITLE
```

Table Used to Print Archive Report

```
MEMBER = ARCHDSNV
     'C1  058051001132249'
     'H113132   001   STANDARD HEADER - LINE 1'
     'H1 5001201032   TITLE'
     'H1 K007   122     PAGE '
     'H1 N004   129   PAGE NO'
     'H2 4132   001   STANDARD HEADER - LINE 2'
     'H2 K029   052   DATA SET NAME/VOLUME SEQUENCE'
     'H3 K001   001132 '
     'H6 K023   003   DATA SET NAME / NEWNAME'
     'H6 K006   048   VOLUME'
     'H6 K033   055   DEVTYPE DSORG RECFM BLKSZ  LRECL '
     'H6 K045   088   OPTCD KEYL ARC SCR CAT REASON   KBYTES TRACKS'
     'H7 K040   001     ____________________'
     'H7 K040   041   ___ ___ ___- __- __- __- '
     'H7 K040   081   ___ __- __ _- _- _- ___ _-'
     'H7 K012   121   __- ___'
     'H807008177002     SIMULATE'
     'D1 C001098001      ASTERISK'
     'D1 C088001003044   DSN'
     'D1 C034202048006   VOLSER'
     'D1 C078098055      LAST HALF OF RECORD'
     'T1 K040   001   ____________________'
     'T1 K040   041   ____________________'
     'T1 K040   081   ____________________'
     'T1 K012   121   ______'
     'T2 K008   053    TOTAL  '
     'T2 K008   072    TOTAL  '
     'T2 K009   088     TOTAL  '
     'T3 K008   053   data setS'
     'T3 K008   072    TRACKS '
     'T3 K009   088   KILOBYTES'
     'T4 K008   053   ____'
     'T4 K006   073   ___'
     'T4 K009   088   ____-'
     'T5 K021   026   ARCHIVED/BACKED UP...'
     'T5 A0021850500111    TOTAL DS ARCH'
     'T5 A0021890680111    TOTAL TRKS ARCH'
     'T5 A0041930860111    TOTAL BYTES ARCH'
     'T6 K021   026   SCRATCHED............'
     'T6 A0021870500111   TOTAL DS SCR'
     'T6 A0021910680111   TOTAL TRKS SCR'
     'T6 A0041970860111   TOTAL BYTES SCR'
     'T7 K001   001132 '
     'T8 K001   001132 '
     'T9 K092   001   * AN ASTERISK BEFORE DATA SET NAME INDICATES
      AN ERROR OCCURRED WHILE PROCESSING THE DATA SET'
```

Report Record Format — (ARCHVOLDSN)

Archive / Retain Report

```
ARCHVOLDSN
*
*   Mapping of report record used to print ARCHIVE/RETAIN report
*   in VOL/DSN order
ARCHRECV DC    H'215,0'
RPTNAME  DC    CL10'ARCHVOLDSN'
VETAILIN DC    CL176' '
VVOLSER  DC    CL6' '            VOLUME SERIAL
VOLDSNAM DC    CL44' '           OLD DATA SET NAME
VNEWNAME DC    CL44' ',CL3' '    NEW DATA SET NAME
VASTRICH DC    C' '              ASTERISK *
VDEVTYPE DC    CL6' '            DEVICE TYPE
VDSORG   DC    CL3' '            DSORG
VRECFM   DC    CL2' '            RECFM
VBLKSIZE DC    CL6' '            BLKSIZE
VLRECL   DC    CL5' '            LRECL
VOPTCD   DC    CL2' '            OPTCD
VKEYLEN  DC    CL3' '            KEY LENGTH
VACT     DC    C' '              ACTION TAKEN
VSCRATCH DC    C' '              SCRATCHED
VCATALOG DC    C' '              CATALOGED
VCRIT1   DC    C' '              REASON
VCRIT2   DC    C' '              REASON
VCRIT3   DC    C' '              REASON
VCRIT4   DC    C' '              REASON
VKILOBYT DC    CL6' '            KILOBYTES
VTRACKS  DC    CL6' '            TRACKS
VSIMULAT DC    CL8' '            SIMULATE
VTOTARCH DC    XL2'0'            DATA SET ARCHIVED
VTOTSCR  DC    XL2'0'            DATA SET SCRATCHED
VTRKARCH DC    XL2'0'            TRACKS ARCHIVED
VTRKSCR  DC    XL2'0'            TRACKS SCRATCHED
VBYTARCH DC    XL4'0'            KILOBYTES ARCHIVED
VBYTSCR  DC    XL4'0'            KILOBYTES SCRATCHED
VTITLE   DC    C' '              REPORT TITLE
```

Table Used to Print Archive / Retain Report

```
MEMBER = ARCHVOLD
     'C1  058051001132249006'
     'H113132   001   STANDARD HEADER - LINE 1'
     'H1 5001201032   TITLE'
     'H1 K007   122     PAGE '
     'H1 N004   129   PAGE NO'
     'H2 4132   001   STANDARD HEADER - LINE 2'
     'H2 K029   052   VOLUME/DATA SET NAME SEQUENCE'
     'H3 K001   001132 '
     'H6 K031   002   VOLUME  DATA SET NAME / NEWNAME'
     'H6 K032   055   DEVTYPE DSORG RECFM BLKSZ  LRECL'
     'H6 K045   088   OPTCD KEYL ARC SCR CAT REASON   KBYTES TRACKS'
     'H7 K040   001    ———  ——————————————-'
     'H7 K040   041   ———————- ———- ——- ——- ——- '
     'H7 K040   081   ——— ——- —— —- —- —- ——— —-'
     'H7 K012   121   ——- ———'
     'H807008177002     SIMULATE'
     'D1 C001098001      ASTERISK'
     'D1 C034202002006   VOLSER'
     'D1 C088007010044   DSN'
     'D1 C078098055      LAST HALF OF RECORD'
     'T1 K040   001   ———————————————————'
     'T1 K040   041   ———————————————————'
     'T1 K040   081   ———————————————————'
     'T1 K012   121   ———————'
     'T2 K008   053    TOTAL  '
     'T2 K008   072    TOTAL  '
     'T2 K009   088     TOTAL  '
     'T3 K008   053   data setS'
     'T3 K008   072    TRACKS '
     'T3 K009   088   KILOBYTES'
     'T4 K008   053   ————'
     'T4 K006   073   ———'
     'T4 K009   088   ————-'
     'T5 K021   026   ARCHIVED/BACKED UP...'
     'T5 A0021850500111    TOTAL DS ARCH'
     'T5 A0021890680111    TOTAL TRKS ARCH'
     'T5 A0041930860111    TOTAL BYTES ARCH'
     'T6 K021   026   SCRATCHED............'
     'T6 A0021870500111   TOTAL DS SCR'
     'T6 A0021910680111   TOTAL TRKS SCR'
     'T6 A0041970860111   TOTAL BYTES SCR'
     'T7 K001   001132 '
     'T8 K001   001132 '
     'T9 K092   001   * AN ASTERISK BEFORE DATA SET NAME INDICATES
AN ERROR OCCURRED WHILE PROCESSING THE DATA SET'
I          MIGRATE TO TAPE REPORT RECORDS
```

Report Record Format — (MIGRDSNVOL)

Migrate Report

```
MIGRDSNVOL
*
*   Mapping of report record used to print MIGRATE REPORT IN
*   DSN/VOL ORDER
MIGRRECN DC    H’178’,H’0’
         DC    CL10’MIGRDSNVOL’
NETAILIN DS   0CL115
NOLDSNAM DC    CL44’ ’
NVOLSER  DC    CL34’ ’
NLASTHAF DS   0CL65
NDEVTYPE DC    CL6’ ’,C’ ’
NEXPDT   DC    CL8’ ’,CL1’ ’
NRECFM   DC    CL2’ ’,C’ ’
NBLKSIZE DC    CL6’ ’,C’ ’
NLRECL   DC    CL5’ ’,CL2’ ’
NOPTCD   DC    CL2’ ’,CL3’ ’
NKEYLEN  DC    CL3’ ’,CL2’ ’
NTAPEVOL DC    CL6’ ’,C’ ’
NSEQ     DC    CL3’ ’,CL2’ ’
NSCRATCH DC    C’ ’,CL2’ ’
NCATALOG DC    CL3’ ’,C’ ’
NREASON  DC    CL4’ ’
NKILOBYT DC    CL6’ ’,CL2’ ’
NTRACKS  DC    CL6’ ’
NSIMULAT DC    CL8’ ’
NTRKMIGR DC    XL2’0’
NBYTMIGR DC    XL4’0’
NTITLE   DC    C’6’
```

Table Used for Printing Migrate Report

```
MEMBER = MIGRDSNV
'C1  058051001132201'
'H113132   001   STANDARD HEADER - LINE 1'
'H1 6001130032070TITLE'
'H1 K007   122     PAGE '
'H1 N004   129   PAGE NO'
'H2 4132   001   STANDARD HEADER - LINE 2'
'H2 K029   052   DATA SET NAME/VOLUME SEQUENCE'
'H3 K001   001132 '
'H4 K018   054   DEVICE         REC'
'H4 K004   097   TAPE'
'H5 K013   001   DATA SET NAME'
'H5 K006   046   VOLUME'
'H5 K036   054    TYPE  EXPDATE  FM BLKSZ LRECL OPTCD'
'H5 K043   090    KEYL VOLUME SEQ SCR CAT REAS KBYTE  TRACKS'
'H6 K040   001   ----------------------------------------'
'H6 K040   041   ---- ------  ------ ------- --- ----- --'
'H6 K040   081   --- ----- ---- ------ --- --- --- ---- -'
'H6 K012   121   ----  ------'
'H707008116001     SIMULATE LINE'
'D1 C044001001044   DSN'
'D1 C034045046006   VOLSER'
'D1 C065079054065   LAST HALF OF RECORD'
'D1 F004154119006Z  KILOBYTES'
'D1 H002152127006Z  TRACKS'
'T1 K040   001   ----------------------------------------'
'T1 K040   041   ----------------------------------------'
'T1 K040   081   ----------------------------------------'
'T1 K012   121   ------------'
'T2 K024   001   TOTAL DATA SETS MIGRATED'
'T2 A000   0260111    TOTAL DS MIGR'
'T2 K015   098   TOTAL KILOBYTES'
'T2 A0041541140111    TOTAL BYTES MIGR'
'T3 K012   098   TOTAL TRACKS'
'T3 A0021521220111    TOTAL TRKS MIGR'
'T6 K001   001132 '
'T7 K001   001132 '
'T8 K061   001   REASON CODES:  M=MINSIZE    X=MAXSIZE    L=LASTUS',
'E    G=GENER'
'T9 K062   001   * A PLUS SIGN AFTER TAPE VOLUME INDICATES MULTIPLE ',
'VOLUMES'
```

Report Record Format — (MIGRVOLDSN)

Migrate Report

```
MIGRVOLDSN
*
*   Mapping of report record used to print MIGRATE report in
*   VOL/DSN order
MIGRRECV DC    H’178’,H’0’
         DC    CL10’MIGRVOLDSN’
VETAILIN DS   0CL115
VVOLSER  DC    CL34’ ’
VOLDSNAM DC    CL44’ ’
VLASTHAF DS   0CL65
VDEVTYPE DC    CL6’ ’,C’ ’
VEXPDT   DC    CL5’ ’,CL3’ ’
VRECFM   DC    CL2’ ’,C’ ’
VBLKSIZE DC    CL6’ ’,C’ ’
VLRECL   DC    CL5’ ’,CL2’ ’
VOPTCD   DC    CL2’ ’,CL3’ ’
VKEYLEN  DC    CL3’ ’,CL2’ ’
VTAPEVOL DC    CL6’ ’,C’ ’
VSEQ     DC    CL3’ ’,CL2’ ’
VSCRATCH DC    C’ ’,CL2’ ’
VCATALOG DC    CL3’ ’,C’ ’
VREASON  DC    CL4’ ’
VKILOBYT DC    CL6’ ’,CL2’ ’
VTRACKS  DC    CL6’ ’
VSIMULAT DC    CL8’ ’
VTRKMIGR DC    XL2’0’
VBYTMIGR DC    XL4’0’
VTITLE   DC    C’6’
```

Table Used for Printing Migrate Report in VOL/DSN Order

```
MEMBER = MIGRVOLD
'C1  058051001132201'
'H113132   001   STANDARD HEADER - LINE 1'
'H1 6001130032070TITLE'
'H1 K007   122     PAGE '
'H1 N004   129   PAGE NO'
'H2 4132   001   STANDARD HEADER - LINE 2'
'H2 K029   052   VOLUME/DATA SET NAME SEQUENCE'
'H3 K001   001132 '
'H4 K018   054   DEVICE         REC'
'H4 K004   097   TAPE'
'H5 K006   001   VOLUME'
'H5 K013   008   DATA SET NAME'
'H5 K036   054    TYPE  EXPDATE  FM BLKSZ LRECL OPTCD'
'H5 K043   090    KEYL VOLUME SEQ SCR CAT REAS KBYTE  TRACKS'
'H6 K040   001   ------ ----------------------------------'
'H6 K040   041   -----------  ------ ------- --- ----- --'
'H6 K040   081   --- ----- ---- ------ --- --- --- ---- -'
'H6 K012   121   ----  ------'
'H707008116001     SIMULATE LINE'
'D1 C034001001006   VOLSER'
'D1 C044035008044   DSN'
'D1 C065079054      LAST HALF OF RECORD'
'D1 F004154119006Z  KILOBYTES'
'D1 H002152127006Z  TRACKS'
'T1 K040   001   ----------------------------------------'
'T1 K040   041   ----------------------------------------'
'T1 K040   081   ----------------------------------------'
'T1 K012   121   ------------'
'T2 K024   001   TOTAL DATA SETS MIGRATED'
'T2 A000   0260111    TOTAL DS MIGR'
'T2 K015   098   TOTAL KILOBYTES'
'T2 A0041541140111    TOTAL BYTES MIGR'
'T3 K012   098   TOTAL TRACKS'
'T3 A0021521220111    TOTAL TRKS MIGR'
'T6 K001   001132 '
'T7 K001   001132 '
'T8 K061   001   REASON CODES:  M=MINSIZE    X=MAXSIZE    L=LASTUS',
'E    G=GENER'
'T9 K062   001   * A PLUS SIGN AFTER TAPE VOLUME INDICATES MULTIPLE ',
'VOLUMES'
```

Report Record Format — (VSAMCLDATA)

VSAM Cluster Data Record

```
VSAMCLDATA
*   Mapping of report record used to print VSAM CLD Report *
VSAMREC  DC    H'2141',H'0'
         DC    CL2'**'
         DC    CL8'ADSVS026'    REPORT MODULE
C$NAME   DS    CL44             CLUSTER NAME
C$CRDT   DS    XL4              CLUSTER CREATION DATE
C$EXDT   DS    XL4              CLUSTER EXPIRATION DATE
C$VOLS   DS    CL6              PRIM. VOLSER OF DATA COMPONENT
C$VOLT   DS    XL2              PRIM. VOLSER'S DEVICE TYPE
*     NOTE: THE CLUSTER'S PASSWORDS WILL NOT BE PRESENT IN THIS
*     RECORD IF THE USER IS NOT AUTHORIZED TO SEE THEM
C$PASS   DS    0CL32              CLUSTER'S PASSWORDS
         DS    4CL8
C$TRKS   DS    F                TOTAL TRACKS ALLOC. TO CLUSTER
C$IDLE   DS    F                TOTAL NUMBER OF IDLE TRACKS
C$PCTUSE DS    H                CLUSTER PERCENT USED
C$PASATT DS    H                PASSWORD ATTEMPTS ALLOWED
C$NOEXT  DS    H                TOTAL NUMBER OF EXTENTS
*    THE FORMAT OF THE EACH EXTENT IS:                        *
*        1. TYPE OF EXTENT     XL2    X'10' = INDEX           *
*        2. LOW CCHH           XL4                            *
*        3. HIGH CCHH          XL4                            *
*        4. TRACKS IN EXTENT   HW                             *
*        5. VOLSER             CL6                            *
*        6. DEVICE TYPE        XL2                            *
C$EXTENT DS    0XL640           DATA AND INDEX EXTENT INFO.
C$EXT    DS    32XL20
C$LEXT   DS    0C               ADDRESS OF LAST EXTENT
D$ATTR   DS    XL4              DATA AND CLUSTER ATTRIB. BYTES
         ORG   D$ATTR
D$$ATTR  DS    XL2              ATTR1 AND ATTR2 OF DATA COMP.
D$ATTR3  DS    X                ATTRIBUTE FLAGS
D$ATTR4  DS    X                ATTR1 OF CLUSTER COMPONENT
D$UCAT   EQU   X'F0'            RECORD DESCRIBES A USER CATALOG
D$PAGE   EQU   X'01'            CLUSTER IS A PAGE DATA SET
D$SWAP   EQU   X'02'            CLUSTER IS A SWAP DATA SET
D$ALLOC  DS    XL7              ALLOCATION QUANTITY AND TYPE
         ORG   D$ALLOC
D$PRIM   DS    XL3              PRIMARY ALLOCATION AMOUNT
D$SEC    DS    XL3              SECONDARY ALLOCATION AMOUNT
D$TYPALO DS    X                ALLOCATION TYPE
D$CYLALO EQU   X'C0'            ALLOCATION IS IN CYLINDERS
D$TRKALO EQU   X'80'            ALLOCATION IS IN TRACKS
D$RECSZ  DS    F                AVERAGE LOGICAL RECORD SIZE
```

```
D$AMD    DS    XL96             AMDSB STATISTICS
D$HARBA  DS    F                HIGH ALLOC. RBA OF DATA COMP.
D$HURBA  DS    F                HIGH USED RBA OF DATA COMP.
D$TRKS   DS    F                TRACKS ALLOCATED TO DATA COMP.
D$IDLE   DS    F                IDLE TRACKS IN DATA COMP.
D$PCTUSE DS    H                PERCENT USED OF DATA COMP.
I$ATTR   DS    XL4              INDEX ATTRIBUTE BYTES
         ORG   I$ATTR
I$$ATTR  DS    XL2              ATTR1 AND ATTR2 OF INDEX COMP.
I$ATTR3  DS    X                NOT USED
I$ATTR4  DS    X                NOT USED
I$ALLOC  DS    XL7              ALLOCATION QUANTITY AND TYPE
         ORG   I$ALLOC
I$PRIM   DS    XL3              PRIMARY ALLOCATION AMOUNT
I$SEC    DS    XL3              SECONDARY ALLOCATION AMOUNT
I$TYPALO DS    X                ALLOCATION TYPE
I$CYLALO EQU   X'C0'            ALLOCATION IS IN CYLINDERS
I$TRKALO EQU   X'80'            ALLOCATION IS IN TRACKS
I$AMD    DS    XL96             INDEX AMDSB STATISTICS
I$HARBA  DS    F                HIGH ALLOC. RBA OF INDEX COMP.
I$HURBA  DS    F                HIGH USED RBA OF INDEX COMP.
I$TRKS   DS    F                INDEX COMPONENT TRACKS
I$IDLE   DS    F                IDLE TRACKS IN INDEX COMP.
I$PCTUSE DS    H                PERCENT USED OF INDEX COMP.
D$NAME   DS    CL44             DATA COMPONENT NAME
I$NAME   DS    CL44             INDEX COMPONENT NAME
C$RVOL   DS    CL6              CRA VOLSER FOR CLUSTER
D$RVOL   DS    CL6              CRA VOLSER FOR DATA COMPONENT
I$RVOL   DS    CL6              CRA VOLSER FOR INDEX COMPONENT
C$TYPE   DS    C                TYPE OF CLUS. (ENTYPE FR CAT.)
C$CLUSTR EQU   C'C'             RECORD DESCRIBES A BASE CLUSTER
C$AIX    EQU   C'G'             RECORD DESCRIBES AN AIX
C$SECF   DS    X                SECURITY FLAG (X'80' = RACF)
D$SECF   DS    X                SECURITY FLAG (X'80' = RACF)
I$SECF   DS    X                SECURITY FLAG (X'80' = RACF)
C$CAT    DS    CL44             CAT. WHERE COMPONENT IS DEFINED
C$FLAGS  DS    XL10             FLAGS (REFER TO DMSFLAGS MACRO)
C$ASCCNT DS    H                NUMBER OF ASSOCIATION FIELDS
C$ASC#   EQU   20               NUMBER OF ASSOC FIELDS
C$ASCNAM DS    CL(C$ASC#*45)    ASSOC FIELDS - TYPE + NAME
D$USDT   DS    XL3              LAST USE DATE (BINARY)
VSSELECT DS    CL50             GROUPS SPECIFIED ON RPT SELECT
```

Report Record Format — (RPTDSNEX)

VBACKUP Extent Report

```
RPTDSNEX
*
*     Mapping of report record used to print the DATA SET
*     EXTENT report created by VBACKUP (VSAM portion)
*
WRTVSAM  DS    0CL130
WRTVSLT  DC    XL2’00’                LENGTH OF RECORD
WRTVSFL1 DC    XL2’00’                FILLER
WRTVSRPT DC    CL10’RPTDSNEXNT’       REPORT NAME
WRTVSVOL DC    CL6’ ’                 VOLSER
WRTVSSDN DC    CL44’ ’                DSN FOR SORT
WRTVSSDS DC    CL3’ ’                 DSORG FOR SORT
WRTVSSEX DC    XL8’0’                 EXTENT INFO FOR SORT
WRTVSDSN DC    CL44’ ’                DSN FOR PRINT
WRTVSDSO DC    CL3’ ’                 DSORG FOR PRINT
WRTVSEXT DC    XL8’0’                 EXTENT INFO FOR PRINT
*
RPTDSNEX
*
*     Mapping of report record used to print the DATA SET
*     EXTENT report created by VBACKUP (non-VSAM portion)
*
WRTNVSM  DS    0CL130
WRTNVLT  DC    XL2’00’                LENGTH OF RECORD
WRTNVFL1 DC    XL2’00’                FILLER
WRTNVRPT DC    CL10’RPTDSNEXNT’       REPORT NAME
WRTNVVOL DC    CL6’ ’                 VOLSER
WRTNVSDN DC    CL44’ ’                DSN FOR SORT
WRTVNSDS DC    CL3’ ’                 DSORG FOR SORT
WRTNVSEX DC    XL8’0’                 EXTENT INFO FOR SORT
WRTNVDSN DC    CL44’ ’                DSN FOR PRINT
WRTNVDSO DC    CL3’ ’                 DSORG FOR PRINT
WRTNVEXT DC    XL8’0’                 EXTENT INFO FOR PRINT
*
*
```

Table Used for Printing VBACKUP Extent Report

```
MEMBER = RPTDSNEX
   'C1  058052001132130006'
   'H113132   001   STANDARD HEADER - LINE 1'
   'H1 K007   122     PAGE '
   'H1 N004   129   PAGE NO'
   'H1 K052   030   D A T A S E T   E X T E N T   R E P O R T
F O R'
   'H1 K013   082   V O L U M E  '
   'H1 C006001096   VOLSER'
   'H2 4132   001   STANDARD HEADER - LINE 2'
   'H3 K001   001132'
   'HC K013   001   DATA SET NAME'
   'HC K003   048   DSO'
   'HC K008   053   BEG CCHH'
   'HC K008   063   END CCHH'
   'HD K001   001132'
   'D2 C044062003      DSN'
   'D2 C003106048      DSORG'
   'D2 X004109053004Z  BEGINNING CCHH'
   'D2 X004113063004Z  ENDING CCHH'
I          FILES DATA SET RECORDS
```

Subfile Record Format — (ARCHCMDS)

Deferred Archive Requests

```
ARCHCMDS DSECT
*
*    ARCHCMDS SUBFILE RECORD FORMAT (Deferred Archive Requests)
*
ARCDSNLR DS   0CL164
ARCNUNAM DS    CL44       0 NEW DATA SET NAME
         DS    AL1(0)    44
ARCJOBID DS    CL8       45 JOB ID
ARCREQTM DS    XL2       53 TIME REQUESTED
ARCREQDT DS   0XL3       55 DATE REQUESTED
ARCREQY  DS    X         55 YEAR REQUESTED
ARCREQDD DS    H         56 DAY REQUESTED
ARCRUNTM DS    XL2       58 ARCHIVE TIME
ARCRUNDT DS    XL3       60 ARCHIVE DATE
ARCFLAGS DS    XL2       63 FLAGS, X'0000' PENDING
                                 X'0001' COMPLETED OK
                                 X'0002' FAILED
                                 X'0004' ACTIVE
ARCMSGID DS    CL4       65 MESSAGE NUMBER
ARCVSLST DS   0CL30      69 VOLSERS FROM WHICH ARCHIVED
ARCVOLNO DS   5CL6       69
ARCDSNAM DS    CL44      99 DATA SET NAME
ARCEXPDT DS    XL3      143 EXPIRATION DATE FOR COMMAND
ARCRETPD DS    H        146 RETENTION PERIOD FOR COMMAND
ARCMBRCT DS    H        148 MEMBER COUNT
ARCDISP  DS   0CL3      150 DISPOSITION FROM COMMAND
ARCNOSCR DS    C        150 N=NOSCRATCH, S=SCRATCH
ARCNOCAT DS    C        151 N=NO ACTION, U=UNCAT, R=RECAT
ARCRECAT DS    C        152 E=EXPLICIT REQUEST
ARCPSWRD DS    CL8      153 PASSWORD
ARCDELDT DS    XL3      161 DATE TO DELETE FROM FILE
                        ——
                        164
```

Subfile Record Format — (ARCHVOLS)

```
ARCHVOLS DSECT
*
*        archvols subfile record format (see archvol2 macro)
*
ARCKEY   DS   0CL6      + 0    ARCHVOL RECORD KEY (VOLSER,IF TAPE)
ARCID    DS    CL1      + 0    ARCHVOL KEY ID CHAR (LEN 1)
ARCNBR   DS    CL5      + 1    ARCHVOL KEY NUMERIC (LEN 5)
ARCKEYCH DS    CL6      + 6    KEY OF NEXT ARCHVOL REC CHAINED
ARCVOLUM DS    CL6      +12    ACTUAL VOLUME OF ARCHIVE DATA SET
ARCDVTYP DS    XL4      +18    DEVICE TYPE (FROM UCB)
ARCSEQNO DS    XL1      +22    SEQUENCE NUMBER OF THIS RECORD
ARCFORMT DS    XL1      +23    ARCHVOLS REC FORMAT (NEW = X'02')
ARC#BYTE DS    XL6      +24    # BYTES ON ARCHIVE VOLUME
ARCDSNAM DS    CL44     +30    DATA SET NAME
ARCDSCNT DS    H        +74    NBR DATASETS ON TAPE
ARCBKCNT DS    F        +76    NBR BLOCKS ON VOLUMES
ARCBTCNT DS    F        +80    OLD NBR BYTES ON VOLUMES
ARCCTIME DS    XL4      +84    ARCHIVE TIME    HHMMSSTH (UNSIGNED PKED)
ARCCDATE DS    XL3      +88    CREATION DATE   YYDDDD  (DISCONT BINARY)
ARCEXPDT DS    XL3      +91    EXPIRATION DATE YYDDDD
ARCFEET  DS    H        +94    FEET USED ON TAPE
ARCCOUNT DS    AL1      +96    VOLUME COUNT (COUNT OF VOLUMES AT +0)
ARCCPYKY DS    CL6      +97    COPY ARCKEY
*
ARCFLAG  DS    XL1      +103   INDICATORS
ARCFDISA EQU   X'80'           VOLUME IS DISABLED
ARCFCOPY EQU   X'40'           VOLUME IS COPY VOLUME
ARCFPASS EQU   X'20'           VOLUME IS PASSWORD PROTECTED
ARCFERR  EQU   X'10'           CLOSE FAILED OR I/O BKSPACE FAILED
ARCFNCLO EQU   X'08'           VOLUME NOT CLOSED, ARCHVOLS INCOMPLETE
ARCFFULL EQU   X'04'           VOLUME FULL (NEXT DSN DID NOT FIT)
ARCFMERG EQU   X'02'           VOLUME CREATED BY MERGE
ARCF6250 EQU   X'01'           VOLUME WRITTEN AT 6250 BPI
*
ARCFLAG2 DS    XL1      +104
ARCDYN1  EQU   X'80'           M860 or Redwood FLAGS
ARCDYN2  EQU   X'40'
ARCDYN3  EQU   X'20'
ARCVOLBK EQU   X'10'           VOLUME LEVEL BACKUP
ARCIDRC  EQU   X'08'           COMPACTION BIT
ARCXCOPY EQU   X'04'           XCOPY HAS PROCESSED THIS ARCHVOL
ARCBYTFG EQU   X'02'           ARC#BYTE PRESENT
ARCFDEVT EQU   X'01'           ARCDDEVT PRESENT
*
         DS    CL2      +105   (RESERVED FOR FUTURE USE)
ARCRATIO DS    BL1      +107   IDRC COMPRESSION RATIO ON TAPE/CART
ARCDDEVT DS    XL2      +108   TDDC DEVICE TYPE
```

Subfile Record Format — (DASDSPCB)

DASD BILLING

```
DASDSPCB DSECT
*
*    DASDSPCB SUBFILE RECORD FORMAT (DASD BILLING)
*
DSBWORK  DS   0CL84
DSBVOLNO DS    CL6          VOLSER
DSBDSNAM DS    CL44         DATA SET NAME
DSBNOSCR DS    X            SCRATCH COUNT (obsolete)
DSBNOSCN DS    X            SCAN COUNT
DSBACCUM DS    F            ACCUMULATED AMOUNT
DSBCREDT DS    XL3          CREATION DATE
DSBSCNDT DS    XL3          LAST SCAN DATE
DSBUSEDT DS    XL3          LAST USED DATE
DSBFLAGS DS    X            X'80' - SCRATCHED
DSBUSRCD DS    CL12         USER CODE
DSBDEVCL DS    XL2          DEVICE CLASS
DSBALLOC DS    H            CURRENT ALLOCATION IN TRACKS
DSBMAXUS DS    H            LARGEST NUMBER OF TRACKS USED
```

Subfile Record Format — (DMSPARMS)

TSO Dynamic Restore

```
DMSPARMS DSECT
*
*    DMSPARMS SUBFILE RECORD FORMAT (TSO DYNAMIC RESTORE)
*
DMSRECOR DS   0CL100      0
DMSIDENT DS    CL8        0 ID FIELD OF 'TSOTAPES'
DMSLIMIT DS    PL2        8 LIMIT OF CONCURRENT DYNAMIC RESTORES
DMSCOUNT DS    PL2       10 DYNAMIC RESTORES IN PROGRESS
DMSUSRID DS  11CL8       12 USER IDS DOING DYNAMIC RESTORES
```

Subfile Record Format — (DMSPOOLS)

For Tapes in the Tape Pools

```
DMSPOOLS DSECT
*
*    DMSPOOLS SUBFILE RECORD FORMAT (for tape pools)
*                       OFFSET
POOLREC  DS   0CL90       0 DMSPOOLS SUBFILE RECORD
POOLKEY  DS   0CL26       0 KEY TO THE SUBFILE RECORD
KEYPOOL  DS    CL08       0 NAME OF THE TAPE POOL
KEYTYPE  DS    CL01       8 S (SCRATCH) or U (USED)
KEYVOL   DS    CL06       9 'SCRTCH' or ACTUAL VOLUME IN KEY
KEYDATE  DS    CL05      15 DATE OF LAST STATUS CHANGE
KEYTIME  DS    PL04      20 TIME OF LAST STATUS CHANGE
KEYRESVD DS    CL02      24 (RESERVED FOR FUTURE USE)
POOLVOL  DS    CL06      26 VOLUME SERIAL OF TAPE IN THE POOL
POOLDATA DS    CL58      32 (RESERVED FOR FUTURE USE)
```

Subfile Record Format — (DSNINDEX)

For Archived Data Sets

```
DSNINDEX DSECT
*
*        DSNINDEX SUBFILE RECORD FORMAT (SEE DSNINDEX MACRO)
*
         DS   0D
&NAME    DS   0CL256
DSNDSNAM DS    CL44     + 0    DATA SET NAME
DSNVOLNO DS    CL6      +44    VOLSER FROM WHICH ARCHIVED
DSNATIME DS    XL2      +50    ARCHIVE TIME (UNSIGNED PACKED=HHMM)
DSNMPBLK DS    XL2      +52    MAX PHYSICAL BLK IN DATA SET (OBSOLETE)
         ORG   DSNMPBLK
DSNDSKTT DS    XL2      +52    TT (OF TTRZ) OF DISK CNTRL RECORD
DSNARCDT DS    XL3      +54    ARCHIVE DATE   (DISCON. BIN. YDD)
DSNEXPDT DS    0XL3     +57    EXPIRATION DATE (DISCON. BIN. YDD)
DSNEXPY  DS    XL1      +57                     YEAR
DSNEXPDD DS    XL2      +58                     DAYS
*
DSNDSORG DS   0XL2      +60    DATA SET ORGANIZATION (SAME AS F1 DSCB)
DSNDSRG1 DS    XL1      +60     FIRST BYTE OF DATA SET ORGANIZATION
DSNIS    EQU   X'80'             DSORG = IS (ISAM)
DSNPS    EQU   X'40'             DSORG = PS (PHYSICAL SEQUENTIAL)
DSNDA    EQU   X'20'             DSORG = DA (DIRECT ACCESS)
DSNUCAT  EQU   X'08'             DMF/EF Type-2 USER CATALOG
DSNDSDS  EQU   X'04'             DSS-dumped dataset (for ADSTH001)
DSNPO    EQU   X'02'             DSORG = PO (PARTITIONED)
DSNU     EQU   X'01'             DSORG = U (UNMOVABLE)
DSNDSRG2 DS    XL1      +61     SECOND BYTE OF DATA SET ORGANIZATION
DSNAM    EQU   X'08'             DSORG = AM (VSAM)
*
DSNDEVCL DS    X        +62    DEVICE CLASS
DSNSCALO DS    X        +63    TYPE OF ALLOCATION
DSNPRTRK DS    XL2      +64    PRIMARY TRACKS ALLOCATED
*      PRECEEDING SECTION OF 66 BYTES IS COMMON WITH ARC CONTROL RECORD
DSNDRBLK DS    XL2      +66    DIRECTORY BLOCK COUNT
DSNMMBRS DS    XL2      +68    MEMBER COUNT
DSNFILNO DS    XL2      +70    FILE NUMBER
DSNBLKNO DS   0XL4      +72    FIRST BLOCK (AND PRV FOR 3480'S)
DSNPRV   DS    XL1      +72    PRV FOR 3480'S
DSNRELBK DS    XL3      +73    ALWAYS FIRST RELATIVE BLOCK NUMBER
DSNBYTES DS    XL4      +76    BYTE COUNT
DSNBLKCO DS    XL2      +80    OLD BLOCK COUNT FIELD
DSNARVOL DS    CL6      +82    VOLSER ARCHIVED TO (PRE-RELEASE 7.0)
         ORG   DSNARVOL
DSNARKEY DS    CL6      +82    KEY TO ARCHVOLS REC (POST-REL 7.0)
*
```

```
DSNFLAGS DS   0XL10     +88    FLAGS
*
DSNFLAG1 DS    XL1      +88    FLAG BYTE 1
DSNFLGSC EQU   X'80'           DSN SCRATCHED WHEN ARCHIVED
DSNFLGUC EQU   X'40'           DSN UNCATALOGED WHEN ARCHIVED
DSNFLGRC EQU   X'20'           DSN RECAT TO PSEUDO VOLSER WHEN ARCHIVED
DSNFLGAR EQU   X'10'           ARCHIVED DUE TO EXPLICIT ARCHIVE REQUEST
*                              IF BIT X'10' IS OFF, ARCHIVED BY RETAIN
DSNFLGEX EQU   X'08'           ARCHIVED USING DASD EXCP SUPPORT
DSNFLGBK EQU   X'04'           ARCHIVED WITH INCREMENTAL BACKUP
DSNFLGUV EQU   X'02'           DA-U/V DATASET OR PS-U/V BACKED UP AS DA
DSNFLGVV EQU   X'01'           DSN RESIDED ON VIRTUAL VOLUME
*
DSNFLAG2 DS    XL1      +89    FLAG BYTE 2
DSNFLGEN EQU   X'80'           HAD GENERIC PROFILE WHEN ARCHIVED
*                                (GENERIC, NO DISCRETE PROTECTION)
DSNFLGRF EQU   X'40'           HAD DISCRETE PROFILE WHEN ARCHIVED
DSNFLGAX EQU   X'20'           DATA SET IS A VSAM ALTERNATE INDEX
DSNFLGCB EQU   X'10'           DATA SET IS A CATALOG BACKUP
DSNFLGIO EQU   X'08'           DATA SET BACKED UP WITH IO ERRORS
DSNFLGPE EQU   X'04'           DSORG IS PDSE (PARTITIONED EXTENDED)
DSNFLGBT EQU   X'02'           RACF BIT WAS ON WHEN ARCHIVED
DSNFLGET EQU   X'01'           EXTENT TRACK IMAGE BACKUP
*
DSNFLAG3 DS    X        +90    FLAG BYTE 3
DSNBLKFG EQU   X'80'           NEW DSNBLKCT FIELD HAS BEEN UPDATED
DSNSTRIP EQU   X'40'           DSORG IS PSE (EXTENDED SEQUENTIAL)
DSNBSAM  EQU   X'20'           PSE ARCHIVED BY BSAM I/O
DSNMEMLA EQU   X'10'           MEMBER LEVEL ARCHIVE
DSNBYTFG EQU   X'08'           DSN#BYTE IS PRESENT
*
DSNFLAG4 DS    X        +91    FLAG BYTE 4
UNCAT    EQU   X'80'             DS WAS NOT CATLGED AT BACKUP TIME
DSNDSS   EQU   X'04'             DSS-dumped dataset
DSNCC    EQU   X'02'             DS created using concurrent copy
*
DSNFLAGN DS    XL6      +92    FLAG BYTE 5-10
*
         ORG   DSNFLAGS+9      ORG TO FLAG BYTE 10
DSNFLAGA DS    X        +97    FLAG BYTE 10
DSNERRXX EQU   X'40'           DO NOT USE! THIS FLAG WAS TURNED ON
*                              IN ERROR IN THE EOFREC AND WAS FIXED
*                              BY CHECKING FOR BYTES 9&10=X'4040'
*                              AND ZEROING LAST 7 BYTES IF EQUAL.
DSNMSPFL DS    XL1      +98    MSP FLAGS
*
*-----------------------------------------------------------------
* THE DSNSEXPT FLAG IS USED TO CONVERT THE DSNARCDT FIELD INTO THE
* DSNLCOPY FIELD AND TO REFRESH THE DSNARCDT FIELD WITH ITS ORIGINAL
* CONTENTS. THE DSNUPDAT FLAG IS NOW USED TO IDENTIFY THE DSNLCOPY
```

```
* FIELD AS BEING UPDATED.
*-----------------------------------------------------------------
DSNSMSFL DS    XL1      +99    SMS FLAGS
DSNSEXPT EQU   X'80'           ARCDT ALTERED DUE TO LAST BK COPY
DSNMCBYP EQU   X'08'           MGMT CLASS BYPASSED
DSNEXPNS EQU   X'04'           ALTERED DATE FLAG
DSNUPDAT EQU   X'02'           ARCDT ALTERED DUE TO LAST BKUP CPY
*
DSNSMSIN DS   0CL32     +100   SMS CLASSES AND GROUP INFORMATION
DSNSMSDC DS    CL8      +100   SMS DATA CLASS
DSNSMSMC DS    CL8      +108   SMS MANAGEMENT CLASS
DSNSMSSC DS    CL8      +116   SMS STORAGE CLASS
DSNSMSSG DS    CL8      +124   SMS STORAGE GROUP
*
DSNDS1FL DS   0XL12     +132   FMT1 DATE FIELDS
DSNDS1CD DS    XL3      +132   CREATION DATE
DSNDS1MD DS    XL3      +135   LAST MOD DATE
DSNDS1UD DS    XL3      +138   LAST USED DATE
DSNDS1ED DS    XL3      +141   EXPIRATION DATE
DSNBLKCT DS    XL4      +144   DSNBLKCT REPLACES OLD BLOCK COUNT
DSNRESR1 DS    XL18     +148   RESERVED FOR FUTURE
DSNDS1JN DS    XL8      +166   JOBNAME
DSNLCOPY DS    XL3      +174   LAST BACKUP CPY DETECTED DATE
DSNRATIO DS    XL1      +177   IDRC REDUCTION RATE
DSN#BYTE DS    XL6      +178   # BYTES ON ARCHIVE VOLUME
DSNRESR2 DS    XL25     +184   RESERVED FOR FUTURE
*
DSNALSTN DS    CL8      +209   USERID OF LAST UPDATE
DSNAREL# DS    CL6      +217   ARCHIVE RELEASE NUMBER
DSNRTDTE DS    XL3      +223   DATE OF LAST RESTORE
DSNRTIME DS    XL2      +226   RESTORE TIME (UNSIGNED PACKED=HHMM)
DSNRTCNT DS    XL1      +228   COUNT OF RESTORES
DSNRESR3 DS    XL2      +229   RESERVED FOR FUTURE
DSNUSERF DS    XL25     +231   USER FIELD
```

Subfile Record Format — (MIGRECAT)

PS Migration to Tape

```
MIGRECAT DSECT
*
*    MIGRECAT SUBFILE RECORD FORMAT (PS Migration to Tape)
*    (control entries to recatalog data sets to backup tape)
*
CATREC   DS   0CL118      0
CATVOLNO DS    CL30       0 UP TO 5 PRIMARY VOLUMES
CATDSNAM DS    CL44      30 DATA SET NAME
CATDEVCL DS    XL4       74 DEVICE CLASS
CATVOLCT DS    H         78 VOLUME COUNT
CATCPYNO DS    CL30      80 UP TO 5 COPY TAPE VOLUME NUMBERS
CATNEWFS DS    H        110 FILE SEQUENCE NUMBER
CATCREDT DS    XL3      112 CREATION DATE OF MIGRECAT RECORD
CATEXPDT DS    XL3      115 EXPIRATION DATE
CATDDNAM DS    CL8      118 DDNAME FOR ORIGINAL VOLSER
CATVOLNO DS    CL6      126 ORIGINAL VOLSER
                       ——
                        132
```

Subfile Record Format — (RACFENCD)

RACF Encoded Profile Names

```
RACFENCD DSECT
*
*    RACFENCD SUBFILE RECORD FORMAT (for discrete profiles)
*
         DS   0CL90  (LAST 3 CHARS OF PROFILE DSN ALWAYS BLANK)
RACDSNAM DS    CL44     + 0    DATA SET NAME
RACARCDT DS    XL3      +44    ARCHIVE DATE (YDD)
RACATIME DS    XL2      +47    ARC TIME (UNSIGNED PACKED=HHMM)
RACPFNAM DS    CL44     +49    RACF PROFILE NAME
```

Subfile Record Format — (RESTCMDS)

Deferred Restore Requests

```
RESTCMDS DSECT
*
*    RESTCMDS SUBFILE RECORD FORMAT (DEFERRED RESTORE REQUESTS)
*
         DS   0F
RESDSNLR DS   0CL164
RESNUNAM DS    CL44         NEW DATA SET NAME
         DS    AL1(0)       FILLER X'00'
RESJOBID DS    CL8          JOB ID
RESREQTM DS    XL2          DRESTORE CMD SYSTEM TIME   XL2'HHMM'
RESREQDT DS   0XL3          DRESTORE CMD SYSTEM DATE       YDD
RESREQY  DS    X            DRESTORE CMD SYSTEM YEAR  XL1'YEAR'
RESREQDD DS    H            DRESTORE CMD SYSTEM DAY   XL2'DAY'
RESRUNTM DS    XL2          DISPOSE SYSTEM TIME        XL2'HHMM'
RESRUNDT DS    XL3          DISPOSE SYSTEM JULIAN DATE     YDD
RESFLAGS DS    XL2          FLAGS, X'0000' PENDING
                                   X'0001' COMPLETED OK
                                   X'0002' FAILED
                                   X'0004' ACTIVE
RESMSGID DS    CL4          MESSAGE NUMBER
RESTOVOL DS    CL6          VOLUME RESTORED TO
RESDSNAM DS    CL44         DATA SET NAME
RESVOLNO DS    CL6          FROM VOLUME
RESEXPDT DS    XL3          EXPIRATION DATE FROM COMMAND
RESRETPD DS    H            RETENTION PERIOD FROM COMMAND
RESMBRCT DS    H            MEMBER COUNT
RESPOOL  DS    CL8          POOL NAME
RESTIMDT DS   0ZL9          DRESTORE CMD TIMEDATE PARM VALUE:
RESTIME  DS    ZL4          DRESTORE CMD TIME         CL4'HHMM'
RESDATE  DS   0CL5          DRESTORE CMD JULIAN DATE      YYDDD
RESDTYY  DS    CL2          DRESTORE CMD YEAR        CL2'YY'
RESDTDDD DS    CL3          DRESTORE CMD JULIAN DAY  CL3'DDD'
RESOPTNS DS   0CL4          OPTIONS FROM COMMAND
RESSCRAT DS    C            SCRATCH
RESNOCAT DS    C            NOCATALOG
RESCREAT DS    C            CREATE
RESERASE DS    X            ERASE
RESPSWRD DS    CL8          PASSWORD
RESDELDT DS    XL3          DATE TO DELETE FROM FILE
```

Subfile Record Format — (RETEXCLD)

Grace Periods for Restored Data Sets

```
RETEXCLD DSECT
*
*    RETEXCLD SUBFILE RECORD FORMAT (Grace Periods for Restored
*                                    Data Sets)
*
EXCLDREC DS   0CL82
EXCDSNAM DS    CL44         DATA SET NAME
EXCVOLNO DS    CL6          VOLSER NUMBER
EXCEXPDT DS    XL3          END DATE OF GRACE PERIOD
         DS    XL29         FILLER
```

RECORD FORMATS — FILES DATA SET LOG RECORDS

FILES DATA SET LOG RECORD LAYOUT

```
RECORD 1:
                       OFFSET
AUDFDSNM DS CL44        +0     FILES DATA SET NAME

RECORD 2:
AUDITFIL DSECT
*
*    FILES DATA SET LOG RECORD FORMAT
*
*                      OFFSET
AUDITDAT DS XL4         + 0    DATE RECORDED (00YYDDDF)
AUDITIME DS XL4         +04    TIME RECORDED (HHMMSSHH)
AUDJOBNM DS CL8         +08    JOB NAME
AUDFUNCT DS CL8         +16    DMS FUNCTION
AUDFDATE DS XL4         +24    DMS FUNCTION START DATE
AUDFTIME DS XL4         +28    DMS FUNCTION START TIME
AUDSFFUN DS CL2         +32    SUBFILE FUNCTION
AUDSUBFL DS CL8         +34    SUBFILE
AUDRECRD DS XL0256      +42    THE UPDATED RECORD*
AUDXTRA  DS XL02        +298   RESERVED
* SEE SPECIFIC SUBFILE FOR SUBFILE RECORD DEFINITION
  If subfile function is 'SD' record may only contain
  the key for this entry.
```

Archive Tape Organization

The data sets archived during an execution of the archive support are stored as a single sequential data set with a record format of U (undefined). A file number, assigned to each data set at the time it is archived, is stored in the archive index and is used by SAMS:Disk to locate a given data set in order to restore it.

The access method used in accessing an archive tape is BSAM. Multiple buffering is employed during the reading and writing of data. The POINT macro is used to skip intervening blocks when positioning to a requested data set.

An internal algorithm is used to determine the approximate amount of data that can be carried on a single archive tape. If a data set for which an archive request is being processed will require more capacity than is estimated to remain on the current archive tape, a new archive tape will be mounted. This technique is used to confine each archived data set to a single reel of tape.

Large data sets that exceed the capacity of a single tape volume will always start at the beginning of the first volume to which they are archived. The system will presently handle data sets that can be stored on up to 35 tape volumes. (For non-VOS3 users, the limit is five tape volumes.)

Archive Tape Format

The following section describes the format of data contained on the SAMS:Disk Archive Tape.

Archive tape volumes contain all information necessary to restore archived data sets. This information consists of both SAMS:Disk control information and physical blocks of the archived data. All information is stored on the archive volume as logical records.

Six different logical record types can occur in an archive file. These logical records are formatted together into physical blocks and are then written to the tape volume. More than one physical block may be needed to store all data for an archived data set.

Each physical block can contain both SAMS:Disk control records and user data blocks. Blocks are filled with as many logical records as will fit into the blocksize specified. Logical records will span physical blocks. Each partial record in the new block has a split record prefix. For integrity purposes, logical records belonging to different archived data sets will never be stored in the same physical block.

Each physical block contains an 8-byte prefix area. This area contains control and block verification data. Its contents are:

OFFSET	LENGTH	DESCRIPTION
+0	2	Halfword length of physical block
+2	2	Halfword File Number. The file number starts at 1 and is incremented by one for every data set archived to the volume.
+4	4	Fullword Block Count. This count is the block number for this block within the archive volume.

Following the block prefix are the logical records that contain the control information and user data. Each logical record has a prefix that identifies its type and length. Following the logical record prefix is the logical record data. The first 8 bytes contain the record prefix; it will appear in all logical records. The format of logical record data differs for each logical record type. They are described later. The logical record prefix is formatted as follows:

OFFSET	LENGTH	DESCRIPTION
+0	4	Fullword length of the logical record. This length includes the length of the record prefix.
+4	1	Record Type Indicator. A 1-byte identifier is assigned to each record type. Based on this record type, SAMS:Disk can determine the contents and format of the remaining data in the record.
+5	3	TTR information

The following is a list of the valid logical record types:

Table 12-1. List of Valid Logical Record Types

Type	Description
C	SAMS:Disk Control Record. Its the first record generated for each data set archived and the first record for each data set.
1	Format-1 DSCB Record. This record always follows the control record. It contains an image of the format-1 DSCB for the archived data set.

Depending on the organization of the data set being archived and on the use of the full-track EXCP code or standard access method used to archive the data set, only

Type	Description
V	Volume/Catalog Data Record. This record contains volume and catalog information necessary to allocate non-VSAM data sets or define VSAM clusters.
D	PDS Directory Data (PDS data sets only). One record is generated for every directory block.
R	Data Set, Data Block. One logical record is generated for every physical block contained on the original data set that was archived.
A	Alias Record. One record is generated for every PDS alias entry in the PDS archived. This record type is only generated when non-EXCP support is used.
E	Logical End of Data Set. This is the last record generated for every archived data set.
S	Split record of Data Set. This is a partial record that has been split between blocks.
P	PDS information record. This record contains information relating to PDS anomalies and directory statistics.
U	User catalog (DMF/EF Type-2) record. This record type contains the alias pointers connecting a master catalog to an DMF/EF Type-2 catalog, extracted during DMF/EF Type-2 catalog backup.

certain record types will be present in the records on the archive tape. The following information indicates what records will be generated in the different cases:

Table 12-2. Record Types Generated for PS and DA

Type	Description
C	Control record
1	Format-1 DSCB
V	Volume/Catalog Data Record - allocation attributes
R	One or more physical data blocks
E	End of data set

For PO data sets using EXCP support, the following record types will be generated:

Table 12-5. Record Types Generated for PO

Type	Description
C	Control record
1	Format-1 DSCB
1	Volume/Catalog Data Record - allocation attributes
P	One or more directory statistics and anomalies block
D	One or more directory blocks
R	One or more physical data blocks. A data block with all x'EE' bytes indicates the end of data for a member.
E	End of data set

For PO (PDS and PDSE) data sets using non-EXCP support, the following record types will be generated:

Table 12-3. Record Types Generated for PDS and PDSE

Type	Description
C	Control record
1	Format-1 DSCB
V	Volume/Catalog Data Record - allocation attributes
D	Directory entry for each member
A	Entry for each alias entry
R	One or more physical data blocks. A series of D, A and R type records will be repeated.
E	End of data set

For ISAM data sets, the following record types will be generated:

Table 12-4. Record Types Generated for ISAM

Type	Description
C	Control record
1	Format-1 DSCB
V	Volume/Catalog Data Record - allocation attributes
R	Logical records from QISAM access method
E	End of data set

For AM (VSAM cluster) data sets, the following record types will be generated:

Table 12-6. Record Types Generated for VSAM

Type	Description
C	Control record
1	Format-1 DSCB (dummy)
V	Volume/Catalog Data Record - cluster attributes
R	One or more logical data records. The first is cluster catalog information used to allocate the cluster. Others are logical records returned by VSAM.
U	One or more alias entries from the master catalog (present only for backup copies of DMF/EF Type-2 catalogs)
E	End of data set

The following section describes the record formats for each logical record type on the archive volume.

Table 12-7. Record Format of Logical Record Types

Type	Offset	Length	Description
C — CONTROL RECORD	+0	44	Data set name
	+44	6	Volume serial
	+50	2	Archive time
	+52	2	(reserved)
	+54	3	Date archived
	+57	3	Archive expiration date
	+60	2	DSORG, from format-1 DSCB
	+62	1	DEVCL
	+63	1	DS1SCALO, from format-1 DSCB
	+64	2	Primary space quantity
	+66	2	Number of tracks used
	+68	2	Space allocated
	+70	2	Secondary space allocation
	+72	1	Cylinder overflow (F2 + 52) 1... .... data set in compressed fmt .xxx xxxx Trks per ISAM cyl overflow
	+73	1	CTLNOTRK (F2 + 66)

Type	Offset	Length	Description
1 — Format-1 DSCB	This is an exact copy of the format-1 DSCB found in the VTOC of the original volume. Its format is described in the IBM publication “Data Areas”.		
D — DIRECTORY RECORD	+0	256	EXCP support. Directory block from PDS. (See System Data Areas.)
D — DIRECTORY RECORD	+0	8	Non-EXCP support. Member name
	+8	4	TTRF
	+12	v	User data
A — DIRECTORY RECORD	+0	8	Non-EXCP support only. Member name
	+8	4	TTRF
	+12	v	User data
R — USER DATA BLOCKS	+0	v	User data physical blocks or logical records
E — END OF DATA SET	+0	10	’ END FILE ’
	+10	2	Directory count block
	+12	2	member count
	+14	1	’*’
	+15	2	DSNFLAGS - same as in DSNINDEX record
	+17	53	spaces
S — SPLIT RECORD	+0	v	remainder of logical record

Archive Tape Format (Volume-level Processing)

Volume-level backup tapes (that is, those created by the VBACKUP command) contain all information necessary to restore an entire DASD volume. This includes both SAMS:Disk control information and physical blocks of the DASD volume that was backed up. All information is stored on the volume-level backup tapes as track image records.

Table 12-8. Archive Tape Format (Volume-level)

Type		Offset	Length	Description
M — EXTENT RECORD	Created during volume-level backup processing. They contain the data set name and extent information for each data set.	+0	44	Non-VSAM. DSNAME from format-1 DSCB.
		+44	2	DSORG from format-1 DSCB
		+46	v	Data set extents from 1 to 16
M — EXTENT RECORD		+0	44	VSAM. Cluster name from VVDS reader.
		+44	2	DSORG from format-1 DSCB
		+46	44	Catalog name from VVDS reader
		+90	44	Component name from VVDS reader
		+134	v	Data set extents from 1 to 123
I — I/O Error Record	Created during volume-level backup processing. They are written to the tape when an I/O error occurs on the DASD volume being backed up.They contain the TTR and pertinent sense data.			
		+0	v	TTR and sense data for I/O errors

Archive Tape Format for Volume-level Backup Tapes

The following information indicates what records will be generated in the volume-level backup tape format.

Table 12-9. Tape Format for Volume-level Backups

Type	Description
C	control record
1	format-4 DSCB which imitates the format-1 DSCB
M	extent records
R	one or more physical data blocks
I	I/O error record
E	end of data set

Chapter 13. PARMLIB

This section describes the user-defined members of the SAMS:Disk parameter library (parmlib). You add members to parmlib when you want to modify or tailor the way a particular SAMS:Disk function works; for example, a list of data sets that you want to exempt from processing.

SAMS:Disk also keeps much of its own control information in the parmlib data set. These members are not described here, but in the appropriate section(s) of this manual instead. *Appendix B*, beginning on page 471, also identifies the parmlib members.

Command Summary:
VALIDATE

Program Executed:
ADSTS152

Special PARMLIB Members:
NAMEREFS

Purpose

All functions of SAMS:Disk use various control parameters during their execution. These parameters provide many different kinds of information. Some indicate how SAMS:Disk is to operate, some define the format of reports, some define data sets for which SAMS:Disk is to skip processing, and others provide user-dependent information to SAMS:Disk functions.

These parameter lists are specified as members of a partitioned data set known as the parameter library, or parmlib for short. The parmlib implementation allows SAMS:Disk to better tailor its operation to each user's requirements. The contents of a parmlib member can easily be changed to reflect the desired options. Once they are changed, the next execution of SAMS:Disk will use them.

The library is ready for use as soon as it is loaded from tape during the installation process. The supplied members are regarded as parameter lists to be used for internal SAMS:Disk system functions and should not be changed. Parameter lists to contain user information are placed in new members of the library. The documentation for each function of the system explains what user-defined members from parmlib it uses and the purpose of each.

Most SAMS:Disk functions that require user-created members will indicate specific names to be assigned when the member is created. Some functions allow this name to be overridden by parameters on the SAMS:Disk commands. This allows you to create several different parmlib members for use by the same function. Then you specify the member to be used at execution time.

See *"User Parmlib Members"* on page 441 for explanations of common SAMS:Disk parameter lists and the purpose of each. The documentation for each function of SAMS:Disk will further define the parmlib members used. More information will be found there.

Updating Member Data

Since the SAMS:Disk parameter library is a partitioned data set, it can be updated like any other PDS. SAMS:Disk does not provide special facilities to update it. Most installations have online editors to change members of PDSs. The standard Hitachi-supplied utility for maintenance of PDS members is the JSDUPDT utility. If you are unsure how to update this library, see your systems programmer.

Backup Considerations

Since the parameter library is a conventional PDS, it can be managed by the same means. Note, however, that if the parameter library is lost, SAMS:Disk restores cannot be done. Therefore it is advisable to occasionally take a backup copy of this data set using the JSDCOPY utility. Following is sample JCL to backup the SAMS:Disk PARMLIB with the Hitachi JSDCOPY utility. A copy of this JCL is in the SAMS:Disk installation library in member name PARMBKUP.

```
//BACKUP   EXEC   PGM=JSDCOPY
//SYSPRINT DD     SYSOUT=A
//SYSIN    DD     DUMMY
//SYSUT1   DD     DISP=SHR,DSNAME=SAMS.DISK.PARMLIB
//SYSUT2   DD     DISP=(,CATLG),DSNAME=SAMS.DISK.BACKUP.PARMLIB,
//               UNIT=TAPE
```

Figure 13-1. JCL to Backup PARMLIB

The following is sample JCL to restore the SAMS:Disk PARMLIB with the Hitachi JSDCOPY utility:

```
//RESTORE  EXEC   PGM=JSDCOPY
//SYSPRINT DD     SYSOUT=A
//SYSIN    DD     DUMMY
//SYSUT1   DD     DISP=OLD,DSNAME=SAMS.DISK.BACKUP.PARMLIB
//SYSUT2   DD     DISP=(,CATLG),DSNAME=SAMS.DISK.PARMLIB,
//               UNIT=DISK,SPACE=(CYL,(2,2)
//
```

Figure 13-2. JCL to Restore PARMLIB from Backup Tape

PARMLIB Specifications

These are the syntax rules for entries in members of parmlib:

1. A single entry can be from one to seventy-one characters long and can be continued if longer.
2. An entry must be enclosed in quotes if it contains embedded blanks or is continued. Any entry may be enclosed in quotes.
3. To continue an entry, add a comma after the ending quote.
4. To have quotes within an entry enclosed in quotes, use two quotes.
5. To include a comment, add an asterisk in column one. For a comment on a command line, it should follow one or more blanks after the entry.

Examples

An entry with no embedded blanks

```
1234567890
```

An entry with embedded blanks

```
'A SAMPLE ENTRY'
```

A continued entry

```
'A SAMPLE ENTRY THAT HAS BEEN CONTINUED ',
'THROUGH TWO LINES'
```

A continued entry

```
'A SAMPLE ENTRY THAT HAS BEEN CONTINUED ',
'THROUGH THREE ',
'LINES'
```

An entry enclosed in quotes using quotes

```
'A SAMPLE ENTRY THAT HAS '' QUOTES '
```

An entry not enclosed in quotes using quotes

```
12345'67890
```

A comment

```
* THIS IS A COMMENT
```

An entry followed by a comment on the same line

```
'A SAMPLE ENTRY FOLLOWED WITH COMMENT' COMMENTED HERE
```

Several comments

```
* THIS IS A COMMENT
* THAT HAS MORE THAN ONE LINE
```

Special Rules for NAMEREFS

NAMEREFS is a member in parmlib that allows users to specify alternate names for SAMS:Disk tables. It is intended for systems that have used previous releases of SAMS:Disk that supported parmlib members with 10-character names. This was before parmlib was converted to a partitioned data set format. The member contains the name in the old 10-character format and the new character name to be used in its place. This allows SAMS:Disk users to continue to specify old format names in the SAMS:Disk commands and still be properly accessed in the SAMS:Disk parameter library.

If this member is not used and a 10-character name is used on a SAMS:Disk command, SAMS:Disk truncates the 10-character name to 8 characters and searches parmlib for the character name.

1. Each entry in NAMEREFS has this format:

```
'OLDTABLENM NEWMEMBR'
```

where:	OLDTABLENM	the old table name - maximum of 10 characters
	NEWMEMBR	the new member name - maximum of 8 characters

Note: The entry must be enclosed in quotes because of the embedded blank between the two names.

Special Rules for POOLDEFS

The POOLDEFS member defines up to 150 pool names to be used by the archive/backup functions by associating a poolname with the name of the archive data set being created. If the data set is being created on tape, the pool name defines a tapepool that must exist within the SAMS:Disk files data set. If the data set is being created on disk (archival to disk), the pool name defines a diskpool that must exist as a member in the parmlib data set.

1. Each entry in POOLDEFS has the following format. Note that it must be enclosed in quotes because of the embedded blank between the two names.

```
'POOLNAME DATASETNAME'
```

where:	POOLNAME	a pool name — must be 8-characters in length
	DATASETNAME	a data set name/pattern, 1- to 44-characters, that is to be mapped to the specified pool

PARMLIB Syntax Validation Utility

This utility validates the syntax of the specified members or all members in the parmlib data set. A copy of the execution JCL is in the installation library in member PARMVALD.

```
//VALIDATE EXEC PGM=ADSMI002,PARM=ADSTS152,REGION=768K
//STEPLIB  DD  DSN=SAMS.DISK.LOADLIB,DISP=SHR
//ABNLDUMP DD  DUMMY
//CMDPRINT DD  SYSOUT=A
//MSGPRINT DD  SYSOUT=A
//PARMLIB  DD  DSN=SAMS.DISK.PARMLIB,DISP=SHR
//SYSPRINT DD  SYSOUT=A
//SYSUDUMP DD  SYSOUT=A
//SYSIN    DD  *
  VALIDATE MEMBERS=
```

Figure 13-3. Sample JCL to Execute Syntax Validation

MEMBERS=

A list of from 1 to 50 member names to be validated for syntax rules.

User PARMLIB Members

Member Name	RETENTAU
Alternate Name	Specify on AUTABLE= parameter on command
Used By	RETAIN COMMAND - IMPLICIT ARCHIVAL

Description

The purpose of this member is to permit data set retention control where only data sets having one of a common set of data set name or volume prefixes are permitted to reside on a volume or class of volumes.

Each member entry must consist of a character volume serial and a 1- to 44-character data set name.

While the volume serial numbers do not have to be in any particular sequence, all entries for a given volume serial number or prefix must be contiguous in the member.

Format

```
'VVVVVVDDDD....'
```

Where:	VVVVVV	A 1- to 6-character volume serial number or a SAMS:Disk pattern value in positions 1 through 6.
	DDDD	A 1- to 44-character data set name or SAMS:Disk pattern name in positions 7 through 50.

Example

The first sample entry indicates that all “SYS /” data sets are authorized only for volumes beginning with the three characters “SYS”. The second entry indicates that all “USERA.” data sets must exist on volumes beginning with “TSS”.

```
'SYS/ SYS./'
'TSS/ USERA./'
```

Billing Members in PARMLIB

Member Name	DSBCATEG DSBRATEC DSBUSERD DSBEXCLU
Used By	ACCUM COMMAND - DASD BILLING FUNCTION EXTEND COMMAND - DASD BILLING FUNCTION

Description

These members are used by the DASD Billing function of SAMS:Disk. Please turn to page 387 in the *User's Guide* for a description of their use and format.

Billing User Code Definition Member

Member Name	USERCODT
Used By	ACCUM COMMAND - DASD BILLING FUNCTION EXTEND COMMAND - DASD BILLING FUNCTION

Description

This member assigns user codes to data set names or prefixes. It is used by the DASD Billing function.

Entries are used to define DASD Billing user code values to data set names. Data set names may be coded as full names or prefix names. If a data set name is encountered and no entry exists for it in the member, a value of spaces will be assigned. To allow a default value to be used instead of spaces, specify the last member entry with the default value desired and a data set name value of a single slash character.

Format

```
'CCCCCCCCCCCCDDDD....'
```

Where:	CCCCCC	A 1- to 12-character user code to be assigned to data set names matching the following data set name or pattern in positions 1 through 12.
	DDDD	A 1- to 44-character data set name or SAMS:Disk pattern name in positions 13 through 56.

Example

The following example shows three entries in a user code definition member. The first entry indicates that all data sets that begin with the characters "PROD" are assigned the user code "PRODUCTION". All data sets beginning with "TEST" are

assigned the user code “DEVELOPMENT”. All other data sets are assigned the user code “UNKNOWN”.

```
'PRODUCTION PROD.//'
'DEVELOPMENT TEST.//'
'UNKNOWN //'
```

DASD Pool List

Member Name	DASDPOOL
Used By	RECOVER COMMAND - RECOVER FUNCTION RESTORE COMMAND - RESTORE FUNCTION

Description

Entries are listed in this member to define one or more pools of DASD volumes that share a common role. This member is used by the restore function to obtain an alternate volume for allocation when the data set being restored cannot be placed on the target volume. It is also used when the POOL parameter is specified on the RESTORE command.

The DASD pool list is a single member in the parmlib data set. Each entry contains the name of the volume to be associated with a DASD pool and the pool name. Multiple volumes may be associated with the same pool name by having multiple entries with the same pool name and different volume serials. Multiple DASD pools may be generated by using different pool names on groups of entries. Note that all entries comprising a pool must be grouped together.

Up to 60 different DASD pool names may be defined. Sysparm DASDVMAX specifies the total number of volumes that may be included in the defined pools (sum of volumes in all different pools). This is also the maximum number of volumes that may be specified for a single pool name. The default value is 100; for example, one pool of 100 volumes, or two of 50, etc.

Format

```
'VVVVVVPPPPPPPP'
```

Where:	VVVVVV	The 6-character volume serial of a volume in a pool. If it is fewer than six characters in length, trailing blanks must be provided and the entry enclosed in quotes in position 1 through 6.
	PPPPPPPP	The 1- to 8-character alphanumeric pool name. This name must be identical for all volume entries comprising a specific pool in positions 7 through 14.

Example

The following entries define two pools, a volume pool named RJEWORK and a volume pool named TSSDATA.

```
'VOL003RJEWORK'
'VOL004RJEWORK'
'VOL006RJEWORK'
'PACK01TSSDATA'
'PACK12TSSDATA'
'PACK15TSSDATA'
'PACK20TSSDATA'
```

Auto-Restore DSNAME Pool Member

Member Name	name specified by user in sysparm ARDSNPOL
Used By	AUTO-RESTORE DRIVEN FROM CATALOG MANAGEMENT

Description

Entries are listed in this member to define one or more data set pattern names that get associated with pools of DASD defined in the member DASDPOOL. This member is used by the auto-restore function to obtain a pool of volumes for allocation selection, rather than forcing the restore to a specific target volume.

The entries in this table relate either explicit or pattern data set names with a specific DASD pool to which to restore. All standard SAMS:Disk pattern-matching capabilities are supported for the data set names. When a data set is being restored, the entries in this table are searched from top to bottom to find a match. The first match that is found will have its pool name used. With this in mind, you should place the more specific entries at the start of the table.

If you always wanted to force a default pool to be used when no other matches are found, use the following entry as the last entry in the table:

```
'DFLTPOOL/ '
```

There is currently no limit to the number of entries permitted in this table. The only requirement is that all pool names referenced must exist in the member called DASDPOOL. The same pool name can be used in multiple entries in the table.

Format

```
'PPPPPPPPDDDDDD....DDD'
```

Where:	PPPPPPPP	The 8-character pool name defined in member DASDPOOL in positions 1 through 8.
	DD...DD	The 1- to 44-character data set name pattern to compare against in positions 9 through 52.

Example

The following entries define several patterns to compare against. Note that the entries go from most specific to most generalized.

```
'POOL8595LABS.DMSOS.*.LOADLIB '
'POOL8598LABS.DMSOS.*.FILES   '
'POOLWORKLABS.TEST/   '
'POOLPRODLABS.PROD/  '
'POOLWORKLABS.TJP/  '
'POOL8598LABS./  '
'POOL8595/   '
```

Auto-Restore Source Volume Pool Member

Member Name	name specified by user in sysparm ARVOLPOL
Used By	AUTO-RESTORE DRIVEN FROM CATALOG MANAGEMENT

Description

Entries are listed in this member to define one or more source volume pattern names that get associated with pools of DASD defined in the member DASDPOOL. This member is used by the auto-restore function to obtain a pool of volumes for allocation selection, rather than forcing the restore to a specific target volume.

The entries in this table relate either explicit or pattern source volume names with a specific DASD pool to which to restore. All standard SAMS:Disk pattern-matching capabilities are supported for the volume names. When a data set is being restored, the entries in this table are searched from top to bottom to find a match. The first match that is found will have its pool name used. With this in mind, you should place the more specific entries at the start of the table.

If you always wanted to force a default pool to be used when no other matches are found, use the following entry as the last entry in the table:

```
'DFLTPOOL/ '
```

There is currently no limit to the number of entries permitted in this table. The only requirement is that all pool names referenced must exist in the member called DASDPOOL. The same pool name can be used in multiple entries in the table.

Format

```
'PPPPPPPPVVVVVV'
```

Where:	PPPPPPPP	The 8-character pool name defined in member DASDPOOL in positions 1 through 8.
	VVVVVV	The 1- to 6-character pattern to compare against the source volume of the data set being restored in positions 9 through 14.

Example

The following entries define several patterns to compare against. Note that the entries go from most specific to most generalized.

```
'POOL8595LABS5/'
'POOL8598LABS8/'
'POOLWORKWRK/  '
'POOLPRODPROD/ '
'POOLTEMP/ '
```

Exclusion Table for Data Compression

Member Name	Specified in sysparm DCEXCTBL_____
Used By	ARCHIVE AND BACKUP FUNCTION

Description

Place the data set names and patterns that are to be excluded from data compression during archive or backup into this member. A match causes data compression to be bypassed.

Format

```
'DDDD.....'
```

Where:	DDDD...	A 1- to 44-character data set name or SAMS:Disk pattern data set name. Located in positions 1 through 44.

Example

The following entries cause data sets with a prefix of “SYS1" and data sets with only three nodes and the third node is ”PRINT" to be excluded from compression processing.

```
'SYS1/'
'*.*.PRINT'
```

Inclusion Table for Data Compression

Member Name	Specified in sysparm DCINCTBL_____
Used By	ARCHIVE AND BACKUP FUNCTION

Description

Place the data set names and patterns that are to be included for data compression during archive or backup into this member. A match causes the data set to be compressed.

Format

```
'DDDD.....'
```

Where:	DDDD.....	A 1- to 44-character data set name or SAMS:Disk pattern data set name. Located in positions 1 through 44.

Example

The following entries cause data sets with a prefix of “SYS1" and data sets with only three nodes and the third node is ”PRINT" to be compressed.

```
'SYS1/'
'*.*.PRINT'
```

Exemption Lists - Generalized

Member Name	Specified with command parameters; EXEMPT= EXTABLE= TABLE=
Used By	RELEASE COMMAND (IDLE SPACE RELEASE) SCAN COMMAND (PDS COMPRESS) EXCLUDE COMMAND (DSCL) MOVE/COPY COMMANDS

Description

Place the data set names and patterns that are to be exempt from SAMS:Disk volume scan processing in this member of parmlib. When SAMS:Disk is searching

DASD volumes for data sets to process, it will check to ensure that the data set name is not in this list before attempting processing for it. If the data set name is in this list, it will be exempted from processing.

Format

```
'DDDD.....'
```

Where:	DDDD.....	A 1- to 44-character data set name or SAMS:Disk pattern data set name. Located in positions 1 through 44.

Example

The following entries cause data sets beginning with the five characters “SYS./”, and data sets with a third node level of “PRINT” to be excluded from SAMS:Disk processing.

```
'SYS /'
'*.*.PRINT'
```

Exemption List for Implicit Archive (Retain)

Member Name	RETENTXM
Alternate Name	Specify on EXTABLE= parm on command
Used By	RETAIN COMMAND - IMPLICIT ARCHIVAL

Description

Data sets that are to be exempted from retention control processing must have their names or a matching name prefix placed in this member. When EXEMPT is coded on the RETAIN command, this member is searched for a matching data set name for each data set being examined. A match causes no further processing; that is, the data set is exempt.

Member entries may be a combination of data set names and patterns with a length of 1 to 44 characters.

Note: A different member name may be used by specifying it in the EXTABLE= parameter. No exemption member is ever examined, however, unless the EXEMPT parameter is also present.

Format

```
'DDDD.....'
```

Where:	DDDD.....	A 1- to 44-character data set name or SAMS:Disk pattern data set name. Located in positions 1 through 44.

Example

The following entries cause data sets beginning with the five characters “SYS /” and data sets with a third node level of “PRINT” to be excluded from processing.

```
'SYS /'
'*.*.PRINT'
```

GDG DASD Generations List

Member Name	GDGDASDG (for sequential migrate function) xxxxxxxx (specified on RETGDGNM sysparm for the retain function)
Used By	SCAN COMMAND - SEQUENTIAL MIGRATE TO TAPE RETAIN COMMAND - IMPLICIT ARCHIVAL

Description

Used by the sequential migration to tape function, and the implicit archival function, this member is used to specify the number of generations of each GDG data set that are to be kept on disk.

For the sequential migrate to tape function, the older generations are copied to tape and recataloged. The entries in this member are retrieved and used only when the GENER= parameter is specified with the SCAN command. The member entries override the value specified on the GENER= parameter.

For the implicit archival function, the older generations are processed according to the options specified with the G selection type entry in the volspec table, with the member entries overriding the limit value specified in that same entry.

This data set name list is searched from top to bottom during SAMS:Disk processing. The first data set or pattern name in the list that matches the data set being processed will be used.

Format

```
'NNNNDDDD.........'
```

Where:	NNNN	A 4-digit generation count indicating the number of generations of a GDG data set to keep on disk. Located in positions 1 through 4.
	DDDD....	A 1- to 36-character GDG base name or pattern to which this version count applies. Do not include the GggggVvv as part of your pattern! Use all or a portion of the base name with an appended slash. Located in positions 5 through 40.

Example

The following sample entries indicate to keep the two current generations of all GDGs starting with PROJ.GDG.INDX1, and to keep three copies of those starting with DEPT75.GDG.INDX2. All other data sets will have one copy kept on DASD.

```
'0002PROJ.GDG.INDX1/'
'0003DEPT75.GDG.INDX2/'
'0001/'
```

Migration Exemption List

Member Name	MIGRATXM
Alternate Name	Specify on METABLE= parameter of command
Used By	SCAN COMMAND - SEQUENTIAL MIGRATE TO TAPE

Description

Place the data set names and patterns that are to be exempt from the sequential migration to tape function in this member. Any data set that matches a specification in this list will be ignored by SAMS:Disk. Each entry consists only of a 1- to 44-character data set name or pattern.

Format

```
'DDDD.....'
```

Where:	DDDD.....	A 1- to 44-character data set name or SAMS:Disk pattern data set name. Located in positions 1 through 44.

Example

The following entries cause data sets beginning with the five characters “SYS /” and data sets with a third node level of “PRINT” to be excluded from sequential migration processing.

```
'SYS /'
'*.*.PRINT'
```

PDS Anomaly Table

Memeber Name	Specify on sysparm PDSANMLY
Used By	Archive, backup, restore and recover of a PDS

Description

This member is optionally used by the SAMS:Disk archive and restore processing for a PDS. It defines specific types of anomalies found in partitioned data sets, and what options to use when they are encountered.

See the *"Processing PDSs that Contain Anomalies"* topic on page 69 for information about the format and use of this member.

Reblocking Member

Member Name	Specify on BLKSIZE= parm of MIGRATE command
Used By	MOVE/COPY COMMAND

Description

This member is optionally used by the Move/Copy function when the user indicates that data sets are to be reblocked as they are moved to new DASD volumes.

See the *"Reblocking"* topic on page 338 of the *User's Guide* for information about the format and use of this member.

Retention Period By Prefix List

Member Name	RETENTPR
Alternate Name	Specify on RPTABLE= parameter of command
Used By	RETAIN COMMAND - IMPLICIT ARCHIVAL

Description

This member is used by retention control processing. When the R selection type is specified in the volspec entry, each data set being processed is matched against the names in this member to retrieve a retention period. This retention period value is added to the data set's creation date or last used date to yield an expiration date. If this date has been reached, the data set is disposed according to the disposal actions in the volspec entry. Also see the sysparm description for *RETPREFT* on page 163.

The entries are loaded into memory on the first call and remain for the duration of retention control processing. The list is searched serially until an entry is found that corresponds to the passed volume serial number and data set name.

To have a retention period applied to a given data set name or pattern regardless of volume of residence, /xxxxx should be specified as the volume prefix.

Format

```
'NNNNVVVVVVDDDD....'
```

Where:	NNNN	The 4-digit retention period to be added to the creation or last used date of any data set with the name or pattern name given in the (d-d) field. Located in positions 1 through 4.
	VVVVVV	The 1- to 6-character volume serial number of the volume on which the data set exists. This may be a SAMS:Disk pattern specification. Located in positions 6 through 10.
	DDDD....	The 1- to 44-character data set name or SAMS:Disk pattern data set name to which this entry applies. Located in positions 11 through 54.

Example

The first sample entry indicates that all “SYS /” data sets are to be kept for 365 days, no matter what volume they exist on. The second entry indicates that all data sets beginning with “TEST./” will be kept for only 15 days.

```
'0365/ SYS /'
'0015TSS/ TEST./'
```

Retention Control Volume Specification Table

Member Name	RETVOLSP
Alternate Name	Specify on VSTABLE= parameter on command
Used By	RETAIN COMMAND - IMPLICIT ARCHIVAL

Description

This member is used to indicate to SAMS:Disk implicit archival what data set selection criteria are in effect and what actions are to be taken against selected data sets. See the Retention Control section for a complete explanation of this member and how it is specified.

Security List for SAMS:Disk Data Set Protection

Member Name SECURDSN

Used By ALL SAMS:Disk functions

Description

This member is used to define data set names to be associated with SAMS:Disk resources that are to be protected. The member is currently used for the protection of subfiles within the SAMS:Disk files data set, and SAMS:Disk command names. To activate the SAMS:Disk features to protect these resources, specify sysparms SECURFIL and SECURCMD with a value of Y.

Each entry in this member describes a resource type to be protected, the name of the resource, and the data set name and volume to be associated with the resource.

Note: If a resource is not defined in this member and security checking has been activated for the resource type, the resource is considered not to be protected and access to the resource is allowed.

Format

```
'CRR-RRVVVVVVDDDD....'
```

Where:

'	A single quote used as a delimiter. An * asterisk indicates a comment line. Located in position 1.	
C	A single character indicator specifying the type of resource to which the entry applies. Located in position 2. The following values are valid:	C For SAMS:Disk command name. F For a subfile of the files data set.
RR-RR	A 1- to 15-character name of the resource to be protected (for example, a command or subfile name). This name can be specified with SAMS:Disk pattern matching notation. Located in positions 3 through 17.	
VVVVVV	A 1- to 6-character volume serial to be passed to the security system with the data set name. Located in positions 18 through 23.	
DDDD....	A 1- to 44-character data set name known to the installation security system. Located in positions 24 through 67.	

Examples

Following are examples of entries for this member.

Example 1

The following entry protects SAMS:Disk command name ARCHIVE. Data set

name “SAMS.DISK.ARCHIVE.COMMAND” will be interrogated whenever the user attempts to use the ARCHIVE command. The data set name exists on volume=SYSRES. If the user does not have OUTPUT authority for this data set name, the command will be rejected.

```
'CARCHIVE SYSRESSAMS.DISK.ARCHIVE.COMMAND'
```

Example 2
The following entry protects SAMS:Disk subfile name DSNINDEX. Data set name “SAMS.DISK.FILE.DSNINDEX” will be interrogated whenever the user attempts to use the subfile. The data set name exists on volume=SYSRES. If the user does not have appropriate authority to process the subfile (that is, to archive a data set the user must have UPDATE authority to the DSNINDEX subfile), processing will be terminated.

```
'FDSNINDEX SYSRESSAMS.DISK.FILE.DSNINDEX'
```

Selection Lists — Generalized

Member Name	Specified with command parameters; TABLE=
Used By	SELECT COMMAND - DSCL FIND COMMAND - DSCL

Description

Place the data set names and patterns that are to be included in processing in this member of parmlib. When SAMS:Disk is searching DASD volumes for data sets to process, it will check to ensure that the data set name is in this list before attempting to process it. If the data set name is not in this list, it will be exempted from processing.

Note: If the intention of the table is for use with either the FIND or RECOVER command, then each data set name specified must include a complete HLQ (High Level Qualifier). For a futher explanation, refer to the third example below.

Format

```
'DDDD.....'
```

Where:	DDDD.....	A 1- to 44-character data set name or SAMS:Disk pattern data set name. Located in positions 1 through 44.

Examples

The following entries cause data sets beginning with the five characters “SYS /” and data sets with a third node level of “PRINT” to be processed by SAMS:Disk.

```
'SYS/'
'*.*.PRINT'
'PROG.!PROD'
```

System Parameter List

Member Name SYSPARMS

Used By ALL SAMS:Disk FUNCTIONS

Description

The SAMS:Disk system parameter list is a user-specified list of options used by SAMS:Disk during its operation. They indicate how the user wants SAMS:Disk to operate in their environment. These parameters are explained completely in the *Sysparms* section beginning on page 95.

Each entry in the SYSPARMS member specifies a separate option to SAMS:Disk. System parameters have 8-character names that identify them. Each entry contains the character name followed by the option specification. Option specification is variable depending on the definition of the option.

Format

```
'XXXXXXXXVVVV....'
```

Where:	XX..XX	System parameter name. Located in positions 1 through 8.
	VVVV....	System parameter information. Located in positions 9 through nn.

Example

The following entries define two system parameters. The first parameter indicates that the VSAM support is installed on the SAMS:Disk system. The second option indicates that default retention periods for implicit archival processing is 15 days.

```
'VSAMSUPPY'
'RETRETPD0015'
```

TSS USERID Authorization List

Member Name TSOUSERI

Used By ALL SAMS:Disk TSS FUNCTIONS

Description

This member contains the user IDs of those TSS users who are to be given the ability to archive and restore data sets of any name, not just those prefixed with their user ID. SAMS:Disk system defaults allow all users this privilege. This member is used if either sysparm TSOUSRIDY or SPFUSRIDY is present, restricting users to accessing only those data sets prefixed with their user ID.

Format

```
'UUUUUUU'
```

Where:	UUUUUUU	The 1- to 7-character TSS user ID of the TSS users authorized to process any data set with SAMS:Disk TSS support. Located in positions 1 through 7.

Example

The following entries indicate that users “USERA” and “PGMMGRS” are authorized to process any data sets.

```
'USERA'
'PGMMGRS'
```

User-Specified Condition Codes

Member Name CCSET

Used By ALL SAMS:Disk FUNCTIONS

Description

The purpose of this member is to provide the user with the capability to override or not override the condition code generated by SAMS:Disk. If the user chooses to override the SAMS:Disk-generated condition code, one of four possible alternative condition codes may be selected and assigned per message number. The first entry in this member is required. The format is as follows:

```
$FLG FORMAT
```

Format

```
'$FLGXyz'
```

or

```
'nnnnbxy'
```

Where:	$FLG	$FLG		
	X	BLANK		
	y	BATCH FLAG	B	display message under BATCH
			BLANK	do not display message under BATCH
	z	TSS FLAG	T	display message under TSS
			BLANK	do not display message under BATCH
or	nnnn	4-digit SAMS:Disk message code. Located in positions 1 through 4.		
	b	blank, located in position 5.		
	x	O	override	Use SAMS:Disk condition code. Located in position 6.
		N	no override	
	y	override condition codes (located in position 7):	G	0 (good)
			I	4 (informational message)
			R	8 (resource error)
			E	12 (error)
			C	16 (command error)

Example

The following entry indicates that the user wishes to override the SAMS:Disk-generated condition code for message 3179 with a user-specified condition code of 16.

```
'3179 OC'
```

Chapter 14. JCL DD Statements

This section provides an explanation of all DD statements within the PROCS. All DD statements (except STEPLIB) are arranged alphabetically. This allows overriding DD statements to be used much more easily, since all you need to remember is to provide them in alphabetical order.

Table 14-1. Symbolic Parameters and Recommendations

Symbolic PARMS	Recommended Defaults	Explanations
P	SAMS.DISK.Rnn.INSTALL	Library for control statements
Q	SAMS.DISK.Rnn	Qualifier for data sets
S	*	Sysout class
W	SYSDA	Workfile default unit name

Where Rnn represents the release number that is installed. For example, Release 1.1 or 9.9 would be represented as R11 or R99, respectively.

Note: These default values are recommended, but may be different due to your local naming conventions. Please examine the actual procedures as installed and being used at your location and consult your local SAMS:Disk support personnel if you need assistance.

DD Statement Explanations

//AMSRFILE

A temporary sequential data set used by the MOVE function. Critical events are logged as they occur in VSAM data set move processing. This log is used to recover the cluster in the event SAMS:Disk abends when the data set is being moved.

//ARCHIVEC

This dd statement should be provided only when duplicate backup copies of the archive tapes are desired. It may be either omitted or dummied out if duplicate tapes are to be suppressed.

DCB attributes are automatically copied from the ARCHIVE0 dd statement. It may also be dynamically allocated based upon the values of sysparms ARCCTYPE and ARCCNAME.

//ARCHIVES
This dd statement is used by SAMS:Disk to allocate a tape drive when read access of the archives is necessary. The RESTORE and RECOVER functions and REBUILD access the SAMS:Disk archives for read only.

//ARCHIVE0
The output medium upon which archived data sets are to be stored is referenced by this dd statement. It may be provided in the JCL, or it may also be dynamically allocated based upon the values of sysparms ARC0TYPE and ARC0NAME. If the expiration date is not supplied by the label parameter or if its value is zero, the highest expiration date from all of the data sets to be written on it will be placed in the label as the expiration date.

//ARCHIVC1 ... ARCHIVC5
Output devices for the duplicate copies created by the MERGE function, which distributes the archived data sets based upon their expiration dates.

//ARCHIVE1 ... ARCHIVE5
Output devices for the primary copies created by the MERGE function, which distributes the archived data sets based upon their expiration dates.

//ARCHOUT
A sequential data set dynamically allocated to receive the DSCL Archive commands generated with the DASD Threshold Manager.

//COMMANDS
A temporary work file used by the RESTORE function to order the explicit RESTORE requests. This is done such that the archive tape will be mounted only once, and processed only in the forward direction.

//CMDPRINT
A transaction listing of the input command stream and any command processing messages.

//COMPWORK
A temporary work file used by the PDS Compress function. It holds the PDS member data during a SCRATCH and REALLOCATE of the data set.

//COPYFILE
A data set containing a list of SAMS:Disk archive volumes that are to be copied.

//DATEWORK
A record is written in this data set for each sequential data set to be migrated. The records are subsequently retrieved in descending expiration date order.

//DISPHOLD

A temporary data set used to suspend data set disposition until a threshold value can be verified. This allows certain SAMS:Disk functions to operate in a "fail safe" mode.

//DISPWORK

A disposition record is written in this data set for subsequent reference in determining the recatalog and scratch action after successful tape creation.

//DSNEXPDT

This file is REQUIRED (live or simulate mode) only if:

- Data sets that satisfy the selection criteria specify ARCHIVE as one of the disposal actions and
- No expiration date is provided on the //ARCHIVE0 dd statement.

The file is used to determine the highest expiration date from all the data sets being archived. This date is then assigned as the expiration date for the entire archive volume.

The file is used much like an internally generated deferred request. All disposal records for any archives to be done are temporarily stored here. The highest expiration date is found, the archive volume is opened, and the disposal records are then processed to cause the actual archiving of the data sets.

//DSNIIN

This dd statement is used as a SORTIN data set.

//DSNINDEX

This data set is used to contain the sorted ARCHIVE index records used for MERGE input.

//DSNIOUT

This dd statement is used as a SORTOUT data set.

//DSNIWK01 ... WK03

These dd statements are used as SORT work files.

//DSCBS

This dd statement is used as a SORTIN data set. It contains the format-1 DSCBs selected by the billing function.

//FILEIN

This dd statement is used as a SORTIN data set.

//FILEOUT
This dd statement is used as a SORTOUT data set.

//FILES
This dd statement allocates the SAMS:Disk files data set. It contains subfiles for the DSNINDEX, ARCHVOLS and other files.

//FILEWK01 ... WK03
These dd statements are used as SORT work files.

//FILPRINT
This dd statement defines a SYSOUT data set SAMS:Disk will use to produce a files status report.

//INDEXREC
A temporary work file used by the RECOVER function to order the DSNINDEX records. This is done such that an ARCHIVE tape will be mounted only once, and processed only in the forward direction.

//MIGRATE
Data sets are migrated to this device from DASD.

//MIGRATEC
When the COPY option has been specified to obtain duplicate tapes, this dd statement is required. The DCB attributes, including expiration date for this data set, are obtained from the MIGRATE dd statement.

//MFILES
This dd statement allocates one or more SAMS:Disk files data sets for auto restore, restore, and defered restore processing. Each files data set allocated in the concatenation is searched to find the first DSNINDEX record for a data set to be restored. The MFILES dd statement will not be used if the FILES dd statement is allocated.

//MOVPRINT
A formatted report of data sets processed for the DSCL MOVE function.

//MSGPRINT
Execution time messages are directed to this data set.

//PARMLIB
This dd statement defines the SAMS:Disk parameter library. It contains internal system parameter lists as well as any user-defined parameters.

//PARMLIBD (TSO/ISPF only)

This statement defines the SAMS:Disk parameter library. It is an alternate ddname that can only be used in an online (TSO/ISPF) environment if the ddname PARMLIB is used by another product. For more information, turn to the topic *"Step 1. Identify Files, Parmlib, and Activation Codes"* on page 10 of the *Installation Guide*.

//RELPRINT

A formatted report of data sets processed for the DSCL RELEASE function.

//REPORTS

This ddname is used to reference the data set that receives the detail records in any report generating step, and the data set containing the sorted records in the print step.

//RESTART

This data set is required by the Extend function of DASD Billing. It is used to clear the billing file and for proper recovery after an abend.

//SEQFILES

This data set contains records from a FILES unload and is used for the FILES reload.

//SMFDATA

This ddname is used in the SMFRPT procedure to reference a sequential data set containing SMF type 14 and 15 records. These records are used to produce the "Utilization by Date and Time" report.

//STEPCAT

The STEPCAT dd statement should be used only to override the normal catalog search techniques.

//SYSPARMS

The SYSPARMS dd statement may be used to supply overriding sysparm values at execution time.

//SYSPRINT

A formatted listing of all actions taken during the run are directed to this data set.

//TAPEPULL

This data set contains a copy of the generated “tape pull” list and restricts SAMS:Disk to only those tapes.

//VSAM

DD statement required for VSAM cluster reference.

//VSAMKEY

DD statement used to reference a VSAM index component when it resides on a different volume from the cluster's data component.

//VSAMRVOL

DD statement used to reference a volume that contains a VSAM recoverable catalog required to successfully define a VSAM cluster.

Appendix A. DSCB Appendage Fields

Allocation information regarding individual data sets that is not available in the format-1 DSCB is maintained as an appendage to the DSCB, which is passed to all non-VSAM control processing modules.

Format-1 Fields

The fields computed for the format-1 DSCB are described below. A binary format is used for all data.

Table A-1. Format-1 DSCB Appendage Fields

Offset			
DEC	**HEX**	**Length**	**Description**
0	(00)	140	Data Set Control Block - DSCB
140	(8C)	8	mbbcchhr of DSCB (reports only)
148	(94)	2	Tracks Allocated
150	(96)	2	Tracks Idle
152	(98)	2	PDS Directory Blocks used (a value of x'7FFF'indicates it has not been calculated yet)
154	(9A)	2	PDS Directory Blocks empty
156	(9C)	2	PDS Member count (a value of x'7FFF' indicates it has not been calculated yet)
158	(9E)	2	PDS Member average directory entry length (will be zero if not calculated yet)
160	(A0)	2	PDS Member directory capacity
166	(A6)	2	Tracks in Primary Allocation
168	(A8)	2	Extent 1 tracks
170	(AA)	2	Extent 2 tracks
172	(AC)	2	Extent 3 tracks
174	(AE)	2	Extent 4 tracks
176	(B0)	2	Extent 5 tracks

Offset			
DEC	**HEX**	**Length**	**Description**
178	(B2)	2	Extent 6 tracks
180	(B4)	2	Extent 7 tracks
182	(B6)	2	Extent 8 tracks
184	(B8)	2	Extent 9 tracks
186	(BA)	2	Extent 10 tracks
188	(BC)	2	Extent 11 tracks
190	(BE)	2	Extent 12 tracks
192	(C0)	2	Extent 13 tracks
194	(C2)	2	Extent 14 tracks
196	(C4)	2	Extent 15 tracks
198	(C6)	2	Extent 16 tracks
200	(C8)	2	PDS Member Directory entries available
202	(CA)	2	Primary allocation by type
204	(CC)	2	Number of Extents
206	(CE)	2	PDS - number ALIAS entries in directory
208	(D0)	2	PDS - dir entries with user TTR pointers
210	(D2)	2	PDS - dir entries with note lists
212	(D4)	1	ISAM - Number of tracks per cyl overflow
213	(D5)	1	ISAM - Number of tracks for highest index
214	(D6)	2	PDS - Max directory entry length
216	(D8)	2	PDS - Min directory entry length

Format-4 Fields

Allocation information that has been accumulated from the processing of all types of DSCBs is available as an appendage to the format-4 DSCB, which is passed as one of the parameters to the report assemble modules. The fields that are described below are carried in a binary format unless otherwise indicated.

Table A-2. Format-4 DSCB Appendage Fields

Offset			
DEC	**HEX**	**Length**	**Description**
0	(00)	140	Format-4 DSCB - VTOC (volser in pos 1-6)
140	(8C)	8	mbbcchhr of DSCB
148	(94)	6	Volume serial
154	(9A)	4	Unit address
158	(9E)	2	Device class
160	(A0)	1	UCBSTAT
161	(A1)	1	UCBSTAB
164	(A4)	4	Date - Julian (xxyydddf)
168	(A8)	4	Time - (xhhmmssf)
172	(AC)	2	DSCB count - blank
174	(AE)	2	DSCB count - F1
176	(B0)	2	DSCB count - F2
178	(B2)	2	DSCB count - F3
180	(B4)	2	DSCB count - F4
182	(B6)	2	DSCB count - F5
184	(B8)	2	DSCB count - F6
186	(BA)	2	DSORG count - IS
188	(BC)	2	DSORG count - PS
190	(BE)	2	DSORG count - DA
192	(C0)	2	DSORG count - PO
194	(C2)	2	DSORG count - AM
196	(C4)	2	DSORG count - other

Offset			
DEC	**HEX**	**Length**	**Description**
198	(C6)	4	Category count - Device total
202	(CA)	4	Category count - allocated
206	(CE)	4	Category count - free space
210	(D2)	4	Category count - idle
214	(D6)	4	Category count - lost
218	(DA)	4	Free space extent - largest
222	(DE)	4	Free space extent - second-largest
226	(E2)	4	Free space extent - third-largest
230	(E6)	2	DSCBs in VTOC
232	(E8)	2	DSCBs allocated
234	(EA)	2	Free space extent counter
236	(EC)	2	Free space extent total
238	(EE)	2	blank DSCB total
240	(F0)	2	Data set allocation - 0 tracks
242	(F2)	2	Data set allocation - 1 to 50 tracks
244	(F4)	2	Data set allocation - 51 to 125 tracks
246	(F6)	2	Data set allocation - 126 to 300 tracks
248	(F8)	2	Data set allocation - over 300 tracks

Appendix B. Contents of INSTALL Library

The following procedures will be created by executing member IEBUPDATE against the member PROCS in the PROCLIB data set on the distribution tape:

Table B-1. List of PROCS in SAMS:Disk Proclib

Member	Description
ARCHIVE	Explicit archive
BILLING	DASD billing (Select and Accumulate)
COMPRES	PDS compression
CONFIGR	Volume configurator (DASD-to-DASD Migration)
DEFVOLS	Generate “tape pull list” for deferred restores
DERASE	Batch delete of deferred archive/restore cmds
DMS	DSCL invoked function
DMSAR	Started task for auto-restores
DMSGTF	Run a GTF trace of an application
DMSLDSD	List SAMS:Disk-generated RACF profiles
DMSLRAC	List alternate RACF profile x-ref
DMSPOOL	Tape pool maintenance
DMSPROF	SAMS:Disk RACF profile maintenance utility
EXTEND	DASD billing (EXTEND Totals and Clear)
FMS	RECOVER function (DSCL-like)
IXCATLG	Recatalog data sets in the archives
IXMAINT	Index maintenance
IXUPDATE	Index update utilities
LISTD	List archive indexes
LISTREQ	List deferred archive and restore requests
MERGCOPY	Create copy of new merge archvols (post-step)
MERGE	Archive merging
MIGRATE	Migrate sequential data sets to tape

Member	Description
PDS2SEQ	Create sequential data set from PDS members
PROCS	IEBUPDTE stream containing all JCL PROCS
RACFCHK1	RACF synchronization utility
REBUILD	Rebuild index entries from tape
RECOVER	Full volume recovery
RELOAD	Reload files data set
REORG	Reorganize/resequence the files data set
REPORT	General DASD reports
RESTART	Restart after REORG shutdown
RESTORE	Explicit restore
RETAIN	Retention control (auto archival and backup)
RLSE	Release idle (over-allocated) space
SMFRPT	SMS-based report
THRSHMGR	Volume Threshold Manager Utility
UNLOAD	Unload files data set
VSAMBILL	VSAM DASD billing (select and accumulate)

The following is a list of members included with the PARMLIB data set on the distribution tape:

Table B-2. List of PARMLIB Members and Descriptions

Function	Member	Description
Message	DMSMSGES	SAMS:Disk Messages
System Parameters	PARMEDIT	Sysparm defaults/validation
Files data set	FDSAMPLE	Sample Definition for All Device Types
Reports	REPORTNM	Reportname (Control Modules for each Report)
	RPTNALLO	RPT=ALLOCS
	RPTNATTR	RPT=ATTRBS
	RPTNDIST	RPT=DISTRS
	RPTNDSIN	RPT=DSINDX
	RPTNDSUT	RPT=DSUTIL
	RPTNADSU	RPT=ADSUTI
	RPTNFREE	RPT=FREESP
	RPTNISAM	RPT=ISAMDS
	RPTNLAYO	RPT=LAYOUT
	RPTNMAPP	RPT=MAPPER
	RPTNMEMB	RPT=MEMBER
	RPTNMVDI	RPT=MVDICT
	RPTNAMVD	RPT=AMVDIC
	RPTNBMVD	RPT=BMVDIC
	RPTNPDST	RPT=PDSTAT
	RPTNSVDI	RPT=SVDICT
	RPTNDAYW	SMS Report by day and time

Function	Member	Description
DASD Billing Report	RPTNDEVD	Summary By Device Type
	RPTNDEVY	Summary By Device Type (if sysparm DSBALTRT"1")
	RPTNVOLD	Summary By Volume
	RPTNVOLY	Summary By Volume (if sysparm DSBALTRT"1")
	RPTNDSND	Detail By Data Set Name
	RPTNDSNY	Detail By Data Set Name (if sysparm DSBALTRT"1")
	RPTNODSD	Detail By Dsn Owner
	RPTNOWND	Summary By Owner
Merge Report	RPTNDSNM	Data Sets Merged Forward
	RPTNVOLM	Merged Volumes Status
Deferred Disposition Report	RPTNDEFD	Report From Retain Defer
PDS Compress Report	RPTNCOMP	PDS Compress Results
Archive/Retain Sorted Report	ARCHDSNV	Data Set Name Sequence
	ARCHVOLD	Volume / Data Set Name Sequence
Sequential Migration Sorted Report	MIGRDSNV	Data Set Name Sequence
	MIGRVOLD	Volume / Data Set Name Sequence
RACF Profile Report	RPTNRFDN	Data Set Name To SAMS:Disk-saved Profile Name XREF
	RPTNRFPF	SAMS:Disk-Saved Profile Name To Data Set Name XREF

Function	Member	Description
Sample Parmlib Members	SAMPARMS	Sample entries for mbr=SYSPARMS
	SAMPCSET	Sample entries for mbr=CCSET
	SAMPDBRC	Sample entries for data base names for DBRC
	SAMPDEFS	Sample entries for mbr=POOLDEFS
	SAMPPDSA	Sample entries for mbr=PDSANMLY
	SAMPREFS	Sample entries for mbr=NAMEREFS
	SAMPSPEC	Sample entries for volspec table for RETAIN
	SAMPSPFO	Sample entries for ISPF options
	SAMPZDMS	Sample entries for authorized SAMS:Disk Parmlibs
ISPF Functions	FMT1DICT	Format-1 dictionary (online reporting)
	FMT1FLDS	Format-1 fields (online reporting)
	FMT4DICT	Format-4 dictionary (online reporting)
	FMT4FLDS	Format-4 fields (online reporting)
	MODEL	Model commands (online reporting)
	SPFMENU	Menu options and descriptions

Function	Member	Description
Source Code	ADSARnnn	Auto-restore
	ADSDMnnn	General system
	ADSDSnnn	Data security
	ADSFHnnn	DASD EXCP
	ADSMEnnn	Message editors
	ADSMInnn	Module Intercept/Transfer (not distributed)
	ADSSPnnn	ISPF support
	ADSTHnnn	Tape handling
	ADSTSnnn	Table support
	ADSUTnnn	Utility
	ADSVCnnn	Volume Configurator
	ADSVSnnn	VSAM

Appendix C. ENQ/DEQ/Reserve Usage

Integrity processing within SAMS:Disk is performed in two distinct ways. The first, illustrated below, covers Data Sets, Index Files, Auto-Restore, Tape, and Cartridges.

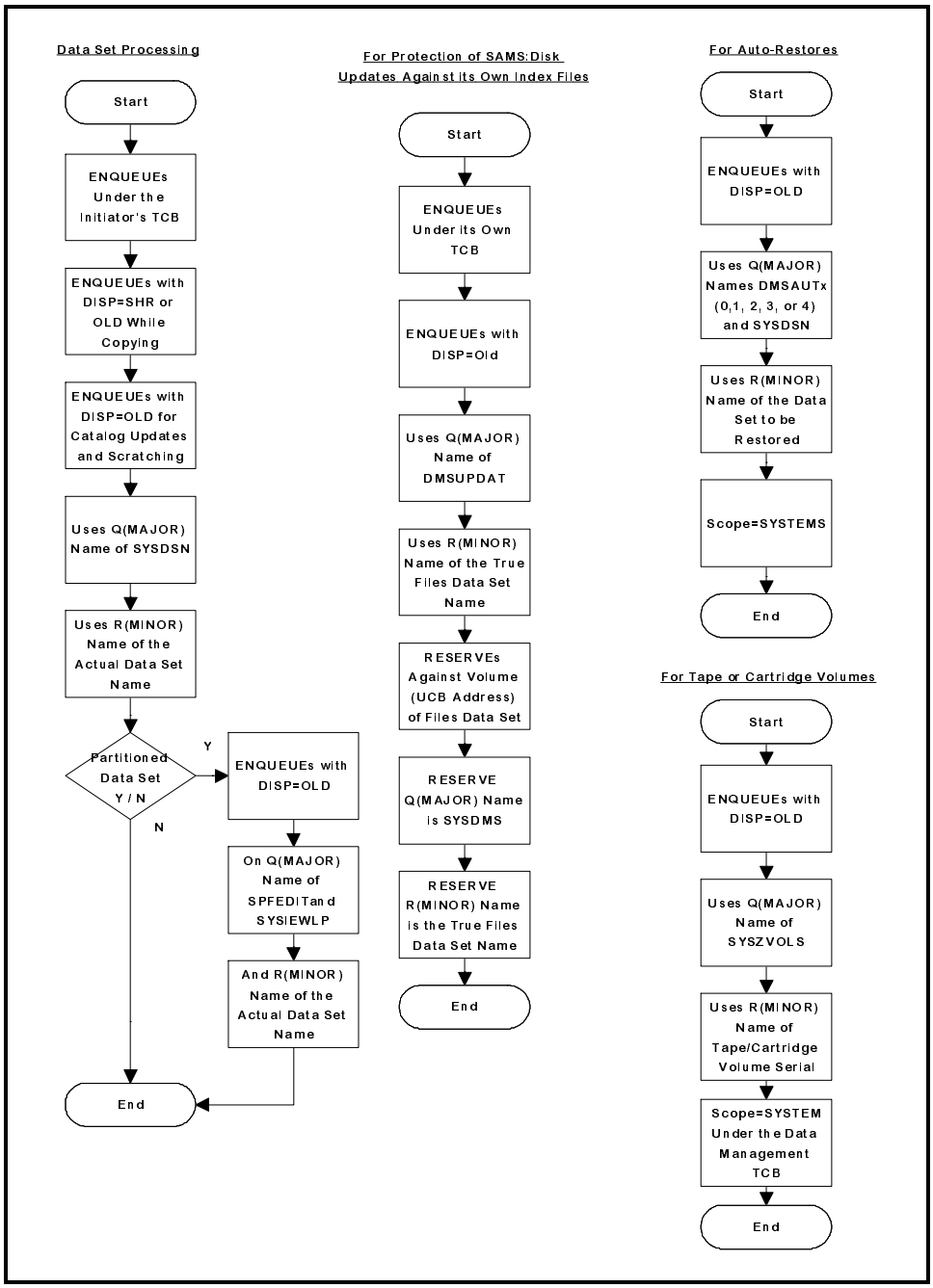


Figure C-1. Enqueue/Dequeue Reserve Usage Flowchart

The other way SAMS:Disk performs integrity is for VBACKUP and VRECOVER, which is illustrated below:

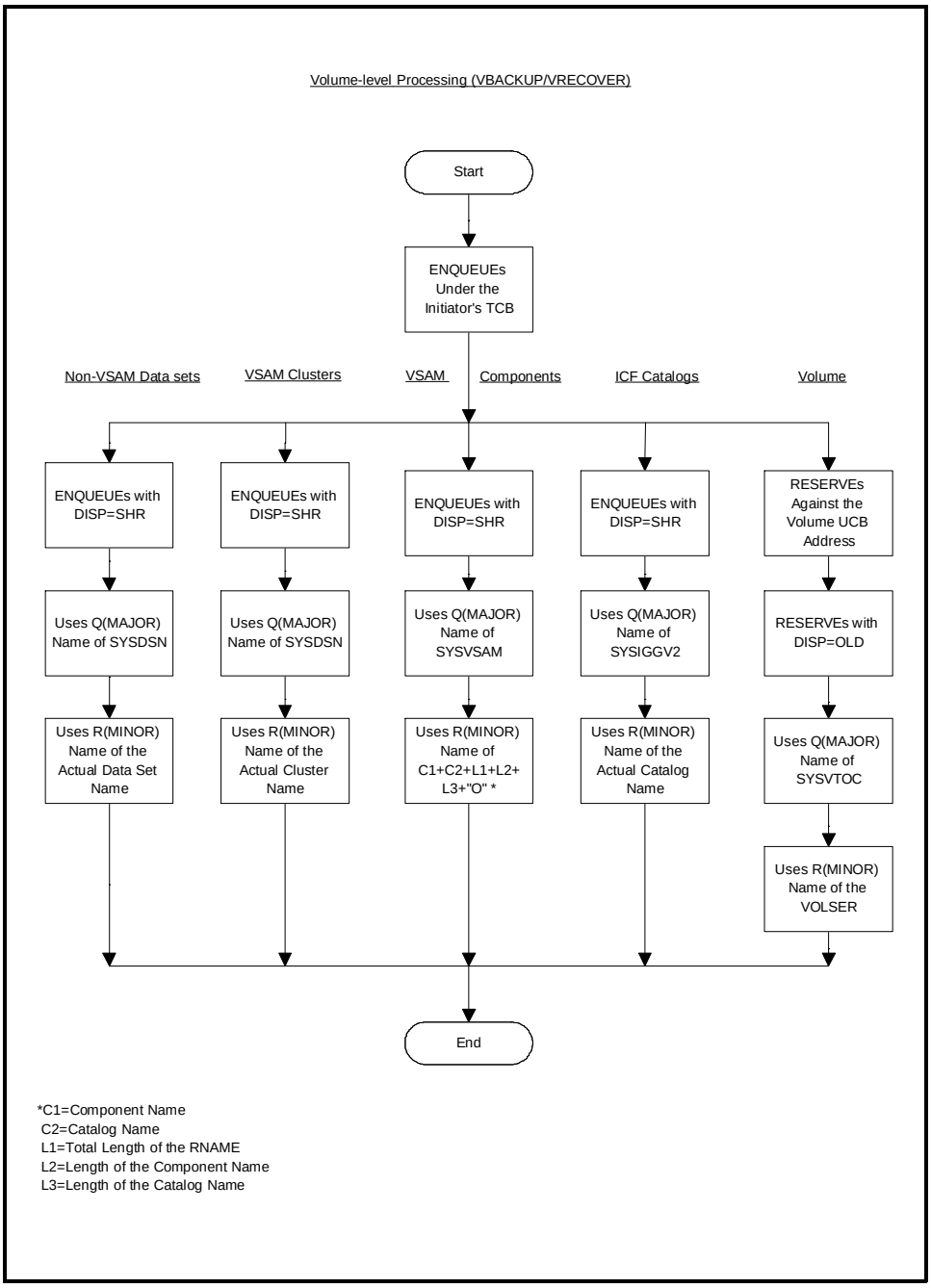


Figure C-2. Enqueue/Dequeue for VBACKUP/VRECOVER

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