

MAINVIEW® SRM EasyHSM User Guide and Reference

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 - license number and password (trial or permanent)
- operating-system and environment information
 - machine type
 - operating system type, version, and service pack or program temporary fix (PTF)
 - system hardware configuration
 - serial numbers
 - related software (database, application, and communication) including type, version, and service pack or PTF
- sequence of events leading to the problem
- commands and options that you used
- messages received (and the time and date that you received them)
 - product error messages
 - messages from the operating system, such as `file system full`
 - messages from related software

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About This Book

This book contains detailed information about MAINVIEW® Storage Resource Manager EasyHSM by BMC Software (formerly known as RESOLVE® SRM EasyHSM) and is intended for storage administrators.

To use this book, you should be familiar with the following items:

- OS/390 operating system, job control language (JCL), and the Interactive System Productivity Facility (ISPF)

How This Book Is Organized

This book is organized as follows. In addition, an index and glossary appear at the end of the book.

Chapter/Appendix	Description
Chapter 1, "What Is EasyHSM?"	provides an overview of EasyHSM
Chapter 2, "EasyHSM Functions"	describes the EasyHSM functions
Chapter 3, "Defining the DFHSM Environment"	describes how to define the DFHSM environment to MAINVIEW SRM
Chapter 4, "EasyHSM Views"	provides a summary of EasyHSM views and a description of each
Chapter 5, "DFHSM CDS Query Views"	describes control data set (CDS) query views and provides a description of each
Chapter 6, "DFHSM Output Management"	describes automated processing of DFHSM and DFDSS output
Appendix A, "DFHSM User Exit Parameter Reference"	provides user exit reference information

Related Documentation

BMC Software products are supported by several types of documentation:

- online and printed books
- online Help
- release notes and other notices

In addition to this book and the online Help, you can find useful information in the publications listed in the following table. As “Online and Printed Books” on page xii explains, these publications are available on request from BMC Software.

Category	Document	Description
MAINVIEW common documents	<i>OS/390 and z/OS Installer Guide</i> <i>MAINVIEW Installation Requirements Guide</i> <i>MAINVIEW Common Customization Guide</i> <i>Using MAINVIEW</i> <i>MAINVIEW Administration Guide</i> <i>Implementing Security for MAINVIEW</i>	provide instructions for installing, configuring, using, and administering MAINVIEW
MAINVIEW SRM customization documents	<i>MAINVIEW SRM Customization Guide</i>	provides instructions for configuring and customizing MAINVIEW SRM for OS/390 including EasyHSM
core documents	<i>MAINVIEW SRM User Guide and Reference</i>	provides information common to all MAINVIEW SRM products and high-level navigation
	<i>MAINVIEW SRM Reference Summary</i>	provides a reference of global parameters, filter list and rule list parameters, and functions
supplemental documents	release notes, flashes, technical bulletins	provides additional information about the product

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- updates to the installation instructions
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Conventions

This section provides examples of the conventions used in this book and explains how to read ISPF panel-flow diagrams and syntax statements.

General Conventions

This book uses the following general conventions:

Item	Example
information that you are instructed to type	Type SEARCH DB in the designated field.
specific (standard) keyboard key names	Press Enter .
field names, text on a panel	Type the appropriate entry in the Command field.
directories, file names, Web addresses	The BMC Software home page is at www.bmc.com .
nonspecific key names, option names	Use the HELP function key. KEEPDICTIONARY option
MVS calls, commands, control statements, keywords, parameters, reserved words	Use the SEARCH command to find a particular object. The product generates the SQL TABLE statement next.
code examples, syntax statements, system messages, screen text	//STEPLIB DD The table <i>table_name</i> is not available.
emphasized words, new terms, variables	The instructions that you give to the software are called <i>commands</i> . In this message, the variable <i>file_name</i> represents the file that caused the error.
single-step procedures	»» To enable incremental backups, type y and press Enter at the next prompt.

This book uses the following types of special text:

Note: Notes contain important information that you should consider.

Warning! Warnings alert you to situations that could cause problems, such as loss of data, if you do not follow instructions carefully.

Tip: Tips contain useful information that may improve product performance or that may make procedures easier to follow.

Syntax Statements

Syntax statements appear in Courier. The following example shows a sample syntax statement:

```
COMMAND KEYWORD1 [KEYWORD2|KEYWORD3] KEYWORD4={YES|NO}
      file_name...
```

The following table explains conventions for syntax statements and provides examples:

Item	Example
Items in italic type represent variables that you must replace with a name or value. Use an underscore for variables with more than one word.	<code>dtsbackup <i>control_directory</i></code>
Brackets indicate a group of options. You can choose at least one of the items in the group, but none of them is required. Do not type the brackets when you enter the option. A comma means that you can choose one or more of the listed options. You must use a comma to separate the options if you choose more than one option.	<code>[<i>table_name, column_name, field</i>]</code>
Braces enclose a list of required items. You must enter at least one of the items. Do not type the braces when you enter the item.	<code>{<i>DBD_name table_name</i>}</code>
A vertical bar means that you can choose only one of the listed items. In the example, you would choose either <i>commit</i> or <i>cancel</i> .	<code>{<i>commit cancel</i>}</code>
An ellipsis indicates that you can repeat the previous item or items as many times as necessary.	<code><i>column_name . . .</i></code>

Chapter 1 What Is EasyHSM?

This chapter contains a discussion on the following topics:

Overview	1-1
What EasyHSM Does	1-2
How EasyHSM Works	1-4

Overview

A component of the powerful MAINVIEW SRM suite of storage management products, EasyHSM provides online monitoring and reporting to help storage managers use DFHSM efficiently. EasyHSM increases the functionality of DFHSM, enhances flexibility, and provides a series of views to identify what DFHSM is doing and any problems that DFHSM is experiencing. Any of these views can be printed in batch using the MVSRMHSM batch facility that you can access from the MVSRMHSM menu. These capabilities are provided regardless of the degree of DFSMS implementation.

What EasyHSM Does

EasyHSM provides the reporting that DFHSM lacks, but goes beyond that to provide command line capabilities and management of WTO messages. In these two ways the product is a tremendous time saver: distilling and organizing critical information on errors and failures. EasyHSM allows you to be more granular in the management by providing easy-to-use functions based on summarized and organized information.

Another key feature is the ability to take non-working days into account. This impacts all aspects of HSM efficiency from thrashing to user wait time to ML0 DASD savings.

Other features of the EasyHSM product include:

- Enhanced control of DFHSM Migration processing (at the data set level)
- Enhanced control of DFHSM Backup processing (at the data set level)
- Processing based on user defined calendars
- Cleanup utility for the DFHSM control data sets (MCDS, BCDS)
- Automated monitoring and response for DFHSM and DFDSS error messages
- Controls pooling during recall (picks best volume from pool)
- Migration control for Generation Data Groups (GDGs)
- Allows conversion of HSM migration periods to Management Classes automatically
- Reports on DFHSM activity and DFHSM errors
- MCDS and BCDS Cleanup

You can enhance DFHSM Control Data Set cleanup by using the EasyHSM SMHSMUTL batch utility program. This allows the DFHSM migration control data set (MCDS) and the backup control data set (BCDS) to have obsolete entries removed based on user-defined criteria. The SMHSMUTL utility generates the required DFHSM delete commands. These are supplied to DFHSM for processing using TSO batch (IKJEFT01).

- Output Management facilities for DFHSM and DFDSS messages

DFHSM and DFDSS generate huge numbers of messages which detail their activity in excruciating detail. Finding relevant messages and acting upon them accordingly is often a challenge. Most often, error messages are never seen.

EasyHSM provides filters that allow you to specify a subset of important messages from several sources including the DFHSM backup, migration, dump, and command logs, as well as DFDSS message logs. In addition to logging these critical messages, EasyHSM can respond to the message with some pre-defined action such as creating JOBS, commands, and so on. This process saves analyst time, makes people more productive, and significantly reduces operator error.

- Best-fit volume selection on recall (non-SMS managed data sets)

When HSM is recalling a data set from tape to disk, it simply finds the volume with the most space (within an eligible Storage Group if SMS) and allocates the data set on that volume. EasyHSM searches all eligible volumes within a defined pool to find the free space segment which most closely fits the size of the data set being recalled. DFHSM is then forced to allocate the data set on that volume. This dramatically reduces volume fragmentation which means better hardware utilization and reduced cost.

- Migration control for GDG data sets

EasyHSM can migrate old versions of GDG data sets based on version number (relative) as well as age criteria.

- EasyHSM Views

EasyHSM provides a number of views that facilitate the use and management of DFHSM. Data is collected from DFHSM log files and DFHSM control data sets. The information for these reports can be selected and organized on the basis of time (hours or days), data set name, system ID, volume, or other parameters. Most views allow the entry of DFHSM commands such as HMIGRATE and HRECALL.

How EasyHSM Works

EasyHSM functionality is based on the MAINVIEW SRM architecture, which uses filter and rule lists. You can activate any EasyHSM function for individual data sets or groupings of data sets based on numerous criteria.

By running in SIMulate mode prior to implementation, the real results of proposed changes can be evaluated using live data. The MAINVIEW SRM calendar reduces both CPU and ML0 requirements by basing migrations on actual work-days. The calendar feature is used to adjust the elapsed days specifications by the number of non-working days to achieve an accurate elapsed time for migration. The MAINVIEW SRM calendar is quick and easy to set up and saves ML0 resources without increasing CPU thrashing.

Migration values set by DFHSM can be overridden to handle exceptions and temporary conditions. Data sets can be selected for migration without back-up or directed from ML0 to ML2. Small data sets can be bypassed completely. Selections can be based on a wide range of criteria.

Recall allocation pools non-DFSMS data sets that HSM recalls. Within eligible pools, volumes are selected based on the best-fit of the data set to available extents, thereby controlling fragmentation. With EasyHSM you can extend the benefits of HSM to non-SMS-managed data.

The control data set utility purges the DFHSM migration and backup control data sets. Obsolete entries are deleted based on user-specified criteria. Control cards executed by back-up control provides an easy method for selecting or excluding data sets from back-up processing. MAINVIEW SRM filtering minimizes coding and insures that automatic backups do not occur for data sets that do not need these copies such as test and transitory data sets. ALTERDs commands are not required.

TSO delete migration and backup entries and associated data sets that are identified based on a variety of aging calculations, DSN or name masks, control data set type, or pool name. You can specify the number of back-up copies to keep, as well.

Output Management automates DFHSM and DFDSS message management. Cryptic WTO messages are filtered, reworded, and responded to based on user-defined criteria. Control statements are automatically generated. This feature addresses one of the monumental tasks of DFHSM and makes it manageable by even less experienced staff.

The MAINVIEW SRM EasyHSM views provide fast, flexible access to DFHSM operations, using MCDS, BCDS, OCDS, and DFHSM log files.

EasyHSM functions are summarized below.

- The HSMBACKP function allows selection and exclusion of data sets and volumes for DFHSM backup.
- The HSMDELETE function provides enhanced processing of DFHSM data set deletion selection.
- The HSMCCNV function allows conversion of DFHSM migration periods for management classes based on the non-working days specifications in the MAINVIEW SRM calendar.
- The HSMIGRT function provides enhanced processing of DFHSM data set migration selection.
- The HSMRECAL function provides DASD pooling support for non-DFSMS data sets recalled by DFHSM.
- The SMHSMUTL batch program purges the DFHSM migration and backup control data sets of obsolete entries based on user-specified criteria.

The EasyHSM Output Management function allows processing of DFHSM and DFDSS output. Output Management provides

- The capability of filtering out unwanted or informational messages, selecting for display only messages indicating situations that need attention
- Automated creation of control cards, JCL, or commands to handle conditions described by messages, using information extracted from the message text
- Immediate job submission of generated JCL
- An ISPF interface to view the reports produced by the message filtering process

The EasyHSM views provide a fast and flexible window on the operation of DFHSM. A number of different reports are available to display the details of the various DFHSM functions. Information for the reports is selected based on user-specified dates, times, data set names, and other criteria. For most reports, DFHSM commands (migrate, recall, and so on) can be specified on any listed data set.

Chapter 2 EasyHSM Functions

This chapter provides detailed explanations about each function in EasyHSM.

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HSMDELETE - Enhance DFHSM Deletion	2-5
HSMGCCNV - Apply Calendar Conversion to DFHSM Migration	2-7
HSMGMIGRT - Enhance DFHSM Migration	2-11
HSMRECAL - Pool Data Sets During DFHSM Recall	2-16
SMHSMUTL - DFHSM Control Data Set Batch Utility	2-20

Overview

MAINVIEW SRM storage management services are divided into functions. SMFUNC xx activates MAINVIEW SRM functions and controls message and tracing activity. Functions provide all the runtime services of MAINVIEW SRM. SMFUNC xx points to members SMFLST xx and SMRLST xx , which select resources and control the operation of the functions.

Functions are defined in SET statements. You can change parameters

- by editing the member directly
- by using the MAINVIEW SRM function SET commands
- through the Functions option on the Parmlib Members pop-up menu of the EZSRM Menu (see Chapter 6, “How to Define and Activate Functions” in the *MAINVIEW SRM User Guide and Reference*).

EasyHSM functions do not operate for DFDSS jobs.

HSMBACKP - Control DFHSM Backups

The HSMBACKP function allows selection and exclusion of data sets and volumes for DFHSM backup.

DFHSM provides automated data set backup processing for OS/390. However, DFHSM does not provide an easy method of selecting groups of data sets for backup or for excluding groups of data sets from backup. Data sets must be included or excluded for backup processing either through aggregate group definitions or one data set at a time using the ALTERDS command.

HSMBACKP provides a simple and flexible means of selecting groups of data sets to be backed up by DFHSM, or excluding groups of data sets from backup processing.

Parameter Quick Reference

SET Statement (in member SMRLSTxx)

Parameter	Description
BACKCMD= <u>YES/NO</u>	Specifies if command-initiated backups are processed
BACKUP= <u>YES/NO</u>	Specifies that a backup will not be performed
EVENTID=xxxxx	Identifies a user event defined in an SMEVNTxx member

Parameter Explanations

BACKCMD=

Purpose: Specifies whether command-initiated backups are processed by HSMBACKP. BACKCMD=YES allows HSMBACKP to process command-initiated backups as well as automatic backups. BACKCMD=NO prohibits HSMBACKP from processing command-initiated backups. This is an optional parameter.

Syntax: BACKCMD=YES/NO

Default: BACKCMD=YES

BACKUP=

Purpose: Specifies whether the backup is allowed. If BACKUP=NO, DFHSM is directed to omit the backup for the selected resource. If BACKUP=YES, the resource is backed up. This is an optional parameter.

Syntax: BACKUP=*YES/NO*

Default: BACKUP=NO

EVENTID=

Purpose: Specifies the identifier assigned to a user event in *SMEVNTxx*. This parameter will cause an event to be generated from this function.

Syntax: EVENTID=*xxxxxx*

where *xxxxxx* is the 5-character string specified on the *EVNTID* parameter in *SMEVNTxx*.

Default: None

Filter List Parameters Not Supported

The filter list parameter, *VALUE*, is not supported for HSMBACKP.

Usage Notes

HSMBACKP applies to all data sets selected by DFHSM for backup during volume backup or space management. It does not work for data sets backed up explicitly, such as with the TSO/ISPF HBACKDS command.

The BACKCMD parameter allows function processing to be bypassed for DFHSM backups that are initiated by command. HSMBACKP always processes automatically-initiated backups, but may be set to ignore backups that are performed on command. This allows emergency backups to be executed without modifying the normal backup parameters in HSMBACKP.

The BACKUP parameter allows control over the execution of the backup. BACKUP=NO causes DFHSM to omit the backup for the selected resource.

Note that the default mode of operation of HSMBACKP is to prohibit backups. BACKUP=NO is the default, and this prevents a backup on the selected resource. Therefore, if most resources should be backed up unless otherwise specified, the rule list should conclude with BACKUP=YES for all resources (*INC DSN=/*).

HSMBACKP issues message SVM0380I when a backup is prohibited:

```
SVM0380I  dsn DISABLED FOR BACKUP
```

No message is issued when a resource is selected for backup.

Note that the HSMBACKP function must be specified in the SMFUNC $_{xx}$ member to be available and must be set active to provide service.

Example

Use HSMBACKP to control backup processing.

SMFUNC3A member

<pre>SET NAME=HSMBACKP ACTIVE=YES MSG=I SMF=I FLST=A5 RLST=A5 DESC='CONTROL BACKUPS'</pre>	<p>The function is defined and activated.</p>
---	---

SMFLSTA5 member

<pre>SET MODE=ACT INC DSN=/'</pre>	<p>Select all data sets for processing.</p>
---	---

SMRLSTA5 member

<pre>SET BACKCMD=NO BACKUP=NO INC DSN=**.TEST*</pre>	<p>Disallow automatic backups of test data sets. (Command-initiated backups are not affected.)</p>
<pre>SET BACKCMD=NO BACKUP=NO INC DSN=**.TRANS*</pre>	<p>Do not back up transitory data sets. (Command-initiated backups are not affected.)</p>
<pre>SET BACKCMD=YES BACKUP=NO INC VOL=DB*</pre>	<p>Disallow all DFHSM backups against DB2[®] volumes.</p>
<pre>SET BACKCMD=YES BACKUP=YES INC DSN=/'</pre>	<p>For all other data sets, allow automatic and command-initiated backups</p>

HSMDELETE - Enhance DFHSM Deletion

The HSMDELETE function provides enhanced processing of DFHSM data set deletion selection.

HSMDELETE provides the following advantages over DFHSM processing:

- Aging can be based on working days, rather than calendar days.
- Data sets can be selected or excluded based on more criteria.

Parameter Quick Reference

SET Statement (in member SMRLSTxx)

Parameter	Description
EVENTID=xxxxx	Identifies a user event defined in an SMEVNTxx member

Parameter Explanations

EVENTID=

Purpose: Specifies the identifier assigned to a user event in SMEVNTxx. This parameter will cause an event to be generated from this function.

Syntax: EVENTID=xxxxx

where xxxxx is the 5-character string specified on the EVNTID parameter in SMEVNTxx.

Default: None

Filter List Parameters Supported

Due to the invocation of HSMDELETE during OS/390 exits ARCSAEXT, only the following MAINVIEW SRM filter list parameters are available:

CALAGE	CAT	DSN	DSNn
DSORG	DSTYPE	GDGVER	HLQ
LLQ	POOL	RACF	REFAGE
SIZE	USER	VOL	XMODE

Usage Notes

HSMDELETE applies to all data sets considered by DFHSM for volume migration and space management migration.

If a data set is not selected for HSMDELETE processing by filter list specifications and the age of the data set is less than the age specified in the management class for data set deletion, HSMDELETE does not affect the processing of the data set.

The REFAGE and CALAGE selection parameters can be used to filter data sets considered by DFHSM for deletion. CALAGE contains the number of working days since the data set was created, while REFAGE contains the unadjusted number of days since the data set was created.

HSMDELETE issues the following message if it modifies the deletion status of a data set.

```
SVM0365I  dsn DISABLED FOR AUTO DELETION
```

HSMDELETE has modified the deletion status of a data set to prevent its deletion.

No message is issued when a data set is not selected by HSMDELETE.

Note that the HSMDELETE function must be specified in the SMFUNCxx member to be available and must be set active to provide service.

Example

Use HSMDELETE to control data set deletion.

SMFUNC12 member

```
SET  NAME=HSMDELETE ACTIVE=YES      The function is defined and
      FLST=09                          activated.
      MSG=I SMF=I
      DESC='CONTROL DELETION'
```

SMFLST09 member

```
SET  MODE=ACT
      INC DSN=TEST./ CALAGE>45      Select TEST. data sets if
      INC DSN=PROD./ CALAGE>90      CALAGE is greater than 45.
                                      Select PROD. data sets if
                                      CALAGE is greater than 90.
```

HSMGCCNV - Apply Calendar Conversion to DFHSM Migration

The HSMGCCNV function allows conversion of DFHSM migration periods for management classes based on the non-working days specifications in the MAINVIEW SRM calendar.

DFHSM's automatic space management processing selects data sets for automatic migration based in part on the number of days since the data set was last referenced (PRIMARY DAYS NON USAGE). This automatic migration is a valuable part of storage management. It requires little or no human intervention in moving low-usage data sets from high-speed devices to less expensive devices. However, DFHSM counts only elapsed calendar days in determining the time to migration; it does not take into account days that are not working days - public holidays, weekends, and installation-defined days off. This capability is provided by MAINVIEW SRM calendar definitions in member SMCALSxx.

During migration processing by DFHSM, HSMGCCNV adjusts the primary days non usage specification by the number of non-working days in the period, thus giving an accurate elapsed time for migration based on actual work-days, rather than calendar days.

Parameter Quick Reference

SET Statement (in member SMRLSTxx)

Parameter	Description
CAL= <i>YES/NO</i>	Specifies date conversion by calendar
EVENTID= <i>xxxxx</i>	Identifies a user event defined in an SMEVNTxx member

Parameter Explanations

CAL=

Purpose: Specifies whether non-working days in the MAINVIEW SRM calendar member should adjust the DFHSM management class migration days.

Syntax: CAL=*YES/NO*

Default: CAL=YES

EVENTID=

Purpose: Specifies the identifier assigned to a user event in SMEVNTxx. This parameter will cause an event to be generated from this function.

Syntax: EVENTID=xxxxx

where xxxxx is the 5-character string specified on the EVNTID parameter in SMEVNTxx.

Default: None

Warning! The only valid selection parameter during HSMGCCNV processing is MGMTCLAS. All other selection parameters do not have a value when HSMGCCNV is active. Therefore, filter and rule lists used with HSMGCCNV should only INCLUDE or EXCLUDE based on MGMTCLAS. For example, this filter list entry for HSMGCCNV:

```
SET MODE=SIM
INC JOB=DFHSM/
```

will never be satisfied because the JOB parameter does not contain a value. This rule list entry:

```
SET CAL=NO
INC VOL=EMP/
```

will also never be satisfied because the VOL parameter does not contain a value.

Filter and rule list entries for HSMGCCNV should include and exclude resources based on the MGMTCLAS parameter only.

Usage Notes

HSMGCCNV provides services only if CAL=YES is specified. HSMGCCNV ignores any management classes for which primary days non usage is zero.

The use-days figure is adjusted to work-days by starting at the current date and backing up for the number of work-days corresponding to use-days, adjusting the day count as non-working days are found in the calendar. This work-day count is returned to DFHSM as the primary days non usage value which must be satisfied before a data set is migrated.

Note that the effect is to *increase* the primary days non-usage, so that the data set is migrated only after the number of actual working days has elapsed. Each non-working day in the period covered by the primary days non-usage adds a day to the number returned to DFHSM as the new primary days non-usage.

Note that the HSMGCCNV function must be specified in the SMFUNCxx member to be available and must be set active to provide services.

HSMGCCNV issues message SVM0361I when it processes a management class:

```
SVM0361I  MGMTCLAS=xxxxxxx, MD=nnnn, WD=nnnn
```

where xxxxxxx indicates the management class name, MD=nnnn identifies the original migration days value, and WD=nnnn identifies the adjusted migration days (working days) value.

Example

Adjust all management classes except BATCH for installation-defined non-working days.

SMFUNC21 member

<pre>SET NAME=HSMCCNV ACTIVE=YES MSG=E SMF=N FLST=02 RLST=02 DESC='ADJUST MIGRATION DAYS'</pre>	<p>The function is defined and activated. SMF records are not written. Only error messages are written.</p>
--	---

SMCAL10 member

<pre>SET YEAR=2000 SAT=W SUN=F FREE=01.12 /* Dec 1 */ FREE=01.01 /* Jan 1 */ FREE=22.02 /* Feb 22 */ FREE=17.04-20.04 /* Apr 17-20 */ FREE=31.05 /* May 31 */ FREE=04.07 /* July 4 */ FREE=08.06 /* June 8 */ FREE=25.11-26.11 /* Nov 25-26 */ FREE=24.12 /* Dec 24 */ FREE=25.12 /* Dec 25 */</pre>	<p>2000 is defined with Saturdays as work days, Sundays as non-working days, and various other days during the year non-working. (Note that it is not necessary to specify Saturday as a working day; any day or date not defined as FREE is a working day.)</p>
---	--

SMFLST02 member

<pre>SET MODE=ACT INC MGMTCLAS=/'</pre>	<p>This filter list specification is active. It selects all resources with a management class.</p>
--	--

SMRLST02 member

<pre>SET CAL=YES EXC MGMTCLAS=BATCH</pre>	<p>This rule list specifies calendar adjustment for all management classes except BATCH.</p>
--	--

HSMmigrt - Enhance DFHSM Migration

The HSMmigrt function provides enhanced processing of DFHSM data set migration selection.

HSMmigrt provides the following advantages over DFHSM processing:

- Aging can be based on working days, rather than calendar days
- Migration from ML0 to ML2 without a backup copy can be allowed
- Data sets can be selected or excluded based on more criteria

Parameter Quick Reference

SET Statement (in member SMRLSTxx)

Parameter	Description
BACKUP= <u>YES/NO</u>	Specifies that ML0-2 migration without backup is allowed
CAL= <u>YES/NO</u>	Specifies date conversion by calendar
EVENTID= <u>xxxxxx</u>	Identifies a user event defined in an SMEVNT.xx member
MIGCMD= <u>YES/NO</u>	Specifies if command-initiated migration is processed
MIGRATE= <u>YES/NO</u>	Specifies if migration is disallowed
ML2= <u>YES/NO</u>	Specifies direct migration from ML0 to ML2

Parameter Explanations

BACKUP=

Purpose: Specifies whether migration direct from ML0 to ML2 without a backup copy is allowed. BACKUP=NO specifies that a backup copy is *not* necessary to ML0-ML2 migration. BACKUP=YES specifies that a backup copy must exist before migration direct from ML0 to ML2 is allowed. (See the ML2 parameter below.) This is an optional parameter.

Syntax: BACKUP=*YES/NO*

Default: BACKUP=YES

CAL=

Purpose: Specifies whether non-working days in the MAINVIEW SRM calendar member should adjust the DFHSM management class migration days.

Syntax: CAL=*YES/NO*

Default: CAL=YES

EVENTID=

Purpose: Specifies the identifier assigned to a user event in SMEVNTxx. This parameter will cause an event to be generated from this function.

Syntax: EVENTID=xxxxx

where xxxxx is the 5-character string specified on the EVNTID parameter in SMEVNTxx.

Default: None

MIGCMD=

Purpose: Specifies whether command-initiated migration is processed by HSM MIGRT. MIGCMD=YES allows HSM MIGRT to process command-initiated migration as well as automatic migration. MIGCMD=NO prohibits HSM MIGRT from processing command-initiated migration (that is, command-initiated migration overrides HSM MIGRT). This is an optional parameter.

Syntax: MIGCMD=YES/NO

Default: MIGCMD=YES

MIGRATE=

Purpose: Specifies whether migration is allowed or disallowed. MIGRATE=YES allows migration processing to proceed for a data set; MIGRATE=NO disallows any migration of the data set. This is an optional parameter.

Syntax: MIGRATE=YES/NO

Default: MIGRATE=YES

ML2=

Purpose: Specifies whether direct migration from ML0 to ML2 is allowed. ML2=YES allows direct ML0 to ML2 migration; ML2=NO does not. This is an optional parameter.

Syntax: ML2=YES/NO

Default: ML2=NO

Filter List Parameters Supported

Due to the invocation of HSM MIGRT during OS/390 exits ARCSAEXT and ARCMDEXT, all of the MAINVIEW SRM selection parameters are not available. The selection parameters that can be used are as follows:

CALAGE	CAT	DSN	DSNn
DSORG	DSTYPE	GDGVER	HLQ
LLQ	POOL	RACF	REFAGE
SIZE	USER	VOL	XMODE

Usage Notes

HSM MIGRT applies to all data sets considered by DFHSM for volume migration and space management migration. It does not work for data sets migrated explicitly, such as with the DFHSM MIGRATE DSNAME command or the TSO or ISPF HMIGRATE command.

If a data set is not selected for HSM MIGRT processing by filter list or rule list specifications, DFHSM is directed to migrate the data set.

The REFAGE and CALAGE selection parameters can be used to filter data sets considered by DFHSM for migration. CALAGE contains the number of unreferenced working days, while REFAGE contains the unadjusted number of unreferenced days.

HSM MIGRT allows migration direct from ML0 to ML2 with or without a backup. The ML2 and BACKUP parameters are used to specify this service.

The MIGCMD parameter allows command-initiated migration to bypass any selection or restriction by HSM MIGRT, ensuring that emergency migration requests proceed unhindered.

Note: If SETMIG NOMIGRATION or MIGRATION is set in DFHSM for a group of data sets or volumes, the MAINVIEW SRM exit will not get called when migrating those data sets.

Messages

HSM MIGRT issues one of the following messages if it modifies the migration status of a data set.

SVM0360I *dsn* WILL MIGRATE TO ML1 MD=*nnnn* AGE=*nnnn*
ML2 IF BACKUP EXISTS
ML2 BYPASSING BACKUP

HSM MIGRT has modified the migration status of a data set as stated. MD is the DFHSM adjusted migration age. AGE is the real age of the data set (elapsed days since last referenced).

SVM0362I
SVM0363I *dsn* MADE INELIGIBLE FOR MIGRATION -MIGCMD

HSM MIGRT has modified the migration status of a data set to prevent its migration. MIGCMD indicates the rule directed no migration.

Note that a large volume of messages could be produced by HSM MIGRT. You may wish to suppress informational messages in the function definition in the SMFUNC*xx* parmlib member or in the filter list for the function.

No message is issued when a data set is not selected by HSM MIGRT.

Note that the HSM MIGRT function must be specified in the SMFUNC*xx* member to be available and must be set active to provide service.

Example

Use HSM MIGRT to control data set migration.

SMFUNC12 member

```
SET  NAME=HSM MIGRT ACTIVE=YES
      MSG=I SMF=I
      FLST=09 RLST=09
      DESC='CONTROL MIGRATION'
```

The function is defined and activated.

SMFLST09 member

```
SET  MODE=ACT
      INC DSN=/'
```

Select all data sets for processing.

SMRLST09 member

```
SET  MIGRATE=NO MIGCMD=NO
      INC SIZE<1MB
      INC HLQ=SYS*
```

Do not migrate data sets smaller than 1 megabyte or system data sets (but allow a command-initiated migration to override).

```
SET  MIGRATE=YES ML2=YES
      INC LLQ=LIST* DSORG=PS REFAGE=7
      INC POOL=TEST REFAGE=7
```

Migrate listing data sets and data sets in the TEST pool direct to tape after seven calendar days of nonuse.

```
SET  MIGRATE=YES MIGCMD=NO
      INC DSORG=PO REFAGE=90
```

Migrate unused PDSs after 90 calendar days.

```
SET  MIGRATE=YES
      INC DSORG=VS CALAGE=120
```

Migrate unused VSAM data sets after 120 working days.

```
SET  MIGRATE=YES
      INC DSORG=PS SIZE>1MB SIZE<10MB X
      CALAGE=45
```

Migrate unused sequential data sets between 1 and 10 MB in size after 45 working days.

```
SET  MIGRATE=YES
      INC DSORG=PS SIZE>10MB CALAGE=30
```

Migrate unused sequential data sets larger than 10 MB after 30 working days.

HSMRECAL - Pool Data Sets During DFHSM Recall

The HSMRECAL function provides DASD pooling support for non-DFSMS data sets recalled by DFHSM.

If a migrated data set is needed for processing, DFHSM recalls it from the migration volume to a DASD volume. DFHSM selects destination volumes for non-DFSMS-managed data sets based on maximum available space within a group of volumes selected on the basis of data set pool, original volume pool, use attribute, defined recall attributes, and so on.

HSMRECAL allows recalled data sets to be assigned to MAINVIEW SRM-defined pools on the basis of data set attributes including name, organization, size, and so on. Within eligible pools, volumes are selected based on the best fit of the data set size to available extents.

Parameter Quick Reference

SET Statement (in member SMRLSTxx)

Parameter	Description
EVENTID=xxxxx	Identifies a user event defined in an SMEVNTxx member
POOL=(xxxxxx, . . .)	1-15 pool names from (SMPOOLxx)
USEVOL=STOR/PRIV/ALL	Selects volume by use attribute (storage and/or private)

Parameter Explanations

EVENTID=

Purpose: Specifies the identifier assigned to a user event in SMEVNTxx. This parameter will cause an event to be generated from this function.

Syntax: EVENTID=xxxxx

where xxxxx is the 5-character string specified on the EVNTID parameter in SMEVNTxx.

Default: None

POOL=

Purpose: Specifies the name of the pool to receive the recalled data set. If multiple pools are specified, the first pool with sufficient space for the data set is assigned. This is a required parameter.

Syntax: POOL=(xxxxxx, xxxxxx, . . .)

where xxxxxx is a 1-8 character pool name defined in SMPOOLxx. If the poolname is not defined, refresh or start-up will fail. Up to 15 pools can be specified. If a single pool is specified, parentheses are not needed.

Default: None

USEVOL=

Purpose: Specifies the type of volume (storage, private, or any) that satisfies the allocation. USEVOL=STOR directs the data set to a storage-mounted volume; USEVOL=PRIV directs the data set to a private volume. (There is currently no specification for PUBLIC-only volumes.) USEVOL=ALL directs the allocation to the first available volumes, regardless of use attribute. This is an optional parameter.

Syntax: USEVOL=xxxx

where xxxx is one of the following:

STOR Storage
 PRIV Private
 ALL All volumes, regardless of use attribute

Default: USEVOL=ALL

Filter List Parameters Supported

Due to the invocation of HSMRECAL during OS/390 exit ARCRDEXT, all of the MAINVIEW SRM selection parameters are not available. The selection parameters that can be used are as follows:

CAT	DEVTYPE	DSN	DSNn
DSORG	HLQ	JOB	JOBACCTn
JOBCLASS	LLQ	PGM	PGMRNAME
PROCSTEP	RACF	SIZE	STEP

STEPACCTn	SYSID	USER	VOL
XMODE			

Usage Notes

HSMRECAL applies to migrated data sets being recalled by DFHSM from ML1 or ML2 volumes. HSMRECAL does not process DFSMS-managed data sets.

DFHSM passes a list of candidate destination volumes to HSMRECAL. HSMRECAL returns up to four volumes that are in the candidate list and that are also in one or more of the specified MAINVIEW SRM pools. If HSMRECAL cannot find any of the DFHSM candidate volumes in any of the specified pools, the function makes no volume recommendations, thus allowing DFHSM to make the volume selection.

HSMRECAL requires that all pool volumes that are eligible for recall be defined to DFHSM with the AUTORECALL option on the ADDVOL command. Also, the SETSYS RECALL command must specify PRIVATEVOLUME(UNLIKE).

Note that parameters related to job execution (such as JOB, JOBCLASS, PGM, and so on) will have values for DFHSM. DASDPOOL rules based on such parameters may not give the desired results during HSMRECAL.

Note that the HSMRECAL function must be specified in the SMFUNCxx member to be available and must be set active to provide service.

Messages

HSMRECAL issues message SVM0370I when a destination pool is selected for the recalled data set:

```
SVM0370I  dsn POOL (poolname) ASSIGNED
```

Note: If the SVM0370I message contains the poolname \$DHSSM\$, HSMRECAL is unable to pool the data set being recalled. HSM will chose the volume on which the data set will be recalled. This can occur because: (a) you have coded a pooling rule that attempts to pool the data set to a volume that is not HSM-managed, or (b) the volume the data set was migrated from is defined as part of a VOLUMEPOOL in the HSM command file (SYS.PARMLIB(ARCCMDxx)).

Example

Use HSMRECAL to control data set recall.

SMFUNC05 member

```
SET  NAME=HSMRECAL ACTIVE=YES
      MSG=I SMF=I
      FLST=5B RLST=5F
      DESC='CONTROL RECALL ALLOC'
```

The function is defined and activated.

SMPOOL11 member

```
SET  POOLNAME=STD USELIMIT=90
      VOL=PROD0/
```

Pool PRODSTD includes all volumes whose names begin with PROD0. A 90% capacity limit is put on all volumes in this pool.

```
SET  POOLNAME=PRODMAX
      USELIMIT=80
      VOL=PROD2/
```

Pool PRODMAX includes two high-capacity 3390 volumes designated for very large data sets.

```
SET  POOLNAME=TEST00
      EXC VOL=TESTC/
      INC VOL=TEST/
```

Pool TEST00 includes all volumes whose names begin with TEST, except those beginning with TESTC.

```
SET  POOLNAME=WORK
      VOL=(WORK01,WORK02)
```

Pool WORK includes the two named volumes.

SMFLST5B member

```
SET  MODE=ACT
      EXC LLQ=MSTR* DSORG=VS
      INC DSN=/
```

Allow DFHSM to process VSAM master files; all other data set recalls go through HSMRECAL.

SMRLST5F member

```
SET  POOL=WORK
      INC SIZE<1MB
```

Data sets smaller than 1 megabyte are assigned to pool WORK.

```
SET  POOL=(TEST00,WORK)
      INC LLQ=*TST*
      INC RACF=DEV
```

Test data sets and data sets belonging to DEV are assigned to either pool TEST00 or pool WORK.

```
SET  POOL=TEST00
      INC SIZE>1MB SIZE<10MB
```

Data sets larger than 1 megabyte and smaller than 10 megabytes are assigned to pool TEST00.

```
SET  POOL=PRODMAX
      INC SIZE>50MB
      INC SIZE>10MB DSORG=VS
```

Data sets larger than 50 megabytes and VSAM data sets larger than 10 megabytes are assigned to pool PRODMAX.

```
SET  POOL=STD
      INC DSN=/
```

All other data sets are assigned to pool STD.

SMHSMUTL - DFHSM Control Data Set Batch Utility

The SMHSMUTL batch program purges the DFHSM migration and backup control data sets of obsolete entries based on user-specified criteria.

SMHSMUTL reads the DFHSM control data sets, selects data set entries on the basis of specifications entered by you, and generates TSO DFHSM commands to delete migration and backup entries and associated data sets.

Data sets can be selected for deletion based on data set name (full name or name mask), MAINVIEW SRM pool membership, or any of four aging criteria, with or without non-working day adjustment by the MAINVIEW SRM calendar.

Parameter Quick Reference

The following parameters are supported by the SMHSMUTL batch utility:

Parameter	Description
DELETE	This keyword parameter must precede all other parameters
BAKDAY <i>S</i> = <i>nnnn</i>	Age at which backup entries can be deleted
CAL= <i>YES/NO</i>	Specifies use of MAINVIEW SRM calendar adjustment services
CDS= <i>MCDS/BCDS/BOTH</i>	Type of control data set (migration or backup or both)
CREDAY <i>S</i> = <i>nnnn</i>	Age (from creation date) at which migration entries can be deleted
DSN= <i>xxxxxxxx. . .</i>	Name or name mask of data set(s) to be selected
EVENTID= <i>xxxxx</i>	Identifies a user event defined in an SMEVNT <i>xx</i> member
KEEPBACKV= <i>nnnn</i>	Number of copies of backup data sets that should be kept
POOL= <i>xxxxxxxx</i>	A single MAINVIEW SRM pool name
MIGDAY <i>S</i> = <i>nnnn</i>	Age (from migration date) at which migration entries can be deleted
REFDAY <i>S</i> = <i>nnnn</i>	Age (from last reference) at which migration entries can be deleted

Parameter Explanations

DELETE=

Purpose: Identifies a new specification. This must be the first operand on a control card set for SMHSMUTL. Each DELETE keyword starts a new specification.

Syntax: DELETE

Default: None

BAKDAYS=

Purpose: Specifies the age (number of days since last backup) at which the backup data set (and BCDS entry) is deleted. This is a required parameter if CDS=BCDS. If CDS=MCDS or CDS=BOTH, this parameter is not allowed.

See also the KEEPBACKV parameter.

Syntax: BAKDAYS=*nnnn*

where *nnnn* is a number in the range 0-9999.

Default: None

CAL=

Purpose: Specifies whether aging is adjusted with the non-working days specification in the MAINVIEW SRM calendar definition. CAL=NO specifies that adjustments are not applied; CAL=YES specifies that date calculations take into account all non-working days in the MAINVIEW SRM calendar. This is an optional parameter.

Syntax: CAL=*YES/NO*

Default: CAL=NO

CDS=

Purpose: Specifies the type of DFHSM control data set to be affected. This is a required parameter.

Syntax: CDS=*xxxx*

where *xxxx* is a value as follows:

BCDS Backup control data set

MCDS Migration control data set

BOTH Backup and migration control data sets

Default: None

CREDAYS=

Purpose: Specifies the age (number of days since creation of the original pre-migration data set) at which the migrated data set (and MCDS entry) is deleted. If CDS=MCDS or CDS=BOTH, then one and only one of these three parameters must be specified: CREDAYS, MIGDAYS, REFDAYS. If CDS=BCDS, this parameter is not allowed.

Syntax: CREDAYS=*nnnn*

where *nnnn* is a number in the range 0-9999.

Default: None

DSN=

Purpose: Specifies a data set name or name mask. All MAINVIEW SRM name masking parameters can be used. This is a required parameter.

Syntax: DSN=*xxxxxxxxxxxxxxxxxxxx . . .*

where *xxxxxxxx* specifies a data set name up to 44 characters long.

Default: None

EVENTID=

Purpose: Specifies the identifier assigned to a user event in SMEVNT*xx*. This parameter will cause an event to be generated from this function.

Syntax: EVENTID=*xxxxx*

where *xxxxx* is the 5-character string specified on the EVNTID parameter in SMEVNT*xx*.

Default: None

KEEPBACKV=

Purpose: Specifies the number of backup version of a data set that should be kept. If not specified, all backup copies are deleted. This parameter is used only if CDS=BCDS.

Syntax: KEEPBACKV=*nnn*

where *nnnn* is a number in the range 0-255.

Default: None

MIGDAYS=

Purpose: Specifies the age (number of days since migration of the data set) at which the migrated data set (and MCDS entry) is deleted. If CDS=MCDS or CDS=BOTH, then one and only one of these three parameters must be specified: CREDDAYS, MIGDAYS, REFDDAYS. If CDS=BCDS, this parameter is not allowed.

Syntax: MIGDAYS=*nnnn*

where *nnnn* is a number in the range 0-9999.

Default: None

POOL=

Purpose: Specifies the name of a single MAINVIEW SRM pool. Name masking cannot be used. If POOL is used, only data sets from the specified pool are selected. This is an optional parameter. If not specified, data sets are selected for processing without regard to pool membership.

Syntax: POOL=*xxxxxxxx*

where *xxxxxxxx* is a poolname from the SMPPOOLxx member.

Default: None

REFDDAYS=

Purpose: Specifies the age (number of days since the original pre-migration data set was last referred to) at which the migrated data set (and MCDS entry) is deleted. If CDS=MCDS or CDS=BOTH, then one and only one of these three parameters must be specified: CREDDAYS, MIGDAYS, REFDDAYS. If CDS=BCDS, this parameter is not allowed.

Syntax: REF_DAYS=*nnnn*

where *nnnn* is a number in the range 0-9999.

Default: None

Usage Notes

SMHSMUTL generates DFHSM control cards to delete entries (and associated data sets) from the DFHSM migration and backup control data sets. These control cards are formatted for execution by TSO. The general format is as follows:

```
HSEND DELETE dsn
```

For the migration control data set

```
HSEND BDELETE dsn
```

For the backup control data set

SMHSMUTL processing is controlled by DELETE requests. Each delete request specifies

- Data set name or name mask
- Type of DFHSM control data set to be affected (migration or backup)
- Aging specification (number of days after which the data set is to be deleted)

These criteria are compared to DFHSM control data set entries; eligible data sets cause the generation of a DFHSM delete control card. For example, the SMHSMUTL control card:

```
DELETE CDS=MCDS DSN=TD*.SPFTEMP*./ MIGDAYS=10
```

might generate the following:

```
HSEND DELETE TDMOORE.SPFTEMP2.CNTL  
HSEND DELETE TDCAREY.SPFTEMP1.LIST  
HSEND DELETE TDJOHNSN.SPFTEMP0.CNTL  
HSEND DELETE TDJOHNSN.SPFTEMP1.CNTL  
HSEND DELETE TDJOHNSN.SPFTEMP2.CNTL
```

Up to 3140 delete requests can be submitted in a single run.

MAINVIEW SRM must be active for SMHSMUTL to run. The generated control cards must be submitted to TSO to actually change the DFHSM control data sets.

Note that the DFHSM DELETE command deletes a migrated data set without recalling it. Both the MCDS entry and the migrated data set are deleted. Backup versions of the data set are not deleted by this command. The DFHSM BDELETE command deletes all or specific backup versions of a data set.

Control Card Syntax

The DELETE keyword begins a specification. All parameters until the next DELETE or the end of the input file are part of the specification.

Parameters can be on the same line or separate lines. There is no line continuation character.

Parameters can start in any column.

Comments must be on separate lines. A comment must have an asterisk in column 1.

Blank lines are allowed.

Name Masking

All MAINVIEW SRM name masks can be used with the DSN parameter. These mask characters are fully described in the MAINVIEW SRM *User Guide*. Briefly, the mask characters are as follows:

- % Any numeric character
- ? Any character except period (.)
- / Any number of characters, to the end of a name
- * Any number of characters in a single name qualifier
- ** Any non-zero number of name qualifiers

SMHSMUTL does not support the use of MAINVIEW SRM variables.

Messages

SMHSMUTL issues the following messages to sysout:

SMHSMPRM REQUIRED PARAMETER MISSING: *parameter*
SMHSMPRM INVALID PARAMETER: *parameter*
SMHSMPRM DUPLICATE PARAMETER: *parameter*
SMHSMPRM INVALID VALUE FOR PARAMETER: *parameter*
SMHSMPRM CDS=MCDS/BOTH NOT ALLOWED WITH BAKDAYS

SMHSMPRM CDS=BCDS ONLY VALID WITH BAKDAYS
 SMHSMPRM MAXIMUM OF 3140 DELETE STATEMENTS REACHED

(SMHSMPRM is the parameter processing program in SMHSMUTL.)

Job Required for the SMHSMUTL Utility

In the JCL below, STEP10 executes SMHSMUTL to generate DFHSM control cards; STEP20 executes TSO in batch to have DFHSM process the cards.

```
//STEP10      EXEC  PGM=SMHSMUTL,REGION=2M
//STEPLIB     DD   DSN=EMP.?prefix.BBLINK,DISP=SHR
//SYSPRINT    DD   SYSOUT=*
//BCDS        DD   DSN=dfhsm.backup.control,DISP=SHR
//MCDS        DD   DSN=dfhsm.migration.control,DISP=SHR
//HSMCMD      DD   DSN=&&HSMOUT,DISP=(NEW,PASS),
//            SPACE=(TRK,(10,10)),UNIT=SYSDA,
//            DCB=(LRECL=80,BLKSIZE=13680,RECFM=FB)
//SYSIN       DD   *
DELETE DSN=**.TRAN* CDS=MCDS MIGDAYS=20
/*
//STEP20      EXEC  PGM=IKJEFT01
//SYSTSPRT    DD   SYSOUT=*
//SYSTSIN     DD   DSN=&&HSMOUT,DISP=(OLD,DELETE)
```

DDnames descriptions are as follows:

DDname	Description
STEPLIB	Specifies the library containing MAINVIEW SRM load modules
BCDS	Specifies the DFHSM backup control data set
MCDS	Specifies the DFHSM migration control data set
HSMCMD	Specifies an output data set for the generated control cards
SYSIN	Specifies the input data set containing control cards for SMHSMUTL

Example

```
DELETE CDS=MCDS
      DSN=**.SRCHFOR./ REFDAYS=10
```

Delete migration entries for search results data sets after 10 days of non-use.

```
DELETE
      CDS=MCDS
      DSN=AP* **.TRANS*
      CREDDAYS=90
```

Delete migration entries for accounts payable transaction data sets 90 days after creation.

```
DELETE CDS=BOTH DSN=/
      MIGDDAYS=180
```

Delete all backup and migration entries 180 days after migration.

```
DELETE CDS=BCDS
      DSN=GLYTD* **.UPD*
      BAKDDAYS=20 KEEPBACKV=5
```

Delete all but 5 backup versions of general ledger update data sets 20 days after backup.

Chapter 3 Defining the DFHSM Environment

This chapter explains how the DFHSM environment is defined and how EasyHSM is used to extract and display online views.

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Overview

EasyHSM provides a fast and flexible window on the operation of DFHSM. A number of different views are available to display the details of the various DFHSM functions. Information for the views is selected based on dates, times, data set names, and other criteria that you specify. For most views, you can specify DFHSM commands (migrate, recall, and so on) on any listed data set.

Data pertinent to a view's purpose is presented in rows and columns; each row generally represents a DFHSM action on a data set, and each column shows applicable information, such as migration level, volume, age, and so on.

Information on the DFHSM environment is supplied to MAINVIEW SRM in several ways:

- The DFHSM control data sets are identified in EZHSM statements in the MAINVIEW SRM ISPF startup clist.
- Records from the DFHSM logs are extracted by MAINVIEW SRM, under the control of a timer-activated task, which first switches the log file and then copies required records to a dynamically allocated MAINVIEW SRM data set.
- Specific information needed by MAINVIEW SRM, such as the DFHSM log file name and MCDS, OCDS, and BCDS data set definition and allocation, is supplied in parameters in the MAINVIEW SRM SMMSYSxx parmlib member.

DFHSM Control Data Sets

EasyHSM derives information from the DFHSM migration control data set (MCDS) and backup control data set (BCDS). These data sets are dynamically allocated during the start of the EasyHSM component. Their DDNames are SRMMCDS, SRMBCDS, and SRMOCDS. The data set names used in the dynamic allocation are retrieved from the SMMSYSxx parmlib member as described in “System Parameters” on page 3-7.

EasyHSM currently does not support DFHSM control data sets that are defined as multi-cluster, key-range VSAM files. This type of control data set definition allows the control data sets to occupy multiple volumes for a total of 16 gigabytes of space. Use of this type of control data set requires IBM® APAR OY59526, and is normally only used by large installations. If you use multi-cluster key-range control data sets, do not use the Info line command for migrated data sets or the following views:

- HSMDLYA (Daily Activity Summary)
- HSMDLYV (Daily Volume Summary)

EasyHSM supports control data sets that are single volume, single cluster (the most common organization) or multivolume, single cluster.

DFHSM Log Extract Process

A number of the EasyHSM views are based on data in the DFHSM log files. This data must be extracted from the log files and written into a MAINVIEW SRM data set.

In order to capture all DFHSM log data reliably, EasyHSM supplies a program that switches the DFHSM log file, reads the newly inactive log file, dynamically allocates an output file, and writes the data required by the EasyHSM views to the new file. Once started, this program is executed periodically, creating multiple date/timestamped extract files during a day. EasyHSM reads as many of these extract files as necessary to cover the time period requested for a view.

The log-extract program can be run as part of MAINVIEW SRM or in batch mode.

Automated Processing

The log-extract program is started at MAINVIEW SRM startup (or during MAINVIEW SRM execution) when the SMMSYSxx parameter HLOGCOLL is set to YES. HLOGCOLL can be set to NO to deactivate this program (log data collection must then be run by batch execution). As distributed on the MAINVIEW SRM installation tape, HLOGCOLL is set to NO. It can be changed to YES in the MAINVIEW SRM System Parameters panel while MAINVIEW SRM is active to start log file processing; stopping and starting MAINVIEW SRM is not required. (Note that the HLOGCOLL parameter must still be changed in member SMMSYSxx to ensure that log file processing is activated on the next startup of MAINVIEW SRM.)

Use the HLOGAUTH (hours) and HLOGAUTM (minutes) parameters in SMMSYSxx to run the log-extract program at periodic intervals. Set intervals sufficiently short to ensure that the DFHSM log file does not fill up and be switched by DFHSM; if this happens, that log file's data is lost to the EasyHSM views. Do not set any interval shorter than necessary, however, because

- the number of input data sets to EasyHSM is limited to 255

- the time required to allocate multiple data sets dynamically can significantly slow view generation

Warning! EasyHSM does not detect a log switch that occurs between the intervals specified. This means that, if DFHSM does a log swap between intervals, EasyHSM does not capture this log data for reporting. BMC Software recommends batch processing to prevent any missing data from views.

Batch Processing

Note: See the *MAINVIEW SRM User Guide* for batch processing procedures for information found in online views.

You can run the log-extract program in batch mode. This may be preferable at your installation if you already have some type of automated operations software that can detect DFHSM's switching of the log file; for instance, by detecting message ARC0020.

HLOGCOLL must specify NO to run the batch version of the log-extract program. MAINVIEW SRM must be executing. The log-extract program can be run in automatic mode, where it swaps the log file and extracts data at regular intervals, or it can be run in single-execution mode, where it is executed once and ends. It can also be run without swapping the DFHSM log file.

Two parameters are available for batch mode processing.

Parameter	Description
NOAUTO	The log-extract program does not run automatically. The batch execution ends after processing the log file. If NOAUTO is not specified, the log-extract program continues to run until cancelled (or until MAINVIEW SRM is shut down), processing the log file on the interval specified by HLOGAUTH/M.
NOSWAP	The log-extract program does not swap the DFHSM log file. It reads the current DFHSM Y log file. If NOSWAP is not specified, the log-extract program swaps the DFHSM log file prior to reading and extracting log records.

If run in automatic mode, the log-extract program is terminated if HLOGCOLL is set to YES in MAINVIEW SRM; the MAINVIEW SRM-controlled version continues the processing.

If both the NOAUTO and NOSWAP parameters are specified, the log-extract program can be used to extract log file data from any desired log file of any name. This feature is useful, for example, to extract data from DFHSM log files on different LPARs than the one where MAINVIEW SRM is executing.

- When 'NOAUTO,NOSWAP' is specified, the log-extension program scans the job JCL for any DD that begins with HLOG. If one is found, that data set is opened as the Y log file; the log file name in the SMMSYSxx member is ignored.

Tip: Even if NOSWAP and NOAUTO are specified, a non-zero HGLOGAUTH value *must* be specified

- The last four characters of the ddname are taken as the system ID. This system ID should match the system that generated the log file; if it is different, views selected for that system ID are not complete.
- If only HLOG is specified, the current system ID is used (the system where the log-extract program is running).
- If the job JCL does not have a DD that begins with HLOG, the DFHSM Y log file named in SMMSYSxx is used.
- Only one log file is read per execution of the log-extract program.

Tip: The value specified for the system ID portion of the HLOG ddname described above is used to (a) form the low-level qualifier or the log extract data set name and (b) is inserted in the type-3 log records in the file. If you specify an incorrect system ID, you may see this incorrect value in views and be unable to select statistical and/or error views based on system ID.

The JCL used to execute the log-extract program in batch mode is in *?prefix.BBSAMP* member JCLHSM LX. Modify JCLHSM LX according to the instructions in the member header.

Example

The example shown in the following figure extracts data from two log files (MVS systems A and B).

Figure 3-1 Example JCL that Extracts Data From Two Log Files

```
//JOB
//STEP10 EXEC PGM=SMMANP01,PARM='NOSWAP,NOAUTO'
//STEPLIB DD DSN=EMP.PROR340.LOADLIB,DISP=SHR
//HLOGMVSA DD DSN=DFHSM.Y.LOGFILE.MVSA,DISP=SHR
//STEP20 EXEC PGM=SMMANP01,PARM='NOSWAP,NOAUTO'
//STEPLIB DD DSN=EMP.PROR340.LOADLIB,DISP=SHR
//HLOGMVSB DD DSN=DFHSM.Y.LOGFILE.MVSB,DISP=SHR
```

Starting DFHSM with LOGSW=YES causes a log swap by DFHSM at start up. To ensure that the data in the startup swapped log file is extracted for use, you should add a step to the DFHSM procedure preceding the DFHSM start to run the log extraction program with PARM='NOAUTO,NOSWAP'.

Log Extract Data Set

The data set name generated by the log-file-switching program is in the following format:

user-specified-prefix.Dyyymmdd.Thhmmss.SYSsyst-id

syst-id is obtained from the system on which the log-extract program is run, and the date and time are the current values when the log-extract program is run. The *user-specified-prefix* is up to 20 characters, specified in the HLOGINDX parameter. The prefix must be valid for data set naming restrictions; for example:

BMC.DFHSMLOG.D941210.T225212.SYSMVS1

Use the HLOGINDX parameter of the SMMSYS_{xx} parmlib member to control the data set name prefix.

The MAINVIEW SRM log extract file is allocated by default with primary space of 15 tracks and secondary space of 10 tracks. If this is insufficient to contain the amount of data collected in the interval specified in the HLOGxxxx parameters, use the HLOGPRIM parameter to specify the size of the primary extent in tracks. The secondary size is set to one-half of the primary. Alternatively, you can use the MAINVIEW SRM function SPACSQTY to increase the primary and/or secondary allocation sizes.

User Job Execution

A user job can be initiated by the log-extract program after the log file is swapped and records extracted. HLOGTASK specifies the name of the procedure to be run.

System Parameters

The following parameters in the SMMSYSxx parmlib member (system-level specifications for MAINVIEW SRM) are used to define and control the EasyHSM log file support:

Parameter	Required	Description
BCDS <i>n=xxxxxxxxxxx</i>	No	Specifies backup data sets to be defined and allocated during EasyHSM startup
MCDS <i>n=xxxxxxxxxxx</i>	No	Specifies migrated data sets to be defined and allocated during EasyHSM startup
OCDS= <i>xxxxxxxxxxx</i>	No	Specifies OCDS data set to be defined and allocated during EasyHSM startup
HLOGAUTH= <i>nn</i>	Yes	Automatic DFHSM log switch interval in hours
HLOGAUTM= <i>nn</i>	No	Automatic DFHSM log switch interval in minutes
HLOGCOLL= <i>YES/NO</i>	No	Activation of DFHSM log file data collection
HLOGYDSN= <i>xxxxxxxxx</i>	No	Data set name of DFHSM's log file Y
HLOGINDX= <i>xxxxxxxxx</i>	No	DSN prefix of DFHSM log extract file
HLOGPRIM= <i>nnn</i>	No	Number of tracks of primary allocation of log extract file
HLOGTASK= <i>xxxxxxxxx</i>	No	Name of proc to be run on DFHSM log file switch
HLOGUNIT= <i>xxxxxxxxx</i>	No	Unit name for allocation of log extract file

BCDS n =

Purpose: Specifies backup data sets to be defined and allocated during EasyHSM startup.

Syntax: BCDS n =*xxxxxxxx*

where n is the multi-cluster number. The numbers 2, 3, and 4 are specified only if defining a multicluster data set

where *xxxxxxxx* is a backup data set name

Required: No (if not supplied some of the EasyHSM views will not be available)

Default: None

MCDS n =

Purpose: Specifies migrated data sets to be allocated during EasyHSM startup.

Syntax: MCDS n =*xxxxxxxx*

where n is the multi-cluster number. The numbers 2, 3, and 4 are specified only if defining a multicluster data set.

where *xxxxxxxx* is a migrated data set name

Required: No (if not supplied some of the EasyHSM views will not be available)

Default: None

OCDS=

Purpose: Specifies OCDS data sets to be defined and allocated during EasyHSM startup.

Syntax: OCDS=*xxxxxxxx*

where *xxxxxxxx* is an OCDS data set name

Required: No (if not supplied some of the EasyHSM views will not be available)

Default: None

HLOGAUTH=

Purpose: Specifies the *hours* component of the duration between automatic log file switching.

EasyHSM extracts records from the DFHSM log files. If HLOGCOLL=YES is specified, MAINVIEW SRM automatically switches the DFHSM log file and extracts the required records for EasyHSM. The switching interval is specified in hours and minutes by the parameters HLOGAUTH and HLOGAUTM.

Syntax: HLOGAUTH=*nn*

where *nn* specifies a number of hours in the range 0–24.

Required: Yes

Default: HLOGAUTH=00

HLOGAUTM=

Purpose: Specifies the *minutes* component of the duration between automatic log file switching.

EasyHSM extracts records from the DFHSM log files. If HLOGCOLL=YES is specified, MAINVIEW SRM automatically switches the DFHSM log file and extracts the required records for EasyHSM. The switching interval is specified in hours and minutes by the parameters HLOGAUTH and HLOGAUTM.

Syntax: HLOGAUTM=*nn*

where *nn* specifies a number of minutes in the range 0–60.

Required: No

Default: HLOGAUTM=00

HLOGCOLL=

Purpose: Specifies whether MAINVIEW SRM automatically performs DFHSM log file switching and record extraction for EasyHSM.

EasyHSM requires certain records from the DFHSM log files. If HLOGCOLL=YES is specified, MAINVIEW SRM automatically switches the DFHSM log files and runs the log-extract program at the interval specified by the HLOGAUTH/M parameters.

Syntax: HLOGCOLL=YES/NO

Required: No

Default: HLOGCOLL=NO

HLOGINDX=

Purpose: Specifies the prefix of the EasyHSM data set that contains the records extracted from the DFHSM log file. The prefix may contain up to 20 characters, in any number of name qualifiers. The full data set name generated for the log extract file is

prefix.Dyymdd.Thmmss.SYSsystem-id

Syntax: HLOGINDX=xxxxxxxx.xxxxxx.xx

Required: A name is required for EasyHSM to be functional.

Default: None

HLOGPRIM=

Purpose: Specifies the number of tracks to be allocated for the log extract file. One-half of the primary extent is allocated for the secondary (with a minimum of 1). If not specified, 15 tracks are used for primary, and 10 tracks for secondary.

Syntax: HLOGPRIM=*nnn*

where *nnn* is a number in the range 1–999.

Required: No

Default: HLOGPRIM=15

HLOGTASK=

Purpose: Specifies the name of the procedure to be run following the EasyHSM DFHSM log file switch program execution.

EasyHSM extracts records from the DFHSM log files. If HLOGCOLL=YES is specified, MAINVIEW SRM automatically switches the DFHSM log file and extracts the required records for EasyHSM. HLOGTASK may be used to run a task associated with the log file switch performed by the MAINVIEW SRM utility.

Syntax: HLOGTASK=xxxxxxx

Required: No

Default: None

HLOGUNIT=

Purpose: Specifies the esoteric or generic unit name for the allocation of the log extract file. If not specified, SYSALLDA is used.

Syntax: HLOGUNIT=xxxxxxx

Required: No

Default: HLOGUNIT=SYSALLDA

HLOGYDSN=

Purpose: Specifies the fully qualified data set name of the DFHSM log file Y.

Syntax: HLOGYDSN=xxxxxxxx.xxxxxxx...

Required: A name is required for EasyHSM to be functional.

Default: None

Chapter 4 EasyHSM Views

This chapter contains information about EasyHSM Views.

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VSAM Index Component View	4-21
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Non-VSAM Data Set View	4-21

Overview

EasyHSM provides a number of views that facilitate the use and management of DFHSM. Data is collected from DFHSM log files and DFHSM control data sets. The information for these reports can be selected and organized on the basis of time (hours or days), data set name, system ID, volume, or other parameters. Most views allow the entry of DFHSM commands such as HMIGRATE and HRECALL.

To invoke EasyHSM views you can

- type the view name and required parameters on the **COMMAND** line
- select the view from the EZSRMHSM menu and filter the data from the data input panel

To invoke EasyHSM views from the EZSRMHSM, perform the following steps:

Step 1 From the EZSRM Menu, select **EasyHSM**.

The EZSRMHSM menu is displayed, as shown in Figure 4-1.

Figure 4-1 EZSRMHSM Menu

```

14MAY2001 11:16:06 ----- INFORMATION DISPLAY -----
COMMAND ==>>>                                     SCROLL ==>>> PAGE
CURR WIN ==>> 1           ALT WIN ==>>>
>W1 =EZSRMHSM=====SJSJG=====*=====14MAY2001==11:16:06====MVSRMHSM=D====1
                                EZSRMHSM  Menu

    EasyHSM Views          +-----+          DFHSM CDS Query
                           |         |          |
                           | Place cursor on |          |
                           | menu item and   |          |
                           | press ENTER     |          |
. Bkup/Recovery Activity |-----+          | . Backup data set view
. Error details          |         |          | . Backup DSN version
. Error summary         +-----+          | . Migrated data set view
. Log entries           |         |          | . OCDS data set view
. Migration activity    |         |          | . OCDS volume view
. Migration thrashing   |         |          |
. Recall activity       |         |          | SRM Administartion
. Data set deletions    |         |          |
. Daily activity summary|         |          | > Parmlib Members
. Daily volume summary  |         |          | . Functions
. Migration level 1->2  |         |          | . SRM Component Status
. DFHSM Output Managemnt|         |          | . MVSRMHSM View List
                           |         |          | . MVSRMHSM Batch Reports
                           |         |          | . Return....

```

- Step 2** Set date and time for data views using the MAINVIEW TIME command. See “Using the TIME Command” in the *MANVIEW SRM User Guide and Reference*.
- Step 3** Select the menu option of your choice. A data entry panel is displayed in which you can filter the data you want to see.
- Step 4** To filter data, complete the fields provided on the data entry panel.
- Step 5** Type **S** to the left of the <== symbol to process the request.

Table 4-1 defines EasyHSM views. View invocation and action line commands are described on the following pages.

Tip: You can use the EZcmd menu to hyperlink to another view rather than the action line command. See the *MAINVIEW SRM User Guide* for details.

Power users can gain functionality by using *primary action commands*. Primary action commands are described in the online help. They appear in reverse video to indicate that you can hyperlink to a detailed description of the command that includes specific arguments used in the command.

Table 4-1 EasyHSM Views (Part 1 of 2)

View Description		View Name
Backup/Recovery Activity	shows all successful backup and recovery actions processed by DFHSM during the specified time period The views show age, volumes (from and to and current), date of last change, and SMS class information	HSMBKRC HSMBKRC D
Error Details	shows all unsuccessful actions processed by DFHSM during the specified time period, with error codes and a description of the error	HSMERDT HSMERDT D
Error Summary	shows total errors for migration, recall, and backup during the specified time period, with error codes and a description of the error	HSMERRS HSMERRSD
Log Entries	lists all actions (successful and unsuccessful) processed by DFHSM during the specified time period.	HSMLOGE HSMLOGED
Migration Activity	shows all successful migrations processed by DFHSM during the specified time period, with aging information, volume information, and DFSMS class information.	HSMMGAT HSMMGAT D
Migration Thrashing	shows migration/recall actions for data sets in a manner that makes excessive activity highly visible	HSMMGTH HSMMGTH D
Recall Activity	shows successful recalls processed by DFHSM during the specified time period, with aging information, volume information, and DFSMS class information	HSMRCAL HSMRCAL D

Table 4-1 EasyHSM Views (Part 2 of 2)

View Description		View Name
Data Set Deletions	<p>shows all successful data set deletions processed by DFHSM during the specified time period, with aging information, volume information, and job/user information</p> <p>Data set deletions occur from the DFHSM automatic space management functionality that deletes expired data sets or from explicit requests to delete migrated data sets. The deletion type column shows BY AGE for expiration-date-based deletions, and MIGRATED DS for DFHSM delete-migrated commands.</p>	HSMDSDL HSMDSDL D
Daily Activity Summary	<p>shows statistics for the DFHSM operations over the requested time period</p> <p>This information is read from the MAINVIEW SRM Log Extract files. The view displays a row of information for each MCDS daily statistic record written to the MAINVIEW SRM Log Extract files.</p>	HSMDLYA HSMDLYAD
Daily Volume Summary	<p>shows volume information for DFHSM-managed volumes for the requested time period</p> <p>This information is read from the MAINVIEW SRM Log Extract files. The view displays a row of information for each MCDS volume statistic record written to the MAINVIEW SRM Log Extract files. These records may be created as frequently as once an hour.</p>	HSMDLYV HSMDLYVD
Migration Level 1 to Level 2	<p>shows all successful migrations from level 1 to level 2 processed by DFHSM during the specified time period, with aging information, volume information, and DFSMS class information.</p>	HSML1L2 HSML1L2D

Backup and Recovery Activity Views

The Backup and Recovery Activity tabular view shows all successful backup and recovery actions processed by DFHSM during the specified time period. The view shows age, volumes (from and to and current), date of last change, and SMS class information. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMBKRC	HSMBKRC DSN/ CatInfo SYSID
Detail	HSMBKRCD	HSMBKRCD DSN CatInfo SYSID

View Invocation

Optional Input		Valid Values	Default
Data set name	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs
Include catalog information?	specifies whether to include catalog information in the display	Y (Yes), N (No)	N (No)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

- BV shows the backup versions for the data set
- CL displays a catalog list (IDCAMS LISTCAT) for the data set
- D displays a detailed view of this data set
- HBA backs up the data set
- HBD deletes the backed-up copy of the data set
- HMD deletes the migrated data set
- HMI migrates the data set
- HRE recalls the migrated data set
- HRC recovers the backed-up data set
- I shows detailed data set information (WBDSIM)

Daily Activity Summary Views

The Daily Activity Summary tabular view shows statistics for the DFHSM operations over the requested time period. This information is read from the MAINVIEW SRM Log Extract files. The tabular view displays a row of information for each MCDS daily statistic record written to the MAINVIEW SRM Log Extract files.

The detail view displays the selected system record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMDLYA	HSMDLYA SYSID
Detail	HSMDLYAD	HSMDLYAD SYSID

View Invocation

Optional Input		Valid Values	Default
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Daily Volume Summary Views

The Daily Volume Summary tabular view shows volume information for DFHSM-managed volumes for the requested time period. This information is read from the MAINVIEW SRM Log Extract files. The tabular view displays a row of information for each MCDS volume statistic record written to the MAINVIEW SRM Log Extract files. These records may be created as frequently as once an hour.

The detail view displays the selected volume record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMDLYV	HSMDLYV Volume SYSID
Detail	HSMDLYVD	HSMDLYVD Volume SYSID

View Invocation

Optional Input		Valid Values	Default
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs
Volume	specifies the volume for which activity is displayed	valid volume serial number	All volumes

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Data Set Deletions Views

The Data Set Deletions tabular view shows all successful data set deletions processed by DFHSM during the specified time period, with aging information, volume information, and job/user information.

Data set deletions occur from the DFHSM automatic space management functionality that deletes expired data sets or from explicit requests to delete migrated data sets. The deletion type column shows BY AGE for expiration-date-based deletions, and MIGRATED DS for DFHSM delete-migrated commands.

The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMDSDL	HSMDSDL DSN/ CatInfo SYSID
Detail	HSMDSDL	HSMDSDL DSN CatInfo SYSID

View Invocation

Optional Input		Valid Values	Default
Data set name	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs
Include catalog information?	specifies whether to include catalog information in the display	Y (Yes), N (No)	N (No)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

BV shows the backup versions for the data set
 D displays a detailed view of this data set
 HBD deletes the backed-up copy of the data set
 HRC recovers the backed-up data set

Error Details Views

The Error Details tabular view shows all unsuccessful actions processed by DFHSM during the specified time period, with error codes and a description of the error. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMERDT	HSMERDT DSN/ CatInfo SYSID
Detail	HSMERDTD	HSMERDTD DSN Catinfo SYSID

View Invocation

Optional Input		Valid Values	Default
Data set name	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs
Include catalog information?	specifies whether to include catalog information in the display	Y (Yes), N (No)	N (No)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

D	displays a detailed view of this data set
I	shows detailed data set information
BV	shows the backup versions for the data set
CL	displays a catalog list (IDCAMS LISTCAT) for the data set
HBA	backs up the data set
HBD	deletes the backed-up copy of the data set
HMD	deletes the migrated data set
HMI	migrates the data set
HRC	recovers the backed-up data set
HRE	recalls the migrated data set
M	displays HSM messages
QW	displays QuickRef messages

Table 4-2 Action and Category Descriptions

DFHSM Action	Action Code	Category code
migration ML0 to ML1 ML1 to ML2 ML0 to ML2 failed migrate	MIGRATE 0->1 MIGRATE 1->2 MIGRATE 0->2 MIGRATE SPCMGMT	MIGRATION
recall ML1 to ML0 ML2 to ML0	RECALL 0<-1 RECALL 0<-2	RECALL
backup daily spill failed backup	DAILY BACKUP SPILL BACKUP BACKUP	BACKUP
recovery	RECOVERY	RECOVERY
volume dump	FULL VOL DUMP	DUMP
restore data set volume	VOL/DS RESTORE	RESTORE
delete migrated data set delete data set by age data set deleted by age failed delete scratched by SPCMGMT recycle backup recycle migration volume	DELETE MIG DS DS DEL BY AGE EXPIRED DELETE SCRATCH RECYCLE BACKUP RECYCL MIG VOL	OTHER

Note that, although many data fields are displayed in the error view, some of the fields may be empty, depending on what data had been collected by DFHSM when the error occurred.

Error Summary Views

The Error Summary tabular view shows total errors for migration, recall, and backup during the specified time period, with error codes and a description of the error. The view includes only migration, recall, and backup actions.

The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMERRS	HSMERRS DSN/ CatInfo SYSID
Detail	HSMERRSD	HSMERRSD DSN CatInfo SYSID

View Invocation

Optional Input		Valid Values	Default
Data set name	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs
Include catalog information?	specifies whether to include catalog information in the display	Y (Yes), N (No)	N (No)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

DET displays error details
 DIS displays a detailed view of this data set
 M displays HSM messages
 QW displays QuickRef messages

Table 4-3 Action and Category Descriptions (Part 1 of 2)

DFHSM Action	Action Code	Activity Code
migration	ML0 to ML1 ML1 to ML2 ML0 to ML2 failed migrate	MIGRATE 0->1 MIGRATE 1->2 MIGRATE 0->2 MIGRATE MIGRATION

Table 4-3 Action and Category Descriptions (Part 2 of 2)

DFHSM Action		Action Code	Activity Code
recall	ML1 to MLO ML2 to MLO	RECALL 0<-1 RECALL 0<-2	RECALL
backup	daily spill failed backup	DAILY BACKUP SPILL BACKUP BACKUP	BACKUP

The DET action switches the view to a detail panel in which the individual errored actions that make up a summary row are displayed.

Note that, although many data fields are displayed in the error view, some of the fields may be empty, depending on what data has been collected by DFHSM when the error occurred.

Log Entries Views

The Log Entries tabular view lists all actions (successful and unsuccessful) processed by DFHSM during the specified time period. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMLOGE	HSMLOGE DSN/ CatInfo SYSID
Detail	HSMLOGED	HSMLOGED DSN CatInfo SYSID

View Invocation

Optional Input		Valid Values	Default
Data set name	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs
Include catalog information?	specifies whether to include catalog information in the display	Y (Yes), N (No)	N (No)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

BV shows the backup versions for the data set
 CL displays a catalog list (IDCAMS LISTCAT) for the data set
 DIS displays a detailed view of this data set
 HBA backs up the data set
 HBD deletes the backed-up copy of the data set
 HMI migrates the data set
 HRC recovers the backed-up data set
 HMD deletes the migrated data set
 HRE recalls the migrated data set
 I shows detailed data set information
 M displays HSM messages
 QW displays QuickRef messages

DFHSM actions are listed in the following table.

Table 4-4 DFHSM Action Descriptions

DFHSM Action		Action Code
migration	ML0 to ML1 ML1 to ML2 ML0 to ML2 failed migrate	MIGRATE 0->1 MIGRATE 1->2 MIGRATE 0->2 MIGRATE SPCMGMT
recall	ML1 to ML0 ML2 to ML0	RECALL 0<-1 RECALL 0<-2
backup	daily spill failed backup	DAILY BACKUP SPILL BACKUP BACKUP
recovery		RECOVERY
volume dump		FULL VOL DUMP
restore	data set volume	VOL/DS RESTORE
delete migrated data set delete data set by age data set deleted by age failed delete scratched by SPCMGMT recycle backup recycle migration volume		DELETE MIG DS DS DEL BY AGE EXPIRED DELETE SCRATCH RECYCLE BACKUP RECYCL MIG VOL

Migration Activity Views

The Migration Activity tabular view shows all successful migrations processed by DFHSM during the specified time period, with aging information, volume information, and DFSMS class information. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMMGAT	HSMMGAT DSN/ CatInfo SYSID
Detail	HSMMGATD	HSMMGATD DSN CatInfo SYSID

View Invocation

Optional Input		Valid Values	Default
Data set name	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs
Include catalog information?	specifies whether to include catalog information in the display	Y (Yes), N (No)	N (No)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

- I shows detailed data set information
- BV shows the backup versions for the data set
- CL displays a catalog list (IDCAMS LISTCAT) for the data set
- D displays a detailed view of this data set
- HBA backs up the data set
- HBD deletes the backed-up copy of the data set
- HMD deletes the migrated data set
- HMI migrates the data set
- HRC recovers the backed-up data set
- HRE recalls the migrated data set

The tabular view displays three types of migrations, as shown in Table 4-5.

Table 4-5 DFHSM Action Descriptions

DFHSM Action	Action Code
ML0 to ML1	M 0->1
ML1 to ML2	M 1->2
ML0 to ML2	M 0->2

Migration Level 1 to Level 2 Views

The Migration Level 1 to Level 2 tabular view shows all successful migrations from level 1 to level 2 processed by DFHSM during the specified time period, with aging information, volume information, and DFSMS class information. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSML2L2	HSMMG12 DSN/ CatInfo SYSID
Detail	HSML1L2D	HSMMG12D DSN CatInfo SYSID

View Invocation

Optional Input		Valid Values	Default
Data set name	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs
Include catalog information?	specifies whether to include catalog information in the display	Y (Yes), N (No)	N (No)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

BV shows the backup versions for the data set
 CL displays a catalog list (IDCAMS LISTCAT) for the data set
 D displays a detailed view of this data set
 HBA backs up the data set
 HBD deletes the backed-up copy of the data set
 HMD deletes the migrated data set
 HMI migrates the data set
 HRC recovers the backed-up data set
 HRE recalls the migrated data set
 I shows detailed data set information

Migration Thrashing Views

The Migration Thrashing tabular view shows migration/recall actions for data sets in a manner that makes excessive activity highly visible. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMMGTH	HSMMGTH DSN/ CatInfo SYSID
Detail	HSMMGTHD	HSMMGTHD DSN CatInfo SYSID

View Invocation

Optional Input		Valid Values	Default
Data set name	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs
Include catalog information?	specifies whether to include catalog information in the display	Y (Yes), N (No)	N (No)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

BV	shows the backup versions for the data set
CL	displays a catalog list (IDCAMS LISTCAT) for the data set
D	displays a detailed view of this data set
DET	displays migration thrashing details
HBA	backs up the data set
HBD	deletes the backed-up copy of the data set
HMD	deletes the migrated data set
HMI	migrates the data set
HRE	recalls the migrated data set
HRC	recovers the backed-up data set
I	shows detailed data set information
M	displays HSM messages
QW	displays QuickRef messages

Recall Activity Views

The HSM Recall Activity tabular view shows successful recalls processed by DFHSM during the specified time period, with aging information, volume information, and DFSMS class information. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMRCAL	HSMRCAL DSN/ CatInfo SYSID
Detail	HSMRCALD	HSMRCALD DSN CatInfo SYSID

View Invocation

Optional Input		Valid Values	Default
Data set name	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
System ID	specifies the 4 position system ID where the activity originated	valid SYSIDs	All SYSIDs
Include catalog information?	specifies whether to include catalog information in the display	Y (Yes), N (No)	N (No)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

BV shows the backup versions for the data set
 CL displays a catalog list (IDCAMS LISTCAT) for the data set
 HBA backs up the data set
 HBD deletes the backed-up copy of the data set
 HMD deletes the migrated data set
 HMI migrates the data set
 HRE recalls the migrated data set
 HRC recovers the backed-up data set
 I shows detailed data set information
 MTD displays migrated trashing details

The view displays two types of recalls, shown in Table 4-6.

Table 4-6 DFHSM Action Descriptions

DFHSM Action	Action Code
ML0 from ML1	R 0<-1
ML0 from ML2	R 0<-2

VSAM Cluster Views

The VSAM cluster tabular view provides general VSAM cluster information. Action line commands to provide more detailed information on the individual VSAM components.

The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	WBDSIC	WBDSIC <i>fully qualified DSN</i>

Line actions available are

CL displays a catalog list for the data set
 I shows component information

Migrated Data Set View

Migrated data set tabular view shows data set information related to a migrated data set.

View Type	View Name	View Invocation
Tabular	WBDSIM	WBDSIM <i>fully qualified DSN</i>

No Actions are available on this view.

VSAM Index Component View

VSAM index component information tabular view displays information obtained from the catalog for the INDEX component of the indicated VSAM cluster and the data set name of the INDEX component.

View Type	View Name	View Invocation
Tabular	WBDSII	WBDSII <i>fully qualified DSN</i>

No Actions are available on this view.

VSAM Data Component View

VSAM data component information tabular view provides detailed VSAM data component information. The major sections of the display (HISTORY, ATTRIBUTES, ALLOCATION, and STATISTICS) have the same meaning and contain much the same information as the standard IDCAMS LISTCAT. The only exception is ALLOCATION, which provides fields that consolidate information from the ALLOCATION portion of LISTCAT.

View Type	View Name	View Invocation
Tabular	WBDSID	WBDSID <i>fully qualified DSN</i>

No Actions are available on this view.

Non-VSAM Data Set View

Non-VSAM data set information tabular view shows information about the selected data set.

View Type	View Name	View Invocation
Tabular	WBDSIA	WBDSIA <i>fully qualified DSN</i>

No Actions are available on this view.

Chapter 5 DFHSM CDS Query Views

This chapter explains how to use DFHSM CDS query views.

Overview	5-2
Backup Data Set Views	5-4
Backup Data Set Versions Views	5-5
Backup Data Set Versions for Data Set Views	5-6
Migrated Data Set Views	5-7
OCDS Data Set Views	5-8
OCDS Volume Views	5-9

Overview

EasyHSM provides fast, flexible access to DFHSM operations, using MCDS, BCDS, OCDS, and DFHSM log files.

To invoke DFHSM CDS query views you can

- type the view name and required parameters on the **COMMAND** line
- select the view from the EZSRMHSM menu and filter the data from the data input panel

To invoke DFHSM CDS query views from the EZSRMHSM, perform the following steps:

Step 1 From the EZSRM Menu, select **EasyHSM**.

The EZSRMHSM menu is displayed, as shown in Figure 5-1.

Figure 5-1 EZSRMHSM Menu

```

14MAY2001 11:16:06 ----- INFORMATION DISPLAY -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
>W1 =EZSRMHSM=====SJSG=====14MAY2001==11:16:06====MVSRRHSM=D====1
                                EZSRMHSM  Menu

    EasyHSM Views                +-----+ DFHSM CDS Query
                                |         | |
    . Bkup/Recovery Activity      | Place cursor on | |
                                | menu item and  | |
    . Error details               | press ENTER  | |
    . Error summary               +-----+ . Backup data set view
    . Log entries                 . Backup DSN version
    . Migration activity          . Migrated data set view
    . Migration thrashing         . OCDS data set view
    . Recall activity            . OCDS volume view
    . Data set deletions
    . Daily activity summary
    . Daily volume summary
    . Migration level 1->2
    . DFHSM Output Managemnt

                                SRM Administartion
                                > Parmlib Members
                                . Functions
                                . SRM Component Status
                                . MVSRRHSM View List
                                . MVSRRHSM Batch Reports
                                . Return....

```

Step 2 Set date and time for data views using the MAINVIEW TIME command. See “Using the TIME Command” in the *MANVIEW SRM User Guide and Reference*.

- Step 3** Select the menu option of your choice. A data entry panel is displayed in which you can filter the data you want to see.
- Step 4** To filter data, complete the fields provided on the data entry panel.
- Step 5** Type **S** to the left of the **<=** symbol to process the request.

Table 5-1 defines DFHSM CDS query views. View invocation and actions are described on the following pages.

Tip: You can use the EZcmd menu to hyperlink to another view rather than the action line command. See “EZcmd Menus” on page 1-17 for details.

Power users can gain functionality by using *primary action commands*. Primary action commands are described in the online help. They appear in reverse video to indicate that you can hyperlink to a detailed description of the command that includes specific arguments used in the command.

Table 5-1 DFHSM CDS Query Views

View Description		View Name
Backup Data Set view	shows backup status information on data sets. The view shows the age of the backup, the date it was taken, and the device and device type (disk or tape).	HSMBKDS HSMBKDSD
Backup DSN Version view	lists backup data set entries on a specific data set version	HSMBKVR HSMBKVRD
Backup Data Set Version view	shows backup status information on a specific data set version	HSMDVER HSMDVERD
Migrated Data Set view	shows status information on migrated data sets The view shows current migration level, volume information, aging information, compression percentage, SDSP residency, and DFSMS class information. The view can be restricted to VSAM or non-VSAM data sets and to data sets on Level 1 or Level 2.	HSMMGDS HSMMGDSD
OCDS Data Set view	shows physical block information for each data set, as well as the volume serial of the tape. It also shows the last referenced date, the expiration date, and the HSM name of the data set.	HSMOCDS HSMOCSD
OCDS Volume view	shows the information that is contained in the OCDS for each volume It shows the volume serial of the tape, the type of tape, the number of valid blocks, the number of data sets on the tape, whether the tape contains RACF-protected data sets, and whether the volume is considered full by HSM.	HSMOCDV HSMOCDVD

Backup Data Set Views

The Backup Data Set tabular view shows backup status information on data sets, such as the age of the backup, the date it was taken, and the device and device type (disk or tape). The detail view displays selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMBKDS	HSMBKDS DSN/ DSTP
Detail	HSMBKDS	HSMBKDS DSN DSTP

Optional Input		Valid Values	Default
Data set name level	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
Data set name type	specifies the data set type	A (all types) V (VSAM data sets) N (Non-VSAM data sets)	A (All)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

BV shows the backup versions for the data set
 D displays detail view
 HBD deletes the backed-up copy of the data set
 HRC recovers the backed-up data set

Backup Data Set Versions Views

The Backup Data Set Versions tabular view shows backup status information on a data set versions. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMBKVR	HSMBKVR DSN/ DSTP
Detail	HSMBKVRD	HSMBKVRD DSN DSTP

View Invocation

Optional Input		Valid Values	Default
Data set name level	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
Data set name type	specifies the data set type	A (all types) V (VSAM data sets) N (Non-VSAM data sets)	A (All)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

BV shows the backup versions for the data set
 D displays detail view
 HBD deletes the backed-up copy of the data set
 HRC recovers the backed-up data set

Backup Data Set Versions for Data Set Views

The Backup Data Set Version for Data Set tabular view shows backup status information on a data set versions. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMDVER	HSMDVER DSN DSTP
Detail	HSMDVERD	HSMDVERD DSN DSTP

View Invocation

Optional Input		Valid Values	Default
Data set name	specifies a data set name	fully qualified DSN	none

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

- HRC recovers the backed-up data set
- HBD deletes the backed-up copy of the data set

Migrated Data Set Views

The Migrated Data Set tabular view shows status information on migrated data sets. The view shows current migration level, volume information, aging information, compression percentage, SDSP residency, and DFSMS class information. The view can be restricted to VSAM or non-VSAM data sets and to data sets on Level 1 or Level 2. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMMGDS	HSMMGDS DSN/ DSTP
Detail	HSMMGDSD	HSMMGDSD DSN DSTP

Optional Input		Valid Values	Default
Data set name level	specifies a data set name or data set name mask to show activity for	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
Data set type	specifies the data set type	A (all types) V (VSAM data sets) N (Non-VSAM data sets)	A (All)
Migration level	specifies migration levels to include	A (all levels) 1 (level 1) 2 (level 2)	A (All)
Include catalog information?	specifies whether to include catalog information in the display	Y (Yes), N (No)	N (No)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

DIS displays a detailed view of this data set
HMD deletes the migrated data set copy
HMI migrates the data set
HRE recalls the migrated data set
I shows detailed data set information

OCDS Data Set Views

The OCDS Data Set tabular view shows physical block information for each data set, as well as the volume serial of the tape. It also shows the last referenced date, the expiration date, and the HSM name of the data set. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMOCDS	HSMOCDS DSN/ DSTP VLTP FVLN TVLN
Detail	HSMOCSD	HSMOCSD DSN DSTP VLTP FVLN TVLN

Optional Input		Valid Values	Default
Data set name level	specifies a data set name or data set name mask	fully qualified DSN, partial DSN suffixed with "/", or "/"	"/" (All)
Data set type	specifies the data set type	A (all types) V (VSAM data sets) N (Non-VSAM data sets)	A (All)
Volume type	specifies the volume type	A (all types) M (migrated) D (daily backup) B (spill backup) U (unassigned)	A (All)
From volume	specifies a From volume name mask	full volume name, partial volume name suffixed with "/", or "/"	"/" (All)
To volume	specifies a To volume name mask	full volume name, partial volume name suffixed with "/", or "/"	"/" (All)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

- BV shows backup versions for the data set
- D displays detail view
- HBD deletes the backed-up copy of the data set
- HMD deletes the migrated data set
- HRC recovers the backed-up data set
- HRE recalls the migrated data set
- I shows detailed data set information

OCDS Volume Views

The OCDS Volume tabular view shows the information that is contained in the OCDS for each volume. It shows the volume serial of the tape, the type of tape, the number of valid blocks, the number of data sets on the tape, whether the tape contains RACF-protected data sets, and whether the volume is considered full by HSM. The detail view displays the selected volume record in vertical format.

View Type	View Name	View Invocation
Tabular	HSMOCDV	HSMOCDV VLTP, FVLN, TVLN
Detail	HSMOCDVD	HSMOCDVD VLTP, FVLN, TVLN

Optional Input		Valid Values	Default
Volume type	specifies the volume type	A (all types) M (migrated) D (daily backup) B (spill backup) U (unassigned)	A (All)
From volume	specifies a From volume name mask	full volume name, partial volume name suffixed with "/", or "/"	"/" (All)
To volume	specifies a To volume name mask	full volume name, partial volume name suffixed with "/", or "/"	"/" (All)

Date and time are retrieved from the parameters in the MAINVIEW Time command.

Line actions available are

DEL deletes the selected volume
 DIS displays a detailed view of this data set
 I shows detailed volume information
 REC recycles the selected volume
 UNA unassigns the selected volume

Chapter 6 DFHSM Output Management

This chapter describes DFHSM output management.

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Message Filtering	6-2
Input Data Sets	6-3
Output Data Sets	6-4
Skeleton Processing	6-14
DFHSM Output Management Views	6-20

Overview

DFHSM Output Management allows automated processing of DFHSM and DFDSS output. Output management provides

- filtering out unwanted or informational messages, selecting for display only messages indicating situations that need attention
- automated creation of control cards, JCL, or commands to handle conditions described by messages, using information extracted from the message text
- immediate job submission of generated JCL
- online views produced by the message filtering process

Output management begins with the execution of a batch job. It reads user-specified sets of DFHSM logs and/or DFDSS message output. Under user control, messages are selected for inclusion in reports and/or for construction of JCL or control cards. Results can be viewed online in the HSMOMDS and HSMOMML views.

Tip: Your DFHSM initialization parameters must include **ACTLOGTYPE(DASD)**.

(Your DFHSM initialization parameters are usually stored in the ARCCMDxx member of your SYS1.PARMLIB data set.) This logging method allows your log data to be available for the EasyHSM reporting facility.

Message Filtering

DFHSM and DFDSS produce one or more messages for every action they take or, in some cases, do not take. This results in a large number of messages that may contain information important to management of the installation's storage resources. These messages should be scanned on a regular basis to determine if any action should be taken; for example:

```
ARC0706I  BACKUP OF VOLUME WORK02 TERMINATED, NO DASD
          DAILY BACKUP VOLUME AVAILABLE
```

This message indicates that a backup was not taken; the storage administrator should investigate and correct the situation. However, this message is often buried in many occurrences of ARC0722I, ARC0723I, and ARC0734I.

```
ARC0700I  BACKUP OF VOLUME SMS005 SUSPENDED, TASK WAITING
          FOR AN AVAILABLE DASD DAILY BACKUP VOLUME
```

This message may indicate DFHSM processing bottlenecks that should be corrected.

```
ARC0734I  ACTION=BACK-UP FRVOL=EMP004 TOVOL=HSM004
          TRACKS= 52 RC= 19, REASON= 12, AGE= 1, DSN=
```

```
ARC0734I  ACTION=MIGRATE FRVOL=WORK02 TOVOL= *** TRACKS=
          0 RC= 20, REASON= 12, AGE=107, DSN=
```

This message, and other instances of ARC0734I with non-zero return codes, indicates that the operation failed for a data set. That data set was not backed up or migrated; it may be uncataloged, or cataloged but nonexistent, or ineligible for backup or migration. DFHSM log data sets typically contain hundreds of ARC0734I messages, most of them indicating successful actions.

Input Data Sets

Output management reads the DFHSM/DFDSS message logs. These logs must be written to DASD data sets by DFHSM and DFDSS.

Tip: Your DFHSM initialization parameters must include the ACTLOGTYPE(DASD) parameter so DFHSM will write the log records to DASD data sets used by OPTR000 program.

Note: Your DFHSM initialization parameters are usually stored in the ARCCMDxx member of your SYS1.PARMLIB data set.

If you are using the alternative logging method, ACTLOGTYPE(SYSOUT), your log data will not be available for the OPRTR000 program, and you should refer to “EasyHSM Views” on page 4-1.

The naming convention used by DFHSM for these data sets is

HSMACT.Hhostid.actLOG.Dyyddd.Thmmss

where

<i>hostid</i>	Gives the one-character ID of the host machine
<i>act</i>	Identifies the DFHSM activity (BAK-backup, MIG-migration, CMD-command, DMP-dump)
<i>yddd</i>	Gives the Julian date when the data set was produced
<i>hmmss</i>	Gives the time of day when the data set was produced

Note: The high-level qualifier of the DFHSM activity log data sets can be set in the HSMACTID parameter in the SMMSYSxx parmlib member.

The DFHSM data sets are dynamically allocated by output management and do not require any entries in execution JCL. Specification of the DFHSM logs to be used as input is by the DAYS/DATE and HOST parameters on output management control card input. DFHSM logs which have been migrated are recalled to ML0 for input processing. *A maximum of 255 DFHSM logs can be input to any single execution of output management.*

With DFDSS, the output data set for messages must be specified on the SYSPRINT DD statement of the DFDSS job. DFDSS does not require any naming standards. DFDSS data sets must be identified explicitly on the OPMIN DD statement.

Output management allows data to be extracted from selected DFHSM/DFDSS messages and substituted into *skeleton* statements (this is conceptually similar to but not the same as the ISPF JCL skeleton facility). These skeleton statements, which are normally JCL or control card prototype statements, are read from PDS members. The input skeleton PDS is identified on the OPMSKL DD statement. The member name is specified on the SAVE or START output management control card. (See “Skeleton Processing” on page 6-14 for a complete description.)

Output Data Sets

Output management produces two types of output: reports and generated JCL/control cards.

Report Output

Output management generates two different report types, identified by the REPORT and ERROR parameters in the output management specification requests. DFHSM/DFDSS messages can be filtered into either category; the distinction between normal reporting and error reporting is a matter of definition by you.

Reports are written to partitioned data sets created dynamically by output management. Each report PDS is given a name unique to the current date. Multiple executions of output management on the same day adds members to any existing reports PDS for that day. These output data sets are named:

```
opmhl q.OUTPUT.DFHSM.Dyymmdd  
opmhl q.OUTPUT.DFDSS.Dyymmdd
```

where

opmhl q Is the output management high-level qualifier specified in the OPMHLQ parameter of the SMMSYSxx member

yymmdd Is the current date

Report members in the output PDS are named:

s h r hhmm

where

- s* Identifies the source:
- B DFHSM backup log
 - M DFHSM migration log
 - C DFHSM command log
 - D DFHSM dump log or DFDSS output
- h* Identifies the ID of the host machine
- r* Identifies the member as output from Report or Error specifications
- hhmm* Identifies the time of day when output management produced the member

Example

M2R1503 Migration Report for host 2, run at 3:03pm

BAE0811 Backup Error report for host A, run at 8:11am

JCL/control card output

Output management allows data to be extracted from selected DFHSM/DFDSS messages and substituted into *skeleton* statements (normally JCL and/or control card images). The output containing the skeleton text and substituted data is written to the sequential data set identified on the OPMSUB DD statement. The member name is specified on the SAVE control card. (See “Skeleton Processing” on page 6-14 for a complete description.)

Translated skeleton output can also be submitted directly to OS/390 for execution. An INTRDR DD statement is required in the JCL.

Execution JCL

MAINVIEW SRM must be active to run output management.

The following figure illustrates the JCL requirements for executing output management.

Figure 6-1 Sample JCL Requirements for Output Management

```
//STEP10      EXEC PGM=OPRTR000,REGION=2M
//STEPLIB     DD DSN=xxxxxxx.BBLINK,DISP=SHR
//SYSPRIN     DD SYSOUT=*
//SYSUT1DD    UNIT=unit,SPACE=(CYL,(10,10))
//SYSUT2     DD UNIT=unit,SPACE=(CYL,(10,10))
//OPMIN      DD DSN=DFDSS.messages,DISP=SHR      optional
//OPMSKL     DD DSN=xxxxxxx.opm.skeleton,DISP=SHR optional
//OPMSUB     DD DSN=xxxxxxx.opm.genjcl,DISP=SHR  optional
//INTRDR     DD SYSOUT=*,DCB=BLKSIZE=80         optional
//SYSIN      DD *
```

output management control cards

/*

DDname descriptions are as follows:

DDname	Description
OPMIN	Specifies the DFDSS message data set. This DD statement is required if DFDSS is specified in any output management control statement. (DFHSM input data sets are allocated dynamically and do not require JCL specification.)
OPMSKL	Specifies an input PDS containing skeleton specifications. This DD statement is required when either SAVE or START is specified with an ACTION statement.
OPMSUB	Specifies an output sequential data set for card images generated from skeleton statements. This DD statement is required when SAVE is specified on an ACTION statement.
INTRDR	Specifies an internal reader. This DD statement is required when START is specified on an ACTION statement.
SYSIN	Contains the control statements for output management processing.

Control Statements

Output management processing is specified by a series of control statements containing a variable number of parameters. Like other MAINVIEW SRM functions, parameters are either action parameters or selection parameters. (See Figure 6-2 on page 6-8.)

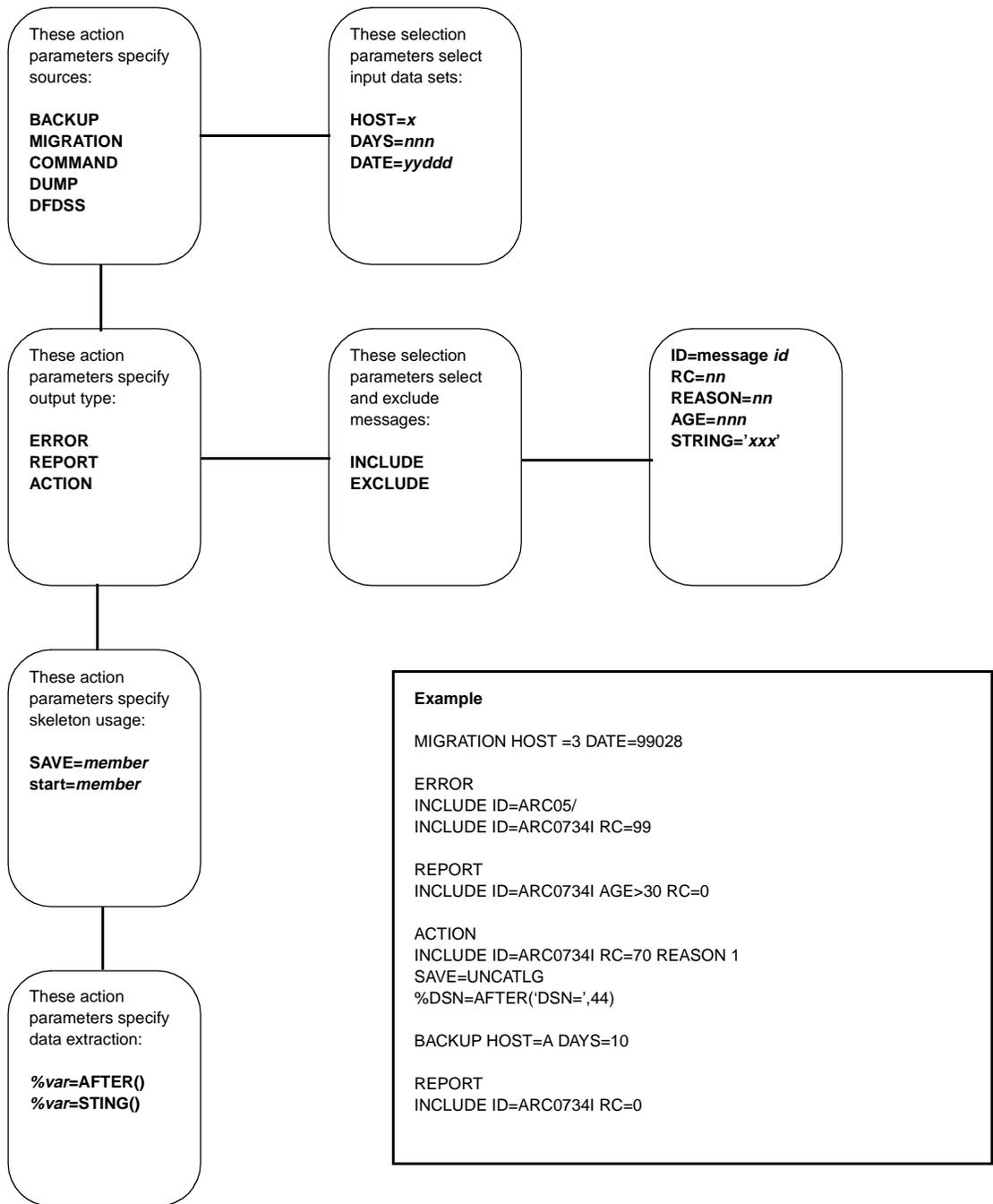
Action parameters are used to

- Specify the activity to be performed and the source of data; for example, BACKUP indicates that backup messages from DFHSM data set HSMACT.Hx.BACLOG.Dyyddd.Thmmss are processed
- Specify the type of output to be produced; for example, REPORT indicates that a report of selected messages is produced
- Specify skeleton usage; for example, SAVE specifies the skeleton for building the output with data extracted from message input
- Specify the data to be extracted from messages and substituted into skeleton lines; for example, %VOL=AFTER("VOLUME=",6) indicates that a skeleton variable %VOL has the six-character string following "VOLUME=" in the selected messages

Selection parameters are used to

- Specify the individual DFHSM logs to be read; for example, HOST=A DATE=98030 specifies that logs from host machine A created on 1/30/98 are to be processed.
- Specify messages to be included or excluded; for example, INCLUDE ID=ARC0706I indicates that all ARC0706I messages are included for processing.

Figure 6-2 DFHSM Output Management Action and Selection Parameters Overview



Syntax

A single execution of the output management program can produce multiple sets of output; each output set can produce 1-3 reports. A single execution of output management can produce only one output set for a single host, but multiple hosts can be processed in each run.

An output set consists of

- One action parameter specifying input from DFHSM or DFDSS (keywords BACKUP, MIGRATION, DFDSS, and so on)
- One or more action parameters specifying output to reports or card image generation (keywords ERROR, REPORT, ACTION)
- For each output action parameter, one or more selection parameters (keywords INCLUDE, EXCLUDE, ID, RC, and so on)
- For each card image generation action parameter, one action parameter specifying a skeleton member (keywords SAVE, START)

A parameter consists of a keyword, either stand-alone or followed by a value; for example:

REPORT	no value follows the REPORT keyword
INCLUDE ID=ARC0523I	no value follows the INCLUDE keyword, but the ID keyword must be followed by a value

Parameters can begin in any column. A single parameter must be contained in one line. Multiple parameters can be on the same line, or separate lines, except for INCLUDE/EXCLUDE specifications, which must be contained on one line. There is no line continuation character. The maximum line length is 80.

Blank lines are ignored. Comment lines must start with an asterisk in column 1. There is no facility for embedded comments (all comments must be a separate line).

Like MAINVIEW SRM function filter statements, selection parameters on the same line are ANDed together; selection parameters on separate lines are ORed together.

Selection parameters cannot be duplicated on a single INCLUDE/EXCLUDE. For example, INCLUDE AGE>30 AGE<60 is invalid; only the last AGE parameter is used.

The following features can be used with message selection parameters (message selection parameters select messages and are always specified after an INCLUDE or EXCLUDE keyword).

- Name masking can be used in the ID message selection parameter. The following name masking characters are available:

% Any single numeric character

? Any single alphanumeric character, except the period character (.)

/ Any character string, any length

- The following comparison operators can be used in the RC, REASON, and AGE message selection parameters:

= (equals)	parameter must equal the specified value
/ (not equals)	parameter must not equal the specified value
< (less than)	parameter must be less than the specified value
> (greater than)	parameter must be greater than the specified value

Parameter Specifications

The following action parameters identify the general input source. Each of these action parameters begins a specification for one output set. Other action and selection parameters (noted below) define the input and output information.

Parameter	Description
BACKUP	DFHSM backup logs are processed
MIGRATION	DFHSM migration logs are processed
DUMP	DFHSM dump logs are processed
COMMAND	DFHSM command logs are processed
DFDSS	DFDSS message data sets are processed

DFHSM source parameters also require the following selection parameters to identify the range of data sets to be read. (These parameters are not available for DFDSS processing.)

Parameter	Description
DATE= <i>yyddd</i>	Specifies an exact date in Julian format (<i>yyddd</i>). All non-empty DFHSM logs for that day are processed. A specific date must be given; no masking characters are allowed. No comparison operators other than = (equals) are allowed. DATE or DAYS must be specified.
DAYS= <i>nnn</i>	Specifies a range of days. Up to 731 days can be specified. (However, no more than 255 input data sets are processed.) This value specifies the number of days (starting with the current day) for which log data sets are read; for example, DAYS=2 reads logs from today and yesterday. DAYS=0 is invalid. No masking characters are allowed. No comparison operators other than = (equals) are allowed. DATE or DAYS must be specified.
HOST= <i>x</i>	Specifies the host machine ID. Allowable characters are 0-9 and A-Z. No masking characters are allowed. No comparison operators other than = (equals) are allowed. This is a required parameter for DFHSM requests (MIGRATION, BACKUP, COMMAND, DUMP); it is not necessary for DFDSS requests.

Example

Some valid parameter specifications are as follows:

BACKUP DATE=98028 HOST=2	process DFHSM backup logs generated on 1/28/98 for host machine 2
MIGRATION DAYS=10 HOST=A	process DFHSM migration logs generated during the past 10 days for host machine A
DFDSS	process all DFDSS message output contained in the data set(s) on DD statement OPMIN
COMMAND HOST=C DAYS=5	process DFHSM command logs generated over the past 5 days for host machine C

Output Type

The following parameters identify the type of output. At least one of these parameters must be specified for each output set (BACKUP/MIGRATION/COMMAND/DUMP/DFDSS request). No more than one of each output type (REPORT/ERROR/ACTION) can be specified for a single output set.

Parameter	Description
REPORT	specifies that selected messages are to be written to a report output member (<i>shRhmm</i> in <i>opmhlq.OUTPUT.DFxxx.Dyyddd</i>)
ERROR	specifies that selected messages are to be written to an error output member (<i>shEhmm</i> in <i>opmhlq.OUTPUT.DFxxx.Dyyddd</i>) Note that the difference between REPORT and ERROR is left to your specification.
ACTION	specifies that selected messages are used as a source of data to be extracted and substituted into skeleton statements

Message Inclusion

The following parameters specify criteria used to select or exclude messages from the DFHSM/DFDSS logs. The selection parameters must be preceded by the keyword INCLUDE or EXCLUDE. (Like MAINVIEW SRM filter selection parameters, the 3-character abbreviations INC and EXC can be used.) A selection parameter can be used only once in any single INCLUDE/EXCLUDE. All parameters on the same line are ANDed together; parameters on separate lines are Ored together.

Parameter	Description
ID=xxxxxxx	specifies a message ID (1-8 characters) Name masking can be used. This is a character compare - the message IDs leading three characters must be specified in the mask; for example, ID=ARC0734/ instead of ID=734/
RC=nn	specifies a numeric return code Name masking cannot be used. Alternative comparison operators (<i>/</i> , <i><</i> , <i>></i>) can be used. This parameter is matched to the RC= value in messages. Note that not all DFHSM/DFDSS messages show return codes. If a message does not contain the string RC=, it is not selected by this parameter.
REASON=nn	specifies a numeric reason code Name masking cannot be used Alternative comparison operators (<i>/</i> , <i><</i> , <i>></i>) can be used. This parameter is matched to the REASON= value in messages. Note that not all DFHSM/DFDSS messages show reason codes. If a message does not contain the string REASON=, it is not selected by this parameter.

Parameter	Description
AGE= <i>nnnn</i>	specifies a numeric age Name masking cannot be used. Alternative comparison operators (<i>/</i> , <i><</i> , <i>></i>) can be used. This parameter is matched to the AGE= value in messages. Note that not all DFHSM/DFDSS messages show age. If a message does not contain the string AGE=, it is not selected by this parameter.
STRING='xxxxxxx'	specifies a string to find in the message text The value must be in single quotes (apostrophes). Name masking cannot be used.

Example

Some valid parameter specifications are as follows:

BACKUP DATE=98028 HOST=2 REPORT INC ID=ARC072/	Process DFHSM backup logs generated on 1/28/98 for host machine 2. Report all 720-series messages.
MIGRATION DAYS=10 HOST=A ERROR INC RC/0 INC REASON>4	Process DFHSM migration logs generated during the past 10 days for host machine A. Report all messages with a non-zero return code or a reason code greater than 4.
MIGRATION DAYS=2 HOST=1 REPORT INC ID=ARC0522I INC ID=ARC0523I ERROR INC ID=ARC0734I RC>0	Process DFHSM migration logs generated today and yesterday on host machine 1 (the default). Report all volume start/stop messages (522-523). Report all data set migration messages (734) with a return code greater than zero.

Skeleton Processing

The action parameter ACTION allows data to be extracted from selected messages and substituted into skeletons. This permits automatic creation of job streams to correct problems revealed by DFHSM/DFDSS processing. JCL and/or control cards can be created and saved in a PDS member for later use, or submitted for immediate execution.

Skeleton members are read from the PDS identified by the OPMSKL DD statement. Each skeleton member can have multiple lines; each line can have multiple *variables*. Each *variable* corresponds to an action parameter which specifies the data in the DFHSM/DFDSS message that will be extracted. The extracted data is substituted for the variable in the skeleton. Each message selected for processing causes the translated skeleton lines to be added to the end of the output data set.

Variable names are 4 characters long; the first character must be a percent sign (%). Any variable in the skeleton which is not matched in the action parameters is written out unchanged (that is, the variable name is written). An unassigned variable (one which is specified in the action parameters but is not assigned a value) causes the skeleton line to be written with no variable substitution, even if other variables exist that have values.

Substitution of a variable's value in the skeleton statement causes all characters to the right of the variable to shift right. If any non-blank characters are shifted farther than column 72, the warning ** ERROR is added to the translated line.

Translated skeleton members are written to a sequential data set (DD OPMSUB), or immediately submitted for execution (DD INTRDR).

The following action parameters are used to specify skeleton processing:

Parameter	Description
SAVE	Specifies that translated skeleton statements are saved in the sequential output data set. (DD OPMSKL and OPMSUB must be specified in the JCL.) Only one SAVE or START can be specified in a single ACTION request.
START	Specifies that translated skeleton statements are submitted for immediate execution. (DD OPMSKL and INTRDR must be specified in the JCL.) Only one SAVE or START can be specified in a single ACTION request.
MEMBER=xxxxxxx	Specifies the name of an input PDS member containing skeleton specifications (DD OPMSKL must be specified in the JCL).
%var=AFTER('string',length)	Specifies that the variable named <i>var</i> receives the text following <i>string</i> , until a blank or comma is found, for a maximum of <i>length</i> .
%var=STRING(offset,length)	Specifies that the variable named <i>var</i> receives the text beginning at <i>offset</i> in the message for <i>length</i> bytes. The offset must be specified one greater than the actual offset (with the first character counted as 1).

Example

```
BACKUP DAYS=5 HOST=A
ACTION
INC ID=ARC0734I RC=70 REASON=1
SAVE MEMBER=UNCATLG
%NAM=AFTER('DSN=',44)
```

Process DFHSM backup logs generated over the last 5 days for host machine A. For all 734 messages with return code 70 and reason code 1 (cataloged non-existent data set), generate JCL to uncatalog the data set. The data set name is extracted from the 734 message by taking the characters following the DSN= text.

The skeleton member UNCATLG contains:

```
//STEP10 EXEC PGM=IEFBR14
//DD1 DD DSN=%NAM,
// DISP=(OLD,DELETE,DELETE)
```

In this JCL, the value of the JCL's DSN parameter is, after substitution, the data set name from the 734 message.

Message ARC0734I

For easier reading, the frequently occurring DFHSM message ARC0734I is reformatted before being written to the output report.

The DFHSM format is

```
ARC0734I ACTION=MIGRATE FRVOL=WORK01 TOVOL=HSM002
TRACKS=2 RC=0, REASON=0, AGE=6,
DSN=HSMACT.H1.BAKLOG.D94049.T072111
```

The reformatted message in output management's reports is

```
ARC0734 IMIGRATE RC=0 RS=0 AGE=6
SN=HSMACT.H1.BAKLOG.D94049.T072111 WORK01/HSM002
TRK=2
```

Data extraction from message ARC0734I is based on the DFHSM format.

Example

Create a weekly report showing DFHSM normal and unsuccessful expired backup processing.

<pre>BACKUP HOST=1 DAYS=7 REPORT INC ID=ARC0680I INC ID=ARC0681I INC ID=ARC0734I STRING='EXBACKV' RC=0 ERROR INC ID=ARC0734I STRING='EXBACKV' RC>0</pre>	<p>Read DFHSM backup logs for the last seven days.</p> <p>For a success report, extract start and stop messages and all data set level messages for expired backup processing that report successful completion.</p> <p>For an error report, select all data set level messages that report some type of error.</p>
---	---

Example

Create a daily report showing DFHSM unsuccessful backup processing at the data set level and volume level.

<pre>BACKUP DAYS=1 HOST=B **** SHOW PROBLEMS IN BACKUP **** REPORT EXC ID=ARC0734I INC ID=ARC/ STRING='TERMINATE' INC ID=ARC/ STRING='FAIL' INC ID=ARC/ STRING='ERROR' INC ID=ARC/ STRING='INOP' INC ID=ARC/ STRING='CANNOT' INC ID=ARC/ STRING='DISABLE' INC ID=ARC/ STRING='ABEND' ** SHOW DATA SET BACKUP PROBLEMS **** ERROR INC ID=ARC0734I RC>0 STRING='BACK-UP'</pre>	<p>Read DFHSM backup logs for the current day for host machine B. (DAYS=1 assumes this job runs after all daily DFHSM processing is complete.)</p> <p>Select all detail messages (messages that have a message ID) that show problems, except data set level messages.</p> <p>Select all data-set-level backup messages that have a non-zero return code.</p>
---	---

Example

List all data sets over the last 60 days which DFHSM identified as unsupported for migration.

```
MIGRATION DAYS=60 HOST=D  
REPORT  
INC ID=ARC0734I RC=99
```

Read DFHSM migration logs for the last 60 days for host machine 1. Select all 734 messages with a return code of 99.

Example

Generate JCL to uncatalog data sets which do not exist on the cataloged volume; generate and submit JCL to catalog data sets which exist but are not cataloged.

first execution of Output Management parameters

```
MIGRATION DAYS=5 HOST=1
ACTION
INC ID=ARC0734I RC=70 REASON=1
INC ID=ARC0734I RC=07 REASON=8
SAVE MEMBER=UNCATLG
%NAM=AFTER('DSN=',44)

SAVE MEMBER=UNCATLG
%NAM=AFTER('DSN=',44)
```

Select migration 734 messages with a return code/reason code that indicates the data set VTOC entry was not found.

Extract the data set name from the message for substitution into the skeleton JCL in member UNCATLG.

```
skeleton UNCATLG
//STEP10 EXEC PGM=IEFBR14
//DD1 DD DSN=%NAM,
// DISP=(OLD, UNCATLG, KEEP)
```

PDS member UNCATLG (in the data set identified by DD OPMSKL) provides skeleton JCL. The %NAM will be replaced by the data set name.

second execution of Output Management parameters

```
MIGRATION DAYS=5 HOST=1
ACTION
INC ID=ARC0734I RC=30 REASON=0

START MEMBER=CATLG
%NAM=AFTER('DSN=',44)
%VOL=AFTER('FRVOL=',6)
```

Select migration 734 messages with a return code of 30 and reason code of 0 (data set not cataloged).

Extract the data set name and volume ID from the message for substitution into the skeleton JCL in member CATLG. START sends the tailored JCL

```
skeleton CATLG
//CLEANUP JOB .....
//STEP10 EXEC PGM=IEFBR14
//DD1DD DSN=%NAM,VOL=SER=%VOL,
//DISP=(OLD,CATLG,KEEP),UNIT=SYSDA
```

PDS member CATLG (in the data set identified by DD OPMSKL) provides skeleton JCL. The %NAM is replaced by the data set name; &VOL is replaced by the volume serial number.

Example

Generate JCL to correct problems with the DFHSM control data set records.

parameters

MIGRATION DAYS=2 HOST=4

ACTION

INC ID=ARC0734I RC=2 REASON=8

INC ID=ARC0734I RC=6 REASON=0

INC ID=ARC0734I RC=13 REASON=8

INC ID=ARC0734I RC=20 REASON=2

INC ID=ARC0734I RC=20 REASON=12

INC ID=ARC0734I RC=20 REASON=16

SAVE MEMBER=OPMFI X

%DSN=AFTER(' DSN=' , 44)

skeleton OPMFI X

HSEND FIXCDS D %DSN DELETE

Select migration 734 messages with a return code/reason code that indicates a problem in the DFHSM control data set.

Extract the data set name from the message for substitution into the skeleton JCL in member OPMFI X.

PDS member OPMFI X (in the data set identified by DD OPMSKL) provides a skeleton control card. The %DSN is replaced by the data set name.

DFHSM Output Management Views

If DFHSM and DFDSS messages are processed by EasyHSM and written to data sets (as described at the beginning of this chapter), they can be viewed and edited using the DFHSM Output Management views

To access the Output Management views:

» From the EZSRM Menu, select EasyHSM.

The EZHSM menu displays, as shown in Figure 6-3. View invocation and actions are described on the following pages.

Tip: You can use the EZcmd menu to hyperlink to another view rather than the action line command. See the *MAINVIEW SRM User Guide* for details.

Power users can gain functionality by using *primary action commands*. Primary action commands are described in the online help. They appear in reverse video to indicate that you can hyperlink to a detailed description of the command that includes specific arguments used in the command.

Figure 6-3 EZSRMHSM Menu

```

27NOV2000 11:06:13 ----- INFORMATION DISPLAY -----
COMMAND ==>>                                     SCROLL ==>> PAGE
CURR WIN ==>> 1           ALT WIN ==>>
>W1 =EZSRM=====EZSRMHSM=SJSG=====*=====27NOV2000==11:06:08====MVSRM=====1
                                EZHSM  Menu

    EasyHSM Views          +-----+          DFHSM CDS Query
                          |         |          |
                          | Place cursor on |          |
                          | menu item and   |          |
                          | press ENTER    |          |
. Bkup/Recovery Activity |-----+          | . Backup data set view
. Error details          |         |          | . Backup DSN version
. Error summary          |         |          | . Migrated data set view
. Log entries            |         |          | . OCDS data set view
. Migration activity     |         |          | . OCDS volume view
. Migration thrashing   |         |          |
. Recall activity       |         |          |          DFHSM Output
. Data set deletions    |         |          |          . Output management
. Daily activity summary|         |          |          . Return...
. Daily volume summary  |         |          |
. Migration level 1->2  |         |          |

F1=HELP      F2=SPLIT   F3=END      F4=RETURN   F5=RFIND     F6=RCHANGE
F7=UP        F8=DOWN    F9=SWAP   F10=LEFT    F11=RIGHT    F12=RETRIEVE

```

Table 6-1 defines view invocation and actions for Output Management views.

Table 6-1 DFHSM Output Management Views

View Description	View Invocation	Actions
<p>Data Set List view</p> <p>lists the data sets containing DFHSM and DFDSS messages</p> <p>Each data set listed in the DFHSM Output Management Data Set List view has one or more members associated with it. These members contain the messages from DFHSM or DFDSS that deal with certain specific areas, such as backup or migration.</p>	HSMOMDS	<p>/ Display members</p> <p>DEL Delete data set</p>
<p>Member List view</p> <p>shows the source and type of messages contained in each member of the data set</p>	HSMOMML DSN (of Output Management data set)	<p>B Browse member</p> <p>E Edit member</p>

Appendix A DFHSM User Exit Parameter Reference

MAINVIEW SRM DFHSM exits are *not* required for the EasyHSM reporting facility. However, if you are using DFHSM (2.4 or higher), and you want to use the MAINVIEW SRM EasyHSM functions HSMBACKP, HSMGCCNV, HSMGIGRT, and HSMRECAL, you must copy the MAINVIEW SRM DFHSM exits (ARCMDEXT, ARCRDEXT, and ARCSAEXT) to a library where they can be accessed by DFHSM (such as a LNKLIB library), or the SVOS library must be concatenated into the STEPLIB for the DFHSM job(s).

After the MAINVIEW SRM exit programs are made available to DFHSM, they must be activated using the DFHSM SETSYS command:

```
SETSYS EXITON (ARCMDEXT, ARCRDEXT, ARCSAEXT)
```

This command can be issued from OS/390 or TSO, or included in the DFHSM ARCCMD $_{xx}$ member in SYS1.PARMLIB.

If you already have DFHSM exits implemented at your installation, you must change the CSECT names in the MAINVIEW SRM exits and modify your exit code to call the MAINVIEW SRM exits.

When calling the MAINVIEW SRM DFHSM exits, the registers should be *exactly* as they were when DFHSM called your exit, with the exception of R15. R15 should contain the entry point of the MAINVIEW SRM exit. This means that R13 and R14 returns from the MAINVIEW SRM exits will be to DFHSM, not to your exit programs. The MAINVIEW SRM exits must receive control in 31-bit addressing mode. Any 24-bit addressing mode user exit must switch to 31-bit mode before calling the MAINVIEW SRM exit. Your exit code should call the MAINVIEW SRM exits by the CSECT name that you assign in place of the standard ARC $_{xx}$ EXT names.



Glossary

This glossary defines BMC Software terminology. Other dictionaries and glossaries may be used in conjunction with this glossary.

Since this glossary pertains to BMC Software-related products, some of the terms defined may not appear in this book.

To help you find the information you need, this glossary uses the following cross-references:

Contrast with indicates a term that has a contrary or contradictory meaning.

See indicates an entry that is a synonym or contains expanded information.

See also indicates an entry that contains related information.

action	Defined operation, such as modifying a MAINVIEW window, that is performed in response to a command. <i>See</i> object.
active window	Any MAINVIEW window in which data can be refreshed. <i>See</i> alternate window, current window, window.
administrative view	Display from which a product's management tasks are performed, such as the DSLIST view for managing historical data sets. <i>See</i> view.
ALT WIN field	Input field that allows you to specify the window identifier for an alternate window where the results of a hyperlink are displayed. <i>See</i> alternate window.
Alternate Access	<i>See</i> MAINVIEW Alternate Access.
alternate form	View requested through the FORM command that changes the format of a previously displayed view to show related information. <i>See also</i> form, query.

alternate window	(1) Window that is specifically selected to display the results of a hyperlink. (2) Window whose identifier is defined to the ALT WIN field. <i>Contrast with</i> current window. <i>See</i> active window, window, ALT WIN field.
analyzer	(1) Online display that presents a snapshot of status and activity data and indicates problem areas. (2) Component of CMF MONITOR. <i>See</i> CMF MONITOR Analyzer.
application	(1) Program that performs a specific set of tasks within a MAINVIEW product. (2) In MAINVIEW VistaPoint, combination of workloads to enable display of their transaction performance data in a single view.
application trace	<i>See</i> trace.
ASCH workload	Workload comprising Advanced Program-to-Program Communication (APPC) address spaces.
AutoCustomization	Online facility for customizing the installation of products. AutoCustomization provides an ISPF panel interface that both presents customization steps in sequence and provides current status information about the progress of the installation.
automatic screen update	Usage mode wherein the currently displayed screen is refreshed automatically with new data at an interval you specify. Invoked by the ASU command.
batch workload	Workload consisting of address spaces running batch jobs.
BBI	Basic architecture that distributes work between workstations and multiple OS/390 targets for BMC Software MAINVIEW products.
BBI-SS PAS	<i>See</i> BBI subsystem product address space.
BBI subsystem product address space (BBI-SS PAS)	OS/390 subsystem address space that manages communication between local and remote systems and that contains one or more of the following products: <ul style="list-style-type: none"> • MAINVIEW AutoOPERATOR • MAINVIEW for CICS • MAINVIEW for DB2 • MAINVIEW for DBCTL • MAINVIEW for IMS Online • MAINVIEW for MQSeries (formerly Command MQ for S/390) • MAINVIEW for VTAM • MAINVIEW VistaPoint (for CICS, DB2, DBCTL, and IMS workloads)
BBPARM	<i>See</i> parameter library.

BBPROC	<i>See</i> procedure library.
BBPROF	<i>See</i> profile library.
BBSAMP	<i>See</i> sample library.
BBV	<i>See</i> MAINVIEW Alternate Access.
BBXS	BMC Software Subsystem Services. Common set of service routines loaded into common storage and used by several BMC Software MAINVIEW products.
border	Visual indication of the boundaries of a window.
bottleneck analysis	Process of determining which resources have insufficient capacity to provide acceptable service levels and that therefore can cause performance problems.
CA-Disk	Data management system by Computer Associates that replaced the DMS product.
CAS	Coordinating address space. One of the address spaces used by the MAINVIEW windows environment architecture. The CAS supplies common services and enables communication between linked systems. Each OS/390 image requires a separate CAS. Cross-system communication is established through the CAS using VTAM and XCF communication links.
CFMON	<i>See</i> coupling facility monitoring.
chart	Display format for graphical data. <i>See also</i> graph.
CICSplex	User-defined set of one or more CICS systems that are controlled and managed as a single functional entity.
CMF MONITOR	Comprehensive Management Facility MONITOR. Product that measures and reports on all critical system resources, such as CPU, channel, and device usage; memory, paging, and swapping activity; and workload performance.
CMF MONITOR Analyzer	Batch component of CMF MONITOR that reads the SMF user and 70 series records created by the CMF MONITOR Extractor and/or the RMF Extractor and formats them into printed system performance reports.
CMF MONITOR Extractor	Component of CMF that collects performance statistics for CMF MONITOR Analyzer, CMF MONITOR Online, MAINVIEW for OS/390, and RMF postprocessor. <i>See</i> CMF MONITOR Analyzer, CMF MONITOR Online, MAINVIEW for OS/390.

CMF MONITOR Online

Component of CMF that uses the MAINVIEW window interface to present data on all address spaces, their use of various system resources, and the delays that each address space incurs while waiting for access to these resources. *See* CMF MONITOR, MAINVIEW for OS/390.

CMF Type 79 API

Application programming interface, provided by CMF, that provides access to MAINVIEW SMF-type 79 records.

CMFMON

Component of CMF MONITOR that simplifies online retrieval of information about system hardware and application performance and creates MAINVIEW SMF-type 79 records.

The CMFMON *online facility* can be used to view data in one or more formatted screens.

The CMFMON *write facility* can be used to write collected data as MAINVIEW SMF-type 79 records to an SMF or sequential data set.

CMRDETL

MAINVIEW for CICS data set that stores detail transaction records (type 6E) and abend records (type 6D). Detail records are logged for each successful transaction. Abend records are written when an abend occurs. Both records have the same format when stored on CMRDETL.

CMRSTAT

MAINVIEW for CICS data set that stores both CICS operational statistic records, at 5-minute intervals, and other records, at intervals defined by parameters specified during customization (using CMRSOPT).

column

Vertical component of a view or display, typically containing fields of the same type of information, that varies by the objects associated in each row.

collection interval

Length of time data is collected. *See also* delta mode, total mode.

command delimiter

Special character, usually a ; (semicolon), used to stack commands typed concurrently on the COMMAND line for sequential execution.

COMMAND line

Line in the control area of the display screen where primary commands can be typed. *Contrast with* line command column.

Command MQ Automation D/S

Command MQ agents, which provide local proactive monitoring for both MQSeries and MSMQ (Microsoft message queue manager). The Command MQ agents operate at the local node level where they continue to perform functions regardless of the availability of the MQM (message queue manager) network. Functionality includes automatic monitoring and restarts of channels, queue managers, queues and command servers. In cases where automated recovery is not possible, the agents transport critical alert information to a central console.

Command MQ Automation S/390

Command MQ component, which monitors the MQM (message queue manager) networks and intercedes to perform corrective actions when problems arise. Solutions include:

- Dead-Letter Queue management
- System Queue Archival
- Service Interval Performance solutions
- Channel Availability

These solutions help ensure immediate relief to some of the most pressing MQM operations and performance problems.

Command MQ for D/S

Command MQ for D/S utilizes a true client/server architecture and employs resident agents to provide configuration, administration, performance monitoring and operations management for the MQM (message queue manager) network.

Command MQ for S/390

See MAINVIEW for MQSeries.

COMMON STORAGE MONITOR

Component of MAINVIEW for OS/390 that monitors usage and reconfigures OS/390 common storage blocks.

composite workload Workload made up of a WLM workload or other workloads, which are called *constituent workloads*.

constituent workload

Member of a composite workload. Constituent workloads in a composite usually belong to a single workload class, but sometimes are mixed.

contention

Occurs when there are more requests for service than there are servers available.

context

In a Plex Manager view, field that contains the name of a target or group of targets specified with the CONTEXT command. *See* scope, service point, SSI context, target context.

CONTEXT command Specifies either a MAINVIEW product and a specific target for that product (*see* target context) or a MAINVIEW product and a name representing one or more targets (*see* SSI context) for that product.

control statement (1) Statement that interrupts a sequence of instructions and transfers control to another part of the program. (2) Statement that names samplers and other parameters that configure the MAINVIEW components to perform specified functions. (3) In CMF MONITOR, statement in a parameter library member used to identify a sampler in the extractor or a report in the analyzer, or to describe either component's processing requirements to the operating system.

coupling facility monitoring (CFMON)

Coupling facility views that monitor the activity of your system's coupling facilities.

CPO

Customized Product Offering. Delivery and installation technique that allows any combination of BMC Software SMP/E-maintainable products to be distributed on a product tape to a customer and installed quickly. The CPO product tape contains libraries required for product customization and execution, plus SMP distribution libraries and data sets needed for application of SMP maintenance.

current data

Data that reflects the system in its current state. The two types of current data are realtime data and interval data. *Contrast with* historical data. *See also* interval data, realtime data.

current window

In the MAINVIEW window environment, window where the main dialog with the application takes place. The current window is used as the default window destination for commands issued on the COMMAND line when no window number is specified. *Contrast with* alternate window. *See* active window, window.

DASD

Direct Access Storage Device. (1) A device with rotating recording surfaces that provides immediate access to stored data. (2) Any device that responds to a DASD program.

DASD ADVISOR

An interactive software tool that diagnoses DASD performance problems and makes recommendations to reduce overall service time. This tool measures and reports on the operational performance of IBM and IBM-compatible devices.

data collector

Program that belongs to a MAINVIEW product and that collects data from various sources and stores the data in records used by views. For example, MAINVIEW for OS/390 data collectors obtain data from OS/390 services, OS/390 control blocks, CMF MONITOR Extractor control blocks, and other sources. *Contrast with* extractor.

delta mode	(1) In MAINVIEW for DB2 analyzer displays, difference between the value sampled at the start of the current statistics interval and the value sampled by the current analyzer request. <i>See also</i> statistics interval. (2) In CMFMON, usage mode wherein certain columns of data reflect the difference in values between one sample cycle and the next. Invoked by the DELta ON command. <i>See also</i> collection interval, sample cycle, total mode.
DFSMS	(Data Facility Storage Management System) Data management, backup, and HSM software from IBM for OS/390 mainframes.
DMR	<i>See</i> MAINVIEW for DB2.
DMS	(Data Management System) <i>See</i> CA-Disk.
DMS2HSM	Component of MAINVIEW SRM that facilitates the conversion of CA-Disk, formerly known as DMS, to HSM.
DSO	Data Set Optimizer. CMF MONITOR Extractor component that uses CMF MONITOR Extractor data to produce reports specifying the optimal ordering of data sets on moveable head devices.
EasyHSM	Component of MAINVIEW SRM that provides online monitoring and reporting to help storage managers use DFHSM efficiently.
EasyPOOL	Component of MAINVIEW SRM that provides control over data set allocation and enforcement of allocation and naming standards. EasyPOOL functions operate at the operating system level to intercept normal job processing, thus providing services without any JCL changes.
EasySMS	Component of MAINVIEW SRM that provides tools that aid in the conversion to DFSMS and provides enhancement to the DFSMS environment after implementation. EasySMS consists of the EasyACS functions, the SMSACSTE function, and the Monitoring and Positioning Facility.
element	(1) Data component of a data collector record, shown in a view as a field. (2) Internal value of a field in a view, used in product functions.
element help	Online help for a field in a view. The preferred term is <i>field help</i> .
Enterprise Storage Automation	Component of MAINVIEW SRM that integrates powerful event management technology and storage monitoring technology to provide significant storage automation capabilities and solutions. Storage occurrences are defined to generate events in the form of messages that provide an early warning system for storage problems and are routed to MAINVIEW AutoOPERATOR to be viewed.

Event Collector	Component for MAINVIEW for IMS Online, MAINVIEW for IMS Offline, and MAINVIEW for DBCTL that collects data about events in the IMS environment. This data is required for Workload Monitor and optional for Workload Analyzer (except for the workload trace service). This data also is recorded as transaction records (X'FA') and program records (X'F9') on the IMS system log for later use by the MAINVIEW for IMS Offline components: Performance Reporter and Transaction Accountant.
expand	Predefined link from one display to a related display. <i>See also</i> hyperlink.
extractor	Program that collects data from various sources and keeps the data control blocks to be written as records. Extractors obtain data from services, control blocks, and other sources. <i>Contrast with</i> data collector.
extractor interval	<i>See</i> collection interval.
fast path	Predefined link between one screen and another. To use the fast path, place the cursor on a single value in a field and press Enter. The resulting screen displays more detailed information about the selected value. <i>See also</i> hyperlink.
field	Group of character positions within a screen or report used to type or display specific information.
field help	Online help describing the purpose or contents of a field on a screen. To display field help, place the cursor anywhere in a field and press PF1 (HELP). In some products, field help is accessible from the screen help that is displayed when you press PF1.
filter	Selection criteria used to limit the number of rows displayed in a view. Data that does not meet the selection criteria is not displayed. A filter is composed of an element, an operator, and an operand (a number or character string). Filters can be implemented in view customization, through the PARM/QPARM commands, or through the Where/QWhere commands. Filters are established against elements of data.
fixed field	Field that remains stationary at the left margin of a screen that is scrolled either right or left.
FOCAL POINT	MAINVIEW product that displays a summary of key performance indicators across systems, sites, and applications from a single terminal.
form	One of two constituent parts of a view; the other is query. A form defines how the data is presented; a query identifies the data required for the view. <i>See also</i> query, view.
full-screen mode	Display of a MAINVIEW product application or service on the entire screen. There is no window information line. <i>Contrast with</i> windows mode.

global command	Any MAINVIEW window interface command that can affect all windows in the window area of a MAINVIEW display.
graph	Graphical display of data that you select from a MAINVIEW window environment view. <i>See also</i> chart.
hilevel	For MAINVIEW products, high-level data set qualifier required by a site's naming conventions.
historical data	(1) Data that reflects the system as it existed at the end of a past recording interval or the duration of several intervals. (2) Any data stored in the historical database and retrieved using the TIME command. <i>Contrast with</i> current data, interval data and realtime data.
historical database	Collection of performance data written at the end of each installation-defined recording interval and containing up to 100 VSAM clusters. Data is extracted from the historical database with the TIME command. <i>See</i> historical data.
historical data set	In MAINVIEW products that display historical data, VSAM cluster file in which data is recorded at regular intervals.
HSM	(Hierarchical Storage Management) Automatic movement of files from hard disk to slower, less-expensive storage media. The typical hierarchy is from magnetic disk to optical disk to tape.
hyperlink	<p>(1) Preset field in a view or an EXPAND line on a display that permits you to</p> <ul style="list-style-type: none"> • Access cursor-sensitive help • Issue commands • Link to another view or display <p>The transfer can be either within a single product or to a related display/view in a different MAINVIEW product. Generally, hyperlinked fields are highlighted. (2) Cursor-activated short path from a topic or term in online help to related information. <i>See also</i> fast path.</p>
Image log	<p>Collection of screen-display records. Image logs may be created for both the BBI-SS PAS and the BBI terminal session (TS).</p> <p>The BBI-SS PAS Image log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Image log stops when both data sets are filled and the first data set is not processed by the archive program.</p> <p>The TS Image log is a single data set that wraps around when full.</p>

IMSPlex System Manager (IPSM)

MVIMS Online and MVDBC service that provides Single System Image views of resources and bottlenecks for applications across one or more IMS regions and systems.

interval data

Cumulative data collected during a collection interval. Intervals usually last from 15 to 30 minutes depending on how the recording interval is specified during product customization. *Contrast with* historical data.

Note: If change is made to the workloads, a new interval will be started.

See also current data and realtime data.

InTune

Product for improving application program performance. It monitors the program and provides information used to reduce bottlenecks and delays.

IRUF

IMS Resource Utilization File (IRUF). IRUFs can be either detailed (one event, one record) or summarized (more than one event, one record). A detailed IRUF is created by processing the IMS system log through a program called IMFLEEDIT. A summarized IRUF is created by processing one or more detailed IRUFs, one or more summarized IRUFs, or a combination of both, through a sort program and the TASCOSTR program.

job activity view

Report about address space consumption of resources. *See* view.

journal

Special-purpose data set that stores the chronological records of operator and system actions.

Journal log

Collection of messages. Journal logs are created for both the BBI-SS PAS and the BBI terminal session (TS).

The BBI-SS PAS Journal log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Journal log stops when both data sets are filled and the first data set is not being processed by the archive program.

The TS Journal log is a single data set that wraps around when full.

line command

Command that you type in the line command column in a view or display. Line commands initiate actions that apply to the data displayed in that particular row.

line command column

Command input column on the left side of a view or display. *Contrast with* COMMAND line.

-
- Log Edit** In the MAINVIEW for IMS Offline program named IMFLEDIT, function that extracts transaction (X'FA') and program (X'F9') records from the IMS system log. IMFLEDIT also extracts certain records that were recorded on the system log by IMS. IMFLEDIT then formats the records into a file called the IMS Resource Utilization File (IRUF).
- MAINVIEW** BMC Software integrated systems management architecture.
- MAINVIEW Alarm Manager (MV ALARM)**
In conjunction with other MAINVIEW products, notifies you when an exception occurs. MAINVIEW Alarm Manager is capable of monitoring multiple systems simultaneously, which means that MAINVIEW Alarm Manager installed on one system keeps track of your entire SYSPLEX. You can then display a single view that shows exceptions for all MAINVIEW performance monitors within your OS/390 enterprise.
- MAINVIEW Alternate Access**
Enables MAINVIEW products to be used without TSO by providing access through EXCP and VTAM interfaces.
- MAINVIEW AutoOPERATOR**
Product that uses tools, techniques, and facilities to automate routine operator tasks and provide online performance monitoring, and that achieves high availability through error minimization, improved productivity, and problem prediction and prevention.
- MAINVIEW control area**
In the MAINVIEW window environment, first three lines at the top of the view containing the window information line and the COMMAND, SCROLL, CURR WIN, and ALT WIN lines. The control area cannot be customized and is part of the information display. *Contrast with* MAINVIEW display area, MAINVIEW window area.
- MAINVIEW Desktop** Version of the MAINVIEW window interface designed to run on OS/2 and Windows workstations.
- MAINVIEW display area**
See MAINVIEW window area.
- MAINVIEW Explorer** Product that provides access to MAINVIEW products from a Web browser running under Windows. MAINVIEW Explorer replaces MAINVIEW Desktop.
- MAINVIEW for CICS** Product (formerly MV MANAGER for CICS) that provides realtime application performance analysis and monitoring for CICS system management.

MAINVIEW for DB2 Product (formerly MV MANAGER for DB2) that provides realtime and historical application performance analysis and monitoring for DB2 subsystem management.

MAINVIEW for DBCTL (MVDBC)

Product that provides realtime application performance analysis and monitoring for DBCTL management.

MAINVIEW for IMS (MVIMS) Offline

Product with a Performance Reporter component that organizes data and prints reports used to analyze IMS performance and a Transaction Accountant component that produces cost accounting and user charge-back records and reports.

MAINVIEW for IMS (MVIMS) Online

Product that provides realtime application performance analysis and monitoring for IMS management.

MAINVIEW for IP

Product that monitors OS/390 mission-critical application performance as it relates to IP stack usage. Collected data includes: connections, response time statistics, application availability, application throughput, and IP configuration.

MAINVIEW for MQSeries (formerly known as Command MQ for S/390)

Delivers comprehensive capabilities for configuration, administration, performance monitoring and operations management for an entire MQM (message queue manager) network.

MAINVIEW for OS/390

System management application (formerly MAINVIEW for MVS (prior to version 2.5)). Built upon the MAINVIEW window environment architecture, it uses the window interface to provide access to system performance data and other functions necessary in the overall management of an enterprise.

MAINVIEW for UNIX System Services

System management application that allows you to monitor the performance of the Unix System Services from a MAINVIEW window interface.

MAINVIEW for VTAM

Product that displays application performance data by application, transaction ID, and LU name. This collected data includes connections, response time statistics, application availability, and application throughput.

MAINVIEW Selection Menu

ISPF selection panel that provides access to all MAINVIEW windows-mode and full-screen mode products.

MAINVIEW Storage Resource Monitor (SRM)

Suite of products that assist in all phases of OS/390 storage management. MAINVIEW SRM consists of components that perform automation, reporting, trend analysis, and error correction for storage management in OS/390.

MAINVIEW SYSPROG Services

See SYSPROG services.

MAINVIEW VistaPoint

Product that provides enterprise-wide views of performance. Application and workload views are available for CICS, DB2, DBCTL, IMS, and OS/390. Data is summarized at the level of detail needed; e.g., reports may be for a single target, an OS/390 image, or an entire enterprise.

MAINVIEW window area

Portion of the information display that is not the control area and in which views are displayed and windows opened. It includes all but the first three lines of the information display. *Contrast with* MAINVIEW control area.

monitor

Online service that measures resources or workloads at user-defined intervals and issues warnings when user-defined thresholds are exceeded.

MV MANAGER for CICS

See MAINVIEW for CICS.

MV MANAGER for DB2

See MAINVIEW for DB2.

MV MANAGER for MVS

See MAINVIEW for OS/390.

MVALARM

See MAINVIEW Alarm Manager.

MVCICS

See MAINVIEW for CICS.

MVDB2

See MAINVIEW for DB2.

MVDBC

See MAINVIEW for DBCTL.

MVIMS

See MAINVIEW for IMS.

MVMQ

See MAINVIEW for MQSeries.

MVMVS

See MAINVIEW for OS/390.

MVSRM

See MAINVIEW Storage Resource Manager (SRM).

MVSRMHSM	<i>See</i> EasyHSM.
MVSRMSGC	<i>See</i> SG-Control.
MVSRMSGD	<i>See</i> StorageGUARD.
MVSRMSGP	<i>See</i> StorageGUARD.
MVUSS	<i>See</i> MAINVIEW for UNIX System Services.
MVScope	MAINVIEW for OS/390 application that traces both CPU usage down to the CSECT level and I/O usage down to the channel program level.
MVVP	<i>See</i> MAINVIEW VistaPoint.
MVVTAM	<i>See</i> MAINVIEW for VTAM.
MVWEB	<i>See</i> MAINVIEW for WebSphere.
nested help	Multiple layers of help pop-up windows. Each successive layer is accessed by hyperlinking from the previous layer.
object	<p>Anything you can manipulate as a single unit. MAINVIEW objects can be any of the following: product, secondary window, view, row, column, or field.</p> <p>You can issue an action against an object by issuing a line command in the line command column to the left of the object. <i>See</i> action.</p>
OMVS workload	Workload consisting of OS/390 OpenEdition address spaces.
online help	Help information that is accessible online.
OS/390 and z/OS Installer	BMC Software common installation system for mainframe products.
OS/390 product address space (PAS)	Address space containing OS/390 data collectors, including the CMF MONITOR Extractor. Used by MAINVIEW for OS/390, MAINVIEW for USS, and CMF MONITOR products. <i>See</i> PAS.
parameter library	<p>Data set comprised of members containing parameters for specific MAINVIEW products or a support component. There can be several versions:</p> <ul style="list-style-type: none"> • The distributed parameter library, called BBPARM • A site-specific parameter library or libraries

These can be

- A library created by AutoCustomization, called UBBPARAM
- A library created manually, with a unique name

PAS Product address space. Used by the MAINVIEW products. Contains data collectors and other product functions. *See* OS/390 product address space (PAS), BBI subsystem product address space (BBI-SS PAS).

performance group workload

MVS/SP-defined collection of address spaces. *See* service class workload, workload definition.

PERFORMANCE MANAGER

MAINVIEW for CICS online service for monitoring and managing current performance of CICS regions.

Performance Reporter (MVIMS)

MVIMS Offline component that organizes data and prints reports that can be used to analyze IMS performance.

Performance Reporter

Product component that generates offline batch reports. The following products can generate these reports:

- MAINVIEW for DB2
- MAINVIEW for CICS

Plex Manager

Product through which cross-system communication, MAINVIEW security, and an SSI context are established and controlled. Plex Manager is shipped with MAINVIEW window environment products as part of the coordinating address space (CAS) and is accessible as a menu option from the MAINVIEW Selection Menu.

pop-up window

Window containing help information that, when active, overlays part of the window area. A pop-up panel is displayed when you issue the HELP command.

PRGP workload

In MVS/SP 5.0 or earlier, or in compatibility mode in MVS/SP 5.1 or later, composite of service classes. MAINVIEW for OS/390 creates a performance group workload for each performance group defined in the current IEAIPSxx member.

procedure library

Data set comprised of members containing executable procedures used by MAINVIEW AutoOPERATOR. These procedures are execute command lists (EXECs) that automate site functions. There can be several versions:

- The distributed parameter library, called BBPROC

-
- A site-specific parameter library or libraries

These can be

-A library created by AutoCustomization, called UBBPROC

-A library created manually, with a unique name

The site-created EXECs can be either user-written or customized MAINVIEW AutoOPERATOR-supplied EXECs from BBPROC.

product address space

See PAS.

profile library

Data set comprised of members containing profile information and cycle refresh definitions for a terminal session connected to a BBI-SS PAS. Other members are dynamically created by MAINVIEW applications. There can be several versions:

- The distributed profile library, called BBPROF
- A site-specific profile library or libraries

These can be

-A library created by AutoCustomization, called SBBPROF

-A library created manually, with a unique name

The site library is a common profile shared by all site users. The terminal session CLIST creates a user profile automatically if one does not exist; it is called `userid.BBPROF`, where `userid` is your logon ID. User profile libraries allow each user to specify unique PF keys, CYCLE commands, target system defaults, a Primary Option Menu, and a unique set of application profiles.

query

One of two constituent parts of a view; the other is form. A query defines the data for a view; a form defines the display format. *See also* form, view.

realtime data

Performance data as it exists at the moment of inquiry. Realtime data is recorded during the smallest unit of time for data collection. *Contrast with* historical data. *See also* current data and interval data.

Resource Analyzer

Online realtime displays used to analyze IMS resources and determine which are affected by specific workload problems.

Resource Monitor

Online data collection services used to monitor IMS resources and issue warnings when defined utilization thresholds are exceeded.

row	(1) Horizontal component of a view or display comprising all the fields pertaining to a single device, address space, user, etc. (2) Horizontal component of a DB2 table consisting of a sequence of values, one for each column of the table.
RxD2	Product that provides access to DB2 from REXX. It provides tools to query the DB2 catalog, issue dynamic SQL, test DB2 applications, analyze EXPLAIN data, generate DDL or DB2 utility JCL, edit DB2 table spaces, perform security administration, and much more.
sample cycle	Time between data samples. For the CMF MONITOR Extractor, this is the time specified in the extractor control statements (usually 1 to 5 seconds). For realtime data, the cycle is not fixed. Data is sampled each time you press Enter.
sample library	Data set comprised of members each of which contains one of the following: <ul style="list-style-type: none"> • Sample JCL that can be edited to perform specific functions • A macro that is referenced in the assembly of user-written services • A sample user exit routine <p>There can be several versions:</p> <ul style="list-style-type: none"> • The distributed sample library, called BBSAMP • A site-specific sample library or libraries <p>These can be</p> <ul style="list-style-type: none"> -A library created by AutoCustomization, called UBBSAMP -A library created manually, with a unique name
sampler	Program that monitors a specific aspect of system performance. Includes utilization thresholds used by the Exception Monitor. The CMF MONITOR Extractor contains samplers.
SBBPROF	<i>See</i> profile library.
scope	Subset of an SSI context. The scope could be all the data for the context or a subset of data within the context. It is user- or site-defined. <i>See</i> SSI context, target.
screen definition	Configuration of one or more views that have been stored with the SAVEScr command and assigned a unique name. A screen includes the layout of the windows and the view, context, system, and product active in each window.

selection view	In MAINVIEW products, view displaying a list of available views.
service class workload	OS/390- or MAINVIEW for OS/390-defined collection of address spaces. If you are running MVS Workload Manager (WLM) in goal mode, MAINVIEW for OS/390 creates a service class workload for each service class that you define through WLM definition dialogs. If you are running MVS 4.3 or earlier, or MVS/SP 5.1 or later with WLM in compatibility mode, OS/390 creates a performance group workload instead of a service class. <i>See</i> performance group workload.
service objective	Workload performance goal, specified in terms of response time for TSO workloads or turnaround time for batch workloads. Performance group workloads can be measured by either objective. Composite workload service objectives consist of user-defined weighting factors assigned to each constituent workload. There are no OS/390-related measures of service for started task workloads.
service point	Specification, to MAINVIEW, of the services required to enable a specific product. Services may be actions, selectors, or views. Each target (e.g., CICS, DB2, or IMS) has its own service point. The PLEX view lists all the defined service points known to the CAS to which the terminal session is connected.
service request block (SRB)	Control block that represents a routine to be dispatched. SRB mode routines generally perform work for the operating system at a high priority. An SRB is similar to a task control block (TCB) in that it identifies a unit of work to the system. <i>See also</i> task control block.
service select code	Code entered to invoke analyzers, monitors, and general services. This code is also the name of the individual service.
session	Total period of time an address space has been active. A session begins when monitoring can be performed. If the product address space (PAS) starts after the job, the session starts with the PAS.
SG-Auto	Component of MAINVIEW SRM that provides early warning notification of storage anomalies and automated responses to those anomalies based on conditions in the storage subsystem.
SG-Control	Component of MAINVIEW SRM that provides real-time monitoring, budgeting, and control of DASD space utilization.

single system image (SSI)

Feature of the MAINVIEW window environment architecture that allows you to view and perform actions on multiple OS/390 systems as though they were a single system. The rows of a single tabular view can contain rows from different OS/390 images.

SRB *See* service request block.

SSI *See* single system image.

SSI context Name created to represent one or more targets for a given product. *See* context, target.

started task workload

Address spaces running jobs that were initiated programmatically.

statistics interval For MAINVIEW for DB2, cumulative count within a predefined interval (30-minute default set by the DB2STATS parameter in the distributed BBPARM member BBIISP00) for an analyzer service DELTA or RATE display. Specifying the DELTA parameter displays the current value as the difference between the value sampled by the current analyzer request and the value sampled at the start of the current interval. Specifying the RATE parameter displays the current value by minute (DELTA divided by the number of elapsed minutes).

StopX37/II Component of MAINVIEW SRM that provides enhancements to OS/390 space management, reducing the incidence of space-related processing problems. The StopX37/II functions operate at the system level to intercept abend conditions or standards violations, thus providing services without any JCL changes.

StorageGUARD Component of MAINVIEW SRM that monitors and reports on DASD consumption and provides historical views to help control current and future DASD usage.

summary view View created from a tabular view using the Summarize option in view customization. A summary view compresses several rows of data into a single row based on the summarize criteria.

SYSPROG services Component of MAINVIEW for OS/390. Over 100 services that detect, diagnose, and correct OS/390 system problems as they occur. Accessible from the OS/390 Performance and Control Main Menu. Note that this is also available as a stand-alone product MAINVIEW SYSPROG Services.

system resource *See* object.

target	Entity monitored by one or more MAINVIEW products, such as an OS/390 image, IMS or DB2 subsystem, CICS region, or related workloads across systems. <i>See</i> context, scope, SSI context.
target context	Single target/product combination. <i>See</i> context.
TASCOSTR	MAINVIEW for IMS Offline program that summarizes detail and summary IMS Resource Utilization Files (IRUFs) to be used as input to the offline components.
task control block (TCB)	Address space-specific control block that represents a unit of work that is dispatched in the address space in which it was created. <i>See also</i> service request block.
TCB	<i>See</i> task control block.
terminal session (TS)	Single point of control for MAINVIEW products, allowing data manipulation and data display and providing other terminal user services for MAINVIEW products. The terminal session runs in a user address space (either a TSO address space or a standalone address space for EXCP/VTAM access).
TDIR	<i>See</i> trace log directory.
threshold	Specified value used to determine whether the data in a field meets specific criteria.
TLDS	<i>See</i> trace log data set.
total mode	Usage mode in CMFMON wherein certain columns of data reflect the cumulative value between collection intervals. Invoked by the DELta OFF command. <i>See also</i> collection interval, delta mode.
trace	(1) Record of a series of events chronologically listed as they occur. (2) Online data collection and display services that track transaction activity through DB2, IMS, or CICS.
trace log data set (TLDS)	Single or multiple external VSAM data sets containing summary or detail trace data for later viewing or printing. The trace log(s) can be defined as needed or dynamically allocated by the BBI-SS PAS. Each trace request is assigned its own trace log data set(s).
trace log directory (TDIR)	VSAM linear data set containing one entry for each trace log data set. Each entry indicates the date and time of data set creation, the current status of the data set, the trace target, and other related information.

transaction	Specific set of input data that initiates a predefined process or job.
Transaction Accountant	MVIMS Offline component that produces cost accounting and user charge-back records and reports.
TS	<i>See</i> terminal session.
TSO workload	Workload that consists of address spaces running TSO sessions.
UAS	<i>See</i> user address space.
UBBPARM	<i>See</i> parameter library.
UBBPROC	<i>See</i> procedure library.
UBBSAMP	<i>See</i> sample library.
user address space	Runs a MAINVIEW terminal session (TS) in TSO, VTAM, or EXCP mode.
User BBPROF	<i>See</i> profile library.
view	Formatted data within a MAINVIEW window, acquired from a product as a result of a view command or action. A view consists of two parts: query and form. <i>See also</i> form, job activity view, query.
view definition	Meaning of data that appears online, including source of data, selection criteria for data field inclusion and placement, data format, summarization, context, product, view name, hyperlink fields, and threshold conditions.
view command	Name of a view that you type on the COMMAND line to display that view.
view command stack	Internal stack of up to 10 queries. For each command, the stack contains the filter parameters, sort order, context, product, and timeframe that accompany the view.
view help	Online help describing the purpose of a view. To display view help, place the cursor on the view name on the window information line and press PF1 (HELP).
window	Area of the MAINVIEW screen in which views and resources are presented. A window has visible boundaries and can be smaller than or equal in size to the MAINVIEW window area. <i>See</i> active window, alternate window, current window, MAINVIEW window area.

window information line

Top border of a window. Shows the window identifier, the name of the view displayed in the window, the system, the scope, the product reflected by the window, and the timeframe for which the data in the window is relevant. *See also* window status field.

window number

Sequential number assigned by MAINVIEW to each window when it is opened. The window number is the second character in the window status field. *See also* window status field.

window status

One-character letter in the window status field that indicates when a window is ready to receive commands, is busy processing commands, is not to be updated, or contains no data. It also indicates when an error has occurred in a window. The window status is the first character in the window status field. *See also* window information line, window status field.

window status field

Field on the window information line that shows the current status and assigned number of the window. *See also* window number, window status.

windows mode

Display of one or more MAINVIEW product views on a screen that can be divided into a maximum of 20 windows. A window information line defines the top border of each window. *Contrast with* full-screen mode.

WLM workload

In goal mode in MVS/SP 5.1 and later, a composite of service classes. MAINVIEW for OS/390 creates a workload for each WLM workload defined in the active service policy.

workflow

Measure of system activity that indicates how efficiently system resources are serving the jobs in a workload.

workload

(1) Systematic grouping of units of work (e.g., address spaces, CICS transactions, IMS transactions) according to classification criteria established by a system administrator. (2) In OS/390, group of service classes within a service definition.

workload activity view

Tracks workload activity as the workload accesses system resources. A workload activity view measures workload activity in terms of resource consumption and how well the workload activity meets its service objectives.

Workload Analyzer

Online data collection and display services used to analyze IMS workloads and determine problem causes.

workload definition

Workload created through the WKLIST view. Contains a unique name, a description, an initial status, a current status, and selection criteria by which address spaces are selected for inclusion in the workload. *See* Workload Definition Facility.

Workload Definition Facility

In MAINVIEW for OS/390, WKLIST view and its associated dialogs through which workloads are defined and service objectives set.

workload delay view Tracks workload performance as the workload accesses system resources. A workload delay view measures any delay a workload experiences as it contends for those resources.

Workload Monitor Online data collection services used to monitor IMS workloads and issue warnings when defined thresholds are exceeded.

workload objectives Performance goals for a workload, defined in WKLIST. Objectives may include measures of performance such as response times and batch turnaround times.

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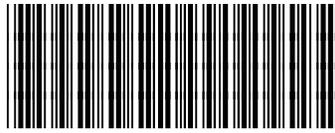
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