

MAINVIEW[®] SRM Reporting User Guide

**MAINVIEW[®] SRM StorageGUARD
MAINVIEW[®] SRM SG-Control
MAINVIEW[®] SRM EasyHSM**

Version 7.2

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 - related software (database, application, and communication) including type, version, and service pack or maintenance level
- 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 user information about the MAINVIEW® Storage Resource Manager Reporting products by BMC Software. It 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)
- Interactive System Productivity Facility (ISPF)
- MAINVIEW SRM operations (see the *MAINVIEW SRM User Guide and Reference*)

Throughout this book, references to OS/390 support also include support for MVS and z/OS.

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, "Introduction to MAINVIEW SRM Reporting"	describes the product features, how to use the product, and how to quickly get results from the product
Chapter 2, "Analyzing DASD"	describes the tools available for managing storage resources (such as storage groups, pools, RAID physical disks, user volumes, DASD directors, subsystems, and others) for optimum space utilization, configuration, and performance
Chapter 3, "Managing Applications"	describes the application collector, which provides real-time monitoring, budgeting, and control of DASD space utilization and how to use collected application data to tie individual data sets to applications

Chapter/Appendix	Description
Chapter 4, "Tape Reporting"	describes the tape reporting feature, which derives and consolidates information from existing tape-management software and other sources to assist in preventing tape-related errors
Chapter 5, "DFHSM Reporting"	describes the DFHSM features and reports, which can help you determine whether your data is managed correctly and find ways to save CPU cycles, thereby helping you meet your service-level agreements (SLAs)
Chapter 6, "Automation"	describes views and reports that information about the automated resources at your site
Chapter 7, "Batch Reporting"	describes the MAINVIEW SRM batch reporting facility that allows you to print a specified group of reports in batch
Appendix A, "SETSRM Command"	describes all SETSRM keyword parameters, which enable you to set filter or other values used in view requests

Related Documentation

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Category	Document	Description
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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 StorageGUARD

Category	Document	Description
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
reference document	<i>MAINVIEW SRM Reporting Reference Manual</i>	provides reference material about MAINVIEW SRM Reporting products
messages	<i>MAINVIEW SRM Messages</i>	provides hardcopy of messages that are also available online
supplemental documents	release notes, flashes, technical bulletins	provides additional information about the product

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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. Type search db in the designated field. (Unix)
specific (standard) keyboard key names	Press Enter .
GUI elements and menu sequences	Choose File => Open .
directories, file names, Web addresses, e-mail addresses	The BMC Software home page is at www.bmc.com .
Unix commands, command options, database names	Use the sbacktrack program to create a backup script.
code examples, syntax statements, system messages, screen text	//STEPLIB DD The table <i>tableName</i> is not available.
emphasized words, new terms	The instructions that you give to the software are called <i>commands</i> .
variables	In this message, the variable <i>fileName</i> represents the file that caused the error.

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 information that might improve product performance or that might make procedures easier to follow.

Syntax Statements

Syntax statements appear in the Courier typeface. 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.	<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>{commit cancel}</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 Introduction to MAINVIEW SRM Reporting

This chapter presents the following topics:

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Overview

MAINVIEW SRM Reporting includes these powerful components:

- HSM collector (MAINVIEW SRM EasyHSM in previous MAINVIEW SRM releases)
- space collector and performance collector (MAINVIEW SRM StorageGUARD in previous MAINVIEW SRM releases)
- application collector (MAINVIEW SRM SG-Control in previous MAINVIEW SRM releases)

This manual describes how to use MAINVIEW SRM Reporting and complements the *MAINVIEW SRM Reporting Reference Manual*. The following resources are also available:

- For information about the MAINVIEW SRM interface, navigation instructions, and global parameters, see the *MAINVIEW SRM User Guide and Reference*.
- For information about migrating from a previous release of EasyHSM, StorageGUARD, or SG-Control, see the *MAINVIEW SRM Customization Guide*.

Navigating and Getting Help

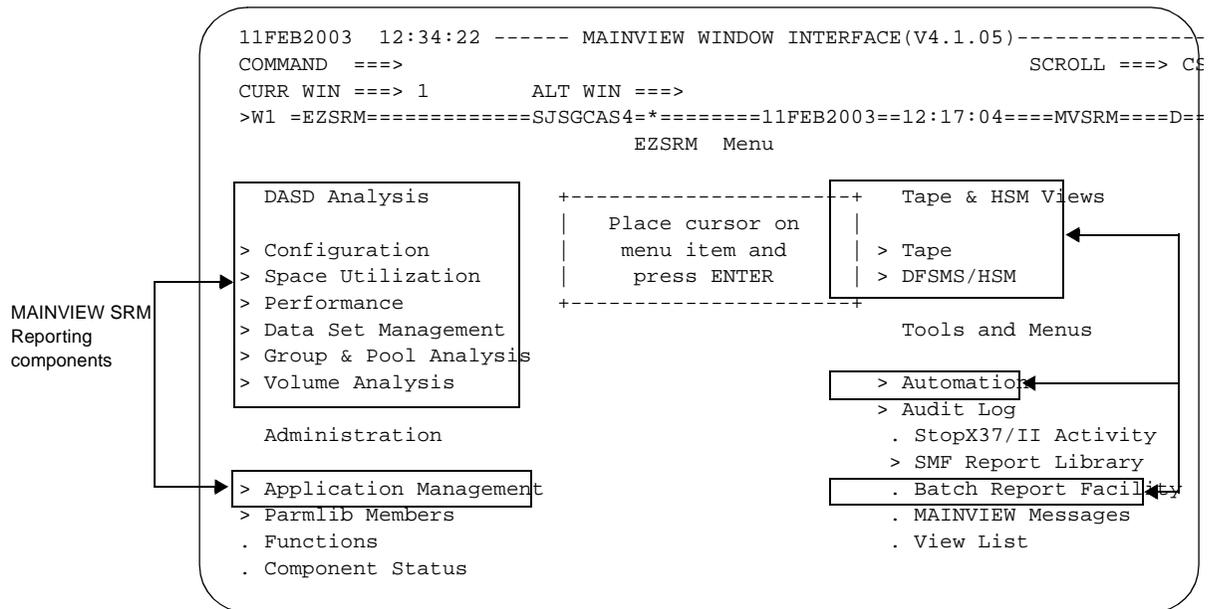
MAINVIEW SRM Reporting follows the navigation and online Help standards of all MAINVIEW products. For detailed information about navigation, using and customizing views, using hyperlinks, and displaying and customizing online Help, see the *Using MAINVIEW* manual.

Accessing MAINVIEW SRM Reporting Views

MAINVIEW SRM provides a list and descriptions of all product views. To access the list, on the EZSRM Menu under Tools and Menus, choose the **View List** option. From the list, you can select a view name to display that view. You can also quickly navigate from one view to another view by typing the destination view's name on the command line.

Figure 1-1 on page 1-3 shows the EZSRM Menu, the main menu for MAINVIEW SRM. The EZSRM Menu shows the highest level of options from which you can choose. To navigate to a more detailed level, place your cursor on an EZSRM Menu option and press **Enter**.

Figure 1-1 EZSRM Menu



The EZSRM Menu contains options for both Reporting and non-Reporting components of MAINVIEW SRM, as noted on Figure 1-1. The options are divided into the following categories:

- **DASD Analysis**

All of the DASD Analysis menu options are part of the Reporting component. These options display submenus that you use to manage storage resources (such as storage groups, pools, RAID physical disks, user volumes, DASD directors, subsystems, and others) for space utilization, configuration, and performance. You can drill down from the submenus to a data set or volume. For more information, see Chapter 2, “Analyzing DASD.”

- **Administration**

The Administration options provide tools to help you manage applications (known as “accounts” in earlier versions of MAINVIEW SRM), to view and edit parmlib members and functions, and to view and change the status of a component (for example, start the application collector).

— **Application Management**

Application Management options enable storage administrators to tie individual data sets to user-defined applications (for example, you can define an application for a specific programmer, project, department, and so on). Using the menu options, storage administrators can access real-time data for use in monitoring, budgeting, and controlling DASD space utilization. Budget amounts can be established and enforced according to the application. Storage administrators can also track trends in DASD utilization and use that information to help anticipate and control future DASD growth. For more information, see Chapter 3, “Managing Applications.”

— **Parmlib Members**

Use this menu option to view and edit MAINVIEW SRM global parameters. This option is not part of the Reporting component. See the *MAINVIEW SRM User Guide and Reference* for information about defining and editing parmlib members.

— **Functions**

Use this menu option to view and edit MAINVIEW SRM functions. This option is not part of the Reporting component. See the *MAINVIEW SRM User Guide and Reference* for information about defining and editing functions.

— **Component Status**

Use this menu option to start and stop MAINVIEW SRM product components. This menu option is not part of the Reporting component. See the *MAINVIEW SRM User Guide and Reference* for information about starting and stopping components.

• **Tape and HSM Views**

All of the Tape and HSM views are part of the Reporting component. Use these options to access information about virtual and real tape activity and HSM activity.

— **Tape**

The tape reporting facility derives and consolidates information from your existing tape management software and other sources. The tape reports can help you prevent tape-related errors and reduce operating expenses through better resource utilization. For more information, see Chapter 4, “Tape Reporting.”

— DFSMS/HSM

You can select and organize HSM reports based on time (hours or days), data set name, system ID, volume, and other parameters. On most views, you can issue DFHSM commands such as HMIGRATE and HRECALL. The HSM collector provides fast, flexible access to DFHSM operations. For more information, see Chapter 5, “DFHSM Reporting.”

• Tools and Menus

The Tools and Menus section provides access to Automation views, StopX37/II activity, SMF reports, batch reports, messages, and a list of MAINVIEW SRM views.

— Automation

The Automation options are part of the Reporting component. They enable you to see

- when events are being issued or jobs are being submitted
- the connection status between MAINVIEW SRM Automation and the MAINVIEW AutoOPERATOR subsystems
- statistics and status of the resources on which automation is or has been occurring

For more information, see Chapter 6, “Automation.”

— Audit Log

The audit log facility provides a tracking capability for all components of the MAINVIEW SRM product. The SRM Administration menu options enable you to view and update MAINVIEW SRM PARMLIB members, activate and deactivate MAINVIEW SRM functions, and view or change the active status of MAINVIEW SRM components. For more information, see the *MAINVIEW SRM User Guide and Reference*.

— StopX37/II Activity

Use this menu option to view the StopX37/II product’s activity log. This menu option is not part of the Reporting component. See the *MAINVIEW® SRM Allocation StopX37/II User Guide and Reference* for information about StopX37/II activity.

— **SMF Report Library**

Use this menu option to view MAINVIEW SRM message activity that has been written to the SMF data set. This option is not part of the Reporting component. See the *MAINVIEW SRM User Guide and Reference* for information about the SMF data set.

— **Batch Report Facility**

The Batch Report Facility is part of the Reporting component. Using the batch report facility, you can tailor reports to suit the needs of your site. A single batch job can generate multiple reports. For more information, see the batch reporting chapter.

— **MAINVIEW Messages**

Use this menu option to access MAINVIEW SRM error messages. This option is not part of the Reporting component. For more information, see the *MAINVIEW SRM Messages* manual.

— **View List**

Use this option to display an alphabetical list of MAINVIEW SRM views.

Accessing Online Help

MAINVIEW SRM Reporting provides detailed online Help for most views. To access online Help for a view, press **F1**.

The online Help includes

- information about the data in the view
- an explanation of each field and column on a view
- how the data is sorted
- alternate forms in which you can view the data
- action line commands that are available for a view

Applying Selection Criteria Using the SETSRM Command

The SETSRM command is a primary command that is available on the command line of all MAINVIEW SRM views. You use the SETSRM command to apply selection criteria to any view.

Keyword parameters enable you to set selection criteria or filtering values that are used in subsequent view requests. For descriptions of the SETSRM command keywords, see Appendix A, “SETSRM Command.”

Setting a Data Collection Interval Using the TIME Command

Most views display data that is derived during a collection interval or snapshot process that has already occurred (historical information). If you do *not* use the TIME command, by default, these views display data from the most current historical collection interval. However, if you use the TIME command, these views display data for the collection interval closest to the interval specified for the TIME command. Exceptions include configuration views and views available on the Real-Time EZCmd options.

You can use the TIME command and the Date, Time, and Duration options to identify the snapshots for reporting. For more information about the TIME command, see the *Using MAINVIEW* manual.

Using Action Line Commands

Views that display CMD as the first column respond to action line commands. Action line commands either perform an action, such as retrieving a control record, or serve as a hyperlink to another view.

Action line commands are an alternative to using EZCmd menus; the action commands correspond to the options on the EZCmd menus. For example, on view GPCNFG you can use either of the following methods to advance to view PRVOLRT, which lists the worst-responding volumes in a specific group or pool:

- Method 1: Select a group or pool to advance to the Group EZMenu (EZPOOL). Select the **Worst Responding** option.

- Method 2: Type WRV in the CMD column beside a group or pool name.

To display online Help that describes each available action, press **F1** in the CMD column of any view.

Tip: You do not need to remember the line commands. You can place your cursor on the first data field in any view and press **Enter** to advance to an EZCmd menu. For more information, see “Using EZCmd Menus to Access Resource-Specific Information” on page 1-8.

Using EZCmd Menus to Access Resource-Specific Information

EZCmd menus provide you with numerous options for viewing information about a selected pool, volume, storage group, data set, or other resource. You can access EZCmd menus from most views within MAINVIEW SRM.

Select the first data field in a row on a view to display the EZCmd menu for the pool, volume, storage group, data set, or other resource that you chose. For example, when you select the first field from any MAINVIEW SRM view that displays pool or storage group information, you advance to the Group EZCmd menu (EZPOOL).

Alternatively, instead of navigating through menus, you can manually invoke an EZCmd menu to set the filters. To do so, use the command syntax shown in the Manual Invocation column in Table 1-1, “EZCmd Menus.”

Table 1-1 EZCmd Menus

EZCmd Menu	Description	Manual Invocation
EZPOOL	used to analyze a storage group, pool, or SMS pool Select the first data field in a row on a pool-related view to display the EZPOOL menu.	For a pool: SETSRM GROUP(<i>poolname</i>) TYPE(POOL); EZPOOL or EZPOOL <i>poolname</i> POOL For a storage group: SETSRM GROUP(<i>storgrp</i>); EZPOOL or EZPOOL <i>storgrp</i> For a subpool: SETSRM GROUP(<i>subpool</i>) TYPE(SUBPOOL);EZPOOL or EZPOOL <i>subpool</i> SUBPOOL
EZVOL	used to analyze a volume Select the first data field in a row on a volume-related view to display the EZVOL menu.	SETSRM VOL(<i>volser</i>); EZVOL or EZVOL <i>volser</i>
EZSS	used to analyze a subsystem Select the first data field in a row on any subsystem-related view to display the EZSS menu.	SETSRM SUBSYS(<i>ssid</i>); EZSS or EZSS <i>ssid</i>
EZBOX	used to analyze a RAID box Select the first data field in a row on a box-related view to display the EZBOX menu.	SETSRM BOX(<i>box serial</i>); EZBOX or EZBOX <i>box serial</i> The <i>box serial</i> variable is the right 5 digits of the control unit serial number that is displayed in the BOXCNFG view.
EZPHY	used to analyze a physical disk Select the first data field in a row on a physical disk-related view to display the EZPHY menu.	SETSRM PHY(<i>physicaldiskid</i>); EZPHY or EZPHY <i>physicaldiskid</i> See the PHYCNFG view for a description of a physical disk.
EZDS	used to analyze a data set Select the first data field in a row on a data set-related view to display the EZDS menu.	SETSRM DSN(<i>data set name</i>); EZDS or EZDS <i>data set name</i>
EZDSA	used to display data set analysis views The EZVOL and EZPOOL menus link to EZDSA.	From a volume or pool menu, EZDSA
EZPOOLVR	used to display real-time options for pool analysis The EZPOOL menu links to EZPOOLVR via the Data Set Analysis menu option.	SETSRM GROUP(<i>pool/group/subpool name</i>) TYPE(<i>pool</i>); EZPOOLVR or EZPOOLVR <i>poolname pooltype</i>

Getting Quick Results

MAINVIEW SRM Reporting offers a wide range of reports and features to help you manage your entire storage enterprise. Some of these reports require a period of time during which the collectors gather data. However, you can quickly get results from MAINVIEW SRM Reporting to complete the following tasks:

- monitor HSM errors (see “Using HSM Views” on page 5-3)
- monitor HSM recall activity (see “Recall Activity” on page 5-12)
- evaluate historical pool performance (see “Performance” on page 2-55)
- locate your worst performing volume or UCB address using real-time performance statistics (see “Volume Performance” on page 2-71)
- locate your worst performing physical device using real-time performance statistics (see “Physical Disk Activity” on page 2-43)
- review a list of all applications (accounts) in your applications database and their associated allocations (see “Viewing the Application List” on page 3-10)
- monitor HSM data set thrashing (see “Migration Thrashing” on page 5-12)
- generate data set reports based on data set age, data set size, or data set percent used, by volume, storage group, HLQ, and other criteria (see “Data Set Management” on page 2-43)
- identify data sets with CI/CA or other potential problems by using the Data Set Analysis (EZDSA) menu options that are available from volume- and pool-related views (see “Group EZMenu (EZPOOL)” on page 2-5)

Chapter 2 Analyzing DASD

This chapter presents the following topics:

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DASD Analysis Overview

The DASD Analysis options provide you with the tools that you need to manage storage resources (such as storage groups, pools, RAID physical disks, user volumes, DASD directors, subsystems, and other resources) for optimum space utilization, configuration, and performance. You can drill down from each resources to a data set or volume.

The DASD Analysis options from which you can choose are divided into the following categories:

- Configuration

You can select a DASD resource, such as storage groups and pools, volumes, RAID physical disks, or subsystems. MAINVIEW SRM Reporting displays a view that shows real-time configuration information about all resources of that type; for example, a listing of all storage groups and pools along with the number of volumes and data sets within each pool, the size of each pool, and other data. For more information, see “Configuration” on page 2-19.

- Space Utilization

You can select a DASD type, such as applications, subsystems, or RAID physicals and MAINVIEW SRM Reporting displays a view showing information about how your enterprise is using each resource of that type; for example, which applications are currently using the most DASD space. Information on the utilization of VTOCs, VTOC indexes, and VVDS data sets is available, as well as space utilization by DSORG, SMS status, and a number of other storage attributes. Suboptions are available that provide you with access to real-time data, historical data, or historical trending information on almost any resource. For more information, see “Space Utilization” on page 2-27.

- Performance

You can view either historical storage performance or real-time performance statistics. Select a resource such as channel activity, physical disks, or subsystems. MAINVIEW SRM Reporting displays a view showing detailed performance information about all resources of that type; for example, response time of each volume. For more information, see “Performance” on page 2-32.

- Data Set Management

You can generate a report on data sets at the system-wide level, at a single resource level, or at the level of any subset of volumes, storage groups, or other resource that are specified in a VTOC Scan facility. Choose data sets using criteria such as high-level qualifier, age, size, and percentage used. Using the information in the report, you can prevent potential problems; for example, you can identify candidates for migration and then issue the HMIGRATE command to relieve space constraints. For more information, see “Data Set Management” on page 2-43.

- Group and Pool Analysis

You can view space utilization, performance data, configuration information, and data set analysis reports for the storage groups and pools in your enterprise. Select a pool and drill down to perform even more detailed historical or in real time analysis on a specific storage group or pool. Use the information in these views to anticipate and prevent out-of-space conditions or correct problems that cause slow response times. You can also view summary reports of the data sets within the storage groups and pools using properties such as data set size and age. For more information, see “Group and Pool Analysis” on page 2-54.

- Volume Analysis

Using Volume Management reports, you can locate disabled and quiesced volumes in the enterprise. Volume Space reports help you accomplish tasks such as locating over-allocated volumes and volumes with allocated but unused space. For more information, see “Volume Analysis” on page 2-65.

Quick Reference—EZCmd Menus and Action Line Commands

EZCmd menus provide you with numerous options for viewing information about a selected pool, volume, storage group, data set, or other resource. You can access EZCmd menus from most views within MAINVIEW SRM.

Action line commands are an alternative to using EZCmd menus; the actions correspond to the options on the menus. You can enter action line commands on any view that has the CMD column. For example, instead of selecting a pool on view GPCNFG to advance to EZPOOL and then selecting a menu option, you could enter an action line command on view GPCNFG.

This section describes the DASD Analysis EZCmd menu options and lists the equivalent action line commands that you can issue from a resource-list view.

Group EZMenu (EZPOOL)

Using the EZPOOL menu, you can analyze a storage group, pool, or SMS pool. Select the first data field in a row on a storage-group- or pool-related view to display the EZPOOL EZmenu. Table 2-1 on page 2-6 describes the EZPOOL menu options from which you can choose and lists the action line commands that correspond to the menu options.

Note: For utilization trending purposes, MAINVIEW SRM retrieves start and end dates and times from the parameters in the TIME command. If you have not set the TIME command, the default time range is 7 days (168 hours) before the current date and time to the current date and time. For information about using the TIME command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

Table 2-1 EZPOOL EZCmd Menu (Part 1 of 2)

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Volumes In Group	Worst Responding	displays worst responding volumes	WRV	PRVOLRT
	Most Active	displays most active volumes	MAV	PRVOLMA
	Device Busy	displays busiest device	DBV	PRVOLBSY
	Percent Full	displays volumes by percent full	PFV	SPVOLPU
	Fragmentation	displays volumes by fragmentation index	FIX	SPVOLFR
	VIR Percent Full	displays volumes by VIR percent full	RPF	SPVOLVI
	VVDS Percent Full	displays volumes by VVDS percent full	DPF	SPVOLVV
	Largest Free Extent	displays volumes ranked by the largest free extent	LFE	SPVOLLE
	by PO Space	displays volumes ranked by the amount of total space that is occupied by partitioned data sets	BPO	SPVOLPO
	by PS Space	displays volumes ranked by the amount of total space that is occupied by sequential data sets	BPS	SPVOLPS
	by VSAM Space	displays volumes ranked by the amount of total space that is occupied by VSAM data sets	BVS	SPVOLVS
Real Time Analysis	Configuration	displays volume configuration	VCF	VOLCNFG
	Pool Definition	displays pool definition	DIS	EZPOOL
	Volume Analysis	displays Group EZMenu	n/a	EZPOOLVR (see page 2-8)
	Data Set Analysis	displays Data Set Analysis EZMenu	n/a	EZDSA (see page 2-18)

Table 2-1 EZPOOL EZCmd Menu (Part 2 of 2)

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Group Analysis	Utilization	displays pool utilization information	PUL	SPPOOL
	Performance	displays pool performance information	RVU	PRPOOL
	Automation Log	displays pool automation log	VAL	LOGREC
	Data Set Performance	displays data set performance information	DSP	PRDS
	Data Set Analysis	displays Data Set Analysis EZMenu	n/a	EZDSA (see page 2-18)
	Performance Trend (opens Performance Trending pop-up menu)	Trend Analysis displays performance trend.	PTN	PRPOOL
		Daily Summary displays daily performance trend.	PTD	PRPOOLD
		Weekly Summary displays weekly performance trend.	PTW	PRPOOLW
		Monthly Summary displays monthly performance trend.	PTM	PRPOOLM
	Utilization Trend (opens Utilization Trending pop-up menu)	Trend Analysis displays utilization trend.	STN	SPPOOL
		Daily Summary displays daily utilization trend.	STD	SPPOOLD
		Weekly Summary displays weekly utilization trend.	STW	SPPOOLW
		Monthly Summary displays monthly utilization trend.	STM	SPPOOLM

Group EZMenu—Real Time (EZPOOLVR)

The EZPOOLVR menu displays real-time options for storage group and pool analysis. Table 2-2 describes the EZPOOLVR menu options from which you can choose and lists the action line commands that correspond to the menu options.

Table 2-2 EZPOOLVR EZCmd Menu

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Volume Utilization	Percent Full	displays real-time volumes by percent full	RFV	VOLSPF
	Largest Free ContigCyl	displays real-time volumes by largest free contiguous cylinder	RFC	VOLSFCC
	Largest Free PriCyl	displays real-time volumes by largest free primary cylinder	RPC	VOLSFPC
	Free Extents	displays real-time volumes by free extents	RFE	VOLSFE
	VTOC % Full	displays real-time volumes by VTOC percent full	RVF	VOLSVPF
	VIR % Full	displays real-time volumes by VIR percent full	RRF	VOLSVIR
	VVDS % Full	displays real-time volumes by VVDS percent full	RDF	VOLSVDS
	Fragmentation Index	displays real-time volumes by fragmentation index	RFI	VOLSFRG
Volume Performance	Worst Responding	displays real-time response time	RRT	MVOLPER
	Most Active	displays real-time most active volumes	RMA	VOLPRMA
	Busy	displays real-time device most busy	RDB	VOLPRBSY

Group EZMenu—Space Collector Pools (EZSPPOOL)

The EZSPPOOL menu displays information about the volumes in a selected space collector pool. Table 2-3 on page 2-9 describes the EZSPPOOL menu options from which you can choose. No action line commands correspond to the EZSPPOOL menu options.

Table 2-3 EZSPPOOL EZCmd Menu

Subcategory	Menu Option	Description	View Displayed	
Volumes Space	Percent Full	displays volumes by percent full	SPVOLPU	
	Fragmentation	displays volumes by fragmentation index	SPVOLFR	
	VIR Percent Full	displays volumes by VIR percent full	SPVOLVI	
	VVDS Percent Full	displays volumes by VVDS percent full	SPVOLVV	
	Largest Free Extent	displays volumes ranked by the largest free extent	SPVOLLE	
	by PO Space	displays volumes ranked by the amount of total space that is occupied by partitioned data sets	SPVOLPO	
	by PS Space	displays volumes ranked by the amount of total space that is occupied by sequential data sets	SPVOLPS	
	by VSAM Space	displays volumes ranked by the amount of total space that is occupied by VSAM data sets	SPVOLVS	
	Utilization Trend (opens Utilization Trending pop-up menu)	Trend Analysis	displays utilization trend.	SPPOOL
		Daily Summary	displays daily utilization trend.	SPPOOLD
		Weekly Summary	displays weekly utilization trend.	SPPOOLW
		Monthly Summary	displays monthly utilization trend.	SPPOOLM

Subsystem EZMenu (EZSS)

Using the EZSS menu, you can analyze a subsystem. Select the first data field in a row on a subsystem-related view to display the EZSS menu. Table 2-4 describes the EZSS menu options from which you can choose and lists the action line commands that correspond to the menu options.

Table 2-4 EZSS EZCmd Menu

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Volumes in Subsystem	Volume Configuration	displays volume configuration information	VCF	VOLCNFG
	Worst Responding	displays worst responding volumes	WRV	PRVOLRT
	Most Active	displays most active volumes	MAV	PRVOLMA
	Device Busy	displays busiest device	DBV	PRVOLBSY
	Percent Full	displays volumes by percent full	PFV	SPVOLPU
	Largest Free Extent	displays volumes ranked by the largest free extent	LFE	SPVOLLE
	Free Space	displays volumes by percent full	PFV	SPVOLFS
	VIR % Full	displays volumes by VIR percent full	RPF	SPVOLVI
	VVDS % Full	displays volumes by VVDS percent full	DPF	SPVOLVV
	Fragmentation	displays volumes by fragmentation index	FIX	SPVOLFR
	Disabled VTOC Index	displays volumes by disabled VTOC index	DVI	SPVOLDV
Real Time	Volume Performance	displays real-time volume response	RTR	MVOLPER
	Volume Busy	displays real-time most busy device	RDB	VOLPRBSY
	Volume Most Active	displays real-time most active volumes	RMA	VOLPRMA

Volume EZMenu (EZVOL)

Using the EZVOL menu, you can analyze a volume. Select the first data field in a row on a volume-related view to display the EZVOL menu. Table 2-5 describes the EZVOL menu options from which you can choose and lists the action line commands that correspond to the menu options.

Note: For utilization trending purposes, MAINVIEW SRM retrieves start and end dates and times from the parameters in the TIME command. MAINVIEW SRM uses the end date and time for the interval date and time when you specify those parameters as *. For information about using the TIME command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

Table 2-5 EZVOL EZCmd Menu (Part 1 of 2)

Subcategory	Menu Option	Description	Action Line Command	View Displayed	
Performance	Response Time	displays volume response time	VRT	PRVOLRT	
	Volumes On Physical	displays performance for volumes on physical	VOP	PRVOLRT	
	Data Set Performance	displays data set performance	DSP	PRDS	
	Channel Paths	displays channel path performance	PCH	PRCHP	
	LCUs	displays logical control unit performance	PLU	PRLCU	
	Subsystems	displays subsystems performance	CCU	PRCCU	
	RVA Subsystems	displays RVA subsystems	PSF	PRRSF	
	RAID Physicals	displays physicals performance	PHY	PRPVOL	
	RAID 2105	displays RAID 2105 performance	PRK	PRRRK	
	Trending (opens Performance Trending pop-up menu)	Trend Analysis	displays performance trend	PTN	PRVOL
		Daily Summary	displays daily performance trend	PTD	PRVOLD
		Weekly Summary	displays weekly performance trend	PTW	PRVOLW
		Monthly Summary	displays Monthly performance trend	PTM	PRVOLM

Table 2-5 EZVOL EZCmd Menu (Part 2 of 2)

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Utilization	Volume	displays volume utilization information	VUT	SPVOLPU
	Volumes On Physical	displays volumes on physical disks by percent full	PFV	SPVOLPU
	Trending (opens Utilization Trending pop-up menu)	Trend Analysis displays Utilization trend.	STN	SPVOLPU
		Daily Summary displays daily Utilization trend.	STD	SPRAIDVD
		Weekly Summary displays weekly Utilization trend.	STW	SPRAIDVW
		Monthly Summary displays Monthly Utilization trend.	STM	SPRAIDVM
Volume Information	Volume Configuration	displays volume configuration information	VCF	VOLCNFG
	Volumes on Physical	displays volumes on physical disks	VPI	VOLCNFG
	VTOC Listing	displays volume and VTOC information	VIN	EZVOL
	Data Set Analysis	displays Data Set Analysis EZMenu	n/a	EZDSA (see page 2-18)
	Volume Automation	displays the volume automation log	VAL	LOGREC
	EMC Devices on Phy	displays EMC device information	EDP	EMCDEV
Real Time Analysis	Utilization	displays real-time volume utilization	RVU	VOLSPF
	Performance (opens Real Time Performance pop-up menu)	Response Time displays real-time response time	RRT	MVOLPER
		Cache Statistics displays real-time cache statistics.	RCS	MVOLCACH
		Device Activity displays real-time device statistics.	RDA	MDEVSP
		PAV Performance Stats displays real-time PAV statistics.	RPP	MVOLPAV
		Volumes On Physical displays real-time physicals performance.	RYP	MVOLPER
	Data Set Analysis	displays Data Set Analysis EZMenu	n/a	EZDSA (see page 2-18)

Box EZMenu (EZBOX)

Using the EZBOX menu, you can analyze a RAID box. Select the first data field in a row on a box-related view to display the EZBOX menu. Table 2-6 describes the EZBOX menu options from which you can choose and lists the action line commands that correspond to the menu options.

Note: For utilization trending purposes, MAINVIEW SRM retrieves start and end dates and times from the parameters in the TIME command. If you have not set the TIME command, the default time range is 7 days (168 hours) before the current date and time to the current date and time. For information about using the TIME command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

Table 2-6 EZBOX EZCmd Menu (Part 1 of 2)

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Configuration	Physical Disks	displays configuration information about physicals disks	PCF	PHYCNFG
	Subsystems	displays configuration information about subsystems	SSC	SSCNFG
	Volumes	displays configuration information about volumes	VCF	VOLCNFG
	EMC Box	displays configuration information about EMC boxes	EBC	EBOXCNFG
	EMC Volumes	displays configuration information about EMC volumes	EVC	EVOLCNFG
	EMC Physicals	displays configuration information about EMC physical disks	EPC	EPHYCNFG
	EMC Directors	displays configuration information about EMC directors	EDC	REDIR
	EMC SRDF Devices	displays configuration information about EMC SRDF configuration information	ESC	RESRDF
	EMC Device Information	displays configuration information about EMC devices	EDI	EMCDEV

Table 2-6 EZBOX EZCmd Menu (Part 2 of 2)

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Utilization	Physical Disks	displays utilization information about physical disks	PDU	SPRAID
	Volumes	displays utilization information about volumes	VUT	SPVOLPU
	RVA Box	displays utilization information about RVA boxes	RBU	SPPHYRVA
	RVA Volumes	displays utilization information about RVA volumes	RVU	SPVOLRVA
	Trending (opens Utilization Trending pop-up menu)	Trend Analysis displays Utilization trend.	STN	SPVOL
		Daily Summary displays daily Utilization trend.	STD	SPVOLD
		Weekly Summary displays weekly Utilization trend.	STW	SPVOLW
		Monthly Summary displays Monthly Utilization trend.	STM	SPVOLM
Performance	Physical Disks	displays performance information about physical disks	PDP	PRPVOL
	Subsystems	displays performance information about subsystems	SSP	PRCCU
	Volume	displays performance information about volumes	VPF	PRVOL
	Box	displays performance information about boxes	BPF	PRPVBOXZ
	EMC Directors	displays performance information about EMC directors	EDP	PRRDIR
	RVA Subsystem Frame	displays performance information about RVA subsystem frames	RSP	PRRSF
	2105 Ranks	displays ESS 2105 Rank performance information	RKP	PRRRK
Real Time Performance	EMC Directors	displays real-time performance information about EMC directors	RDP	REDIR
	Physical	displays real-time physical disk activity	RDA	PHYPRRTZ
	Volumes	displays real-time volume performance information	RTR	MVOLPER
	Box	displays real-time box performance information	RBP	BOXPRRTZ

Physicals EZMenu (EZPHY)

Using the EZPHY menu, you can analyze a physical disk. Select the first data field in a row on a physical disk-related view to display the EZPHY menu. Table 2-7 describes the options on the EZmenu from which you can choose and lists the action line commands that correspond to the menu options.

Note: For trending purposes, MAINVIEW SRM retrieves start and end dates and times from the parameters you specified in the MAINVIEW TIME command. MAINVIEW SRM uses the end date and time for the interval date and time when you specify those parameters as *. For information about using the TIME command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

Table 2-7 EZPHY EZCmd Menu (Part 1 of 2)

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Performance	Volumes by Response	displays performance information about volumes on physical disks	VAL	PRVOLRT
	Volumes by Activity	displays performance information about volumes by activity	VAC	PRVOLMA
	Physical Disk	displays performance information about physical disks	PDA	PRPVOL
	Box Performance	displays performance information about boxes	BPF	PRPVBOXZ
	All Physicals in Box	displays performance information about all physical disks in box	APB	PRPVOL
	ESS Rank Data	displays performance information about ESS ranks	ESS	PRRRK
	RVA Frame Data	displays performance information about RVA frames	RFA	PRRSF
	EMC Director	displays performance information about EMC directors	EMD	PRRDIR
Utilization	Volumes	displays utilization information about volumes	VUT	SPVOLPU
	Physical Disk	displays utilization information about physical disks	PDU	SPRAID
	RVA Vols Shared/Uniqu	displays space usage information about volumes residing on RVA devices	BEU	SPVOLRVA

Table 2-7 EZPHY EZCmd Menu (Part 2 of 2)

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Configuration	Volume Configuration	displays configuration information about volumes	VCF	VOLCNFG
	All Physicals on Box	displays configuration information about physical disks on a box	PCF	PHYCNFG
	EMC Device Information	displays configuration information about EMC devices	EDI	EMCDEV
Real Time Data	Volumes Response	displays real-time information about volume response times	RRT	MVOLPER
	Volumes Activity	displays real-time information about the most active volumes	RMA	VOLPRMA
	Physical Disk Response	displays real-time information about physical disk activity	RDA	PHYPRRTZ

Data Set EZMenu (EZDS)

Using the EZDS menu, you can analyze a specific data set. Select the first data field in a row on a data set-related view to display the EZDS menu. Table 2-8 describes the EZDS menu options from which you can choose and lists the action line commands that correspond to the menu options.

Table 2-8 EZDS EZCmd Menu

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Commands	Backup Data Set	initiates an HSM backup	HBA	HSMHBACO
	Backup Versions	displays a list of HSM backup versions	BV	HSMDVER
	Browse Data Set	displays contents of data set on current system	Browse	ISPF panel
	Catalog List	displays catalog entry list	CList	CATALOGL
	Compress Data Set	compresses the data set	Z	ISPF panel
	Data Set Information	displays data set information	Info	WBDSIA
	Delete Backup Copy	deletes HSM backup copy	HBD	HSMHBDEO
	Delete Data Set	deletes the data set	DELeTe	ISPF panel
	Edit Data Set	edits the data set on current system	Edit	ISPF panel
	Free Data Set	frees unused space	Free	ISPF panel
	Migrate Data Set	initiates an HSM migration	HMI	HSMHMIGO
	Recall Data Set	initiates an HSM data set recall	HRE	HSMHRECO
	Recover From Backup	initiates an HSM data set recovery	HRC	HSMHRCOO
	Uncatalog Data Set	uncatalogs the data set	UNCatalog	ISPF panel
	Volume Information	displays volume-level information	VIN	EZDS
VTOC Listing	lists VTOC entries	Vtoc	EZDS	

Data Set Analysis EZMenu (EZDSA)

Using the EZDSA menu, you can access data set analysis menus. Select the first data field in a row on a data set-related view to display the EZDSA menu. The EZVOL and EZPOOL menus link to EZDSA, and you can access it from a volume or pool menu. Table 2-9 describes the EZDSA menu options from which you can choose and lists the action line commands that correspond to the menu options.

Table 2-9 EZDSA EZCmd Menu

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Data Set Summaries	HLQ Age Range Summary	displays a summarized list of data sets by age range that have the specified HLQ	ARS	DHLQAZ
	HLQ Pct Range Summary	displays a summarized list of data sets by percentage used range that have the specified HLQ	PRS	DHLQPZ
	HLQ Size Range Summary	displays a summarized list of data sets by size range that have the specified HLQ	SRS	DHLQSZ
	HLQ Allocation Summary	displays a summarized list of data sets by allocation that have the specified HLQ	ALS	DHLQLZ
	Age Distribution	displays a summarized list of data sets by age	AGD	DAGEZ
	Size Distribution	displays a summarized list of data sets by size	SZD	DSIZEZ
Data Set Lists	List Data Sets	displays a list of data sets	DSL	WBVTOCD
	Data Set Filtering	displays the data set filter menu	L	WBVSDD
	Data Sets by Size	displays a list of data sets by size	DBS	DSIZE
	Data Sets by Age	displays a list of data sets by age	DBA	DAGE
	VSAM Data Sets	displays VSAM data sets	VSM	DVSAM
	Uncataloged Data Sets	displays a real-time list of uncataloged data sets	RUC	DUCAT
	Data Sets By Extents	displays a list of data sets by extent view	DBE	DEXTNT
	DS by Percent Used	displays a list of data sets by percentage of used space	DBP	DPCTU
	DS by Dev Occupancy %	display displays a list of data sets by by device occupancy	DBO	DOPCT

VTOC Scan EZMenu (WBVTOCZ)

Using the WBVTOCZ menu, you can view information about the selected filter member, view information about the data obtained in the last VTOC scan, and perform actions on the filter member. Table 2-10 describes the WBVTOCZ menu options from which you can choose and lists the action line commands that correspond to the menu options.

Table 2-10 WBVTOCZ EZCmd Menu

Subcategory	Menu Option	Description	Action Line Command	View Displayed
Scan Data	Content Summary	displays the detail view for the last VTOC scan for the filter member	DET	WBVTOCDD
	Volume Statistics	displays real-time information about the volumes that were scanned	V	WBVTOCV
	Data Set Analysis	displays the Data Set Analysis EZCmd menu	N/A	EZDSA
	Get Control Record	retrieves the control record for the filter member	G	WBVTOCZ
Filter Member	Perform VTOC scan	initiates a new VTOC scan	VSCAN	WBVTOCZ
	Edit Filter Member	displays the filter member in Edit mode to enable you to change it	E	ISPF panel
	Browse Filter Member	displays the filter member in View mode to enable you to view the contents	B	ISPF panel
	Delete Collection DS	deletes the collection data set or removes an aborted scan entry	DEL	ISPF panel

Configuration

When you select **Configuration** from the EZSRM menu, you advance to the Configuration menu options. These options provide real-time configuration reports for the storage resources in your enterprise. Upon each of the following events and actions, MAINVIEW SRM rebuilds the configuration information to continue to reflect real-time data:

- issuing of the Config REFRESH command
- issuing of the OS/390 VARY command
- refreshing MAINVIEW SRM pools or subpools
- noting of SMS configuration or volume status change

To access configuration information about storage resources, you first select a resource type, such as subsystems. From the resulting list of resources, you can drill down to an individual device, such as a specific SSID. Selecting a device produces a more detailed report about the device or accesses an EZCmd menu that provides additional configuration information options.

Table 2-11 summarizes the configuration options from which you can choose, and the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option.

Table 2-11 Configuration Options

Menu Option and View Name	SETSRM Keywords^a	Action Line Commands^b	EZCmd Menu
Groups and Pools (GPCNFG)	none	See Table 2-1 on page 2-6.	EZPOOL
Subsystems (SSCNFG)	none	See Table 2-4 on page 2-10.	EZSS
Volumes (VOLCNFG)	none	See Table 2-5 on page 2-11.	EZVOL
Boxes (BOXCNFG)	none	See Table 2-6 on page 2-13.	EZBOX
Physical Disks (PHYCNFG)	none	See Table 2-7 on page 2-15.	EZPHY
PAV Volumes (PAVCNFG)	none	See Table 2-5 on page 2-11.	EZVOL
EMC Boxes (EBOXCNFG)	none	See Table 2-6 on page 2-13.	EZBOX
EMC Directors (REDIR)	VOL DIR	<ul style="list-style-type: none"> • D devices • V volumes • P physical Disks • DET detail view 	REDIR
EMC Physicals (EPHYCNFG)	none	See Table 2-7 on page 2-15.	EZPHY
EMC Volumes (EVOLCNFG)	none	See Table 2-5 on page 2-11.	EZVOL
EMC SRDF Devices (RESRDF)	VOL	none	none
Non-DASD Pools (MPOOL)	none	<ul style="list-style-type: none"> • D pool definition • DET detail view 	MPOOL
^a For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command." ^b Press F1 in the CMD column to display online Help that describes each action line command.			

Each Configuration view provides a list of resources from which you can choose. Choose a resource to advance to a view that contains more information about the chosen resource or to an EZCmd menu. For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

MAINVIEW SRM Reporting collects data on the following types of storage resources. For more information about the MAINVIEW SRM members, see the *MAINVIEW SRM User Guide and Reference*.

- pools (DASD pools that were created in the MAINVIEW SRM SMPOOL_{xx} member)
- subpools (SMS subpools that were created in the MAINVIEW SRM SMSPOL_{xx} member)
- storgrps (SMS storage groups that were created using SMS definitions)

Groups and Pools

Choose the **Groups and Pools** option to advance to GPCNFG. This view provides you with real-time configuration information about all storage groups, subpools, and DASD pools in your enterprise. GPCNFG summarizes for each storage group and pool, information such as the number of volumes, number of offline volumes, volume counts by SMS status, and so on. “Group EZMenu (EZPOOL)” on page 2-5 summarizes the views that you can access by issuing action line commands.

Usage Information

View GPCNFG displays a great deal of information, some of which might initially be confusing. Review the following notes to clarify the data shown in specific columns. For more information about these and other columns, place your cursor on the column heading and press **F1** for online Help.

- **Vols Dropped**

This column shows the number of volumes that have been dropped from the pool or subpool report information. The MAINVIEW SRM Reporting component allows a volume being defined in up to eight pools and subpools combined. Therefore, configuration information is not correct for pools and subpools from which volumes have been dropped.

However, the MAINVIEW SRM Allocation component allows a volume being defined in an infinite number pools and subpools; so the Allocation component data it is not affected by the **Vols Dropped** count.

- **VScan DSNs and Current DSNs**

VScan DSNs shows the number of data sets on the VTOC scan master file for the group; therefore, it matches the number of data sets displayed in the associated Data Set Analysis views (described in “Data Set Analysis” on page 2-63). This count does *not* include data sets that reside on volumes that have been dropped from the pool because the volume is defined in more than eight pools and subpools combined (see the **Vols Dropped** column on page 2-21).

Current DSNs shows the number of data sets that are in the selected group. This value shows the total from the **Current DSNs** field on view VOLCNFG for each volume in the group.

The difference between values in the **Current DSNs** column and the **VScan DSNs** column results from activity that has occurred on volumes in the group since they were last scanned. See the **VScan DSN Date** and **VScan DSN Time** columns to determine when a volume in the group was last scanned and updated to the VTOC scan master collection file.

Subsystems

Choose the **Subsystems** option to advance to SSCNFG. This view displays real-time configuration information about all of the subsystems in your enterprise, regardless of RAID usage. SSCNFG lists subsystems by the 4-digit subsystem ID that is assigned to the logical volume on which they are contained.

Volumes

Choose the **Volumes** option to advance to VOLCNFG. This view displays real-time configuration information about all of the volumes in your enterprise, as follows:

- For all offline volumes, VOLCNFG displays the volser and UCB address.
- For all online volumes, you see configuration information such as volume status, number of cylinders, whether it is a parallel access volume (PAV), the RAID physical disk on which the volume exists, and so on.

Usage Information

View VOLCNFG displays a great deal of information, some of which might initially be confusing. Review the following notes to clarify the data displayed in specific columns. For more information about these and other columns, see the online Help. To access Help for a column, place your cursor on the column heading and press **F1**.

- **Owning Pools**

This column shows the number of pools and subpools in which the volume is defined. The MAINVIEW SRM Reporting component allows a volume being defined in up to eight pools and subpools combined. The **Owning Pools** and the **Volser** columns are highlighted if the number of pools exceeds eight. See the **Vols Dropped** column on the GPCNFG view for help in determining the pools that are affected. See “Groups and Pools” on page 2-21 for information about the GPCNFG view.

- **VScan DSNs and Current DSNs**

For information about these columns, see the descriptions for them on page 2-22.

Boxes

Choose the **Boxes** option to advance to BOXCNFG. This view displays real-time configuration information about all RAID and non-RAID control units and devices in your enterprise, as follows:

- supported RAID devices as a single BOX that contains multiple physical disks with multiple volumes on each physical disk
- unsupported RAID devices as though they were non-RAID devices, which are displayed as independent 3990/3880 control units

Physical Disks

Choose the **Physical Disks** option to advance to PHYCNFG. This view displays real-time configuration information about all physical disks in your enterprise and the volume count and total cylinders for each. The following resources are considered physical disks:

- a physical disk within an EMC Symmetrix device

The physical-disk identifier is the Symmetrix serial number, the director number, and the SCSI identifier.

Note: For information about support of EMC devices, see the *MAINVIEW SRM Customization Guide*.

- a drawer within an IBM RAMAC, RAMAC2, or RAMAC3 subsystem

The physical disk identifier is the control unit serial number and the drawer number.

- a rank within an IBM ESS device

The physical disk identifier is the control unit serial number and the rank identifier.

- an RVA/STK device

The physical disk identifier is the control unit serial number. The entire box is treated as a single physical disk.

- non-RAID devices

Non-RAID devices include independent 3990/3880 control units and RAID devices not supported by MAINVIEW SRM. The physical disk identifier is the control unit serial number. The entire box is treated as a single physical disk.

Note: To appear within MAINVIEW SRM views, a volume on a physical disk must be online to the local system. EMC physical disks are the exception. *All* EMC physical disks appear on PHYCNFG if *any* volume on the owning box is online to the local system. For information about support of EMC devices, see the *MAINVIEW SRM Customization Guide*.

PAV Volumes

Choose the **PAV Volumes** option to advance to PAVCNFG. This view displays real-time configuration information about all parallel access-capable volumes in your enterprise.

EMC Boxes

Choose the **EMC Boxes** option to advance to EBOXCNFG. This view displays each box by serial number and provides real-time configuration information, such as the number of physical disks on the box, any directors, the size of the internal cache area, and so on.

Note: These boxes also appear in the BOXCNFG view from the **Boxes** option on the Configuration menu. However, this view shows EMC-specific information that is not available for devices from other vendors.

EMC Directors

A director in an EMC subsystem is a set of microprocessors that control disk, channel, ESCON, and remote operations. Choose the **EMC Directors** option to advance to the REDIR view. This view displays real-time configuration information about the directors in your enterprise. The right five positions of each box serial number and the two-position director number uniquely identify each director.

EMC Physicals

Choose the **EMC Physicals** option to advance to EPHYCNFG. This view displays real-time configuration information about the EMC physical disks in your enterprise. EPHYCNFG identifies each physical disk by box number. Additionally, it lists the serial number of the box on which the physical disk resides and the control unit type and model of the physical disk.

Note: These physical disks also appear in the PHYCNFG view from the **Physical Disks** option on the Configuration menu. However, this view shows EMC-specific information that is not available for devices from other vendors.

EMC Volumes

Choose the **EMC Volumes** option to advance to the EVOLCNFG view. This view displays real-time configuration information about the Symmetrix logical volumes within a selected subsystem. A logical volume is defined as the host volume. Volumes included on this view must be represented by a channel-connected UCB on the system where the SVOS PAS resides. “Volume EZMenu (EZVOL)” on page 2-11 summarizes the views that you can access by issuing action line commands on this volume-configuration view.

Note: These volume also appear in the VOLCNFG view from the **Volumes** option on the Configuration menu. However, this view shows EMC-specific information that is not available for devices from other vendors.

EMC SRDF Devices

Choose the **EMC SRDF Devices** option to advance to the RESRDF view. This view displays real-time configuration information about the local or remote volumes that are associated with the Symmetrix Remote Data Facility (SRDF). The RESRDF view lists each SRDF device by the EMC-assigned device number and the EMC-assigned remote SRDF number, both of which are represented by hexadecimal numbers. The view also provides the last five digits of the box serial number and the two-digit director number.

Non-DASD Pools

Choose the **Non-DASD Pools** option to advance to MPOOL. This view displays real-time configuration information about the non-DASD-type pools that are defined in the MAINVIEW SRM SMPOOL_{xx} member.

Space Utilization

When you select **Space Utilization** from the EZSRM menu, you advance to the Space Utilization menu options. These options provide information about how the DASD in your enterprise is being used and who is using it. You can use this information to make decisions about adding DASD or reallocating space.

Using the TIME command, you can view trends in DASD usage over specified time periods. For more information about using the TIME command, see the *Using MAINVIEW* manual. For more information about MAINVIEW SRM data collectors, see the *MAINVIEW SRM Reporting Reference Manual*.

The Space Utilization menu options are divided into the following categories:

- DASD Utilization (see Table 2-12 on page 2-28)
- System Space Trending (see Table 2-13 on page 2-31)

To access space utilization information about storage resources, you first select a resource type, such as storage groups and pools. From the resulting list of resources, you can drill down to an individual resource, such as a specific storage group. Selecting a resource produces a more detailed report about the resource or accesses an EZCmd menu that provides additional space utilization options.

Table 2-12 summarizes the DASD Utilization options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option.

Table 2-12 DASD Utilization Options

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu
Groups and Pools (SPPOOL)	DATE TIME POOL TREND	See Table 2-1 on page 2-6.	EZPOOL
Applications (SPAPPL)	DATE TIME TREND	<ul style="list-style-type: none"> • D Details • H Trending • I Daily Summary • W Weekly Summary • M Monthly Summary 	none
Volumes (SPVOL)	DATE TIME TREND	See Table 2-5 on page 2-11.	EZVOL
Subsystems (SPSS)	DATE TIME TREND GRPTYPE POOL VOL	See Table 2-4 on page 2-10.	EZSS
Physical Disks (SPRAID)	DATE TIME TREND	See Table 2-7 on page 2-15.	EZPHY
Boxes (SPRAID)	DATE TIME TREND	See Table 2-6 on page 2-13.	EZBOX
RVA Subsystems NCL (SPPHYRVA)	DATE TIME GRPTYPE CCU VOL TREND	See Table 2-6 on page 2-13.	EZBOX
RVA Volumes Shared/Unique (SPVOLRVA)	DATE TIME GRPTYPE POOL TREND	See Table 2-5 on page 2-11.	EZVOL
Space Collector Pools (SPGPUSR)	DATE TIME GRPTYPE POOL TREND	none	EZSPPOOL

^a With all Space Utilization views, you can use the TIME command to set date and time ranges for the reporting period. For information about using the TIME command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."

^c Press F1 in the CMD column to display online Help that describes each action line command.

Note: For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

Groups and Pools

Choose the **Groups and Pools** option to advance to SPPOOL. This view provides space-usage information about the storage groups and pools in percent-used order. From this view, you can access detailed information about a specific storage group or pool.

Applications

Choose the **Applications** option to advance to SPAPPL. This view provides space usage information about the applications in your enterprise.

MAINVIEW SRM retrieves start and end dates and times from the parameters in the MAINVIEW TIME command. If you have not set the TIME command, the default time range is 7 days (168 hours) before the current date and time to the current date and time.

Volumes

Choose the **Volumes** option to advance to SPVOL. This view provides space usage information about all volumes in your enterprise. MAINVIEW SRM retrieves start and end dates and times from the parameters in the MAINVIEW TIME command. If you have not set the TIME command, the default time range is 7 days (168 hours) before the current date and time to the current date and time.

Subsystems

Choose the **Subsystems** option to advance to SPSS. This view provides space usage information about the subsystems in your enterprise. It lists subsystems by the 4-digit subsystem ID that is assigned to the logical volume on which they are contained.

Physical Disks

Choose the **Physical Disks** option to advance to SPRAID. This view lists all RAID devices in your enterprise. Physical disks are defined in “Physical Disks” on page 2-24.

Boxes

Choose the **Boxes** option to advance to SPRAID. This view lists all RAID devices in your enterprise.

RVA Subsystems NCL

Choose the **RVA Subsystems NCL** option to advance to SPPHYRVA. This view provides net capacity load, free space collection, and other vital information about RVA devices.

RVA Volumes Shared/Unique

Choose the **RVA Volumes Shared/Unique** option to advance to SPVOLRVA. This view displays information about the utilization of device back-end storage for RVA volumes.

MAINVIEW SRM retrieves start and end dates and times from the parameters in the MAINVIEW TIME command. If you have not set the TIME command, the default time range is 7 days (168 hours) before the current date and time to the current date and time.

Space Collector Pools

Choose the **Space Collector Pools** option to advance to SPGPUSR. This view displays space information about those pools that are only reported on by space collector, and that therefore do not appear in the configuration views or view SPPOOL (**Groups and Pools**). These unique pools are defined in member SMPOOLxx with the following specifications:

```
SET POOLNAME=&VOL
SET POOLNAME=&UNIT
SET POOLNAME=&MNTYP
```

For more information about defining pools and member SMPOOLxx, see the *MAINVIEW SRM User Guide and Reference*.

No line commands are available on view SPGPUSR. When you select a pool, the EZSPPOOL EZCmd menu is displayed (not EZPOOL).

The space trending views list by time all snapshots or daily or weekly snapshots for DASD devices in your enterprise. From these views, you can access detailed space usage information about applications, pools, volumes, and summary views by day, week, and month.

Space trending time periods are based on the TIME command range. MAINVIEW SRM retrieves start and end dates and times from the parameters in the MAINVIEW TIME command. If you have not set the TIME command, the default time range is 7 days (168 hours) before the current date and time to the current date and time.

Table 2-13 on page 2-31 summarizes the options from which you can choose, and the commands, EZCmd menus, and SETSRM keywords that are available for each option.

Table 2-13 System Space Trending Options

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu
Snapshot (SPSNAP)	none	<ul style="list-style-type: none"> • D Details • A Applications • P Pools • V Volumes • I Daily Summary • W Weekly Summary • M Monthly Summary 	none
Daily (SPSNAPD)	none	none	none
Weekly (SPSNAPW)	none	none	none
<p>^a With all Space Utilization views, you can use the TIME command to set date and time ranges for the reporting period. For information about using the TIME command, see the <i>Using MAINVIEW</i> manual or type Help TIME on the command line to access online Help.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>			

Performance

When you select **Performance** from the EZSRM menu, you advance to the Performance menu options, which are subdivided into Storage Performance and Real Time Statistics subcategories.

The Storage Performance options provide you with historical performance statistics for both physical and logical DASD devices. For more information see “Storage Performance.”

The Real Time Statistics options provide real-time performance statistics for both physical and logical DASD devices. This information enables you to take corrective action to prevent performance-related problems. For example, using the Real Time Statistics options, you can

- identify best- and worst-performing volumes
- locate most active volumes
- monitor latency (waiting time)
- review cache efficiency (the number of misses, hits, and read/write ratios)

For more information see “Real Time Statistics” on page 2-39.

Storage Performance

The MAINVIEW SRM performance collector automatically updates data used in storage performance views at user-defined intervals (called snapshots). The views provide information about device activity, I/O queuing, and channels and contention by enqueue and reserves.

To access storage performance information about storage resources, you first select a resource type, such as storage groups and pools. From the resulting list of resources, you can drill down to an individual resource, such as a specific storage group. Selecting a resource produces an EZCmd menu that provides additional performance options.

Table 2-14 summarizes the options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Table 2-14 Storage Performance Options (Part 1 of 4)

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu
Groups and Pools (PRPOOL)	DATE TIME TREND GRPTYPE POOL	See Table 2-1 on page 2-6.	EZPOOL
Subsystems (PRCCU)	DATE TIME GRPTYPE CHP LCU PHY	<ul style="list-style-type: none"> • D Details • V Volumes • H History • I Daily Summary • W Weekly Summary • M Monthly Summary • DR RAID Director • PV RAID Physical Volume • RF RVA SubSystem Frame • RR RAID Rank 	none
Volumes (PRVOL)	DATE TIME GRPTYPE CCU CHP DSN LCU POOL DIR VOL TREND	See Table 2-5 on page 2-11.	EZVOL
Channel Activity (PRCHP)	DATE TIME GRPTYPE TREND VOLUME LCU	<ul style="list-style-type: none"> • L Logical Control Unit • V Volume • CC Cache Control Unit • D Details • H History • I Daily Summary • W Weekly Summary • M Monthly Summary 	none

^a With all Storage Performance views, you can use the TIME command to set date and time ranges for the reporting period. For information about using the TIME command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."

^c Press F1 in the CMD column to display online Help that describes each action line command.

Table 2-14 Storage Performance Options (Part 2 of 4)

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu
System Daily Trend (PRSSUM)	none	<ul style="list-style-type: none"> • D Details • J Job • L Logical Control Unit • P Pool • V Volume • CC Cache Control Unit • CP Channel Path • DR RAID Director • DS Data Sets • PV RAID Physical Volume • RF RVA SubSystem Frame • RR RAID Rank • SC Storage Class • H History • I Daily Summary • W Weekly Summary • M Monthly Summary 	none
Interval Data (PRINTV)	none	<ul style="list-style-type: none"> • J Job • L Logical Control Unit • P Pool • V Volume • CC Cache Control Unit • CP Channel Path • DR RAID Director • DS Data Set • PV RAID Physical Volume • RF RVA SubSystem Frame • RR RAID Rank • SC Storage Class 	none
Logical Control Unit (PRLCU)	DATE TIME GRPTYPE CCU CHP VOL TREND	<ul style="list-style-type: none"> • D Details • V Volume • CC Cache Control Unit • CP Channel Path • H History • I Daily Summary • W Weekly Summary • M Monthly Summary 	none
<p>^a With all Storage Performance views, you can use the TIME command to set date and time ranges for the reporting period. For information about using the TIME command, see the <i>Using MAINVIEW</i> manual or type Help TIME on the command line to access online Help.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>			

Table 2-14 Storage Performance Options (Part 3 of 4)

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu
Storage Class (PRSCCL)	DATE TIME TREND	<ul style="list-style-type: none"> • D Details • DS Data Set • H History • I Daily Summary • W Weekly Summary • M Monthly Summary 	none
Data Set (PRDS)	DATE TIME GRPTYPE JOB POOL SCL VOL TREND	<ul style="list-style-type: none"> • D Details • J Job • V Volume • SC Storage Class • H History • I Daily Summary • W Weekly Summary • M Monthly Summary 	none
Job (PRJOB)	DATE TIME GRPTYPE DSN TREND	<ul style="list-style-type: none"> • D Details • DS Data Set • H History • I Daily Summary • W Weekly Summary • M Monthly Summary 	none
Boxes (PRPVBOXZ)	DATE TIME GRPTYPE CCU DIR TREND	See Table 2-6 on page 2-13.	EZBOX
Physicals (PRPVOL)	DATE TIME GRPTYPE CCU DIR VOL TREND	See Table 2-1 on page 2-6.	EZPHY
EMC Directors (PRRDIR)	DATE TIME GRPTYPE CCU TREND	<ul style="list-style-type: none"> • D Details • V Volumes • PV RAID Physical Volume • H History • I Daily Summary • W Weekly Summary • M Monthly Summary 	none

^a With all Storage Performance views, you can use the TIME command to set date and time ranges for the reporting period. For information about using the TIME command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."

^c Press F1 in the CMD column to display online Help that describes each action line command.

Table 2-14 Storage Performance Options (Part 4 of 4)

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu
RVA/STK Frames (PRRSF)	DATE TIME GRPTYPE CCU VOL TREND	See Table 2-6 on page 2-13.	EZBOX
ESS 2105 Ranks (PRRRK)	DATE TIME GRPTYPE CCU VOL TREND	See Table 2-7 on page 2-15.	EZPHY
PAV Volumes (PRVOL)	DATE TIME GRPTYPE CCU CHP DSN LCU POOL DIR VOL TREND	See Table 2-5 on page 2-11.	EZVOL

^a With all Storage Performance views, you can use the TIME command to set date and time ranges for the reporting period. For information about using the TIME command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."

^c Press F1 in the CMD column to display online Help that describes each action line command.

Note: For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

MAINVIEW SRM retrieves start and end dates and times from the parameters that you specified in the MAINVIEW TIME command. The following guidelines apply to the TIME command:

- MAINVIEW SRM uses the end date and time for the interval date and time when you specify those parameters as *.
- If you provide hexadecimal zero start and end dates and times, then MAINVIEW SRM returns all system summary records.

For more information about the TIME command, see the *Using MAINVIEW* manual.

Groups and Pools

Choose the **Groups and Pools** option to advance to PRPOOL. This view provides you with performance information about storage groups and pools.

Subsystems

Choose the **Subsystems** option to advance to PRCCU. This view displays performance information on all storage subsystems, also referred to as cache control units.

Volumes

Choose the **Volumes** option to advance to PRVOL. This view displays performance information on all volumes. It provides the 4-byte subsystem ID, the 11-byte physical disk ID, and other configuration information, along with I/O activity, response times, cache hit rates, and other performance data that is associated with the volume.

Channel Activity

Choose the **Channel Activity** option to advance to PRCHP. This view displays a selected channel path record.

System Daily Trend

Choose the **System Daily Trend** option to advance to PRSSUM. This view provides summarized historical data by system, day, week, and month.

Interval Data

Choose the **Interval Data** option to advance to PRINTV. This view displays all interval reports that are stored in the database.

Logical Control Unit

Choose the **Logical Control Unit** option to advance to PRLCU. This view displays a selected logical control unit record for a specific date and time.

Storage Class

Choose the **Storage Class** option to advance to PRSCL. This view displays selected storage class records for specific dates and times.

Data Set

Choose the **Data Set** option to advance to PRDS. This view displays data set records for specific dates and times.

Job

Choose the **Job** option to advance to PRJOB. This view displays job performance information about specific dates and times.

Boxes

Choose the **Boxes** option to advance to PRPVBOXZ. For every box, this view displays a selected box record for a specific date and time.

Physicals

Choose the **Physicals** option to advance to PRPVOL. This view displays a selected physical volume record for a specific date and time. PRPVOL is logged for every physical disk. The view includes the 11-byte physical disk ID and 10-byte RAID-type description from the configuration component.

EMC Directors

Choose the **EMC Directors** option to advance to PRRDIR. This view displays selected director records for specific dates and times.

RVA/STK Frames

Choose the **RVA/STK Frames** option to advance to PRRSF. This view displays selected RVA records for specific dates and times.

ESS 2105 Ranks

Choose the **ESS 2105 Ranks** option to advance to PRRRK. This view displays information on rank performance for the selected time period.

PAV Volumes

Choose the **PAV Volumes** option to advance to PRVOL. This view displays selected volume records for specific dates and times. The view provides the 4-byte subsystem ID (suitable for summarization) and the 11-byte physical disk ID that is associated with the volume.

Real Time Statistics

The Real Time Statistics views provide current performance information about DASD device, channel, and I/O subsystem activity. These views are based on the RMF/CMF API and contain additional fields to indicate the current status of the volume.

Note: Some performance information is based on the CMFMON product from BMC Software or the RMFMON II product from IBM. Familiarity with these products is helpful when interpreting this information.

Data frequency is dependent on the collector. The performance statistics for the I/O Queuing Activity view are averaged over the length of the current CMF EXTRACTOR or RMFMON I recording interval. For example, if the interval is four minutes old, the statistics are averaged for the last four minutes. The actual statistics are recalculated each recording interval cycle. Typically, a recording interval cycle is one to five seconds, depending on how RMF or CMF is set up.

To access real-time statistics on storage resources, you first select a data type, such as volume response time. From the resulting list of resources, you can drill down to an individual resource, such as a specific volume. Selecting a resource produces a more detailed report about the resource or accesses an easy (EZCmd) menu that provides additional performance options.

Table 2-15 summarizes the options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Table 2-15 Real-Time Statistics Options (Part 1 of 2)

Menu Option and View Name^a	SETSRM Keywords^b	Action Line Commands^c	EZCmd Menu
Channel Activity (MCHAN)	none	none	none
I/O Queuing (MIOQ)	none	none	none
RAID EMC Directors (REDIR)	none	<ul style="list-style-type: none"> • D Devices • DET Detail • P Physical disks • V Volumes 	none
ENQ/Reserve Activity (MRES)	none	none	none
ENQ Activity (MENQ)	none	none	none
Volume Response Time (VOLPRRT)	VOLUME PHY GROUP TYPE INTERVAL	See Table 2-5 on page 2-11	EZVOL
Volume Activity (VOLPRA)	VOLUME PHY GROUP TYPE INTERVAL	See Table 2-5 on page 2-11	EZVOL
Physical Disk Response (PHYPRRTZ)	VOLUME PHY GROUP TYPE INTERVAL	See Table 2-7 on page 2-15	EZPHY
Physical Disk Activity (PHYPAZ)	VOLUME PHY GROUP TYPE INTERVAL	See Table 2-7 on page 2-15	EZPHY
<p>^a The TIME command is not available for the Real-Time Statistics views.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>			

Table 2-15 Real-Time Statistics Options (Part 2 of 2)

Menu Option and View Name^a	SETSRM Keywords^b	Action Line Commands^c	EZCmd Menu
Subsystem Response (SSPRRTZ)	VOLUME PHY GROUP TYPE INTERVAL	See Table 2-4 on page 2-10	EZSS
Subsystem Activity (SSPRAZ)	VOLUME PHY GROUP TYPE INTERVAL	See Table 2-4 on page 2-10	EZSS
<p>^a The TIME command is not available for the Real-Time Statistics views.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>			

For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

Channel Activity

Choose the **Channel Activity** option to advance to MCHAN. This view provides a listing of channel activity and performance for all online channels; for example, the percentage of time that the channel is busy, both numerically and graphically. You can examine channels with excessive amounts of busy time for possible performance degradation problems.

The Channel Activity report calculates statistics by using deltas that have occurred since you pressed **Enter**. Therefore, you should wait a few seconds before pressing **Enter**, especially if the channel does not show much activity.

I/O Queuing

Choose the **I/O Queuing** option to advance to MIOQ. This view provides a listing of all online LCUs and associated channels that have had activity during the current CMF or RMF recording interval. Use this view to help identify I/O queuing bottlenecks in your DASD/IO configuration.

RAID EMC Directors

Choose the **RAID EMC Directors** option to advance to REDIR. This view displays all directors across all EMC Symmetrix devices. The view includes all installed directors, regardless of volume definition.

Enqueue/Reserve Activity

Choose the **Enqueue/Reserve Activity** option to advance to MRES. This view displays all outstanding RESERVE requests that have been made against the serially reusable resources in your system. Use this view to monitor and resolve resource control contention.

Enqueue Activity

Choose the **Enqueue Activity** option to advance to MENQ. This view displays information on the contention that exists for all serially reusable resources in your system. Use this view to monitor and resolve resource control contention.

Volume Response Time

Choose the **Volume Response Time** option to advance to VOLPRRT. This view displays average response time statistics for the volumes in your system, including queue time, busy time, and disconnect time.

Volume Activity

Choose the **Volume Activity** option to advance to VOLPRA. This view displays device addresses and the average volume response times, queue times, connect times, and identification information about the volumes in your system.

Physical Disk Response

Choose the **Physical Disk Response** option to advance to PHYPRRTZ. This view displays detailed response-time statistics and identification information about the physical disks in your system.

Physical Disk Activity

Choose the **Physical Disk Activity** option to advance to PHYPRAZ. This view displays average response times, queue times, connect times, and identification information about the physical disks in your system.

Subsystem Response

Choose the **Subsystem Response** option to advance to SSPRRTZ. This view displays average response times, queue times, connect times, and identification information about the subsystems in your system.

Subsystem Activity

Choose the **Subsystem Activity** option to advance to SSPRAZ. This view displays average response times, queue times, connect times, and identification information about the subsystems in your system.

Data Set Management

When you select **Data Set Management** from the EZSRM menu, you advance to the Data Set Management menu options. The Data Set Management options provide a set of real-time and historical data set level views to simplify daily DASD housekeeping tasks. These reports and utilities enable you to perform the following tasks:

- evaluate performance and data management statistics from the data set level and up to more general levels (very broad or very narrow, whichever you need)
- inspect data sets from the catalog and VTOC viewpoint
- locate problem data sets and take action if necessary; for example, you could identify the
 - oldest data sets not accessed

You can use this data to determine whether you need to retain these data sets. Taking this action can prevent problems in pools and on the system.

— largest data sets

You can use this report to determine the best location for data sets.

- locate and correct volumes that contain excessive VSAM data sets with splits in the control interval (CI) and control area (CA)

To access data set information or to choose and perform actions against data sets, you first select an option from one of the submenus. From the resulting submenu options, you can choose the criteria for selecting data sets, such as those of a certain age on a particular volume. You can then drill down to a specific data set and use the EZDS EZCmd menu options to get detailed information about that data set.

The following tables summarize the options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow each table describe the options.

- Catalog Search Options: Table 2-16 on page 2-45
- VSCAN Collections Options: Table 2-17 on page 2-46
- Data Set Aging Options: Table 2-18 on page 2-49
- Data Set Size Options: Table 2-19 on page 2-51
- Data Set Percent Used Options: Table 2-20 on page 2-53

Catalog Search

Use the Catalog Search options to provide filter criteria that you want to use to locate data sets and high-level qualifiers. Table 2-16 summarizes the catalog search options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Table 2-16 Catalog Search Options

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu
Data Set Locate (WBSLDET> WBSL)	DSN DSTYPE MIGDS	See Table 2-8 on page 2-17.	EZDS
HLQ Locate (WBHLQDET> WBHLQ)	HLQ	See Table 2-8 on page 2-17.	EZDS

^a The Data Set Management options do not support use of the TIME command.

^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."

^c Press F1 in the CMD column to display online Help that describes each action line command.

Note: For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

Data Set Locate

Choose the **Data Set Locate** option to advance to WBSLDET. On this view, you can provide selection criteria to locate and list cataloged data sets. For example, you can provide a data set name or mask and the type of data sets, such as all or VSAM, and you can specify whether you want to include migrated data sets.

After you type in the selection criteria, type **S** in the **W1** column to begin the search process and advance to view WBSL. This view lists data sets that meet your search criteria. The action line commands provide you with many data set management options, including free unused space, access data set information, and so on.

This view displays cataloged data sets that match your selection criteria. Press **F1** in the **CMD** column to display online Help that describes available action line commands.

HLQ Locate

Choose the **HQL Locate** option to advance to WBHLQDET. On this view, you can provide a high-level qualifier or mask for the data sets that you want locate and list; for example, SYS1*. Type **S** in the **W1** column to begin the search process and advance to view WBHLQ. This view displays data sets that match your high-level qualifier or mask. Press **F1** in the **CMD** column to display online Help that describes available action line commands.

VSCAN Collections

Use the VSCAN Collections options to view the VTOC scan collection data sets, view recent VTOC scan activity, and view and update PARMLIB members. For more information about the VTOC scan collection data sets and filter members, see the *MAINVIEW SRM Reporting Reference Manual*. For information about the audit log files, see the *MAINVIEW SRM User Guide and Reference*.

Table 2-17 summarizes the VSCAN Collections options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Table 2-17 VSCAN Collections Options

Menu Option and View Name	SETSRM Keywords ^b	Action Line Commands	EZCmd Menu
Collection Data Sets (WBVTOC)	none	<ul style="list-style-type: none"> • B Browse • DET Detail • DEL Delete • DSN Data set level statistics • E Edit • G Retrieve control record • V Volume level statistics 	WBVTOCZ
VSCAN Activity Log (LOGREC) ^a	DATE TIME	none	none
VSCAN Filter Members (ADMEM)	none	<ul style="list-style-type: none"> • R Refresh • E Edit • B Browse • D Display • N Create • / Display contents of storage 	ADMEMZ
<p>^a This option supports use of the TIME command. For information about using the TIME command, see the <i>Using MAINVIEW</i> manual or type Help TIME on the command line to access online Help.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>			

Note: For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

Collection Data Sets

Choose the **Collection Data Sets** option to advance to WBVTOC. This view displays cataloged VTOC scan collection data sets and the inflight and aborted scans from the current MAINVIEW SRM execution. MAINVIEW SRM obtains the cataloged data sets using the VSCAN_OINDEX setting in the active SMMSYS PARMLIB member.

The collection data sets are displayed according to the filter member suffix. Make a selection to advance to the VTOC Scan EZcmd menu (view WBVTOCZ). This menu provides information about the selected filter member and the following suboptions from which you can choose:

- **Scan Data**
 - **Content Summary** displays the WBVTOC view, which provides statistics about the VTOC scan.
 - **Volume Statistics** displays the WBVTOCV view, which provides a list of volumes from which you can choose to see real-time volume information.
 - **Data Set Analysis** displays the Data Set Analysis EZ menu (EZDSA), which provides many options for data set summaries and data set lists.
 - **Get Control Record** processes a request to retrieve the control record.
- **Filter Member**
 - **Perform VTOC Scan** issues the VTOC scan request for the specified member suffix.
 - **Edit Filter Member** enables you to apply different selection criteria to the filter member you selected.
 - **Browse Filter Member** enables you to view the selection criteria for the filter member you selected.
 - **Delete Collection DS** enables you to delete a collection data set.

VSCAN Activity Log

Choose the **VSCAN Activity Log** option to advance to LOGREC. This view displays records from the MAINVIEW SRM audit log files. When initiated from this link, filters are specified so that only VTOC scan activity records are displayed. A record is written to the audit log files when a VSCAN request is received and when a VSCAN request ends. The audit record contains the filter member that was used, the collection data set, and other information. For information about the audit log files, see the *MAINVIEW SRM User Guide and Reference*.

VSCAN Filter Members

Choose the **VSCAN Filter Members** option to advance to ADMEM. Use this view to display and update MAINVIEW SRM PARMLIB members. Action line commands enable you to make changes to PARMLIB members. Press **F1** in the CMD column to display online Help that describes each action line command.

Data Set Aging

Use the Data Set Aging options to generate data set analysis reports based on the age of data sets that were included in the VTOC scan. MAINVIEW SRM obtains the age range data from the master collection data set. The age, size, and percent used ranges are defined in the SMMSYS.xx PARMLIB member each time a VTOC scan is run to update the master collection file.

Tip: You can sort the report based on another category of information, such as Total DSNs. To do so, type SORT on the command line, place your cursor on the column by which you want to sort, and press **Enter**.

Table 2-18 on page 2-49 summarizes the data set aging options from which you can choose.

Table 2-18 Data Set Aging Options

Menu Option ^a	Pop-Up Menu Option and View Name	SETSRM Keywords ^b
Age Distribution	by HLQ (DSSRAD)	RESTYPE
	by Group/Pool (DSSRAD)	RESTYPE
	by Application (DSSRAD)	RESTYPE
	by SMS Mgmt Class (DSSRAD)	RESTYPE
	by HLQ and Group/Pool (DSSRAD)	RESTYPE
	by Volume (DSSRAD)	RESTYPE
Age Distribution Uncat	by HLQ (DSSRADU)	RESTYPE
	by Group/Pool (DSSRADU)	RESTYPE
	by Application (DSSRADU)	RESTYPE
	by SMS Management Class (DSSRADU)	RESTYPE
	by HLQ and Group/Pool (DSSRADU)	RESTYPE
	by Volume (DSSRADU)	RESTYPE
Age Distribution VSAM	by HLQ (DSSRADV)	RESTYPE
	by Group/Pool (DSSRADV)	RESTYPE
	by Application (DSSRADV)	RESTYPE
	by SMS Management Class (DSSRADV)	RESTYPE
	by HLQ and Group/Pool (DSSRADV)	RESTYPE
	by Volume (DSSRADV)	RESTYPE
^a Action line commands, the TIME command, and EZCmd menus are not available for the Data Set Summary views.		
^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."		

Age Distribution

Choose **Age Distribution** to open the Age Distribution pop-up menu. From the pop-up menu, select the resource type by which you want to filter data sets to advance to DSSRAD. (See Table 2-18 on page 2-49 for a list of the options.) The data set summary view will include *all* data sets.

For example, select **by HLQ** to display a list of all data sets filtered by their high-level qualifier. The HLQ is listed in the **Resource Name** column, and HLQ is shown in the **Resource Type** column. The view shows the total number of data sets with each HLQ, the number of data sets in each age range, as well as other data set information.

Age Distribution Uncat

Choose **Age Distribution Uncat** to open the Age Distribution Uncataloged pop-up menu. From the pop-up menu, select the resource type by which you want to filter data sets to advance to DSSRADU. (See Table 2-18 on page 2-49 for a list of the options.) The data set summary view will include *only uncataloged* data sets.

For example, select **by Group/Pool** to display a list of uncataloged data sets filtered by group or pool name. The group/pool name is listed in the **Resource Name** column, and group or pool is shown in the **Resource Type** column. The view shows the total number of uncataloged data sets in each group/pool, the number of uncataloged data sets in each age range, as well as other data set information.

Age Distribution VSAM

Choose **Age Distribution VSAM** to open the Age Distribution VSAM pop-up menu. From the pop-up menu, select the resource type by which you want to filter data sets to advance to DSSRADV. (See Table 2-18 on page 2-49 for a list of the options.) The data set summary view will include *only VSAM* data sets.

For example, select **by SMS Mgmt Class** to display a list of VSAM data sets filtered by SMS management class name. The SMS management class name is listed in the **Resource Name** column, and SMS mgmt class is shown in the **Resource Type** column. The view shows the total number of VSAM data sets in each management class, the number of VSAM data sets in each age range, as well as other data set information.

Data Set Size

Use the Data Set Aging options to generate data set analysis reports based on the age of data sets that were included in the VTOC scan. MAINVIEW SRM obtains the age range data from the master collection data set. The age, size, and percent used ranges are defined in the SMMSYS.xx PARMLIB member each time a VTOC scan is run to update the master collection file.

Tip: You can sort the report based on another category of information, such as Total DSNs. To do so, type SORT on the command line, place your cursor on the column by which you want to sort, and press **Enter**.

Table 2-19 on page 2-51 summarizes the data set sizing options from which you can choose.

Table 2-19 Data Set Size Options

Menu Option ^a	Pop-Up Menu Option and View Name	SETSRM Keywords ^b
Data Set Size Analysis	by HLQ (DSSRSZ)	RESTYPE
	by Group/Pool (DSSRSZ)	RESTYPE
	by Application (DSSRSZ)	RESTYPE
	by SMS Management Class (DSSRSZ)	RESTYPE
	by HLQ and Group/Pool (DSSRSZ)	RESTYPE
	by Volume (DSSRSZ)	RESTYPE
Data Set Size Uncat	by HLQ (DSSRSZU)	RESTYPE
	by Group/Pool (DSSRSZU)	RESTYPE
	by Application (DSSRSZU)	RESTYPE
	by SMS Management Class (DSSRSZU)	RESTYPE
	by HLQ and Group/Pool (DSSRSZU)	RESTYPE
	by Volume (DSSRSZU)	RESTYPE
Data Set Size VSAM	by HLQ (DSSRSZV)	RESTYPE
	by Group/Pool (DSSRSZV)	RESTYPE
	by Application (DSSRSZV)	RESTYPE
	by SMS Management Class (DSSRSZV)	RESTYPE
	by HLQ and Group/Pool (DSSRSZV)	RESTYPE
	by Volume (DSSRSZV)	RESTYPE
^a Action line commands, the TIME command, and EZCmd menus are not available for the Data Set Summary views.		
^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."		

Data Set Size Analysis

Choose **Data Set Size Analysis** to open the Data Set Size Analysis pop-up menu. From the pop-up menu, select the resource type by which you want to filter data sets to advance to DSSRSZ. (See Table 2-19 on page 2-51 for a list of the options.) The data set summary view will include *all* data sets.

For example, select **by Volume** to display a list of all data sets filtered by the volume on which they are stored. The volume name is listed in the **Resource Name** column, and Volume is shown in the **Resource Type** column. The view shows the total number of data sets on each volume, the number of data sets in each size range, as well as other data set information.

Data Set Size Uncat

Choose **Data Set Size Uncat** to open the Data Set Size Uncat pop-up menu. From the pop-up menu, select the resource type by which you want to filter data sets to advance to DSSRSZU. (See Table 2-19 on page 2-51 for a list of the options.) The data set summary view will include *only uncataloged* data sets.

For example, select **by HLQ & Group/Pool** to display a list of uncataloged data sets filtered by high-level qualifier *and* group or pool name. The HLQ name and the group/pool name are listed in the **Resource Name** column, and HLQ/Pool is shown in the **Resource Type** column. The view shows the total number of uncataloged data sets with each HLQ within each group/pool, the number of uncataloged data sets in each size range, as well as other data set information.

Data Set Size VSAM

Choose **Data Set Size VSAM** to open the Data Set Size VSAM pop-up menu. From the pop-up menu, select the resource type by which you want to filter data sets to advance to DSSRSZV. (See Table 2-19 on page 2-51 for a list of the options.) The data set summary view will include *only VSAM* data sets.

For example, select **by Application** to display a list of VSAM data sets filtered by the applications (accounts) defined at your site. The application name is listed in the **Resource Name** column, and Appl is shown in the **Resource Type** column. The view shows the total number of VSAM data sets in each application, the number of VSAM data sets in each size range, as well as other data set information.

Data Set Percent Used

Use the Data Set Percent Used options to generate data set analysis reports based on the percentage of the data set that has been used. MAINVIEW SRM obtains the data for the reports from the master collection data set. Table 2-20 summarizes the data set percent used options from which you can choose.

Table 2-20 Data Set Percent Used

Menu Option^a	Pop-Up Menu Option and View Name	SETSRM Keywords^b
Percent Used Analysis	by HLQ (DSSRPU)	RESTYPE
	by Group/Pool (DSSRPU)	RESTYPE
	by Application (DSSRPU)	RESTYPE
	by SMS Management Class (DSSRPU)	RESTYPE
	by HLQ and Group/Pool (DSSRPU)	RESTYPE
	by Volume (DSSRPU)	RESTYPE
Percent Used Uncat	by HLQ (DSSRPUU)	RESTYPE
	by Group/Pool (DSSRPUU)	RESTYPE
	by Application (DSSRPUU)	RESTYPE
	by SMS Management Class (DSSRPUU)	RESTYPE
	by HLQ and Group/Pool (DSSRPUU)	RESTYPE
	by Volume (DSSRPUU)	RESTYPE
Percent Used VSAM	by HLQ (DSSRPUV)	RESTYPE
	by Group/Pool (DSSRPUV)	RESTYPE
	by Application (DSSRPUV)	RESTYPE
	by SMS Management Class (DSSRPUV)	RESTYPE
	by HLQ and Group/Pool (DSSRPUV)	RESTYPE
	by Volume (DSSRPUV)	RESTYPE
^a Action line commands, the TIME command, and EZCmd menus are not available for the Data Set Summary views.		
^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."		

Percent Used Analysis

Choose **Percent Used Analysis** to open the Percent Used Analysis pop-up menu. From the pop-up menu, select the resource type by which you want to filter data sets to advance to DSSRPU. (See Table 2-20 for a list of the options.) The data set summary view will include *all* data sets.

For example, select **by HLQ** to display a list of all data sets filtered by the high-level qualifier. The HLQ is listed in the **Resource Name** column, and HLQ is shown in the **Resource Type** column. The view shows the total number of data sets with each HLQ, the number of data sets in each percent-used range, as well as other data set information.

Percent Used Uncat

Choose **Percent Used Uncat** to open the Percent Used Uncataloged pop-up menu. From the pop-up menu, select the resource type by which you want to filter data sets to advance to DSSRPUU. (See Table 2-20 on page 2-53 for a list of the options.) The data set summary view will include *only uncataloged* data sets.

For example, select **by Volume** to display a list of uncataloged data sets filtered by the volume on which they are stored. The volume name is listed in the **Resource Name** column, and Volume is shown in the **Resource Type** column. The view shows the total number of uncataloged data sets on each volume, the number of uncataloged data sets in each percent-used range, as well as other data set information.

Percent Used VSAM

Choose **Percent Used VSAM** to open the Percent Used VSAM pop-up menu. From the pop-up menu, select the resource type by which you want to filter data sets to advance to DSSRPUV. (See Table 2-20 on page 2-53 for a list of the options.) The data set summary view will include *only VSAM* data sets.

For example, select **by SMS Mgmt Class** to display a list of VSAM data sets filtered by SMS management class name. The SMS management class name is listed in the **Resource Name** column, and SMS mgmt class is shown in the **Resource Type** column. The view shows the total number of VSAM data sets in each management class, the number of VSAM data sets in percent-used age range, as well as other data set information.

Group and Pool Analysis

Using data gathered by the performance and space collectors, the Group and Pool Analysis reports provide you with space usage and performance information, such as the amount of free space or response times, for the storage groups and pools in your enterprise. You can drill down to a specific volume in the group/pool and use the EZPOOL EZCmd menu options to get historical performance and utilization information or real-time data on that storage group or pool.

Using the information in the reports, you can anticipate and prevent out-of-space conditions or correct problems that cause slow response times. You can also view summary reports on the data sets within storage groups and pools based on properties such as data set size and age.

For historical data options, the snapshot time is determined from the settings of the **TIME** command. If you do not use the **TIME** command, then MAINVIEW SRM displays the most current snapshot. For information about using the **TIME** command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

For more information about MAINVIEW SRM data collectors, see the *MAINVIEW SRM Reporting Reference Manual*.

When you select **Group and Pool Analysis** from the EZSRM menu, you advance to the Group and Pool Analysis EZCmd menu, which is divided into these subcategories:

- Performance (see “Performance” on page 2-55)
- Space Utilization (see “Space Utilization” on page 2-57)
- Configuration (see “Space Utilization” on page 2-57)
- Data Set Analysis (see “Data Set Analysis” on page 2-63)

Performance

The Performance options display resource performance information about a specified time period based on data gathered by the MAINVIEW SRM performance collector. MAINVIEW SRM automatically updates Performance views at user-defined intervals called snapshots. By using the **TIME** command, you can view trends in DASD usage over specified time periods.

Table 2-21 summarizes the options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Table 2-21 Performance Options

Menu Option and View Name^a	SETSRM Keywords^b	Action Line Commands^c	EZCmd Menu
Response Time (PRPOOLR)	DATE TIME GRPTYPE POOL TREND	See Table 2-1 on page 2-6.	EZPOOL
Most Active (PRPOOLA)	DATE TIME GRPTYPE POOL TREND	See Table 2-1 on page 2-6.	EZPOOL
Data Set Hits (PRPOOL)	DATE TIME GRPTYPE POOL TREND	See Table 2-1 on page 2-6.	EZPOOL

^a With all Performance views, you can use the TIME command to set date and time ranges for the reporting period. For information about using the TIME command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."

^c Press F1 in the CMD column to display online Help that describes each action line command.

Note: For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

MAINVIEW SRM retrieves start and end dates and times from the parameters that you specified in the MAINVIEW TIME command. The following guidelines apply to the TIME command:

- MAINVIEW SRM uses the end date and time for the interval date and time when you specify those parameters as *.
- If you provide hexadecimal zero start and end dates and times, then MAINVIEW SRM returns all system summary records.

For more information about the TIME command, see the manual entitled *Using MAINVIEW*.

Response Time

Choose the **Response Time** option to advance to PRPOOLR. This view displays average response-time statistics for the storage groups and pools that are defined in your system.

Most Active

Choose the **Most Active** option to advance to PRPOOLA. This view displays the most active storage groups and pools that are defined in your system.

Data Set Hits

Choose the **Data Set Hits** option to advance to PRPOOL. This view displays the storage groups and pools that are defined in your system according to the number of data sets that were modified during the performance collector's collection interval.

Space Utilization

The Space Utilization menu options provide historical information about how the DASD in your storage groups and pools is being used and who is using it. You can use this information to make decisions about adding DASD to your storage groups and pools or reallocating space.

Using the TIME command, you can view trends in DASD usage over specified time periods. Table 2-22 summarizes the options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Table 2-22 Space Utilization Options

Menu Option and View Name^a	SETSRM Keywords^b	Action Line Commands^c	EZCmd Menu
Percent Full (SPPOOL)	DATE TIME GRPTYPE POOL TREND	See Table 2-1 on page 2-6.	EZPOOL
Free Space (SPGPFS)	DATE TIME GRPTYPE POOL TREND	See Table 2-1 on page 2-6.	EZPOOL
Total Space (SPGPTS)	DATE TIME GRPTYPE POOL TREND	See Table 2-1 on page 2-6.	EZPOOL
Used Space (SPGPUS)	DATE TIME GRPTYPE POOL TREND	See Table 2-1 on page 2-6.	EZPOOL
Idle Space (SPGPIS)	DATE TIME GRPTYPE POOL TREND	See Table 2-1 on page 2-6.	EZPOOL
by DSORG >PO Space (SPGPP0) >PS Space (SPGPPS) >VSAM Space (SPGPVS)	DATE TIME GRPTYPE POOL TREND	See Table 2-1 on page 2-6.	EZPOOL
by SMS Status >Enabled (SPGPEN) >Quiesced New (SPGPQN) >Quiesced All (SPGPQA) >Disabled New (SPGPDN) >Disabled All (SPGPDA)	DATE TIME GRPTYPE POOL TREND	See Table 2-1 on page 2-6.	EZPOOL
<p>^a With all Space Utilization views, you can use the TIME command to set date and time ranges for the reporting period. For information about using the TIME command, see the manual <i>Using MAINVIEW</i>, or type Help TIME on the command line to access online Help.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>			

Note: For an explanation of any field or column on a view, place your

cursor over the field or in the column and press **F1** to access online Help.

MAINVIEW SRM retrieves start and end dates and times from the parameters you specified in the MAINVIEW TIME command. Note the following information about the TIME command. For more information about the TIME command, see the manual entitled *Using MAINVIEW*.

- MAINVIEW SRM uses the end date and time for the interval date and time when you specify those parameters as *.
- If you provide hexadecimal zero start and end dates and times, then MAINVIEW SRM returns all system summary records.

Percent Full

Choose the **Percent Full** option to advance to SPPOOL. This view displays pools ranked by the percentage of allocated space that is used.

Free Space

Choose the **Free Space** option to advance to SPGPFS. This view displays pools ranked by the total amount of unused space.

Total Space

Choose the **Total Space** option to advance to SPGPTS. This view displays pools ranked by the total amount of permanent, temporary, and VSAM space allocated by the account. Total Space does *not* include HSM space.

Used Space

Choose the **Used Space** option to advance to SPGPUS. This view displays pools ranked by the total amount of space that is used.

Idle Space

Choose the **Idle Space** option to advance to SPGPIS. This view displays pools ranked by the amount of unused space in the data sets stored in the pools.

by DSORG

Choose the **by DSORG** option to open a pop-up menu with the following options from which you can choose:

- **PO Space** to advance to SPGPPO, which displays pools ranked by the amount of total space that is occupied by partitioned data sets.
- **PS Space** to advance to SPGPPS, which displays pools ranked by the amount of total space that is occupied by sequential data sets.
- **VSAM Space** to advance to SPSGVS, which displays pools ranked by the amount of total space that is occupied by VSAM data sets.

by SMS Status

SMS status defines the relationship between the storage group and the DASD volume. Choose the **SMS Status** option to open a pop-up menu with the following options from which you can choose:

- **Enabled** to advance to SPGPEN, which displays for each pool the SMS total enabled space, volumes, data sets, and the smallest data set on an SMS-enabled volume.
- **Quiesced New** to advance to SPGPQN, which displays for each pool the total space used by data sets on volumes with the SMS status “quiesced new.” An SMS-status of *quiesced new* prevents the scheduling of *new* jobs that allocate or access data sets in that pool or on that volume.
- **Quiesced All** to advance to SPGPQA, which for each pool displays the total space used by data sets on volumes with the SMS status “quiesced all.” An SMS-status of *quiesced all* prevents the scheduling of *all* jobs that allocate or access data sets in that storage group or on that volume.
- **Disabled New** to advance to SPGPDN, which for each pool displays the total space used by data sets on volumes with the SMS status *disabled new*. An SMS-status of *disabled new* prevents the allocation of *new* data sets in the storage group or on the volume.
- **Disabled All** to advance to SPGPDA, which for each pool displays the volumes whose SMS status prevents the allocation of or access to data sets in the storage group or on the volume.

Configuration

The Configuration menu options provide you with access to high-level information about all of the storage groups and pools defined in your System Managed Storage (SMS) environment and non-DASD pools. From the high-level view, you can choose a specific resource and access more detailed information about it.

Table 2-23 summarizes the options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Table 2-23 Configuration Options

Menu Option and View Name ^{a, b}	Action Line Commands ^c	EZCmd Menu
Group/Pool List (GPCNFG)	See Table 2-1 on page 2-6.	EZPOOL
Groups/Pools by Size (GPCNFG)	See Table 2-1 on page 2-6.	EZPOOL
Active SMPOOL Member (ADMEMA)	<ul style="list-style-type: none"> • R Refresh • E Edit • B Browse • D Display • N Create • / Display contents of storage 	ADMEMZ
Non-DASD Pools (MPOOL)	D Display	EZPOOL
<p>^a With all Configuration views, you can use the TIME command to set date and time ranges for the reporting period.</p> <p>^b No SETSRM keywords exist for these views.</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>		

Note: For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

MAINVIEW SRM Reporting collects information on the following types of storage devices:

- pools: DASD pools that were created in the MAINVIEW SRM SMPOOL_{xx} member.
- subpools: SMS subpools that were created in the MAINVIEW SRM SMSPOL_{xx} member.
- storgrps: SMS storage groups that were created using SMS definitions.

Group/Pool List

Choose the **Group/Pool List** option to advance to GPCNFG. This view provides you with real-time configuration information about all storage groups, subpools, and DASD pools in your enterprise. GPCNFG summarizes for each storage group and pool information such as the number of volumes, number of offline volumes, volume counts by SMS status, and so on. Table 2-1 on page 2-6 summarizes the views that you can access by issuing action line commands on the GPCNFG view.

Note: The **Vols Dropped** column indicates the number of volumes that have been dropped from the pool or subpool report information. The MAINVIEW SRM Reporting component supports a volume being defined in up to eight pools and subpools combined. Configuration information is not correct for pools and subpools that have volumes dropped.

The MAINVIEW SRM Allocation component supports a volume being defined in an infinite number of pools and subpools; therefore, it is not affected by the **Vols Dropped** count.

Groups/Pools by Size

Choose the **Groups/Pools by Size** option to advance to GPCNFG. This view provides you with real-time configuration information about all storage groups, subpools, and DASD pools in your enterprise. GPCNFG summarizes for each storage group and pool information such as the number of volumes, number of offline volumes, volume counts by SMS status, and so on. Table 2-1 on page 2-6 summarizes the views that you can access by issuing action line commands on the GPCNFG view.

Note: The **Vols Dropped** column indicates the number of volumes that have been dropped from the pool or subpool report information. The MAINVIEW SRM Reporting component supports a volume being defined in up to eight pools and subpools combined. Configuration information is not correct for pools and subpools that have volumes dropped.

The MAINVIEW SRM Allocation component supports a volume being defined in an infinite number of pools and subpools; therefore, it is not affected by the **Vols Dropped** count.

Active SMPOOL Member

Choose the **Active SMPOOL Member** option to advance to ADMEMA. This view identifies the active SMPOOL member in the PARMLIB partitioned data set and enables you to change the active member.

Non-DASD Pools

Choose the **Non-DASD Pools** option to advance to MPOOL. This view displays information about all of the non-DASD pools defined in your system. Use action line commands to access a pool definition and a detailed view for a specific pool.

Data Set Analysis

Use the Data Set Analysis menu options to access summary information about the data sets on the volumes in your storage groups and pools. These options are a storage group and pool subset of the summary options described in “Data Set Management” on page 2-43.

Table 2-24 Data Set Analysis Options

Menu Option and View Name ^a	SETSRM Keywords ^b
Size Summary (DSSRSZ)	RESTYPE
Size Summary Uncat (DSSRSZU)	RESTYPE
Size Summary VSAM (DSSRSZV)	RESTYPE
Age Summary (DSSRAD)	RESTYPE
Age Summary Uncat (DSSRADU)	RESTYPE
Age Summary VSAM (DSSRADV)	RESTYPE
Percent Used Summary (DSSRPU)	RESTYPE
Percent Used Uncat (DSSRPUU)	RESTYPE
Percent Used VSAM (DSSRPUV)	RESTYPE

^a Action line commands, the TIME command, and EZCmd menus are not available for the Data Set Analysis views.

^b For complete keyword descriptions for the SETSRM command, see Appendix A, “SETSRM Command.”

Note: For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

MAINVIEW SRM obtains the data for the data set summary reports from the master collection data set. You can filter the data sets shown on the report by using the following values for the RESTYPE parameter with the SETSRM command:

- (H) filters by high-level qualifier
- (G) filters by storage group and pool
- (A) filters by application
- (M) filters by SMS Management class
- (I) filters by high-level qualifier and storage group and pool

For example, to filter the report by storage groups and pools you would issue the following command:

```
SETSRM RESTYPE ( G )
```

Size Summary

Choose the **Size Summary** option to advance to DSSRSZ. This view displays a summary report showing the distribution of all data sets on storage groups and pools based on their size.

Size Summary Uncat

Choose the **Size Summary Uncat** option to advance to DSSRSZU. This view displays a summary report showing the distribution of uncataloged data sets on storage groups and pools based on their size.

Size Summary VSAM

Choose the **Size Summary VSAM** option to advance to DSSRSZV. This view displays a summary report showing the distribution of VSAM data sets on storage groups and pools based on their size.

Age Summary

Choose the **Age Summary** option to advance to DSSRAD. This view displays a summary report showing the distribution of all data sets on storage groups and pools based on their age.

Age Summary Uncat

Choose the **Age Summary Uncat** option to advance to DSSRADU. This view displays a summary report showing the distribution of uncataloged data sets on storage groups and pools based on their age.

Age Summary VSAM

Choose the **Age Summary VSAM** option to advance to DSSRADV. This view displays a summary report showing the distribution of VSAM data sets on storage groups and pools based on their age.

Percent Used Summary

Choose the **Percent Used Summary** option to advance to DSSRPU. This view displays a summary report showing the distribution of all data sets on storage groups and pools based on the percentage of allocated space that is used.

Percent Used Uncat

Choose the **Percent Used Uncat** option to advance to DSSRPUU. This view displays a summary report showing the distribution of uncataloged data sets on storage groups and pools based on the percentage of allocated space that is used.

Percent Used VSAM

Choose the **Percent Used VSAM** option to advance to DSSRPUV. This view displays a summary report showing the distribution of VSAM data sets on storage groups and pools based on the percentage of allocated space that is used.

Volume Analysis

Using data gathered by the performance and space collectors, the Volume Analysis reports provide you with space usage and performance information for the volumes in your enterprise, such as the amount of free space or fragmentation. You can drill down to a specific volume in a group/pool and use the EZVOL EZCmd menu options to get historical performance and utilization information or real-time data on that volume. Use the information in the reports to locate volumes and manage the space allocated to them.

You set the reporting time period by using the **TIME** command. For information about using the **TIME** command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help. For more information about MAINVIEW SRM data collectors, see the *MAINVIEW SRM Reporting Reference Manual*.

When you select **Volume Analysis** from the EZSRM menu, you advance to the Volume Analysis menu, which is divided into these subcategories:

- Volume Space (see “Volume Space”)
- Volume Performance (see “Volume Performance” on page 2-71)
- Data Set Analysis (see “Data Set Analysis” on page 2-74)

Volume Space

The Volume Space menu options provide historical information about how the volumes in your enterprise are being used and who is using them. You can use this information to make decisions about adding additional volumes or reallocating volumes. Using the **TIME** command, you can view trends in volume usage over specified time periods.

Table 2-25 summarizes the options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Table 2-25 Volume Space (Part 1 of 3)

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu
Volume Configuration (VOLCNFG)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
Percent Used (SPVOLPU)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
Free Space (SPVOLFS)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
Free Extents (SPVOLFE)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
Largest Free Extent (VSPVOLLE)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL

^a With all Volume Space views, you can use the TIME command to set date and time ranges for the reporting period.

^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."

^c Press F1 in the CMD column to display online Help that describes each action line command.

Table 2-25 Volume Space (Part 2 of 3)

Menu Option and View Name^a	SETSRM Keywords^b	Action Line Commands^c	EZCmd Menu
Idle Space (SPVOLIS)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
Space by DSORG >PO Space (SPVOLPO) >PS Space (SPVOLPS) >VSAM Space (SPVOLVS)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
Fragmentation (SPVOLFR)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
VIR Percent Full (SPVOLVI)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
VVDS Percent Full (SPVOLVV)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
<p>^a With all Volume Space views, you can use the TIME command to set date and time ranges for the reporting period.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>			

Table 2-25 Volume Space (Part 3 of 3)

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu
Disabled VTOC Index (SPVOLDV)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
Free DSCB (SPVOLFD)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
RVA Volumes Shared/Unique (SPVOLRVA)	DATE TIME GROUP TYPE POOL SUBPOOL STORGRP	See Table 2-5 on page 2-11.	EZVOL
<p>^a With all Volume Space views, you can use the TIME command to set date and time ranges for the reporting period.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>			

For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

MAINVIEW SRM retrieves start and end dates and times from the parameters in the MAINVIEW TIME command. If you have not set the TIME command, the default time range is 7 days (168 hours) before the current date and time to the current date and time.

Volume Configuration

Choose the **Volume Configuration** option to advance to VOLCNFG. This view displays real-time configuration information about all of the volumes in your enterprise. Volumes included on this view must be represented by a channel-connected UCB on the system where the SVOS PAS resides.

Table 2-5 summarizes the views that you can access by issuing action line commands on this volume configuration view.

Tip: You can access the same views by choosing options from the Volume EZMenu (EZVOL). Place your cursor on a volser and press **Enter** to advance to EZVOL.

Percent Used

Choose the **Percent Used** option to advance to SPVOLPU. This view displays volumes ranked by the total percentage of space that is used.

Free Space

Choose the **Free Space** option to advance to SPVOLFS. This view displays volumes ranked by the total amount of unused space.

Free Extents

Choose the **Free Extents** option to advance to SPVOLFE. This view displays volumes ranked by the free extents on the volume.

Largest Free Extent

Choose the **Largest Free Extent** option to advance to SPVOLLE. This view displays volumes ranked by the largest free extent on the volume.

Idle Space

Choose the **Idle Space** option to advance to SPVOLIS. This view displays volumes ranked by the amount of unused space in the data sets on the volume.

Space by DSORG

Choose the **Space by DSORG** option to open a pop-up menu with the following options from which you can choose:

- **PO Space** to advance to SPVOLPO. This view displays volumes ranked by the amount of total space that is occupied by partitioned data sets.
- **PS Space** to advance to SPVOLPS. This view displays volumes ranked by the amount of total space that is occupied by sequential data sets.
- **VSAM Space** to advance to SPVOLVS. This view displays volumes ranked by the amount of total space that is occupied by VSAM data sets.

Fragmentation

Choose the **Fragmentation** option to advance to SPVOLFR. This view displays volumes ranked by the fragmentation index for the volume.

VIR Percent Full

Choose the **VIR Percent Full** option to advance to SPVOLVI. This view displays volumes ranked by the percentage of the index VTOC that is used.

VVDS Percent Full

Choose the **VVDS Percent Full** option to advance to SPVOLVV. This view displays volumes ranked by the percentage of the VSAM volume data set that is used.

Disabled VTOC Index

Choose the **Disabled VTOC Index** option to advance to SPVOLDV. This view displays volumes on which the indexed VTOCs were not active (I or N) at the time the snapshot was taken.

Free DSCB

Choose the **Free DSCB** option to advance to SPVOLFD. This view displays the number of free (Format 0) DSCBs on the volume at the time the snapshot was taken.

RVA Vols Shared/Unique

Choose the **RVA Vols Shared/Unique** option to advance to SPVOLRVA. This view displays space usage information about volumes residing on RVA devices. Information on back-end storage usage is given.

Volume Performance

The MAINVIEW SRM performance collector automatically updates the data used by the Volume Performance views at user-defined intervals called snapshots. The views provide information about volume response time and activity for the snapshot.

To access performance information about volumes, you first select a type of information, such as response time. From the generated report, you can choose a volume to advance to the PRVOL EZcmd Menu. Use the PRVOL menu options to get specific information about the volume you selected.

Table 2-26 summarizes the options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Table 2-26 Volume Performance Options (Part 1 of 2)

Menu Option and View Name^a	SETSRM Keywords^b	Action Line Commands^c	EZCmd Menu
Response Time (PRVOLRT)	DATE TIME GRPTYPE CCU CHP DSN LCU POOL DIR VOL TREND	<ul style="list-style-type: none"> • D Details • L Logical Control Unit • CP Channel Path • DS Data Set • PV RAID Physical Volume • RF RVA SubSystem Frame • RR RAID Rank • H History • I Daily Summary • W Weekly Summary • M Monthly Summary 	PRVOL
<p>^a With all Volume Space views, you can use the TIME command to set date and time ranges for the reporting period.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>			

Table 2-26 Volume Performance Options (Part 2 of 2)

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu
Activity (PRVOLMA)	DATE TIME TREND GRPTYPE CCU CHP DSN LCU POOL DIR VOL	<ul style="list-style-type: none"> • D Details • L Logical Control Unit • CP Channel Path • DS Data Set • PV RAID Physical Volume • RF RVA SubSystem Frame • RR RAID Rank • H History • I Daily Summary • W Weekly Summary • M Monthly Summary 	PRVOL
PAV Volumes (PRVOL)	DATE TIME GRPTYPE CCU CHP DSN LCU POOL DIR VOL TREND	See Table 2-5 on page 2-11.	EZVOL
<p>^a With all Volume Space views, you can use the TIME command to set date and time ranges for the reporting period.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each action line command.</p>			

Note: For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

MAINVIEW SRM retrieves start and end dates and times from the parameters in the MAIVIEW TIME command. If you have not set the TIME command, the default time range is 7 days (168 hours) before the current date and time to the current date and time. The following guidelines apply to the TIME command:

- MAINVIEW SRM uses the end date and time for the interval date and time when you specify those parameters as *.
- If you provide hexadecimal zero start and end dates and times, then MAINVIEW SRM returns all system summary records.

For more information about the TIME command, see the *Using MAINVIEW* manual.

Response Time

Choose the **Response Time** option to advance to PRVOLRT. This view displays average response-time statistics for the volumes in your system, including queue time, busy time, and disconnect time.

Activity

Choose the **Activity** option to advance to PRVOLMA. This view displays device addresses and the average volume response times, queue times, connect times, and identification information about the volumes in your system.

PAV Volumes

Choose the **PAV Volumes** option to advance to PRVOL. This view displays average response-time statistics for the PAV volumes in your system, including queue time, busy time, and the number of alias UCBs that are assigned to the volume.

Data Set Analysis

Use the Data Set Analysis menu options to access summary information about the data sets on the volumes in your enterprise. These options are a volume subset of the summary options described in “Data Set Management” on page 2-43.

Table 2-27 Data Set Analysis Options (Part 1 of 2)

Menu Option and View Name^a	SETSRM Keywords^b
Size Summary (DSSRSZ)	RESTYPE
Size Summary Uncat (DSSRSZU)	RESTYPE
Size Summary VSAM (DSSRSZV)	RESTYPE
Age Summary (DSSRAD)	RESTYPE
Age Summary Uncat (DSSRADU)	RESTYPE
Age Summary VSAM (DSSRADV)	RESTYPE
Percent Used Summary (DSSRPU)	RESTYPE
^a Action line commands, the TIME command, and EZCmd menus are not available for the Data Set Analysis views. ^b For complete keyword descriptions for the SETSRM command, see Appendix A, “SETSRM Command.”	

Table 2-27 Data Set Analysis Options (Part 2 of 2)

Menu Option and View Name ^a	SETSRM Keywords ^b
Percent Used Uncat (DSSRPUJ)	RESTYPE
Percent Used VSAM (DSSRPUV)	RESTYPE
^a Action line commands, the TIME command, and EZCmd menus are not available for the Data Set Analysis views. ^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."	

Note: For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

MAINVIEW SRM obtains the data for the data set summary reports from the master collection data set. You can filter the data sets shown on the report by using the following values for the RESTYPE parameter with the SETSRM command:

- (H) filters by high-level qualifier
- (G) filters by storage group and pool
- (A) filters by application
- (M) filters by SMS Management class
- (I) filters by high-level qualifier and storage group and pool

For example, to filter the report by high-level qualifier you would issue the following command:

```
SETSRM RESTYPE ( H )
```

Size Summary

Choose the **Size Summary** option to advance to DSSRSZ. This view displays a summary report showing the distribution of all data sets on volumes based on their size.

Size Summary Uncat

Choose the **Size Summary Uncat** option to advance to DSSRSZU. This view displays a summary report showing the distribution of uncataloged data sets on volumes based on their size.

Size Summary VSAM

Choose the **Size Summary VSAM** option to advance to DSSRSZV. This view displays a summary report showing the distribution of VSAM data sets on volumes based on their size.

Age Summary

Choose the **Age Summary** option to advance to DSSRAD. This view displays a summary report showing the distribution of all data sets on volumes based on their age.

Age Summary Uncat

Choose the **Age Summary Uncat** option to advance to DSSRADU. This view displays a summary report showing the distribution of uncataloged data sets on volumes based on their age.

Age Summary VSAM

Choose the **Age Summary VSAM** option to advance to DSSRADV. This view displays a summary report showing the distribution of VSAM data sets on volumes based on their age.

Percent Used Summary

Choose the **Percent Used Summary** option to advance to DSSRPU. This view displays a summary report showing the distribution of all data sets on volumes based on the percentage of allocated space that is used.

Percent Used Uncat

Choose the **Percent Used Uncat** option to advance to DSSRPUU. This view displays a summary report showing the distribution of uncataloged data sets on volumes based on the percentage of allocated space that is used.

Percent Used VSAM

Choose the **Percent Used VSAM** option to advance to DSSRPUV. This view displays a summary report showing the distribution of VSAM data sets on volumes based on the percentage of allocated space that is used.

Chapter 3 Managing Applications

This chapter presents the following topics:

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Overview

The application collector is a data-collection feature of MAINVIEW SRM Reporting. It provides real-time monitoring, budgeting, and control of DASD space utilization. The collected application data enables the storage administrator to tie individual data sets to applications and to observe and control how space is being used by department, project, programmer, and so on within the organization. The application collector, in conjunction with the space collector, provides historical space information for applications. For information about additional reports that you can generate by using COBOL report programs, see the *MAINVIEW SRM Reporting Reference Manual*.

To access the Application menu, select **Application Management** from the Administration section of the EZSRM menu. The Application menu (view EZSRMSGC) provides two sets of options, Application Management (see Table 3-1) and SRM Administration (see the *MAINVIEW SRM User Guide and Reference* for information about SRM Administration).

Table 3-1 Application Management Options

Menu Option and View Name	Description
Appl Maintenance (APPLDET)	enables you to add new applications, change existing applications, and mark <i>individual</i> applications for deletion
Appl Mass Update (APPLGRPD)	enables you to change multiple applications
Appl List (APPLTAB, APPLDTL)	enables you to review application codes and format and sort allocation information
Data Set Information (APPLDSNT, ACCTDET)	enables you to query applications by data set name

Maintaining Individual Applications

Use the Application Maintenance options to add new applications and change individual applications or mark them for deletion. Your changes affect only fields in which you type data. Using the Application Menu options, you can build and execute the TSO BUDGET command.

To maintain individual applications, follow these steps:

- Step 1** From the Application Menu, select **Appl Maintenance** to advance to view APPLDET.
- Step 2** Complete the data entry fields as follows:
- A. **Action:** Type **A** (add) or **C** (change).
 - B. **Application Name:** Type a new (for add) or existing (for change) application name.
 - C. **Model Application:** Type the application code of an existing application that you want to use as a model for a new application.
- Step 3** To process the request, type **S** in the field at the top of the view.
- You advance to the APPLTAB view or the APPLDTL view.
- Step 4** Replace the data shown on the panel with the new or updated information for your application.
- Step 5** Table 3-3 describes each data entry field.
- Step 6** To create a new application or change an existing one, type one of the following codes in the field at the top of the panel and then press **Enter**.
- **A** to add a new application to the database.
 - **U** to update an existing application.

Table 3-2 Application Maintenance Fields (Part 1 of 3)

Field	Explanation
Application Name	The full application name in database. <i>Do not use</i> the following characters in an application name: <ul style="list-style-type: none"> • () / \ [] & < > and imbedded spaces
User Name	You can define a name that is up to 20 characters long. The name may contain blanks, as well as upper and lowercase letters. To update the applications by clearing the user name, enter the literal <i>BLANK</i> or <i>blank</i> in the user name field. Following are valid entries: <ul style="list-style-type: none"> • User Name.... Data Center • User Name.... blank
Permanent Budget	Contains the maximum amount of space allowed for permanent data sets assigned to this application code. The maximum budget supported is 86 exabytes. To update this field, enter up to 9 characters, such as: <ul style="list-style-type: none"> • Permanent Budget.. 2.5m • Permanent Budget.. 4096 • Permanent Budget.. 6G
Permanent Allocated	Contains the total amount of space allocated on DASD for permanent data sets assigned to this application code.
Permanent H-W-M	Contains the largest amount of space used or reserved for permanent data sets assigned to this application code since the high-water marks were last reset.
Temporary Budget	Contains the maximum amount of space allowed for temporary data sets assigned to this application code. The maximum budget supported is 86 exabytes. To update this field, enter up to 9 characters, such as: <ul style="list-style-type: none"> • Permanent Budget.. 2.5m • Permanent Budget.. 4096 • Permanent Budget.. 6G
Temporary Allocated	Contains the total amount of space allocated on DASD for temporary data sets assigned to this application code.
Temporary H-W-M	Contains the largest amount of space used or reserved for temporary data sets assigned to this application code since the high-water marks were last reset.
VSAM Budget	Contains the maximum amount of space allowed for VSAM data sets assigned to this application code. The maximum budget supported is 86 exabytes. To update this field, enter up to 9 characters, such as: <ul style="list-style-type: none"> • Permanent Budget.. 2.5m • Permanent Budget.. 4096 • Permanent Budget.. 6G
VSAM Allocated	Contains the total amount of space allocated on DASD for VSAM data sets assigned to this application code.
VSAM H-W-M	Contains the largest amount of space used or reserved for VSAM data sets assigned to this application code since the high-water marks were last reset.
HSM Allocated	Contains the total amount of space allocated on DASD for HSM data sets assigned to this application code.
HSM H-W-M	Contains the largest amount of space used or reserved for HSM data sets assigned to this application code since the high-water marks were last reset.
Create Date	Contains the date that the application was created.

Table 3-2 Application Maintenance Fields (Part 2 of 3)

Field	Explanation
LastUsed Date	Contains the date that the application was used.
Application Status	Indicates the status of the current application. The application status types are: <ul style="list-style-type: none"> • MDEL—Application has been manually flagged for deletion. The next time that the database is copied, this application will be deleted. • DEL—Application has been automatically flagged for deletion. This application was created, but never updated. Since no activity has taken place in the application, it will be deleted the next time the database is copied. • ACTV—Application is active.
User Field1	You can define this field using up to 8 characters. The field may contain blanks, as well as upper and lowercase letters. To update the applications by clearing the user name, enter the literal <i>BLANK</i> or <i>blank</i> in the user name. Following are valid entries: <ul style="list-style-type: none"> • User Field1.. Day crew • User Field1..blank
User Field2	See User Field1. You can define this field using up to 10 characters.
User Field3	See User Field1. You can define this field using up to 10 characters.
Track Temporary	Type Y to set the flag indicating that temporary space is to be tracked. Type N to remove the flag.
Track VSAM	Type Y to set the flag indicating that VSAM space is to be tracked. Type N to remove the flag.
Track HSM	Type Y to set the flag indicating that HSM space is to be tracked. Type N to remove the flag.
Add Temporary	Type Y if temporary space is to be accounted for as part of the permanent space budget. Type N if temporary space is not to be accounted for as part of the permanent space budget. Unless N has been specified for Track Temporary, entering an N will cause temporary space to be tracked separately.
Add VSAM	Type N to remove the flag. if VSAM space is to be accounted for as part of the permanent space budget. Type N if VSAM space is not to be accounted for as part of the permanent space budget. Unless N has been specified for Track VSAM, typing an N will cause VSAM space to be tracked separately.
Add HSM	Type Y if HSM space is to be accounted for as part of the permanent space budget. Type N if HSM space is not to be accounted for as part of the permanent space budget. Unless N has been specified for Track HSM, typing an N will cause HSM space to be tracked separately.
Reset H-W-M	Type Y to cause all high-water marks to be reset to current allocation amounts. This function is relevant to CHANGE only.
Mark Delete	Type Y to cause the application to be deleted the next time the database is copied. Type N to reset the flag.

Table 3-2 Application Maintenance Fields (Part 3 of 3)

Field	Explanation
Application Mode	Indicates how you want allocations treated for this application. The modes are: <ul style="list-style-type: none"> • Monitor—tracks space allocations and deallocations as they occur, allowing up-to-the-minute analysis of DASD space usage • Warning—generates a message if the current allocation exceeds the budget amount • Reject—rejects the allocation if the current allocation exceeds the budget amount • Default—sets the application mode back to the default value
Warning threshold	The percentage of the budget that can be used by this application before a warning message is issued. This field can have any value up to 100, such as: <ul style="list-style-type: none"> • Warning Threshold. 75 • Warning Threshold. 100
Volume Count	Contains the number of volumes that contain at least one data set that is included in the allocation amounts for this application.

Note: Budgets are used by views as the basis for percentage-usage calculations for graphic and tabular displays. BMC Software recommends that you specify a budget for all applications that are running in monitor mode.

Maintaining Multiple Applications

The Appl Mass Update menu option enables you to apply updates to many applications at one time. The update process does not affect fields that you leave blank. For example, if you want to update only the permanent space budget and the temporary space budget, you enter the new values in these two fields and leave all other fields blank. When you apply the updates to the selected applications on the next panel (APPLMUP), only the values in the permanent budget and the temporary budget will be changed.

Perform the following steps to process group maintenance or mass updates:

- Step 1** From the Application Menu (EZSRMSGC), select **Appl Mass Update** to advance to the Group Maintenance panel (APPLGRPD).
- Step 2** On the Group Maintenance panel, enter values for the fields that you want to update.

Table 3-3 on page 3-7 describes each data entry field.

- Step 3** Type N in the field at the top of the panel to advance to the APPLMUP view, the application mass update tabular view.

Step 4 On APPLMUP, update one or more applications with the values that you entered in Step 2, as follows:

- To update individual applications, type **U** in the command line to the left of the applications that you want to update.
- To update multiple applications with one command:
 - A. Use the **WHERE** command to filter the application list based on the values in any of the fields. For more information, see “WHERE Command.”
 - B. Type **UPDATE *** on the command line to update all applications displayed on the panel.

Step 5 Type **UPDATE** on the command line to process the changes.

Table 3-3 Group Maintenance Panel Fields (Part 1 of 3)

Field	Explanation
Application Mask	Application mask used to filter the list of applications against which the updates can be applied. Leave blank to display a complete list of applications. After the application list is displayed, you will have an opportunity to filter the applications based on the values in any of the fields in the applications. The following entries are valid: <ul style="list-style-type: none"> • Application Mask.. OP* • Application Mask..
User Name	You can define a name that is up to 20 characters long. The name may contain blanks, as well as upper and lowercase letters. To update the applications by clearing the user name, enter the literal <i>BLANK</i> or <i>blank</i> in the user name. The following entries are valid: <ul style="list-style-type: none"> • User Name.... Data Center • User Name.... blank
User Data 1	You can define this field using up to 10 characters. The field may contain blanks, as well as upper and lowercase letters. To update the applications by clearing the user name to spaces, enter the literal <i>BLANK</i> or <i>blank</i> in the user name. The following are valid entries: <ul style="list-style-type: none"> • User Field1.. Day crew • User Field1..blank
User Data 2	See User Data 1.
User Data 3	See User Data 1.
Permanent Budget	Enter the maximum amount of space allowed for permanent data sets assigned to this application code. The maximum budget supported is 86 exabytes. Budgets can be entered using up to 9 characters. For example: <ul style="list-style-type: none"> • Permanent Budget.. 2.5m • Permanent Budget.. 4096 • Permanent Budget.. 6G

Table 3-3 Group Maintenance Panel Fields (Part 2 of 3)

Field	Explanation
Temporary Budget	<p>Enter the maximum amount of space allowed for temporary data sets assigned to this application code. The amount may be expressed in one of the following units: M (megabytes), G (gigabytes), P (petabytes), T (terabytes) or E (exabytes). One kilobyte is 1024 bytes. The maximum budget supported is 86 exabytes. Budgets can be entered using up to 9 characters. For example:</p> <ul style="list-style-type: none"> • Temporary Budget.. 2.5m • Temporary Budget.. 4096 • Temporary Budget.. 6G
VSAM Budget	<p>Enter the maximum amount of space allowed for VSAM data sets assigned to this application code. The amount may be expressed in one of the following units: M (megabytes), G (gigabytes), P (petabytes), T (terabytes) or E (exabytes). One kilobyte is 1024 bytes. The maximum budget supported is 86 exabytes. Budgets can be entered using up to 9 characters. For example:</p> <ul style="list-style-type: none"> • VSAM Budget..... 2.5m • VSAM Budget..... 4096 • VSAM Budget..... 6G
Application Mode	<p>Indicate how you want allocations treated for this Application. The modes are:</p> <ul style="list-style-type: none"> • Monitor—tracks space allocations and deallocations as they occur, allowing up-to-the-minute analysis of DASD space usage • Warning—generates a message if the current allocation exceeds the budget amount • Reject—ejects the allocation if the current allocation exceeds the budget amount • Default—sets the application mode to the default value
Warning Threshold	<p>Specify the percentage (up to 100) of the budget that can be used by this application before a warning message is issued; for example:</p> <p>Warning Threshold. 75 Warning Threshold. 100</p>
Track Temporary	<p>Type Y to set the flag indicating that temporary space is to be tracked. Type N to remove the flag.</p>
Track VSAM	<p>Type Y to set the flag indicating that VSAM space is to be tracked. Type N to remove the flag.</p>
Track HSM	<p>Type Y to set the flag indicating that HSM space is to be tracked. Type N to remove the flag.</p>
Add Temporary	<p>Type Y if temporary space is to be accounted for as part of the permanent space budget. Type N if temporary space is not to be accounted for as part of the permanent space budget. Unless N has been specified for Track Temporary, entering an N will cause temporary space to be tracked separately.</p>
Add VSAM	<p>Type Y if VSAM space is to be accounted for as part of the permanent space budget. Type N if VSAM space is not to be accounted for as part of the permanent space budget. Unless N has been specified for Track VSAM, typing an N will cause VSAM space to be tracked separately.</p>
Add HSM	<p>Type Y if HSM space is to be accounted for as part of the permanent space budget. Type N if HSM space is not to be accounted for as part of the permanent space budget. Unless N has been specified for Track HSM, typing an N will cause HSM space to be tracked separately.</p>

Table 3-3 Group Maintenance Panel Fields (Part 3 of 3)

Field	Explanation
Reset H-W-M	Type Y to cause all high-water marks to be reset to current allocation amounts. This function is relevant only to CHANGE.
Mark for Deletion	Type Y to cause the application to be deleted the next time the database is copied. Type N to reset the flag.

Note: Budgets are used by views as the basis for percentage-usage calculations for graphic and tabular displays. BMC Software recommends that you specify a budget for all applications that are running in monitor mode.

WHERE Command

When you type the WHERE command on the command line, you access a pop-up panel on which you can specify conditions that filter data in a view without updating the data. The filter conditions are applied against the form and replace any existing filters. With the WHERE command, you can

- compare fields with values or with other fields
- use the symbols >, <, =, <=, and >=
- use AND, OR, IN and BETWEEN to combine conditions
- use asterisks and question marks in the mask

Note: Do not use special characters with WHERE conditions, such as a slash or a colon. Use a question mark to mask these characters as shown in the last example.

The following examples illustrate how to use the WHERE command:

- To define a filter condition that displays only the applications that begin with J or M, type the following WHERE filter condition:

```
(C06ACCT IN (j*,m*))
```

- To define a filter condition that displays only the values between 1024000 and 2048000 in the field with the element name of C06PERMM, type the following WHERE filter condition:

```
(C06PERMM BETWEEN 1024000 AND 2048000)
```

Note: All space amount fields must specify the number of bytes. Budget amounts should not use other units, such as kilobytes or megabytes.

- To define a filter condition that displays only the applications that begin with OP that have values between 100000 and 500000 in the field with an element name of C06TEMPP, type the following WHERE filter condition:

```
(C06ACCT = OP*) AND  
(C06TEMPM BETWEEN 100000 AND 500000)
```

- To define a filter condition that displays only the applications where the permanent high water mark is greater than the permanent space allocated, type the following WHERE filter condition:

```
(C06PERMH > C06PERMC)
```

- To define a filter condition that displays only the applications that were created in October 2002, type the following WHERE filter condition:

```
(C06CDATE = 2002?10*)
```

Viewing the Application List

Use the Application List to review application codes and to format and sort allocation information. You can select individual applications for review and, if necessary, update them from the Application List panel. MAINVIEW SRM extracts the information that is on the panel from the application database at the time that you select Appl List from the Application menu.

To view the applications in your application database, follow these steps:

Step 1 From the Application menu (EZSRMSGC), select **Appl List** to advance to the APPLTAB view.

Step 2 Perform either of the following actions to review application codes or to format and sort allocation information. Type all commands on the command line.

- To locate application codes, type **LOCATE** followed by a partial or complete application code.
- To sort allocation information that is displayed on the panel, type **SORT** with the operands shown in Table 3-4.

You can choose to have information sorted in ascending (A) or descending (D) order.

Note: You can use the SORT command to sort the application code and allocation information; however, the SORT command can sort only one field at a time.

Table 3-4 Valid Operands for the SORT Command

Operand	Result
ACCT	sort by application code
PERM	sort by current permanent allocation totals
TEMP	sort by current temporary allocation totals
VSAM	sort by current VSAM allocation totals
HSM	sort by current HSM allocation totals
HPERM	sort by the permanent allocation high-water marks
HTEMP	sort by the temporary allocation high-water marks
HVSAM	sort by the VSAM allocation high-water marks
HHSM	sort by the DFHSM allocation high-water marks
MPERM	sort by the permanent allocation budget
MTEMP	sort by the temporary allocation budget
MVSAM	sort by the VSAM allocation budget

Step 3 To return to the previous panel, either type **END** and press **Enter**, or press **F3**.

Selecting an Individual Application

From the APPLTAB view, you can select individual applications to review and update using the following steps:

- Step 1** In the APPLTAB view, place the cursor on the application name, and then press **Enter**.
- Step 2** Select **Detail View** and press **Enter** to display view APPLTAB showing detailed application information.
- Step 3** To refresh the APPLTAB panel with the most current application information, press **Enter**.

If an update is pending, the information is not refreshed.

- Step 4** To return to the previous panel, perform one of the following actions:

- To cancel an update and return to the previous panel, type **CANCEL** and press **Enter**.
- To return to the previous panel without canceling an update, type **END** and press **Enter**, or press **F3**.

Note: Budgets are used by views as the basis for percentage-usage calculations for graphic and tabular displays. BMC Software recommends that you specify a budget for all applications that are running in monitor mode.

Displaying Data Set Information

Use the data set information option to display the application codes that are associated with one or more data sets. This panel builds and executes the TSO BUDDSN command.

Step 1 From the Application Menu (EZSRMSGC), select **Data Set Information** to advance to the Data Set Information panel (ACCTDET).

Step 2 Enter your selection criteria as follows:

Table 3-5 Data Set Information Panel Fields

Field	Explanation
Data set name or pattern	Specify a fully qualified data set name or a pattern. Use a fully qualified name if a single data set is to be selected. Use a pattern to select multiple data sets. The pattern can consist of a partial data set name followed by an asterisk (*). Use a single asterisk to select all data sets on a volume.
Volume serial	Specify a volume serial number when you are selecting uncataloged data sets. You should also specify a volume serial number when you are selecting all data sets on a volume.

Step 3 To process your request, type **S** in the field at the top of the panel and press **Enter**.

Application information is displayed for the specified data set or for all applications that meet the selection criteria. For example:

- To select all data sets that begin with **WGPL**, type
APPLDSNT WGPL . * *
- To select all data sets on volume **WIDG01**, type
APPLDSNT * WIDG01

Step 4 To return to the previous panel, type **END** and press **Enter**, or press **F3**.

Chapter 4 Tape Reporting

This chapter presents the following topics:

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Library Aging	4-6
Library Contents	4-6
Library Media Sizing	4-6
Scratch Tape Location	4-7
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Using View Names to Navigate	4-9

Overview

The MAINVIEW SRM tape reporting feature derives and consolidates information from the following sources to assist in the prevention of errors related to tape:

- tape catalog
- virtual tape (IBM and StorageTek virtual library systems)
- existing tape management software (CONTROL-T, CA1, and RMM)
- automated tape library (ATL)

You identify your tape management system to MAINVIEW SRM and define other tape-related parameters in the SMMSYS $_{xx}$ parmlib member. For more information about defining the MAINVIEW SRM system, see the *MAINVIEW SRM User Guide and Reference*.

The tape reporting feature reports on both physical and virtual tape library systems. Using the reports, you can

- determine if the tape resource is being used efficiently
- manage the ATL and report on tape library usage
- view the performance and the utilization of the virtual tape system (VTS) and make improvements

The tape reporting feature can reduce operational expenses by helping you to better utilize existing resources. For example, capacity analysis can help you achieve workload balancing by deriving more benefit from fewer resources. Global auditing results in fewer tape-related errors and increased availability.

The tape reporting feature provides a set of near real-time reports that result from the tape scan (TSCAN). The tape reports are available as online views that you can print by using the batch reports facility.

Tip: **Batch Report Facility** is an option in the Tools and Menus section of the EZSRM main menu.

The tape reporting feature uses a variety of view types.

- Selection views provide a starting point for accessing more-specific information. For example, you can advance to an EZCmd menu or a list of tape resources from which you can choose.
- Stand-alone views report specific information about tape resources. For example, view LUR (Library Utilization) reports on the efficiency with which libraries are using tapes.

- Data-entry panels enable you to enter search criteria to filter the information shown in views. For example, view TSAR1 (Tape Volume Audit) provides filter criteria to limit the report to specific volume serials.
- EZCmd menus have view names that end in Z. Many of the primary menu options advance to EZCmd menus when you select the hyperlink option. Often you can access EZCmd menus from more than one primary selection path. For example, the hyperlink option from SLRV displays SLRVZ, which is the Scratch Location EZCmd Menu.
- Detail views have view names that end in D. For a record that you select, MAINVIEW SRM redisplay the data in vertical format; therefore, you do not have to page right to see all of the fields. Views that are too wide for easy display on a 72-column screen have a D view. You can select detail views from the EZCmd menu or, if it is the only selection available from a table, you can select a hyperlink from a table view. For example, SLRVD is a detailed view of one of the SLRV records and is accessed from the SLRVZ EZCmd menu. MVDD is a detailed view of an MVD record and is displayed when you select a hyperlink from the MVD table.

Accessing Tape Menu Options

To access the tape reporting menus, use the following procedure.

- Step 1** Select **Tape** from the EZSRM Menu to advance to the TSCANLS view. TSCANLS lists the date-time stamps for all available tape scan linear data sets. It reflects the year, month, day, and time that the scan was run.

Note: If no tape scan data sets are displayed, perform a new tape scan following the instructions in Step •.

- Step 2** From the TSCANLS view, perform either of the following actions:
- To start a new scan, type TSCAN on the command line and press **Enter**. Note that the scan takes some time to complete. To stop a TSCAN, issue the ENDTSCAN command.
 - To select an existing scan, place your cursor on the date-time stamp and press **Enter** to advance to the EZSRMT Tape Menu.

Step 3 From the EZSRMT Tape Menu, select the menu option of your choice.

Table 4-1, “EZSRMT Tape Menu Options” summarizes the options from which you can choose. Depending on the option you select, you advance to one of the following view types:

- report view: provides specific information about a tape resource
- selection view: provides a list of tape resources from which you must choose. The Description column in Table 4-1 indicates the selection views and provides a page number reference for more information.
- data-entry panel: continue with Step 4

Step 4 To use a data-entry panel to filter data, follow these steps:

- 4.A** Complete the fields on the panel or accept the default values.
- 4.B** Type **S** to the left of the **<=** symbol and press **Enter** to process the request and advance to the view that displays the requested information.

Tip: Press **F1** to access online Help that describes each field on the view.

Table 4-1 EZSRMT Tape Menu Options (Part 1 of 2)

Menu Option and View Name	Description
ACS Contents (ACR)	provides a summary view of the STK automated cartridge system (ACS) contents. ACR is a selection view; see page 4-5 for more information.
Demand Enter Detail (DEDT)	for the STK ACS, provides a detailed report on cartridges that were entered as a result of a mount request by a task, as opposed to entries by operator command or HSC utility
Library Aging (LAR1)	summarizes the number of cells and cleaning cartridges for each tape library and presents detailed information about the types of media and the last time the tapes were referenced. LAR1 is a selection view; see page 4-6 for more information.
Library Contents (LCR)	reports on tape movements (enter and eject counts, pass-through events, and whether mounted as scratch or non-scratch), scratch count, free cells, and total cells; for StorageTek (STK), this is summarized by ACS LCR is a selection view; see page 4-6 for more information.
Library Media Sizing (TCSRZ)	reports totals for each media type within the library TCSRZ is a selection view; see page 4-6 for more information.
Library Utilization (LUR)	lists the total number of tapes, average utilization rate, and the total number of tapes by utilization ranges in 10 percent increments

Table 4-1 EZSRMT Tape Menu Options (Part 2 of 2)

Menu Option and View Name	Description
MVC and VTV Migration (MVMR)	for multiple-volume cartridges (MVC) and virtual tape volumes (VTV), lists the number of migrations and recalls by age, data set name, mounts, and data transferred
Pass-Through Mounts (PTMR)	reports the number of pass-through events that were required to process a mount, the time of the pass-through, and the number of library storage modules (LSM) that were required to pass through to service the mount
Scratch Tape Location (SLR)	summarizes the location of physical and virtual scratch tapes SLR is a selection view; see page 4-7 for more information.
Tape Data Set Audit (TSAR2)	an audit based on data set name, with emphasis on the OS/390 user catalog contents
Tape Details (VDR)	lists for each volume: library location, usage, media type, tape capacity, number of data sets, number of times accessed, scratch status, first data set name, and date last referenced
Tape Last Referenced (TAR)	summarizes tape use by the date the tape was last referenced, and identifies the number of tapes that contain spanned or multiple data sets VDR is a selection view; see page 4-8 for more information.
Tape Summary (VSR)	summarizes the number of tapes of each media type are used by each tape library type
Tape Utilization (TUTIL)	summarizes the amount of data stored on each type of media within preset bands
Tape Volume Audit (TSAR1)	an audit based on volume serial number with emphasis on the tape management catalog (TMC)

ACS Contents

Select **ACS Contents** to advance to view ACR. Select an ACS-LSM number to advance to the Contents EZCmd menu. Table 4-2 summarizes the options on the Contents EZCmd menu. Press **F1** to access online Help with descriptions for each field on the view.

Table 4-2 Contents EZCmd Menu Views

Report Name	Description
Cleaning Cartridges (LAR3)	lists the cleaning tapes used by the selected library
Detail View (LCRD)	displays detailed information for the selected library, such as its type, the number of tapes in it, the number of free slots, and so on
Tape Aging (LAR2)	summarizes scratch tapes and nonscratch tapes in the selected library by the days since they were last accessed
Volumes in Library (TVCH1)	Select this option to advance to a data entry view. Using the instructions in "Accessing Tape Menu Options" on page 4-3, enter your search criteria to advance to a tabular view that displays utilization information for each volume in the library that matches your criteria.

Library Aging

Select **Library Aging** to advance to view LAR1. Select a library name to advance to the Library EZCmd menu. Table 4-3 summarizes the options on this menu. Press **F1** to access online Help with descriptions for each field on the view.

Table 4-3 Library EZCmd Menu Views

Report Name	Description
Cleaning Cartridges (LAR3)	lists the cleaning tapes used by the selected library
Media Utilization (TCSR)	provides information about media usage within the selected library
Tape Aging (LAR2)	lists scratch tapes in the selected library summarized by the time since they were last accessed
Volumes in Library (TVCH1)	Select this option to advance to a data entry view. Using the instructions in "Accessing Tape Menu Options" on page 4-3, enter your search criteria to advance to a tabular view that displays utilization information for each volume in the library that matches your criteria.

Library Contents

Select **Library Contents** to advance to LCR. Select a library name to advance to the Contents EZCmd menu. Table 4-2 on page 4-5 summarizes the options on this menu.

Library Media Sizing

Select **Library Media Sizing** to advance to view TCSR. Select a library name to advance to view T03CH1V1. This view displays volumes sorted by total capacity. To sort the information by another column, type **SORT** on the command line, place your cursor in the desired column, and press **Enter**.

Scratch Tape Location

Select **Scratch Tape Location** to advance to view SLR. From view SLR, select the desired tape location to advance to a data-entry panel. Complete the fields on the data-entry panel or accept the defaults and advance to the Tape Location view (SLRV), which lists the requested volumes.

Select one of the volume serial numbers to advance to the Tape Location EZCmd menu. Table 4-4 summarizes the options on this menu. Press **F1** to access online Help with descriptions for each field on the view.

Table 4-4 Tape Location EZCmd Menu Views

Report Name	Description
Detail View (SLRVAD)	displays the tape location detail <ul style="list-style-type: none"> • A tape in the TMC might also be in the ATL or VTS. • A virtual tape can be backed up to multi-volume cartridges. The MVCs for virtual tapes are shown.
Volume Details (VDR)	provides detailed information about the selected volume From this view, you can select a volume and press Enter to display the Volume Detail EZCmd Menu (see Table 4-5 for the menu options).

Table 4-5 summarizes the options on the Volume Detail menu.

Table 4-5 Volume Detail EZCmd Menu Views

Report Name	Description
Data Sets on Volume (DOV)	lists data sets that reside on the specified volume From this view, you can select a data set and press Enter to display the DOV EZCmd Menu (see Table 4-6 on page 4-8 for the menu options).
Detail View (VDRD)	provides a detailed view for the selected volume
Multi-Volume Data Sets (MVD)	lists data sets that span more than one volume
Tape Location (SLRV)	displays the tape location detail view: <ul style="list-style-type: none"> • tapes that are in the TMC might also be in the ATL or VTS • a virtual tape can be backed up to multi-volume cartridges. The MVCs for virtual tapes are shown.
Volume Audit (TSAR1)	displays a volume serial number based audit with emphasis on the TMC
Volume Sequence (VSEQ)	lists volumes that are linked because they contain a data set that spans this and another volume in the sequence

Table 4-6 DOV EZCmd Menu Options

Report Name	Description
Data Sets Audit (TSAR1)	displays a data set name based audit with emphasis on the OS/390 user catalog contents
Data Set Location (SLRV)	shows the tape location <ul style="list-style-type: none"> • a tape in the TMC might also be in the ATL or VTS • a virtual tape can be backed up to multi-volume cartridges. The MVCs for virtual tapes are shown. From this view, you can select a volume serial number and press Enter to display the Tape Location EZCmd Menu (see Table 4-4 on page 4-7 for the menu options).
Detail View (DOVD)	lists all data sets that reside on the selected volume
Multi-Volume Data Sets (MVD)	displays data sets that span more than one volume
Volume Sequence (VSEQ)	lists volumes that are linked because they contain a data set that spans this and another volume in the sequence

Tape Last Referenced

Select **Tape Last Referenced** to advance to view TAR. This view displays information about tape usage based on the last date that the tape was referenced.

Select an age band to advance to a data-entry panel. Enter filter criteria or leave the fields blank to search all volumes and advance to view VAB. View VAB provides detailed information about volumes that match the age band that you selected on view TAR.

Select a volume serial number to advance to the Age Volume EZCmd Menu. Table 4-7 summarizes the options on the Age Volume EZCmd Menu. Press **F1** to access online Help with descriptions for each field on the view.

Table 4-7 Age Volume EZCmd Menu Views (Part 1 of 2)

Report Name	Description
Data Sets on Volume (DOV)	lists data sets that reside on the specified volume From this view, you can select a data set and press Enter to display the DOV EZCmd Menu (see Table 4-6 on page 4-8 for the menu options).
Detail View (VABD)	provides detailed information about the volumes within the previously selected age band
Multi-Volume Data Sets (MVD)	displays data sets that span more than one volume

Table 4-7 Age Volume EZCmd Menu Views (Part 2 of 2)

Report Name	Description
Tape Location (SLRVA)	<p>shows the tape location</p> <ul style="list-style-type: none"> a tape located in the TMC might also be in the ATL or VTS a virtual tape can be backed up to multi-volume cartridges. The MVCs for virtual tapes are shown. <p>From this view, you can select a volume serial number and press Enter to display the Tape Location EZCmd Menu (see Table 4-4 on page 4-7 for the menu options).</p>
Volume Audit (TSAR1)	displays volume serial-number based audit with emphasis on the TMC
Volume Sequence (VSEQ)	lists volumes which are linked because they contain a data set that spans this and another volume in the sequence

Using View Names to Navigate

When you are familiar with the tape reports and views, you can enter view names to quickly navigate to the information you need, rather than selecting menu options. Table 4-8 provides quick-reference information about this navigation method.

To navigate from one level to the next, on the command line, type a view name from the column to the right of the view that is displayed, and then press **Enter**. For example, from the ACS Contents view, ACR, you can type LCRZ to advance to view LCRZ. From LCRZ, you can type any of the view names shown in the column labeled “3rd” to access that view, and so on.

Table 4-8 View Navigation Quick Reference (Part 1 of 2)

EZSRMT Primary Menu Option Selected	Navigation Level						
	1st	2nd	3rd	4th	5th	6th	7th
ACS Contents	ACR	LCRZ	LAR2 LCRD LAR3 DGARS	DGARZ	DGARD SLRV TSAR1 VDR		
Demand Enter Detail	DEDT						
Library Aging	LAR1	LARZ	LAR2 TCSR LAR3 DGARS	DGARZ			

Table 4-8 View Navigation Quick Reference (Part 2 of 2)

EZSRMT Primary Menu Option Selected	Navigation Level						
	1st	2nd	3rd	4th	5th	6th	7th
Library Contents	LCR	LCRZ	LAR2 LARCD LAR3 DGARS	DGARZ			
Library Media Sizing	TCSR	TCSRZ	LAR2 LAR3 DGARS	DGARZ			
Library Utilization	LUR	DGARS	DGARZ				
MCV and VTV Migration	MVMR						
Pass-Through Mounts	PTMR						
Scratch Tape Location	SLR	SLRV1F	SLRV	SLRVZ	SLRVD VDR	VDRZ	DOV VDRD MVD SLRV VSEQ TSAR1
Tape Data Set Audit	TSAR2F	TSAR2					
Tape Details	VSEL	VDR	VDRZ	DOV VDRD MVD SLRV TSAR1 VSEQ	DOVZ MVDD SLRVZ VSEQD	TSAR1 SLRV DOVD MVD VSEQ	SLRVZ MVDD VSEQD
Tape Last Reference	TAR	ASEL	VAB	VABZ	DOV VABD MVD SLRV TSAR1 VSEQ	DOVZ MVDD SLRVZ TSEQD	
Tape Summary	VSR	VSRD					
Tape Utilization	TUTIL	TUTILD					
Tape Volume Audit	TSAR1F	TSAR1					

Chapter 5 DFHSM Reporting

This chapter presents the following topics:

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Overview

Typically, DFHSM is the largest user of CPU on a system because it performs so many functions. For example, HSM acts as a data mover, it performs extent reduction, and it removes extents.

The MAINVIEW SRM DFHSM features analyze historical data derived from DFHSM log files and DFHSM control data sets. Using the DFHSM reports can help you meet your service-level agreements (SLAs). You can use the reports to determine how effectively your data is being managed and to identify ways to save CPU cycles. For example, you can identify GDG generations that will soon be deleted and save CPU cycles by not migrating those generations.

You can select and organize the information in DFHSM views in the following ways, depending on the view:

- by time range (hours or days) using the TIME command
- by data set name using the SETSRM DSN parameter or providing a data set name or name mask on a data entry panel
- by system ID using the SETSRM SSID parameter or providing a system ID on a data entry panel
- by volume using the SETSRM VOLUME parameter or providing a volume serial number on a data entry panel
- by form using the FORM command and a form name. The online Help for each view lists the available forms.

Most views enable you to enter DFHSM commands such as HMIGRATE and HRECALL and provide fast, flexible access to DFHSM operations using MCDS, BCDS, OCDS, and DFHSM log files.

Note: To enable DFHSM reporting features, you must have log Y and log X DD statements in your HSM startup procedure. For more information, see the *MAINVIEW SRM Customization Guide* and the *MAINVIEW SRM Reporting Reference Manual*.

For more information about the DFHSM environment set-up requirements and output management, see the *MAINVIEW SRM Reporting Reference Manual*.

To access DFHSM views, select **DFHSM/HSM** from the EZSRM menu. You advance to the EZSRMHSM Menu, which is divided into the following categories:

- HSM Views (see “Using HSM Views” on page 5-3)
- DFHSM Output Mgmt view (see “Using the DFHSM Output Management View” on page 5-14)
- DFHSM CDS Query Views (see “Using CDS Query Views” on page 5-15)
- SRM Administration (not part of the MAINVIEW SRM DFHSM feature. See the *MAINVIEW SRM User Guide and Reference* for information about these options.)

Using HSM Views

Using the HSM views, you can generate reports on HSM activities in your enterprise for a time period you specify by setting the **TIME** command. For information about using the **TIME** command, see the *Using MAINVIEW* manual or type **Help TIME** on the command line to access online Help.

Each menu option advances to a data entry panel on which you can specify filter criteria to tailor the report.

Table 5-1 on page 5-4 summarizes the options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Table 5-1 HSM Views (Part 1 of 4)

Menu Option and View Name^a	SETSRM Keywords^b	Action Line Commands^c	EZCmd Menu and View Name
Backup/Recovery Activity (HSMBKRCU -> HSMBKRC)	DSN SYSID CATINFO CATEGORY	<ul style="list-style-type: none"> • BV backup versions • CL catalog list (IDCAMS LISTCAT) • D detailed view • HBA backs up the data set • HBD deletes the backup 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 backup data set • I shows detailed data set information (WBDSIM) 	
Error Details (HSMERDTU -> HSMERDT)	DSN SYSID CATINFO	<ul style="list-style-type: none"> • D detailed view of this data set • I detailed data set information • BV backup versions for the data set • CL catalog list (IDCAMS LISTCAT) for the data set • HBA backs up the data set • HBD deletes the backup 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 	
Error Summary (HSMERRSU -> HSMERRS)	DSN SYSID CATINFO	<ul style="list-style-type: none"> • DET displays error details • DIS displays a detailed view of the data set • M displays HSM messages • QW displays QuickRef messages 	

^a With all DFHSM views, use the TIME command to set date and time ranges for the reporting period.

^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."

^c Press F1 in the CMD column to display online Help that describes each available action line command.

Table 5-1 HSM Views (Part 2 of 4)

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu and View Name
Log Entries (HSMLOGEU -> HSMLOGE)	DSN SYSID CATINFO	<ul style="list-style-type: none"> • BV backup versions • CL catalog list (IDCAMS LISTCAT) • DIS displays a detailed view of this data set • HBA backs up the data set • HBD deletes the backup 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) • M displays HSM messages • QW displays QuickRef messages 	
Migration Activity (HSMMGATU -> HSMMGAT)	DSN SYSID CATINFO	<ul style="list-style-type: none"> • I shows detailed data set information • BV backup versions • CL catalog list (IDCAMS LISTCAT) • D detailed view of this data set • HBA backs up the data set • HBD deletes the backup 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 	
<p>^a With all DFHSM views, use the TIME command to set date and time ranges for the reporting period.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each available action line command.</p>			

Table 5-1 HSM Views (Part 3 of 4)

Menu Option and View Name^a	SETSRM Keywords^b	Action Line Commands^c	EZCmd Menu and View Name
Migration Thrashing (HSMMGTHU -> HSMMGTH)	DSN SYSID CATINFO	<ul style="list-style-type: none"> • BV backup versions • CL catalog list (IDCAMS LISTCAT) • D detailed view of the data set • DET displays migration thrashing details • HBA backs up the data set • HBD deletes the backup 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 (HSMRCALU -> HSMRCAL)	DSN SYSID CATINFO	<ul style="list-style-type: none"> • BV backup versions • CL catalog list (IDCAMS LISTCAT) • HBA backs up the data set • HBD deletes the backup 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 thrashing details 	HSMRCAL EZCmd (HSMRCALZ)
Data Set Deletions (HSMDSDLU -> HSMDSDL)	DSN SYSID CATINFO	<ul style="list-style-type: none"> • BV backup versions for the data set • D detailed view of this data set • HBD deletes the backup copy of the data set • HRC recovers the backed-up data set 	HSMDSDL EZCmd (HSMDSDLZ)
Daily Activity Summary (HSMDLYOU -> HSMDLA)	SYSID	none	none
<p>^a With all DFHSM views, use the TIME command to set date and time ranges for the reporting period.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each available action line command.</p>			

Table 5-1 HSM Views (Part 4 of 4)

Menu Option and View Name ^a	SETSRM Keywords ^b	Action Line Commands ^c	EZCmd Menu and View Name
Daily Volume Summary (HSMDLYVU -> HSMDLYV)	SYSID VOLUME	none	none
Migration Level 1 to Level 2 (HSML1L2U -> HSMMG12D)	DSN SYSID CATINFO	<ul style="list-style-type: none"> • I shows detailed data set information • BV backup versions • CL catalog list (IDCAMS LISTCAT) • D detailed view of this data set • HBA backs up the data set • HBD deletes the backup 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 	
<p>^a With all DFHSM views, use the TIME command to set date and time ranges for the reporting period.</p> <p>^b For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."</p> <p>^c Press F1 in the CMD column to display online Help that describes each available action line command.</p>			

MAINVIEW SRM retrieves start and end dates and times from the parameters in the MAINVIEW TIME command. If you have not set the TIME command, the default time range is 7 days (168 hours) before the current date and time to the current date and time.

On each data entry panel, use the slash character (/) as a wildcard to represent one or more characters in the data set name and volume serial number fields. For example, the data set name mask SYS/ selects all data sets with SYS as the first three characters and any additional characters.

To submit your filter criteria and process the report, you must type **S** in the upper left corner of the panel at the <== symbol.

Many of the HSM options access EZCmd menus, which list commands that you can select to perform an action on a data set or other item you chose from a list view. Table 5-2 on page 5-8 lists in alphabetical order all HSM EZCmd menu options. All options are not available on all EZCmd menus.

For an explanation of any field or column on a view, place your cursor over the field or in the column and press **F1** to access online Help.

Table 5-2 HSM EZCmd Menu Options (Part 1 of 2)

Option/Command	Description
Backup Data Set	Choose this option to advance to a data entry panel where you specify the name of the data set to back up, whether you want to wait for the HSM command to complete or allow it to run in the background, the unit name for the volume (3380, 3390, or 9345), and if you specify a unit, you must also specify the volume.
Data Set List Catalog	Choose this option to display catalog list information (IDCAMS LISTCAT) for the data set.
Delete a Tape	Choose this option to advance to a data entry panel where you specify the volume serial number of the tape that you want to delete and whether you want to wait for the HSM command to complete or allow it to run in the background.
Delete Backup Copy	Choose this option to advance to a data entry panel where you specify the name of the backup data set you want to delete, the version of the backup data set (0-999 or All), and the volume on which the backup data set is stored.
Delete Migrated Copy	Choose this option to advance to a data entry panel where you specify the name of the backup data set you want to delete, whether you want to wait for the HSM command to complete or allow it to run in the background, and whether you want to purge the data set.
Detail Data Set Info	Choose this option to advance to a report that displays information about the data set such as creation date, expiration date, and last reference date.
Detail View	Choose this option to advance to a detail view which displays information about the data set in vertical format. Information includes the age of the backup data set, the date it was taken, and the device and device type (disk or tape).
Display error details	<p>Choose this option to advance to the error details view, which displays unsuccessful DFHSM actions recorded on the DFHSM log file. The view is initially listed by data set name within functional category. Only unsuccessful actions are included.</p> <p>DFHSM actions are grouped into the following functional categories:</p> <ul style="list-style-type: none"> • Migration • Recall • Backup • Recovery • Dump • Restore • Other
Display HSM messages	Choose this option to advance to the HSM messages view, which displays messages generated by HSM.
Display migration thrashing details	Choose this option to advance to the migration thrashing details view, which displays detailed information for the migration and recall activity of a selected data set.
Display QuickRef Messages	Choose this option to advance to the ChicagoSoft MVS/QuickRef messages display.

Table 5-2 HSM EZCmd Menu Options (Part 2 of 2)

Option/Command	Description
List Backup Versions	Choose this option to advance to a list of all HSM data set backup entries for the data set that you selected. Choose one of the backup versions to advance to an EZCmd Menu, where you can choose to delete the backup copy, recover using the backup copy, or see a detail view for the backup (see the following explanations for these options).
Migrate Data Set	Choose this option to advance to a data entry panel where you specify the name of the data set you want to migrate, the migration level (1 or 2), and whether you want to wait for the HSM command to complete or allow it to run in the background.
Recall Data Set	Choose this option to advance to a data entry panel where you specify the name of the data set you want to recall, whether you want to wait for the HSM command to complete or allow it to run in the background, the unit name for the volume (3380, 3390, or 9345), and if you specify a unit, you must also specify the volume.
Recover From Backup	Choose this option to advance to a data entry panel where you specify the backup data set name, the backup generation number (0-12), the date the backup was created, the volume on which the backup is stored, the password for the data set if it is password-protected, and indicate whether you want to replace any existing data set with the same name.
Recycle a Tape	Choose this option to advance to a data entry panel where you specify the volume serial number of the tape that you want to recycle and whether you want to wait for the HSM command to complete or allow it to run in the background.
Unassign a Tape	Choose this option to advance to a data entry panel where you specify the volume serial number of the tape that you want to unassign and whether you want to wait for the HSM command to complete or allow it to run in the background.

Backup/Recovery Activity

Choose the **Bkup/Recovery Activity** option to advance to HSMBKRCU. This data entry panel enables you to filter your activity report by data set name and system ID, and to choose to include catalog information in the report.

The filtered report shows all successful backup and recovery actions processed by DFHSM during the specified time period and shows age, volumes (from, to, and current), date of last change, and SMS class information. Select a backup or recovery action to advance to an EZCmd menu where you can choose from the following options. For an explanation of each option, see Table 5-2 on page 5-8.

- Backup Data Set
- Data Set List Catalog
- Delete Backup Copy
- Delete Migrated Copy
- Detail Data Set Info
- List Backup Versions

- Migrate Data Set
- Recall Data Set
- Recover From Backup
- Detail View

Error Details

Choose the **Error Details** option to advance to HSMERDTU. This data entry panel enables you to filter your activity report by data set name and system ID, and to choose to include catalog information in the report.

The filtered report shows all unsuccessful actions processed by DFHSM during the specified time period, with error codes and a description of the error. Select an error to advance to an EZCmd menu where you can choose from the following options. For an explanation of each option, see Table 5-2 on page 5-8.

- Backup Data Set
- Data Set List Catalog
- Delete Backup Copy
- Delete Migrated Copy
- Detail Data Set Info
- List Backup Versions
- Migrate Data Set
- Recall Data Set
- Recover From Backup
- Display HSM Messages
- Displays QuickRef Messages

Error Summary

Choose the **Error Summary** option to advance to HSMERRSU. This data entry panel enables you to filter your activity report by data set name and system ID, and to choose to include catalog information in the report.

The filtered report shows total errors for migration, recall, and backup during the specified time period, with error codes and a description of the error. Select an error to advance to an EZCmd menu where you can choose from the following options. For an explanation of each option, see Table 5-2 on page 5-8.

- Display Error Details
- Detail View
- Display HSM Messages
- Display QuickRef Messages

Log Entries

Choose the **Log Entries** option to advance to HSMLOGEU. This data entry panel enables you to filter your activity report by data set name and system ID, and to choose to include catalog information in the report.

The filtered report lists all actions (successful and unsuccessful) processed by DFHSM during the specified time period. Select an entry to advance to an EZCmd menu where you can choose from the following options. For an explanation of each option, see Table 5-2 on page 5-8.

- List Backup Versions
- Data Set List Catalog
- Detail View
- Backup Data Set
- Delete Backup Copy
- Delete Migrated Copy
- Migrate Data Set
- Recall Data Set
- Recover From Backup
- Detail Data Set Info
- Display HSM Messages
- Display QuickRef Messages

Migration Activity

Choose the **Migration Activity** option to advance to HSMMGATU. This data entry panel enables you to filter your activity report by data set name and system ID, and to choose to include catalog information in the report.

The filtered report shows all successful migrations processed by DFHSM during the specified time period, with aging information, volume information, and DFSMS class information. Select an entry to advance to an EZCmd menu where you can choose from the following options. For an explanation of each option, see Table 5-2 on page 5-8.

- Detail Data Set Info
- Detail View
- List Backup Versions
- Data Set List Catalog
- Backup Data Set
- Delete Backup Copy
- Delete Migrated Copy
- Migrate Data Set
- Recall Data Set
- Recover From Backup

Migration Thrashing

Choose the **Migration Thrashing** option to advance to HSMMGTHU. This data entry panel enables you to filter your activity report by data set name and system ID, and to choose to include catalog information in the report.

The filtered report shows migration and recall actions for data sets in a manner that makes excessive activity highly visible. Select an entry to advance to an EZCmd menu where you can choose from the following options. For an explanation of each option, see Table 5-2 on page 5-8.

- List Backup Versions
- Data Set List Catalog
- Detail Data Set Info
- Display Migration Thrashing Details
- Backup Data Set
- Delete Backup Copy
- Delete Migrated Copy
- Migrate Data Set
- Recall Data Set
- Recover From Backup
- Display HSM messages
- Display QuickRef Messages

Recall Activity

Choose the **Recall Activity** option to advance to HSMRCALU. This data entry panel enables you to filter your activity report by data set name and system ID, and to choose to include catalog information in the report.

The filtered report shows successful recalls processed by DFHSM during the specified time period, with aging, volume, and DFSMS class information. Select an entry to advance to an EZCmd menu where you can choose from the following options. For an explanation of each option, see Table 5-2 on page 5-8.

- List Backup Versions
- Data Set List Catalog
- Backup Data Set
- Delete Backup Copy
- Delete Migrated Copy
- Migrate Data Set
- Recall Data Set
- Recover From Backup
- Detail Data Set Info
- Display Migration Thrashing Details

Data Set Deletions

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.

Choose the **Data Set Deletions** option to advance to HSMDSDLU. This data entry panel enables you to filter your activity report by data set name and system ID, and to choose to include catalog information in the report. The filtered report shows all successful data set deletions processed by DFHSM during the specified time period, with aging, volume, and job and user information. The Deletion Type column shows BY AGE for expiration-date based deletions, and MIGRATED DS for DFHSM delete-migrated commands.

Select an entry to advance to an EZCmd menu where you can choose from the following options. For an explanation of each option, see Table 5-2 on page 5-8.

- List Backup Versions
- Detail View
- Delete Backup Copy
- Recover From Backup

Daily Activity Summary

Choose the **Daily Activity Summary** option to advance to HSMDLYAU. This data entry panel enables you to filter your activity report by system ID. The filtered report shows statistics for the DFHSM operations over the requested time period.

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. For more information about the DFHSM log extract files, see the *MAINVIEW SRM Reporting Reference Manual*.

Daily Volume Summary

Choose the **Daily Volume Summary** option to advance to HSMDLYVU. This data entry panel enables you to filter your activity report by system ID and volume. The filtered report shows volume information for DFHSM-managed volumes for the requested time period.

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. For more information about the DFHSM log extract files, see the *MAINVIEW SRM Reporting Reference Manual*.

Migration Level 1 to Level 2

Choose the **Migration level 1->2** option to advance to HSML1L2U. This data entry panel enables you to filter your activity report by data set name and system ID, and to choose to include catalog information in the report.

The filtered report shows all successful migrations from level 1 to level 2 processed by DFHSM during the specified time period, with aging, volume, and DFSMS class information. Select an entry to advance to an EZCmd menu where you can choose from the following options. For an explanation of each option, see Table 5-2 on page 5-8.

- Detail Data Set Info
- List Backup Versions
- Data Set List Catalog
- Detail View
- Backup Data Set
- Delete Backup Copy
- Delete Migrated Copy
- Migrate Data Set
- Recall Data Set
- Recover From Backup

Using the DFHSM Output Management View

To customize your installation for the MAINVIEW SRM DFHSM feature to process DFHSM and DFDSS messages and write them to data sets, see the HSM Collector chapter in the MAINVIEW SRM Reporting Reference manual. Once customized, you can view and edit the data sets using the DFHSM Output Management view HSMOMDS.

Choose the **DFHSM Output Mgmt** option to advance to HSMOMDS, which lists the data sets that contain DFHSM and DFDSS messages. Each data set listed on HSMOMDS has one or more members associated with it. These members contain the messages from DFHSM or DFDSS that pertain to specific areas, such as backup or migration.

Select one of the data sets to advance to the HSMOMDS EZCmd Menu (HSMOMDSZ). The HSMOMDS EZCmd Menu displays the complete name of the data set that you selected. You can choose to delete the data set or to display the members in the data set on view HSMOMML.

Select **Display Members** to advance to HSMOMML. From view HSMOMML, you can select a member to advance to view HSMOMMLZ, the HSMOMML EZCmd Menu. HSMOMMLZ displays the data set name and the member name, and gives you the options of browsing or editing the member, or accessing a detail view, HSMOMMLD.

Using CDS Query Views

The DFHSM CDS query views provide reports on your control data sets. Each menu option advances to a data entry panel on which you can specify filter criteria to tailor the report.

Table 5-3 summarizes the options from which you can choose, as well as the commands, EZCmd menus, and SETSRM keywords that are available for each option. The sections that follow describe each option and view.

Note: For more information about HSM control data sets, see the *MAINVIEW SRM Reporting Reference Manual*.

Table 5-3 DFHSM CDS Query Views (Part 1 of 2)

Menu Option and View Name	SETSRM Keywords ^a	Action Line Commands	EZCmd Menu and View Name
Backup Data Set View (HSMBKDSU -> HSMBKDS)	DSN DSTP A all types V VSAM data sets N non-VSAM data sets	<ul style="list-style-type: none"> • BV shows the backup versions for the data set • D displays detail view • HBD deletes the backed-up data set • HRC recovers the backed-up data set 	HSMBKDS EZcmd Menu (HSMBKDSZ)
Backup DSN Version (HSMBKVRU -> HSMBKVR)	DSN DSTP A all types V VSAM data sets N non-VSAM data sets	<ul style="list-style-type: none"> • BV shows the backup versions for the data set • D displays detail view • HBD deletes the backed-up data set • HRC recovers the backed-up data set 	HSMBKVR EZcmd Menu (HSMBKVRZ)

^a For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."

Table 5-3 DFHSM CDS Query Views (Part 2 of 2)

Menu Option and View Name	SETSRM Keywords^a	Action Line Commands	EZCmd Menu and View Name
Migrated Data Set View (HSMMGDSU -> HSMMGDS)	DSN DSTP A all types V VSAM data sets N non-VSAM data sets MIGL A all levels 1 level 1 2 level 2 CAT Y yes N no	<ul style="list-style-type: none"> • 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 	HSMMGDS EZcmd Menu (HSMMGDSZ)
OCDS Data Set View (HSMOCDSU -> HSMOCDS)	DSN DSTP A all types V VSAM data sets N non-VSAM data sets VLTP A all types M migrated D daily backup B spill backup U unassigned FVLN TVLN	<ul style="list-style-type: none"> • BV shows the backup versions for the data set • D displays detail view • HBD deletes the backed-up data set • HMD deletes the migrated data set copy • HRC recovers the backed-up data set • HRE recalls the migrated data set • I shows detailed data set information 	HSMOCDS EZcmd Menu (HSMOCDSZ)
OCDS Volume View (HSMOCDVU -> HSMOCDV)	VLTP A all types M migrated D daily backup B spill backup U unassigned FVLN TVLN	<ul style="list-style-type: none"> • DEL deletes the selected volume • DIS displays a detailed view of this data set • I shows detailed volume information • UNA unassigns the selected volume 	HSMOCDV EZcmd Menu (HSMOCDVZ)
^a For complete keyword descriptions for the SETSRM command, see Appendix A, "SETSRM Command."			

On each data entry panel, use the slash character (/) as a wildcard to represent one or more characters in the data set name and volume serial number fields. For example, the data set name mask SYS/ selects all data sets with SYS as the first three characters and any additional characters.

To submit your filter criteria and process the report, you must type **S** in the upper left corner of the panel at the <== symbol.

To see an explanation of any field or column on the views, place your cursor over the field or in the column and press **F1** to access online Help.

Backup Data Set View

Choose the **Backup Data Set View** option to advance to HSMBKDSU. This data entry panel enables you to filter your report by data set name mask and data set type. The filtered report, HSMBKDS, lists all HSM backup data sets that match your filter criteria. Select a data set to advance to the HSMBKDS EZcmd Menu. For the data set you selected, you can choose from the following commands. For an explanation of each option, see Table 5-2 on page 5-8.

- Delete Backup Copy
- List Backup Versions
- Recover From Backup
- Detail View

Backup DSN Version View

Choose the **Backup DSN Version View** option to advance to HSMBKVRU. This data entry panel enables you to filter your report by data set name mask and data set type. The filtered report, HSMBKVR, lists backup data set entries on a specific data set version. Select a data set to advance to an EZcmd menu. For the data set you selected, you can choose from the following commands. For an explanation of each option, see Table 5-2 on page 5-8.

- List Backup Versions
- Detail View
- Delete Backup Copy
- Recover From Backup

Migrated Data Set View

Choose the **Migrated Data Set View** option to advance to HSMMGDSU. This data entry panel enables you to filter your report by data set name mask, data set type, and migration level. The filtered report, HSMMGDS, lists all HSM data set migration entries that match your filter criteria.

For each data set, the view shows status information on migrated data sets such as current migration level, volume information, aging information, compression percentage, SDSP residency, and DFSMS class information.

Select a data set to advance to the HSMMGDS EZcmd Menu. For the data set you selected, you can choose from the following commands. For an explanation of each option, see Table 5-2 on page 5-8.

- Delete Migrated Copy
- Detail Data Set Info
- Migrate Data Set
- Recall Data Set
- Detail View

OCDS Data Set View

Choose the **OCDS Data Set View** option to advance to HSMOCDSU. This data entry panel enables you to filter your report by data set name mask, data set type, and volume. The filtered report, HSMOCDS, lists all data sets that match your filter criteria.

For each data set, the report shows information such as the physical block, the volume serial of the tape, file sequence number, the last referenced date, the expiration date, and the HSM name of the data set.

Select a data set to advance to the HSMOCDS EZcmd Menu. For the data set you selected, you can choose from the following commands. For an explanation of each option, see Table 5-2 on page 5-8.

- Delete Backup Copy
- Delete Migrated Copy
- Detail Data Set Info
- List Backup Versions
- Recall Data Set
- Recover From Backup
- Detail View

OCDS Volume View

Choose the **OCDS Volume View** option to advance to HSMOCDVU. This data entry panel enables you to filter your report by volume. The filtered report, HSMOCDV, lists all volumes that match your filter criteria. For each volume, the report shows information such as 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 HSM considers the volume to be full.

Select a volume to advance to the HSMOCDV EZcmd Menu. For the volume that you selected, you can choose from the following commands. For an explanation of each option, see Table 5-2 on page 5-8.

- Delete a Tape
- Recycle a Tape

- Unassign a Tape
- Detail View

Chapter 6 Automation

This chapter presents the following information:

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Using Automation Views	6-2

Overview

The Automation views and reports provide information about automated resources and events, as well as automation activity. Menu options enable you to browse and edit skeleton JCL members and activate, deactivate, and view the status of automation functions that are defined for your site.

Using Automation Views

To use the automation views and reports, select **Automation** from the EZSRM Menu to advance to the Automation Options view (EZSRMAU). Table 6-1 summarizes the options from which you can choose and the commands and easy menus for each option. Action line commands are an alternative to EZCmd menus; the actions correspond to the options on the menus. No SETSRM keywords exist for these views.

Note: To see an explanation of any field or column on the views, place your cursor over the field or in the column and press **F1** to access online Help.

Table 6-1 Automation Options (Part 1 of 2)

Menu Option and View Name	Description	Action Line Commands	EZCmd Menu
Automated Resources (AUTO)	displays statistics on and status of the resources on which automation is or has been occurring	none	none
Event Statistics (EVENTS)	displays the MAINVIEW SRM Automation event statistics, the MAINVIEW SRM Automation function statistics overview (which links to the detail information), and the connection status between MAINVIEW SRM Automation and the MAINVIEW AutoOPERATOR subsystems	none	none
Skeleton JCL Members (AUTOJCL)	displays a list of members within the data sets in the BBSLIB DD concatenation of the SVOS PROC	<ul style="list-style-type: none"> • E edit • B browse • BSE build JCL/edit • BSS build JCL/submit 	EZAUTOJ

Table 6-1 Automation Options (Part 2 of 2)

Menu Option and View Name	Description	Action Line Commands	EZCmd Menu
Automation Log (LOGREC)	displays a tabular view of automation log activity	none	none
AUTO Function (ADFUNC)	enables you to activate, deactivate, and view the status of MAINVIEW SRM functions	<ul style="list-style-type: none"> • A activate function • BF browse FLST parameters • BR browse RLST parameters • C change FLST/RLST suffix and MSG/SMF level • DF display contents of storage for FLST • DR display contents of storage for RLST • EF edit FLST parameters • ER edit RLST parameters • I deactivate function • R refresh both FLST and RLST parameters • RF refresh FLST parameters • RR refresh RLST parameters • /F display contents of storage for FLST • /R display contents of storage for RLST 	ADFUNC

Chapter 7 Batch Reporting

This chapter presents the following information:

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Introduction

The MAINVIEW SRM batch reports are a specific set of reports specifically for MAINVIEW SRM, not to be confused with the EZSRM main menu option, Batch Reporting Facility (For information about the MAINVIEW Batch Reports, see *Using MAINVIEW*.) The format and content of MAINVIEW SRM batch reports are specified in control card input. For example, the order in which fields are printed on the report line is specified using the ORDER statement, and the sequence of report output lines is controlled using the SORT statement. Sorting of data and ordering of columns, combined with powerful data-content filtering, allow these reports to be tailored to satisfy virtually any need. The control card parameters and syntax described in this chapter are common to all MAINVIEW SRM batch reports. Multiple reports can be generated in a single batch job. A sample JCL can be found in *?prefix.BBSAMP(SVWJCLBR)*.

Note: The data sets allocated to STEPLIB must be APF-authorized. If the SYSPRINT data set is allocated to a sequential data set or PDS member, DISP=MOD must be used. You may want to delete and reallocate SYSPRINT data sets or clear PDS members before running batch reports.

Control Card Syntax

Control cards are used to specify what reports should be produced, what data they should contain, and how that data should be displayed. The format of the control card for batch reports is a verb followed by one or more operands. The basic structure for all verbs is similar. Following the verbs are operands that control the content and format of the report produced; for example:

- Option keywords limit data included in the report.
- Field name filters control what data is included in the report.
- Field names within an ORDER statement control the order of the data columns across the printed line.
- Field names within a SORT statement control the order of the data line in the output.

The following general syntax rules apply to all control cards:

- One or more spaces must separate the verb and its operands.

- Values specified for operands are enclosed in parentheses if they contain special characters.
- Null operands are not permitted. A blank enclosed in parentheses () is considered a null.
- If multiple operands for a verb are required, they must be separated by a comma. An operand that is not followed by a comma is the last operand for the preceding verb.
- Comment lines can be included by placing an asterisk (*) in column one.
- Comments can be placed on any line by preceding them with a hyphen (-).

Note: Scanning of the line is stopped at the hyphen; all remaining text on the line is regarded as comments.

REPORT Verb

The REPORT verb specifies default values that are used in all reports. The REPORT verb is optional. It can be specified to override the default value for the LINECT keyword and to specify the COMPANY keyword. The REPORT verb can be specified more than once if, for example, you want to change the number of lines per page or the company name in the report heading between individual reports.

Table 7-1 REPORT Verb Keywords

Keyword	Description	Explanation
COMPANY	name of a company (up to 48 characters)	This string is printed is on the first header line. Enclose the string in apostrophes if it contains blanks or special characters. To include an apostrophe in the string, use two consecutive apostrophes.
LINECT	number of lines per page	Default is 60.

Example

```
REPORT LINECT( 66 ) ,
      COMPANY( 'BMC SOFTWARE' )
```

report-name Verb

A *report-name* verb must be specified for each desired report. The verb-operand format is similar for all reports. The operands specified for each report control the content and presentation of the report.

Table 7-2 lists report-name verbs for batch reports.

Table 7-2 report-name Verbs

ACTIVITY_SUM	LOG_ENTRIES	PERF_DSN	POOL	THRASH_SUM
BCDS_DATASET	MCDS	PERF_JOB	POOL_PERF	THRASHING
BCDS_VERSION	MIGRATE_L12	PERF_LCU	RECALL	VOLUME
BKUP_RECOVER	MIGRATION	PERF_PHYVOL	SLOC_ATTRIB	VTOC_DSN
DAILY_VOLUME	OCDS_DATASET	PERF_POOL	SLOC_DSN	VTOC_VOL
DELETION	OCDS_VOLUME	PERF_RANK	SLOC_SPACE	
ERROR_DETAIL	PERF_CACHE	PERF_RSFC	SLOC_TOTAL	
ERROR_SUM	PERF_CHP	PERF_SCL	SLOC_VOLUME	
HLQ	PERF_DIR	PERF_VOL	SUMMARY	

Table 7-3 report-name Verb Keywords

Keyword	Description	Explanation
keyword(<i>value</i>)	General restrictions on items to be included, such as VSAM or non-SMS.	Refer to individual report verbs.
fieldname(<i>logical-operator value</i>)	Logical operators and values that limit output based on the content of a particular field.	Field names are listed with their respective column header for each report that follows.
SORT(<i>fieldname,A/D,...</i>)	Controls the sequences of output lines in the report.	
ORDER(<i>fieldname1,fieldname2,fieldnamen</i>)	Order of output columns from left to right. Up to 25 column names can be given.	Specify the field names separated by commas. The number of columns on the output is limited by the length of the print line.
SYSPRINT(<i>ddname</i>)	DD name where report output is written; one to eight characters long.	SYSPRINT is the default. If specified, a DD statement by this name must be included in the MVS JCL.
TITLE(<i>string</i>)	Title for a report, up to 48 characters.	This string is printed centered on the third header line. Enclose the string in apostrophes if it contains blanks or special characters. To include an apostrophe in the string, use two consecutive apostrophes.

Example

```
BCDS_DATASET ,
  PREFIX ( TEST . PAYROLL / ) ,
  DSTYPE ( NONVSAM ) ,
  ORDER ( DSN , DSORG , FROMVOL ) ,
  SORT ( BACKAGE , D ) ,
  TITLE ( ' PAYROLL TEST BACKUPS > 1YR OLD ' )
```

SHIFT Verb

The input to the summary, pool, and volume reports can be controlled using the SHIFT verb. It permits you to define what a day, week, or month consists of, thereby providing the ability to report on weekends only, weekdays only, and so on. The SHIFT verb is ignored by the data set utility reports, but it remains in effect for all other reports until the next SHIFT verb is encountered.

Table 7-4 **SHIFT Verb Keywords**

Keyword	Description	Explanation
DAY	Two time-of-day numbers in the format HHMM,HHMM. The default is: 0000,2359	Defines a day. The first number is the start of the day; the second number is the end of the day; for example, if you wish to report only on workdays from 8 am to 5 pm, enter 0800,1700. When specifying DAY, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS
WEEK	MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY, WEEKDAYS, WEEKENDS The default is: WEEKENDS,WEEKDAYS	Enter one or more operand to define the days in a week. Weeks always start with Sunday. When specifying WEEK, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS
MONTH	One- to four-date pairs indicating which days of the month to include. The default is: 1,31	The date pairs are windows into the month. They may be overlapping. If you specify a date greater than the last day of the month, it is assumed that you wish to process until month end. When specifying MONTH, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS

Note: If you do not specify a SHIFT verb, it is assumed that you want to report on data 24 hours a day, 7 days a week, for the entire month. Weeks always start with Sunday.

PSHIFT Verb

The input to the performance collector reports can be controlled using the PSHIFT verb. It permits you to define what a day, week, or month consists of, thereby providing the ability to report on weekends only, weekdays only, and so on.

Table 7-5 SHIFT Verb Keywords

Keyword	Description	Explanation
DAY	Two time-of-day numbers in the format HHMM,HHMM. The default is: 0000,2359	Defines a day. The first number is the start of the day; the second number is the end of the day; for example, if you wish to report only on workdays from 8 am to 5 pm, enter 0800,1700. When specifying DAY, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS
WEEK	MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY, WEEKDAYS, WEEKENDS The default is: WEEKENDS,WEEKDAYS	Enter one or more operands to define the days in a week. Weeks always start with Sunday. When specifying WEEK, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS
MONTH	One- to four-date pairs indicating which days of the month to include. The default is: 1,31	The date pairs are windows into the month. They may be overlapping. If you specify a date greater than the last day of the month, it is assumed that you wish to process until month end. When specifying MONTH, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS

Note: If you do not specify a PSHIFT verb, it is assumed that you want to report on data 24 hours a day, 7 days a week, for the entire month. Weeks always start with Sunday.

Usage Notes for All Reports

The following information is helpful in generating reports:

- The operands and values listed as option keywords are used during the data collection phase of the report processing. Values specified for these operands control which data is collected from the catalog, HSM Control Data Sets, or Volume Table of Contents. Values used in these option keywords have the most affect on the processing time and memory usage requirements of a given report.
- The data-output field names can be used in SORT and ORDER statements. Also, except where noted, filters can be specified for most of these fields. Using filters with one or more data-output field names offers great flexibility in tailoring the report output. However, care should be used when specifying multiple filters, since only lines that match all filter criteria specified will be printed.
- Batch reports may use any of the following comparison operators:

=	equals	The value of the parameter at run time must equal the specified value
<	less than	The value of the parameter at run time must be less than the specified value
>	greater than	The value of the parameter at run time must be greater than the specified value
≠	not equals	The value of the parameter at run time must be a value other than the specified value (the logical not symbol preceding the equals symbol is EBCDIC X'5F')
- You can specify the order in which fields are printed on the report and the sequence of report output.
- You can generate multiple reports in a single batch job.

Note: Less than or equal to and greater than or equal to are not supported.

HSM Collector Batch Reports

This section describes the DFHSM batch report options, keywords, and provides samples of reports.

Filters and Option Keywords for DFHSM Reports

Table 7-6 provides a list of filters that control the selection of information to be reported in DFHSM batch reports. “DFHSM Report Option Keywords and Report Matrix” on page 7-12 provides a matrix of filters available for each report.

Table 7-6 Report Filters for DFHSM Reports Defined (Part 1 of 3)

Filter	Default	Input	Description
DSTYPE	ALL	ALL, VSAM, NONVSAM	Data set type restricts the report to either VSAM or NON-VSAM data sets. ALL includes every type of data set found.
FRSTDATE	Eight hours before the LASTDATE and LASTTIME values	Date entered in one of two formats: This date is specified as YYMMDD (for example, 950125) or YYYYMMDD (for example, 20010125).	Earliest date is the oldest date that the report is to cover. Input records having a date earlier than the specified date are filtered from the report. If LASTDATE is not specified, data for only FRSTDATE is provided.
FRSTTIME	Eight hours before the LASTTIME value	The time values must be in the HHMM format, with hours specified in 24-hour mode. A full four numerals must be specified (for example, 2 PM is 1400). If the FRSTTIME value is greater than the LASTTIME value, the FRSTDATE value is decremented by one.	Earliest time is the oldest time of day that the report is to cover. Input records having a time earlier than the specified time are filtered from the report. If the FRSTTIME value is greater than LASTTIME value, the FRSTTIME value is decremented by 1.
LASTDATE	value for FRSTDATE	Date entered in one of two formats: This date is specified as YYMMDD (for example, 950125) or YYYYMMDD (for example, 20010125). If this field is left blank, the current date is used. A full six or eight characters must be specified. If both the FRSTDATE and LASTDATE keywords are specified, the LASTDATE value must be greater than or equal to the FRSTDATE value. If no century is specified, 19 is used.	Latest date is the most recent date that the report is to cover. Input records having a date later than the specified date are filtered from the report. If FRSTDATE is not specified, data for only LASTDATE is provided.
LASTTIME	Current system time	The time values must be in the HHMM format, with hours specified in 24-hour mode (for example, 9 AM is 0900).	Latest time is the most recent time of day that the report is to cover. Input records having a time later than the specified time are filtered from the report.

Table 7-6 Report Filters for DFHSM Reports Defined (Part 2 of 3)

Filter	Default	Input	Description
NMBRDAYS	One day	NMBRDAYS Up three digits.	Number of days can be used instead of the latest/earliest dates to specify the full time period. When specified with the FRSTDATE keyword, this value is used to determine the LASTDATE value. When specified with the LASTDATE keyword, this value is used to determine the FRSTDATE value.
NMBRHRS	Eight hours	NMBRHRS A value between 1 and 23.	Number of hours can be used instead of the latest/earliest times to specify the full time period. When specified with the FRSTTIME keyword, this value is used to determine the LASTTIME value. When specified with the LASTTIME keyword, this value is used to determine the FRSTTIME value.
PREFIX	All data sets	Data set name prefix	Data set name prefix that can be specified to restrict the report to a set of similarly named data sets. When both PREFIX and DSNMASK values are specified, the last value specified determines the data set name filter.
DSNMASK	All data sets	Standard MAINVIEW SRM data set name mask.	Data set name mask that can be specified to restrict the report to a set of similarly named data sets. When both PREFIX and DSNMASK values are specified, the last value specified determines the data set name filter.
SHOWCAT	None	Y/N Information from the catalog (current volume, SMS classes) can be included in the report (Y) or excluded from the report (N).	Excluding catalog information generates the report faster. Excluded catalog fields are shown on the report with no data in the columns.
SYSTEMID	All systems	Up to four-character system identifier.	System ID can be specified to restrict the report to a single OS/390 system. If not specified, log records are selected for all systems.
TAPETYPE	None	Type of DFHSM backup tape. A - All tapes B - Spill Backup D - Daily Backup M - Migration Level 2 tapes U - Unassigned	Type of DFHSM backup tape.

Table 7-6 Report Filters for DFHSM Reports Defined (Part 3 of 3)

Filter	Default	Input	Description
VOLNAME	None	volser	Single volume to be processed.
VOLRANGE	None	volser, volser Note: When the first of two volume range values is entered and a second value is not, the second value defaults to the first value. You may also enter a wildcard character for the second value to indicate that all volumes from the first value to the end of the volume range are to be processed.	Range of volumes to be processed.

Usage Notes

You must specify any two of the three date parameters, either by direct entry or by accepting the defaults.

- If neither the latest date nor the earliest date is specified, the latest date field uses the current date, and the number of days is subtracted from the current date to obtain the earliest date.
- If the latest date is specified but the earliest date is not, the number of days is subtracted from the latest date to obtain the earliest date.
- If the earliest date is specified but the latest date is not, the number of days is added to the earliest date to obtain the latest date.
- The number of days parameter uses 1 day as the default, if it is needed and not typed.
- If no date parameters are typed, the latest and earliest dates both use the current date.

You must specify any two of the three time parameters, either by direct entry or by accepting the defaults.

- If neither the latest time nor the earliest time is specified, the latest time field uses the current time, and the number of hours is subtracted from the current time to obtain the earliest time.
- If the latest time is specified but the earliest time is not, the number of hours is subtracted from the latest time to obtain the earliest time.
- If the earliest time is specified but the latest time is not, the number of hours is added to the earliest time to obtain the latest time.
- The number of hours parameter uses 8 hours as the default, if it is needed and not typed.

- If no time parameters are typed, the latest time uses the current time, and the earliest time subtracts 8 hours. For the Activity Summary report and the Daily Volume report, the earliest time is 00:00.
- If the earliest time typed is a larger number than the latest time (indicating a previous day), the earliest date is decremented by 1.

Table 7-7 DFHSM Report Option Keywords and Report Matrix

Keyword	Activity Summary Report	BCDS Data Set Report	BCDS Version Report	Backup/Recovery Report	Error Detail Report	Error Summary Report	Log Entries Report	Migration Activity Report	MCDS Data Set Entries Report	Thrashing Summary	Thrashing Detail Report	OCDS Data Set Report	OCDS Volume Report	Recall Activity Report	Data Set Deletions Report	Daily Volume Report	Migration Level Report
DSTYPE		*	*									*					
FRSTDATE	*			*	*	*	*	*		*	*			*	*	*	*
FRSTTIME	*			*	*	*	*	*		*	*			*	*	*	*
LASTDATE	*			*	*	*	*	*		*	*			*	*	*	*
LASTTIME	*			*	*	*	*	*		*	*			*	*	*	*
NMBRDAYS	*			*	*	*	*	*		*	*			*	*	*	*
NMBRHRS				*	*	*	*	*		*	*			*	*		*
PREFIX		*	*	*	*	*	*	*	*	*	*	*		*	*		*
DSNMASK		*	*	*	*	*	*	*	*	*	*	*		*	*		*
SHOWCAT				*	*	*	*	*		*	*			*	*		*
SYSTEMID	*			*	*	*	*	*		*	*			*	*	*	*
TAPETYPE												*	*				
VOLNAME																*	
VOLRANGE												*	*				
Report Page Number	7-13	7-15	7-18	7-21	7-23	7-26	7-28	7-30	7-33	7-37	7-39	7-40	7-42	7-44	7-46	7-48	7-50

DFHSM Activity Summary Report

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

When no time range is specified, all information for the selected data range is displayed.

Purpose	reports daily totals for DFHSM operations
Data source	log extract files
Initial order	ascending on system ID, date, and time
Report name verb	ACTIVITY_SUM

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-8 presents a field list for the DFHSM Activity Summary Report.

Table 7-8 Field List for the DFHSM Activity Summary Report (Part 1 of 2)

Column Heading	Field Name	Description
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.
Summary Date	DATECHAR	Date the data was collected. For the current date, data is updated hourly by DFHSM.
Summary Time	TIMECHAR	Time of the action.
DFHSM Start	START	Number of DFHSM starts for the day.
DFHSM Stop	STOP	Number of DFHSM stops for the day.
DFHSM Abend	ABEND	Number of DFHSM abends for the day.
DFHSM Rqst	RQST	Number of DFHSM requests: the number of management work elements received from the DFHSM SVC.
Migration Total	MIGTOT	Number of migrations and number of failed migrations: the number of migrations includes both successful and failed actions for all migration levels (ML0 to ML1, ML1 to ML2, ML0 to ML2).
Migration Failed	MIGFAIL	Number of failed migrations for all migration levels (ML0 to ML1, ML1 to ML2, ML0 to ML2).

Table 7-8 Field List for the DFHSM Activity Summary Report (Part 2 of 2)

Column Heading	Field Name	Description
Recall Total	RCLTOT	Number of recalls and number of failed recalls: the number of recalls includes both successful and failed actions for all recall levels (ML1 to ML0, ML2 to ML0).
Recall Failed	RECLFAIL	Number of failed recalls for all recall levels (ML1 to ML0, ML2 to ML0).
BACKUP TOTAL	BACKTOT	Number of backups and number of failed backups: the number of backups includes both successful and failed actions.
Backup Failed	BACKFAIL	Number of failed backups.
Recovery Total	RCVTOT	Number of recoveries and number of failed recoveries: the number of recoveries includes both successful and failed actions.
Recovery Failed	RCFAIL	Number of failed recoveries.

Figure 7-1 provides a sample of the DFHSM Activity Summary Report.

Figure 7-1 DFHSM Activity Summary Report

```

Produced by MAINVIEW SRM                               DFHSM Activity Summary Report                               Page: 1
BMC Software, Inc.                                     Generated:03/31/2003(2003.090)@14:06

Syst Summary      Summary      DFHSM DFHSM DFHSM  DFHSM  Migration Migration  Recall  Recall  Backup  Backup  Recovery Recovery
 Id   Date        Time      Start Stop  Abend  Rqst   Total   Failed  Total  Failed  Total  Failed  Total  Failed
-----
SYSG 2003/02/19  0:40:42    1    0    0        0        0        0        0    0    0    0    0    0
SYSG 2003/02/19  7:03:38    1    0    0       456        0        0        1    0    0    0    0    0
SYSG 2003/02/19  7:03:38    1    0    0       456        0        0        1    0    0    0    0    0
SYSG 2003/02/19  8:10:18    1    0    0       456        1        1        3    2    0    0    0    0
SYSG 2003/02/19  8:10:18    1    0    0       456        1        1        3    2    0    0    0    0
SYSG 2003/02/19  9:06:37    1    0    0       459       249       26        6    2    0    0    0    0
SYSG 2003/02/19  9:06:37    1    0    0       459       249       26        6    2    0    0    0    0
SYSG 2003/02/19 10:13:53    1    0    0       461       249       26        8    2    0    0    0    0
SYSG 2003/02/19 10:13:53    1    0    0       461       249       26        8    2    0    0    0    0
SYSG 2003/02/19 15:03:49    1    0    0    15,798    258       32       45    24    0    0    0    0
SYSG 2003/02/19 16:07:49    1    0    0    15,802    258       32       52    29    0    0    0    0
SYSG 2003/02/19 17:37:26    1    0    0    15,809    258       32       58    34    0    0    0    0
SYSG 2003/02/19 19:38:30    1    0    0    15,811    258       32       58    34    1    1    0    0
SYSG 2003/02/19 20:02:37    1    0    0    15,822    258       32       60    36    6    6    0    0
***** END OF REPORT *****
SGBPRSSI REPORT COMPLETED SUCCESSFULLY
    
```

DFHSM BCDS Data Set Report

The DFHSM BCDS Data Set Report displays backup information about data sets. The report shows the age of the backup, the date the backup was made, and the backup data set device and device type (DISK or TAPE).

Purpose	reports on data set backups maintained by DFHSM
Data source	DFHSM Backup Control Data Set
Initial order	data set name in ascending order
Report name verb	BCDS_DATASET

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-9 presents a field list for the DFHSM BCDS Data Set Report.

Table 7-9 Field List for the DFHSM BCDS Data Set Report (Part 1 of 2)

Column Heading	Field Name	Description
Data set name	DSN	Data set name. No filters allowed.
SMS	SMS	SMS status of the data set.
Ds Org	DSORG	Data set organization.
Last Bkp Gen	LSTBGEN	Generation number of the most recent backup.
Bkp CVers	BACKCOVER	Number of backup catalog versions.
Tot Ver	TOTVER	Total number of backup versions that exists of the data set.
Last Bkp Time	LSTBTIME	Time of the most recent backup. No filters allowed.
Last Bkp Date	LSTBDATE	Date of the most recent backup. No filters allowed.
Last Bkp Age	LSTBAGE	Age in days of the most recent backup.
Last Bkp Vol	LSTBVOL	Volume serial of the most recent backup copy.
Last Bkp Size	LSTBSIZE	Size of the most recent backup in Kbytes.
From Vol	FROMVOL	Volume on which the data set resided when the backup was made.
Orig Trks	TRACKS	Size of the data set in tracks required to restore the data set.

The resulting customized DFHSM BCDS Data Set Report is shown in Figure 7-3.

Figure 7-3 Customized DFHSM BCDS Data Set Report

Produced by MAINVIEW SRM BMC Software, Inc.	DFHSM BCDS Data Set Report	Page: 1 Generated: 03/27/2003(2003.147)@17:29
--	----------------------------	--

Data Set Name	Last Bkp Vol	Last Bkp Gen	Last Bkp Age	Last Bkp Date	Last Bkp Time
EMP.DAMR312.DIST.ASM	HSM005	1	586	2002/10/18	05:04:21
EMP.DAMR312.DIST.CNTL	HSM005	1	586	2002/10/18	05:04:26
EMP.DAMR312.DIST.ISPMLIB	HSM005	1	586	2002/10/18	05:04:28
EMP.DAMR312.DIST.ISPPLIB	HSM005	1	586	2002/10/18	05:04:31
EMP.DAMR312.DIST.ISPTLIB	HSM005	1	586	2002/10/18	05:04:33
EMP.DAMR312.DIST.LINK	HSM005	1	586	2002/10/18	05:04:36
EMP.DAMR312.DIST.LISTING	HSM003	1	580	2002/10/24	19:54:50
EMP.DAMR312.DIST.LOAD	HSM003	1	580	2002/10/24	19:57:35
EMP.DAMR312.DIST.MACLIB	HSM003	1	580	2002/10/24	19:42:52
EMP.DAMR312.DIST.OBJ	HSM004	1	580	2002/10/24	19:45:18
***** END OF REPORT *****					

In this example:

- PREFIX report option keyword requests backup information for data sets with names starting with EMP.DAMR312.DIST.
- SORT report option keyword sorts the report in ascending data set name order.
- ORDER report option keyword builds the report using the data set name followed by the volume, generation number, age, date, and time of the last backup.

DFHSM BCDS Version Report

The DFHSM BCDS Version Report displays backup information about data sets. The report shows the age of the backup, the date the backup was made, and the backup data set device and device type (DISK or TAPE). A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPE)*.

Purpose	reports on data set backups maintained by DFHSM
Data source	DFHSM backup control data set
Initial order	data set backups in ascending version order
Report name verb	BCDS_VERSION

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Figure 7-10 presents a field list for the DFHSM BCDS Version Report.

Table 7-10 Field List for the DFHSM BCDS Version Report (Part 1 of 2)

Column Heading	Field Name	Description
Data set name	DSN	Data set name. No filters allowed.
SMS	SMS	SMS status of the data set.
Ds org	DSORG	Data set organization.
Bkp Ver	BACKVER	Backup version generation number.
Bkp Time	BACKTIME	Time the backup was made. No filters allowed.
Bkp Date	BACKDATE	Date the backup was made. No filters allowed.
Bkp Age	BACKAGE	Age of the backup in days.
Bkp Vol	BACKVOL	Volume where the backup is stored.
Bkp Dev	BACKDEV	Device type where the backup is stored.
Bkp Size	BACKSIZE	Size of the (compressed) backup data set.
From Vol	FROMVOL	Volume on which the data set resided when the backup was made.
From Device	FROMDEV	Original device for which the most recent backup was made.

Table 7-10 Field List for the DFHSM BCDS Version Report (Part 2 of 2)

Column Heading	Field Name	Description
Orig Trks	TRACKS	Size of the data set in tracks required to restore the data set.
Backup Data set name	BACKDSN	Data set name on backup medium.
Data Class	DATACLAS	Current data class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed.
Stor Class	STORCLAS	Current storage class of DFSMS-managed data set. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed.
Mgmt Class	MGMTCLAS	Current management class of DFSMS-managed data set. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed.
Orig Size	SIZE	Size of the data set on user volume.

Figure 7-4 provides a sample of the DFHSM BCDS Version Report.

Figure 7-4 DFHSM BCDS Version Report

```

Produced by MAINVIEW SRM                               DFHSM BCDS Version Report                               Page: 1
BMC Software, Inc.                                     Generated:03/27/2003(2003.147)@17:31

Data Set Name          DS SMS Org  Bkp Ver  Bkp Time  Bkp Date  Bkp Age  Bkp Vol  Bkp Dev  Bkp Size  From Vol  From Dev  Orig Trks
-----
Backup Data Set Name  Data Class  Stor Class  Mgmt Class  Orig Size
-----
EMP.DAMR312.DIST.OBJ          N PO      1 19:45:18 2002/10/24 580 HSM004 DASD 260 EMP002 3390 30
HSM26.BACK.T184519.EMP.DAMR312.I6298 386
=====
EMP.DAMR312.DIST.ASM          N PO      1 05:04:21 2002/10/18 586 HSM005 DASD 1140 EMP001 3380 154
HSM26.BACK.T210405.EMP.DAMR312.I6292 4407
=====
EMP.DAMR312.DIST.CNTL        N PO      1 05:04:26 2002/10/18 586 HSM005 DASD 10 EMP003 3380 3
HSM26.BACK.T250405.EMP.DAMR312.I6292 35
=====
EMP.DAMR312.DIST.ISPMLIB     N PO      1 05:04:28 2002/10/18 586 HSM005 DASD 6 EMP003 3380 1
HSM26.BACK.T280405.EMP.DAMR312.I6292 10
=====
EMP.DAMR312.DIST.ISPPLIB     N PO      1 05:04:31 2002/10/18 586 HSM005 DASD 8 EMP003 3380 15
HSM26.BACK.T300405.EMP.DAMR312.I6292 20
=====
EMP.DAMR312.DIST.ISPTLIB     N PO      1 05:04:33 2002/10/18 586 HSM005 DASD 2 EMP003 3380 15
HSM26.BACK.T320405.EMP.DAMR312.I6292 2
=====
EMP.DAMR312.DIST.LOAD        N PO      1 19:57:35 2002/10/24 580 HSM003 DASD 194 EMP004 3390 15
HSM26.BACK.T345719.EMP.DAMR312.I6298 228
=====
EMP.DAMR312.DIST.LINK        N PO      1 05:04:36 2002/10/18 586 HSM005 DASD 2 EMP005 3380 1
HSM26.BACK.T350405.EMP.DAMR312.I6292 4
=====
EMP.DAMR312.DIST.LISTING     N PO      1 19:54:50 2002/10/24 580 HSM003 DASD 12626 EMP004 3390 990
HSM26.BACK.T505419.EMP.DAMR312.I6298 39490
=====
EMP.DAMR312.DIST.MACLIB     N PO      1 19:42:52 2002/10/24 580 HSM003 DASD 298 EMP001 3390 24
HSM26.BACK.T524219.EMP.DAMR312.I6298 883
=====
***** END OF REPORT *****
    
```

The following example shows how to select the backup version information for data sets from a set of volumes:

```
BCDS_VERSION,
FROMVOL ( SMS00* ) ,
SORT ( FROMVOL , A , DSN , A ) ,
ORDER ( FROMVOL , DSN , BACKAGE , BACKDATE , BACKTIME )
```

Figure 7-5 provides a sample of the customized report.

Figure 7-5 Customized DFHSM BCDS Version Report

```
Produced by MAINVIEW SRM          DFHSM BCDS Version Report          Page: 1
BMC Software, Inc.                Generated:03/27/2003(2003.147)@17:30
```

From Vol	Data Set Name	Bkp Age	Bkp Date	Bkp Time
SMS002	EMPRISE.DENIS.CONTROL.ELB	790	2002/03/28	10:19:35
SMS002	SYS3.STG3.TCPIP.CONTROL.ELB	919	2001/11/20	10:44:00
SMS002	SYS3.STG3NT.LEVNT30A.CONTROL.ELB	733	2002/05/24	09:07:38
SMS002	SYS3.STG3NT.TECNT30A.CONTROL.ELB	728	2002/05/29	05:01:09
SMS002	SYS3.STG3ST.V30.CONTROL.ELB	786	2002/04/01	05:01:20
SMS003	EMP.STG3NT.LEVYNT60.CONTROL.ELB	1022	2001/08/09	09:15:58
SMS004	EMP.PROSMS33.PDSE.PARMLIB	1213	2001/01/30	08:56:05
SMS004	EMPUCAT.BB01719.ICFCAT	679	2002/07/17	05:01:43
SMS005	EMPCRM.SMSACSSC.TEST2	1538	1994/03/11	14:39:09
SMS005	SYS3.STG3ARC.V21.CONTROL.ELB	849	2002/01/29	10:16:08
***** END OF REPORT *****				

In this example:

- A filter is used with the FROMVOL data output field name to select information for data sets that resided on DASD volumes with a volume serial starting with SMS00.
- SORT report option keyword sorts the report in ascending order by FROMVOL and data set name.
- ORDER report option keyword builds the report using the FROMVOL followed by the data set name, backup age, date, and time.

DFHSM Backup/Recovery Report

The DFHSM Backup/Recovery Report shows all successful backup and recovery actions processed by DFHSM during the specified time period. The report shows age, volumes, date of last change, and SMS class information.

Purpose	reports successful backup and recovery actions during a time period
Data source	log extract file(s)
Initial order	ascending on system ID, data set name, date, and time
Report name verb	BKUP_RECOVER

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Figure 7-11 presents a field list for the DFHSM Backup/Recovery Report.

Table 7-11 Field List for the DFHSM Backup/Recovery Report (Part 1 of 2)

Column Heading	Field Name	Description
Data set name	DSN	Name of the data set.
Action	ACTION	Type of operation performed (backup, backup to spill volume, or recovery).
Age	AGE	Number of days since the data set was last changed.
Size (Meg)	SIZE	Size, in megabytes, of the data set before backup or after recovery. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size.
Current Volume	CURVOL	First or only volume on which the data set currently resides. If the data set is migrated, MIGRAT is shown; if the data set is no longer cataloged, dashes are shown; VSAM clusters are shown with *VSAM*. If SHOWCAT(N) is specified, this field is blank.
From Volume	FROMVOL	Volume from which the data set was backed up or recovered.
To Volume	TOVOL	Volume to which the data set was backed up or recovered.
Last Chg Date	LSTCHGDT	Date on which the data set was last changed.
Date Char	DATECHAR	Date of the action.
Time Char	TIMECHAR	Time of the action.
Mgmt Class	MGMTCLAS	Current management class of DFSMS-managed data set. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.

Table 7-11 Field List for the DFHSM Backup/Recovery Report (Part 2 of 2)

Column Heading	Field Name	Description
Stor Class	STORCLAS	Current storage class of DFSMS-managed data set. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Pool Storgroup	STOGROUP	Pool or DFSMS storage group to which the data set's volume belongs. For pools, the name is preceded by P.; for DFSMS storage groups, the name is preceded by S:. Note that this information is taken from the system at the time the report is generated and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Data Class	DATACLAS	Current data class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Dsorg	DSORG	Data set organization of the data set.
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.

Figure 7-6 provides a sample of the DFHSM Backup/Recover report.

Figure 7-6 DFHSM Backup/Recovery Report

Data set name		Action	Age	Size (meg)	Current Volume	From Volume	To Volume	Last Chg Date	Date (Char)	Time (Char)	Mgmt Class
Stor Class	Pool/Stogroup	Data Class	Dsorg	Syst ID							
EMP.PROR35.ZAPS	P:MRWPOO		PO	SYSG	BKUP DLY	4	1	EMP003 EMP003 HSM003	2003/02/09	19:42:33	
EMP.PROR35.ZAPS	P:MRWPOO		PO	SYSG	BKUP DLY	1	1	EMP003 EMP003 HSM003	2003/02/10	19:41:47	
EMP.PROSMS36.PARMLIB	P:MRWPOO		PO	SYSG	BKUP DLY	3	2	EMP002 EMP002 HSM004	2003/02/09	19:36:41	
EMP.PROSMS36.PARMLIB.JS021098			PO	SYSG	BKUP DLY	0	4	MIGRAT EMP002 HSM004	2003/02/10	19:36:41	
EMP.SGCR241.ZAP	P:MRWPOO		PO	SYSG	BKUP DLY	4	1	EMP002 EMP003 HSM003	2003/02/09	19:42:43	
EMP.SGCR311.ZAP	P:MRWPOO		PO	SYSG	BKUP DLY	0	1	EMP003 EMP003 HSM003	2003/02/13	19:37:24	
EMP.SGDR2XX.ZAP	P:MRWPOO		PO	SYSG	BKUP DLY	1	1	EMP002 EMP003 HSM003	2003/02/13	19:36:59	
EMP.SVWR211.LISTING			PO	SYSG	BKUP DLY	3	11	MIGRAT EMP003 HSM003	2003/02/09	19:43:18	
EMP.SVWR211.LISTING			PO	SYSG	BKUP DLY	1	11	MIGRAT EMP003 HSM003	2003/02/10	19:42:20	
EMP.SVWR211.OBJ			PO	SYSG	BKUP DLY	3	1	MIGRAT EMP003 HSM003	2003/02/09	19:43:47	
EMP.SVWR211.OBJ			PO	SYSG	BKUP DLY	1	1	MIGRAT EMP003 HSM003	2003/02/10	19:42:44	
***** END OF REPORT *****											

DFHSM Error Detail Report

The DFHSM Error Detail Report shows all unsuccessful actions processed by DFHSM during the specified time period, with error codes and a description of the error.

Purpose	reports all unsuccessful actions during a time period
Data source	log extract file(s)
Initial order	ascending on type of action, system ID, data set name, date, and time
Report name verb	ERROR_DETAIL

The report classifies DFHSM actions into seven categories. The report entries are sorted first on the category value, so that all migration actions are displayed together, all recall actions are displayed together, and so on, and then sorted on system ID, data set name, and date/time. The default sorting can be overridden using the SORT command or report customization; the report can be isolated to a single action or action type by filtering on the category or action fields.

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-12 provides action and category descriptions found in the Error Detail report.

Table 7-12 Action and Category Descriptions (Part 1 of 2)

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

Table 7-12 Action and Category Descriptions (Part 2 of 2)

DFHSM action	Action code	Category code
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 report, some of the fields may be empty, depending on what data had been collected by DFHSM when the error occurred.

If SHOWCAT(Y), data sets that are no longer cataloged show dashes in the current volume fields. These data sets may have been deleted and may not need to be considered for corrective action.

Table 7-3 presents a field list for the DFHSM Error Detail Report.

Table 7-13 Field List for the DFHSM Error Detail Report (Part 1 of 2)

Column Heading	Field name	Description
Data set name	DSN	Data set name.
Brief Error Description	ERRDESC	Short error description is preceded by a category abbreviation, as follows: M migration B backup, dump R restore, recover, recall O all other actions
Func Category	FUNCCAT	Functional category assigned for the purpose of sorting actions into groups.
Rtn Code	RTNCODE	DFHSM return code.
Rea Code	REACODE	DFHSM reason code, if any.
Action	ACTION	Description of the DFHSM action.
Current Volume	CURVOL	First or only volume on which the data set currently resides. If the data set is migrated, MIGRAT is shown; if the data set is no longer cataloged, dashes are shown; VSAM clusters are shown with *VSAM*. If SHOWCAT(N) is specified, this field is blank.
From Volume	FROMVOL	Volume from which the data set was processed.
To Volume	TOVOL	Volume to which the data set was processed.

Table 7-13 Field List for the DFHSM Error Detail Report (Part 2 of 2)

Column Heading	Field name	Description
Last Used Date	LSTUSEDT	Date the data set was last used.
Date Char	DATECHAR	Date the data set was last changed.
Time Char	TIMECHAR	Time the data set was last changed.
Age	AGE	Number of days since the data set was last referenced or used.
Size Read	SIZER	Size, in megabytes, of the data set as it was read. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size. (This field is usually zero for errored actions.)
Size Writ	SIZEW	Size, in megabytes, of the data set as it was written. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size. (This field is usually zero for errored actions.)
Mgmt Class	MGMTCLAS	Current management class of DFSMS-managed data set. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Stor Class	STORCLAS	Current storage class of DFSMS-managed data set. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Pool Storgroup	STOGROUP	Pool or storage group: the pool or DFSMS storage group to which the data set's volume belongs. For pools, the name is preceded by P:; for DFSMS storage groups, the name is preceded by S:. Note that this information is taken from the system at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Data Class	DATACLAS	Current data class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
User ID	USERID	ID of the user associated with the job that caused the DFHSM action.
Job Name	JOBNAME	Name of the job that caused the DFHSM action.
Dsorg	DSORG	Data set organization of the data set.
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.

Figure 7-7 provides a sample of the DFHSM Error Detail Report.

Figure 7-7 DFHSM Error Detail Report

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DFHSM Error Detail Report

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Generated:04/09/2003(2003.160)#12:11

Data set name				Brief error description				Func	Rtn	Rea	Action	Current	From
Volume	To Last Used	Action	Action	Age	Size (read)	Size (writ)	Mgmt Class	Stor Class	Pool/Stogroup	Data Class	User ID	Job Name	DS Org ID
Volume	Date	Date	Time										
EMP.SMSTEST.SPACPRIM		2003/03/22	08:10:03		M:Unsupported data set			MIGRATION	99	4	SPCMGMT	SMS303	SMS303
				10	0	0		STC1	S:STG1				SYSG
EMP.SMS13.SYSH.COMMDS	HSM002	2002/10/19	2003/02/22	08:10:28	M:Error in DFDSS			MIGRATION	68	779	MIGRATE 0->1	SMS303	EMP001
					0	0			P:SMS		**HSM***	HSM	VS SYSG
EMP.SMS.X37VSAM		2003/03/22	10:10:42		O:RACF protection error			OTHER	39	8	DELETE MIG DS	MIGRAT	
				0	0	0		STC1			DONNA	SXJCL021	SYSG
EMP.SMS.X37VSAM		2003/03/14	2003/03/22	10:02:44	R:Error in DFDSS		1	RECALL	69	380	RECALL 0<-1	MIGRAT	HSM002
				6	1			STC1			DONNA	DONNA	VS SYSG
EMP.SMS.X37VSAM		2003/03/14	2003/03/22	10:03:00	R:Error in DFDSS		1	RECALL	69	380	RECALL 0<-1	MIGRAT	HSM002
				6	1			STC1			DONNA	DONNA	VS SYSG
EMP.SMS.X37VSAM		2003/03/14	2003/03/22	10:03:12	R:Error in DFDSS		1	RECALL	69	380	RECALL 0<-1	MIGRAT	HSM002
				6	1			STC1			DONNA	DONNA	VS SYSG
EMP.SMS.X37VSAM		2003/03/14	2003/03/22	10:03:22	R:Error in DFDSS		1	RECALL	69	380	RECALL 0<-1	MIGRAT	HSM002
				6	1			STC1			DONNA	DONNA	VS SYSG
EMP.SMS.X37VSAM		2003/03/14	2003/03/22	10:03:55	R:Error in DFDSS		1	RECALL	69	380	RECALL 0<-1	MIGRAT	HSM002
				6	1			STC1			DONNA	DONNA	VS SYSG
EMP.SMS.X37VSAM		2003/03/14	2003/03/22	10:04:14	R:Error in DFDSS		1	RECALL	69	380	RECALL 0<-1	MIGRAT	HSM002
				6	1			STC1			DONNA	DONNA	VS SYSG
EMP.SMS.X37VSAM		2003/03/14	2003/03/22	10:08:20	R:Error in DFDSS		1	RECALL	69	380	RECALL 0<-1	MIGRAT	HSM002
				6	1			STC1			DONNA	DONNA	VS SYSG
EMP.SMS.X37VSAM		2003/03/14	2003/03/22	10:08:30	R:Error in DFDSS		1	RECALL	69	380	RECALL 0<-1	MIGRAT	HSM002
				6	1			STC1			DONNA	DONNA	VS SYSG

***** End of Report *****

DFHSM Error Summary Report

The DFHSM Error Summary Report totals errors for migration, recall, and backup during the specified time period, with error codes and a description of the error.

Purpose	reports error counts and percentages for DFHSM actions during a time
Data source	log extract file(s)
Initial order	descending on error percentage with migration/recall/backup categories
Report name verb	ERROR_SUM

The DFHSM Error Summary Report includes only migration, recall, and backup actions. The report entries are sorted first on the action type value, so that all recall actions are displayed together after the migration actions and all backup actions are displayed together after the migration and recall actions. The entries are then sorted descending on error percentage. The zero return code actions are included in the totals and always show at the top of the rows for that action. (You can override the default sort using the SORT command or report customization.)

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-14 lists DFHSM Error Summary Report group actions.

Table 7-14 Action and Category Descriptions

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
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

Table 7-15 presents a field list for the DFHSM Error Summary Report.

Table 7-15 Field List for the DFHSM Error Summary Report

Column Heading	Field Name	Description
DFHSM Activity	ACTIVITY	DFHSM activity: migration, recall, or backup.
RC Count	ERRCNT	Error count: the number of actions that completed with the error code shown on this line. A summary line is shown for successful actions.
% of Category	PCTTOT	Percentage of the errored actions to the total actions, successful and unsuccessful. For successful actions, the percentage is of the total actions.
% of Errors	PCTERR	Percentage of the errored actions to the total errored actions in the DFHSM activity (migration, recall, backup).
Brief Error Description	ERRDESC	Short description of the error.
Rtn Code	RTNCODE	DFHSM return code.

Figure 7-8 provides a sample of the DFHSM Error Summary Report.

Figure 7-8 DFHSM Error Summary Report

Produced by MAINVIEW SRM BMC Software, Inc.		DFHSM Error Summary Report			Page: 1
					Generated:03/31/2003(2003.154)@10:30
Action Category	RC Count	% of Category	% of Errors	Rtn Code	Brief description
BACKUP	36	6	35	68	Error in DFDSS
BACKUP	28	4	27	99	Unsupported data set
BACKUP	26	4	25	19	Data set in use
BACKUP	6	1	6	17	I/O error on PDS directory
BACKUP	4	1	4	58	Backup failed
BACKUP	2	0	2	70	SMS-related error
BACKUP	2	0	2	16	Error reading primary copy
BACKUP	536	84	0	0	***** No error *****
MIGRATION	58	26	39	99	Unsupported data set
MIGRATION	58	26	39	20	Data not eligible for mig
MIGRATION	18	8	12	30	Data set not cataloged
MIGRATION	10	4	7	19	Data set in use
MIGRATION	4	2	3	68	Error in DFDSS
MIGRATION	2	1	1	70	SMS-related error
MIGRATION	76	34	0	0	***** No error *****
RECALL	20	14	65	2	Data set not migrated
RECALL	11	8	35	82	Tape volume not available
RECALL	114	79	0	0	***** No error *****
***** End of Report *****					

DFHSM Log Entries Report

The DFHSM Log Entries Report lists all actions (successful and unsuccessful) processed by DFHSM during the specified time period. The report is intended to provide a chronological event history, rather than extensive details on any particular DFHSM action. The report entries are therefore strictly in chronological order (the order in which they were recorded by DFHSM in the log file) with only a minimum number of columns detailing the action.

Purpose	reports all successful and unsuccessful actions during a time period
Data source	log extract file(s)
Initial order	ascending on date and time
Report name verb	LOG_ENTRIES

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-16 lists DFHSM Log Entries Report actions.

Table 7-16 Action Descriptions (Part 1 of 2)

DFHSM action	Action code
migration ML0 to ML1	MIGRATE 0->1
ML1 to ML2	MIGRATE 1->2
ML0 to ML2	MIGRATE 0->2
failed migrate	MIGRATE
	SPCMGMT

Table 7-16 Action Descriptions (Part 2 of 2)

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

Table 7-17 presents a field list for the DFHSM Log Entries Report.

Table 7-17 Field List for the DFHSM Log Entries Report

Column Heading	Field Name	Description
Data set Name	DSN	Data set name.
Action	ACTION	Description of the DFHSM action.
Rtn Code	RTNCODE	DFHSM return code.
Rea Code	REACODE	DFHSM reason code, if any.
Brief Error Description	ERRDESC	Short error description is preceded by a category abbreviation, as follows: M migration B backup, dump R restore, recover, recall O all other actions
Date	DATE	Date of action.
Time	TIME	Time of action.
User ID	USERID	ID of the user associated with the job that caused the DFHSM action.
Job Name	JOBNAME	Name of the job that caused the DFHSM action.
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.
Func Category	FUNCCAT	Functional category assigned for the purpose of sorting actions into groups.

Figure 7-9 provides a sample of the DFHSM Log Entries Report.

Figure 7-9 DFHSM Log Entries Report

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Data set name                      Action      Rtn  Rea
Job      Syst  Func                               Date      Time    User
Name     ID   Category                               ID

-----
EMP.DAMR125.LLIB                    MIGRATE    ****  ****  M:Unsupported data set      2003/02/09 08:10:14
      SYSG MIGRATION
=====
EMP.DAMR125.LLIB                    BACKUP     ****  ****  B:Unsupported data set      2003/02/09 19:37:46
      SYSG BACKUP
=====
EMP.DAMR125.LLIB                    MIGRATE    ****  ****  M:Unsupported data set      2003/02/10 08:10:16
      SYSG MIGRATION
=====
EMP.DAMR125.LLIB                    BACKUP     ****  ****  B:Unsupported data set      2003/02/10 19:36:44
      SYSG BACKUP
=====
EMP.DAMR125.LLIB                    MIGRATE    ****  ****  M:Unsupported data set      2003/02/11 08:10:11
      SYSG MIGRATION
=====
EMP.DAMR125.LLIB                    MIGRATE    ****  ****  M:Unsupported data set      2003/02/13 08:10:10
      SYSG MIGRATION
=====
EMP.DAMR125.LLIB                    BACKUP     ****  ****  B:Unsupported data set      2003/02/13 19:34:15
      SYSG BACKUP
=====
EMP.DAMR125.LLIB                    MIGRATE    ****  ****  M:Unsupported data set      2003/02/14 08:10:10
      SYSG MIGRATION
=====
EMP.DAMR125.LLIB                    MIGRATE    ****  ****  M:Unsupported data set      2003/02/15 08:10:08
      SYSG MIGRATION
=====
***** END OF REPORT *****
    
```

DFHSM Migration Activity Report

The DFHSM Migration Activity Report shows all successful migrations processed by DFHSM during the specified time period, with aging information, volume information, and DFSMS class information.

Purpose	shows all successful migrations during a time period
Data source	log extract file(s)
Initial order	ascending on system ID, data set name, date, and time
Report name verb	MIGRATION

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

The DFHSM Migration Activity Report displays three types of migrations, as shown Table 7-18.

Table 7-18 Action Descriptions

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

The total number of all migrations and the total of each type of migration are shown in the header of the panel.

Table 7-19 presents a field list for the DFHSM Migration Activity Report.

Table 7-19 Field List for the DFHSM Migration Activity Report (Part 1 of 2)

Column Heading	Field Name	Description
Data set name	DSN	Name of the data set.
Action	ACTION	Type of operation performed (backup, backup to spill volume, or recovery).
Age	AGE	Number of days since the data set was last changed.
Adj Age	ADJAGE	Age of the data set after adjustments for non-working days defined in the MAINVIEW SRM calendar.
From Volume	FROMVOL	Volume from which the data set was backed up or recovered.
Current Volume	CURVOL	First or only volume on which the data set currently resides. If the data set is migrated, MIGRAT is shown; if the data set is no longer cataloged, dashes are shown; VSAM clusters are shown with *VSAM*. If SHOWCAT(N) is specified, this field is blank.
To Volume	TOVOL	Volume to which the data set was backed up or recovered.
Fr Lvl	FROMLVL	Migration level from which the data set was migrated.
To Lvl	TOLVL	Migration level to which the data set was migrated.
Last Ref Date	LSTREFDT	Date on which the data set was last referenced.
Date Char	DATECHAR	Date the data set was last changed.
Time Char	TIMECHAR	Time of the action.
Size (Meg)	SIZE	Size, in megabytes, of the data set before backup or after recovery. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size.
Size Migrt	SIZEM	Size, in megabytes, of the data set after migration. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size.
Mgmt Class	MGMTCLAS	Current management class of DFSMS-managed data set. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Stor Class	STORCLAS	Current storage class of DFSMS-managed data set. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.

Table 7-19 Field List for the DFHSM Migration Activity Report (Part 2 of 2)

Column Heading	Field Name	Description
Pool Stogroup	STOGRROUP	Pool or DFSMS storage group to which the data set's volume belongs. For pools, the name is preceded by P;; for DFSMS storage groups, the name is preceded by S:. Note that this information is taken from the system at the time the report is generated and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Data Class	DATACLAS	Current data class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
User ID	USERID	ID of the user associated with the job that caused the DFHSM action.
Job Name	JOBNAME	Name of the job that caused the DFHSM action.
Dsorg	DSORG	Data set organization of the data set.
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.

Figure 7-10 provides a sample of the DFHSM Migration Activity Report.

Figure 7-10 DFHSM Migration Activity Report

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DFHSM Migration Activity Report

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Data set name	Action	Age	Adj Age	From Volume	Current Volume	To Volume	Fr Lvl	To Lvl	Last Ref Date	Date (Char)	Time (Char)	Size (meg)
Size Mgrt Class	Stor Class	Pool/ Stogroup	Data Class	User ID	Job Name	Dsorg	Syst ID					
EMP.DISR151.COPY 1	M 0->1 **HSM***	7 HSM		5 EMP005 PO	EMP002 SYSG	HSM001	0	1	2003/02/02	2003/02/09	08:11:23	1
EMP.PLDR331.ZAPS 1	M 0->1 **HSM***	7 HSM		5 EMP004 PO	MIGRAT SYSG	HSM002	0	1	2003/02/06	2003/02/13	08:11:05	1
EMP.PLDR332.ZAPS 1	M 0->1 **HSM***	7 HSM		5 EMP004 PO	MIGRAT SYSG	HSM002	0	1	2003/02/06	2003/02/13	08:11:07	1
EMP.PLDR333.ZAPS 1	M 0->1 **HSM***	7 HSM		5 EMP004 PO	MIGRAT SYSG	HSM002	0	1	2003/02/06	2003/02/13	08:11:04	1
EMP.PROR352.DIST.PARMLIB 1	M 0->1 **HSM***	7 HSM		5 EMP005 PO	MIGRAT SYSG	HSM001	0	1	2003/02/02	2003/02/09	08:11:25	1
EMP.PROR352.TEST.PR3523.LOADLIB 1	M 0->1 **HSM***	7 HSM		4 EMP003 PO	MIGRAT SYSG	HSM001	0	1	2003/02/07	2003/02/14	08:10:37	2
EMP.SGAR122.DIST.ISPEXEC 1	M 0->1 **HSM***	7 HSM		5 EMP004 PO	MIGRAT SYSG	HSM001	0	1	2003/02/03	2003/02/10	08:12:15	1
EMP.SGAR122.DIST.JCLLIB 1	M 0->1 **HSM***	7 HSM		5 EMP004 PO	MIGRAT SYSG	HSM002	0	1	2003/02/06	2003/02/13	08:11:31	1
EMP.SGAR122.DIST.LOADLIB 1	M 0->1 **HSM***	7 HSM		5 EMP004 PO	MIGRAT SYSG	HSM002	0	1	2003/02/06	2003/02/13	08:11:46	1
EMP.SGCR241.DIST.SC2411.MACLIB 1	M 0->1 **HSM***	7 HSM		5 EMP004 PO	MIGRAT SYSG	HSM001	0	1	2003/02/03	2003/02/10	08:12:22	1
EMP.SGCR250.ASM 1	M 0->1 **HSM***	7 HSM		4 EMP003 PO	MIGRAT SYSG	HSM001	0	1	2003/02/07	2003/02/14	08:10:44	2
EMP.SGDR251.DIST.SG2511.LLISTING 1	M 0->1 **HSM***	7 HSM		5 EMP004 PO	MIGRAT SYSG	HSM001	0	1	2003/02/03	2003/02/10	08:11:51	6
EMP.SGDR251.ISPLLIB 1	M 0->1 **HSM***	7 HSM		5 EMP004 PO	MIGRAT SYSG	HSM002	0	1	2003/02/06	2003/02/13	08:11:51	1
EMP.SVWR111.ASM 1	M 0->1 **HSM***	7 HSM		5 EMP004 PO	MIGRAT SYSG	HSM002	0	1	2003/02/06	2003/02/13	08:11:54	1

DFHSM MCDS Data Set Entry Report

The DFHSM MCDS Data Set Entry Report shows status information on migrated data sets. The report shows current migration level, volume information, aging information, compression percentage, SDSP (Small Data Set Packing) residency, and DFSMS class information. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPD)*.

Purpose	shows the status of migrated data sets
Data source	MCDS
Initial order	ascending on data set name
Report name verb	MCDS

The report can be restricted to VSAM or non-VSAM data sets and to data sets on Level 1 or Level 2.

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-20 presents a field list for the DFHSM MCDS Data Set Entry Report.

Table 7-20 Field List for the DFHSM MCDS Data Set Report (Part 1 of 2)

Column heading	Field Name	Description
Data set name	DSN	Data set name. No filters allowed.
M L	ML	Migration level.
Mig Size	MIGSIZE	Size of the migrated data set in kilobytes.
Orig Size	SIZE	Size of the data set prior to migration in kilobytes.
Orig Tracks	TRACKS	Number of tracks required to restore the data set at recall time.
Ds Org	DSORG	File organization of the migrated data set.
Mig Date	MIGDATE	Date the data set was migrated. No filters allowed.
Mig Age	MIGAGE	Number of days since the data set was migrated.
Adj Age	AMIGAGE	Number of days since the data set was migrated, calculated from the current date, and adjusted by the non-working days in the MAINVIEW SRM calendar.
Mig Time	MIGTIME	Time the data set was migrated. No filters allowed.
SD SP	SDSP	Indicates whether the data set was migrated to an SDSP data set.
SMS	SMS	Indicates whether the data set was SMS-managed at the time it was migrated.
Cat	CAT	Indicates whether there is a catalog entry for the data set.
Mig Vol	MIGVOL	Volume (disk or tape) where the migrated data set is stored.
Mig Dev	MIGDEV	Device type on which the migrated data set resides.
CMP %	CMP	Percentage the data set was compressed when it was migrated.
From Vol	FROMVOL	Volume where the data set resided before it was migrated.
From Dev	FROMDEV	Device type of the FROMVOL.
Cur Vol	CURRVOL	Volume on which the data set resides. If SHOWCAT(N) is specified, this field is blank.

Table 7-20 Field List for the DFHSM MCDS Data Set Report (Part 2 of 2)

Column heading	Field Name	Description
Data Class	DATACLAS	Current data class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Stor Class	STORCLAS	Current storage class of DFSMS-managed data set. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Mgmt Class	MGMTCLAS	Current management class of DFSMS-managed data set. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Expr Date	EXPRDATE	Original expiration date of the data set. No filters allowed.
Migrated Data Det Name	MIGDSN	Data set name on the migration volume.
Last RefDate	LASTREFD	Date the data set was last referenced.
Cur Age	CREFDAGE	Number of days since the data set was last referenced, calculated from the current date.
Adj Age	AREFDAGE	Number of days since the data set was last referenced, calculated from the current date and adjusted by the non-working days in the MAINVIEW SRM calendar.

Figure 7-11 provides a sample of the DFHSM MCDS Data Set Entry Report.

Figure 7-11 DFHSM MCDS Data Set Entry Report

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DFHSM MCDS Data Set Entry Report

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Generated: 03/27/2003 (2003.147)@17:40

Data Set Name		M	Mig	Orig	Orig DS	Mig	Mig	Adj	Mig	SD	SMS	Cat	Mig	Mig	Cmp	
From	From	L	Size	Size	Trks	Org	Date	Age	Age	Time	SP	Vol	Dev	Age	%	
Vol	Dev	Vol	Class	Stor	Mgmt	Expr	Migrated Data Set Name						Last	Cur	Adj	
Vol	Dev	Vol	Class	Class	Class	Date							Ref Date	Age	Age	
EMP.DAMR121.DIST.ASM		2	844	3299	90	PO	2002/04/04	783	783	07:36:56	N	N	Y	H00006	TAPE	74
EMP002 3380	MIGRAT			* NONE *	HSM26.HMIG.T323607.EMP.DAMR121.I6095								2002/03/28	790	790	
EMP.DAMR121.DIST.CNTL		2	4	17	15	PO	2001/03/08	1176	1176	22:17:55	N	N	Y	H00006	TAPE	84
EMP002 3380	MIGRAT			* NONE *	HSM26.HMIG.T531722.EMP.DAMR121.I5067								2001/03/01	1183	1183	
EMP.DAMR121.DIST.LINK		2	2	5	15	PO	2001/03/06	1178	1178	22:02:35	N	N	Y	H00006	TAPE	65
EMP002 3380	MIGRAT			* NONE *	HSM26.HMIG.T330222.EMP.DAMR121.I5065								2001/02/27	1185	1185	
EMP.DAMR121.DIST.LISTS		2	3010	9497	225	PO	2003/05/10	382	382	08:19:06	N	N	Y	H00165	TAPE	68
EMP004 3390	MIGRAT			* NONE *	HSM26.HMIG.T011908.EMP.DAMR121.I7130								2002/05/02	390	390	
EMP.DAMR121.DIST.LOAD		2	70	90	15	PO	2003/06/11	350	350	08:10:50	N	N	Y	H00165	TAPE	25
EMP002 3390	MIGRAT			* NONE *	HSM26.HMIG.T481008.EMP.DAMR121.I7162								2002/06/03	358	358	
EMP.DAMR121.DIST.MACS		2	302	915	30	PO	2003/05/20	372	372	08:11:51	N	N	Y	H00165	TAPE	67
EMP004 3390	MIGRAT			* NONE *	HSM26.HMIG.T491108.EMP.DAMR121.I7140								2002/05/12	380	380	
EMP.DAMR121.DIST.MLIB		2	6	10	1	PO	2001/03/06	1178	1178	22:02:27	N	N	Y	H00006	TAPE	63
EMP002 3380	MIGRAT			* NONE *	HSM26.HMIG.T240222.EMP.DAMR121.I5065								2001/02/27	1185	1185	
EMP.DAMR121.DIST.OBJ		2	100	142	15	PO	2002/06/06	720	720	07:42:38	N	N	Y	H00222	TAPE	30
EMP003 3380	MIGRAT			* NONE *	HSM26.HMIG.T344207.EMP.DAMR121.I6158								2002/05/30	727	727	
EMP.DAMR121.DIST.PLIB		2	26	62	15	PO	2001/12/12	897	897	09:05:24	N	N	Y	H00221	TAPE	59
EMP003 3380	MIGRAT			* NONE *	HSM26.HMIG.T200509.EMP.DAMR121.I5346								2001/12/05	904	904	
EMP.DAMR121.DIST.TLIB		2	4	4	15	PO	2001/03/06	1178	1178	22:02:31	N	N	Y	H00006	TAPE	43
EMP002 3380	MIGRAT			* NONE *	HSM26.HMIG.T290222.EMP.DAMR121.I5065								2001/02/27	1185	1185	
EMP.DAMR122.DIST.ASM		2	846	3308	90	PO	2002/06/04	722	722	13:26:31	N	N	Y	H00222	TAPE	74
EMP005 3380	MIGRAT			* NONE *	HSM26.HMIG.T182613.EMP.DAMR122.I6156								2002/06/04	722	722	
EMP.DAMR122.DIST.CNTL		2	6	18	15	PO	2001/08/03	1028	1028	22:50:08	N	N	Y	H00221	TAPE	69
EMP004 3380	MIGRAT			* NONE *	HSM26.HMIG.T174922.EMP.DAMR122.I5215								2001/07/19	1043	1043	
EMP.DAMR122.DIST.LINK		2	4	8	15	PO	2001/08/03	1028	1028	22:51:30	N	N	Y	H00221	TAPE	73
EMP004 3380	MIGRAT			* NONE *	HSM26.HMIG.T115022.EMP.DAMR122.I5215								2001/07/19	1043	1043	
EMP.DAMR122.DIST.LISTS		2	7684	25485	570	PO	2003/05/10	382	382	08:11:59	N	N	Y	H00165	TAPE	69
EMP005 3390	MIGRAT			* NONE *	HSM26.HMIG.T411108.EMP.DAMR122.I7130								2002/05/02	390	390	

DFHSM Thrashing Summary Report

The DFHSM Thrashing Summary Report summarizes migration/recall actions for data sets in a manner that makes excessive activity highly visible.

To be eligible for inclusion on the report, a data set must have both a migration and a recall during the specified period.

Purpose	identifies data sets that are frequently migrated and recalled
Data source	log extract file(s)
Initial order	ascending on system ID and data set name
Report name verb	THRASH_SUM

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-21 presents a field list for the DFHSM Thrashing Summary Report.

Table 7-21 Field List for the DFHSM Thrashing Summary Report (Part 1 of 2)

Column Heading	Field Name	Description
Data set name	DSN	Name of the data set.
Recall Total	RECALTOT	Total number of recalls for the data set (includes ML2 to ML0 as well as ML1 to ML0).
Migrat Total	MIGTOT	Total number of migrations for the data set (includes ML0 to ML1, ML1 to ML2, and ML1 to ML2).
Min Age	MINAGE	Minimum age of the data set for all actions (both migrations and recalls).
Recall ML1	RECALML1	Number of recalls from ML1.
Recall ML2	RECALML2	Number of recalls from ML2.
Mig0-1 Total	MIG01	Total number of migrations from ML0 to ML1.
Mig1-2 Total	MIG12	Total number of migrations from ML1 to ML2.
Mig0-2 Total	MIG02	Total number of migrations from ML0 to ML2.
Ave Age	AVGAGE	Average age of the data set for all actions (both migrations and recalls).
Max Age	MAXAGE	Maximum age of the data set for all actions (both migrations and recalls).
Max Size	MAXSIZE	Maximum size of the data set.
Current Volume	CURVOL	Volume on which the data set resides. If SHOWCAT(N) is specified, this field is blank.

Table 7-21 Field List for the DFHSM Thrashing Summary Report (Part 2 of 2)

Column Heading	Field Name	Description
Mgmt Class	MGMTCLAS	Current management class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Stor Class	STORCLAS	Current storage class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Data Class	DATACLAS	Current data class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Pool/ Stogroup	STOGROUP	Pool or DFSMS storage group to which the data set's volume belongs. For pools, the name is preceded by P.; for DFSMS storage groups, the name is preceded by S:. Note that this information is taken from the system at the time the report is generated and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Dsorg	DSORG	Data set organization of the data set.
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.

Figure 7-12 provides a sample of the DFHSM Thrashing Summary Report.

Figure 7-12 DFHSM Thrashing Summary Report

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Produced By MAINVIEW SRM                               DFHSM Thrashing Summary Report                               Page: 1
BMC Software, Inc.                                     Generated:03/31/2003(2003.154)@17:22

Data set name          Recall Migrat Min  Recall Recall Mig0-1 Mig1-2 Mig0-2 Avg  Max  Max  Current  Mgmt
                        Total Total  Age   ML1   ML2   Total  Total  Total  Age  Age  Size  Volume  Class
-----
EMP.DISR151.ASM                PO  SYSG          3    2    0    2    1    2    0    0    0    10    1  MIGRAT
=====
EMP.DISR151.COPY                P:MRWPOO PO  SYSG          1    1    0    1    0    1    0    0    0    8    1  EMP003
=====
EMP.DISR151.LISTING            P:MRWPOO PO  SYSG          3    3    0    3    0    3    0    0    0    6    3  EMP002
=====
EMP.DISR151.LOAD                PO  SYSG          2    2    0    1    1    2    0    0    0    24    1  MIGRAT
=====
EMP.DISR151.ZAPS                PO  SYSG          2    2    0    2    0    2    0    0    0    9    1  MIGRAT
=====
EMP.DISR210.COPY                PO  SYSG          1    1    0    1    0    1    0    0    0    9    1  MIGRAT
=====
***** End of Report *****
    
```

DFHSM Thrashing Detail Report

The DFHSM Thrashing Detail Report details migration/recall actions for data sets in a manner that makes excessive activity highly visible.

To be eligible for inclusion on the report, a data set must have both a migration and a recall during the specified period.

Purpose	identifies data sets that are frequently migrated and recalled
Data source	log extract file(s)
Initial order	ascending on system ID, data set name, date, and time
Report name verb	THRASHING

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-22 presents a field list for the DFHSM Thrashing Detail Report.

Table 7-22 Field List for the DFHSM Thrashing Detail Report

Column Heading	Field Name	Description
Data set name	DSN	Name of the data set.
Action	ACTION	Type of operation performed (backup, backup to spill volume, or recovery).
Age	AGE	Number of days since the data set was last changed.
Date Activity	DATECHAR	Date the data set was last changed.
Time Activity	TIMECHAR	Time of the action.
To Volume	TOVOL	Volume to which the data set was recalled.
From Volume	FROMVOL	Volume from which the data set was recalled.
Last Used Date	LSTUSEDT	Date the data set was last referenced.
Size Meg	SIZE	Size, in megabytes, of the data set before backup or after recovery. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size.
Size Migrt	SIZEM	Size, in megabytes, of the data set after migration. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size.
Dsorg	DSORG	Data set organization of the data set.
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.

Figure 7-13 provides a sample of the DFHSM Thrashing Detail Report.

Figure 7-13 DFHSM Thrasing Detail Report

Produced by MAINVIEW SRM
BMC Software, Inc.

DFHSM Thrasing Detail Report

Page: 1
Generated: 04/15/2003(2003.154)@17:23

Data Set Name	Action	Age	Date Activity	Time Activity	To Volume	From Volume	Last Used Date	Size (meg)	Size Migrt	DS Org	Syst ID
EMP.DISR151.ASM	R 0<-2	27	2003/03/27	14:51:31	EMP002	803562	2003/02/20	1	0	PO	SYSG
EMP.DISR151.ASM	R 0<-1	4	2003/04/07	09:01:46	EMP002	HSM002	2003/03/27	1	1	PO	SYSG
EMP.DISR151.ASM	M 0->1	7	2003/04/14	08:11:14	HSM002	EMP002	2003/04/07	1	1	PO	SYSG
EMP.DISR151.ASM	R 0<-1	9	2003/04/03	10:48:21	EMP002	HSM002	2003/04/07	1	1	PO	SYSG
EMP.DISR151.ASM	M 0->1	7	2003/04/03	08:12:06	HSM002	EMP002	2003/04/23	1	1	PO	SYSG
EMP.DISR151.COPY	M 0->1	7	2003/03/30	08:10:28	HSM002	EMP002	2003/03/23	1	1	PO	SYSG
EMP.DISR151.COPY	R 0<-1	9	2003/04/08	08:04:36	EMP002	HSM002	2003/03/23	1	1	PO	SYSG
EMP.DISR151.LISTING	M 0->1	7	2003/03/19	08:14:00	HSM001	EMP002	2003/03/12	3	1	PO	SYSG
EMP.DISR151.LISTING	R 0<-1	8	2003/03/27	06:40:40	EMP001	HSM001	2003/03/12	3	1	PO	SYSG
EMP.DISR151.LISTING	M 0->1	7	2003/04/06	08:11:23	HSM002	EMP001	2003/03/30	3	1	PO	SYSG
EMP.DISR151.LISTING	R 0<-1	1	2003/04/07	09:01:01	EMP002	HSM002	2003/03/30	3	1	PO	SYSG
EMP.DISR151.LISTING	M 0->1	7	2003/04/04	08:11:10	HSM002	EMP002	2003/04/07	3	1	PO	SYSG
EMP.DISR151.LISTING	R 0<-1	8	2003/04/02	15:50:02	EMP002	HSM002	2003/04/02	3	1	PO	SYSG
EMP.DISR151.LOAD	R 0<-2	83	2003/04/14	11:56:31	EMP003	H00025	2003/01/14	1	0	PO	SYSG
EMP.DISR151.LOAD	M 0->1	7	2003/04/21	08:12:09	HSM002	EMP003	2003/04/14	1	1	PO	SYSG
EMP.DISR151.LOAD	R 0<-1	2	2003/04/03	12:33:20	EMP002	HSM002	2003/04/04	1	1	PO	SYSG
EMP.DISR151.LOAD	M 0->1	7	2003/04/03	08:12:25	HSM002	EMP002	2003/04/03	1	1	PO	SYSG
EMP.DISR151.ZAPS	M 0->1	7	2003/03/19	08:14:04	HSM001	EMP002	2003/03/12	1	1	PO	SYSG
EMP.DISR151.ZAPS	R 0<-1	22	2003/04/10	15:18:40	EMP003	HSM001	2003/03/12	1	1	PO	SYSG
EMP.DISR151.ZAPS	M 0->1	7	2003/04/01	08:10:56	HSM002	EMP003	2003/04/14	1	1	PO	SYSG
EMP.DISR151.ZAPS	R 0<-1	2	2003/04/03	12:19:53	EMP002	HSM002	2003/04/14	1	1	PO	SYSG
EMP.DISR210.COPY	R 0<-1	12	2003/03/18	10:42:39	EMP002	HSM002	2003/02/24	1	1	PO	SYSG
EMP.DISR210.COPY	M 0->1	7	2003/03/25	08:12:47	HSM001	EMP002	2003/03/18	1	1	PO	SYSG

***** End of Report *****

DFHSM OCDS Data Set Report

The DFHSM OCDS Data Set Report 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 HSM OCDS data set report can be generated for data sets, tape ranges, and tape types (ML2, Backup Spill, Daily, Unassigned, and All). The report can also be restricted to VSAM and non-VSAM data sets.

Purpose	provides detail information on data sets that are migrated/backed up to tape
Data source	offline control data set
Initial order	ascending on data set name
Report name verb	OCDS_DATASET

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Note: The VOLRANGE keyword is required for this report.

Table 7-23 presents a field list for the DFHSM OCDS Data Set Report.

Table 7-23 Field List for the DFHSM OCDS Data Set Report

Column heading	Field Name	Description
Volser	VOLSER	Volume serial of the tape.
Type	TYPE	Type of tape (either L2 for ML2 or SP for backup).
Data Set Name	DSN	Name of the data set.
Total Blocks	TOTBLKS	Number of tape blocks needed to contain the data set.
Percent of Valid Blocks	PERCTVAL	Number of blocks for this data set / the number of valid blocks on the tape.
Racf Protected	RACFPROT	Whether the data set is RACF protected (Yes/No).
VSAM Data Set	VSAMDS	Whether the data set is VSAM (Yes/No).
Last Ref Date	LASTREF	Date that the data set was last opened (yyyy/mm/dd).
Expiration Date	EXPRDAT	Expiration date for the data set (yyyy/mm/dd) or NONE.
HSM Data Set Name	HSMDSN	Internal data set name used by HSM for this data set.
Seq num	FILESEQN	Sequence number of the data set.

Figure 7-14 provides a sample of the DFHSM OCDS Data Set Report.

Figure 7-14 DFHSM OCDS Data Set Report

Produced By MAINVIEW SRM BMC Software, Inc.		DFHSM BCDS Data Set Report		Page: 1 Generated:03/31/2003(2003.090)@13:52						
Total Volser	Percent of Type Dataset	Racf Dataset Name	VSAM	Last Ref	Expiration	Blocks Valid	Blocks Protected	Dataset	Date	Date

HSM Dataset Name										

H00041	SP	EMP.DAMR122.DIST.ASM				53	0	NO	NO	* NONE *
HSM26.BACK.T442107.EMP.DAMR122.I5139										

H00041	SP	EMP.DAMR122.DIST.CNTL				1	0	NO	NO	* NONE *
HSM26.BACK.T280207.EMP.DAMR122.I5110										

H00041	SP	EMP.DAMR122.DIST.LINK				1	0	NO	NO	* NONE *
HSM26.BACK.T300207.EMP.DAMR122.I5110										

H00041	SP	EMP.DAMR122.DIST.LINK				1	0	NO	NO	* NONE *
HSM26.BACK.T170908.EMP.DAMR122.I5075										

H00041	SP	EMP.DAMR122.DIST.LISTS				481	8	NO	NO	* NONE *
HSM26.BACK.T092207.EMP.DAMR122.I5139										

H00041	SP	EMP.DAMR122.DIST.LOAD				9	0	NO	NO	* NONE *
HSM26.BACK.T253507.EMP.DAMR122.I5139										

H00041	SP	EMP.DAMR122.DIST.LOAD				9	0	NO	NO	* NONE *
HSM26.BACK.T363107.EMP.DAMR122.I5142										

H00041	SP	EMP.DAMR122.DIST.MACS				19	0	NO	NO	* NONE *
HSM26.BACK.T301607.EMP.DAMR122.I5149										

H00041	SP	EMP.DAMR122.DIST.MACS				19	0	NO	NO	* NONE *
HSM26.BACK.T433907.EMP.DAMR122.I5137										

H00041	SP	EMP.DAMR122.DIST.MLIB				1	0	NO	NO	* NONE *
HSM26.BACK.T142808.EMP.DAMR122.I5020										

H00041	SP	EMP.DAMR122.DIST.OBJ				13	0	NO	NO	* NONE *
HSM26.BACK.T212007.EMP.DAMR122.I5142										

H00041	SP	EMP.DAMR122.DIST.TLIB				1	0	NO	NO	* NONE *
HSM26.BACK.T212808.EMP.DAMR122.I5020										

***** END OF REPORT *****										

DFHSM OCDS Volume Report

The DFHSM OCDS Volume Report 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 HSM OCDS volume report can be generated for the following:

- A for All
- I for Backup
- B for Migration Level 2

Note: The VOLRANGE keyword is required for this report.

Purpose	provides detail information on ML2 and backup tapes
Data source	offline control data set
Initial order	ascending on volume serial
Report name verb	OCDS_VOLUME

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-24 presents a field list for the DFHSM OCDS Volume Report.

Table 7-24 Field List for the DFHSM OCDS Volume Report (Part 1 of 2)

Column heading	Field Name	Description
Volser	VOLSER	Volume serial of the tape.
Type	TYPE	Type of tape (either L2 for ML2 or SP for backup).
Total Blocks	TOTBLKS	Number of blocks contained on the tape
Valid Blocks	VALDBLKS	Number of blocks on the tape that are valid.
Data Sets on Volume	DSONVOL	Number of data sets on this volume.
Volume Full	VOLFULL	Whether HSM considers the volume full (Yes/No).
RACF Data Sets	RACFDS	Whether the data set contains RACF-protected data sets (Yes/No).
Tape RACF	TAPERACF	If Yes, then the volume was already RACF-protected when HSM attempted to protect it.
Psw Prot Data Sets	PSWDUSER	Whether there are password protected data sets on the volume (Yes/No).

Table 7-24 Field List for the DFHSM OCDS Volume Report (Part 2 of 2)

Column heading	Field Name	Description
Elig For Recycle	RECYCLE	Whether the message has been sent that says that this volume is eligible for recycling.
Vol Failed Recycle	RECYFAIL	Whether the volume failed recycle because of a problem with the volume.
Unit	UNITNAME	Unit name for the volume.
Prev Volume	PRETPVOL	Volume serial of the preceding volume containing data belonging to the first data set on the tape.
Next Volume	NXTTPVOL	Volume serial number of the following volume containing data belonging to the last data set on the tape.
Hostid	HOSTID	Identifier of the processor currently using this tape table of contents if HSM is running in a multiple-processing-unit-environment.

Figure 7-15 provides a sample of the DFHSM OCDS Volume Report.

Figure 7-15 DFHSM OCDS Volume Report

```

Produced by MAINVIEW SRM                      DFHSM OCDS Volume Report                      Page: 1
BMC Software, Inc.                            Generated:03/27/2003(2003.147)@17:41
-----
Volser Type    Total   Valid   Data Sets   Volume   Racf   Tape   Psw   Prot   Elig For   Vol   Failed   Prev   Next   Host
                Blocks Blocks On Volume Full   Data Sets Racf Data Sets Recycle   Recycle Unit Volume Volume Id
-----
H00030 L2      25,318  25,314    52 YES      NO      NO NO NO NO NO      3490
H00031 L2         0         0         0 NO      NO NO NO NO NO      3490
H00032 L2     18,396  18,396    46 NO      NO NO NO NO NO      3490
H00033 L2         0         0         0 NO      NO NO NO NO NO      3480
H00034 L2         0         0         0 NO      NO NO NO NO NO      3490
H00035 L2         0         0         0 NO      NO NO NO NO NO      3490
H00036 L2         0         0         0 NO      NO NO NO NO NO      3490
H00037 L2     25,738  21,323    16 YES      NO      NO NO NO NO      3490
H00038 L2     21,644  21,263   1,314 YES    NO      NO NO NO NO      3490
H00039 L2         0         0         0 NO      NO NO NO NO NO      3490
H00040 L2         0         0         0 NO      NO NO NO NO NO      3490
H00041 SP     10,162   5,856    201 NO     NO NO NO NO NO      3480
H00042 SP         9,199   9,182     73 NO     NO NO NO NO NO      3480
H00043 L2         0         0         0 NO      NO NO NO NO NO      3490
H00044 SP         2,544    710      7 YES     NO NO NO NO NO      3490
H00045 SP     20,934    27      20 NO     NO NO NO NO NO      3490
H00046 SP         0         0         0 NO      NO NO NO NO NO      3480
H00047 SP         0         0         0 NO      NO NO NO NO NO      3480
H00048 SP         0         0         0 NO      NO NO NO NO NO      3480
H00049 SP         0         0         0 NO      NO NO NO NO NO      3480
H00050 SP         0         0         0 NO      NO NO NO NO NO      3480
H00051 L2         0         0         0 NO      NO NO NO NO NO      3490
H00052 L2         0         0         0 NO      NO NO NO NO NO      3490
H00053 L2         0         0         0 NO      NO NO NO NO NO      3490
***** END OF REPORT *****
    
```

DFHSM Recall Activity Report

The DFHSM Recall Activity Report shows all successful recalls processed by DFHSM during the specified time period, with aging information, volume information, and DFSMS class information.

Purpose	shows all successful recalls during a time period
Data source	log extract file(s)
Initial order	ascending on system ID, data set name, date, and time
Report name verb	RECALL

The DFHSM Recall Activity Report displays two types of recalls, as shown in Table 7-25.

Table 7-25 Action Descriptions

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

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-26 presents a field list for the DFHSM Recall Activity Report.

Table 7-26 Field List for the DFHSM Recall Activity Report (Part 1 of 2)

Column Heading	Field Name	Description
Data set name	DSN	Name of the data set.
Action	ACTION	Description of the DFHSM action.
Age	AGE	Number of days since the data set was last changed.
To Volume	TOVOL	Volume to which the data set was recalled.
Current Volume	CURVOL	First or only volume on which the data set currently resides. Note that this will normally be a real volume ID, since the data set has just been recalled. However, if the data set has been migrated again, the MIGRAT is shown; if the data set has been deleted, dashes are shown; VSAM clusters are shown with *VSAM*. If SHOWCAT(N) is specified, this field is blank.
From Volume	FROMVOL	Volume from which the data set was recalled.
Fr Lvl	FROM LVL	Migration level from which the data set was recalled.
Last Ref Date	LSTUSEDT	Date the data set was last referenced.

Table 7-26 Field List for the DFHSM Recall Activity Report (Part 2 of 2)

Column Heading	Field Name	Description
Last Mig Date	LSTMIGDT	Date the data set was last migrated.
Activity Date	DATECHAR	Date the data set was last changed.
Activity Time	TIMECHAR	Time of the action.
Size Meg	SIZE	Size, in megabytes, of the data set before backup or after recovery. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size.
Size Migrt	SIZEM	Size, in megabytes, of the data set after migration. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size.
Mgmt Class	MGMTCLAS	Current management class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Stor Class	STORCLAS	Current storage class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Pool Stogroup	STOGROUP	Pool or DFSMS storage group to which the data set's volume belongs. For pools, the name is preceded by P.; for DFSMS storage groups, the name is preceded by S:. Note that this information is taken from the system at the time the report is generated and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Data Class	DATACLAS	Current data class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
User ID	USERID	ID of the user associated with the job that caused the DFHSM action.
Job Name	JOBNAME	Name of the job that caused the DFHSM action.
Dsorg	DSORG	Data set organization of the data set.
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.

Figure 7-16 provides a sample of the DFHSM Recall Activity Report.

Figure 7-16 DFHSM Recall Activity Report

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Produced by MAINVIEW SRM          DFHSM Recall Activity Report          Page: 1
BMC Software, Inc.                Generated:03/27/2003(2003.147)@17:42

-----
Data set name          Action Age To Current From Fr Last Ref Last Mig Activity Activity Size
                        Volume Volume Volume Lvl Date Date Date Date Date Time (meg)
-----
Size Mgmt Stor Pool/ Data User Job Dsorg Syst
Migrt Class Class Stogroup Class ID Name ID
-----
EMP.PRODUCT.MACLIB    R 0<-1 9 EMP003 MIGRAT HSM002 1 2003/01/28 2003/02/04 2003/02/13 11:45:55 1
1 BRIANT BRIANAS1 PO SYSG
-----
EMP.PROR33B.DIST.LOADLIB R 0<-2 449 EMP004 MIGRAT H00004 2 2002/10/30 2002/11/16 2003/02/09 17:34:58 0
1 MRW MRW PO SYSG
-----
EMP.PROR335.DIST.LISTING R 0<-2 398 EMP003 MIGRAT H00011 2 2002/12/31 2003/01/08 2003/02/10 09:23:09 0
51 DOTSON DOTSON PO SYSG
-----
EMP.PROR340.DIST.MACLIB R 0<-1 6 EMP003 MIGRAT HSM001 1 2003/01/30 2003/02/06 2003/02/12 16:07:38 1
2 RICKH RICKH0W PO SYSG
-----
EMP.PROR352.DIST.PR3522.LOADLIB R 0<-1 20 EMP003 MIGRAT HSM002 1 2003/01/13 2003/01/20 2003/02/09 16:45:09 1
2 JESS JESS PO SYSG
-----
EMP.PROR352.DIST.PR3524.LOADLIB R 0<-1 7 EMP003 EMP003 HSM001 1 2003/02/02 2003/02/04 2003/02/11 07:23:58 1
2 JESS2 JESS2COP PO SYSG
P:MRWPOO
-----
EMP.PROR352.TEST.PR3524.LOADLIB R 0<-1 25 EMP004 MIGRAT HSM002 1 2003/01/08 2003/01/15 2003/02/09 16:30:03 1
1 JESS JESS PO SYSG
-----
EMP.PROSMS33.PARMLIB R 0<-1 12 EMP004 MIGRAT HSM002 1 2003/01/23 2003/01/29 2003/02/10 09:29:24 1
4 JERRY JERRYL PO SYSG
-----
EMP.PROSMS36.PARMLIB.SAVE R 0<-2 61 EMP004 MIGRAT H00022 2 2002/12/04 2002/12/11 2002/02/10 10:01:52 0
2 JERRY2 JERRY2 PO SYSG
-----
***** END OF REPORT *****
    
```

DFHSM Data Set Deletion Report

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

Purpose	shows all successful data set deletions during a time period
Data source	log extract file(s)
Initial order	ascending on system ID, data set name, date, and time
Report name verb	DELETION

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.

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-27 presents a field list for the DFHSM Data Set Deletion Report.

Table 7-27 Field List for the DFHSM Data Set Deletion Report

Column Heading	Field Name	Description
Data set name	DSN	Name of the data set.
Deletion Type	DELTYPE	Description of the reason for the deletion. Either BY AGE or MIGRATED DS shows in this column.
Age	AGE	Number of days since the data set was last referenced.
Adj Age	ADJAGE	Age of the data set after adjustments for non-working days defined in the MAINVIEW SRM calendar.
Size Meg	SIZE	Size, in megabytes, of the data set before backup or after recovery. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size.
Last Ref Date	LSTUSEDT	Date the data set was last referenced.
Migration Date	MIGDATE	Date the data set was last migrated.
Activity Date	DATECHAR	Date the data set was last changed.
Activity Time	TIMECHAR	Time of the action.
From Volume	FROMVOL	Volume from which the data set was recalled.
User ID	USERID	ID of the user associated with the job that caused the DFHSM action.
Job Name	JOBNAME	Name of the job that caused the DFHSM action.
Dsorg	DSORG	Data set organization of the data set.
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.

Figure 7-17 provides a sample of the DFHSM Data Set Deletion Report.

Figure 7-17 DFHSM Data Set Deletion Report

Data set name		Deletion Type	Age	Adj Age	Size (meg)	Last Ref Date	Migration Date	Activity Date	Activity Time	From Volume	User ID
Job Name	Dsorg Syst ID										
JESS2.UNLOADED.ZAPS		MIGRATED DS	18	14	1	2003/02/10	2003/02/12	2003/03/02	10:03:00	HSM001	JESS2
JESS2	PS SYSG										
***** END OF REPORT *****											

DFHSM Daily Volume Report

The DFHSM Daily Volume Report shows volume information for DFHSM-managed volumes for the requested time period. This information is read from the MAINVIEW SRM Log Extract files. The report 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.

When no time range is specified, all information for the selected date range is displayed.

Purpose	Shows all volume-level information during a time period
Data source	MAINVIEW SRM Log Extract files
Initial order	Ascending on system ID, volume type, volume ID, date, and time
Report name verb	DAILY_VOLUME

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-28 presents a field list for the DFHSM Daily Volume Report.

Table 7-28 Field List for the DFHSM Daily Volume Report (Part 1 of 2)

Column Heading	Field Name	Description
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.
Volume Type	VOLTYPE	Valid volume types: PRIMARY, MIGRATION, BACKUP, SPILL.
Volume ID	VOLUME	Volume serial number.
Volume Date	DATECHAR	Date the volume statistics were created.
Volume Time	TIMECHAR	Time the statistics were created.
Alloc Trks	ALLTRKS	Number of tracks in use on the volume.
Free Trks	FREE TRKS	Number of unused tracks on the volume.
User Mig	USERMIG	Number of user-initiated migrations for the volume.
Forc Mig	FORCMIG	Number of migrations to or from the volume that were forced by DFHSM due to insufficient space.
Capacity (meg)	CAPACITY	Total storage capacity of the volume in megabytes.

Table 7-28 Field List for the DFHSM Daily Volume Report (Part 2 of 2)

Column Heading	Field Name	Description
Frag Index	FRAGINDX	Volume fragmentation entropy (information rate) index.
Unit Name	UNITNAME	Unit name.
Occ Targ	OCCTARG	Occupancy target percentage.
Occ Trig	OCCTRIG	Occupancy trigger percentage.
Occ Bef	OCCBEF	Occupancy percentage before the last space management run.
Occ Aft	OCCAFT	Occupancy percentage after the last space management run.
Pct Elig	PCTELIG	Percentage of space on the volume that is eligible for migration, but not migrated.

Figure 7-18 provides a sample of the DFHSM Daily Volume Report.

Figure 7-18 DFHSM Daily Volume Report

Produced by MAINVIEW SRM													DFHSM Daily Volume Report					Page: 1				
BMC Software, Inc.													Generated:03/27/2003(2003.147)@17:43									
Syst Id	Volume Type	Volume Id	Volume Date	Volume Time	Alloc Trks	Free Trks	User Mig	Forc Mig	Capacity (meg)	Frag Index	Unit Name	Occ Targ	Occ Trig	Occ Bef	Occ Aft	Pct Elig						
SYSG PRIMARY	BSDW01	2003/02/13	8:13:32	1,193	307	6	0	81	431	3390	0	100	84	79	0							
SYSG PRIMARY	BSDW01	2003/02/14	8:11:42	1,186	314	2	0	81	438	3390	0	100	80	79	0							
SYSG PRIMARY	BSDW01	2003/02/15	8:11:10	1,206	294	1	0	81	420	3390	0	100	80	80	0							
SYSG PRIMARY	BSDW02	2003/02/13	8:13:44	596	904	6	0	81	282	3390	0	100	41	39	0							
SYSG PRIMARY	BSDW02	2003/02/14	8:11:55	641	859	7	0	81	293	3390	0	100	44	42	0							
SYSG PRIMARY	BSDW02	2003/02/15	8:11:16	646	854	1	0	81	286	3390	0	100	43	43	0							
SYSG PRIMARY	BSDW03	2003/02/13	8:14:01	1,448	52	7	0	81	776	3390	0	100	98	96	0							
SYSG PRIMARY	BSDW03	2003/02/14	8:11:57	1,435	65	7	0	81	596	3390	0	100	97	95	0							
SYSG PRIMARY	BSDW03	2003/02/15	8:11:29	1,405	95	2	0	81	643	3390	0	100	96	93	0							
SYSG PRIMARY	BSDW04	2003/02/13	8:14:14	1,370	130	4	0	81	333	3390	0	100	92	91	0							
SYSG PRIMARY	BSDW04	2003/02/14	8:12:04	1,367	133	3	0	81	335	3390	0	100	91	91	0							
SYSG PRIMARY	BSDW04	2003/02/15	8:11:43	1,366	134	5	0	81	342	3390	0	100	91	91	0							
SYSG PRIMARY	BSDW05	2003/02/13	8:14:24	864	636	5	0	81	313	3390	0	100	60	57	0							
SYSG PRIMARY	BSDW05	2003/02/14	8:12:02	916	584	1	0	81	335	3390	0	100	61	61	0							
SYSG PRIMARY	BSDW05	2003/02/15	8:11:50	937	563	0	0	81	321	3390	0	100	62	62	0							
SYSG PRIMARY	BSDW06	2003/02/13	8:14:38	1,342	158	8	0	81	630	3390	0	100	91	89	0							
SYSG PRIMARY	BSDW06	2003/02/14	8:12:07	1,342	158	1	0	81	618	3390	0	100	89	89	0							
SYSG PRIMARY	BSDW06	2003/02/15	8:12:10	1,277	223	4	0	81	529	3390	0	100	90	85	0							
SYSG PRIMARY	BSDW07	2003/02/13	8:14:55	493	1,007	9	0	81	111	3390	0	100	35	32	0							
SYSG PRIMARY	BSDW07	2003/02/14	8:12:08	536	964	1	0	81	116	3390	0	100	35	35	0							
SYSG PRIMARY	BSDW07	2003/02/15	8:12:23	519	981	4	0	81	120	3390	0	100	36	34	0							
SYSG PRIMARY	BSDW08	2003/02/13	8:15:10	1,165	335	5	0	81	319	3390	0	100	78	77	0							
SYSG PRIMARY	BSDW08	2003/02/14	8:12:12	1,150	350	1	0	81	320	3390	0	100	78	76	0							
SYSG PRIMARY	BSDW08	2003/02/15	8:12:21	1,131	369	1	0	81	333	3390	0	100	75	75	0							
SYSG PRIMARY	BSDW09	2003/02/13	8:15:20	1,048	452	4	0	81	385	3390	0	100	71	69	0							
SYSG PRIMARY	BSDW09	2003/02/14	8:12:16	1,061	439	2	0	81	381	3390	0	100	71	70	0							
SYSG PRIMARY	BSDW09	2003/02/15	8:12:29	1,083	417	0	0	81	375	3390	0	100	72	72	0							
SYSG PRIMARY	BSDW10	2003/02/13	8:15:44	502	998	12	0	81	218	3390	0	100	33	33	0							
SYSG PRIMARY	BSDW10	2003/02/14	8:12:15	507	993	0	0	81	215	3390	0	100	33	33	0							
SYSG PRIMARY	BSDW10	2003/02/15	8:12:30	517	983	1	0	81	210	3390	0	100	34	34	0							
SYSG PRIMARY	BSDW11	2003/02/13	8:15:51	1,402	98	6	0	81	659	3390	0	100	98	93	0							
SYSG PRIMARY	BSDW11	2003/02/14	8:12:18	1,442	58	0	0	81	715	3390	0	100	96	96	0							
SYSG PRIMARY	BSDW11	2003/02/15	8:12:31	1,442	58	0	0	81	715	3390	0	100	96	96	0							
SYSG PRIMARY	BSDW12	2003/02/13	8:15:58	1,386	114	8	0	81	643	3390	0	100	94	92	0							
SYSG PRIMARY	BSDW12	2003/02/14	8:12:26	1,401	99	5	0	81	727	3390	0	100	93	93	0							
SYSG PRIMARY	BSDW12	2003/02/15	8:12:35	1,419	81	3	0	81	757	3390	0	100	94	94	0							
***** END OF REPORT *****																						

DFHSM Migration Level Report

The DFHSM Migration Level Report 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.

Purpose	shows all successful migrations from ML1 to ML2 during a time period
Data source	Log extract file(s)
Initial order	Ascending on system ID, data set name, date, and time
Report name verb	MIGRATE_L12

See Table 7-7 on page 7-12 for a list of the report option keywords available on this report.

Table 7-29 presents a field list for the DFHSM Migration Level Report.

Table 7-29 Field List for the DFHSM Migration Level Report (Part 1 of 2)

Column Heading	Field Name	Description
Data set name	DSN	Name of the data set.
Age	AGE	Number of days since the data set was last referenced.
Adj Age	ADJAGE	Age of the data set after adjustments for non-working days defined in the MAINVIEW SRM calendar.
Size (meg)	SIZE	Size, in megabytes, of the data set before backup or after recovery. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size.
Size Migt	SIZEM	Size, in megabytes, of the data set after migration. Zero is reported for zero-length data sets; 1MB is reported for data sets less than 1 megabyte in size.
Last Ref Date	LSTUSEDT	Date the data set was last referenced.
Activity Date	DATECHAR	Date the data set was last changed.
Activity Time	TIMECHAR	Time of the action.
From Volume	FROMVOL	Volume from which the data set was migrated.
Current Volume	CURVOL	First or only volume on which the data set currently resides. Note that this will normally be MIGRAT, since the data set has been migrated. However, if the data set has been recalled, the current residence volume is shown; if the data set has been deleted, dashes are shown. If SHOWCAT(N) is specified, this field is blank.
To Volume	TOTVOL	Volume to which the data set was migrated.

Table 7-29 Field List for the DFHSM Migration Level Report (Part 2 of 2)

Column Heading	Field Name	Description
Mgmt Class	MGMTCLAS	Current management class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Stor Class	STORCLAS	Current storage class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Pool / Stogroup	STOCLASS	Pool or DFSMS storage group to which the data set's volume belongs. For pools, the name is preceded by P;; for DFSMS storage groups, the name is preceded by S:. Note that this information is taken from the system at the time the report is generated and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
Data Class	DATACLAS	Current data class of DFSMS-managed data sets. If the data set is not DFSMS-managed or is no longer cataloged, the class is not shown. Note that this information is taken from the catalog at the time the report is generated, and may not be the same as when the DFHSM action was actually processed. If SHOWCAT(N) is specified, this field is blank.
User ID	USERID	ID of the user associated with the job that caused the DFHSM action.
Job Name	JOBNAME	Name of the job that caused the DFHSM action.
Dsorg	DSORG	Data set organization of the data set.
Syst ID	SYSTID	System ID of the system on which the DFHSM action ran.

Figure 7-19 provides a sample of the DFHSM Migration Level Report.

Figure 7-19 DFHSM Migration Level Report

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Produced by MAINVIEW SRM                               DFHSM Migration Level Report                               Page: 1
BMC Software, Inc.                                     Generated:03/31/2003(2003.147)@17:43

Data set name           Age  Adj  Size  Size  Last Ref  Activity  Activity  From  Current  To  Mgmt
                        Age  Age  (meg) Migrt  Date      Date      Time  Volume Volume Volume  Class
  Stor   Pool/   Data   User   Job   Dsorg  Syst
  Class  Stogroup  Class  ID     Name
-----
SYSI.IBMCIC.TST410.CICSWEB.RESOURCE  283  197   1    0  2003/03/31  2003/01/08  06:06:03  HSM901  MIGRAT
**HSM*** HSM          VS  SYSB
*****
***** END OF REPORT *****
    
```

Performance Collector Batch Reports

This section describes the performance collector batch reports, which provide access to all saved performance data gathered by the performance data collector.

Filters and Option Keywords for Performance Reports

Table 7-30 provides a list of filters that control the selection of information to be reported in performance batch reports.

Table 7-30 Report Filters for Performance Reports Defined (Part 1 of 3)

Filter	Default	Input	Description
BOX	None	(nnnnn) where nnnnn is a 5-digit box number	RAID Box ID. If used, DIR is required.
CHPID	None	(xxxx) where x is 0 - 9 or A - F	Channel Path ID. Requires keyword LCUID.
DAY	None	None	Indicates that the snapshots are to be summarized on a daily basis. Each row reflects the snapshots recorded for that day. When specifying DAY, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTTHRS
DIR	None	(xx) where x is 0 - 9 or A - F	RAID Director ID. If used, BOX is required.
DSNINDEX	None	(xxxxxxxx) where x is 0-9 or A-F	Data set index from snapshot report
END	None	Two operands separated by a comma. First is a date in the format MM/DD/YYYY, followed by a 24-hour time of day value in the format HHMM.	Specifies an ending time for the reports. If the ending time does not exactly match a snapshot time, the report ends at the last snapshot recorded before the ending time. If you specify END, you must specify a START time. This keyword is mutually exclusive with LASTTHRS and LASTDAYS.
FRAME	None	(frame) where frame is a valid RVA frame name	RVA Frame name
JOBNAME	None	(jobname)	Job Name

Table 7-30 Report Filters for Performance Reports Defined (Part 2 of 3)

Filter	Default	Input	Description
LASTDAYS	None	Number from 1 to 1365.	Last number of days starting with the current day to be included in the report. LASTDAYS is mutually exclusive with LASTHRS, START, and END. This keyword requires the SSID keyword, except for verb PERF_DSN.
LASTHRS	None	Number from 1 to 32767.	Last number of hours starting with the most current snapshot to be included in the report. LASTHRS is mutually exclusive with LASTDAYS, START, and END. This keyword requires the SSID keyword, except for verb PERF_DSN.
LCUID	None	(xxxx) where x is 0 - 9 or A - F	Logical Controller Unit ID. Requires keyword CHPID.
MONTH	None	None	Indicates that the snapshots are to be summarized on a monthly basis. Each row reflects the snapshots recorded from the month starting with the first of each month. When specifying MONTH, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS
POOL	None	(pool)	Pool name
RANK	None	(rank) where rank is a valid RAID Rank	RAID Rank ID
RDRTIME	None	(hh:mm:ss.th)	Job reader time from snapshot report.
SCLASS	None	(sclass)	Storage class name
SCSI	None	None	Indicates the RAID EMC SCSI path number. Required when using the DIR keyword on PERF_PHYVOL.
SNAPSHOT	None	Two operands separated by a comma. First is a date in the format MM/DD/YYYY, followed by a 24-hour time of day value in the format HHMM.	Indicates a specific snapshot for which reporting is required. This keyword is mutually exclusive with DAY, WEEK, and MONTH.
SSID	None	(xxxx) where x is 0 - 9 or A - F	Cache Controller Subsystem ID

Table 7-30 Report Filters for Performance Reports Defined (Part 3 of 3)

Filter	Default	Input	Description
START	None	Two operands separated by a comma. First is a date in the format MM/DD/YYYY, followed by a 24-hour time of day value in the format HHMM.	Specifies a starting time for the reports. If the starting time does not exactly match a snapshot time, the next snapshot is used as the starting time. If you specify START, you must specify an END time. This keyword is mutually exclusive with LASTHRS and LASTDAYS.
VOLSER	None	(volser)	Volume serial name
WEEK	None	None	Indicates that the snapshots are to be summarized on a weekly basis, where the week starts on Sunday. Each row reflects the snapshots recorded within that week. When specifying WEEK, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS

Table 7-31 provides a matrix of option keywords available for each report.

Table 7-31 Report Option Keywords and Report Matrix for Performance Reports (Part 1 of 2)

Keyword	Cache Controller History	Cache Controller Snapshot	Channel Path History	Channel Path History Snapshot	Data Set History	Data Set History Snapshot	Job History	Job History Snapshot	Logical Control Unit History	Logical Control Unit Snapshot	Pool History	Pool History Snapshot	RAID Director History	RAID Director History Snapshot	RAID Physical Volume History	RAID Physical Volume Snapshot	RAID Rank History	RAID Rank History Snapshot	RVA Subsystem Frame History	RVA Subsystem Frame Snapshot	Storage Class History	Storage Class History Snapshot	Volume History	Volume History Snapshot
BOX													*		*									
CHPID			*						*															
DAY	*		*		*		*		*		*		*		*		*		*		*		*	
DIR													*		*									
DSNINDEX					*																			
END	*		*		*		*		*		*		*		*		*		*		*		*	
FRAME																			*					

Table 7-31 Report Option Keywords and Report Matrix for Performance Reports (Part 2 of 2)

Keyword	Cache Controller History	Cache Controller Snapshot	Channel Path History	Channel Path History Snapshot	Data Set History	Data Set History Snapshot	Job History	Job History Snapshot	Logical Control Unit History	Logical Control Unit Snapshot	Pool History	Pool History Snapshot	RAID Director History	RAID Director History Snapshot	RAID Physical Volume History	RAID Physical Volume Snapshot	RAID Rank History	RAID Rank History Snapshot	RVA Subsystem Frame History	RVA Subsystem Frame Snapshot	Storage Class History	Storage Class History Snapshot	Volume History	Volume History Snapshot
JOBNAME							*																	
LASTDAYS	*		*		*		*		*		*		*		*		*		*		*		*	
LASTHRS	*		*		*		*		*		*		*		*		*		*		*		*	
LCUID									*															
MONTH	*		*		*		*		*		*		*		*		*		*		*		*	
POOL											*													
RANK																	*							
RDRTIME							*																	
SCLASS																					*			
SCSI															*									
SNAPSHOT		*		*		*		*		*		*		*		*		*		*		*		*
SSID	*																							
START	*		*		*		*		*		*		*		*		*		*		*		*	
VOLSER																							*	
WEEK	*		*		*		*		*		*		*		*		*		*		*		*	
Report Page Number	7-56	7-64	7-66	7-66	7-69	7-73	7-75	7-79	7-80	7-83	7-84	7-86	7-88	7-92	7-93	7-100	7-102	7-104	7-106	7-112	7-114	7-117	7-119	7-128

Cache Controller History Report

The Cache Controller History report lists summary information for cache controller performance data over a requested period.

Data Source	performance data collector
Initial Display	Fields in parentheses are not displayed in all reports. (DATE); (TIME); (DAY); (MONTH); SAMPLES; IOSMAX; TIOSMAX; RSECMAX; RPRCMAX; RHTPMAX; WSECMAX; WPRCMAX; WHTPMAX; NRSECMAX; NRPRCMAX
Report Name Verb	PERF_CACHE

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-32 presents a field list for the Cache Controller History Report.

Table 7-32 Field List for the Cache Controller History Report (Part 1 of 8)

Column Heading	Field Name	Description
Cache Stg Avg	CCSTGAVG	The cache storage average for the summarized snapshot samples.
Cache Stg HWM	CCSTGHWM	The cache storage high-water-mark from the summarized snapshot samples.
Cache Stg LWM	CCSTGLWM	The cache storage low-water-mark from the summarized snapshot samples.
Cache Stg Max	CCSTGMAX	The cache storage from the snapshot in which the maximum I/Os per second was found.
Cache Stg Min	CCSTGMIN	The cache storage from the snapshot in which the minimum I/Os per second was found.
CFW% Avg	CWPRCAVG	The cache fast write percentage average for the summarized snapshots.
CFW% HWM	CWPRCHWM	The cache fast write percentage high-water-mark from the summarized samples.
CFW% LWM	CWPRCLWM	The cache fast write percentage low-water-mark from the summarized samples.
CFW% Max	CWPRCMAX	The cache fast write percentage from the snapshot in which the maximum I/Os per second was found.
CFW% Min	CWPRCMIN	The cache fast write percentage from the snapshot in which the minimum I/Os per second was found.
CFW/sec Avg	CWSECAVG	The cache fast writes per second average for the summarized snapshots.
CFW/sec HWM	CWSECHWM	The cache fast write operations per second high-water-mark from the summarized snapshot samples.
CFW/sec LWM	CWSECLWM	The cache fast write operations per second low-water-mark from the summarized snapshot samples.

Table 7-32 Field List for the Cache Controller History Report (Part 2 of 8)

Column Heading	Field Name	Description
CFW/sec MAX	CWSECMAX	The cache fast writes per second from the snapshot in which the maximum I/Os per second was found.
CFW/sec MIN	CWSECMIN	The cache fast writes per second from the snapshot in which the minimum I/Os per second was found.
CFW Hit% Avg	CWHTPAVG	The cache fast write hit percentage average for the summarized snapshots.
CFW Hit% HWM	CWHTPHWM	The cache fast write hit percentage high-water-mark from the summarized samples.
CFW Hit% LWM	CWHTPLWM	The cache fast write hit percentage low-water-mark from the summarized samples.
CFW Hit% Max	CWHTPMAX	The cache fast write hit percentage from the snapshot in which the maximum I/Os per second was found.
CFW Hit% Min	CWHTPMIN	The cache fast write hit percentage from the snapshot in which the minimum I/Os per second was found.
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Day	DAY	The day of the week.
DFW% Avg	DWPRCAVG	The DASD fast write percentage average for the summarized snapshots.
DFW% HWM	DWPRCHWM	The DASD fast write percentage high-water mark from the summarized samples.
DFW% LWM	DWPRCLWM	The DASD fast write percentage low-water mark from the summarized samples.
DFW% Max	DWPRCMAX	The DASD fast write percentage from the snapshot in which the maximum I/Os per second was found.
DFW% Min	DWPRCMIN	The DASD fast write percentage from the snapshot in which the minimum I/Os per second was found.
DFW Hit% Avg	DWHTPAVG	The DASD fast write hit percentage average for the summarized snapshots.
DFW Hit% HWM	DWHTPHWM	The DASD fast write hit percentage high-water mark from the summarized samples.
DFW Hit% LWM	DWHTPLWM	The DASD fast write hit percentage low-water mark from the summarized samples.
DFW Hit% Max	DWHTPMAX	The DASD fast write hit percentage from the snapshot in which the maximum I/Os per second was found.
DFW Hit% Min	DWHTPMIN	The DASD fast write hit percentage from the snapshot in which the minimum I/Os per second was found.
DFW/sec Avg	DWSECAVG	The DASD fast writes per second average for the summarized snapshots.

Table 7-32 Field List for the Cache Controller History Report (Part 3 of 8)

Column Heading	Field Name	Description
DFW/sec HWM	DWSECHWM	The DASD fast write operations per second high-water mark from the summarized snapshot samples.
DFW/sec LWM	DWSECLWM	The DASD fast write operations per second low-water mark from the summarized snapshot samples.
DFW/sec Max	DWSECMAX	The DASD fast writes per second from the snapshot in which the maximum I/Os per second was found.
DFW/sec Min	DWSECMIN	The DASD fast writes per second from the snapshot in which the minimum I/Os per second was found.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
I/Os /sec Avg	IOSAVG	The IO operations per second average for the summarized snapshot samples.
I/Os /sec HWM	IOSHWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec LWM	IOSLWM	The IO operations per second low-water mark from the summarized snapshot samples.
I/Os /sec Max	IOSMAX	The maximum IO operations per second found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
I/Os /sec Min	IOSMIN	The time of the snapshot in which the minimum IOs per second was found.
Month	MONTH	The month of the year.
Non Volatile Stg HWM	NVSTGHWM	The non volatile storage high-water mark from the summarized snapshot samples.
Non Volatile Stg LWM	NVSTGLWM	The non volatile storage low-water mark from the summarized snapshot samples.
Non Volatile Stg Avg	NVSTGAVG	The cache non volatile storage from the snapshot in which the minimum I/Os per second was found.
Non Volatile Stg Max	NVSTGMAX	The cache non-volatile storage from the snapshot in which the maximum I/Os per second was found.
Non Volatile Stg Min	NVSTGMIN	The cache non volatile storage from the snapshot in which the minimum I/Os per second was found.
Norm Read % Avg	NRPRCAVG	The normal read percentage average for the summarized snapshots.
Norm Read % HWM	NRPRCHWM	The normal read percentage high-water mark from the summarized samples.
Norm Read % LWM	NRPRCLWM	The normal read percentage low-water mark from the summarized samples.
Norm Read % Max	NRPRCMAX	The normal read percentage from the snapshot in which the maximum I/Os per second was found.
Norm Read % Min	NRPRCMIN	The normal read percentage from the snapshot in which the minimum I/Os per second was found.

Table 7-32 Field List for the Cache Controller History Report (Part 4 of 8)

Column Heading	Field Name	Description
Norm Read Hit% Avg	NRHTPAVG	The normal read hit percentage average for the summarized snapshots.
Norm Read Hit% HWM	NRHTPHWM	The normal read hit percentage high-water mark from the summarized samples.
Norm Read Hit% LWM	NRHTPLWM	The normal read hit percentage low-water mark from the summarized samples.
Norm Read Hit% Max	NRHTPMAX	The normal read hit percentage from the snapshot in which the maximum I/Os per second was found.
Norm Read Hit% Min	NRHTPMIN	The normal read hit percentage from the snapshot in which the minimum I/Os per second was found.
Norm Read/sec Avg	NRSECAVG	The normal reads per second average for the summarized snapshots.
Norm Read/sec HWM	NRSECHWM	The normal read operations per second high-water mark from the summarized snapshot samples.
Norm Read/sec LWM	NRSECLWM	The normal read operations per second low-water mark from the summarized snapshot samples.
Norm Read /sec Max	NRSECMAX	The normal reads per second from the snapshot in which the maximum I/Os per second was found.
Norm Read /sec Min	NRSECMIN	The normal reads per second from the snapshot in which the minimum I/Os per second was found.
Norm Write % Avg	NWPRCAVG	The normal reads per second from the snapshot in which the minimum I/Os per second was found.
Norm Write % HWM	NRPRCHWM	The normal write percentage high-water mark from the summarized samples.
Norm Write % LWM	NRPRCLWM	The normal write percentage low-water mark from the summarized samples.
Norm Write % Max	NWPRCMAX	The normal write percentage from the snapshot in which the maximum I/Os per second was found.
Norm Write % Min	NWPRCMIN	The normal write percentage from the snapshot in which the minimum I/Os per second was found.
Norm Write/sec Avg	NWSECAVG	The normal writes per second average for the summarized snapshots.
Norm Write /sec HWM	NWSECHWM	The normal write operations per second high-water mark from the summarized snapshot samples.
Norm Write /sec LWM	NWSECLWM	The normal write operations per second low-water mark from the summarized snapshot samples.
Norm Write /sec Max	NWSECMAX	The normal writes per second from the snapshot in which the maximum I/Os per second was found.
Norm Write /sec Min	NWSECMIN	The normal writes per second from the snapshot in which the minimum I/Os per second was found.
Norm Write Hit% Avg	NWHTPAVG	The sequential write hit percentage average for the summarized snapshots.

Table 7-32 Field List for the Cache Controller History Report (Part 5 of 8)

Column Heading	Field Name	Description
Norm Write Hit% HWM	NWHTPHWM	The normal write hit percentage high-water mark from the summarized samples.
Norm Write Hit% LWM	NWHTPLWM	The normal write hit percentage low-water mark from the summarized samples.
Norm Write Hit% Max	NWHTPMAX	The normal write hit percentage from the snapshot in which the maximum I/Os per second was found.
Norm Write Hit% Min	NWHTPMIN	The normal write hit percentage from the snapshot in which the minimum I/Os per second was found.
Read Hit% Avg	RHTPAVG	The read hit percentage average for the summarized snapshots.
Read Hit% HWM	RHTPHWM	The read hit percentage high-water mark from the summarized samples.
Read Hit% Lwm	RHTPLWM	The read hit percentage low-water mark from the summarized samples.
Read Hit% Max	RHTPMAX	The read hit percentage from the snapshot in which the maximum I/Os per second was found.
Read Hit% Min	RHTPMIN	The read hit percentage from the snapshot in which the minimum I/Os per second was found.
Reads% Avg	RPRCAVG	The read percentage average for the summarized snapshots.
Reads% HWM	RPRCHWM	The read percentage high-water mark from the summarized samples.
Reads% LWM	RPRCLWM	The read percentage low-water mark from the summarized samples.
Read% Max	RPRCMAX	The read percentage from the snapshot in which the maximum I/Os per second was found.
Read% Min	RPRCMIN	The read percentage from the snapshot in which the minimum I/Os per second was found.
Read/sec Avg	RSECAVG	The reads per second average for the summarized snapshots.
Read/sec HWM	RSECHWM	The read operations per second high-water mark from the summarized snapshot samples.
Read/sec Max	RSECMAX	The reads per second from the snapshot in which the maximum I/Os per second was found.
Read/sec Min	RSECMIN	The reads per second from the snapshot in which the minimum I/Os per second was found.
Read/sec LWM	RSECLWM	The read operations per second low-water mark from the summarized snapshot samples.
Samples	SAMPLES	Total number of snapshots in the interval.
Seq Read % Avg	SRPRCAVG	The sequential read percentage average for the summarized snapshots.
Seq Read % HWM	SRPRCHWM	The sequential read percentage high-water mark from the summarized samples.
Seq Read % LWM	SRPRCLWM	The sequential read percentage low-water mark from the summarized samples.

Table 7-32 Field List for the Cache Controller History Report (Part 6 of 8)

Column Heading	Field Name	Description
Seq Read % Max	SRPRCMAX	The sequential read percentage from the snapshot in which the maximum I/Os per second was found.
Seq Read % Min	SRPRCMIN	The sequential read percentage from the snapshot in which the minimum I/Os per second was found.
Seq Read Hit% Avg	SRHTPAVG	The sequential read hit percentage average for the summarized snapshots.
Seq Read Hit% HWM	SRHTPHWM	The sequential read hit percentage high-water mark from the summarized samples.
Seq Read Hit% LWM	SRHTPLWM	The sequential read hit percentage low-water mark from the summarized samples.
Seq Read Hit% Max	SRHTPMAX	The sequential read hit percentage from the snapshot in which the maximum I/Os per second was found.
Seq Read Hit% Min	SRHTPMIN	The sequential read hit percentage from the snapshot in which the minimum I/Os per second was found.
Seq Read/sec Avg	SRSECAVG	The sequential reads per second average for the summarized snapshots.
Seq Read/sec HWM	SRSECHWM	The sequential read operations per second high-water mark from the summarized snapshot samples.
Seq Read/sec LWM	SRSECLWM	The sequential read operations per second low-water mark from the summarized snapshot samples.
Seq Read /sec Max	SRSECMAX	The sequential reads per second from the snapshot in which the maximum I/Os per second was found.
Seq Read /sec Min	SRSECMIN	The sequential reads per second from the snapshot in which the minimum I/Os per second was found.
Seq Write % Avg	SWPRCAVG	The sequential write percentage average for the summarized snapshots.
Seq Write % HWM	SWPRCHWM	The sequential write percentage high-water mark from the summarized samples.
Seq Write % LWM	SWPRCLWM	The sequential write percentage low-water mark from the summarized samples.
Seq Write % Max	SWPRCMAX	The sequential write percentage from the snapshot in which the maximum I/Os per second was found.
Seq Write % Min	SWPRCMIN	The sequential write percentage from the snapshot in which the minimum I/Os per second was found.
Seq Write Hit% Avg	SWHTPAVG	The sequential write hit percentage average for the summarized snapshots.
Seq Write Hit% HWM	SWHTPHWM	The sequential write hit percentage high-water mark from the summarized samples.
Seq Write Hit% LWM	SWHTPLWM	The sequential write hit percentage low-water mark from the summarized samples.
Seq Write Hit% Max	SWHTPMAX	The sequential write hit percentage from the snapshot in which the maximum I/Os per second was found.

Table 7-32 Field List for the Cache Controller History Report (Part 7 of 8)

Column Heading	Field Name	Description
Seq Write Hit% Min	SWHTPMIN	The sequential write hit percentage from the snapshot in which the minimum I/Os per second was found.
Seq Write/sec Avg	SWSECAVG	The sequential writes per second average for the summarized snapshots.
Seq Write/sec HWM	SWSECHWM	The sequential write operations per second high-water mark from the summarized snapshot samples.
Seq Write/sec LWM	SWSECLWM	The sequential write operations per second low-water mark from the summarized snapshot samples.
Seq Write /sec MAX	SWSECMAX	The sequential writes per second from the snapshot in which the maximum I/Os per second was found
Seq Write /sec Min	SWSECMIN	The sequential writes per second from the snapshot in which the minimum I/Os per second was found.
Time Max	TIMEMAX	The time of the snapshot in which the maximum IOs per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum IOs per second was found.
Total I/Os Avg	TIOSAVG	The total I/Os count average for the summarized snapshot samples.
Total I/Os HWM	TIOSHWM	The total I/Os count high-water mark from the summarized snapshot samples.
Total I/Os LWM	TIOSLWM	The total I/Os count low-water mark from the summarized snapshot samples.
Total I/Os Max	TIOSMAX	The total I/O count from the snapshot in which the maximum I/Os per second was found.
Total I/Os min	TIOSMIN	The total I/O count from the snapshot in which the minimum I/Os per second was found.
Write% Avg	WPRCAVG	The write percentage average for the summarized snapshots.
Write% HWM	WPRCHWM	The write percentage high-water mark from the summarized samples.
Write% LWM	WPRCLWM	The write percentage low-water mark from the summarized samples.
Write% MAX	WPRCMAX	The write percentage from the snapshot in which the maximum I/Os per second was found.
Write% MIN	WPRCMIN	The write percentage from the snapshot in which the minimum I/Os per second was found.
Write Hit% Avg	WHTPAVG	The write hit percentage average for the summarized snapshots.
Write Hit% HWM	WHTPHWM	The write hit percentage high-water mark from the summarized samples.
Write Hit% LWM	WHTPLWM	The write hit percentage low-water mark from the summarized samples.
Write Hit% Max	WHTPMAX	The write hit percentage from the snapshot in which the maximum I/Os per second was found.
Write Hit% Min	WHTPMIN	The write hit percentage from the snapshot in which the minimum I/Os per second was found.

Table 7-32 Field List for the Cache Controller History Report (Part 8 of 8)

Column Heading	Field Name	Description
Write/sec Avg	WSECAVG	The writes per second average for the summarized snapshots.
Write/sec HWM	WSECHWM	The write operations per second high-water mark from the summarized snapshot samples.
Write/sec LWM	WSECLWM	The write operations per second low-water mark from the summarized snapshot samples.
Write/sec Max	WSECMAX	The writes per second from the snapshot in which the maximum I/Os per second was found.
Write/sec Min	WSECMIN	The writes per second from the snapshot in which the minimum I/Os per second was found.

Figure 7-20 provides a sample of the Cache Controller History Report.

Figure 7-20 Cache Controller History Report Example

```

Produced by MAINVIEW SRM                               Cache Controller Daily Summary for 00E4                               Page: 1
BMC Software, Inc.                                     Generated:07/15/2002(2002.196)@14:06

Intv Strt Day I/Os /sec Total I/Os Read/sec Read% Read Hit% Write/sec Write% Write Hit% Norm Read Norm Read
Date      Max      Max      Max      Max      Max      Max      Max      Max      Max      /sec Max      % Max
-----
07/01/2002 THU    199.80    179,820    155.58    77.8      98.4      44.22    22.1      99.7      132.93    75.9
07/02/2002 FRI    245.74    221,167    196.10    79.7      98.7      49.64    20.2      99.7      181.88    79.2
07/03/2002 SAT    169.20    152,277    127.62    75.4      97.6      41.58    24.5      98.9      123.49    77.5
07/06/2002 TUE    518.26    466,434    328.58    63.4      97.6      189.68    36.5      95.3      326.75    63.9
07/07/2002 WED    247.95    223,152    201.44    81.2      97.9      46.51    18.7      98.9      173.75    80.4
07/08/2002 THU    248.15    223,333    92.94    37.4      93.2      155.20    62.5      98.5      89.85    36.6
07/11/2002 SUN    139.62    125,661    40.28    28.8      97.6      99.34    71.1      99.9      28.60    22.3
07/12/2002 MON    160.51    144,457    124.74    77.7      89.5      35.77    22.2      98.7      117.25    78.1
07/13/2002 TUE    173.73    156,359    80.63    46.4      96.4      93.10    53.5      99.8      79.41    57.4
***** End of Cache Controller Snapshot Report*****

```

Cache Controller History Snapshot Report

The Cache Controller History Snapshot report displays cache controller snapshot data for multiple intervals.

Data Source	performance data collector
Initial Display	SSID; TYPE; MODEL; SRLNUM;TOTALIOS; IOSSEC; RIOSSEC; READPERC; READHITP; WIOSSEC; WRTEPERC; WRTEHITP; NRIOSEC; NRMRPC; NORMRDHP; VENDOR; VMODEL
Report Name Verb	PERF_CACHE

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-33 presents a field list for the Cache Controller History Snapshot Report.

Table 7-33 Field List for the Cache Controller History Snapshot Report (Part 1 of 2)

Column Heading	Field Name	Description
Cache Storage	CCUSTOR	The subsystem storage available, in bytes, for allocation as cache space.
CFW %	CFWPERC	The percentage of I/Os that were cache fast writes.
CFW Hit%	CFWHITP	The hit percentage for cache fast write operations.
CFW/sec	CFWSEC	The number of cache fast write operations issued per second.
DFW %	DFWPERC	The percentage of I/Os that were DASD fast writes.
DFW Hit%	DFWHITP	The hit percentage for DASD fast write operations.
DFW/sec	DFWSEC	The number of DASD fast write operations issued per second.
I/Os sec	IOSSEC	The number of I/O operations issued per second.
Vendor Model	VMODEL	The vendor model number.
Model	MODEL	The cache controller model number.
Non-volatile Storage	NVSTOR	The non-volatile cache storage allocated in bytes.
Norm Read %	NRMRPC	The percentage of I/Os that were normal reads.
Norm Read Hit%	NORMRDHP	The hit percentage for normal read operations.
Norm Read/sec	NRIOSEC	The number of normal read operations issued per second.
Norm Write/sec	NWIOSEC	The number of normal write operations issued per second.
Normal Write %	NRMWPERC	The percentage of I/Os that were normal writes.
Normal Write Hit%	NORMRWHP	The percentage of I/Os that were normal writes.

Table 7-33 Field List for the Cache Controller History Snapshot Report (Part 2 of 2)

Column Heading	Field Name	Description
Read %	READPERC	The percentage of I/O operations that were reads.
Read Hit%	READHITP	The hit percentage of read operations.
Read/sec	RIOSSEC	The number of read operations issued per second.
Seq Read %	SEQRPERC	The percentage of I/Os that were sequential reads.
Seq Read Hit%	SEQRDHP	The number of normal write operations issued per second.
Seq Read/sec	SRIOSEC	The number of sequential read operations per second.
Seq Write %	SEQWPERC	The percentage of I/Os that were sequential writes.
Seq Write Hit%	SEQWRHP	The percentage of I/Os that were sequential writes.
Seq Write/sec	SWIOSEC	The number of write operations issued per second.
Serial Number	SRLNUM	The cache controller serial number.
SSID	SSID	The system identifier.
Total I/Os	TOTALIOS	The total I/O count for a director.
TYPE	TYPE	The cache controller type identifier.
Vendor	VENDOR	The vendor identifier.
Write %	WRTEPERC	The percentage of I/O operations that were writes.
Write Hit%	WRTEHITP	The hit percentage of write operations.
Write/sec	WIOSSEC	The number of write operations issued per second.

Figure 7-21 provides a sample of the Cache Controller History Snapshot Report.

Figure 7-21 Cache Controller History Snapshot Report Example

```

Produced by MAINVIEW SRM                               Cache Ctlr Snapshot Report for 12/01/2002 1115                               Page: 1
BMC Software, Inc.                                     Generated:12/15/2002(2002.196)@13:59

```

SSID	TYPE	Model	Serial Number	Total I/Os	I/Os sec	Read /sec	Read %	Read Hit%	Write /sec	Write %	Write Hit%	Norm Read /sec	Norm Read %	Norm Read Hit%	Vendor	Vendor Model
00E4	3990	EC	01646	52,938	58.82	23.40	39.7	97.8	35.42	60.2	99.7	23.32	39.7	97.8	EMC	04
00E5	3990	EC	01646	55,485	61.65	58.11	94.2	98.3	3.54	5.7	99.7	56.68	95.0	98.3	EMC	04
00E8	3990	EC	01646	67,149	74.61	64.50	86.4	98.9	10.11	13.5	99.2	64.15	89.3	98.9	EMC	04
00E9	3990	EC	01646	17,019	18.91	17.25	91.1	94.7	1.66	8.8	100.0	15.38	90.3	94.0	EMC	04
----- Totals -----																
				192,591												
***** End of Cache Controller Snapshot Report *****																

Channel Path History Report

The Channel Path History report displays summary information for channel path performance data over a requested period.

Data Source	performance data collector
Initial Display	Fields in parentheses are not used by all reports. (DATE); (MONTH); (DAY); SAMPLES; IOSMAX; DATEMAX; TIMEMAX; DATEMIN; TIMEMIN; IOSMIN; PBUSYMIN; IOSAVG; PBUSYAVG; IOSHWM; PBUSYHWM; IOSLWM; PBUSYLWM
Report Name Verb	PERF_CHP

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-34 presents a field list for the Channel Path History Report.

Table 7-34 Field List for the Channel Path History Report (Part 1 of 2)

Column Heading	Field Name	Description
Busy% Avg	PBUSYAVG	The busy percentage average for the summarized snapshot samples.
Busy% HWM	PBUSYHWM	The busy percentage high-water mark from the summarized snapshot samples.
Busy% LWM	PBUSTLWM	The busy percentage low-water mark from the summarized snapshot samples.
Busy% Min	PBUSYMIN	The minimum busy percentage found in the summarized snapshot samples. All shown minimum values are from the snapshot in which this value is found.
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Day	DAY	Day of the week.
I/Os /sec Avg	IOSAVG	The IO operations per second average for the summarized snapshot samples.
I/Os /sec HWM	IOSHWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec LWM	IOSLWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec Max	IOSMAX	The maximum IO operations per second found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
I/Os /sec Min	IOSMIN	The time of the snapshot in which the minimum IOs per second was found.
Intv Strt Date	DATE	The summarization interval starting date.

Table 7-34 Field List for the Channel Path History Report (Part 2 of 2)

Column Heading	Field Name	Description
Month	MONTH	The month of the year.
Samples	SAMPLES	Total number of snapshots in the interval.
Time Max	TIMEMAX	The time of the snapshot in which the maximum IOs per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum IOs per second was found.

Figure 7-22 provides a sample of the Channel Path History Report.

Figure 7-22 Channel Path History Report Example

```

Produced by MAINVIEW SRM                               Channel Path Daily Summary for 0070                               Page: 1
BMC Software, Inc.                                     Generated:12/15/2002(2002.196)@14:15
-----
Intv Strt Day Samples I/Os /Sec Date      Time Date      Time I/Os /sec Busy% I/Os /Sec Busy% I/Os /sec Busy% I/Os /Sec Busy%
Date      Date      Max      Max      Max Min      Min  Min  Min      Avg  Avg      HWM  HWM      LWM  LWM
-----
12/01/2002 THU      24      0.00 12/01/2002 16:45 12/01/2002 15:30      1.82 0.7      0.70 1.1      4.24 1.7      0.00 0.7
12/02/2002 FRI      49      4.12 12/02/2002 12:00 12/02/2002 23:45      0.75 0.1      1.72 0.4      4.12 1.1      0.00 0.1
12/03/2002 SAT      65      1.50 12/03/2002 15:15 12/03/2002 14:30      0.65 0.1      0.88 0.1      4.19 0.7      0.59 0.1
12/06/2002 TUE      50      2.39 12/06/2002 17:15 12/06/2002 15:00      1.24 0.3      1.79 0.8      4.31 1.5      0.69 0.3
12/12/2002 WED      39      0.00 12/07/2002 16:00 12/07/2002 09:15      1.71 0.2      1.43 0.7      4.67 1.4      0.00 0.2
12/08/2002 THU      9       3.33 12/08/2002 10:15 12/08/2002 08:45      0.60 0.1      2.17 0.3      3.62 0.5      0.60 0.1
12/11/2002 SUN      38      2.37 12/11/2002 15:09 12/11/2002 23:15      0.28 0.0      0.81 0.1      3.78 0.4      0.27 0.0
12/12/2002 MON      28      3.60 12/12/2002 04:15 12/12/2002 05:30      0.28 0.0      0.47 0.0      3.60 0.4      0.27 0.0
12/13/2002 TUE      8       3.81 12/15/2002 12:45 12/15/2002 13:15      1.76 0.7      2.37 0.9      3.81 1.4      1.75 0.7
***** End of Channel Path Summary Report *****

```

Channel Path History Snapshot Report

The Channel Path History Snapshot report displays channel path snapshot data for multiple intervals.

Data Source	performance data collector
Initial Display	Fields in parentheses are not displayed in all reports. (CHPID); (TYPE); (DATE); (STIME); IOSSEC; PERCBUSY; VISUAL
Report Name Verb	PERF_CHP

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-35 presents a field list for the Channel Path History Snapshot Report.

Table 7-35 Field List for the Channel Path History Snapshot Report

Column Heading	Field Name	Description
Busy %	PERCBUSY	The percentage of time the resource was busy.
CHPID	CHPID	The channel path identifier.
I/Os sec	IOSSEC	The number of I/O operations issued per second.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
Percent Graph	VISUAL	The visual representation of BUSY %.
TYPE	TYPE	A two or three-character value that identifies the type of channel path: BY Byte Multiplexor BL Block Multiplexor CV ES connection converter attached to the channel CN ES connection channel CN D ES connection channel with an ES connection director attached to the channel CC Channel-to-channel adapter CC D Channel-to-channel adapter with an ES connection director attached to the channel UNK Unable to detect the channel path type

Figure 7-23 provides a sample of the Channel Path History Snapshot Report.

Figure 7-23 Channel Path History Snapshot Report Example

```

Produced by MAINVIEW SRM          Channel Path Snapshot Report for 03/08/2003 1315          Page: 1
BMC Software, Inc.                Generated:03/15/2003(2003.196)@14:13

CHPID Type      I/Os      Busy      Percent Graph
                SEC      %          .....50.....100
-----
0007 ESCONN      0.82      0.1
000B ESCONN      0.80      0.1
001E ESCONN      0.81      0.1
0032 ESCONN      0.80      0.1
0040 ESCONN      0.39      0.1
0041 ESCONN      0.42      0.1
0042 ESCONN      0.40      0.1
0047 ESCONN      0.83      0.1
004A ESCONN      0.44      0.1
004D ESCONN      0.42      0.1
0070 ESCONN      0.83      0.1
0074 ESCONN      0.43      0.1
0078 ESCONN      0.83      0.1
007C ESCONN      0.42      0.1
00A2 ESCONN      0.41      0.1
00A9 ESCONN      0.83      0.1
***** End of Channel Path Snapshot Report *****

```

Data Set History Report

The Data Set History report displays summary information for data set performance data over a requested period. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPLI)*.

Data Source	performance data collector
Initial Display	Fields in parentheses are not used by all reports. (DATE); (MONTH); (DAY); SAMPLES; RESPTMAX; DATEMAX; TIMEMAX; IOSMAX; IOSQMAX; PENDTMAX; DISCTMAX; CONNTMAX; SERVTMAX; RPRC MAX; RHTPMAX; WPRC MAX; WHTPMAX
Report Name Verb	PERF_DSN

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report. PERF_DSN requires keyword DSNINDEX.

Table 7-36 presents a field list for the Data Set History Report.

Table 7-36 Field List for the Data Set History Report (Part 1 of 4)

Column Heading	Field Name	Description
Conn Time Avg	CONNTAVG	The connect time in milliseconds average for the summarized snapshots.
Conn Time HWM	CONNTHWM	The connect time in milliseconds high-water mark from the summarized samples.
Conn Time LWM	CONNTLWM	The connect time in milliseconds low-water mark from the summarized samples.
Conn Time Max	CONNTMAX	The connect time in milliseconds from the snapshot in which the maximum response time was found.

Table 7-36 Field List for the Data Set History Report (Part 2 of 4)

Column Heading	Field Name	Description
Conn Time Min	CONNTMIN	The connect time in milliseconds from the snapshot in which the minimum response time was found.
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Day	DAY	Day of the week.
Disc Time Avg	DISCTAVG	The disconnect time in milliseconds average for the summarized snapshots.
Disc Time HWM	DISCTHWM	The disconnect time in milliseconds high-water mark from the summarized samples.
Disc Time LWM	DISCTLWM	The disconnect time in milliseconds low-water mark from the summarized samples.
Disc Time Max	DISCTMAX	The disconnect time in milliseconds low-water mark from the summarized samples.
Disc Time Min	DISCTMIN	The disconnect time in milliseconds from the snapshot in which the minimum response time was found.
I/Os /sec Avg	IOSAVG	The IO operations per second average for the summarized snapshot samples.
I/Os /sec HWM	IOSHWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec LWM	IOSLWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec Max	IOSMAX	The maximum IO operations per second found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
I/Os /sec Min	IOSMIN	The time of the snapshot in which the minimum IOs per second was found.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
IOSQ Time Avg	IOSQTAVG	The IOSQ time in milliseconds average for the summarized snapshots.
IOSQ Time HWM	IOSQTHWM	The IOSQ time in milliseconds high-water mark from the summarized samples.
IOSQ Time LWM	IOSQTLWM	The IOSQ time in milliseconds low-water mark from the summarized samples.
IOSQ Time Max	IOSQTMAX	The IOSQ time in milliseconds from the snapshot in which the maximum response time was found.
IOSQ Time Min	IOSQTMIN	The IOSQ time in milliseconds from the snapshot in which the minimum response time was found.
Month	MONTH	The month of the year.

Table 7-36 Field List for the Data Set History Report (Part 3 of 4)

Column Heading	Field Name	Description
Pend Time Avg	PENDTAVG	The pending time in milliseconds average for the summarized snapshots.
Pend Time HWM	PENDTHWM	The pending time in milliseconds high-water mark from the summarized samples.
Pend Time LWM	PENDTLWM	The pending time in milliseconds low-water mark from the summarized samples.
Pend Time Max	PENDTMAX	The pending time in milliseconds from the snapshot in which the maximum response time was found.
Pend Time Min	PENDTMIN	The pending time in milliseconds from the snapshot in which the minimum response time was found.
Read Hit% Avg	RHTPAVG	The read hit percentage average for the summarized snapshots.
Read Hit% HWM	RHTPHWM	The read hit percentage high-water mark from the summarized samples.
Read Hit% LWM	RHTPLWM	The read hit percentage low-water mark from the summarized samples.
Read Hit% MAX	RHTPMAX	The read hit percentage from the snapshot in which the maximum I/Os per second was found.
Read Hit% Min	RHTPMIN	The read hit percentage from the snapshot in which the minimum I/Os per second was found.
Read% Max	RPRCMAX	The read percentage from the snapshot in which the maximum I/Os per second was found.
Read% Min	RPRCMIN	The read percentage from the snapshot in which the maximum I/Os per second was found.
Reads% Avg	RPRCAVG	The read percentage average for the summarized snapshots.
Reads% HWM	RPRCHWM	The read percentage high-water mark from the summarized samples.
Reads% LWM	RPRCLWM	The read percentage low-water mark from the summarized samples.
Resp Time Avg	RESPTAVG	The response time in milliseconds average for the summarized snapshots.
Resp Time HWM	RESPTHWM	The response time in milliseconds high-water mark from the summarized samples.
Resp Time LWM	RESPTLWM	The response time in milliseconds low-water mark from the summarized samples.
Resp Time Max	RESPTMAX	The maximum response time in milliseconds found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
Resp Time Min	RESPTMIN	The minimum response time in milliseconds found in the summarized snapshot samples. All shown minimum values are from the snapshot in which this value is found.
Samples	SAMPLES	Total number of snapshots in the interval.
Serv Time Avg	SERVTAVG	The service time in milliseconds average for the summarized snapshots.

Table 7-36 Field List for the Data Set History Report (Part 4 of 4)

Column Heading	Field Name	Description
Serv Time HWM	SERVTHWM	The connect time in milliseconds high-water mark from the summarized samples.
Serv Time LWM	SERVTLWM	The service time in milliseconds low-water mark from the summarized samples.
Serv Time Max	SERVTHWM	The service time in milliseconds from the snapshot in which the maximum response time was found.
Serv Time Min	SERVTHWM	The service time in milliseconds from the snapshot in which the minimum response time was found.
Time Max	TIMEMAX	The time of the snapshot in which the maximum IOs per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum IOs per second was found.
Write Hit% Avg	WHTPAVG	The write hit percentage average for the summarized snapshots.
Write Hit% HWM	WHTPHWM	The write hit percentage high-water mark from the summarized samples.
Write Hit% LWM	WHTPLWM	The write hit percentage low-water mark from the summarized samples.
Write Hit% Max	WHTPMAX	The write hit percentage from the snapshot in which the maximum I/Os per second was found.
Write Hit% Min	WHTPMIN	The write hit percentage from the snapshot in which the minimum I/Os per second was found.
Write% Avg	WPRCAVG	The write percentage average for the summarized snapshots.
Write% HWM	WPRCHWM	The write percentage high-water mark from the summarized samples.
Write% LWM	WPRCLWM	The write percentage low-water mark from the summarized samples.
Write% Max	WPRCMAX	The write percentage from the snapshot in which the maximum I/Os per second was found.
Write% Min	WPRCMIN	The write percentage from the snapshot in which the minimum I/Os per second was found.

Figure 7-24 provides a sample of the Data Set History Report.

Figure 7-24 Data Set History Report Example

```

Produced by MAINVIEW SRM                               Data Set Weekly Summary for 0000000A                               Page: 1
BMC Software, Inc.                                     Generated:03/15/2003(2003.196)@14:44

Intv Strt  Samples Resp Time Date      Time  I/Os /sec IOSQ Time Pend Time Disc Time Conn Time Serv Time Read% Read Hit% Write%
Date      Max      Max
-----
07/01/2003  26      31.9 03/02/2003 14:30  0.00  0.0  0.0  26.5  1.5  28.0 100.0  50.0  0.0
07/03/2003  52      74.9 03/06/2003 17:30  0.00  0.0  0.0  72.8  1.5  74.3 100.0  50.0  0.0
07/11/2003  13      19.4 03/15/2003 12:15  0.00  0.0  0.0  17.1  2.1  19.2 100.0  50.0  0.0
***** End of Data Set Summary Report *****
    
```

Data Set History Snapshot Report

The Data Set History Snapshot report displays data set snapshot data for multiple intervals. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPI)*.

Data Source	performance data collector
Initial Display	Fields in parentheses are not displayed in all reports. (DSNAME); (DSNINDEX); (DATE); (STIME); SCLASS; VOLUME; IOSSEC; RESPTIME; IOSQTIME; PENDTIME; DISCTIME; CONNTIME; SERVTIME; READPERC; REDHPERC
Report Name Verb	PERF_DSN

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-37 presents a field list for the Data Set History Snapshot Report.

Table 7-37 Field List for the Data Set History Snapshot Report (Part 1 of 2)

Column Heading	Field Name	Description
Conn Time	CONNTIME	The average connect time in milliseconds.
Data Set Name	DSNAME	The name of the data set.
Disc Time	DISCTIME	The average disconnect time in milliseconds.
DSN Index	DSNINDEX	The data set index from the snapshot report.
I/Os /sec	IOSSEC	The number of I/O operations issued per second.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
IOSQ Time	IOSQTIME	The average IOS queuing time in milliseconds.
LASTDAYS	LASTDAYS	The number of days of history reported.
LASTHRS	LASTHRS	The number of hours of history reported.
Pend Time	PENDTIME	The average pending time in milliseconds.
Read %	READPERC	The percentage of I/O operations that were reads.
Read Hit %	REDHPERC	The hit percentage of read operations.
Resp Time	RESPTIME	The I/O response time reported in milliseconds.
Serv Time	SERVTIME	The average service time in milliseconds.
Storage Class	SCLASS	The name of the selected SMS storage class for the data set.

Table 7-37 Field List for the Data Set History Snapshot Report (Part 2 of 2)

Column Heading	Field Name	Description
Volume	VOLUME	The serial number of the volume containing the data set.
Write %	WRITPERC	The percentage of I/O operations that were writes.
Write Hit %	WRTHPERC	The hit percentage of write operations.

Figure 7-25 provides a sample of the Data Set History Snapshot Report.

Figure 7-25 Data Set History Snapshot Report Example

```

Produced by MAINVIEW SRM          Date Set Snapshot Report for 03/01/2003 1615          Page: 1
BMC Software, Inc.                Generated:03/15/2003(2003.196)@14:37
Data Set Name                      DSN      Storage  Volume  I/Os   Resp   IOSQ   Pend   Disc   Conn   Serv   Read   Read
Index                               Class    Class    I/Os   Sec    Time  Time  Time  Time  Time  Time  %      Hit %
-----
ISP.SISPMENU                        00000007  O24G11  0.01   5.1    0.1    0.1    0.1    4.0    0.9    4.9    0.0    0.0
ISP.SISPTEU                          00000008  O24G11  0.01   1.4    0.2    0.1    0.0    1.1    1.1    0.0    0.0
SYS2.SYSTEMS.ISPPLIB                0000000A  EMP001  0.00   26.9   0.0    0.3    24.4   2.2    26.6  100.0  0.0
ISP.SISPENU                          0000000B  O24G11  0.02   6.3    0.4    0.1    4.6    1.2    5.8    0.0    0.0
SYS1.BRODCAST                       0000000E  EMPD52  0.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
ICFUCAT.VSYSYP14.CATINDEX           00000019  SYSYP14 0.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
ICFUCAT.VSYSYP14                   0000001A  SYSYP14 0.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
EMPUCAT.VEMPCAT.INDEX               0000001B  EMPCAT  0.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
EMPUCAT.VEMPCAT                    0000001C  EMPCAT  0.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
SYS1.MANL.DATA                       0000001D  EMPR52  0.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
SYS2.PROCLIB                         0000001E  EMPD52  0.00   1.0    0.1    0.1    0.0    0.8    0.8    0.0    0.0
SYS1.MVS522.HASPCCKPT               0000001F  SPOOL1  0.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
HSM26.HSMPDOX                       00000020  EMP002  0.00   2.7    0.3    0.1    0.0    2.3    2.3    0.0    0.0
HSM26.MCDS.INDEX                    00000021  EMPR52  0.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
HSM26.MCDS.DATA                     00000022  EMPR52  0.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
HSM26.JRNL                           00000023  WORK03  0.01   0.9    0.0    0.2    0.0    0.7    0.7    0.0    0.0
HSM26.HSMLOGX1                      00000024  EMP002  0.00   1.2    0.1    0.1    0.0    0.9    0.9    0.0    0.0
EMP.IBMSMS.SYS.COMMDS.DATA          00000025  TSG311  0.67   10.0   0.3    7.7    0.0    2.0    2.0    50.0  100.0
SYS1.MVS522.HASPACE                  0000002B  SPOOL1  0.00   0.0    0.0    0.0    0.0    0.0    0.0    0.0    0.0
TCP/IP.TCPIP.DATA                    00000034  EMPD52  0.05   4.9    0.2    0.5    1.9    2.3    4.2    0.0    0.0
TCP/IP.STANDARD.TCPXLBIN             00000035  O24G12  0.04   1.5    0.1    0.2    0.0    1.2    1.2  100.0  100.0
SYS2.BBPROD.BBPROC                   00000038  TSG320  0.02   2.0    0.1    1.2    0.0    0.8    0.8  100.0  100.0
ISF.V1R6M0.SISFTLIB                 00000039  EMP001  0.00   1.3    0.0    0.3    0.0    1.0    1.0  100.0  100.0
ISF.V1R6M0.SISFPLIB                 0000003A  EMP004  0.09   1.3    0.2    0.1    0.0    0.9    0.9  100.0  100.0
HSM26.MDB.D99182.T1618145           0000005F  EMP002  2.05   1.2    0.3    0.1    0.0    0.8    0.8    0.0    0.0
HSM26.OCDX.INDEX                     00000060  WORK01  0.00   0.0    0.0    0.0    0.0    0.0    0.0  100.0  25.0
HSM26.OCDX.DATA                      00000061  WORK01  0.00   0.0    0.0    0.0    0.0    0.0    0.0  100.0  33.3
***** End of Data Set Snapshot Report *****
    
```

Job History Report

The Job History report displays summary information for job performance data over a requested period. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPH)*.

Data Source	performance data collector
Initial Display	fields in parentheses are not displayed in all reports. (DATE); (STIME);(MONTH); (DAY); SAMPLES; RESPTMAX; TIOSMAX; IOSMAX; IOSQTMAX; PENDTMAX; DISCTMAX; CONNTMAX; RPRC MAX; RHTP MAX; WPRC MAX
Report Name Verb	PERF_JOB

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-38 presents a field list for the Job History Report.

Table 7-38 Field List for the Job History Report (Part 1 of 4)

Column Heading	Field Name	Description
Conn Time Avg	CONNTAVG	The connect time in milliseconds average for the summarized snapshots.
Conn Time HWM	CONNTHWM	The connect time in milliseconds high-water mark from the summarized samples.
Conn Time LWM	CONNTLWM	The connect time in milliseconds low-water mark from the summarized samples.
Conn Time Max	CONNTMAX	The connect time in milliseconds from the snapshot in which the maximum response time was found.
Conn Time Min	CONNTMIN	The connect time in milliseconds from the snapshot in which the minimum response time was found.
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Day	DAY	Day of the week.
Disc Time Avg	DISCTAVG	The disconnect time in milliseconds average for the summarized snapshots.
Disc Time HWM	DISCTHWM	The disconnect time in milliseconds high-water mark from the summarized samples.
Disc Time LWM	DISCTLWM	The disconnect time in milliseconds low-water mark from the summarized samples.
Disc Time Max	DISCTMAX	The disconnect time in milliseconds low-water mark from the summarized samples.

Table 7-38 Field List for the Job History Report (Part 2 of 4)

Column Heading	Field Name	Description
Disc Time Min	DISCTMIN	The disconnect time in milliseconds from the snapshot in which the minimum response time was found.
I/Os /sec Avg	IOSAVG	The IO operations per second average for the summarized snapshot samples.
I/Os /sec HWM	IOSHWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec LWM	IOSLWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec Max	IOSMAX	The maximum IO operations per second found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
I/Os /sec Min	IOSMIN	The time of the snapshot in which the minimum IOs per second was found.
Intv Strt Date	DATE	The summarization interval starting date.
IOSQ Time Avg	IOSQTAVG	The IOSQ time in milliseconds average for the summarized snapshots.
IOSQ Time HWM	IOSQTHWM	The IOSQ time in milliseconds high-water mark from the summarized samples.
IOSQ Time LWM	IOSQTLWM	The IOSQ time in milliseconds low-water mark from the summarized samples.
IOSQ Time Max	IOSQTMAX	The IOSQ time in milliseconds from the snapshot in which the maximum response time was found.
IOSQ Time Min	IOSQTMIN	The IOSQ time in milliseconds from the snapshot in which the minimum response time was found.
Month	MONTH	The month of the year.
Pend Time Avg	PENDTAVG	The pending time in milliseconds average for the summarized snapshots.
Pend Time HWM	PENDTHWM	The pending time in milliseconds high-water mark from the summarized samples.
Pend Time LWM	PENDTLWM	The pending time in milliseconds low-water mark from the summarized samples.
Pend Time Max	PENDTMAX	The pending time in milliseconds from the snapshot in which the maximum response time was found.
Pend Time Min	PENDTMIN	The pending time in milliseconds from the snapshot in which the minimum response time was found.
Read Hit% Avg	RHTPAVG	The read hit percentage average for the summarized snapshots.
Read Hit% HWM	RHTPHWM	The read hit percentage high-water mark from the summarized samples.
Read Hit% LWM	RHTPLWM	The read hit percentage low-water mark from the summarized samples.
Read Hit% Max	RHTPMAX	The read hit percentage from the snapshot in which the maximum I/Os per second was found.

Table 7-38 Field List for the Job History Report (Part 3 of 4)

Column Heading	Field Name	Description
Read Hit% Min	RHTPMIN	The read hit percentage from the snapshot in which the minimum I/Os per second was found.
Read% Avg	RPRCAVG	The read percentage average for the summarized snapshots.
Read% HWM	RPRCHWM	The read percentage high-water mark from the summarized samples.
Read% LWM	RPRCLWM	The read percentage low-water mark from the summarized samples.
Read% Max	RPRCMAX	The read percentage from the snapshot in which the maximum I/Os per second was found.
Read% Min	RPRCMIN	The read percentage from the snapshot in which the maximum I/Os per second was found.
Resp Time Avg	RESPTAVG	The response time in milliseconds average for the summarized snapshots.
Resp Time HWM	RESPTHWM	The response time in milliseconds high-water mark from the summarized samples.
Resp Time LWM	RESPTLWM	The response time in milliseconds low-water mark from the summarized samples.
Resp Time Max	RESPTMAX	The maximum response time in milliseconds found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
Resp Time Min	RESPTMIN	The minimum response time in milliseconds found in the summarized snapshot samples. All shown minimum values are from the snapshot in which this value is found.
Samples	SAMPLES	Total number of snapshots in the interval.
Time Max	TIMEMAX	The time of the snapshot in which the maximum IOs per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum IOs per second was found.
Total I/Os Avg	TIOSAVG	The total I/Os count average for the summarized snapshot samples.
Total I/Os HWM	TIOSHWM	The total I/Os count high-water mark from the summarized snapshot samples.
Total I/Os LWM	TIOSLWM	The total I/Os count low-water mark from the summarized snapshot samples.
Total I/Os Max	TIOSMAX	The total I/O count from the snapshot in which the maximum I/Os per second was found.
Total I/Os Min	TIOSMIN	The total I/O count from the snapshot in which the minimum I/Os per second was found.
Write Hit% Avg	WHTPAVG	The write hit percentage average for the summarized snapshots.
Write Hit% HWM	WHTPHWM	The write hit percentage high-water mark from the summarized samples.
Write Hit% LWM	WHTPLWM	The write hit percentage low-water mark from the summarized samples.
Write Hit% Max	WHTPMAX	The write hit percentage from the snapshot in which the maximum I/Os per second was found.

Table 7-38 Field List for the Job History Report (Part 4 of 4)

Column Heading	Field Name	Description
Write Hit% Min	WHTPMIN	The write hit percentage from the snapshot in which the minimum I/Os per second was found.
Write% Avg	WPRCAVG	The write percentage average for the summarized snapshots.
Write% HWM	WPRCHWM	The write percentage high-water mark from the summarized samples.
Write% LWM	WPRCLWM	The write percentage low-water mark from the summarized samples.
Write% Max	WPRCMAX	The write percentage from the snapshot in which the maximum I/Os per second was found.
Write% Min	WPRCMIN	The write percentage from the snapshot in which the minimum I/Os per second was found.

Figure 7-26 provides a sample of the Job History Report.

Figure 7-26 Job History Report Example

```

Produced by MAINVIEW SRM                               Job Snapshot Summary for DFHSM 01:01:57.64                               Page: 1
BMC Software, Inc.                                     Generated:03/15/2003(2003.196)@15:08

Intv Strt      Intv Strt      Samples  Resp Time  Total I/Os  I/Os /sec  IOSQ Time  Pend Time  Disc Time  Conn Time  Read%  Read Hit%  Write%
Date          Time          Max      Max        Max        Max        Max        Max        Max        Max        Max    Max      Max
-----
03/01/2003 15:00:00.    0      0.0      154      0.17      1.0      0.3      0.4      1.1      0.0      0.0      0.0
03/01/2003 15:15:00.    0      0.0      0        0.00     0.0      0.0      0.0      0.0      0.0      0.0      0.0
03/01/2003 15:30:00.    0      0.0      6        0.00     0.1      0.2      0.9      0.9      0.0      0.0      0.0
03/01/2003 15:45:00.    0      0.0      0        0.00     0.0      0.0      0.0      0.0      0.0      0.0      0.0
03/01/2003 16:00:00.    0      0.0      154      0.17     0.4      0.2      0.1      1.2      0.0      0.0      0.0
03/01/2003 16:15:00.    0      0.0     1,858    2.06     0.2      0.2      2.0      1.1      0.0      0.0      0.0
03/01/2003 16:30:00.    0      0.0      0        0.00     0.0      0.0      0.0      0.0      0.0      0.0      0.0
03/01/2003 16:45:00.    0      0.0      1        0.00     0.0      0.3      0.1      1.7      0.0      0.0      0.0
03/01/2003 17:00:00.    0      0.0     152     0.16     1.0      0.7      0.2      1.1      0.0      0.0      0.0
03/01/2003 17:15:00.    0      0.0      8        0.00     0.6      0.1      0.2      1.1      0.0      0.0      0.0
03/01/2003 17:30:00.    0      0.0     1,091    1.21     1.1      0.2      0.3      0.9      0.0      0.0      0.0
03/01/2003 17:45:00.    0      0.0      1        0.00     0.0      0.3      0.1      1.7      0.0      0.0      0.0
03/01/2003 18:00:00.    0      0.0     153     0.16     0.6      0.7      0.8      1.1      0.0      0.0      0.0
***** End of Job Summary Report *****
    
```

Job History Snapshot Report

The Job History Snapshot report displays job snapshot data for multiple intervals. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPH)*.

Data Source	performance data collector
Initial Display	fields in parentheses are not displayed on all reports. (JOBNAME); (DATE); (STIME); JOBSTAT; TOTALIO; IOSSEC; RESPTIME; IOSQTIME; PENDTIME; DISCTIME; CONNTIME; READPERC; REDHPERC; WRITPERC; WRTHPERC
Report Name Verb	PERF_JOB

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-39 presents a field list for the Job History Snapshot Report.

Table 7-39 Field List for the Job History Snapshot Report

Column Heading	Field Name	Description
Conn Time	CONNTIME	The average connect time in milliseconds.
Disc Time	DISCTIME	The average disconnect time in milliseconds.
I/Os /sec	IOSSEC	The number of I/O operations issued per second.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
IOSQ Time	IOSQTIME	The average IOS queuing time in milliseconds.
Job Name	JOBNAME	The name of the job on the system.
Job Status	JOBSTAT	The status of the job, either ACTIVE or ENDED.
Pend Time	PENDTIME	The average pending time in milliseconds.
Read %	READPERC	The percentage of I/O operations that were reads.
Read Hit %	REDHPERC	The hit percentage of read operations.
Reader Time	RDRTIME	Job reader time from shapshot report.
Resp Time	RESPTIME	The I/O response time reported in milliseconds.
Total IOs	TOTALIO	The total I/O count for a director.
Write %	WRITPERC	The percentage of I/O operations that were writes.
Write Hit %	WRTHPERC	The hit percentage of write operations.

Figure 7-27 provides a sample of the Job History Snapshot Report.

Figure 7-27 Job History Snapshot Report Example

```

Produced by MAINVIEW SRM                               Job Snapshot Report for 03/04/2003 0730                               Page: 1
BMC Software, Inc.                                     Generated:03/15/2003(2003.196)@14:53

Job Name Status  Reader      Total  I/Os  Resp  IOSQ  Pend  Disc  Conn  Read  Read  Write  Write
              Time    I/Os   sec   Time  Time  Time  Time  Time  %    Hit %  %    Hit %
-----
BPXOINIT ACTIVE 21:22:37.59      0  0.00  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
DC$BBI  ACTIVE 21:22:23.37    138  0.15  3.3  1.1  1.4  0.0  0.8 100.0 100.0  0.0  0.0
SVW51RAY ACTIVE 08:04:18.46    77  0.08  5.6  0.9  3.0  0.0  1.6 100.0 100.0  0.0  0.0
XDCCDF  ACTIVE 21:24:50.92      0  0.00  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
-----
Totals -----
215
***** End of Job Snapshot Report *****
    
```

Logical Control Unit History Report

The Logical Control Unit History report displays summary information for logical control unit performance data over a requested period. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPG)*.

Data Source	performance data collector
Initial Display	Fields in parentheses do not display in all reports. (DATE); (MONTH); (DAY); SAMPLES; LCUPBMAX; VISUAL; DATEMAX; TIMEMAX; IOSMAX
Report Name Verb	PERF_LCU

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-40 presents a field list for the Logical Control Unit History Report.

Table 7-40 Field List for the Logical Control Unit History Report (Part 1 of 3)

Column Heading	Field Name	Description
Accepted I/Os Avg	ACIOSAVG	The accepted IO count average for the summarized snapshot samples.
Accepted I/Os HWM	ACIOSHWM	The accepted I/Os count high-water mark from the summarized snapshot samples.
Accepted I/Os LWM	ACIOSLWM	The accepted I/Os count low-water mark from the summarized snapshot samples.
Accepted I/Os Max	ACIOSMAX	The accepted IO count from the snapshot in which the maximum LCU busy percentage was found.
Accepted I/Os Min	ACIOSMIN	The accepted IO count from the snapshot in which the minimum LCU busy percentage was found.
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.

Table 7-40 Field List for the Logical Control Unit History Report (Part 2 of 3)

Column Heading	Field Name	Description
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Day	DAY	The day of the week.
Dir Port Busy% Avg	DIRPBAVG	The director port busy percentage average for the summarized snapshot samples.
Dir Port Busy% HWM	DIRPBHWM	The director port busy percentage high-water mark from the summarized snapshot samples.
Dir Port Busy% LWM	DIRPBLWM	The director port busy percentage low-water mark from the summarized snapshot samples.
Dir Port Busy% Max	DIRPBMAX	The director port busy percentage from the snapshot in which the maximum LCU busy percentage was found.
Dir Port Busy% Min	DIRPBMIN	The director port busy percentage from the snapshot in which the minimum LCU busy percentage was found.
I/Os /sec Avg	IOSAVG	The IO operations per second average for the summarized snapshot samples.
I/Os /sec HWM	IOSHWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec LWM	IOSLWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec Max	IOSMAX	The maximum IO operations per second found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
I/Os /sec Min	IOSMIN	The time of the snapshot in which the minimum IOs per second was found.
Intv Strt Date	DATE	The summarization interval starting date.
LCU Busy % Avg	LCUBPAVG	The LCU busy percentage average for the summarized snapshot samples.
LCU Busy % HWM	LCUBPHWM	The LCU busy percentage high-water mark from the summarized snapshot samples.
LCU Busy % LWM	LCUBPLWM	The LCU busy percentage low-water mark from the summarized snapshot samples.
LCU Busy % Max	LCUBPMAX	The maximum busy percentage found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
LCU Busy % Min	LCUBPMIN	The minimum busy percentage found in the summarized snapshot samples. All shown minimum values are from the snapshot in which this value is found.
Month	MONTH	The month of the year.
Percent Graph	VISUAL	The visual representation of LCU busy %.
Samples	SAMPLES	Total number of snapshots in the interval.

Table 7-40 Field List for the Logical Control Unit History Report (Part 3 of 3)

Column Heading	Field Name	Description
Time Max	TIMEMAX	The time of the snapshot in which the maximum IOs per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum IOs per second was found.

Figure 7-28 provides a sample of the Logical Control Unit History Report.

Figure 7-28 Logical Control Unit History Report Example

```

Produced by MAINVIEW SRM          LCU Daily Summary for LCU 0080 CHPID 000B          Page: 1
BMC Software, Inc.                                     Generated:03/16/2003(2003.197)@08:50

Intv Strt Day Samples LCU Busy      Percent Graph      Date      Time I/Os /sec
Date      % Max      .....50.....100 Max      Max      Max
-----
03/01/2003 THU      7      32.3 *****          03/01/2003 15:30      1.80
03/02/2003 FRI     48     49.7 *****          03/02/2003 16:45      0.98
03/03/2003 SAT     65     37.4 *****          03/03/2003 01:00      0.87
03/06/2003 TUE     50     52.8 *****          03/06/2003 15:30      1.90
03/07/2003 WED     35     43.3 *****          03/07/2003 20:30      1.10
03/08/2003 THU      9     16.0 ***           03/08/2003 10:30      2.72
***** End of Logical Control Unit Summary Report *****
    
```

Logical Control Unit History Snapshot Report

The Logical Control Unit History Snapshot report displays logical control unit snapshot data for multiple intervals. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPG)*.

Data Source	performance data collector
Initial Display	Fields in parentheses are not displayed in all reports. (LCUID); (CHPID); (DATE); (STIME); IOSSEC; AIOS; DIRPBUSY; LCUPBUSY; VISUAL
Report Name Verb	PERF_LCU

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-41 presents a field list for the Logical Control Unit History Snapshot Report.

Table 7-41 Field List for the Logical Control Unit History Snapshot Report

Column Heading	Field Name	Description
CHPID	CHPID	The channel path identifier.
Dir Port Busy %	DIRPBUSY	The percentage of time that an I/O request was delayed because the director port was busy.
I/Os Accepted	AIOS	The number of I/O operations accepted on this channel path.
I/Os sec	IOSSEC	The number of I/O operations issued per second.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
LCU Busy %	LCUBUSY	The percentage of time the resource was busy.
LCUID	LCUID	The Logical Control Unit identifier.
Percent Graph	VISUAL	The visual representation of LCU BUSY%,

Figure 7-29 provides a sample of the Logical Control Unit History Snapshot Report.

Figure 7-29 Logical Control Unit History Snapshot Report Example

```

Produced by MAINVIEW SRM          LCU Unit Snapshot Report for 03/01/2003 1545          Page: 1
BMC Software, Inc.                Generated:03/15/2003(2003.196)@15:10

LCUID  CHPID  I/Os      Dir Port LCU          Percent Graph
      sec    Accepted Busy %   Busy %   .....50.....100
-----
0080  0007    2.49    2,240    0.0 23.7  *****
0080  000B    2.51    2,260    0.0 22.6  *****
0080  001E    2.54    2,284    0.0 23.0  *****
0080  0032    2.58    2,323    0.1 21.4  *****
0080  0047    2.52    2,264    0.0 22.7  *****
0080  0070    2.49    2,243    0.1 22.7  *****
0080  0078    2.46    2,215    0.0 22.4  *****
0080  00A9    2.53    2,275    0.0 22.2  *****
0081  0040    1.08           972    0.0 30.1  *****
0081  0041    1.10           991    0.0 31.5  *****
0081  0042    1.09           977    0.0 29.3  *****
0081  004A    1.09           981    0.0 32.3  *****
0081  004D    1.07           963    0.0 30.3  *****
0081  0074    1.10           991    0.0 31.6  *****
0081  007C    1.15    1,034    0.0 30.0  *****
0081  00A2    1.06           950    0.1 31.2  *****

----- Totals -----
25,963
***** End of Logical Control Unit Snapshot Report *****
    
```

Pool History Report

The Pool History report displays summary information for pool performance data over a requested period.

Data Source	performance data collector
Initial Display	Fields in parentheses are not displayed in all reports. (DATE); (MONTH); (DAY); SAMPLES; RESPTMAX; DATEMAX; TIMEMAX; IOSMAX; VOLCMAX; DATEMIN; TIMEMIN; IOSMIN; VOLCMIN; IOSAVG
Report Name Verb	PERF_POOL

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-42 presents a field list for the Pool History Report.

Table 7-42 Field List for the Pool History Report (Part 1 of 2)

Column Heading	Field Name	Description
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Day	DAY	Day of the week.
I/Os /sec Avg	IOSAVG	The IO operations per second average for the summarized snapshot samples.
I/Os /sec HWM	IOSHWM	The IO operations per second high-water mark from the summarized snapshot samples.

Table 7-42 Field List for the Pool History Report (Part 2 of 2)

Column Heading	Field Name	Description
I/Os /sec LWM	IOSLWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec Max	IOSMAX	The maximum IO operations per second found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
I/Os /sec Min	IOSMIN	The time of the snapshot in which the minimum IOs per second was found.
Intv Strt Date	DATE	The summarization interval starting date.
Month	MONTH	The month of the year.
Resp Time Avg	RESPTAVG	The response time in milliseconds average for the summarized snapshots.
Resp Time HWM	RESPTHWM	The response time in milliseconds high-water mark from the summarized samples.
Resp Time LWM	RESPTLWM	The response time in milliseconds low-water mark from the summarized snapshots.
Resp Time Max	RESPTMAX	The maximum response time in milliseconds found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
Resp Time Min	RESPTMIN	The minimum response time in milliseconds found in the summarized snapshot samples. All shown minimum values are from the snapshot in which this value is found.
Samples	SAMPLES	Total number of snapshots in the interval.
Time Max	TIMEMAX	The time of the snapshot in which the maximum IOs per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum IOs per second was found.
Vol Cnt Avg	VOLCAVG	The volume count average for the summarized snapshot samples.
Vol Cnt HWM	VOLCHWM	The volume count high-water mark from the summarized snapshot samples.
Vol Cnt LWM	VOLCLWM	The volume count low-water mark from the summarized snapshot samples.
VOL CNT MAX	VOLCMAX	The number of volumes in a pool from the snapshot in which the maximum response time was found.
VOL CNT MIN	VOLCMIN	The number of volumes in a pool from the snapshot in which the minimum response time was found.

Figure 7-30 provides a sample of the Pool History Report.

Figure 7-30 Pool History Report Example

```

Produced by MAINVIEW SRM                               Pool Daily Summary for ALLVOLS                               Page: 1
BMC Software, Inc.                                     Generated:03/15/2003(2003.196)@15:42
-----
Intv Strt Day Samples Resp Time Date      Time I/Os /sec Vol Cnt Date      Time I/Os /sec Resp Time Vol Cnt I/Os /sec
Date      Max      Max      Max      Max      Max      Min      Min      Min      Min      Min      Avg
-----
03/01/2003 THU      24      6.5 03/01/2003 16:30  9.84  25 03/01/2003 15:30  1.01  5.3  15  5.94
03/02/2003 FRI      50      7.1 03/02/2003 12:30  6.98  25 03/02/2003 09:15  0.28  4.5  6  3.01
03/03/2003 SAT      66     18.0 03/03/2003 16:00  1.30  19 03/03/2003 13:30  1.18  2.6  8  1.45
03/06/2003 TUE      51      4.0 03/06/2003 10:00 13.79  26 03/06/2003 22:30  1.04  5.4  6  3.07
03/07/2003 WED      42      6.4 03/07/2003 17:00  5.05  37 03/07/2003 21:30  0.81  3.3  6  2.55
03/08/2003 THU      10      4.1 03/08/2003 09:30  4.82  39 03/08/2003 11:00  0.36  6.1  6  2.80
03/11/2003 SUN      44      6.4 03/11/2003 21:00  1.47  27 03/11/2003 16:45  0.07  1.4  3  1.74
03/12/2003 MON      29     16.4 03/12/2003 04:15  27.59 13 03/12/2003 00:30  0.97  1.7  6  4.38
***** End of Pool Summary Report *****
    
```

Pool History Snapshot Report

The Pool History Snapshot report displays pool snapshot data for multiple intervals.

Data Source	performance data collector
Initial Display	Fields in parentheses are not displayed in all reports. (POOL); (DATE); (STIME); IOSSEC; RESPTIME; VOLCNT
Report Name Verb	POOL_PERF

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-43 presents a field list for the Pool History Snapshot Report.

Table 7-43 Field List for the Pool History Snapshot Report

Column Heading	Field Name	Description
I/Os sec	IOSSEC	The number of I/O operations issued per second.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
Pool	POOL	The name of the volume pool.
Resp Time	RESPTIME	The average number of milliseconds the device requires to complete an I/O request.
Type	POOLTYPE	The type of pool.
Vol Cnt	VOLCNT	The number of volumes in a pool.

Figure 7-31 provides a sample of the Pool History Snapshot Report.

Figure 7-31 Pool History Snapshot Report Example

Produced by MAINVIEW SRM
BMC Software, Inc.

Pool Snapshot Report for 03/01/2003 1545

Page: 1
Generated: 03/15/2003(2003.196)@15:26

Pool	Type	I/Os sec	Resp Time	Vol Cnt
ALLVOLS	PROSMS	1.26	0.0	20
BAB3	USER	0.17	0.0	5
BJPLX1	PROSMS	0.02	0.0	1
BJPLX2	PROSMS	0.02	0.0	1
BJPLX3	PROSMS	0.02	0.0	1
BJPLX4	PROSMS	0.02	0.0	1
BJPLX5	PROSMS	0.02	0.0	1
BJPLX6	PROSMS	0.02	0.0	1
BJPLX7	PROSMS	0.02	0.0	1
BJPL01	PROSMS	0.08	0.0	1
BJPL02	PROSMS	0.08	0.0	1
BJPL03	PROSMS	0.08	0.0	1
BJPL04	PROSMS	0.08	0.0	1
BJPL05	PROSMS	0.08	0.0	1
BJPL06	PROSMS	0.08	0.0	1
BJPL07	PROSMS	0.08	0.0	1
BSD0	USER	0.00	0.0	1
DEBBIE	PROSMS	0.31	0.0	6
DEBBIED	PROSMS	0.17	0.0	5
DEBBIE2	PROSMS	0.05	0.0	3
DEBWORK2	PROSMS	0.34	0.0	7
DOTSON	PROSMS	0.03	0.0	1
DOTSON2	PROSMS	0.17	0.0	6
DOUGALL	PROSMS	0.92	0.0	13
DOUGBSD	PROSMS	0.00	0.0	1
EMP	USER	0.08	0.0	1
EMPC	USER	0.00	0.0	1
EMPD	USER	0.05	0.0	1
EMPR	USER	0.00	0.0	1
EMP0	USER	0.26	0.0	3
ERICW1	PROSMS	0.31	0.0	6
ERICW2	PROSMS	0.00	0.0	2
IBMRAID	PROSMS	0.00	0.0	1
JBALTPL	PROSMS	0.26	0.0	3
JESS	PROSMS	0.03	0.0	1
MARTY	PROSMS	0.03	0.0	1
MIKEL	PROSMS	0.34	0.0	7
MRWPOOL	PROSMS	1.26	0.0	20
O24G	USER	0.05	0.0	2
PUBB	USER	0.01	0.0	1
SPOO	USER	0.00	0.0	1
SYSP	USER	0.00	0.0	2
TSG3	USER	0.66	0.0	1
WOR	USER	0.02	0.0	1
WORK	PROSMS	0.03	0.0	1
WORKDTS	PROSMS	0.92	0.0	13
----- Totals -----				
152				
***** End of Pool Snapshot Report *****				

RAID Director History Report

The RAID Director History report displays summary information for RAID director performance data over a requested period. Director data is available only with EMC devices.

Data Source	performance data collector
Initial Display	Fields in parentheses do not display in all reports. (DATE); (MONTH); (DAY); SAMPLES; HITPMAX; VISUAL; DATEMAX; TIME MAX; TIOSMAX; TREQSMAX; THITSMAX; TWREQMAX; TRREQMAX; PFTSKMAX
Report Name Verb	PERF_DIR

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report. If option keyword DIR is used, BOX is required. If BOX is used, DIR is required.

Table 7-44 presents a field list for the RAID Director History Report.

Table 7-44 Field List for the RAID Director History Report (Part 1 of 4)

Column Heading	Field Name	Description
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Day	DAY	The day of the week.
Hit% Avg	HITPAVG	The hit percentage average for the summarized snapshots.
Hit% HWM	HITPHWM	The hit percentage high-water mark from the summarized samples.
Hit% LWM	HITPLWM	The hit percentage low-water mark from the summarized samples.
Hit% Max	HITPMAX	The maximum hit percentage found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
Hit% Min	HITPMIN	The minimum hit percentage found in the summarized snapshot samples. All shown minimum values are from the snapshot in which this value is found.
Intv Strt Date	DATE	The summarization interval starting date.
Month	MONTH	The month of the year.
Percent Graph	VISUAL	The visual representation of snapshot results.
Prefetch Long Misses Avg	PFLMSAVG	The prefetch long misses count average for the summarized snapshot samples.
Prefetch Long Misses Hwm	PFLMSHWM	The prefetch long misses count high-water mark from the summarized snapshot samples.

Table 7-44 Field List for the RAID Director History Report (Part 2 of 4)

Column Heading	Field Name	Description
Prefetch Long Misses Lwm	PFLMSLWM	The prefetch long misses count low-water mark from the summarized snapshot samples.
Prefetch Long Misses Max	PFLMSMAX	The prefetch long misses count from the snapshot in which the maximum hit percentage was found.
Prefetch Long Misses Min	PFLMSMIN	The prefetch long misses count from the snapshot in which the minimum hit percentage was found.
Prefetch Short Misses Avg	PFSMSAVG	The prefetch short misses count average for the summarized snapshot samples.
Prefetch Short Misses HWM	PFSMSHWM	The prefetch short misses count high-water mark from the summarized snapshot samples.
Prefetch Short Misses LWM	PFSMSLWM	The prefetch short misses count low-water mark from the summarized snapshot samples.
Prefetch Short Misses Max	PFSMSMAX	The prefetch short misses count from the snapshot in which the maximum hit percentage was found.
Prefetch Short Misses Min	PFSMSMIN	The prefetch short misses count from the snapshot in which the minimum hit percentage was found.
Prefetch Tasks Avg	PFTSKAVG	The prefetch tasks count average for the summarized snapshot samples.
Prefetch Tasks HWM	PFTSKHWM	The prefetch tasks count high-water mark from the summarized snapshot samples.
Prefetch Tasks LWM	PFTSKLWM	The prefetch tasks count low-water mark from the summarized snapshot samples.
Prefetch Tasks Max	PFTSKMAX	The prefetch tasks count from the snapshot in which the maximum hit percentage was found.
Prefetch Tasks Min	PFTSKMIN	The prefetch tasks count from the snapshot in which the minimum hit percentage was found.
Prefetch Tracks Not Used Avg	PFTNUAVG	The prefetch tracks not used count average for the summarized snapshot samples.
Prefetch Tracks Not Used HWM	PFTNUHWM	The prefetch tracks not used count high-water mark from the summarized snapshot samples.
Prefetch Tracks Not Used LWM	PFTNULWM	The prefetch tracks not used count low-water mark from the summarized snapshot samples.
Prefetch Tracks Not Used Max	PFTNUMAX	The prefetch tracks not used count from the snapshot in which the maximum hit percentage was found.
Prefetch Tracks Not Used Min	PFTNUMIN	The prefetch tracks not used count from the snapshot in which the minimum hit percentage was found.
Prefetch Tracks Used Avg	PFTUAVG	The prefetch tracks used count average for the summarized snapshot samples.
Prefetch Tracks Used HWM	PFTUHWM	The prefetch tracks used count high-water mark from the summarized snapshot samples.
Prefetch Tracks Used LWM	PFTULWM	The prefetch tracks used count low-water mark from the summarized snapshot samples.

Table 7-44 Field List for the RAID Director History Report (Part 3 of 4)

Column Heading	Field Name	Description
Prefetch Tracks Used Max	PFTUMAX	The prefetch tracks used count from the snapshot in which the maximum hit percentage was found.
Prefetch Tracks Used Min	PFTUMIN	The prefetch tracks used count from the snapshot in which the minimum hit percentage was found.
Samples	SAMPLES	Total number of snapshots in the interval.
Time Max	TIMEMAX	The time of the snapshot in which the maximum I/Os per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum I/Os per second was found.
Tot Hits Avg	THITSAVG	The total hits count average for the summarized snapshot samples.
Tot Hits HWM	THITSHWM	The total hits count high-water mark from the summarized snapshot samples.
Tot Hits LWM	THITSLWM	The total hits count low-water mark from the summarized snapshot samples.
Tot Hits Max	THITSMAX	The total hit count from the snapshot in which the maximum hit percentage was found.
Tot Hits Min	THITSMIN	The total hit count from the snapshot in which the minimum hit percentage was found.
Tot I/Os Avg	TIOSAVG	The total I/O count average for the summarized snapshot samples.
Tot I/Os HWM	TIOSHWM	The total I/O count high-water mark from the summarized snapshot samples.
Tot I/Os LWM	TIOSLWM	The total I/O count low-water mark from the summarized snapshot samples.
Tot I/Os Max	TIOSMAX	The total I/O count from the snapshot in which the maximum I/Os per second was found.
Tot I/Os Min	TIOSMIN	The total I/O count from the snapshot in which the minimum I/Os per second was found.
Tot Read Reqs Avg	TRREQAVG	The total read request count average for the summarized snapshot samples.
Tot Read Reqs HWM	TRREQHWM	The total read request count high-water mark from the summarized snapshot samples.
Tot Read Reqs LWM	TRREQLWM	The total read request count low-water mark from the summarized snapshot samples.
Tot Read Reqs Max	TRREQMAX	The total read request count from the snapshot in which the maximum hit percentage was found.
Tot Read Reqs Min	TRREQMIN	The total read request count from the snapshot in which the minimum hit percentage was found.
Tot Reqs Avg	TREQSAVG	The total request count average for the summarized snapshot samples.
Tot Reqs HWM	TREQSHWM	The total request count high-water mark from the summarized snapshot samples.

Table 7-44 Field List for the RAID Director History Report (Part 4 of 4)

Column Heading	Field Name	Description
Tot Reqs LWM	TREQSLWM	The total request count low-water mark from the summarized snapshot samples.
Tot Reqs Max	TREQSMAX	The total request count from the snapshot in which the maximum hit percentage was found.
Tot Reqs Min	TREQSMIN	The total request count from the snapshot in which the minimum hit percentage was found.
Tot Write Reqs Avg	TWREQAVG	The total write request count average for the summarized snapshot samples.
Tot Write Reqs HWM	TWREQHWM	The total write request count high-water mark from the summarized snapshot samples.
Tot Write Reqs LWM	TWREQLWM	The total write request count low-water mark from the summarized snapshot samples.
Tot Write Reqs Max	TWREQMAX	The total write request count from the snapshot in which the maximum hit percentage was found.
Tot Write Reqs Min	TWREQMIN	The total write request count from the snapshot in which the minimum hit percentage was found.

Figure 7-32 provides a sample of the RAID Director History Report.

Figure 7-32 RAID Director History Report Example

```

Produced by MAINVIEW SRM                      RAID Director Daily Summary for 01646-0F                      Page: 1
BMC Software, Inc.                            Generated:03/15/2003(2003.196)@14:32

Intv Strt Day Samples Hit%      Percent Graph      Date      Time      Tot I/Os Tot Reqs Tot Hits Tot Write Tot Read Prefetch
Date      Max      .....50.....100 Max      Max      Max      Max      Max      Reqs Max  Reqs Max Tasks Max
-----
03/01/2003 THU      23      0.0      03/01/2003 15:15      5,624      5,825      0      4,847      978      37
03/02/2003 FRI      48      0.0      03/02/2003 09:15      543      547      0      329      218      6
03/03/2003 SAT      66      0.0      03/03/2003 00:00      30,343      42,812      0      1,371      41,441      673
03/06/2003 TUE      49      0.0      03/06/2003 10:00      7,759      6,484      0      1,659      4,825      215
03/07/2003 WED      6      0.0      03/07/2003 00:00      4,260      4,808      0      1,086      3,722      90
***** End of RAID Director Summary Report *****
    
```

RAID Director History Snapshot Report

The RAID Director History Snapshot report displays RAID director snapshot data for multiple intervals. Director data is available only with EMC devices.

Data Source	performance data collector
Initial Display	Fields in parentheses do not display on all reports. (BOX); (DIRNUM); (DATE); (STIME); TOTALIOS; TOTALREQ; TOTALHIT; HITSPERC; VISUAL; TOTALWRQ; TOTALRRQ; PFCTASKS; PFCSMISS; PFCLMISS
Report Name Verb	PERF_DIR

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-45 presents a field list for the RAID Director History Snapshot Report.

Table 7-45 Field List for the RAID Director History Snapshot Report (Part 1 of 2)

Column Heading	Field Name	Description
Box	BOXNUM	The rightmost 5 characters of the RAID EMC Box serial number.
Dir Num	DIRNUM	The RAID EMC director number.
Hits %	HITSPERC	The I/O hit percentage for a director.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
Percent Graph	VISUAL	The visual representation of snapshot results
Prefetch Long Misses	PFCLMISS	The prefetch long misses count for a director.
Prefetch Short Misses	PFCSMISS	The prefetch short misses count for a director.
Prefetch Tasks	PFCTASKS	The prefetch tasks count for a director.
Prefetch Tracks Not Used	PFCTRKNU	The number of prefetch tracks not used.
Prefetch Tracks Used	PFCTRKU	The number of prefetch tracks used.
Total Hits	TOTALHIT	The total hit count for a director.
Total I/Os	TOTALIOS	The total I/O count for a director.
Total Read Requests	TOTALRRQ	The total read requests for a director.

Table 7-45 Field List for the RAID Director History Snapshot Report (Part 2 of 2)

Column Heading	Field Name	Description
Total Requests	TOTALREQ	The total request count for a director.
Total Write Requests	TOTALWRQ	The total request count for a director.

Figure 7-33 provides a sample of the RAID Director History Snapshot Report.

Figure 7-33 RAID Director History Snapshot Report Example

```

Produced by MAINVIEW SRM                               RAID Director Snapshot Report 03/06/2003 1545                               Page: 1
BMC Software, Inc.                                     Generated:03/15/2003(2003.196)@14:27
Box  Dir Total      Total      Total      Hits      Percent Graph      Total Write      Total Read      Prefetch      Prefetch      Short      Prefetch      Long
  Num I/Os    Requests Hits      %      .....50.....100  Requests      Requests      Tasks      Misses      Misses
-----
01646 01    26,144    25,630      0 0.0      .....          23,881      1,749      70      6      177
01646 02    11,448    12,566      0 0.0      .....          7,715      4,851      89      8      713
01646 07    25,195    29,657      0 0.0      .....          19,725      9,932      126     68     128
01646 08    18,808    21,166      0 0.0      .....          19,414      1,752      58     256     52
01646 09    30,413    29,617      0 0.0      .....          24,606      5,011      116     113     115
01646 0A    32,931    31,902      0 0.0      .....          29,394      2,508      47      7      37
01646 0F    34,959    34,150      0 0.0      .....          29,601      4,549      96     714     336
01646 10    28,285    27,772      0 0.0      .....          25,042      2,730      74      22     52
01646 11    30,230    35,183      0 0.0      .....          23,122     12,061     153     330     1,140
01646 12      8,060      9,084      0 0.0      .....          4,920      4,164     125     52     145
01646 17    16,400    16,732      0 0.0      .....          13,755      2,977      27     974     36
01646 18    26,844    26,350      0 0.0      .....          24,076      2,274      44      58     90
01646 19      4,130      4,396      0 0.0      .....          3,210      1,186      36      12     42
01646 1A    27,034    29,513      0 0.0      .....          21,124      8,389      75     236     163
01646 1F      3,225      3,171      0 0.0      .....          1,997      1,174      25      4      70
01646 20    11,394    14,138      0 0.0      .....          7,013      7,125      87      68     1,108
-----
Totals
335,500  351,027      0
***** End of RAID Director Snapshot Report *****
    
```

RAID Physical Volume History Report

The RAID Physical Volume History report displays summary information for RAID physical volume performance data over a requested period.

Data Source	performance data collector
Initial Display	Fields in parentheses do not display in all reports. (DATE); (MONTH); (DAY); SAMPLES; DATEMAX; TIMEMAX; RSECMAX; RPRCMAX; RHTPMAX; WSECMAX; WPRCMAX; WHTPMAX; NRSECMAX; NRPRCMAX; NRHTPMAX
Report Name Verb	PERF_PHYVOL

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-46 presents a field list for the RAID Physical Volume History Report.

Table 7-46 Field List for the RAID Physical Volume History Report (Part 1 of 6)

Column Heading	Field Name	Description
CFW Hit% Avg	CWHTPAVG	The cache fast write hit percentage average for the summarized snapshots.
CFW Hit% HWM	CWHTPHWM	The cache fast write hit percentage high-water mark from the summarized samples.
CFW Hit% LWM	CWHTPLWM	The cache fast write hit percentage low-water mark from the summarized samples.
CFW Hit% Max	CWHTPMAX	The cache fast write hit percentage from the snapshot in which the maximum I/Os per second was found.
CFW Hit% Min	CWHTPMIN	The cache fast write hit percentage from the snapshot in which the minimum I/Os per second was found.
CFW% Avg	CWPRCAVG	The cache fast write percentage average for the summarized snapshots.
CFW% HWM	CWPRCHWM	The cache fast write percentage high-water mark from the summarized samples.
CFW% LWM	CWPRCLWM	The cache fast write percentage low-water mark from the summarized samples.
CFW% Max	CWPRCMAX	The cache fast write percentage from the snapshot in which the maximum I/Os per second was found.
CFW% Min	CWPRCMIN	The cache fast write percentage from the snapshot in which the minimum I/Os per second was found.
CFW/sec Avg	CWSECAVG	The cache fast writes per second average for the summarized snapshots.
CFW/sec HWM	CWSECHWM	The cache fast write operations per second high-water mark from the summarized snapshot samples.
CFW/sec LWM	CWSECLWM	The cache fast write operations per second low-water mark from the summarized snapshot samples.
CFW/sec Max	CWSECMAX	The cache fast writes per second from the snapshot in which the maximum I/Os per second was found.
CFW/sec Min	CWSECMIN	The cache fast writes per second from the snapshot in which the minimum I/Os per second was found.
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Day	DAY	The day of the week.
DFW Hit% Avg	DWHTPAVG	The DASD fast write hit percentage average for the summarized snapshots.
DFW Hit% HWM	DWHTPHWM	The DASD fast write hit percentage high-water mark from the summarized samples.
DFW Hit% LWM	DWHTPLWM	The DASD fast write hit percentage low-water mark from the summarized samples.

Table 7-46 Field List for the RAID Physical Volume History Report (Part 2 of 6)

Column Heading	Field Name	Description
DFW Hit% Max	DWHTPMAX	The DASD fast write hit percentage from the snapshot in which the maximum I/Os per second was found.
DFW Hit% Min	DWHTPMIN	The DASD fast write hit percentage from the snapshot in which the minimum I/Os per second was found.
DFW% Avg	DWPRCAVG	The DASD fast write percentage average for the summarized snapshots.
DFW% HWM	DWPRCHWM	The DASD fast write percentage high-water mark from the summarized samples.
DFW% LWM	DWPRCLWM	The DASD fast write percentage low-water mark from the summarized samples.
DFW% Max	DWPRCMAX	The DASD fast write percentage from the snapshot in which the maximum I/Os per second was found.
DFW% Min	DWPRCMIN	The DASD fast write percentage from the snapshot in which the minimum I/Os per second was found.
DFW/sec Avg	DWSECAVG	The DASD fast writes per second average for the summarized snapshots.
DFW/sec HWM	DWSECHWM	The DASD fast write operations per second high-water mark from the summarized snapshot samples.
DFW/sec LWM	DWSECLWM	The DASD fast write operations per second low-water mark from the summarized snapshot samples.
DFW/sec Max	DWSECMAX	The DASD fast writes per second from the snapshot in which the maximum I/Os per second was found.
DFW/sec Min	DWSECMIN	The DASD fast writes per second from the snapshot in which the minimum I/Os per second was found.
Intv Strt Date	DATE	The summarization interval starting date.
Month	MONTH	The month of the year.
Norm Read % Avg	NRPRCAVG	The normal read percentage average for the summarized snapshots.
Norm Read % HWM	NRPRCHWM	The normal read percentage high-water mark from the summarized samples.
Norm Read % LWM	NRPRCLWM	The normal read percentage low-water mark from the summarized samples.
Norm Read % Max	NRPRCMAX	The normal read percentage from the snapshot in which the maximum I/Os per second was found.
Norm Read % Min	NRPRCMIN	The normal read percentage from the snapshot in which the minimum I/Os per second was found.
Norm Read Hit% Avg	NRHTPAVG	The normal read percentage from the snapshot in which the maximum I/Os per second was found.
Norm Read Hit% HWM	NRHTPHWM	The normal read hit percentage high-water mark from the summarized samples.
Norm Read Hit% LWM	NRHTPLWM	The normal read hit percentage low-water mark from the summarized samples.

Table 7-46 Field List for the RAID Physical Volume History Report (Part 3 of 6)

Column Heading	Field Name	Description
Norm Read Hit% Max	NRHTPMAX	The normal read hit percentage from the snapshot in which the maximum I/Os per second was found.
Norm Read Hit% Min	NRHTPMIN	The normal read hit percentage from the snapshot in which the minimum I/Os per second was found.
Norm Read/sec Avg	NRSECAVG	The normal reads per second average for the summarized snapshots.
Norm Read/sec HWM	NRSECHWM	The normal read operations per second high-water mark from the summarized snapshot samples.
Norm Read/sec LWM	NRSECLWM	The normal read operations per second low-water mark from the summarized snapshot samples.
Norm Read/sec Max	NRSECMAX	The normal reads per second from the snapshot in which the maximum I/Os per second was found.
Norm Read/sec Min	NRSECMIN	The normal reads per second from the snapshot in which the minimum I/Os per second was found.
Norm Write % Avg	NWPRCAVG	The normal write percentage average for the summarized snapshots.
Norm Write % HWM	NWPRCHWM	The normal write percentage high-water mark from the summarized samples.
Norm Write % LWM	NWPRCLWM	The normal write percentage low-water mark from the summarized samples.
Norm Write % Max	NWPRCMAX	The normal write percentage from the snapshot in which the maximum I/Os per second was found.
Norm Write % Min	NWPRCMIN	The normal write percentage from the snapshot in which the minimum I/Os per second was found.
Norm Write Hit% Avg	NWHTPAVG	The sequential write hit percentage average for the summarized snapshots.
Norm Write Hit% HWM	NWHTPHWM	The normal write hit percentage high-water mark from the summarized samples.
Norm Write Hit% LWM	NWHTPLWM	The normal write hit percentage low-water mark from the summarized samples.
Norm Write Hit% Max	NWHTPMAX	The normal write hit percentage from the snapshot in which the maximum I/Os per second was found.
Norm Write Hit% Min	NWHTPMIN	The normal write hit percentage from the snapshot in which the minimum I/Os per second was found.
Norm Write/sec Avg	NWSECAVG	The normal reads per second average for the summarized snapshots.
Norm Write/sec HWM	NWSECHWM	The normal read operations per second high-water mark from the summarized snapshot samples.
Norm Write/sec LWM	NWSECLWM	The normal read operations per second low-water mark from the summarized snapshot samples.
Norm Write/sec Max	NWSECMAX	The normal reads per second from the snapshot in which the maximum I/Os per second was found.

Table 7-46 Field List for the RAID Physical Volume History Report (Part 4 of 6)

Column Heading	Field Name	Description
Norm Write/sec Min	NWSECMIN	The normal reads per second from the snapshot in which the minimum I/Os per second was found.
Read Hit% Avg	RHTPAVG	The read hit percentage average for the summarized snapshots.
Read Hit% HWM	RHTPHWM	The read hit percentage high-water mark from the summarized samples.
Read Hit% LWM	RHTPLWM	The read hit percentage low-water mark from the summarized samples.
Read Hit% Max	RHTPMAX	The read hit percentage from the snapshot in which the maximum I/Os per second was found.
Read Hit% Min	RHTPMIN	The read hit percentage from the snapshot in which the minimum I/Os per second was found.
Read% Avg	RPRCAVG	The read percentage average for the summarized snapshots.
Read% HWM	RPRCHWM	The read percentage high-water mark from the summarized samples.
Read% LWM	RPRCLWM	The read percentage low-water mark from the summarized samples.
Read% Max	RPRCMAX	The read percentage from the snapshot in which the maximum I/Os per second was found.
Read% Min	RPRCMIN	The read percentage from the snapshot in which the minimum I/Os per second was found.
Read/sec Avg	RSECAVG	The reads per second average for the summarized snapshots.
Read/sec HWM	RSECHWM	The read operations per second high-water mark from the summarized snapshot samples.
Read/sec LWM	RSECLWM	The read operations per second low-water mark from the summarized snapshot samples.
Read/sec Max	RSECMAX	The reads per second from the snapshot in which the maximum I/Os per second was found.
Read/sec Min	RSECMIN	The reads per second from the snapshot in which the minimum I/Os per second was found.
Samples	SAMPLES	Total number of snapshots in the interval.
Seq Read % Avg	SRPRCAVG	The reads per second from the snapshot in which the maximum I/Os per second was found.
Seq Read % HWM	SRPRCHWM	The sequential read percentage high-water mark from the summarized samples.
Seq Read % LWM	SRPRCLWM	The sequential read percentage low-water mark from the summarized samples.
Seq Read % Max	SRPRCMAX	The sequential read percentage from the snapshot in which the maximum I/Os per second was found.
Seq Read % Min	SRPRCMIN	The sequential read percentage from the snapshot in which the minimum I/Os per second was found.
Seq Read Hit% Avg	SRHTPAVG	The sequential read hit percentage average for the summarized snapshots.

Table 7-46 Field List for the RAID Physical Volume History Report (Part 5 of 6)

Column Heading	Field Name	Description
Seq Read Hit% HWM	SRHTPHWM	The sequential read hit percentage high-water mark from the summarized samples.
Seq Read Hit% LWM	SRHTPLWM	The sequential read hit percentage low-water mark from the summarized samples.
Seq Read Hit% Max	SRHTPMAX	The sequential read hit percentage from the snapshot in which the maximum I/Os per second was found.
Seq Read Hit% Min	SRHTPMIN	The sequential read hit percentage from the snapshot in which the minimum I/Os per second was found.
Seq Read/sec Avg	SRSECAVG	The sequential reads per second average for the summarized snapshots.
Seq Read/sec HWM	SRSECHWM	The sequential read operations per second high-water mark from the summarized snapshot samples.
Seq Read/sec LWM	SRSECLWM	The sequential read operations per second low-water mark from the summarized snapshot samples.
Seq Read/sec Max	SRSECMAX	The sequential reads per second from the snapshot in which the maximum I/Os per second was found.
Seq Read/sec Min	SRSECMIN	The sequential reads per second from the snapshot in which the minimum I/Os per second was found.
Seq Write % Avg	SWPRCAVG	The sequential write percentage average for the summarized snapshots.
Seq Write % HWM	SWPRCHWM	The sequential write percentage high-water mark from the summarized samples.
Seq Write % LWM	SWPRCLWM	The sequential write percentage low-water mark from the summarized samples.
Seq Write % Max	SWPRCMAX	The sequential write percentage from the snapshot in which the maximum I/Os per second was found.
Seq Write % Min	SWPRCMIN	The sequential write percentage from the snapshot in which the minimum I/Os per second was found.
Seq Write Hit% Avg	SWHTPAVG	The sequential write hit percentage average for the summarized snapshots.
Seq Write Hit% HWM	SWHTPHWM	The sequential write hit percentage high-water mark from the summarized samples.
Seq Write Hit% LWM	SWHTPLWM	The sequential write hit percentage low-water mark from the summarized samples.
Seq Write Hit% Max	SWHTPMAX	The sequential write hit percentage from the snapshot in which the maximum I/Os per second was found.
Seq Write Hit% Min	SWHTPMIN	The sequential write hit percentage from the snapshot in which the minimum I/Os per second was found.
Seq Write/sec Avg	SWSECAVG	The sequential writes per second average for the summarized snapshots.
Seq Write/sec HWM	SWSECHWM	The sequential write operations per second high-water mark from the summarized snapshot samples.

Table 7-46 Field List for the RAID Physical Volume History Report (Part 6 of 6)

Column Heading	Field Name	Description
Seq Write/sec LWM	SWSECLWM	The sequential write operations per second low-water mark from the summarized snapshot samples.
Seq Write/sec Max	SWSECMAX	The sequential writes per second from the snapshot in which the maximum I/Os per second was found
Seq Write/sec Min	SWSECMIN	The sequential writes per second from the snapshot in which the minimum I/Os per second was found
Time Max	TIMEMAX	The time of the snapshot in which the maximum IOs per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum IOs per second was found.
Write Hit% Avg	WHTPAVG	The write hit percentage average for the summarized snapshots.
Write Hit% HWM	WHTPHWM	The write hit percentage high-water mark from the summarized samples.
Write Hit% LWM	WHTPHWM	The write hit percentage low-water mark from the summarized samples.
Write Hit% Max	WHTPMAX	The write hit percentage from the snapshot in which the maximum I/Os per second was found.
Write Hit% Min	WHTPMIN	The write hit percentage from the snapshot in which the minimum I/Os per second was found.
Write% Avg	WPRCAVG	The write hit percentage average for the summarized snapshots.
Write% HWM	WPRCHWM	The write hit percentage high-water mark from the summarized samples.
Write% LWM	WPRCLWM	The write hit percentage low-water mark from the summarized samples.
Write% Max	WPRCMAX	The write hit percentage from the snapshot in which the maximum I/Os per second was found.
Write% Min	WPRCMIN	The write hit percentage from the snapshot in which the minimum I/Os per second was found.
Write/sec Avg	WSECAVG	The writes per second average for the summarized snapshots.
Write/sec HWM	WSECHWM	The write operations per second high-water mark from the summarized snapshot samples.
Write/sec LWM	WSECLWM	The write operations per second low-water mark from the summarized snapshot samples.
Write/sec Max	WSECMAX	The writes per second from the snapshot in which the maximum I/Os per second was found.
Write/sec Min	WESCMIN	The writes per second from the snapshot in which the minimum I/Os per second was found.

Figure 7-34 provides a sample of the RAID Physical Volume History Report.

Figure 7-34 RAID Physical Volume History Report Example

```

Produced by MAINVIEW SRM                      RAID Physical Vol Daily Summary 00284-01 F0                      Page: 1
BMC Software, Inc.                               Generated:03/15/2003(2003.196)@15:48
Date      Day Samples Date      Time  Read/sec Read% Read Hit% Write/sec Write% Write Hit% Norm Read Norm Read Norm Read
-----  ---  -----  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---  ---
02/15/2003 TUE      10 02/15/2003 09:30    0.00 95.8   98.8    0.00  4.1    0.0    50.46  95.6   99.6
02/16/2003 WED      13 02/16/2003 08:45    0.00 98.9   99.4    0.00  1.0    0.0    24.86  98.9   99.4
***** End of RAID Physical Volume Summary Report *****
    
```

RAID Physical Volume History Snapshot Report

The RAID Physical Volume History Snapshot report displays RAID physical volume snapshot data for multiple intervals.

Data Source	performance data collector
Initial Display	Fields in parentheses do not display on all reports. (BOX); (DIR); (SCSI); (DATE); (STIME); VENDOR; READSEC; READHITP; WRTESEC; WRTEPERC; WRTEHITP; NRIOSEC; NRMRRPREC; NORMRDHP; SRIOSEC; SEQRPERC; SEQRDHP
Report Name Verb	PERF_PHYVOL

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-47 presents a field list for the RAID Physical Volume History Snapshot Report.

Table 7-47 Field List for the RAID Physical Volume History Snapshot Report (Part 1 of 2)

Column Heading	Field Name	Description
Box	BOXNUM	The rightmost 5 characters of the RAID EMC Box serial number.
CFW %	CFWPERC	The ratio of cache-fast-write operations to write operations.
CFW Hit %	CFWHITP	The hit percentage for cache fast write operations.
CFW/sec	CFWIOSEC	The number of cache fast write operations issued per second.
DFW %	DFWPERC	The percentage of I/Os that were DASD fast writes.
DFW Hit%	DFWHITP	The hit percentage for DASD fast write operations.
DFW/sec	DFWIOSEC	The number of DASD fast write operations issued per second.
Dir Num	DIRNUM	The RAID EMC director number.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
Norm Read %	NRMRRPREC	The number of DASD fast write operations issued per second.

Table 7-47 Field List for the RAID Physical Volume History Snapshot Report (Part 2 of 2)

Column Heading	Field Name	Description
Norm Read Hit%	NORMRDHP	The hit percentage for normal read operations.
Norm Read/sec	NRIOSEC	The number of normal read operations issued per second.
Norm Write %	NRMWPERC	The percentage of I/Os that were normal writes.
Norm Write Hit%	NORMWRHP	The hit percentage of I/Os that were normal writes.
Norm Write/sec	NWIOSEC	The number of normal write operations issued per second.
Read %	READPERC	The percentage of I/O operations that were reads.
Read Hit%	READHITP	The hit percentage of read operations.
Read/sec	READSEC	The number of read operations issued per second.
SCSI	SCSIPATH	The RAID EMC SCSI path number.
Seq Read %	SEQRPERC	The percentage of I/Os that were sequential reads.
Seq Read Hit%	SEQRDHP	The number of normal write operations issued per second.
Seq Read/sec	SRIOSEC	The number of sequential read operations per second.
Seq Write %	SEQWPERC	The percentage of I/Os that were sequential writes.
Seq Write Hit%	SEQWRHP	The percentage of I/Os that were sequential writes.
Seq Write/sec	SWIOSEC	The number of write operations issued per second.
Vendor	VENDOR	The vendor identifier.
Write %	WRTEPERC	The percentage of I/O operations that were writes.
Write Hit%	WRTEHITP	The hit percentage of write operations.
Write/sec	WRTESEC	The number of write operations issued per second.

Figure 7-35 provides a sample of the RAID Physical Volume History Snapshot Report.

Figure 7-35 RAID Physical Volume History Snapshot Report Example

Produced by MAINVIEW SRM BMC Software, Inc. RAID Phys Vol Snapshot Report 03/16/2003 0845 Page: 1
Generated:04/15/2003(2003.196)@15:45

Box	Dir	SCSI	Vendor	Read	Read	Read	Write	Write	Write	Norm	Read	Norm	Read	Norm	Read	Seq	Read	Seq	Read
	Num	Path		/sec	%	Hit%	/sec	%	Hit%	/sec	%	Hit%	/sec	%	Hit%	/sec	%	Hit%	
00284	01	C0	EMC	0.70	94.4	87.6	0.04	5.5	97.3	0.70	94.5	87.6	0.00	0.0	0.0				
00284	01	C1	EMC	0.21	100.0	94.8	0.00	0.0	0.0	0.21	100.0	94.8	0.00	0.0	0.0				
00284	01	D0	EMC	2.54	41.7	95.5	3.53	58.2	99.7	2.54	41.7	95.5	0.00	0.0	0.0				
00284	01	D1	EMC	0.05	100.0	90.9	0.00	0.0	0.0	0.05	100.0	90.9	0.00	0.0	0.0				
00284	01	E0	EMC	13.65	79.4	99.9	3.51	20.5	100.0	13.65	79.4	99.9	0.00	0.0	0.0				
00284	01	E1	EMC	0.04	100.0	91.7	0.00	0.0	0.0	0.04	100.0	91.7	0.00	0.0	0.0				
00284	01	F0	EMC	24.86	98.9	99.4	0.27	1.0	100.0	24.86	98.9	99.4	0.00	0.0	0.0				
00284	01	F1	EMC	2.79	99.1	96.3	0.02	0.8	100.0	2.52	99.0	96.1	0.27	100.0	97.6				
00284	02	C0	EMC	10.77	97.1	95.2	0.31	2.8	95.4	10.70	98.7	95.2	0.07	29.0	95.5				
00284	02	C1	EMC	8.17	99.7	99.6	0.02	0.2	95.0	8.01	99.7	99.6	0.16	97.2	99.3				
00284	02	D0	EMC	4.49	41.9	98.7	6.19	58.0	99.9	4.31	41.0	98.7	0.18	95.1	98.7				
00284	02	D1	EMC	1.08	95.8	96.2	0.05	4.1	100.0	1.07	96.5	96.2	0.01	38.4	80.0				
00284	02	E0	EMC	0.40	37.9	98.6	0.65	62.0	100.0	0.40	37.9	98.6	0.00	0.0	0.0				
00284	02	E1	EMC	3.17	99.2	94.7	0.02	0.7	100.0	3.05	99.2	94.6	0.12	99.0	96.3				
00284	02	F0	EMC	5.80	89.7	97.5	0.66	10.2	100.0	5.80	89.7	97.5	0.00	0.0	0.0				
00284	02	F1	EMC	2.32	99.3	91.0	0.02	0.6	100.0	2.14	99.3	91.7	0.18	100.0	83.7				
00510	01	C0	EMC	0.05	100.0	83.0	0.00	0.0	0.0	0.05	100.0	83.0	0.00	0.0	0.0				
00510	01	C1	EMC	0.09	100.0	95.1	0.00	0.0	0.0	0.09	100.0	95.1	0.00	0.0	0.0				
00510	01	D0	EMC	1.77	87.0	97.0	0.26	12.9	99.6	1.75	87.5	97.3	0.02	54.1	69.2				
00510	01	D1	EMC	0.27	100.0	94.6	0.00	0.0	0.0	0.27	100.0	94.6	0.00	0.0	0.0				
00510	01	E0	EMC	0.27	100.0	93.3	0.00	0.0	0.0	0.27	100.0	93.3	0.00	0.0	0.0				
00510	01	E1	EMC	0.22	100.0	93.1	0.00	0.0	0.0	0.22	100.0	93.1	0.00	0.0	0.0				
00510	01	F0	EMC	3.34	93.5	97.5	0.23	6.4	100.0	3.34	93.5	97.5	0.00	0.0	0.0				
00510	01	F1	EMC	1.57	45.7	97.2	1.86	54.2	99.9	1.57	45.7	97.4	0.00	50.0	0.0				
00510	02	C0	EMC	1.59	90.6	97.8	0.16	9.3	99.3	0.60	89.6	96.2	0.99	91.3	98.8				
00510	02	C1	EMC	1.42	96.2	99.5	0.06	3.7	98.0	1.42	98.8	99.5	0.00	5.4	100.0				
00510	02	D0	EMC	0.45	53.3	95.7	0.38	46.6	100.0	0.45	89.2	95.7	0.00	0.0	0.0				
00510	02	D1	EMC	1.03	90.6	98.9	0.11	9.3	100.0	1.01	93.4	99.0	0.02	33.3	93.7				
00510	02	E0	EMC	0.24	100.0	93.3	0.00	0.0	0.0	0.24	100.0	93.3	0.00	0.0	0.0				
00510	02	E1	EMC	0.37	95.4	99.7	0.02	4.5	100.0	0.37	95.9	99.7	0.00	66.6	100.0				
00510	02	F0	EMC	3.08	90.7	85.7	0.32	9.2	99.3	3.08	91.7	85.8	0.00	15.3	66.7				
00510	02	F1	EMC	0.04	100.0	100.0	0.00	0.0	0.0	0.04	100.0	100.0	0.00	0.0	0.0				

***** End of RAID Physical Volume Snapshot Report *****

RAID Rank History Report

The RAID Rank History report displays summary information for RAID Rank performance data over a requested period.

Data Source	performance data collector
Initial Display	Fields in parentheses do not display in all reports. (DATE); (MONTH); (DAY); SAMPLES; RDRQMAX; DATEMAX; TIMEMAX; HDDNMAX; HDDSSMAX; REQPSMAX; FBSRMAX; RDRTMAX; WRRQMAX; FBSWMAX; WRRTMAX; DATEMIN; TIMEMIN; RDRQMIN; HDDNMIN; HDDSSMIN; REQPSMIN; FBSRMIN; RDRTMIN; WRRQMIN; FBSWMIN; WRRTMIN; RDRQAVG; HDDNAV; HDDSSAV; REQPSAV; REQPSAV; WRRQAV; FBSWAV; WRRTAV; RDRQHWM; HDDNHWM; HDDSSHWM; REQPSHWM; FBSRHWM; RDRTHWM; WRRQHWM; FBSWHWM; WRRTHWM; RDRQLWM; HDDNLWM; HDDSSLWM; REQPSLWM; FBSRLWM; RDRTLWM; WRRQLWM; FBSWLWM; WRRTLWM
Report Name Verb	PERF_RANK

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-48 field list for the RAID Rank History Report.

Table 7-48 Field List for the RAID Rank History Report (Part 1 of 2)

Column Heading	Field Name	Description
Read Reqs Max	RDRQMAX	Read requests maximum
Read Reqs Min	RDRQMIN	Read requests minimum
Read Reqs Avg	RDRQAVG	Read requests average
Read Reqs HWM	RDRQHWM	Read requests high water mark
Read Reqs LWM	RDRQLWM	Read requests low water mark
Max # of HDDs	HDDNMAX	Maximum number of Head and Disk devices
Min # of HDDs	HDDNMIN	Minimum number of Head and Disk devices
Avg # of HDDs	HDDNAVG	Average number of Head and Disk devices
HWM # of HDDs	HDDNHWM	High water mark number of Head and Disk devices
LWM # of HDDs	HDDNLWM	Low water mark number of Head and Disk devices
HDD Sect Size Max	HDDSSMAX	Head and Disk device sector size maximum
HDD Sect Size Min	HDDSSMIN	Head and Disk device sector size minimum
HDD Sect Size Avg	HDDSSAVG	Head and Disk device sector size average
HDD Sect Size HWM	HDDSSHWM	Head and Disk device sector size high water mark
HDD Sect Size LWM	HDDSSLWM	Head and Disk device sector size low water mark
Reqs Per Sec Max	REQPSMAX	Requests per second maximum
Reqs Per Sec Min	REQPSMIN	Requests per second minimum
Reqs Per Sec Avg	REQPSAVG	Requests per second average
Reqs Per Sec HWM	REQPSHWM	Requests per second high water mark
Reqs Per Sec	REQPSLWM	Requests per second low water mark
FB Sectors Read Max	FBSRMAX	Fixed Block sectors read maximum
FB Sectors Read Min	FBSRMIN	Fixed Block sectors read minimum
FB Sectors Read Avg	FBSRAVG	Fixed Block sectors read average
FB Sectors Read HWM	FBSRHWM	Fixed Block sectors read high water mark
FB Sectors Read LWM	FBSRLWM	Fixed Block sectors read low water mark
Read Resp Time Max	RDRTMAX	Read response time maximum
Read Resp Time Min	RDRTMIN	Read response time minimum
Read Resp Time Avg	RDRTAVG	Read response time average
Read Resp Time HWM	RDRTHWM	Read response time high water mark
Read Resp Time LWM	RDRTLWM	Read response time low water mark
Write Reqs Max	WRRQMAX	Write requests maximum
Write Reqs Min	WRRQMIN	Write requests minimum
Write Reqs Avg	WRRQAVG	Write requests average
Write Reqs HWM	WRRQHWM	Write requests high water mark

Table 7-48 Field List for the RAID Rank History Report (Part 2 of 2)

Column Heading	Field Name	Description
Write Reqs LWM	WRRQLWMM	Write requests low water mark
FB Sectors Wrote Max	FBSWMAX	Fixed Block sectors written maximum
FB Sectors Wrote Min	FBSWMIN	Fixed Block sectors written minimum
FB Sectors Wrote Avg	FBSWAVG	Fixed Block sectors written average
FB Sectors Wrote HWM	FBSWHWM	Fixed Block sectors written high water mark
FB Sectors Wrote LWM	FBSWLWMM	Fixed Block sectors written low water mark
Write Resp Time Max	WRRTMAX	Write response time maximum
Write Resp Time Min	WRRTMIN	Write response time minimum
Write Resp Time Avg	WRRTAVG	Write response time average
Write Resp Time HWM	WRRTHWM	Write response time high water mark
Write Resp Time LWM	WRRTLWMM	Write response time low water mark

Figure 7-36 provides a sample of the RAID Rank History Report.

Figure 7-36 RAID Rank History Report Example

```

Produced by MAINVIEW SRM                               RAID Rank Daily Summary for 00300                               Page: 1
BMC Software, Inc.                                     Generated:03/10/2003(2003.070)@09:24

Intv Strt  Day Samples  Read  Date      Time  Max #  HDD Sect  FB Sectors  Read Resp  Write  FB Sectors  Write Resp
  Date          Reqs Max Max      Max      of HDDs Size Max  Read Max  Time Max  Reqs Max Wrote Max  Time Max
-----
02/29/2003 TUE      4      0 02/29/2003 09:45      7    524      0      0.0      0      0      0.0
03/08/2003 WED      8      0 03/08/2003 08:30      7    524      0      0.0      0      0      0.0
***** End of RAID Rank Summary Report *****
    
```

RAID Rank History Snapshot Report

The RAID Rank History Snapshot report displays RAID Rank snapshot data for multiple intervals.

Data Source	performance data collector
Initial Display	RAIDRANK; SSID; HDDNUM; HDDSIZE; RDREQS; FBSECTRD; RDRPTIME; WRREQS; FBSECTWR; WRRPTIME
Report Name Verb	PERF_RANK

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-49 presents a field list for the RAID Rank History Snapshot Report.

Table 7-49 Field List for the RAID Rank History Snapshot Report

Column Heading	Field Name	Description
Rank	RAIDRANK	Rank Identifier
SSID	SSID	Subsystem Identifier
Read Requests	RDREQS	Read requests
# of HDDs	HDDNUM	Number of Head and Disk devices
HDD Sect Size	HHDSIZE	Head and Disk device sector size
Reqs Per Second	REQPSEC	Requests per second
FB Sectors Read	FBSECTRD	Fixed Block sectors read
Read RespTime	RDRPTIME	Read response time
Write Requests	WRREQS	Write requests
FB Sectors Written	FBSECTWR	Fixed Block sectors written
Write RespTime	WRRPTIME	Write response time

Figure 7-37 provides a sample of the RAID Rank History Snapshot Report.

Figure 7-37 RAID Rank History Snapshot Report Example

```

Produced by MAINVIEW SRM                      RAID Rank Snapshot Report for Latest Snapshot                      Page: 1
BMC Software, Inc.                               Generated:03/10/2000(2000.070)@09:12

Rank  SSID  # of  HDD Sect  Read  FB Sectors  Read  Write  FB Sectors  Write
ID    HDDs   Size  Requests  Read  RespTime  Reqsts Written  RespTime
-----
00300 AC03   7    524      0        0    0.0      0      0      0.0
-----
                                           Totals -----
                                           0        0    0.0      0      0      0.0
***** End of RAID Rank Snapshot Report *****

```

RVA Subsystem Frame History Report

The RVA Subsystem Frame History report displays summary information for RVA subsystem frame performance data over a requested period.

Data Source	performance data collector
Initial Display	Fields in parentheses do not display in all reports. (DATE); (MONTH); (DAY); SAMPLES; NCLPMAX; DATEMAX; TIMEMAX; FSCLPMAX; FSUNPMAX; BESPTMAX; NCLMAX; BESPFXMAX; BESPAMAX; BESPUMAX; BESPCMAX
Report Name Verb	PERF_RSF

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-50 presents a field list for the RVA Subsystem Frame History Report.

Table 7-50 Field List for the RVA Subsystem Frame History Report (Part 1 of 6)

Column Heading	Field Name	Description
Array Cnt Avg	ARYCTAVG	The array count average from the snapshot in which the minimum I/Os per second were found.
Array Cnt HWM	ARYCTHWM	The array count high-water mark from the summarized samples.
Array Cnt LWM	ARYCTLWM	The array count low-water mark from the summarized samples.
Array Cnt Max	ARYCTMAX	The array count from the snapshot in which the maximum I/Os per second was found.
Array Cnt Min	ARYCTMIN	The array count from the snapshot in which the minimum I/Os per second were found.
Back End Avail Avg	BESPAAVG	The back-end available average for the summarized snapshots.
Back End Avail HWM	BESPAHWM	The back-end available high-water mark from the summarized samples.
Back End Avail LWM	BESPALWM	The back-end available low-water mark from the summarized samples.
Back End Avail Max	BESPAMAX	The back-end available from the snapshot in which the maximum I/Os per second was found.
Back End Avail Min	BESPAMIN	The back-end available from the snapshot in which the minimum I/Os per second were found.
Back End Coll Avg	BESPCAVG	The back-end collected average for the summarized snapshots.
Back End Coll HWM	BESPCHWM	The back-end collected high-water mark from the summarized samples.
Back End Coll LWM	BESPCLWM	The back-end collected low-water mark from the summarized samples.

Table 7-50 Field List for the RVA Subsystem Frame History Report (Part 2 of 6)

Column Heading	Field Name	Description
Back End Coll Max	BESPCMAX	The back-end collected from the snapshot in which the maximum I/Os per second was found.
Back End Coll Min	BESPCMIN	The back-end collected from the snapshot in which the minimum I/Os per second were found.
Back End Free Avg	BESPF AVG	The back-end free average for the summarized snapshots.
Back End Free HWM	BESPFHWM	The back-end free high-water mark from the summarized samples.
Back End Free LWM	BESPF LWM	The back-end free low-water mark from the summarized samples.
Back End Free Max	BESPFMAX	The back-end free from the snapshot in which the maximum I/Os per second was found.
Back End Free Min	BESPFMIN	The back-end free from the snapshot in which the minimum I/Os per second were found.
Back End Total Avg	BESPTAVG	The back-end total average for the summarized snapshots.
Back End Total HWM	BESPTHWM	The back-end total high-water mark from the summarized samples.
Back End Total LWM	BESPTLWM	The back-end total low-water mark from the summarized samples.
Back End Total Max	BESPTMAX	The back-end total from the snapshot in which the maximum I/Os per second was found.
Back End Total Min	BESPTMIN	The back-end total from the snapshot in which the minimum I/Os per second were found.
Back End Uncol Avg	BESPUAVG	The back-end uncollected average for the summarized snapshots.
Back End Uncol HWM	BESPUHWM	The back-end uncollected high-water mark from the summarized samples.
Back End Uncol LWM	BESPULWM	The back-end uncollected low-water mark from the summarized samples.
Back End Uncol Max	BESPUMAX	The back-end uncollected from the snapshot in which the maximum I/Os per second was found.
Back End Uncol Min	BESPUMIN	The back-end uncollected from the snapshot in which the minimum I/Os per second were found.
Cache Offline Avg	COFFLAVG	The cache offline average for the summarized snapshots.
Cache Offline HWM	COFFLHWM	The cache offline high-water mark from the summarized samples.
Cache Offline LWM	COFFLLWM	The cache offline low-water mark from the summarized samples.
Cache Offline Max	COFFLMAX	The cache offline from the snapshot in which the maximum I/Os per second was found.

Table 7-50 Field List for the RVA Subsystem Frame History Report (Part 3 of 6)

Column Heading	Field Name	Description
Cache Offline Min	COFFLMIN	The cache offline from the snapshot in which the minimum I/Os per second was found.
Cache Pinned Avg	CPINDAVG	The pinned cache average for the summarized snapshots.
Cache Pinned HWM	CPINDHWM	The pinned cache high-water mark from the summarized samples.
Cache Pinned LWM	CPINDLWM	The pinned cache low-water mark from the summarized samples.
Cache Pinned Max	CPINDMAX	The pinned cache from the snapshot in which the maximum I/Os per second was found.
Cache Pinned Min	CPINDMIN	The pinned cache from the snapshot in which the minimum I/Os per second was found.
Cache Size Avg	CSIZEAVG	The cache size average for the summarized snapshots.
Cache Size HWM	CSIZEHWM	The cache size high-water mark from the summarized samples.
Cache Size LWM	CSIZELWM	The cache size low-water mark from the summarized samples.
Cache Size Max	CSIZEMAX	The cache size from the snapshot in which the maximum I/Os per second was found.
Cache Size Min	CSIZEMIN	The cache size from the snapshot in which the minimum I/Os per second was found.
Col % Avg	FSCLPAVG	The collected percentage average for the summarized snapshots.
Col % HWM	FSCLPHWM	The collected percentage high-water mark from the summarized samples.
Col % LWM	FSCLPLWM	The collected percentage low-water mark from the summarized samples.
Col % Max	FSCLPMAX	The collected percentage from the snapshot in which the maximum I/Os per second was found.
Col % Min	FSCLPMIN	The collected percentage from the snapshot in which the minimum I/Os per second were found.
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Drive Mod Avg	DMODCAVG	The drive module count average for the summarized snapshots.
Drive Mod HWM	DMODCHWM	The drive module count high-water mark from the summarized samples.
Drive Mod LWM	DMODCLWM	The drive module count low-water mark from the summarized samples.
Drive Mod Max	DMODCMAX	The drive module count from the snapshot in which the maximum I/Os per second was found.
Drive Mod Min	DMODCMIN	The drive module count from the snapshot in which the minimum I/Os per second were found.

Table 7-50 Field List for the RVA Subsystem Frame History Report (Part 4 of 6)

Column Heading	Field Name	Description
ECAM Chan Pgms Avg	ECAMPAVG	The ECAM channel PGMS average for the summarized snapshots.
ECAM Chan Pgms HWM	ECAMPHWM	The ECAM channel PGMS high-water mark from the summarized samples.
ECAM Chan Pgms LWM	ECAMPLWM	The ECAM channel PGMS low-water mark from the summarized samples.
ECAM Chan Pgms Max	ECAMPMAX	The ECAM channel PGMS from the snapshot in which the maximum I/Os per second was found.
ECAM Chan Pgms Min	ECAMPMIN	The ECAM channel PGMS from the snapshot in which the minimum I/Os per second was found.
ECAM Conf Busy Avg	ECAMCAVG	The ECAM configuration busy average for the summarized snapshots.
ECAM Conf Busy HWM	ECAMCHWM	The ECAM configuration busy high-water mark from the summarized samples.
ECAM Conf Busy LWM	ECAMCLWM	The ECAM configuration busy low-water mark from the summarized samples.
ECAM Conf Busy Max	ECAMCMAX	The ECAM configuration busy from the snapshot in which the maximum I/Os per second was found.
ECAM Conf Busy Min	ECAMCMIN	The ECAM configuration busy from the snapshot in which the minimum I/Os per second was found.
ECAM Msgs Proc Avg	ECAMMAVG	The ECAM messages processed average for the summarized snapshots.
ECAM Msgs Proc HWM	ECAMMHWM	The ECAM messages processed high-water mark from the summarized samples.
ECAM Msgs Proc LWM	ECAMMLWM	The ECAM messages processed low-water mark from the summarized samples.
ECAM Msgs Proc Max	ECAMMMAX	The ECAM messages processed from the snapshot in which the maximum I/Os per second was found.
ECAM Msgs Proc Min	ECAMMIN	The ECAM messages processed from the snapshot in which the minimum I/Os per second was found.
ECAM No Bfr Space Avg	ECAMNAVG	The ECAM no buffer space average for the summarized snapshots.
ECAM No Bfr Space HWM	ECAMNHWM	The ECAM no buffer space high-water mark from the summarized samples.
ECAM No Bfr Space LWM	ECAMNLWM	The ECAM no buffer space low-water mark from the summarized samples.
ECAM No Bfr Space Max	ECAMNMAX	The ECAM no buffer space from the snapshot in which the maximum I/Os per second was found.
ECAM No Bfr Space Min	ECAMNMIN	The ECAM no buffer space from the snapshot in which the minimum I/Os per second was found.
Frame Name	RSFNAME	The IXPF subsystem frame name.

Table 7-50 Field List for the RVA Subsystem Frame History Report (Part 5 of 6)

Column Heading	Field Name	Description
Free Bytes Read Avg	FSCLBAVG	The free bytes read average for the summarized snapshots.
Free Bytes Read HWM	FSCLBHWM	The free bytes read high-water mark from the summarized samples.
Free Bytes Read LWM	FSCLBLWM	The free bytes read low-water mark from the summarized samples.
Free Bytes Read Max	FSCLBMAX	The free bytes read from the snapshot in which the maximum I/Os per second was found.
Free Bytes Read Min	FSCLBMIN	The free bytes read from the snapshot in which the minimum I/Os per second were found.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
NCL % Avg	NCLPAVG	The net capacity load percentage average for the summarized snapshots.
NCL % LWM	NCLPLWM	The net capacity load percentage high-water mark from the summarized samples.
NCL % HWM	NCLPHWM	The net capacity load percentage low-water mark from the summarized samples.
NCL % Max	NCLPMAX	The net capacity load percentage from the snapshot in which the maximum I/Os per second was found.
NCL % Min	NCLPMIN	The net capacity load percentage from the snapshot in which the minimum I/Os per second were found.
Net Cap Load Avg	NCLAVG	The net capacity load average for the summarized snapshots.
Net Cap Load HWM	NCLHWM	The net capacity load high-water mark from the summarized samples.
Net Cap Load LWM	NCLLWM	The net capacity load low-water mark from the summarized samples.
Net Cap Load Max	NCLMAX	The net capacity load from the snapshot in which the maximum I/Os per second was found.
Net Cap Load Min	NCLMIN	The net capacity load from the snapshot in which the minimum I/Os per second were found.
Non-volatile Memory Avg	NVSSZAVG	The non-volatile memory average for the summarized snapshots.
Non-volatile Memory HWM	NVSSZHWM	The non-volatile memory high-water mark from the summarized samples.
Non-volatile Memory LWM	NVSSZLWM	The non-volatile memory low-water mark from the summarized samples.
Non-volatile Memory Max	NVSSZMAX	The non-volatile memory from the snapshot in which the maximum I/Os per second was found.
Non-volatile Memory Min	NVSSZMIN	The non-volatile memory from the snapshot in which the minimum I/Os per second were found.

Table 7-50 Field List for the RVA Subsystem Frame History Report (Part 6 of 6)

Column Heading	Field Name	Description
Percent Graph	VISUAL	The visual representation of snapshot results.
Samples	SAMPLES	Total number of snapshots in the interval.
Time Max	TIMEMAX	The time of the snapshot in which the maximum I/Os per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum I/Os per second was found.
Uncol % Avg	FSUNPAVG	The free space uncollected average for the summarized snapshots.
Uncol % HWM	FSUNPHWM	The free space uncollected high-water mark from the summarized samples.
Uncol % LWM	FSUNPLWM	The free space uncollected low-water mark from the summarized samples.
Uncol % Max	FSUNPMAX	The free space uncollected from the snapshot in which the maximum I/Os per second were found.
Uncol % Min	FSUNPMIN	The free space uncollected from the snapshot in which the minimum I/Os per second were found.

Figure 7-38 provides a sample of the RVA Subsystem Frame History Report.

Figure 7-38 RVA Subsystem Frame History Report Example

```

Produced by MAINVIEW SRM                      RVA Frame Daily Summary for 55_RVA                      Page: 1
BMC Software, Inc.                            Generated:08/23/2002(2002.235)@11:06

Intv Strt Day Samples  NCL %  Date      Time  Coll %  Uncol %  Back End  Net Cap  Back End  Back End  Back End  Back End
Date      Date      Max     Max     Max      Max    Max     Max     Total Max  Load Max  Free Max  Avail Max  Uncol Max  Coll Max
-----
08/11/2002 WED      8    65.5 08/11/2002 15:45  32.4   2.1  81,609.4  53,456.3  28,153.1  26,418.3  1,734.8   91.9
08/12/2002 THU     24    65.5 08/12/2002 12:15  32.3   2.1  81,609.4  53,484.5  28,124.9  26,393.8  1,731.0  165.3
08/13/2002 FRI     21    65.5 08/13/2002 16:00  32.4   2.1  81,609.4  53,490.3  28,119.0  26,412.2  1,706.8   63.7
08/16/2002 MON     29    65.5 08/16/2002 14:30  32.3   2.2  81,609.4  53,458.4  28,151.0  26,386.5  1,764.5    0.0
08/17/2002 TUE     10    65.5 08/17/2002 08:15  32.3   2.2  81,609.4  53,453.5  28,155.9  26,374.3  1,781.6    0.0
08/18/2002 WED     18    65.6 08/18/2002 15:15  32.4   2.1  81,609.4  53,504.6  28,104.8  26,419.6  1,685.2  207.0
08/19/2002 THU     10    64.6 08/19/2002 12:15  33.3   2.1  81,609.4  52,701.2  28,908.2  27,189.9  1,718.3  191.1
08/23/2002 MON     10    64.7 08/23/2002 09:45  33.2   2.1  81,609.4  52,767.8  28,841.6  27,114.0  1,727.6  123.7
***** End of RVA Subsystem Frame Summary Report *****

```

RVA Subsystem Frame History Snapshot Report

The RVA Subsystem Frame History Snapshot report displays RVA subsystem frame snapshot data for multiple intervals.

Data Source	performance data collector
Initial Display	Fields in parentheses do not display in all reports. (RSFNAME); (DATE); (STIME); NCLPERC; FSCLPERC; FSUNPERC; SSID01; SSID02; SSID03; SSID04; BESPTOTL; NCL; BESPFREE; BESPAVLB; BESPUNCL; BESPCOLT
Report Name Verb	PERF_RSF

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-51 presents a field list for the RVA Subsystem Frame History Snapshot Report.

Table 7-51 Field List for the RVA Subsystem Frame History Snapshot Report (Part 1 of 2)

Column Heading	Field Name	Description
Array Cnt	ARRAYCNT	The array count.
Back End Available	BESPAVLB	The available back-end space.
Back End Coll	BESPCOLT	The collected back-end space.
Back End Free	BESPFREE	The free back-end space.
Back End Total	BESPTOTL	The total back-end space.
Back End Uncol	BESPUNCL	The back-end space uncollected.
Cache Offline	CACHOFFL	The amount of offline cache.
Cache Pinned	CACHPIND	The amount of pinned cache (should always be zero).
Cache Size	CACHSIZE	The cache size in megabytes.
Day	DAY	The day of the week.
Drive Mod Cnt	DMODCNT	The drive module count.
ECAM Chan Programs	ECAMPGMS	The ECAM channel programs.
ECAM Msgs	ECAMMSGs	The ECAM messages processed.
ECAM No Buf Space	ECAMNSPC	The ECAM channel programs bypassed due to no buffer space available.
ECAM Pgm Cfg Busy	ECAMCFBS	The ECAM channel programs bypassed due to busy configuration.
Frame Name	RSFNAME	The IXPF subsystem frame name.
Free Coll %	FSCLPERC	The free space collected percentage.

Table 7-51 Field List for the RVA Subsystem Frame History Snapshot Report (Part 2 of 2)

Column Heading	Field Name	Description
Free Space Bytes Read	FSCLBYRD	The free space bytes read.
Free Uncol %	FSUNPERC	The free space uncollected percentage.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
Month	MONTH	The month of the year.
Net Cap Load	NCL	The calculated net capacity load.
Net Cap Load %	NCLPERC	The calculated net capacity load percent.
Non-Vol Memory	NVSSIZE	The non-volatile memory size.
Percent Graph	VISUAL	The visual representation of snapshot results.
SSID CU-01	SSID01	The controller subsystem ID.
SSID CU-02	SSID02	The controller subsystem ID.
SSID CU-03	SSID03	The controller subsystem ID.
SSID CU-04	SSID04	The controller subsystem ID.

Figure 7-39 provides a sample of the RVA Subsystem Frame History Snapshot Report.

Figure 7-39 RVA Subsystem Frame History Snapshot Report Example

```

Produced by MAINVIEW SRM                      RVA Frame Snapshot Report for Latest Snapshot                      Page: 1
BMC Software, Inc.                               Generated:08/23/2003(2003.235)@10:52
-----
Frame   Net Cap   Free   Free   SSID SSID SSID SSID   Back End   Net Cap   Back End   Back End   Back End   Back End
Name    Load %   Coll % UnCol % CU-1 CU-2 CU-3 CU-4   Total      Load      Free      Avail      Uncol      Coll
-----
55_RVA    0.0     0.0    0.0  0025 0026 0027 0028   81,609.4   52,762.3  28,847.1  27,149.5   1,697.6   149.4
-----
Totals
-----
81,609.4   52,762.3  28,847.1  27,149.5   1,697.6   149.4
***** End of RVA Subsystem Frame Snapshot Report *****

```

Storage Class History Report

The Storage Class History report displays summary information for storage class performance data over a requested period.

Data Source	performance data collector
Initial Display	Fields in parentheses are not displayed in all reports. (DATE); (MONTH); (DAY); SAMPLES; RESPTMAX; DATEMAX; TIMEMAX; IOSMAX; IOSQTMAX; PENDTMAX; DISCTMAX; CONNTMAX; RPRC RHTPMAX
Report Name Verb	PERF_SCL

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-52 field list for the Storage Class History Report.

Table 7-52 Field List for the Storage Class History Report (Part 1 of 4)

Column Heading	Field Name	Description
Class	SCLNAME	The storage class identifier.
Conn Time Avg	CONNTAVG	The connect time in milliseconds average for the summarized snapshots.
Conn Time HWM	CONNTHWM	The connect time in milliseconds high-water mark from the summarized samples.
Conn Time LWM	CONNTLWM	The connect time in milliseconds low-water mark from the summarized samples.
Conn Time Max	CONNTMAX	The connect time in milliseconds from the snapshot in which the maximum response time was found.
Conn Time Min	CONNTMIN	The connect time in milliseconds from the snapshot in which the minimum response time was found.
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Day	DAY	Day of the week.
Disc Time Avg	DISCTAVG	The disconnect time in milliseconds average for the summarized snapshots.
Disc Time HWM	DISCTHWM	The disconnect time in milliseconds high-water mark from the summarized samples.
Disc Time LWM	DISCTLWM	The disconnect time in milliseconds low-water mark from the summarized samples.
Disc Time Max	DISCTMAX	The disconnect time in milliseconds low-water mark from the summarized samples.

Table 7-52 Field List for the Storage Class History Report (Part 2 of 4)

Column Heading	Field Name	Description
Disc Time Min	DISCTMIN	The disconnect time in milliseconds from the snapshot in which the minimum response time was found.
I/Os /sec Avg	IOSAVG	The IO operations per second average for the summarized snapshot samples.
I/Os /sec HWM	IOSHWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec LWM	IOSLWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec Max	IOSMAX	The maximum IO operations per second found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
I/Os /Sec MIN	IOSMIN	The time of the snapshot in which the minimum IOs per second was found.
Intv Strt Date	DATE	The summarization interval starting date.
IOSQ Time Avg	IOSQTAVG	The IOSQ time in milliseconds average for the summarized snapshots.
IOSQ Time HWM	IOSQTHWM	The IOSQ time in milliseconds high-water mark from the summarized samples.
IOSQ Time LWM	IOSQTLWM	The IOSQ time in milliseconds low-water mark from the summarized samples.
IOSQ Time Max	IOSQTMAX	The IOSQ time in milliseconds from the snapshot in which the maximum response time was found.
IOSQ Time Min	IOSQTMIN	The IOSQ time in milliseconds from the snapshot in which the minimum response time was found.
Month	MONTH	The month of the year.
Pend Time Avg	PENDTAVG	The pending time in milliseconds average for the summarized snapshots.
Pend Time HWM	PENDTHWM	The pending time in milliseconds high-water mark from the summarized samples.
Pend Time LWM	PENDTLWM	The pending time in milliseconds low-water mark from the summarized samples.
Pend Time Max	PENDTMAX	The pending time in milliseconds from the snapshot in which the maximum response time was found.
Pend Time Min	PENDTMIN	The pending time in milliseconds from the snapshot in which the minimum response time was found.
Read Hit% Avg	RHTPAVG	The read hit percentage average for the summarized snapshots.
Read Hit% HWM	RHTPHWM	The read hit percentage high-water mark from the summarized samples.
Read Hit% LWM	RHTPLWM	The read hit percentage low-water mark from the summarized samples.
Read Hit% Max	RHTPMAX	The read hit percentage from the snapshot in which the maximum I/Os per second was found.

Table 7-52 Field List for the Storage Class History Report (Part 3 of 4)

Column Heading	Field Name	Description
Read Hit% Min	RHTPMIN	The read hit percentage from the snapshot in which the minimum I/Os per second was found.
Reads% Avg	RPRCAVG	The read percentage average for the summarized snapshots.
Reads% HWM	RPRCHWM	The read percentage high-water mark from the summarized samples.
Reads% LWM	RPRCLWM	The read percentage low-water mark from the summarized samples.
Read% MAX	RPRCMAX	The read percentage from the snapshot in which the maximum I/Os per second was found.
Read% MIN	RPRCMIN	The read percentage from the snapshot in which the maximum I/Os per second was found.
Resp Time Avg	RESPTAVG	The response time in milliseconds average for the summarized snapshots.
Resp Time HWM	RESPTHWM	The response time in milliseconds high-water mark from the summarized samples.
Resp Time LWM	RESPTLWM	The response time in milliseconds low-water mark from the summarized samples.
Resp Time Max	RESPTMAX	The maximum response time in milliseconds found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
Resp Time Min	RESPTMIN	The minimum response time in milliseconds found in the summarized snapshot samples. All shown minimum values are from the snapshot in which this value is found.
Samples	SAMPLES	Total number of snapshots in the interval.
Time Max	TIMEMAX	The time of the snapshot in which the maximum IOs per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum IOs per second was found.
Write Hit% Avg	WHTPAVG	The write hit percentage average for the summarized snapshots.
Write Hit% HWM	WHTPHWM	The write hit percentage high-water mark from the summarized samples.
Write Hit% LWM	WHTPLWM	The write hit percentage low-water mark from the summarized samples.
Write Hit% Max	WHTPMAX	The write hit percentage from the snapshot in which the maximum I/Os per second was found.
Write Hit% Min	WHTPMIN	The write hit percentage from the snapshot in which the minimum I/Os per second was found.
Write% Avg	WPRCAVG	The write percentage average for the summarized snapshots.
Write% HWM	WPRCHWM	The write percentage high-water mark from the summarized samples.
Write% LWM	WPRCLWM	The write percentage low-water mark from the summarized samples.

Table 7-52 Field List for the Storage Class History Report (Part 4 of 4)

Column Heading	Field Name	Description
Write% Max	WPRCMAX	The write percentage from the snapshot in which the maximum I/Os per second was found.
Write% Min	WPRCMIN	The write percentage from the snapshot in which the minimum I/Os per second was found.

Figure 7-40 provides a sample of the Storage Class History Report.

Figure 7-40 Storage Class History Report Example

```

Produced by MAINVIEW SRM                               Storage Class Daily Summary for SCENG                               Page: 1
BMC Software, Inc.                                     Generated:08/23/2002(2002.235)@11:26

Intv Strt Day Samples Resp Time Date      Time I/Os /sec IOSQ Time Pend Time Disc Time Conn Time Read% Read Hit%
Date      Max      Max
-----
07/26/2002 MON      2      17.9 07/26/2002 17:00      0.73      4.7      0.1      0.0      13.1      0.0      0.0
07/27/2002 TUE      1       9.7 07/27/2002 17:00      0.83      2.4      0.5      0.0      6.8      0.0      0.0
07/30/2002 FRI      2      12.4 07/30/2002 17:00      0.37      4.6      0.9      0.0      6.9      0.0      0.0
07/31/2002 SAT      1       5.6 07/31/2002 04:45      0.62      1.3      0.4      0.0      3.9      0.0      0.0
08/02/2002 MON      1      15.3 08/02/2002 17:00      1.89      7.2      1.2      0.0      7.0      0.0      0.0
08/03/2002 TUE      1      11.3 08/03/2002 17:00      1.87      5.2      0.9      0.0      5.1      0.0      0.0
***** End of Storage Class Summary Report *****

```

Storage Class History Snapshot Report

The Storage Class History Snapshot report displays storage class snapshot data for multiple intervals.

Data Source	performance data collector
Initial Display	Fields in parentheses do not display in all reports. (SCLNAME); (DATE); (STIME); IOSSEC; RESPTIME; IOSQTIME; PENDTIME; DISCTIME; CONNTIME; READPERC; REDHPERC; WRITPERC; WRTHPERC
Report Name Verb	PERF_SCL

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-53 presents a field list for the Storage Class History Snapshot Report.

Table 7-53 Field List for the Storage Class History Snapshot Report (Part 1 of 2)

Column Heading	Field Name	Description
Class	SCLNAME	The storage class identifier.
Conn Time	CONNTIME	The average connect time in milliseconds.

Table 7-53 Field List for the Storage Class History Snapshot Report (Part 2 of 2)

Column Heading	Field Name	Description
Disc Time	DISCTIME	The average disconnect time in milliseconds.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
I/Os /sec	IOSSEC	The number of I/O operations issued per second.
IOSQ Time	IOSQTIME	The average IOS queuing time in milliseconds.
Pend Time	PENDTIME	The average pending time in milliseconds.
Read %	READPERC	The percentage of I/O operations that were reads.
Read Hit %	REDHPERC	The hit percentage of read operations.
Resp Time	RESPTIME	The I/O response time reported in milliseconds.
Write %	WRITPERC	The percentage of I/O operations that were writes.
Write Hit %	WRTHPERC	The hit percentage of write operations.

Figure 7-41 provides a sample of the Storage Class History Snapshot Report.

Figure 7-41 Storage Class History Snapshot Report Example

```

Produced by MAINVIEW SRM                               Storage Class Snapshot Report 08/16/2002 1030           Page: 1
BMC Software, Inc.                                     Generated:08/23/2002(2002.235)@11:19

Class  I/Os  Resp  IOSQ  Pend  Disc  Conn  Read  Read  Write  Write
      sec   Time  Time  Time  Time  Time  %    Hit %  %    Hit %
-----
SCENG  0.09  16.5  0.3   0.1   0.0  16.1  0.0   0.0   0.0   0.0
***** End of Storage Class Snapshot Report *****
    
```

Volume History Report

The Volume History report displays summary information for volume performance data over a requested period. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPF)*.

Purpose	displays summary information for volume performance data over a requested period
Data Source	performance data collector
Initial Display	Fields in parentheses may not display on all reports. (DATE); (MONTH); (DAY); PERCBUSY; IOSSEC; RESPTIME; IOSQTIME; PENDTIME; DISCTIME; CONNTIME; DBDELAY; DPDELAY; CBDELAY; RTIMEPER; SMSGROUP; READPERC; READHITP; WRTESEC
Report Name Verb	PERF_VOL

See Table 7-31 on page 7-54 for a list of the report option keywords available on this report.

Table 7-54 presents a field list for the Volume History Report.

Table 7-54 Field List for the Volume History Report (Part 1 of 9)

Column Heading	Field Name	Description
Busy% Avg	PBUSYAVG	The busy percentage average for the summarized snapshot samples.
Busy% HWM	PBUSYHWM	The busy percentage high-water mark from the summarized snapshot samples.
Busy% LWM	PBUSTLWM	The busy percentage low-water mark from the summarized snapshot samples.
Busy% Min	PBUSYMIN	The minimum busy percentage found in the summarized snapshot samples. All shown minimum values are from the snapshot in which this value is found.
Busy% Max	PBUSYMAX	The maximum busy percentage found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
CFW Hit% Avg	CWHTPAVG	The cache fast write hit percentage average for the summarized snapshots.
CFW Hit% HWM	CWHTPHWM	The cache fast write hit percentage high-water mark from the summarized samples.
CFW Hit% LWM	CWHTPLWM	The cache fast write hit percentage low-water mark from the summarized samples.
CFW Hit% Max	CWHTPMAX	The cache fast write hit percentage from the snapshot in which the maximum I/Os per second was found.
CFW Hit% Min	CWHTPMIN	The cache fast write hit percentage from the snapshot in which the minimum I/Os per second was found.
CFW% Avg	CWPRCAVG	The cache fast write percentage average for the summarized snapshots.

Table 7-54 Field List for the Volume History Report (Part 2 of 9)

Column Heading	Field Name	Description
CFW% HWM	CWPRCHWM	The cache fast write percentage high-water mark from the summarized samples.
CFW% LWM	CWPRCLWM	The cache fast write percentage low-water mark from the summarized samples.
CFW% Max	CWPRCMAX	The cache fast write percentage from the snapshot in which the maximum I/Os per second was found.
CFW% Min	CWPRCMIN	The cache fast write percentage from the snapshot in which the minimum I/Os per second was found.
CFW/sec Avg	CWSECAVG	The cache fast writes per second average for the summarized snapshots.
CFW/sec HWM	CWSECHWM	The cache fast write operations per second high-water mark from the summarized snapshot samples.
CFW/sec LWM	CWSECLWM	The cache fast write operations per second low-water mark from the summarized snapshot samples.
CFW/sec Max	CWSECMAX	The cache fast writes per second from the snapshot in which the maximum I/Os per second was found.
CFW/Sec Min	CWSECMIN	The cache fast writes per second from the snapshot in which the minimum I/Os per second was found.
Conn Time Avg	CONNTAVG	The connect time in milliseconds average for the summarized snapshots.
Conn Time HWM	CONNTHWM	The connect time in milliseconds high-water mark from the summarized samples.
Conn Time LWM	CONNTLWM	The connect time in milliseconds low-water mark from the summarized samples.
Conn Time Max	CONNTMAX	The connect time in milliseconds from the snapshot in which the maximum response time was found.
Conn Time Min	CONNTMIN	The connect time in milliseconds from the snapshot in which the minimum response time was found.
CTLU Busy Delay Avg	DLCUBAVG	The control unit busy delay average for the summarized snapshots.
CTLU Busy Delay Hwm	DLCUBHWM	The control unit busy delay high-water mark from the summarized snapshot samples.
CTLU Busy Delay LWM	DLCUBLWM	The control unit busy delay low-water mark from the summarized snapshot samples.
CTLU Busy Delay Max	DLCUBMAX	The control unit busy delay in milliseconds from the snapshot in which the maximum busy percentage was found.
CTLU Busy Delay Min	DLCUBMIN	The control unit busy delay in milliseconds from the snapshot in which the minimum busy percentage was found.
Date Max	DATEMAX	The date of the snapshot in which the maximum IOs per second was found.
Date Min	DATEMIN	The date of the snapshot in which the minimum IOs per second was found.
Day	DAY	The day of the week.

Table 7-54 Field List for the Volume History Report (Part 3 of 9)

Column Heading	Field Name	Description
Dev Busy Delay Avg	DLDVBAVG	The device busy delay average for the summarized snapshots.
Dev Busy Delay HWM	DLDVBHWM	The device busy delay high-water mark from the summarized snapshot samples.
Dev Busy Delay LWM	DLDVBLWM	The device busy delay low-water mark from the summarized snapshot samples.
Dev Busy Delay Max	DLDVBMAX	The device busy delay in milliseconds from the snapshot in which the maximum busy percentage was found.
Dev Busy Delay Min	DLDVBMIN	The device busy delay in milliseconds from the snapshot in which the minimum busy percentage was found.
DFW Hit% Avg	DWHTPAVG	The DASD fast write hit percentage average for the summarized snapshots.
DFW Hit% HWM	DWHTPHWM	The DASD fast write hit percentage high-water mark from the summarized samples.
DFW Hit% LWM	DWHTPLWM	The DASD fast write hit percentage low-water mark from the summarized samples.
DFW Hit% Max	DWHTPMAX	The DASD fast write hit percentage from the snapshot in which the maximum I/Os per second was found.
DFW Hit% Min	DWHTPMIN	The DASD fast write hit percentage from the snapshot in which the minimum I/Os per second was found.
DFW% Avg	DWPRCAVG	The DASD fast write percentage average for the summarized snapshots.
DFW% HWM	DWPRCHWM	The DASD fast write percentage high-water mark from the summarized samples.
DFW% LWM	DWPRCLWM	The DASD fast write percentage low-water mark from the summarized samples.
DFW% Max	DWPRCMAX	The DASD fast write percentage from the snapshot in which the maximum I/Os per second was found.
DFW% Min	DWPRCMIN	The DASD fast write percentage from the snapshot in which the minimum I/Os per second was found.
DFW/sec Avg	DWSECAVG	The DASD fast writes per second average for the summarized snapshots.
DFW/sec HWM	DWSECHWM	The DASD fast write operations per second high-water mark from the summarized snapshot samples.
DFW/sec LWM	DWSECLWM	The DASD fast write operations per second low-water mark from the summarized snapshot samples.
DFW/sec Max	DWSECMAX	The DASD fast writes per second from the snapshot in which the maximum I/Os per second was found.
DFW/sec Min	DWSECMIN	The DASD fast writes per second from the snapshot in which the minimum I/Os per second was found.
Dirp Busy Delay Avg	DLDPBAVG	The director port busy delay average for the summarized snapshots.
Dirp Busy Delay HWM	DLDPBHWM	The director port busy delay high-water mark from the summarized snapshot samples.

Table 7-54 Field List for the Volume History Report (Part 4 of 9)

Column Heading	Field Name	Description
Dirp Busy Delay LWM	DLDPBLWM	The director port busy delay low-water mark from the summarized snapshot samples.
Dirp Busy Delay Max	DLDPBMAX	The director port busy delay in milliseconds from the snapshot in which the maximum busy percentage was found.
Dirp Busy Delay Min	DLDPBMIN	The director port busy delay in milliseconds from the snapshot in which the minimum busy percentage was found.
Disc Time Avg	DISCTAVG	The disconnect time in milliseconds average for the summarized snapshots.
Disc Time HWM	DISCTHWM	The disconnect time in milliseconds high-water mark from the summarized samples.
Disc Time LWM	DISCTLWM	The disconnect time in milliseconds low-water mark from the summarized samples.
Disc Time Max	DISCTMAX	The disconnect time in milliseconds low-water mark from the summarized samples.
Disc Time Min	DISCTMIN	The disconnect time in milliseconds from the snapshot in which the minimum response time was found.
I/Os /sec Avg	IOSAVG	The IO operations per second average for the summarized snapshot samples.
I/Os /sec HWM	IOSHWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec LWM	IOSLWM	The IO operations per second high-water mark from the summarized snapshot samples.
I/Os /sec Max	IOSMAX	The maximum IO operations per second found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
I/Os /sec Min	IOSMIN	The time of the snapshot in which the minimum IOs per second was found.
Intv Strt Date	DATE	The summarization interval starting date.
IOSQ Time Avg	IOSQTAVG	The IOSQ time in milliseconds average for the summarized snapshots.
IOSQ Time HWM	IOSQTHWM	The IOSQ time in milliseconds high-water mark from the summarized samples.
IOSQ Time LWM	IOSQTLWM	The IOSQ time in milliseconds low-water mark from the summarized samples.
IOSQ Time Max	IOSQTMAX	The IOSQ time in milliseconds from the snapshot in which the maximum response time was found.
IOSQ Time Min	IOSQTMIN	The IOSQ time in milliseconds from the snapshot in which the minimum response time was found.
Month	MONTH	The month of the year.
Norm Read % Avg	NRPRCAVG	The normal read percentage average for the summarized snapshots.
Norm Read % HWM	NRPRCHWM	The normal read percentage high-water mark from the summarized samples.

Table 7-54 Field List for the Volume History Report (Part 5 of 9)

Column Heading	Field Name	Description
Norm Read % LWM	NRPRCLWN	The normal read percentage low-water mark from the summarized samples.
Norm Read % Max	NRPRCMAX	The normal read percentage from the snapshot in which the maximum I/Os per second was found.
Norm Read % Min	NRPRCMIN	The normal read percentage from the snapshot in which the minimum I/Os per second was found.
Norm Read Hit% Avg	NRHTPAVG	The normal read hit percentage average for the summarized snapshots.
Norm Read Hit% HWM	NRHTPHWM	The normal read hit percentage high-water mark from the summarized samples.
Norm Read Hit% LWM	NRHTPLWM	The normal read hit percentage low-water mark from the summarized samples.
Norm Read Hit% Max	NRHTPMAX	The normal read hit percentage from the snapshot in which the maximum I/Os per second was found.
Norm Read Hit% Min	NRHTPMIN	The normal read hit percentage from the snapshot in which the minimum I/Os per second was found.
Norm Read/sec Avg	NRSECAVG	The normal reads per second average for the summarized snapshots.
Norm Read/sec HWM	NRSECHWM	The normal read operations per second high-water mark from the summarized snapshot samples.
Norm Read/sec LWM	NRSECLWM	The normal read operations per second low-water mark from the summarized snapshot samples.
Norm Read /sec Max	NRSECMAX	The normal reads per second from the snapshot in which the maximum I/Os per second was found.
Norm Read /sec Min	NRSECMIN	The normal reads per second from the snapshot in which the minimum I/Os per second was found.
Norm Write % Avg	NWPRCAVG	The normal reads per second from the snapshot in which the minimum I/Os per second was found.
Norm Write % HWM	NWPRCHWM	The normal write percentage high-water mark from the summarized samples.
Norm Write % LWM	NWPRCLWM	The normal write percentage low-water mark from the summarized samples.
Norm Write % Max	NWPRCMAX	The normal write percentage from the snapshot in which the maximum I/Os per second was found.
Norm Write % Min	NWPRCMIN	The normal write percentage from the snapshot in which the minimum I/Os per second was found.
Norm Write Hit% Avg	NWHTPAVG	The sequential write hit percentage average for the summarized snapshots.
Norm Write Hit% HWM	NWHTPHWM	The normal write hit percentage high-water mark from the summarized samples.
Norm Write Hit% LWM	NWHTPLWM	The normal write hit percentage low-water mark from the summarized samples.
Norm Write Hit% Max	NWHTPMAX	The normal write hit percentage from the snapshot in which the maximum I/Os per second was found.

Table 7-54 Field List for the Volume History Report (Part 6 of 9)

Column Heading	Field Name	Description
Norm Write Hit% Min	NWHTPMIN	The normal write hit percentage from the snapshot in which the minimum I/Os per second was found.
Norm Write/sec Avg	NWSECAVG	The normal writes per second average for the summarized snapshots.
Norm Write /sec HWM	NWSECHWM	The normal write operations per second high-water mark from the summarized snapshot samples.
Norm Write /sec LWM	NWSECLWM	The normal write operations per second low-water mark from the summarized snapshot samples.
Norm Write /sec Max	NWSECMAX	The normal writes per second from the snapshot in which the maximum I/Os per second was found.
Norm Write /sec Min	NWSECMIN	The normal writes per second from the snapshot in which the minimum I/Os per second was found.
Pend Time Avg	PENDTAVG	The pending time in milliseconds average for the summarized snapshots.
Pend Time HWM	PENDTHWM	The pending time in milliseconds high-water mark from the summarized samples.
Pend Time LWM	PENDTLWM	The pending time in milliseconds low-water mark from the summarized samples.
Pend Time Max	PENDTMAX	The pending time in milliseconds from the snapshot in which the maximum response time was found.
Pend Time Min	PENDTMIN	The pending time in milliseconds from the snapshot in which the minimum response time was found.
Read Hit% Avg	RHTPAVG	The read hit percentage average for the summarized snapshots.
Read Hit% HWM	RHTPHWM	The read hit percentage high-water mark from the summarized samples.
Read Hit% LWM	RHTPLWM	The read hit percentage low-water mark from the summarized samples.
Read Hit% Max	RHTPMAX	The read hit percentage from the snapshot in which the maximum I/Os per second was found.
Read Hit% Min	RHTPMIN	The read hit percentage from the snapshot in which the minimum I/Os per second was found.
Reads% Avg	RPRCAVG	The read percentage average for the summarized snapshots.
Reads% HWM	RPRCHWM	The read percentage high-water mark from the summarized samples.
Reads% LWM	RPRCLWM	The read percentage low-water mark from the summarized samples.
Read% Max	RPRCMAX	The read percentage from the snapshot in which the maximum I/Os per second was found.
Read% Min	RPRCMIN	The read percentage from the snapshot in which the minimum I/Os per second was found.
Read/sec Avg	RSECAVG	The reads per second average for the summarized snapshots.
Read/sec HWM	RSECHWM	The read operations per second high-water mark from the summarized snapshot samples.

Table 7-54 Field List for the Volume History Report (Part 7 of 9)

Column Heading	Field Name	Description
Read/sec LWM	RSECLWM	The read operations per second low-water mark from the summarized snapshot samples.
Read/sec Max	RSECMAX	The reads per second from the snapshot in which the maximum I/Os per second was found.
Read/sec Min	RSECMIN	The reads per second from the snapshot in which the minimum I/Os per second was found.
Resp Time HWM	RESPHWM	The response time in milliseconds high-water mark from the summarized samples.
Resp Time LWM	RESPTLWM	The response time in milliseconds low-water mark from the summarized samples.
Resp Time Max	RESPTMAX	The maximum response time in milliseconds found in the summarized snapshot samples. All shown maximum values are from the snapshot in which this value is found.
Resp Time Min	RESPTMIN	The minimum response time in milliseconds found in the summarized snapshot samples. All shown minimum values are from the snapshot in which this value is found.
Resp Time Avg	RESPTAVG	The response time in milliseconds average for the summarized snapshots.
Rsrv% Avg	PRSRVAVG	The reserved percentage average for the summarized snapshots.
Rsrv% HWM	PRSRVHWM	The reserved percentage high-water mark from the summarized snapshot samples.
Rsrv% LWM	PRSRVLWM	The reserved percentage low-water mark from the summarized snapshot samples.
Rsrv% Max	PRSRVMAX	The reserved percentage from the snapshot in which the maximum busy percentage was found.
Rsrv% Min	PRSRVMIN	The reserved percentage from the snapshot in which the minimum busy percentage was found.
Samples	SAMPLES	Total number of snapshots in the interval.
Seq Read % Avg	SRPRCAVG	The sequential read percentage average for the summarized snapshots.
Seq Read % HWM	SRPRCHWM	The sequential read percentage high-water mark from the summarized samples.
Seq Read % LWM	SRPRCLWM	The sequential read percentage low-water mark from the summarized samples.
Seq Read % Max	SRPRCMAX	The sequential read percentage from the snapshot in which the maximum I/Os per second was found.
Seq Read % Min	SRSECMIN	The sequential read percentage from the snapshot in which the minimum I/Os per second was found.
Seq Read Hit% Avg	SRHTPAVG	The sequential read hit percentage average for the summarized snapshots.
Seq Read Hit% HWM	SRHTPHWM	The sequential read hit percentage high-water mark from the summarized samples.
Seq Read Hit% LWM	SRHTPLWM	The sequential read hit percentage low-water mark from the summarized samples.

Table 7-54 Field List for the Volume History Report (Part 8 of 9)

Column Heading	Field Name	Description
Seq Read Hit% Max	SRHTPMAX	The sequential read hit percentage from the snapshot in which the maximum I/Os per second was found.
Seq Read Hit% Min	SRHTPMIN	The sequential read hit percentage from the snapshot in which the minimum I/Os per second was found.
Seq Read/sec Avg	SRSECAVG	The sequential reads per second average for the summarized snapshots.
Seq Read/sec HWM	SRSECHWM	The sequential read operations per second high-water mark from the summarized snapshot samples.
Seq Read/sec LWM	SRSECLWM	The sequential read operations per second low-water mark from the summarized snapshot samples.
Seq Read /sec Max	SRSECMAX	The sequential reads per second from the snapshot in which the maximum I/Os per second was found.
Seq Read /sec Min	SRSECMIN	The sequential reads per second from the snapshot in which the minimum I/Os per second was found.
Seq Write % Avg	SWPRCAVG	The sequential write percentage average for the summarized snapshots.
Seq Write % HWM	SWPRCHWM	The sequential write percentage high-water mark from the summarized samples.
Seq Write % LWM	SWPRCLWM	The sequential write percentage low-water mark from the summarized samples.
Seq Write % Max	SWPRCMAX	The sequential write percentage from the snapshot in which the maximum I/Os per second was found.
Seq Write % Min	SWPRCMIN	The sequential write percentage from the snapshot in which the minimum I/Os per second was found.
Seq Write Hit% Avg	SWHTPAVG	The sequential write hit percentage average for the summarized snapshots.
Seq Write Hit% HWM	SWHTPHWM	The sequential write hit percentage high-water mark from the summarized samples.
Seq Write Hit% LWM	SWHTPLWM	The sequential write hit percentage low-water mark from the summarized samples.
Seq Write Hit% Max	SWHTPMAX	The sequential write hit percentage from the snapshot in which the maximum I/Os per second was found.
Seq Write Hit% Min	SWHTPMIN	The sequential write hit percentage from the snapshot in which the minimum I/Os per second was found.
Seq Write/sec Avg	SWSECAVG	The sequential writes per second average for the summarized snapshots.
Seq Write/sec HWM	SWSECHWM	The sequential write operations per second high-water mark from the summarized snapshot samples.
Seq Write/sec LWM	SWSECLWM	The sequential write operations per second low-water mark from the summarized snapshot samples.
Seq Write /sec Max	SWSECMAX	The sequential writes per second from the snapshot in which the maximum I/Os per second was found
Seq Write /sec Min	SWSECMIN	The sequential writes per second from the snapshot in which the minimum I/Os per second was found.

Table 7-54 Field List for the Volume History Report (Part 9 of 9)

Column Heading	Field Name	Description
Time Max	TIMEMAX	The time of the snapshot in which the maximum I/Os per second was found.
Time Min	TIMEMIN	The time of the snapshot in which the minimum I/Os per second was found.
VolSer	VOLSER	Volume serial name.
Write Hit% Avg	WHTPAVG	The write hit percentage average for the summarized snapshots.
Write Hit% HWM	WHTPHWM	The write hit percentage high-water mark from the summarized samples.
Write Hit% LWM	WHTPLWM	The write hit percentage low-water mark from the summarized samples.
Write Hit% Max	WHPCMAX	The write hit percentage from the snapshot in which the maximum I/Os per second was found.
Write Hit% Min	WHTPMIN	The write hit percentage from the snapshot in which the minimum I/Os per second was found.
Write% Avg	WPRCAVG	The write percentage average for the summarized snapshots.
Write% HWM	WPRCHWM	The write percentage high-water mark from the summarized samples.
Write% LWM	WPRCLWM	The write percentage low-water mark from the summarized samples.
Write% Max	WPRCMAX	The write percentage from the snapshot in which the maximum I/Os per second was found.
Write% Min	WPRCMIN	The write percentage from the snapshot in which the minimum I/Os per second was found.
Write/sec Avg	WSECAVG	The writes per second average for the summarized snapshots.
Write/sec HWM	WSECHWM	The write operations per second high-water mark from the summarized snapshot samples.
Write/sec LWM	WSECLWM	The write operations per second low-water mark from the summarized snapshot samples.
Write/sec Max	WSECMAX	The writes per second from the snapshot in which the maximum I/Os per second was found.
Write/sec Min	WSECMIN	The writes per second from the snapshot in which the minimum I/Os per second was found.

Figure 7-42 provides a sample of the Volume History Report.

Table 7-55 Field List for the Volume History Snapshot Report (Part 2 of 3)

Column Heading	Field Name	Description
Dev Type	DEVTYPE	The type of device. This field may contain one of the following 3380 3390 9345 UNKNOWN
DFW %	DFWPERC	The percentage of I/Os that were DASD fast writes.
DFW/sec	DFWIOSEC	The number of DASD fast write operations issued per second.
DFW Act	DFWACT	Device fast write active indicator.
DFW Hit%	DFWHITP	The hit percentage for DASD fast write operations.
Disc Time	DISCTIME	The average disconnect time in milliseconds.
DP Busy Delay	DPBDELAY	The average director port busy delay in milliseconds.
I/Os sec	IOSSEC	The number of I/O operations issued per second.
Intv Strt Date	DATE	The summarization interval starting date.
Intv Strt Time	STIME	The summarization interval starting time.
IOSQ time	IOSQTIME	The average IOS queuing time in milliseconds.
Norm Read %	NRMRPERC	The percentage of I/Os that were normal reads.
Norm Read Hit%	NORMRDHP	The hit percentage for normal read operations.
Norm Read/sec	NRIOSEC	The number of normal read operations issued per second.
Norm Write %	NRMWPERC	The percentage of I/Os that were normal writes.
Norm Write Hit %	NORMWRHP	The hit percentage of I/Os that were normal writes.
Norm Write/sec	NWIOSEC	The number of normal write operations issued per second.
Pend Time	PENDTIME	The average pending time in milliseconds.
Phy Vol Box	PVBOX	The box number of the physical volume this volume is associated with.
Phy Vol Dev	PVDEV	The device number of this volume's associated physical volume.
Phy Vol Dir	PVDIR	The director number of the physical volume this volume is associated with.
Phy Vol Scsi	PVSCSI	The SCSI path number of the physical volume that this volume is associated with.
Read %	READPERC	The percentage of I/O operations that were reads.
Read Hit%	READHITP	The hit percentage of read operations.
Read/sec	READSEC	The number of read operations issued per second.
Resp Time	RESPTIME	The I/O response time reported in milliseconds.
Rsrv %	RTIMEPER	The percentage of time the device was marked as reserved.
Seq Read %	SEQRPERC	The percentage of I/Os that were sequential reads.
Seq Read Hit%	SEQRDHP	The hit percentage of I/Os that were sequential reads.

Table 7-55 Field List for the Volume History Snapshot Report (Part 3 of 3)

Column Heading	Field Name	Description
Seq Read/sec	SRIOSEC	The number of sequential read operations per second.
Seq Write %	SEQWPERC	The percentage of sequential read operations per second.
Seq Write Hit%	SEQWRHP	The hit percentage of I/Os that were sequential writes.
Seq Write/sec	SWIOSEC	The number of write operations issued per second.
Sms Group	SMSGROUP	The SMS storage group that the volume belongs to.
VolSer	VOLSER	The serial number of the volume containing the data set.
Write %	WRTEPERC	The percentage of I/O operations that were writes.
Write Hit%	WRTEHITP	The hit percentage of write operations.
Write/sec	WRTESEC	The number of write operations issued per second.

Figure 7-43 provides a sample of the Volume History Snapshot Report.

Figure 7-43 Volume History Snapshot Report Example

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Produced by MAINVIEW SRM                               Volume Snapshot Report for 07/08/2002 0915                               Page: 1
BMC Software, Inc.                                     Generated:07/15/2002(2002.196)@15:50

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VolSer	Dev	Dev	Busy	I/Os	Resp	IOSQ	Pend	Disc	Conn	Dev	Busy	DP	Busy	CU	Busy	RSRV	SMS	Read	Read	Read	Write	
Type	Num	%	sec	Time	Time	Time	Time	Time	Time	Delay	Delay	Delay	%	Group	/sec	%	Hit%	/sec				
BAB200	3380	8019	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.71	96.3	91.8	0.03	
BAB201	3380	801A	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.73	96.3	93.3	0.03	
BAB306	3390	8053	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		1.47	94.2	98.6	0.09	
BAB307	3390	8054	0.1	0.00	5.9	0.2	0.2	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0		2.02	92.8	95.1	0.16	
BAB308	3390	8055	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.59	95.5	95.7	0.03	
BAB309	3390	8056	0.0	0.01	15.2	1.5	0.1	11.6	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0		2.19	99.5	97.9	0.01	
BAB310	3390	8057	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		2.00	80.5	96.6	0.48	
BAB311	3390	8058	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		6.24	99.4	91.5	0.03	
BAB314	3390	805B	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		2.53	93.8	91.2	0.17	
BAB315	3390	805C	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		4.77	99.7	98.1	0.01	
BAB316	3390	805D	0.1	0.00	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0		3.52	75.1	96.8	1.16	

***** End of Volume Snapshot Report *****

Space Collector Batch Reports

This section describes the space collector reports and provides samples of each. Space collector reports assist you in determining the current use and growth of DASD in your data center. DASD usage can be reported from several different views, including overall summary by time, by storage pools, by RAID volumes, by accounts, and by volumes.

Filters and Option Keywords for Space Reports

Table 7-56 provides a list of filters that control the selection of information to be reported in space collector batch reports.

Table 7-56 Report Filters and Option Keywords for Space Reports (Part 1 of 2)

Entry	Default	Input	Description
DAY	None	None	Indicates that the snapshots are to be summarized on a daily basis. Each row reflects the snapshots recorded for that day. When specifying DAY, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS
END	None	Two operands separated by a comma. First is a date in the format MM/DD/YYYY, followed by a 24-hour time of day value in the format HHMM.	Specifies an ending time for the reports. If the ending time does not exactly match a snapshot time, the report ends at the last snapshot recorded before the ending time. If you specify END, you must specify a START time. This keyword requires NAME and is mutually exclusive with LASTHRS and LASTDAYS.
KILO	1024	1000 or 1024	Indicates the kilobyte definition to be used for reporting.
LASTDAYS	None	Number from 1 to 1365.	Last number of days starting with the current day to be included in the report. LASTDAYS is mutually exclusive with LASTHRS, START, and END, and mutually inclusive with NAME.
LASTHRS	None	Number from 1 to 32767.	Last number of hours starting with the most current snapshot to be included in the report. LASTHRS is mutually exclusive with LASTDAYS, START, and END, and mutually inclusive with NAME.

Table 7-56 Report Filters and Option Keywords for Space Reports (Part 2 of 2)

Entry	Default	Input	Description
MONTH	None	None	Indicates that the snapshots are to be summarized on a monthly basis. Each row reflects the snapshots recorded from the month starting with the first of each month. When specifying MONTH, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS
NAME	None	Name from 1 to 8 characters long.	Name of the pool. This pool name must be defined before any reports can be generated. If NAME is used on the VOLUME report, LASTHRS, LASTDAYS, or START is required.
SCALE	MB	MB, GB, or TB	Indicates the scaling to be used for reporting: MG (megabyte), GB (gigabyte), TB (terabyte).
SNAPSHOT	None	Two operands separated by a comma. First is a date in the format MM/DD/YYYY, followed by a 24-hour time of day value in the format HHMM.	Indicates a specific snapshot for which reporting is required. This keyword is mutually exclusive with DAY, WEEK, MONTH, and NAME.
START	None	Two operands separated by a comma. First is a date in the format MM/DD/YYYY, followed by a 24-hour time of day value in the format HHMM.	Specifies a starting time for the reports. If the starting time does not exactly match a snapshot time, the next snapshot is used as the starting time. If you specify START, you must specify an END time. This keyword requires NAME and is mutually exclusive with LASTHRS and LASTDAYS.
WEEK	None	None	Indicates that the snapshots are to be summarized on a weekly basis, where the week starts on Sunday. Each row reflects the snapshots recorded within that week. When specifying WEEK, one or more of the following keywords must also be specified: <ul style="list-style-type: none"> • START • END • LASTDAYS • LASTHRS

Table 7-57 provides a matrix of keywords available for each report.

Table 7-57 Report Option Keywords and Report Matrix for Space Collector Reports (Part 1 of 2)

Keyword	Pool Usage Reports	Space Summary Reports	Volume Usage Reports
DAY	*	*	*
END	*	*	*
KILO	*	*	*

Table 7-57 Report Option Keywords and Report Matrix for Space Collector Reports (Part 2 of 2)

Keyword	Pool Usage Reports	Space Summary Reports	Volume Usage Reports
LASTDAYS	*	*	*
LASTHRS	*	*	*
MONTH	*	*	*
NAME	*		*
SCALE	*		*
SNAPSHOT	*		*
START	*	*	*
WEEK	*	*	*
Report Page Number	page 7-133	page 7-141	page 7-148

Pool Usage Reports

The POOL report name verb generates reports reflecting DASD utilization by pool. Pools with zero space usage are not reported. Depending on the options, you generate either a Pool Snapshot or Pool Interval report. The Pool Snapshot report shows activity for either all pools for a specific snapshot or a specific pool for one or more snapshots. The Pool Interval report shows DASD utilization on a specific pool summarized on a daily, weekly, or monthly basis. Using the DAY, WEEK, or MONTH keyword switches from Snapshot to Interval reports.

Purpose	report on DASD utilization by pool
Data Source	volume database (SGRDVOL)
Initial Order	time in descending order
Report Name Verb	POOL

To show data only from weekdays, weekends, specific days of the week, specific days of the month, or a portion of a day, use the SHIFT command to define which snapshots to include in the report. This permits you to generate reports only for weekdays, weekends, first shift, and so on.

See Table 7-56 on page 7-131 for a list of the report option keywords available on this report.

Usage Notes

If you do not specify DAY, WEEK, or MONTH, a Pool Snapshot report is generated. The Pool Snapshot report contains a different set of columns than does the Pool Interval report.

Refer to the field list chart for a detailed listing of all columns displayed. There are two separate tables: Table 7-58 presents the field list for the Pool Snapshot report and Table 7-59 presents the field list for the Pool Interval report.

Some of the fields listed are not included automatically in the report. If you wish to include their contents, use the ORDER command.

Low-Water Mark and High-Water Mark fields are indicators and are not reflective of an individual snapshot

Table 7-58 presents a field list for the Pool Snapshot Report.

Table 7-58 Field List for the Pool Snapshot Report (Part 1 of 2)

Column Heading	Field Name	Description
DATE	DATE	Date the snapshot was recorded.
TIME	TIME	Time of day the snapshot was recorded in the 24-hour format.
% FULL	PERCFULL	Percentage full of the pool at the time the snapshot was recorded.
VISUAL	VISUAL	Visual representation of PERCFULL. This column cannot be filtered or sorted on.
TOTAL SPACE	TOTSPACE	Total available space of all volumes in the space collector database.
ALOC SPACE	ALOCSPAC	Total space allocated to data sets. This value includes all PO, PS, VSAM, and other data sets combined.
USED SPACE	USEDSPAC	Total space actually being used. This value is a subset of allocated space (ALOCSPAC) indicating the amount of allocated space actually in use.
FREE SPACE	FREESPAC	Total unallocated space available.
IDLE SPACE	IDLESPAC	Total amount of allocated but unused space. This is a good indicator of the amount of storage that is being wasted through over allocation.
RSVD SPACE	RSVDSPAC	The amount of DASD space reserved. This value is calculated using data set name filters defined to the space collector.
PO SPACE	POSPACE	Total amount of storage allocated to PDSs and PDSEs.

Table 7-58 Field List for the Pool Snapshot Report (Part 2 of 2)

Column Heading	Field Name	Description
PS SPACE	PSSPACE	Total amount of storage allocated to sequential (PS) data sets.
VSAM SPACE	VSAMSPAC	Total amount of storage allocated to VSAM data sets. This includes all forms of VSAM data sets, including both data and index components.
VOL CNT	VOLCNT	Total number of volumes found in the snapshot.
INVT ACTV	IVTOCACT	Total number of volumes with active Indexed VTOCs.
INVT LOST	IVTOCLST	Total number of volumes with Indexed VTOCs that are either lost or inactive.
SMS MNGD	SMSMNGD	Total SMS-managed space.
SMS VOLS	SMSVOLS	Number of SMS-managed volumes.

Figure 7-44 provides a sample of the Pool Snapshot Report.

Figure 7-44 Pool Snapshot Report Example

```

Produced by MAINVIEW SRM                               Pool Snapshot Report                               Page: 1
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POOLNAME POOLTYPE % PERCENT GRAPH TOTAL ALLOC USED FREE IDLE RSVD PO VSAM PS VOL INVT INVT SMS
FULL .....50.....100 SPACE CNT ACTV LOST VOLS
HSMML1 USER 93.1 *****
TSG USER 84.5 *****
CPO USER 82.0 *****
BAB USER 75.6 *****
$TOTAL$ USER 74.6 *****
SYSTEMS USER 72.6 *****
MIS USER 72.5 *****
FAT USER 68.8 *****
HSMDB USER 55.7 *****
BBDUMPS USER 50.6 *****
STORAGE USER 16.4 ***
EMP USER 5.5 *
PUBLIC USER 3.1
***** END OF SPACE POOL REPORT*****
    
```

Figure 7-45 provides a sample of the Pool Snapshot Report for a specific pool.

Figure 7-45 Pool Snapshot Report for a Specific Pool Example

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Pool Snapshot Report for TSG

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Generated:03/31/2003(2003.090)@14:06

DATE	TIME	% FULL	PERCENT GRAPH	TOTAL SPACE	ALLOC SPACE	USED SPACE	FREE SPACE	IDLE SPACE	RSVD SPACE	PO SPACE	VSAM SPACE	PS SPACE	VOL CNT	INVT ACTV	INVT LOST	SMS VOLS
03/17/2003	07:53	84.9	*****	54.9G	46.6G	33.8G	8.3G	12.8G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	11:28	84.9	*****	54.9G	46.6G	33.7G	8.3G	12.9G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	11:58	84.9	*****	54.9G	46.6G	34.4G	8.3G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	12:28	84.9	*****	54.9G	46.6G	34.4G	8.3G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	12:58	84.9	*****	54.9G	46.6G	34.4G	8.3G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	13:28	84.8	*****	54.9G	46.6G	34.4G	8.3G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	13:58	84.8	*****	54.9G	46.6G	34.4G	8.3G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	14:28	84.8	*****	54.9G	46.6G	34.4G	8.3G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	14:58	84.8	*****	54.9G	46.6G	34.4G	8.3G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	15:28	84.9	*****	54.9G	46.6G	34.4G	8.3G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	15:58	84.9	*****	54.9G	46.6G	34.4G	8.3G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	16:28	84.9	*****	54.9G	46.6G	34.4G	8.3G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	16:58	84.9	*****	54.9G	46.6G	34.4G	8.2G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	17:28	84.9	*****	54.9G	46.6G	34.4G	8.2G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	17:58	84.9	*****	54.9G	46.6G	34.4G	8.2G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0
03/17/2003	18:28	84.9	*****	54.9G	46.6G	34.4G	8.2G	12.2G	0	26.6G	9.5G	9.6G	18	18	0	0

***** END OF SPACE POOL REPORT*****

Table 7-59 presents a field list for the Pool Interval Report.

Table 7-59 Field List for the Pool Interval Report (Part 1 of 4)

Column Heading	Field Name	Description
DATE	DATE	Date of the first snapshot in the interval.
DAY	DAY	Three-character day of week indicator. This appears only on the DAY Pool Interval report.
MON	MON	Three-character month abbreviation indicating the month being summarized. This appears only on the MONTH Pool Interval report.
MAX % FULL	MAXFULL	Maximum percentage allocated of the total space found within the interval. MAXFULL is calculated by dividing ALOCMAX by TOTALMAX.
VISUAL	VISUAL	Visual representation of MAXFULL. This field cannot be filtered or sorted on.
SAMPLES	SAMPLES	Total number of snapshots in the interval.
DATE MAX	DATEMAX	Date of the snapshot when the maximum allocated percentage (MAXFULL) was recorded. This field does not appear in the DAY Pool Interval report.
TIME MAX	TIMEMAX	Time of day of the snapshot when the maximum allocated percentage (MAXFULL) was recorded.
TOTAL MAX	TOTALMAX	Total amount of storage available when MAXFULL was recorded.
ALOC MAX	ALOCMAX	Total amount of storage allocated when MAXFULL was recorded.
USED MAX	USEDMAX	Total amount of storage allocated and in use when MAXFULL was recorded.
IDLE MAX	IDLEMAX	Total amount of storage allocated but not currently being used when MAXFULL was recorded.
FREE MAX	FREEMAX	Total amount of free (unallocated) storage when MAXFULL was recorded.

Table 7-59 Field List for the Pool Interval Report (Part 2 of 4)

Column Heading	Field Name	Description
RSVD MAX	RSVDMAX	Total amount of reserved space when MAXFULL was recorded. Reserved space is a function of the space collector, where you indicate which allocated data sets were allocated to reserve the space for later use.
VSAM MAX	VSAMMAX	Total amount of space allocated to VSAM data sets when MAXFULL was recorded.
PO MAX	POMAX	Total amount of space allocated to PDSs or PDSEs when MAXFULL was recorded.
PS MAX	PSMAX	Total amount of space allocated to sequential (PS) data sets when MAXFULL was recorded.
SMS MAX	SMSMAX	Total amount of space under SMS management when MAXFULL was recorded.
DATE MIN	DATEMIN	Date of the snapshot when the minimum allocation was recorded. This field does not appear in the DAY Pool Interval report.
TIME MIN	TIMEMIN	Time of day of the snapshot when the minimum allocation was recorded.
TOTAL MIN	TOTALMIN	Total amount of storage available when the minimum allocation was recorded.
ALOC MIN	ALOCMIN	Total amount of storage allocated when the minimum allocation was recorded. The minimum allocation is calculated by dividing ALLOCMIN by TOTALMIN.
USED MIN	USEDMIN	Total amount of storage allocated and in use when the minimum allocation was recorded.
IDLE MIN	IDLEMIN	Total amount of storage allocated but not currently being used when the minimum allocation was recorded.
FREE MIN	FREEMIN	Total amount of free (unallocated) storage when the minimum allocation was recorded.
RSVD MIN	RSVDMIN	Total amount of reserved space when the minimum allocation was recorded. Reserved space is a function of the space collector, where you indicate which allocated data sets were allocated to reserve the space for later use.
VSAM MIN	VSAMMIN	Total amount of space allocated to VSAM data sets when the minimum allocation was recorded.
PO MIN	POMIN	Total amount of space allocated to PDSs or PDSEs when the minimum allocation was recorded.
PS MIN	PSMIN	Total amount of space allocated to sequential (PS) data sets when the minimum allocation was recorded.
SMS MIN	SMSMIN	Total amount of space under SMS management when the minimum allocation was recorded.
TOTAL AVG	TOTALAVG	Average amount of total storage available in the interval.
ALOC AVG	ALOCAVG	Average amount of allocated storage in the interval.
USED AVG	USEDAVG	Average amount of used storage in the interval.

Table 7-59 Field List for the Pool Interval Report (Part 3 of 4)

Column Heading	Field Name	Description
IDLE AVG	IDLEAVG	Average amount of allocated but unused (idle) storage in the interval.
FREE AVG	FREEAVG	Average amount of free (unallocated) storage in the interval.
RSVD AVG	RSVDAVG	Average amount of reserved space in the interval.
VSAM AVG	VSAMAVG	Average amount of space allocated to VSAM data sets during the interval.
PO AVG	POAVG	Average amount of PDS and PDSE space allocated during the interval.
PS AVG	PSAVG	Average amount of sequential data set space allocated during the interval.
SMS AVG	SMSAVG	Average amount of SMS-managed space during the interval.
TOTAL HWM	TOTALHWM	High-Water Mark of the total available storage during the interval.
ALOC HWM	ALOCHWM	High-Water Mark of the total allocated space during the interval.
USED HWM	USEDHWM	High-Water Mark of the total amount of allocated space that is in use during the interval.
IDLE HWM	IDLEHWM	High-Water Mark of the total amount of allocated space that is not in use during the interval.
FREE HWM	FREEHWM	High-Water Mark of the total amount of free (unallocated) space during the interval.
RSVD HWM	RSVDHWM	High-Water Mark of the total amount of space collector-defined reserved space during the interval.
VSAM HWM	VSAMHWM	High-Water Mark of the total amount of allocated VSAM space during the interval.
PO HWM	POHWM	High-Water Mark of the total amount of allocated PDS and PDSE space during the interval.
PS HWM	PSHWM	High-Water Mark of the total amount of allocated sequential (PS) space during the interval.
SMS HWM	SMSHWM	High-Water Mark of the total amount of SMS-managed space during the interval.
TOTAL LWM	TOTALLWM	Low-Water Mark of the total available storage during the interval.
ALOC LWM	ALOCLWM	Low-Water Mark of the total allocated space during the interval.
USED LWM	USEDLWM	Low-Water Mark of the total amount of allocated space that is in use during the interval.
IDLE LWM	IDLELWM	Low-Water Mark of the total amount of allocated space that is not in use during the interval.

Table 7-59 Field List for the Pool Interval Report (Part 4 of 4)

Column Heading	Field Name	Description
FREE LWM	FREELWM	Low-Water Mark of the total amount of free (unallocated) space during the interval.
RSVD LWM	RSVDLWM	Low-Water Mark of the total amount of space collector-defined reserved space during the interval.
VSAM LWM	VSAMLWM	Low-Water Mark of the total amount of allocated VSAM space during the interval.
PO LWM	POLWM	Low-Water Mark of the total amount of allocated PDS and PDSE space during the interval.
PS LWM	PSLWM	Low-Water Mark of the total amount of allocated sequential (PS) space during the interval.
SMS LWM	SMSLWM	Low-Water Mark of the total amount of SMS-managed space during the interval.

Figure 7-46 provides a sample of the Pool Interval Report by Day Report.

Figure 7-46 Pool Interval Report for a Specific Pool by Day Example

Produced by MAINVIEW SRM Pool Snapshot Report by Day for TSG Page: 1
 BMC Software, Inc. Generated:04/30/2003(2003.090)@14:06

DATE	DAY	MAX %	PERCENT GRAPH	SAMPLES	TIME	TOTAL	ALLOC	USED	IDLE	TOTAL	ALLOC	USED	IDLE	FREE
03/28/2003	MON	84.9	*****	48	12:26	54.9G	46.6G	35.1G	11.4G	54.9G	46.3G	35.0G	11.3G	11.5G 8.3G
03/29/2003	TUE	85.8	*****	48	13:26	54.9G	47.1G	35.4G	11.7G	54.9G	46.9G	35.2G	11.7G	11.7G 7.8G
03/30/2003	WED	86.6	*****	48	21:56	54.9G	47.5G	34.9G	12.7G	54.9G	47.3G	34.9G	12.4G	12.7G 7.3G
03/31/2003	THU	86.9	*****	48	15:26	54.9G	47.7G	34.3G	13.3G	54.9G	47.5G	34.2G	13.3G	13.5G 7.2G
04/01/2003	FRI	86.2	*****	48	08:56	54.9G	47.3G	34.1G	13.2G	54.9G	47.2G	34.1G	13.1G	13.2G 7.5G
04/02/2003	SAT	85.0	*****	42	20:56	54.9G	46.7G	33.9G	12.8G	54.9G	46.7G	33.7G	13.0G	13.0G 8.2G
04/03/2003	SUN	85.1	*****	45	12:40	54.9G	46.7G	33.7G	13.0G	54.9G	46.6G	33.6G	13.0G	13.7G 8.2G
04/04/2003	MON	86.9	*****	48	21:40	54.9G	47.7G	34.0G	13.7G	54.9G	47.0G	33.8G	13.2G	13.7G 7.2G
04/05/2003	TUE	89.0	*****	48	21:40	54.9G	48.8G	35.4G	13.4G	54.8G	48.2G	34.5G	13.7G	13.9G 5.8G
04/06/2003	WED	89.0	*****	48	21:40	54.9G	48.9G	36.2G	12.7G	54.8G	48.7G	35.8G	12.8G	13.4G 6.0G
04/07/2003	THU	88.0	*****	48	12:10	54.9G	48.3G	35.8G	12.5G	54.9G	48.2G	35.7G	12.4G	12.6G 6.6G
04/08/2003	FRI	86.5	*****	48	15:10	54.9G	47.5G	35.3G	12.1G	54.9G	47.1G	35.0G	12.1G	12.2G 7.4G
04/09/2003	SAT	86.4	*****	37	00:40	54.9G	47.5G	35.3G	12.2G	54.9G	47.3G	35.2G	12.1G	12.2G 7.4G
04/10/2003	SUN	86.3	*****	47	21:53	54.9G	47.4G	33.6G	13.7G	54.8G	47.2G	33.5G	13.6G	13.8G 7.0G
04/11/2003	MON	84.9	*****	48	21:53	54.9G	46.6G	33.5G	13.1G	54.9G	46.4G	33.3G	13.1G	13.6G 8.2G
04/12/2003	TUE	85.2	*****	45	14:53	54.9G	46.8G	33.6G	13.2G	54.9G	46.6G	33.5G	13.2G	13.3G 8.1G
04/13/2003	WED	85.9	*****	48	21:57	54.9G	47.1G	34.1G	13.1G	54.9G	46.9G	33.9G	13.1G	13.2G 7.7G
04/14/2003	THU	86.1	*****	48	15:27	54.9G	47.2G	34.2G	13.0G	54.8G	47.1G	34.1G	13.0G	13.1G 7.6G
04/15/2003	FRI	84.9	*****	48	21:27	54.9G	46.6G	33.7G	12.9G	54.8G	46.5G	33.7G	12.9G	12.9G 7.7G
04/16/2003	SAT	84.8	*****	48	22:27	54.9G	46.6G	33.7G	12.9G	54.9G	46.5G	33.6G	12.9G	12.9G 8.3G
04/17/2003	SUN	84.9	*****	28	19:28	54.9G	46.6G	34.4G	12.2G	54.9G	46.6G	34.3G	12.2G	12.9G 8.2G
04/18/2003	MON	84.5	*****	14	06:28	54.9G	46.4G	34.4G	12.0G	54.9G	46.4G	34.5G	11.9G	12.0G 8.5G

***** END OF SPACE POOL REPORT*****

Figure 7-47 provides a sample of the Pool Interval Report By Week Report.

Figure 7-47 Pool Interval Report by Week for a Specific Pool Example

Produced by MAINVIEW SRM Pool Interval Report by Week for TSG Page: 1
 BMC Software, Inc. Generated:04/30/2003(2003.090)@14:06

INTV DATE	STRT	MAX % FULL	PERCENT GRAPH	SAMPLES	DATE	TIME	TOTAL MAX	ALLOC MAX	USED MAX	IDLE MAX	TOTAL AVG	ALLOC AVG	USED AVG	IDLE AVG	IDLE HWM
01/20/2003		82.6	*****	237	01/21/2003	15:05	54.9G	45.3G	32.1G	13.2G	54.9G	45.1G	32.0G	13.1G	13.2G
01/25/2003		86.2	*****	331	01/29/2003	21:45	54.9G	47.3G	34.6G	12.7G	54.8G	45.9G	33.0G	12.8G	13.1G
02/01/2003		85.8	*****	333	02/01/2003	21:56	54.9G	47.1G	35.1G	12.0G	54.8G	45.1G	34.0G	11.2G	12.2G
02/08/2003		88.7	*****	314	02/09/2003	02:58	54.9G	48.7G	36.9G	11.8G	54.8G	43.8G	32.0G	11.8G	12.1G
02/15/2003		82.7	*****	328	02/16/2003	00:59	54.9G	45.4G	34.3G	11.1G	54.8G	43.2G	32.2G	10.9G	11.5G
02/22/2003		81.9	*****	322	02/27/2003	15:27	54.9G	44.9G	32.5G	12.5G	54.9G	43.6G	31.3G	12.3G	12.8G
02/29/2003		81.8	*****	325	02/29/2003	16:41	54.9G	44.9G	32.5G	12.4G	54.9G	42.3G	30.7G	11.7G	12.4G
03/06/2003		83.1	*****	314	03/10/2003	21:35	54.9G	45.6G	32.6G	13.0G	54.8G	44.5G	31.5G	13.0G	13.9G
03/13/2003		83.9	*****	328	03/16/2003	21:46	54.9G	46.1G	33.4G	12.7G	54.8G	45.6G	32.9G	12.7G	13.1G
03/20/2003		84.6	*****	318	03/24/2003	21:39	54.9G	46.4G	34.3G	12.1G	54.8G	45.9G	33.4G	12.5G	13.8G
03/27/2003		86.9	*****	328	03/31/2003	15:26	54.9G	47.7G	34.3G	13.3G	54.9G	46.8G	34.5G	12.3G	13.5G
04/03/2003		89.0	*****	322	04/06/2003	21:40	54.9G	48.9G	36.2G	12.7G	54.9G	47.6G	34.8G	12.8G	13.9G
04/10/2003		86.3	*****	332	04/10/2003	21:53	54.9G	47.4G	33.6G	13.7G	54.8G	46.8G	33.7G	13.1G	13.8G
04/17/2003		84.9	*****	42	04/17/2003	19:28	54.9G	46.6G	34.4G	12.2G	54.9G	46.5G	34.4G	12.1G	12.9G

***** END OF SPACE POOL REPORT*****

The following example shows how to select and display DASD utilization information for a pool during a specified period of time. The default report format is used.

```
POOL,
NAME ( WORK ) ,
START ( 03/09/2003 , 1200 ) ,
END ( 03/09/2003 , 1300 )
```

Figure 7-47 provides a sample of the customized report.

Figure 7-48 Customized Pool Snapshot Report Example

Produced by MAINVIEW SRM Pool Snapshot Report for WORK Page: 1
 BMC Software, Inc. Generated:03/31/2003(2003.090)@14:06

DATE	TIME	% FULL	PERCENT GRAPH	TOTAL SPACE	ALLOC SPACE	USED SPACE	FREE SPACE	IDLE SPACE	RSVD SPACE	PO SPACE	VSAM SPACE	PS SPACE	VOL CNT	INVT ACTV	INVT LOST	SMS VOL
03/09/2003	12:04	69.0	*****													
03/09/2003	12:14	69.0	*****													
03/09/2003	12:24	69.0	*****													
03/09/2003	12:34	69.0	*****													
03/09/2003	12:44	69.0	*****													
03/09/2003	12:54	69.0	*****													

***** END OF SPACE POOL REPORT*****

In this example:

- NAME report option keyword requests information for the pool WORK.
- START report option keyword requests information starting at 1200 hours on March 9, 2003.
- END report option keyword requests information ending at 1300 hours on March 9, 2003.

Space Summary Reports

The SUMMARY report name verb generates reports reflecting DASD utilization for all volumes recorded in the space collector database. Depending on the options, the Space Summary report shows DASD utilization for all volumes for specific snapshots or summarized on a daily, weekly, or monthly basis. There are two kinds of reports: the Snapshot report and the Interval report. Using the DAY, WEEK, or MONTH keyword switches from Snapshot to Interval reports. You must use the corresponding field table for each report.

Purpose	report on DASD utilization of all volumes recorded in the space collector database
Data Source	volume database (SGRDVOL)
Initial Order	time in descending order
Report Name Verb	SUMMARY

To show data only from weekdays, weekends, specific days of the week, specific days of the month, or a portion of a day, use the SHIFT command to define which snapshots to include in the report. This permits you to generate reports only for weekdays, weekends, first shift, and so on.

See Table 7-56 on page 7-131 for a list of the report option keywords available on this report.

Usage Notes

If you do not specify DAY, WEEK, or MONTH, a Snapshot report is generated. The Snapshot report contains a different set of columns than does the Interval report.

Some of the fields listed are not included automatically in the report. To include their contents, use the ORDER command.

Low-Water Mark and High-Water Mark fields are indicators and are not reflective of an individual snapshot.

Table 7-60 presents a field list for the Space Snapshot Report.

Table 7-60 Field List for the Space Snapshot Report (Part 1 of 2)

Column Heading	Field Name	Description
DATE	DATE	Date the snapshot was recorded.
TIME	TIME	Time of day the snapshot was recorded in the 24-hour format.

Table 7-60 Field List for the Space Snapshot Report (Part 2 of 2)

Column Heading	Field Name	Description
% FULL	PERCFULL	Percentage full of all space available from all of the volumes recorded in the space collector database.
VISUAL	VISUAL	Visual representation of PERCFULL. This column cannot contain filters or be sorted on.
TOTAL SPACE	TOTSPACE	Total available space of all volumes in the space collector database.
ALOC SPACE	ALOCSPAC	Total space allocated to data sets. This value includes all PS, PS, VSAM, and other data sets combined.
USED SPACE	USEDSPAC	Total space actually being used. This value is a subset of allocated space (ALOCSPAC) indicating the amount of allocated space actually in use.
FREE SPACE	FREESPAC	Total unallocated space available.
IDLE SPACE	IDLESPAC	Total amount of allocated but unused space. This is a good indicator of the amount of storage that is being wasted through over allocation.
RSVD SPACE	RSVDSPAC	Amount of DASD space reserved. This value is calculated using data set name filters defined to the space collector.
PO SPACE	POSPACE	Total amount of storage allocated to PDSs and PDSEs.
PS SPACE	PSSPACE	Total amount of storage allocated to sequential (PS) data sets.
VSAM SPACE	VSAMSPAC	Total amount of storage allocated to VSAM data sets. This includes all forms of VSAM data sets, including both data and index components.
VOL CNT	VOLCNT	Total number of volumes found in the snapshot.
INVT ACTV	IVTOCACT	Total number of volumes with active Indexed VTOCs.
INVT LOST	IVTOCLST	Total number of volumes with Indexed VTOCs that are either lost or inactive.
SMS MNGD	SMSMNGD	Total SMS-managed space.
SMS VOLS	SMSVOLS	Number of SMS-managed volumes.

Figure 7-49 provides a sample of the Space Snapshot Report.

Figure 7-49 Space Snapshot Report Example

```

Produced by MAINVIEW SRM                               SPACE SNAPSHOT REPORT                               Page: 4
BMC Software, Inc.                                     Generated:02/19/2003(2003.324) @ 8:23

DATE          TIME          %          PERCENT GRAPH          TOTAL  ALLOC  USED  FREE  IDLE  RSVD  PO  VSAM  PS  VOL  INVT  INVT  SMS
FULL          .....50.....100  SPACE  CNT  ACTV  LOST  MNGD
04/10/2003  23:53  76.3  *****
295.3G  225.5G  181.4G  69.8G  44.1G  0  124.9G  36.1G  57.4G  113  78  4  2
04/10/2003  23:23  77.3  *****
288.7G  223.2G  179.4G  65.5G  43.8G  0  124.6G  34.3G  57.1G  110  75  4  2
04/10/2003  22:53  77.0  *****
295.3G  227.4G  183.2G  67.9G  44.3G  0  125.9G  36.7G  57.7G  113  78  4  2
04/10/2003  22:23  77.6  *****
295.3G  229.4G  184.8G  65.9G  44.6G  0  127.1G  37.5G  57.6G  113  78  4  2
04/10/2003  21:53  77.9  *****
295.3G  230.1G  185.3G  65.2G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  21:23  77.9  *****
295.3G  230.1G  185.3G  65.2G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  20:53  77.9  *****
295.3G  230.1G  185.3G  65.3G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  20:23  78.2  *****
286.8G  224.3G  180.2G  62.5G  44.1G  0  125.6G  37.1G  55.3G  112  77  4  2
04/10/2003  19:53  77.8  *****
292.5G  227.7G  182.9G  64.8G  44.8G  0  126.3G  36.7G  57.5G  112  77  4  2
04/10/2003  19:23  77.8  *****
295.3G  230.0G  185.3G  65.3G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  18:53  77.8  *****
295.3G  230.0G  185.2G  65.3G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  18:23  77.8  *****
295.3G  230.0G  185.2G  65.3G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  17:53  77.8  *****
295.3G  230.0G  185.2G  65.3G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  17:23  77.8  *****
295.3G  230.0G  185.2G  65.3G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  16:53  77.9  *****
295.3G  230.2G  185.4G  65.1G  44.8G  0  127.7G  37.5G  57.8G  113  78  4  2
04/10/2003  16:23  77.9  *****
295.3G  230.1G  185.3G  65.2G  44.8G  0  127.7G  37.5G  57.8G  113  78  4  2
04/10/2003  15:53  77.9  *****
295.3G  230.1G  185.3G  65.2G  44.8G  0  127.7G  37.5G  57.7G  113  78  4  2
04/10/2003  15:23  77.8  *****
295.3G  229.9G  185.1G  65.4G  44.8G  0  127.7G  37.5G  57.7G  113  78  4  2
04/10/2003  14:53  77.8  *****
295.3G  229.9G  185.1G  65.4G  44.8G  0  127.7G  37.5G  57.7G  113  78  4  2
04/10/2003  14:23  77.8  *****
295.3G  229.9G  185.1G  65.4G  44.8G  0  127.7G  37.5G  57.7G  113  78  4  2
04/10/2003  13:53  77.8  *****
295.3G  229.9G  185.1G  65.4G  44.8G  0  127.7G  37.5G  57.7G  113  78  4  2
04/10/2003  13:23  77.8  *****
295.3G  229.9G  185.1G  65.4G  44.8G  0  127.7G  37.5G  57.7G  113  78  4  2
04/10/2003  12:53  77.8  *****
295.3G  229.8G  185.0G  65.6G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  12:23  77.8  *****
295.3G  229.8G  185.0G  65.5G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  11:53  77.8  *****
295.3G  229.8G  185.0G  65.5G  44.8G  0  127.7G  37.5G  57.6G  113  78  4  2
04/10/2003  11:23  77.8  *****
295.3G  229.9G  185.1G  65.4G  44.8G  0  127.7G  37.5G  57.7G  113  78  4  2
04/10/2003  10:53  77.8  *****
295.3G  229.9G  185.1G  65.4G  44.8G  0  127.7G  37.5G  57.7G  113  78  4  2
***** END OF SPACE SUMMARY REPORT *****
    
```

The following example shows how to select and display DASD utilization information for the last 7 days. The information is summarized by day.

```

SUMMARY,
LASTDAYS ( 7 ) ,
DAY
    
```

Figure 7-50 provides a sample of the customized report.

Figure 7-50 Customized Space Snapshot Report

```

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DATE          DAY  MAX  %          PERCENT GRAPH          SAMPLES  TIME  TOTAL  ALLOC  USED  IDLE  TOTAL  ALLOC  USED  IDLE  IDLE  FREE
FULL          .....50.....100  MAX     MAX     MAX     MAX     MAX     AVG     AVG     AVG     AVG     HWM     LWM
03/10/2003  TUE  61.1  *****
03/11/2003  WED  73.1  *****
03/12/2003  THU  73.1  *****
03/13/2003  FRI  73.1  *****
03/14/2003  SAT  73.1  *****
03/15/2003  SUN  73.1  *****
03/16/2003  MON  73.3  *****
03/17/2003  TUE  73.3  *****
***** END OF SPACE SNAPSHOT REPORT *****
    
```

In this example:

- LASTDAYS report option keyword requests information for the last 7 days.
- DAY report option keyword summarizes the information by day.

Table 7-61 presents a field list for the Space Interval Report.

Table 7-61 Field List for the Space Interval Report (Part 1 of 3)

Column Heading	Field Name	Description
DATE	DATE	Date of the first snapshot in the interval.
DAY	DAY	Three-character day of week indicator. This appears only on the DAY Interval report.
MON	MON	Three-character month abbreviation indicating the month being summarized. This appears only on the MONTH Interval report.
MAX % FULL	MAXFULL	Maximum percentage allocated of the total space found within the interval. MAXFULL is calculated by dividing ALOCMAX by TOTALMAX.
VISUAL	VISUAL	Visual representation of MAXFULL. This field cannot be filtered or sorted on.
SAMPLES	SAMPLES	Total number of snapshots in the interval.
DATE MAX	DATEMAX	Date of the snapshot when the maximum allocated percentage (MAXFULL) was recorded. This field does not appear in the DAY Interval report.
TIME MAX	TIMEMAX	Time of day of the snapshot when the maximum allocated percentage (MAXFULL) was recorded.
TOTAL MAX	TOTALMAX	Total amount of storage available when MAXFULL was recorded.
ALOC MAX	ALOCMAX	Total amount of storage allocated when MAXFULL was recorded.
USED MAX	USEDMAX	Total amount of storage allocated and in use when MAXFULL was recorded.
IDLE MAX	IDLEMAX	Total amount of storage allocated but not currently being used when MAXFULL was recorded.
FREE MAX	FREEMAX	Total amount of free (unallocated) storage when MAXFULL was recorded.
RSVD MAX	RSVDMAX	Total amount of reserved space when MAXFULL was recorded. Reserved space is a function of the space collector, where you indicate which allocated data sets were allocated to reserve the space for later use.
VSAM MAX	VSAMMAX	Total amount of space allocated to VSAM data sets when MAXFULL was recorded.
PO MAX	POMAX	Total amount of space allocated to PDSs or PDSEs when MAXFULL was recorded.
PS MAX	PSMAX	Total amount of space allocated to sequential (PS) data sets when MAXFULL was recorded.
SMS MAX	SMSMAX	Total amount of space under SMS management when MAXFULL was recorded.
DATE MIN	DATEMIN	Date of the snapshot when the minimum allocation was recorded. This field does not appear in the DAY Interval report.
TIME MIN	TIMEMIN	Time of day of the snapshot when the minimum allocation was recorded.
TOTAL MIN	TOTALMIN	Total amount of storage available when the minimum allocation was recorded.

Table 7-61 Field List for the Space Interval Report (Part 2 of 3)

Column Heading	Field Name	Description
ALOC MIN	ALOCMIN	Total amount of storage allocated when the minimum allocation was recorded. The minimum allocation is calculated by dividing ALOCMIN by TOTALMIN.
USED MIN	USEDMIN	Total amount of storage allocated and in use when the minimum allocation was recorded.
IDLE MIN	IDLEMIN	Total amount of storage allocated but not currently being used when the minimum allocation was recorded.
FREE MIN	FREEMIN	Total amount of free (unallocated) storage when the minimum allocation was recorded.
RSVD MIN	RSVDMIN	Total amount of reserved space when the minimum allocation was recorded. Reserved space is a function of the space collector, where you indicate which allocated data sets were allocated to reserve the space for later use.
VSAM MIN	VSAMMIN	Total amount of space allocated to VSAM data sets when the minimum allocation was recorded.
PO MIN	POMIN	Total amount of space allocated to PDSs or PDSEs when the minimum allocation was recorded.
PS MIN	PSMIN	Total amount of space allocated to sequential (PS) data sets when the minimum allocation was recorded.
SMS MIN	SMSMIN	Total amount of space under SMS management when the minimum allocation was recorded.
TOTAL AVG	TOTALAVG	Average amount of total storage available in the interval.
ALOC AVG	ALOCAVG	Average amount of allocated storage in the interval.
USED AVG	USED AVG	Average amount of used storage in the interval.
IDLE AVG	IDLEAVG	Average amount of allocated but unused (idle) storage in the interval.
FREE AVG	FREEAVG	Average amount of free (unallocated) storage in the interval.
RSVD AVG	RSVDAVG	Average amount of reserved space in the interval.
VSAM AVG	VSAMAVG	Average amount of space allocated to VSAM data sets during the interval.
PO AVG	POAVG	Average amount of PDS and PDSE space allocated during the interval.
PS AVG	PSAVG	Average amount of sequential data set space allocated during the interval.
SMS AVG	SMSAVG	Average amount of SMS-managed space during the interval.
TOTAL HWM	TOTALHWM	High-Water Mark of the total available storage during the interval.

Table 7-61 Field List for the Space Interval Report (Part 3 of 3)

Column Heading	Field Name	Description
ALOC HWM	ALOCHWM	High-Water Mark of the total allocated space during the interval.
USED HWM	USEDHWM	High-Water Mark of the total amount of allocated space that is in use during the interval.
IDLE HWM	IDLEHWM	High-Water Mark of the total amount of allocated space that is not in use during the interval.
FREE HWM	FREEHWM	High-Water Mark of the total amount of free (unallocated) space during the interval.
RSVD HWM	RSVDHWM	High-Water Mark of the total amount of user-defined reserved space during the interval.
VSAM HWM	VSAMHWM	High-Water Mark of the total amount of allocated VSAM space during the interval.
PO HWM	POHWM	High-Water Mark of the total amount of allocated PDS and PDSE space during the interval.
PS HWM	PSHWM	High-Water Mark of the total amount of allocated sequential (PS) space during the interval.
SMS HWM	SMSHWM	High-Water Mark of the total amount of SMS-managed space during the interval.
TOTAL LWM	TOTALLWM	Low-Water Mark of the total available storage during the interval.
ALOC LWM	ALOCLWM	Low-Water Mark of the total allocated space during the interval.
USED LWM	USEDLWM	Low-Water Mark of the total amount of allocated space that is in use during the interval.
IDLE LWM	IDLELWM	Low-Water Mark of the total amount of allocated space that is not in use during the interval.
FREE LWM	FREELWM	Low-Water Mark of the total amount of free (unallocated) space during the interval.
RSVD LWM	RSVDLWM	Low-Water Mark of the total amount of space collector-defined reserved space during the interval.
VSAM LWM	VSAMLWM	Low-Water Mark of the total amount of allocated VSAM space during the interval.
PO LWM	POLWM	Low-Water Mark of the total amount of allocated PDS and PDSE space during the interval.
PS LWM	PSLWM	Low-Water Mark of the total amount of allocated sequential (PS) space during the interval.
SMS LWM	SMSLWM	Low-Water Mark of the total amount of SMS-managed space during the interval.

Figure 7-51 provides a sample of the Space Interval Report by Day Report.

Figure 7-51 Space Interval Report by Day Example

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SPACE INTERVAL REPORT BY DAY

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Generated:02/19/2003(2003.324) @ 8:22

DATE	DAY	MAX %	PERCENT GRAPH	SAMPLES	TIME	TOTAL	ALLOC	USED	IDLE	TOTAL	ALLOC	USED	IDLE	FREE
		FULL50.....100		MAX	MAX	MAX	MAX	MAX	AVG	AVG	AVG	AVG	HWM
03/28/2003	MON	77.2	*****	48	21:56	298.2G	230.4G	188.7G	41.7G	298.2G	227.2G	185.7G	41.5G	41.8G
03/29/2003	TUE	77.5	*****	48	21:56	298.2G	231.2G	188.5G	42.6G	297.6G	227.7G	185.7G	41.9G	42.6G
03/30/2003	WED	78.5	*****	48	21:56	298.2G	234.1G	189.5G	44.6G	298.2G	231.2G	187.6G	43.6G	44.6G
03/31/2003	THU	76.7	*****	48	19:56	352.7G	270.7G	222.9G	47.8G	337.5G	258.9G	211.9G	46.9G	48.0G
04/01/2003	FRI	76.3	*****	48	10:56	352.7G	269.4G	221.5G	47.9G	352.7G	268.2G	220.9G	47.3G	47.9G
04/02/2003	SAT	74.8	*****	42	19:26	352.7G	264.0G	217.3G	46.8G	352.4G	263.7G	217.0G	46.7G	46.8G
04/03/2003	SUN	70.7	*****	45	01:40	418.7G	296.4G	245.3G	51.0G	302.4G	229.9G	186.2G	43.7G	51.0G
04/04/2003	MON	78.9	*****	48	21:40	298.2G	235.3G	190.9G	44.4G	298.2G	230.1G	186.5G	43.7G	44.6G
04/05/2003	TUE	79.9	*****	48	20:40	298.2G	238.5G	189.9G	48.6G	297.7G	233.5G	186.7G	46.8G	49.1G
04/06/2003	WED	79.0	*****	48	11:40	301.0G	238.0G	188.2G	49.8G	300.1G	235.4G	188.1G	47.2G	49.8G
04/07/2003	THU	77.8	*****	48	23:10	329.4G	256.3G	207.3G	49.0G	308.3G	242.7G	194.9G	47.8G	49.1G
04/01/2003	FRI	76.3	*****	48	09:10	340.7G	260.0G	210.9G	49.1G	326.5G	250.8G	202.8G	48.0G	49.1G
04/09/2003	SAT	76.3	*****	37	00:10	312.3G	238.6G	192.1G	46.5G	299.4G	234.3G	188.6G	45.7G	46.7G
04/10/2003	SUN	72.1	*****	47	00:53	418.7G	302.2G	247.5G	54.8G	300.0G	233.0G	187.4G	45.6G	54.8G
04/11/2003	MON	74.2	*****	48	18:23	306.7G	227.8G	182.1G	45.7G	299.7G	223.1G	178.9G	44.2G	45.9G
04/12/2003	TUE	68.9	*****	45	23:27	415.9G	286.7G	236.1G	50.6G	321.2G	234.4G	189.7G	44.6G	50.6G
04/13/2003	WED	68.8	*****	48	00:27	415.9G	286.4G	236.1G	50.3G	300.2G	224.1G	180.9G	43.2G	50.3G
04/14/2003	THU	74.3	*****	48	22:57	345.4G	256.8G	209.0G	47.8G	301.2G	231.6G	186.9G	44.6G	48.0G
04/15/2003	FRI	73.9	*****	48	14:27	418.7G	309.7G	256.4G	53.3G	313.0G	241.9G	195.5G	46.3G	53.3G
04/16/2003	SAT	78.2	*****	48	18:57	301.0G	235.7G	189.5G	46.2G	300.7G	235.1G	188.9G	46.2G	46.3G
04/17/2003	SUN	72.6	*****	28	07:53	418.7G	304.2G	251.0G	53.2G	309.2G	237.0G	192.7G	44.3G	53.2G
04/18/2003	MON	74.9	*****	14	05:58	301.0G	225.7G	183.0G	42.7G	300.4G	224.3G	181.8G	42.5G	42.7G
***** END OF SPACE INTERVAL REPORT*****														

Figure 7-52 provides a sample of the Space Interval Report by Week Report.

Figure 7-52 Space Interval Report by Week Example

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SPACE INTERVAL REPORT BY WEEK

Page: 3
Generated:04/19/2003(2003.324) @ 8:23

INTV	STRT	MAX %	PERCENT GRAPH	SAMPLES	DATE	TIME	TOTAL	ALLOC	USED	IDLE	TOTAL	ALLOC	USED	IDLE
DATE	FULL50.....100			MAX	MAX	MAX	MAX	MAX	MAX	AVG	AVG	AVG	AVG
01/20/2003	71.5	*****	237	01/21/2003	16:27	418.7G	299.6G	255.1G	44.5G	318.1G	218.9G	176.8G	42.1G	45.2G
01/25/2003	66.7	*****	331	01/25/2003	15:45	418.7G	279.5G	233.9G	45.6G	346.4G	250.8G	206.4G	44.4G	47.6G
02/01/2003	70.3	*****	333	02/01/2003	01:28	418.7G	294.6G	247.3G	47.3G	291.8G	212.8G	173.9G	38.9G	47.3G
02/08/2003	69.9	*****	314	02/11/2003	15:58	418.7G	293.1G	248.3G	44.8G	298.2G	216.5G	176.0G	40.5G	44.8G
02/15/2003	69.7	*****	328	02/15/2003	02:59	418.7G	292.1G	247.4G	44.7G	309.0G	224.9G	184.5G	40.4G	45.9G
02/22/2003	69.4	*****	322	02/28/2003	22:29	418.7G	290.6G	243.2G	47.5G	303.7G	219.2G	176.2G	43.0G	47.5G
02/29/2003	69.2	*****	325	03/05/2003	02:11	418.7G	290.0G	242.9G	47.2G	330.4G	248.5G	205.7G	42.8G	47.3G
03/06/2003	68.8	*****	314	03/06/2003	08:21	418.7G	288.4G	239.5G	49.0G	297.2G	227.1G	180.8G	46.3G	50.2G
03/13/2003	68.1	*****	328	03/15/2003	10:46	418.7G	285.4G	235.7G	49.7G	299.3G	225.4G	181.6G	43.9G	49.7G
03/20/2003	70.2	*****	318	03/26/2003	21:36	418.7G	294.4G	243.7G	50.7G	317.6G	233.7G	187.9G	45.9G	50.7G
03/27/2003	69.6	*****	328	03/27/2003	01:26	415.9G	289.9G	240.5G	49.4G	319.1G	243.1G	198.9G	44.2G	49.4G
04/03/2003	70.7	*****	322	04/03/2003	01:40	418.7G	296.4G	245.3G	51.0G	304.9G	236.8G	190.7G	46.2G	51.0G
04/10/2003	73.9	*****	332	04/15/2003	14:27	418.7G	309.7G	256.4G	53.3G	305.0G	231.8G	186.9G	45.0G	54.8G
04/17/2003	72.6	*****	42	04/17/2003	07:53	418.7G	304.2G	251.0G	53.2G	306.3G	232.8G	189.1G	43.7G	53.2G
***** END OF SPACE INTERVAL REPORT*****														

Volume Usage Reports

The VOLUME report name verb generates reports reflecting DASD utilization by volume. All volumes are reported on that have data recorded in the snapshots selected. Three different types of reports can be generated using the Volume report name verb:

- The **Volume Snapshot report** details volume usage for all volumes for a specific snapshot.
- The **Volume Snapshot report for a specific volume** lists volume space usage for a specific volume for one or more snapshots.
- The **Volume Interval report** lists volume space usage for a specific volume averaging the snapshot information on a daily, weekly, or monthly basis. Using the DAY, WEEK, or MONTH keyword switches from Snapshot to Interval reports.

Purpose	reports on DASD utilization by volume
Data Source	volume database (SGRDVOL)
Initial Order	time in descending order
Report Name Verb	VOLUME

See Table 7-56 on page 7-131 for a list of the report option keywords available on this report. If the NAME option keyword is used on the VOLUME report, LASTHRS, LASTDAYS, or START is required.

Usage Notes

To show data only from weekdays, weekends, specific days of the week, specific days of the month, or a portion of a day, use the SHIFT command to define which snapshots to include in the report. This permits you to generate reports only for weekdays, weekends, first shift, and so on.

If you do not specify DAY, WEEK, or MONTH, a Volume Snapshot report is generated. The Volume Snapshot report contains a different set of columns than does the Volume Interval report.

Refer to the field list chart for a detailed listing of all columns displayed. There are two separate tables: one for the Volume Snapshot report and another for the Volume Interval report.

Some of the fields listed are not included automatically in the report. If you wish to include their contents, use the ORDER command.

Low-Water Mark and High-Water Mark fields are indicators and are not reflective of an individual snapshot.

Table 7-62 presents a field list for the Volume Snapshot Report.

Table 7-62 Field List for the Volume Snapshot Report (Part 1 of 2)

Column Heading	Field Name	Description
DATE	DATE	Date the snapshot was recorded.
TIME	TIME	Time of day the snapshot was recorded in the 24-hour format.
VOLNAME	VOLNAME	Volume serial name.
POOL NAME	POOLNAME	Name of the first pool encountered that the volume belongs to.
POOL TYPE	POOLTYPE	Type of pool that POOLNAME is.
DEV ADR	DEVADDR	Hexadecimal Device address (UCB).
DEV TYPE	DEVTYPE	Type of disk device.
% FULL	PERCFULL	Percentage full of the volume at the time the snapshot was recorded.
VISUAL	VISUAL	A visual representation of PERCFULL. This column cannot be filtered or sorted on.
TOTAL SPACE	TOTSPACE	Total available space of all volumes in the space collector database.
ALOC SPACE	ALOCSPAC	Total space allocated to data sets. This value includes all PO, PS, VSAM, and other data sets combined.
USED SPACE	USEDSPAC	Total space actually being used. This value is a subset of allocated space (ALOCSPAC) indicating the amount of allocated space actually in use.
FREE SPACE	FREESPAC	Total unallocated space available.
IDLE SPACE	IDLESPAC	Total amount of allocated but unused space. This is a good indicator of the amount of storage that is being wasted through over allocation.
RSVD SPACE	RSVDSPAC	The amount of DASD space reserved. This value is calculated using data set name filters defined to the space collector.
PO SPACE	POSPACE	Total amount of storage allocated to PDSs and PDSEs.
PS SPACE	PSSPACE	Total amount of storage allocated to sequential (PS) data sets.
VSAM SPACE	VSAMSPAC	Total amount of storage allocated to VSAM data sets. This includes all forms of VSAM data sets, including both data and index components.
INDX VTOC	INDXVTOC	Indexed VTOC indicator. A indicates that the volume has a defined active VTOC index. I indicates that the volume has a defined indexed VTOC but it is inactive. N indicates that there is no defined indexed VTOC for the volume.

Table 7-62 Field List for the Volume Snapshot Report (Part 2 of 2)

Column Heading	Field Name	Description
SMS INDC	SMSINDC	SMS indicator. N indicates that the volume is not SMS-managed. I indicates that the volume is in SMS Initial status. Y indicates that the volume is SMS-managed. When a pack is SMS-managed and a construct has not been defined for it, the SMS indicator is YES and the SMS status is NO STAT (no status).
MNT	MNT	Mount indicator. PRV indicates that the volume was mounted as a private volume. STG indicates a storage volume. PUB indicates a publicly mounted volume.
TCAC	TCAC	Track-level caching. A indicates that track-level caching was active for the volume at the time the snapshot was recorded. I = inactive.
DCOP	DCOP	Dual copy. A indicates that dual copy was active for the volume. I = inactive.
CFW	CFW	Cache Fast Write. A indicates that the Cache Fast Write facility was active for the volume. I = inactive.
FSW	FSW	Fast Write. A indicates that the Fast Write facility was active for this volume. I = inactive.
FREE DSCB	FREEDSCB	Number of free DSCBs (format 0) that is available in the VTOC.
FREE VIRS	FREEVIRS	Number of free VIRs that is available.
FRAG INDEX	FRAGINDX	Fragmentation Index for the volume.

Figure 7-53 provides a sample of the Volume Snapshot Report.

Figure 7-53 Volume Snapshot Report

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Produced by MAINVIEW SRM                               VOLUME SNAPSHOT REPORT                               Page: 15
BMC Software, Inc.                                     Generated:02/19/2003(2003.324) @ 8:23

VOLNAME VOLTYPE POOL POOL DEV DEV % PERCENT GRAPH ALLOC USED FREE IDLE PO VSAM PS
NAME TYPE ADR TYPE FULL .....50.....100 SPACE SPACE SPACE SPACE SPACE SPACE SPACE
SPLB22 USER SYSTEMS USER 0222 USER 99.9 ***** 1.9G 1.9G 47476 0 0 0 1.9G
PAGB23 USER SYSTEMS USER 0223 USER 99.9 ***** 1.9G 1.9G 284856 0 0 1.9G 0
SYM025 USER SYSTEMS USER 0239 USER 99.9 ***** 630.2M 616.0M 47476 14.2M 0 0 28.5M
TAO301 USER SYSTEMS USER 0235 USER 99.9 ***** 630.2M 630.2M 47476 0 0 712140 427.9M
TAO302 USER SYSTEMS USER 0238 USER 99.9 ***** 630.2M 630.2M 47476 0 0 0 427.9M
TAO303 USER SYSTEMS USER 023A USER 99.9 ***** 630.2M 628.8M 47476 1.4M 63.4M 0 427.9M
CPO303 USER CFO USER 0313 USER 99.8 ***** 2.8G 2.4G 5.3M 453.1M 1.6G 1.3G 169992
TSG313 USER TSG USER 0D2C USER 99.8 ***** 2.8G 1.8G 5.3M 1.0G 344.1M 454.0M 2.0G
OS120M USER SYSTEMS USER 02AB USER 99.7 ***** 2.8G 1.9G 7.8M 895.1M 2.8G 849960 8.8M
SYM047 USER SYSTEMS USER 024F USER 99.6 ***** 83.0M 59.6M 332332 23.4M 80.4M 474760 0
TSG318 USER TSG USER 0D22 USER 99.8 ***** 2.8G 2.5G 32.2M 326.4M 946.3M 1.6G 274.7M
ES522P USER SYSTEMS USER 030E USER 98.6 ***** 2.8G 1.8G 39.2M 1.0G 2.8G 566640 16.5M
SVC001 USER SYSTEMS USER 02B3 USER 98.3 ***** 2.8G 2.8G 48.2M 0 0 849960 2.8G
SP522P USER SYSTEMS USER 0D23 USER 97.9 ***** 2.8G 1.8G 57.2M 972.5M 2.8G 0 17.3M
ES520P USER SYSTEMS USER 0D39 USER 97.2 ***** 2.8G 1.8G 76.7M 964.3M 2.7G 45.4M 22.4M
OS12GC USER SYSTEMS USER 0230 USER 96.2 ***** 1.8G 1.5G 71.8M 349.9M 918.4M 358.4M 537.0M
***** END OF SPACE VOL REPORT*****
    
```

Figure 7-54 provides a sample of the Volume Snapshot Report for a specific volume.

Figure 7-54 Volume Snapshot Report for a Specific Volume

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VOLUME SNAPSHOT REPORT FOR BAB326

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DATE	TIME	POOL NAME	DEV ADDR	DEV TYPE	% FULL	PERCENT GRAPH	ALLOC SPACE	USED SPACE	FREE SPACE	IDLE SPACE	PO SPACE	VSAM SPACE	PS SPACE	INDX VTOC	SMS INDC
04/16/2003	07:27	SYSTEMS	OD36	USER	96.6	*****50*****	2.7G	2.3G	95.0M	452.6M	2.2G	123.6M	197.8M	A	N
04/16/2003	07:57	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.6M	2.2G	123.6M	197.8M	A	N
04/16/2003	08:27	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	451.7M	2.2G	123.6M	197.8M	A	N
04/16/2003	08:57	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.3M	2.2G	123.6M	197.8M	A	N
04/16/2003	09:27	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.3M	2.2G	123.6M	197.8M	A	N
04/16/2003	09:57	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.3M	2.2G	123.6M	197.8M	A	N
04/16/2003	10:27	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.3M	2.2G	123.6M	197.8M	A	N
04/16/2003	10:57	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.3M	2.2G	123.6M	197.8M	A	N
04/16/2003	11:27	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.3M	2.2G	123.6M	197.8M	A	N
04/16/2003	11:57	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.3M	2.2G	123.6M	197.8M	A	N
04/16/2003	12:27	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.3M	2.2G	123.6M	197.8M	A	N
04/16/2003	12:57	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.3M	2.2G	123.6M	197.8M	A	N
04/16/2003	16:27	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.2M	2.2G	123.6M	197.8M	A	N
04/16/2003	16:57	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.2M	2.2G	123.6M	197.8M	A	N
04/16/2003	17:27	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.2M	2.2G	123.6M	197.8M	A	N
04/16/2003	17:57	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.2M	2.2G	123.6M	197.8M	A	N
04/16/2003	18:27	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.2M	2.2G	123.6M	197.8M	A	N
04/16/2003	18:57	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.2M	2.2G	123.6M	197.8M	A	N
04/16/2003	19:27	SYSTEMS	OD36	USER	96.6	*****	2.7G	2.3G	95.0M	452.2M	2.2G	123.6M	197.8M	A	N
04/16/2003	19:57	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/16/2003	20:27	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/16/2003	20:57	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/16/2003	21:27	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/16/2003	21:57	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/16/2003	22:27	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/16/2003	22:57	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/16/2003	23:27	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/16/2003	23:57	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/17/2003	00:27	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/17/2003	07:53	SYSTEMS	OD36	USER	95.1	*****	2.7G	2.2G	137.5M	450.6M	2.2G	123.6M	155.3M	A	N
04/17/2003	11:28	SYSTEMS	OD36	USER	92.7	*****	2.6G	2.2G	205.5M	404.2M	2.2G	123.6M	155.3M	A	N
04/17/2003	11:58	SYSTEMS	OD36	USER	92.7	*****	2.6G	2.2G	205.5M	404.2M	2.2G	123.6M	155.3M	A	N
04/17/2003	12:28	SYSTEMS	OD36	USER	92.7	*****	2.6G	2.2G	205.5M	404.2M	2.2G	123.6M	155.3M	A	N
04/17/2003	12:58	SYSTEMS	OD36	USER	92.7	*****	2.6G	2.2G	205.5M	404.1M	2.2G	123.6M	155.3M	A	N
04/17/2003	13:28	SYSTEMS	OD36	USER	92.6	*****	2.6G	2.2G	209.9M	404.1M	2.2G	123.6M	150.9M	A	N
04/17/2003	13:58	SYSTEMS	OD36	USER	92.6	*****	2.6G	2.2G	209.9M	404.1M	2.2G	123.6M	150.9M	A	N
04/17/2003	14:28	SYSTEMS	OD36	USER	92.6	*****	2.6G	2.2G	209.9M	404.1M	2.2G	123.6M	150.9M	A	N
04/17/2003	14:58	SYSTEMS	OD36	USER	92.6	*****	2.6G	2.2G	209.9M	404.1M	2.2G	123.6M	150.9M	A	N

***** END OF SPACE VOL REPORT*****

The following example shows how to generate a report to determine when space utilization on a specific volume exceeded a given percentage:

```
VOLUME,
NAME ( WORK03 ),
LASTDAYS ( 7 ),
PERCFULL ( >99 )
```

Figure 7-55 provides a sample of the customized report.

Figure 7-55 Customized Volume Snapshot Report Example

Produced by MAINVIEW SRM
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VOLUME SNAPSHOT REPORT FOR WORK03

Page: 2

DATE	TIME	POOL NAME	DEV ADDR	DEV TYPE	% FULL	PERCENT GRAPH	ALLOC SPACE	USED SPACE	FREE SPACE	IDLE SPACE	PO SPACE	VSAM SPACE	PS SPACE	INDX VTOC	SMS INDC
05/12/2003	14:44	WORK	0502	3380-K	99.1	*****50*****									
05/12/2003	14:54	WORK	0502	3380-K	99.1	*****									
05/12/2003	15:04	WORK	0502	3380-K	99.1	*****									
05/12/2003	15:14	WORK	0502	3380-K	99.1	*****									
05/12/2003	15:24	WORK	0502	3380-K	99.1	*****									
05/12/2003	15:34	WORK	0502	3380-K	99.1	*****									
05/12/2003	15:44	WORK	0502	3380-K	99.1	*****									
05/12/2003	15:54	WORK	0502	3380-K	99.1	*****									
05/12/2003	16:04	WORK	0502	3380-K	99.1	*****									
05/12/2003	16:14	WORK	0502	3380-K	99.1	*****									
05/12/2003	16:34	WORK	0502	3380-K	99.1	*****									
05/12/2003	16:44	WORK	0502	3380-K	99.1	*****									
05/17/2003	16:44	WORK	0502	3380-K	99.1	*****									
05/17/2003	16:54	WORK	0502	3380-K	99.1	*****									
05/17/2003	17:04	WORK	0502	3380-K	99.1	*****									

***** END OF SPACE VOL REPORT*****

In this example:

- NAME report option keyword requests information for volume WORK03.
- LASTDAYS report option keyword limits the request to the last 7 days.
- PERCFULL data output field name limits the request to snapshots where the percentage full exceeded 99 percent

Table 7-63 presents a field list for the Volume Interval Report.

Table 7-63 Field List for the Volume Interval Reports (Part 1 of 4)

Column Heading	Field Name	Description
DATE	DATE	Date of the first snapshot in an interval.
DAY	DAY	Three-character day of week indicator. This appears only on the DAY Volume Interval report.
MON	MON	Three-character month abbreviation indicating the month being summarized. This appears only on the MONTH Volume Interval report.
MAX % FULL	MAXFULL	Maximum percentage allocated of the total space found within the interval. MAXFULL is calculated by dividing ALOCMAX by TOTALMAX.
VISUAL	VISUAL	Visual representation of MAXFULL. This field cannot be filtered or sorted on.
SAMPLES	SAMPLES	Total number of snapshots in the interval.
DATE MAX	DATEMAX	Date of the snapshot when the maximum allocated percentage (MAXFULL) was recorded. This field does not appear in the DAY Volume Interval report.
TIME MAX	TIMEMAX	Time of day of the snapshot when the maximum allocated percentage (MAXFULL) was recorded.
TOTAL MAX	TOTALMAX	Total amount of storage available when MAXFULL was recorded.
ALOC MAX	ALOCMAX	Total amount of storage allocated when MAXFULL was recorded.
USED MAX	USEDMAX	Total amount of storage allocated and in use when MAXFULL was recorded.
IDLE MAX	IDLEMAX	Total amount of storage allocated but not currently being used when MAXFULL was recorded.
FREE MAX	FREEMAX	Total amount of free (unallocated) storage when MAXFULL was recorded.
RSVD MAX	RSVDMAX	Total amount of reserved space when MAXFULL was recorded. Reserved space is a function of the space collector, where you indicate which allocated data sets were allocated to reserve the space for later use.
VSAM MAX	VSAMMAX	Total amount of space allocated to VSAM data sets when MAXFULL was recorded.

Table 7-63 Field List for the Volume Interval Reports (Part 2 of 4)

Column Heading	Field Name	Description
PO MAX	POMAX	Total amount of space allocated to PDSs or PDSEs when MAXFULL was recorded.
PS MAX	PSMAX	Total amount of space allocated to sequential (PS) data sets when MAXFULL was recorded.
SMS MAX	SMSMAX	Total amount of space under SMS management when MAXFULL was recorded.
DATE MIN	DATEMIN	Date of the snapshot when the minimum allocation was recorded. This field does not appear in the DAY Volume Interval report.
TIME MIN	TIMEMIN	Time of day of the snapshot when the minimum allocation was recorded.
TOTAL MIN	TOTALMIN	Total amount of storage available when the minimum allocation was recorded.
ALOC MIN	ALOCMIN	Total amount of storage allocated when the minimum allocation was recorded. The minimum allocation is calculated by dividing ALOCMIN by TOTALMIN.
USED MIN	USEDMIN	Total amount of storage allocated and in use when the minimum allocation was recorded.
IDLE MIN	IDLEMIN	Total amount of storage allocated but not currently being used when the minimum allocation was recorded.
FREE MIN	FREEMIN	Total amount of free (unallocated) storage when the minimum allocation was recorded.
RSVD MIN	RSVDMIN	Total amount of reserved space when the minimum allocation was recorded. Reserved space is a function of the space collector, where you indicate which allocated data sets were allocated to reserve the space for later use.
VSAM MIN	VSAMMIN	Total amount of space allocated to VSAM data sets when the minimum allocation was recorded.
PO MIN	POMIN	Total amount of space allocated to PDSs or PDSEs when the minimum allocation was recorded.
PS MIN	PSMIN	Total amount of space allocated to sequential (PS) data sets when the minimum allocation was recorded.
SMS MIN	SMSMIN	Total amount of space under SMS management when the minimum allocation was recorded.
TOTAL AVG	TOTALAVG	Average amount of total storage available in the interval.
ALOC AVG	ALOCAVG	Average amount of allocated storage in the interval.
USED AVG	USED AVG	Average amount of used storage in the interval.
IDLE AVG	IDLEAVG	Average amount of allocated but unused (idle) storage in the interval.
FREE AVG	FREEAVG	Average amount of free (unallocated) storage in the interval.

Table 7-63 Field List for the Volume Interval Reports (Part 3 of 4)

Column Heading	Field Name	Description
RSVD AVG	RSVDAVG	Average amount of reserved space in the interval.
VSAM AVG	VSAMAVG	Average amount of space allocated to VSAM data sets during the interval.
PO AVG	POAVG	Average amount of PDS and PDSE space allocated during the interval.
PS AVG	PSAVG	Average amount of sequential data set space allocated during the interval.
SMS AVG	SMSAVG	Average amount of SMS-managed space during the interval.
TOTAL HWM	TOTALHWM	High-Water Mark of the total available storage during the interval.
ALOC HWM	ALOCHWM	High-Water Mark of the total allocated space during the interval.
USED HWM	USEDHWM	High-Water Mark of the total amount of allocated space that is in use during the interval.
IDLE HWM	IDLEHWM	High-Water Mark of the total amount of allocated space that is not in use during the interval.
FREE HWM	FREEHWM	High-Water Mark of the total amount of free (unallocated) space during the interval.
RSVD HWM	RSVDHWM	High-Water Mark of the total amount of space collector-defined reserved space during the interval.
VSAM HWM	VSAMHWM	High-Water Mark of the total amount of allocated VSAM space during the interval.
PO HWM	POHWM	High-Water Mark of the total amount of allocated PDS and PDSE space during the interval.
PS HWM	PSHWM	High-Water Mark of the total amount of allocated sequential (PS) space during the interval.
SMS HWM	SMSHWM	High-Water Mark of the total amount of SMS-managed space during the interval.
TOTAL LWM	TOTALLWM	Low-Water Mark of the total available storage during the interval.
ALOC LWM	ALOCLWM	Low-Water Mark of the total allocated space during the interval.
USED LWM	USEDLWM	Low-Water Mark of the total amount of allocated space that is in use during the interval.
IDLE LWM	IDLELWM	Low-Water Mark of the total amount of allocated space that is not in use during the interval.
FREE LWM	FREELWM	Low-Water Mark of the total amount of free (unallocated) space during the interval.
RSVD LWM	RSVDLWM	Low-Water Mark of the total amount of space collector-defined reserved space during the interval.

Table 7-63 Field List for the Volume Interval Reports (Part 4 of 4)

Column Heading	Field Name	Description
VSAM LWM	VSAMLWM	Low-Water Mark of the total amount of allocated VSAM space during the interval.
PO LWM	POLWM	Low-Water Mark of the total amount of allocated PDS and PDSE space during the interval.
PS LWM	PSLWM	Low-Water Mark of the total amount of allocated sequential (PS) space during the interval.
SMS LWM	SMSLWM	Low-Water Mark of the total amount of SMS-managed space during the interval.

Figure 7-56 provides a sample of the Volume Interval Report by Week.

Figure 7-56 Volume Interval Report for a Specific Volume by Week

```

Produced by MAINVIEW SRM                               VOLUME INTERVAL REPORT FOR BAB326 BY WEEK                               Page: 20
BMC Software, Inc.

INTV STRT MAX % PERCENT GRAPH SAMPLES DATE TIME TOTAL ALLOC USED IDLE TOTAL ALLOC USED IDLE IDLE
DATE FULL .....50.....100 MAX MAX MAX MAX MAX MAX AVG AVG AVG AVG HWM
03/28/2003 99.4 ***** 282 03/31/2003 11:56 2.8G 2.8G 2.3G 523.7M 2.8G 2.7G 2.2G 469.7M 546.9M
04/03/2003 99.9 ***** 322 04/05/2003 13:40 2.8G 2.8G 2.0G 815.1M 2.8G 2.7G 2.1G 591.8M 822.8M
04/10/2003 99.0 ***** 332 04/15/2003 10:27 2.8G 2.8G 2.3G 540.3M 2.8G 2.5G 2.0G 454.7M 671.0M
04/17/2003 95.1 ***** 42 04/17/2003 07:53 2.8G 2.7G 2.2G 450.6M 2.8G 2.6G 2.2G 396.9M 450.6M
***** END OF SPACE VOL REPORT *****

```

Data Set Utility Batch Reports

This section describes real-time data set-level reporting utilities to assist you with daily housekeeping of the DASD environment. With these reports, you can locate problem data sets and take action if necessary. You can inspect data sets from the catalog and VTOC viewpoints.

Catalog Super Locate

The Catalog Super Locate report can be generated in five different levels: DSN, VOLUME, ATTRIBUTE, SPACE, and TOTAL. Each level requires more data to be gathered; for example, the DSN and VOLUME reports require only the catalog to be accessed, while the ATTRIBUTE, SPACE, and TOTAL reports require the catalog, the VTOC, and the VVDS. There are unique report name verbs for each report format. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPC)*.

Purpose	catalog search and display facility
Data Source	catalog, VTOC, and VVDS depending on the report name verb; the DFHSM MCDS can be accessed if HSM(YES) is specified
Initial Order	data set name in ascending order
Report Name Verb	SLOC_DSN, SLOC_ATTRIB, SLOC_VOLUME, SLOC_SPACE, SLOC_TOTAL

Table 7-64 describes option keywords for the Catalog Super Locate Reports.

Table 7-64 Option Keyword Filters for Catalog Super Locate Reports (Part 1 of 2)

Entry	Default	OR...	Description
PREFIX()	/	DSN up to 44 characters	Data set name level or data set filter.
DSTYPE()	ALL	VSAM, NONVSAM, PAGE, CATALOG, OTHER	Restricts the search to a specific data set category (type). The supported catalog types are as follows: ALL—All catalog entries are to be included in the search. VSAM—Only data sets that are VSAM-based are included in the search. NONVSAM—Only data sets that are not VSAM-based are included in the search. This includes PDSEs and striped data sets. PAGE—Only system paging data sets are to be included in the search. CATALOG—Only data sets defined as catalog data sets are to be included in the search. OTHER—Any data set type not included in one of the above is included. These data set types include GDG definitions, VVDS definitions (if cataloged), and others.

Table 7-64 Option Keyword Filters for Catalog Super Locate Reports (Part 2 of 2)

Entry	Default	OR...	Description
HSM()	YES	NO	Indicates whether Super Locate - DSN is to merge in DFHSM recorded information if the data set has been migrated. If YES, Super Locate - DSN merges any pertinent information from the DFHSM MCDS into the data set list. If NO, Catalog Super Locate does not fill in the missing information from the catalog or VTOC. If you do not have DFHSM, this setting should be set to NO.
MIGRATED()	YES	NO	Indicates whether Super Locate - DSN should include any migrated data sets in the data set list. Migrated data sets are determined by the volume name of MIGRAT or ARCIVE.

Table 7-65 presents a field list for the Catalog Super Locate - DSN Report.

Table 7-65 Field List for the Catalog Super Locate - DSN Report

Column Heading	Field Name	Description
DATA SET NAME	DSN	Data set name. No filters allowed.
DATA SET TYPE	TYPE	Data set catalog entry type.

Figure 7-57 provides a sample of the Super Locate DSN Report.

Figure 7-57 Super Locate Report - DSN Example

DATA SET NAME	DATA SET TYPE
EMP.SGDR251.ASM	NONVSAM
EMP.SGDR251.BETA0528.ASM	NONVSAM
EMP.SGDR251.BETA0528.DTLPROF	NONVSAM
EMP.SGDR251.BETA0528.GML	NONVSAM
EMP.SGDR251.BETA0528.ISPEXEC	NONVSAM
EMP.SGDR251.BETA0528.ISPLLIB	NONVSAM
EMP.SGDR251.BETA0528.ISPMLIB	NONVSAM
EMP.SGDR251.BETA0528.ISPPLIB	NONVSAM
EMP.SGDR251.BETA0528.ISPTLIB	NONVSAM
EMP.SGDR251.BETA0528.JCL	NONVSAM
EMP.SGDR251.BETA0528.LINK	NONVSAM
EMP.SGDR251.BETA0528.LISTING	NONVSAM
EMP.SGDR251.BETA0528.LLISTING	NONVSAM
EMP.SGDR251.BETA0528.LOAD	NONVSAM
EMP.SGDR251.BETA0528.MACLIB	NONVSAM
EMP.SGDR251.BETA0528.OBJ	NONVSAM
EMP.SGDR251.BETA0528.PANELSRC	NONVSAM
EMP.SGDR251.BETA0528.SAMPLIB	NONVSAM
EMP.SGDR251.BETA0617.ASM	NONVSAM
EMP.SGDR251.BETA0617.DTLPROF	NONVSAM
EMP.SGDR251.BETA0617.GML	NONVSAM
EMP.SGDR251.BETA0617.ISPEXEC	NONVSAM
EMP.SGDR251.BETA0617.ISPLLIB	NONVSAM
EMP.SGDR251.BETA0617.ISPMLIB	NONVSAM
EMP.SGDR251.BETA0617.ISPPLIB	NONVSAM

The following example shows how to display a list of VSAM data set names from the catalog. The default report format is used.

```
SLOC_DSN,
PREFIX ( SYS3 . BMC ) ,
DSTYPE ( VSAM )
```

Figure 7-58 provides a sample of the customized report.

Figure 7-58 Customized Super Locate Report - DSN Example

```
Produced by MAINVIEW SRM          Catalog Super Locate DSN Report          Page: 1
BMC Software, Inc.                Generated:03/31/2003(2003.090)@14:06

DATA SET NAME                      DATA SET
                                   TYPE
SYS3.BMC.MVS1.CPMOUT1              VSAMCLUSTER
SYS3.BMC.MVS1.CPMOUT1.DATA        VSAMDATA
SYS3.BMC.MVS1.CPMOUT2              VSAMCLUSTER
SYS3.BMC.MVS1.CPMOUT2.DATA        VSAMDATA
SYS3.BMC.MVS1.IPMOUT1              VSAMCLUSTER
SYS3.BMC.MVS1.IPMOUT1.DATA        VSAMDATA
SYS3.BMC.MVS1.IPMOUT2              VSAMCLUSTER
SYS3.BMC.MVS1.IPMOUT2.DATA        VSAMDATA
***** END OF SUPER LOCATE REPORT *****
```

In this example:

- PREFIX report option keyword selects data sets with names starting with SYS3.BMC.
- DSTYPE data output field name limits the request to VSAM data sets.

Table 7-66 presents a field list for the Catalog Super Locate - Volume Report.

Table 7-66 Field List for the Super Locate Report - Volume

Column Heading	Field Name	Description
DATA SET NAME	DSN	Data set name. No filters allowed.
VOLSER	VOLSER	Volume serial name.
UCB	UCB	Device number.
DEVICE	DEVICE	Device type.
DEVCLASS	DEVCLASS	Internal, system-generated device codes.
VOL CNT	VOLCNT	Volume count.
DATA SET TYPE	TYPE	Data set catalog entry type.
MESSAGE	MESSAGE	Information or error data from processing this data set.

Figure 7-59 provides a sample of the Super Locate - Volume Report.

Figure 7-59 Super Locate Report - Volume Example

DATA SET NAME	VOLSER	DEVICE	VOL	DATA SET
			CNT	TYPE
EMP.SGDR251.ASM	EMP001	3390	1	NONVSAM
EMP.SGDR251.BETA0528.ASM	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.DTLPROF	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.GML	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.ISPEXEC	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.ISPLLIB	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.ISPMLIB	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.ISPPLIB	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.ISPTLIB	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.JCL	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.LINK	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.LISTING	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.LLISTING	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.LOAD	MIGRAT	3380	1	NONVSAM
EMP.SGDR251.BETA0528.MACLIB	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.OBJ	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.PANELSRC	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0528.SAMPLIB	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0617.ASM	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0617.DTLPROF	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0617.GML	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0617.ISPEXEC	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0617.ISPLLIB	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0617.ISPMLIB	MIGRAT	TAPE	1	NONVSAM
EMP.SGDR251.BETA0617.ISPPLIB	MIGRAT	TAPE	1	NONVSAM

Table 7-67 presents a field list for the Catalog Super Locate - Attribute Report.

Table 7-67 Field List for the Super Locate Report - Attribute (Part 1 of 2)

Column Heading	Field Name	Description
DATA SET NAME	DSN	Data set name. No filters allowed.
DSORG	DSORG	File organization and access method used to manage the file.
RECFM	RECFM	Record format indicating the type of record access and general format of records and blocks.
LRECL	LRECL	Logical record length.
CISIZE/ BLKSIZE	BLKSIZE	Block size.
% EFF	EFF	Percentage of space used in a track by the block size or physical CI size of the data set.
CHG	CHG	Changed indicator.
BLKPTRK	BLKPTRK	Number of physical blocks that will fit on one track.
ML	ML	Migration level.
SMS	SMS	SMS status of a data set.
REB	REBLOCK	Reblock indicator.
CRDATE	CRDATE	Data set creation date. No filters allowed.
EXPDATE	EXPDATE	Data set expiration date. No filters allowed.
LSTREFD	LSTREFD	Date the data set was last referenced. No filters allowed.
DAYSNREF	DAYSNREF	Number of days since the data set was opened.
CA SPLITS	CASPLITS	Number of VSAM control area splits performed on the data set.

Table 7-67 Field List for the Super Locate Report - Attribute (Part 2 of 2)

Column Heading	Field Name	Description
CI SPLITS	CISPLITS	Number of VSAM control interval splits performed on the data set.
ORIGIN VOLUME	ORIGVOL	Volume serial where DFHSM will attempt to restore or recover the data set.
STORCLAS	STORCLAS	Data set storage class assignment.
MGMTCLAS	MGMTCLAS	Data set management class assignment.
DATACLAS	DATACLAS	Data set data class assignment.
VOLSER	VOLSER	Volume serial name.
UCB	UCB	Device number.
DEVICE	DEVICE	Device type.
DEVCLASS	DEVCLASS	Internal, system-generated device codes.
VOL CNT	VOLCNT	Volume count.
DATA SET TYPE	TYPE	Data set catalog entry type.
MESSAGE	MESSAGE	Information or error data from processing this data set.

Figure 7-47 provides a sample of the Super Locate - Attribute Report.

Figure 7-60 Super Locate Attribute Report Example

Produced by	SUPER LOCATE REPORT - ATTRIB													Page:
MAINVIEW SRM														21
BMC Software, Inc.														Generated:02/19/2003(2003.324) @ 10:33
DATA SET NAME	DSORG	RECFM	LRECL	CISIZE/	% EFF	CHG	ML	SMS	REBLOCK	CRDATE	EXPDATE	LSTREFD	DAYSREF	
				BLKSIZE										
EMP.SGDR251.ASM	PO	FB	80	23440	82.7	N	0	N	N	10/19/96	00/00/00	11/18/96	1	
EMP.SGDR251.BETA0528.ASM	PO	FB	0	23440	98.7	M	2	N	N	05/28/96	00/00/00	06/06/96	166	
EMP.SGDR251.BETA0528.DTLPROF	PO	FB	0	3120	85.4	M	2	N	N	05/28/96	00/00/00	06/04/96	168	
EMP.SGDR251.BETA0528.GML	PO	FB	0	6240	92.0	M	2	N	N	05/28/96	00/00/00	06/04/96	168	
EMP.SGDR251.BETA0528.ISPEXEC	PO	FB	0	23440	98.7	M	2	N	N	05/28/96	00/00/00	06/05/96	167	
EMP.SGDR251.BETA0528.ISPMLIB	PO	U	0	23476	98.8	M	2	N	N	05/28/96	00/00/00	06/06/96	166	
EMP.SGDR251.BETA0528.ISPMLIB	PO	FB	0	3120	85.4	M	2	N	N	05/28/96	00/00/00	07/16/96	126	
EMP.SGDR251.BETA0528.ISPMLIB	PO	FB	0	3120	85.4	M	2	N	N	05/28/96	00/00/00	06/13/96	159	
EMP.SGDR251.BETA0528.ISPMLIB	PO	FB	0	23440	98.7	M	2	N	N	05/28/96	00/00/00	06/05/96	167	
EMP.SGDR251.BETA0528.JCL	PO	FB	0	6240	92.0	M	2	N	N	05/28/96	00/00/00	06/25/96	147	
EMP.SGDR251.BETA0528.LINK	PO	FB	0	6240	92.0	M	2	N	N	05/28/96	00/00/00	06/06/96	166	
EMP.SGDR251.BETA0528.LISTING	PO	FBA	0	23474	98.8	M	2	N	N	05/28/96	00/00/00	06/25/96	147	
EMP.SGDR251.BETA0528.LLISTING	PO	FBA	0	23474	98.8	M	2	N	N	05/28/96	00/00/00	06/06/96	166	
EMP.SGDR251.BETA0528.LOAD	PO	U	0	23476	98.8	M	1	N	N	05/28/96	00/00/00	10/04/96	46	
EMP.SGDR251.BETA0528.MACLIB	PO	FB	0	6240	92.0	M	2	N	N	05/28/96	00/00/00	06/06/96	166	
EMP.SGDR251.BETA0528.OBJ	PO	FB	0	6240	92.0	M	2	N	N	05/28/96	00/00/00	06/06/96	166	
EMP.SGDR251.BETA0528.PANELSRC	PO	FB	0	10720	90.3	M	2	N	N	05/28/96	00/00/00	06/04/96	168	
EMP.SGDR251.BETA0528.SAMPLIB	PO	FB	0	6240	92.0	M	2	N	N	05/28/96	00/00/00	06/04/96	168	
EMP.SGDR251.BETA0617.ASM	PO	FB	0	23440	98.7	M	2	N	N	06/17/96	00/00/00	06/24/96	148	
EMP.SGDR251.BETA0617.DTLPROF	PO	FB	0	3120	85.4	M	2	N	N	06/17/96	00/00/00	06/24/96	148	
EMP.SGDR251.BETA0617.GML	PO	FB	0	6240	92.0	M	2	N	N	06/17/96	00/00/00	06/24/96	148	
EMP.SGDR251.BETA0617.ISPEXEC	PO	FB	0	23440	98.7	M	2	N	N	06/17/96	00/00/00	06/24/96	148	
EMP.SGDR251.BETA0617.ISPMLIB	PO	U	0	23476	98.8	M	2	N	N	06/17/96	00/00/00	06/25/96	147	
EMP.SGDR251.BETA0617.ISPMLIB	PO	FB	0	3120	85.4	M	2	N	N	06/17/96	00/00/00	06/24/96	148	
EMP.SGDR251.BETA0617.ISPMLIB	PO	FB	0	3120	85.4	M	2	N	N	06/17/96	00/00/00	06/24/96	148	

The following example shows how to display space information for a set of non-VSAM data sets selected from the catalog:

```

SLOC_SPACE,
PREFIX ( SYS3 . BMC ) ,
DSTYPE ( NONVSAM ) ,
SORT ( DSN , A )
ORDER ( DSN , PUSED , TRKSUSED , TRKSFREE )

```

Figure 7-61 provides a sample of the resulting report.

Figure 7-61 Super Locate Report - Space Example

```

Produced by MAINVIEW SRM          Catalog Super Locate Space Report          Page: 1
BMC Software, Inc.                Generated: 03/31/2003(2003.090)@14:06

```

DATA SET NAME	%USED	TRACKS	
		USED	FREE
SYS3.BMC.BBHELP	100.0	6	0
SYS3.BMC.BBIS.BBIJRN1	100.0	75	0
SYS3.BMC.BBIS.BBIJRN2	100.0	75	0
SYS3.BMC.BBIS.BBIVARS	80.0	24	6
SYS3.BMC.BBIS.BBIVSD	90.0	27	3
SYS3.BMC.BBIS.UBBUSER	3.3	1	29
SYS3.BMC.BBLINK	41.3	790	1122
SYS3.BMC.BBLOAD	98.0	51	1
SYS3.BMC.BBMLIB	100.0	114	0
SYS3.BMC.BBPARM	96.6	29	1
SYS3.BMC.BBPLIB	100.0	267	0
SYS3.BMC.BBPROC	96.1	126	5
SYS3.BMC.BBTLIB	100.0	8	0
SYS3.BMC.BBUSER	100.0	42	0
SYS3.BMC.CMFDUMP	93.3	154	11

```

***** END OF SUPER LOCATE REPORT *****

```

In this example:

- PREFIX report option keyword selects data sets with names starting with SYS3.BMC.
- DSTYPE data output field name limits the request to non-VSAM data sets.
- SORT report option keyword sorts the report in ascending order by data set name.
- ORDER report option keyword builds the report using the data set name followed by the percentage of space used, tracks used, and tracks free.

TOTAL and SPACE use the same field names. The SPACE report generates statistics for all volumes on a single row; the TOTAL report includes a row for each volume. The SPACE information is broken out by volume instead of being reported as a single row.

Table 7-68 describes the data output field names that are available to customize the SPACE and TOTAL reports.

Table 7-68 Data Output Field Names to Customize the SPACE and TOTAL Reports (Part 1 of 2)

Column Heading	Field Name	Description
DATA SET NAME	DSN	Data set name. No filters allowed.
SIZE	SIZE	Data set size in kilobytes
TRACKS ALLOC	TRACKS	Total number of tracks allocated on the volume.
XTS	EXTS	Number of extents on the volume the data set occupies.
%USED	PUSED	Percentage of data set used.
TRACKS USED	TRKSUSED	Number of tracks used of the allocated amount.
TRACKS FREE	TRKSFREE	Number of unused tracks of the allocated amount.
DSORG	DSORG	File organization and access method used to manage the file.
RECFM	RECFM	Record format indicating the type of record access and general format of records and blocks.
LRECL	LRECL	Logical record length.
CISIZE/ BLKSIZE	BLKSIZE	Block size.
%EFF	EFF	Percentage of space used in a track by the block size or physical CI size of the data set.
CHG	CHG	Changed indicator.
BLKPTRK	BLKPTRK	Number of physical blocks that will fit on one track.
ML	ML	Migration level.
SMS	SMS	SMS status of a data set.
REB	REBLOCK	Reblock indicator.
CRDATE	CRDATE	Data set creation date. No filters allowed.
EXPDATE	EXPDATE	Data set expiration date. No filters allowed.
LSTREFD	LSTREFD	Date the data set was last referenced. No filters allowed.
DAYSNREF	DAYSNREF	Number of days since the data set was opened.
CA SPLIT	CASPLITS	Number of VSAM control area splits performed on the data set.
CI SPLIT	CISPLITS	Number of VSAM control interval splits performed on the data set.
ORIGIN VOLUME	ORIGVOL	Volume serial where DFHSM will attempt to restore or recover the data set.
STORCLAS	STORCLAS	SMS Storage Class.
MGMTCLAS	MGMTCLAS	SMS Management Class.
DATACLAS	DATACLAS	SMS Data Class.
VOLSER	VOLSER	Volume serial name.

Table 7-68 Data Output Field Names to Customize the SPACE and TOTAL Reports (Part 2 of 2)

Column Heading	Field Name	Description
UCB	UCB	Device number.
DEVICE	DEVICE	Device type.
DEVCLASS	DEVCLASS	Internal, system-generated device codes.
VOL CNT	VOLCNT	Volume count.
DATA SET TYPE	TYPE	Data set catalog entry type.
MESSAGE	MESSAGE	Information or error data from processing this data set.

Figure 7-62 provides a sample of the Super Locate Space Report.

Figure 7-62 Super Locate Report - Space Example

Produced by MAINVIEW SRM
BMC Software, Inc.

Catalog Super Locate Space Report

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DATA SET NAME	SIZE (KB)	TRACKS ALLOC	XTS	%USED	TRACKS USED	TRACKS FREE	DSORG	RECFM	LRECL	CISIZE/BLKSIZE	% EFF	CHG	ML	SMS
EMP.SGDR251.ASM	9130	165	1	98.1	162	3	PO	FB	80	23440	82.7	N	0	N
EMP.SGDR251.BETA0528.ASM	6954	150	0	0.0	0	0	PO	FB	0	23440	98.7	M	2	N
EMP.SGDR251.BETA0528.DTLPROF	139	3	0	0.0	0	0	PO	FB	0	3120	85.4	M	2	N
EMP.SGDR251.BETA0528.GML	3477	75	0	0.0	0	0	PO	FB	0	6240	92.0	M	2	N
EMP.SGDR251.BETA0528.ISPEXEC	695	15	0	0.0	0	0	PO	FB	0	23440	98.7	M	2	N
EMP.SGDR251.BETA0528.ISPLLIB	1390	30	0	0.0	0	0	PO	U	0	23476	98.8	M	2	N
EMP.SGDR251.BETA0528.ISPMLIB	139	3	0	0.0	0	0	PO	FB	0	3120	85.4	M	2	N
EMP.SGDR251.BETA0528.ISPPLIB	4172	90	0	0.0	0	0	PO	FB	0	3120	85.4	M	2	N
EMP.SGDR251.BETA0528.ISPTLIB	92	2	0	0.0	0	0	PO	FB	0	23440	98.7	M	2	N
EMP.SGDR251.BETA0528.JCL	2781	60	0	0.0	0	0	PO	FB	0	6240	92.0	M	2	N
EMP.SGDR251.BETA0528.LINK	695	15	0	0.0	0	0	PO	FB	0	6240	92.0	M	2	N
EMP.SGDR251.BETA0528.LISTING	31295	675	0	0.0	0	0	PO	FBA	0	23474	98.8	M	2	N
EMP.SGDR251.BETA0528.LLISTING	2086	45	0	0.0	0	0	PO	FBA	0	23474	98.8	M	2	N
EMP.SGDR251.BETA0528.LOAD	695	15	0	0.0	0	0	PO	U	0	23476	98.8	M	1	N
EMP.SGDR251.BETA0528.MACLIB	1483	32	0	0.0	0	0	PO	FB	0	6240	92.0	M	2	N
EMP.SGDR251.BETA0528.OBJ	1390	30	0	0.0	0	0	PO	FB	0	6240	92.0	M	2	N
EMP.SGDR251.BETA0528.PANELSRC	2781	60	0	0.0	0	0	PO	FB	0	10720	90.3	M	2	N
EMP.SGDR251.BETA0528.SAMPLIB	231	5	0	0.0	0	0	PO	FB	0	6240	92.0	M	2	N
EMP.SGDR251.BETA0617.ASM	10431	225	0	0.0	0	0	PO	FB	0	23440	98.7	M	2	N
EMP.SGDR251.BETA0617.DTLPROF	139	3	0	0.0	0	0	PO	FB	0	3120	85.4	M	2	N
EMP.SGDR251.BETA0617.GML	3477	75	0	0.0	0	0	PO	FB	0	6240	92.0	M	2	N
EMP.SGDR251.BETA0617.ISPEXEC	695	15	0	0.0	0	0	PO	FB	0	23440	98.7	M	2	N
EMP.SGDR251.BETA0617.ISPLLIB	1390	30	0	0.0	0	0	PO	U	0	23476	98.8	M	2	N
EMP.SGDR251.BETA0617.ISPMLIB	139	3	0	0.0	0	0	PO	FB	0	3120	85.4	M	2	N
EMP.SGDR251.BETA0617.ISPTLIB	4172	90	0	0.0	0	0	PO	FB	0	3120	85.4	M	2	N

The following example shows how to display space information for a set of non-VSAM data sets selected from the catalog:

```

SLOC_SPACE,
PREFIX(SYS3.BMC),
DSTYPE(NONVSAM),
ML(0),
PUSED(<75),
SORT(PUSED,D),
ORDER(DSN,PUSED,TRKSUSED,TRKSFREE)

```

Figure 7-63 provides a sample of the customized report.

Figure 7-63 Customized Super Locate Report - Space Example

```

Produced by MAINVIEW SRM          Catalog Super Locate Space Report          Page: 1
BMC Software, Inc.                Generated: 03/31/2003(2003.090)@14:06

DATA SET NAME                    %USED TRKS TRKS
                                USED   FREE
SYS3.BMC.BBHELP                  100.0   6   0
SYS3.BMC.BBIS.BBIJRN1            100.0  75   0
SYS3.BMC.BBIS.BBIJRN2            100.0  75   0
SYS3.BMC.BBIS.BBIVARS             80.0  24   6
SYS3.BMC.BBIS.BBIVSD              90.0  27   3
SYS3.BMC.BBIS.UBBUSER             3.3    1  29
SYS3.BMC.BBLINK                   41.3  790 1122
SYS3.BMC.BBLOAD                   98.0  51   1
SYS3.BMC.BBMLIB                   100.0 114   0
SYS3.BMC.BBPARM                    96.6  29   1
SYS3.BMC.BBPLIB                    100.0 267   0
SYS3.BMC.BBPROC                     96.1 126   5
SYS3.BMC.BBTLIB                    100.0   8   0
SYS3.BMC.BBUSER                    100.0  42   0
SYS3.BMC.CMFDUMP                   93.3 154  11
***** END OF SUPER LOCATE REPORT *****
    
```

In this example:

- PREFIX report option keyword selects data sets with names starting with SYS3.BMC.
- DSTYPE data output field name limits the request to non-VSAM data sets.
- ML data output field name limits the request to data sets at migration level 0.
- PUSED data output field name limits the request to data sets where less than 75 percent of the allocated space has been used.
- SORT report option keyword sorts the report in descending order by percentage of space used.
- ORDER report option keyword builds the report using the data set name followed by the percentage of space used, tracks used, and tracks free.

High-Level Qualifier Report

The High-Level Qualifier report provides a top-down view of the catalog entries.

Purpose	displays a list of high-level qualifiers in the master catalog
Data Source	master catalog
Initial Order	high-level qualifiers in ascending order
Report Name Verb	HLQ

Table 7-69 describes option keywords for the High-Level Qualifier Report.

Table 7-69 Option Keywords for the High-Level Qualifier Report

Entry	Default	OR...	Description
HLQLF()	*	Up to 8 characters	High-level qualifier obtained from the master catalog.

Table 7-70 presents a field list for the High-Level Qualifier Report.

Table 7-70 Field List for the High-Level Qualifier Report

Column Heading	Field Name	Description
TYPE	HLQTYPE	Type of high-level qualifier.
QUALIFIER	HLQLF	High-level qualifier.
ASSOCIATED	UCATNAME	User catalog pointed to by the alias definition.

Figure 7-64 provides a sample of the High-Level Qualifier Report.

Figure 7-64 High-Level Qualifier Report Example

```

Produced by MAINVIEW SRM                               High-Level Qualifier Report                               Page: 1
BMC Software, Inc.                                     Generated:03/31/2003(2003.090)@14:06

QUALIFIER TYPE ASSOCIATED USER CATALOG NAME

BTBKS1
BTBKTW ALIAS EMPUCAT.VEMPCAT
BTBMM1
BTBMM2
BTBOPS ALIAS EMPUCAT.VEMPCAT
BTBRS1 ALIAS EMPUCAT.VEMPCAT
BTBRS2 ALIAS EMPUCAT.VEMPCAT
BTBSEC1 ALIAS EMPUCAT.VEMPCAT
BTBSEC2
BTBSED1 ALIAS EMPUCAT.VEMPCAT
BTBSED2 ALIAS EMPUCAT.VEMPCAT
BTBCC1 ALIAS EMPUCAT.VEMPCAT
BTBCC2
BTBST1 ALIAS EMPUCAT.VEMPCAT
***** END OF HLQ REPORT *****

Produced by MAINVIEW SRM                               High-Level Qualifier Summary Report                               Page: 1
BMC Software, Inc.                                     Generated:03/31/2003(2003.090)@14:06

** TOTALS FOR SELECTED HIGH-LEVEL QUALIFIERS **
NUMBER OF ALIAS'S                                     9
OTHER HIGH-LEVEL QUALIFIERS IN USE                   5
TOTAL HIGH-LEVEL QUALIFIERS                           14
SGBPRS05 REPORT COMPLETED SUCCESSFULLY

```

The following example shows how to display selected high-level qualifiers. The default report format is used.

```

HLQ ,
  HLQLF (S*)

```

Figure 7-65 provides a sample of the customized report.

Figure 7-65 Customized High-Level Qualifier Report Example

```

Produced by MAINVIEW SRM                    High-Level Qualifier Report                    Page: 1
BMC Software, Inc.                          Generated:03/31/2003(2003.090)@14:06

QUALIFIER TYPE ASSOCIATED USER CATALOG NAME
SMPE
SOMMVS
SUBMIT ALIAS EMPUCAT.VEMPCAT
SYSBS
SYSO ALIAS EMPUCAT.VEMPCAT
SYSR
SYSUID ALIAS EMPUCAT.VEMPCAT
SYS1
SYS2
SYS3
SYS4
SYS96232
***** END OF HLQ REPORT *****
    
```

```

Produced by MAINVIEW SRM                    High-Level Qualifier Report                    Page: 3
BMC Software, Inc.                          Generated:03/31/2003(2003.090)@14:06

** TOTALS FOR SELECTED HIGH-LEVEL QUALIFIERS **
NUMBER OF ALIAS'S                          3
OTHER HIGH-LEVEL QUALIFIERS IN USE         9
TOTAL HIGH-LEVEL QUALIFIERS                12
SGBPRS05 REPORT COMPLETED SUCCESSFULLY
    
```

In this example, HLQLF report option keyword requests high-level qualifiers starting with S.

VTOC DSN Level Report

The Volume DSN Level report lists information about each data set on each volume selected by the option keywords. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPB)*.

Purpose	displays usage information on one or more DASD volumes
Data Source	VTOC and VTOC index records
Initial Order	by device address
Report Name Verb	VTOC_DSN

Table 7-71 describes option keywords for the VTOC Volume DSN Level Report.

Table 7-71 Option Keywords for the VTOC DSN Level Report (Part 1 of 2)

Entry	Default	OR...	Description
PREFIX()	/	DSN up to 44 characters	Data set name level or data set filter.
DSTYPE()	ALL	VSAM, NONVSAM	Data set type restricts reporting to data sets that are either VSAM or non-VSAM based. ALL reports both types of data sets.

Table 7-71 Option Keywords for the VTOC DSN Level Report (Part 2 of 2)

Entry	Default	OR...	Description
VOLSER()	?*	Up to 6 characters	Only volumes that match the specified volume serial number or volume serial number filter are included in the VTOC DATASET report. Use ?* to generate a report for <i>all</i> volume serial numbers.
UADFIRST()	0000	4 characters	First unit address.
UADLAST()	FFFF	4 characters	Last unit address.
MOUNT()	ALL	PUBLIC, PRIVATE, STORAGE	Mount type of the device.
SMSSTATE()	ALL	INITIAL, MANAGED, UNMANAGED	SMS status indicator.
SMSGROUP()	–	–	SMS group from which the volume should be selected.
MERGE CAT()	NO	YES	Should information from the catalog be acquired? If no, only information found in the VTOC and VVDS is included.
MERGE CTL()	NO	YES	Should the application information for the data sets be calculated and displayed?

Table 7-72 presents a field list for the VTOC DSN Level Report.

Table 7-72 Field List for the VTOC DSN Level Report (Part 1 of 2)

Column Heading	Field Name	Description
DATA SET NAME	DSN	Data set name. No filters allowed.
VOLSER	VOLSER	Volume serial number of the device on which the data set was found.
UCB	UCB	UCB or device address.
DS ORG	DSORG	Data set organization.
RECFM	RECFM	Record format.
SIZE	SIZE	Data set size in kilobytes.
TRACKS ALLOC	TRACKS	Number of tracks occupied by the data set.
XTS	EXTS	Number of extents occupied by the data set.
%USED	PUSED	Percentage of allocated space that is used.
TRACKS USED	TRKSUSED	Number of tracks used.
TRACKS FREE	TRKSFREE	Number of tracks allocated but free.
LRECL	LRECL	Logical record length.
CI/BLK SIZE	BLKSIZE	Block size or, for a VSAM data set, the control interval size.

Table 7-72 Field List for the VTOC DSN Level Report (Part 2 of 2)

Column Heading	Field Name	Description
% EFF	EFF	Percentage of space used in a track by the block size or physical CI size of the data set.
CA SPLITS	CASPLITS	Number of VSAM control area splits performed on the data set.
CI SPLITS	CISPLITS	Number of VSAM control interval splits performed on the data set.
CRDATE	CRDATE	Data set creation date. No filters allowed.
EXPDATE	EXPDATE	Data set expiration date. No filters allowed.
LSTREFD	LSTREFD	Date the data set was last referenced. No filters allowed.
DAYS NREF	DAYSNREF	Number of days since the data set was opened.
CAT	CAT	Catalog indicator.
CHG	CHG	Changed indicator.
REB	REBLOCK	Reblock indicator.
BLK PTRK	BLKPTRK	Number of physical blocks that will fit into one track.
SMS IND	SMSIND	SMS-managed indicator.
STORCLAS	STORCLAS	SMS Storage Class.
MGMTCLAS	MGMTCLAS	SMS Management Class.
DATACLAS	DATACLAS	SMS Data Class
ACCLVL1	ACCLVL1	application level 1
ACCLVL2	ACCLVL2	application level 2
ACCLVL3	ACCLVL3	application level 3
ACCLVL4	ACCLVL4	application level 4
MESSAGE	MESSAGE	error message relating to a specific data set

Figure 7-66 provides a sample of the VTOC DSN Report.

Figure 7-66 VTOC DSN Level Report Example

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VTOC DSN LEVEL REPORT

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Generated:02/19/2003(2003.324) @ 10:34

DATA SET NAME	VOLSER	UCB	DS ORG	RECFM	SIZE (KB)	TRACKS ALLOC	XTS	%USED	TRACKS USED	TRACKS FREE	LRECL	CI/BLK SIZE	% EFF
EMP.SGDR251.ASM	EMP001	051A	PO	FB	9130	165	1	98.1	162	3	80	23440	82.7
EMP.SGDR251.ISPLLIB	EMP005	051E	PO	U	4150	75	1	21.3	16	59	0	23476	82.8
EMP.SGDR251.ISPMLIB	EMP001	051A	PO	FB	166	3	1	100.0	3	0	80	3120	82.5
EMP.SGDR251.ISPPLIB	EMP001	051A	PO	FB	4980	90	1	76.6	69	21	80	3120	82.5
EMP.SGDR251.ISPTLIB	EMP001	051A	PO	FB	110	2	1	100.0	2	0	80	23440	82.7
EMP.SGDR251.JCL	EMP004	051D	PO	FB	2490	45	1	100.0	45	0	80	6240	88.0
EMP.SGDR251.LINK	EMP004	051D	PO	FB	830	15	1	26.6	4	11	80	6240	88.0
EMP.SGDR251.LISTING	EMP002	051B	PO	FBA	87984	1590	2	71.3	1135	455	121	23474	82.8
EMP.SGDR251.LLISTING	EMP004	051D	PO	FBA	3320	60	2	76.6	46	14	121	23474	82.8
EMP.SGDR251.LOAD	EMP003	051C	PO	U	4980	90	1	15.5	14	76	0	23476	82.8
EMP.SGDR251.MACLIB	EMP004	051D	PO	FB	1660	30	1	100.0	30	0	80	6240	88.0
EMP.SGDR251.OBJ	EMP004	051D	PO	FB	1660	30	1	80.0	24	6	80	6240	88.0

***** END OF VTOC_DSN REPORT *****

The following example shows how to display a list of data sets on volume WORK02 that have not been opened for more than 50 days. The data sets are selected from the VTOC.

```
VTOC_DSN,
VOLSER ( WORK02 ) ,
DAYSNREF ( >50 ) ,
SORT ( TRACKS , D , DSN , A ) ,
ORDER ( DSN , TRACKS , DAYSNREF , CRDATE , LSTREFD )
```

Figure 7-67 provides a sample of the customized report.

Figure 7-67 Customized VTOC DSN Level Report Example

Produced by MAINVIEW SRM
BMC Software, Inc.

VTOC DSN LEVEL REPORT

Page: 2
Generated:03/31/2003(2003.352) @ 17:11

DATA SET NAME	TRACKS ALLOC	DAYS NREF	CRDATE	LSTREFD
RICKH.BB03845.SYSMDUMP	630	58	03/19/2003	03/20/2003
RAY.NAME3.TEST	135	58	03/19/2003	03/20/2003
ISR.V3R3M0.ISRLOAD	105	58	03/19/2003	03/20/2003
SYS1.V410.SSPLIB	26	58	03/19/2003	03/20/2003
ISR.V3R3M0.ISRCLIB	20	58	03/19/2003	03/20/2003
DOUG.BB01681.DATA	16	58	03/19/2003	03/20/2003
DAVE.BBISPRNT	14	58	03/19/2003	03/20/2003
SYS1.VTOCIX.WORK02	14	59	03/19/2003	00/00/00
HSM26.OUTPUT.DPHSM.D950526	10	58	03/19/2003	03/20/2003
SYS1.IODF18.ACTLOG	8	58	03/19/2003	03/20/2003
SYS1.WLM.PDS	5	58	03/19/2003	03/20/2003
HSM26.AAAA.BBBB.QUAL4.QUAL5.FILE	3	58	03/19/2003	03/20/2003
MIKE2.HCD.TRACE	3	58	03/19/2003	03/20/2003
DAVE.TEST.MULTIVOL.SAM	1	58	03/19/2003	03/20/2003
JIM.IVP33.DASDPool.WRKTEST	1	58	03/19/2003	03/20/2003
JOHNW1.SPFTMP2.CNTL	1	58	03/19/2003	03/20/2003
JOHNW2.SPFTMP2.CNTL	1	58	03/19/2003	03/20/2003
MIKE.HCD.TERM	1	58	03/19/2003	03/20/2003
MIKE2.HCD.MSGLOG	1	58	03/19/2003	03/20/2003
MIKE2.HCD.TERM	1	58	03/19/2003	03/20/2003
FIELDS.VOLREF	0	58	03/19/2003	03/20/2003

***** END OF VTOC_DSN REPORT *****

In this example:

- VOLSER report option keyword limits the request to data sets on volume WORK02.
- DAYSNREF data output field name limits the request to data sets that have not been referenced for more than 50 days.
- SORT report option keyword sorts the report in descending order by tracks allocated and ascending order by data set name.
- ORDER report option keyword builds the report using the data set name followed by the number of tracks allocated, days not referenced, creation date, and last referenced date.

VTOC Volume Level Report

The VTOC VOLUME report lists information from the Volume Table of Contents of DASD volumes. The VOLUME report lists information by volume serial number for each volume selected by the option keywords. This information includes such volume-related items as mount type, SMS Storage Group, percentage full, free space and fragmentation information, free DSCBs, index VTOC status and free VIRs; hardware information such as the control unit type and caching options; and manufacturer's information such as vendor name and serial number. A sample JCL can be found in *?prefix.BBSAMP(SGBSAMPA)*.

Purpose	displays usage information on one or more DASD volumes
Data Source	VTOC and VTOC index records
Initial Order	by device address
Report Name Verb	VTOC_VOL

Table 7-73 describes option keywords for the VTOC Volume Level Report.

Table 7-73 Option Keywords for the VTOC Volume Level Report (Part 1 of 2)

Entry	Default	OR...	Description
VOLSER()	?*	Up to 6 characters	Only volumes that match the specified volume serial number or volume serial number filter are included in the VTOC VOLUME report. Use ?* to generate a report for <i>all</i> volume serial numbers.
UADFIRST()	0000	4 characters	First unit address.
UADLAST()	FFFF	4 characters	Last unit address.

Table 7-73 Option Keywords for the VTOC Volume Level Report (Part 2 of 2)

Entry	Default	OR...	Description
MOUNT()	ALL	PUBLIC, PRIVATE, STORAGE	Mount type of the device.
SMSSTATE()	ALL	INITIAL, MANAGED, UNMANAGED	SMS status indicator.
SMSGROUP()	–	–	SMS group to which the volume belongs.

Table 7-74 presents a field list for the VTOC Volume Level Report.

Table 7-74 Field List for the VTOC Volume Level Report (Part 1 of 2)

Column Heading	Field Name	Description
DEV TYPE	DEVTYPE	Device type.
% FULL	FULL	Percentage of used space.
LRGS PRCYL	LGSPRCYL	Largest possible primary extent in cylinders.
LRGS PRTRK	LGSPRTRK	Largest possible primary extent in tracks.
VTOC FULL	VTOCFULL	Percentage used space in the VTOC.
VTOC NDX	VTOCNDX	VTOC index usage (active or undefined).
FREE DSCB	FREEDSCB	Number of free DSCBs on the volume.
FREE CYLS	FREECYLS	Total number of free cylinders.
FREE TRKS	FREETRKS	Total number of free tracks.
LGSFR CYL	LGSFRCYL	Largest free extent in cylinders.
LGSFR TRK	LGSFRTRK	Largest free extent in tracks.
FREE VIR	FREEVIR	Number of free VTOC index records.
VTOC SIZE	VTOCSIZE	Number of tracks occupied by the VTOC.
FRAG NDX	FRAGNDX	Fragmentation index.
SMS GRP	SMSGRP	SMS group to which the volume belongs.

Table 7-74 Field List for the VTOC Volume Level Report (Part 2 of 2)

Column Heading	Field Name	Description
PGE IND	PGEIND	Is there a page data set on the volume? (Y/N)
VIO IND	VIOIND	Is there a page data set eligible for VIO on the volume? (Y/N)
SMS IND	SMS	Is the volume under the control of SMS? (Y/N)
CFW SUP	CFWSUP	Cache fast write indicator.
CAC SUP	CACSUP	Cache support indicator.
DCP SUP	DCPSUP	Dual copy support indicator.
DFW SUP	DFWSUP	Device fast write support indicator.
CFW ACT	CFWACT	Cache fast write active indicator.
CAC ACT	CACACT	Cache active indicator.
DCP ACT	DCPACT	Dual copy active indicator.
DFW ACT	DFWACT	Device fast write active indicator.
DEV VEN	DEVVEN	Device vendor name code.
DEV MNLOC	DEVMNLOC	Device vendor manufacturing location code.
DEV SER	DEVSER	Device serial number.
CU TYPE	CUTYPE	Control unit type.
CU VEN	CUVEN	Control unit vendor code.
CU MNLOC	CUMNLOC	Control unit manufacturing location code.
CU SER	CUSER	Control unit serial number.
REQ RC	REQRC	Return code from internal VTOC analysis.
REQ RS	REQRS	Reason code from internal VTOC analysis.
MESSAGE	MESSAGE	Information or error data for other than normal results.

Figure 7-68 provides a sample of the VTOC Volume Report.

Figure 7-68 VTOC Volume Level Report Example

```

Produced by MAINVIEW SRM                               VTOC VOLUME LEVEL REPORT                               Page: 30
BMC Software, Inc.                                     Generated:02/19/2003(2003.324) @ 10:34

MNT UCB DEV                % LRGS  LRGS  VTOC VTOC FREE  FREE  FREE  LGSFR  LGSFR  FREE  VTOC FRAG  SMS GRP  SMS CFW
TYPE                FULL PRCYL PRTRK FULL NDX  DSCB  CYLS  TRKS  CYL   TRK   VIR   SIZE NDX
EMPCAT PVT 050A 3380-K -AK4 71    744 11161 14  UND   638   759 11457  485  7275    0  14   145    N  Y
EMPD52 PVT 0509 3380-K -AK4 73    705 10593 50  UND   373   705 10594  705 10584    0  14    0    N  Y
EMPR52 SYS 0505 3380-K -AK4 68    856 12865 29  UND   527   856 12875  849 12735    0  14    8    N  Y
EMP001 PVT 051A 3390-003-A34 49 1555 23333 6  DIS  2107 1682 25388 1139 17085    0  45  136    N  Y
EMP002 PVT 051B 3390-003-A34 39 1936 29079 6  DIS  2117 2029 30666 1741 26115    0  45   82    N  Y
EMP003 PVT 051C 3390-003-A34 34 2005 30094 5  ACT  2136 2189 32926 1744 26160  282  45  116    N  Y
EMP004 PVT 051D 3390-003-A34 32 2224 33366 5  ACT  2136 2268 34081 2022 30330  286  45   57    N  Y
EMP005 PVT 051E 3390-003-A34 38 1842 27671 4  ACT  2158 2039 30857 1248 18733  282  45  162    N  Y
***** END OF VTOC_VOL REPORT *****

```

The following example shows how to display VTOC information on non-SMS-managed volumes with a largest free extent greater than 20 cylinders:

```

VTOC_VOL ,
SMSSTATE ( UNMANAGED ) ,
LGSFRCYL ( >20 ) ,
SORT ( LGSFRCYL , D ) ,
ORDER ( VOLSER , LGSFRCYL , FREECYLS , FREEDSCB , FREEVIR )

```

Figure 7-69 provides a sample of the customized report.

Figure 7-69 Customized VTOC Volume Level Report Example

```

PRODUCED BY STORAGEGUARD V4R1M0          STORAGEGUARD BATCH REPORTING SYSTEM          Page: 2
BMC Software, Inc.                       VTOC VOLUME LEVEL REPORT          Generated:02/17/2003(2003.352) @ 17:11

VOLSER LGSFR  FREE  FREE  FREE
CYL    CYLS  DSCB  VIR
HSM003 1941  2185  1761  267
HSM005 1544  1705  1658  265
HSM001 1453  1850  1704  262
SPOOL1 1140  1153   735   0
SD120M 1119  2319  2243  287
HSM004 1061  1257  1554  258
EMPR52  829   831   523   0
SD120P  725   732  1925  279
EMPD52  705   705   370   0
HSM002  639  1010  1793  266
WORK01  229   598  2049   0
WORK02  102   365  2087  281
BSDW01   59    59   739  290
***** END OF VTOC_VOL REPORT *****

```

In this example:

- SMSSTATE report option keyword selects non-SMS-managed volumes.
- LGSFRCYL data output field name limits the request to volumes with a largest free extent greater than 20 cylinders.
- SORT report option keyword sorts the report in descending order by largest free extent.

- ORDER report option keyword builds the report using the volume serial followed by the largest free extent, number of free cylinders, free DSCBs, and VIRs on the volume.

Appendix A SETSRM Command

This appendix presents for following information:

Overview	A-2
Required Keywords	A-2
Examples Using SETSRM	A-3
SETSRM Keywords	A-3

Overview

The SETSRM command is a primary command that is available on the command line of any MAINVIEW SRM view. The SETSRM command can be used to apply selection criteria to any view or VTOC collection data set.

Keyword parameters are available to set filter or other values used in subsequent view requests. Each view may use zero, one, or any number of keyword values from the command. SETSRM is also used in view hyperlinks and batch report requests. The following is the command format:

```
SETSRM
```

or

```
SETSRM keyword(value) keyword(value) keyword(value)...
```

where *keyword* is one of the keywords in the keyword list, and *value* is as explained for each keyword.

If no keywords are specified, a new SETSRM view is displayed showing the current keyword settings and allowing data entry to modify the settings.

Required Keywords

A keyword, or multiple keywords, may be required for a particular record, which means all of its views. When a record is invoked without a required keyword the appropriate messages are generated and the requested view does not display data. Other records may make use of a keyword but not require it. In these cases no message is generated when the keyword is not specified, and the keyword default value is assumed.

All keyword values are edited to ensure valid value formats. If an invalid value is found, an error message is generated and the keyword specification is ignored. Values that identify a resource do not have to identify a resource that exists. In the example, POOL(*value*), the value must conform to pool naming conventions, but the actual pool does not have to exist.

Specification of various keywords is issued internally by navigation when a selection occurs on certain views. You may also enter this command manually while on a view to cause the view data to be updated with the new specifications.

SETSRM keyword specifications are maintained in a stack similar to the view stack created as you navigate through the product. As you use PF3/End to back out through the view stack, the SETSRM keywords are also unstacked, whether the keywords were entered internally by navigation or manually.

Examples Using SETSRM

In this example, the user is viewing GPCNFG and selects Pool X from the tabular view of pools and groups. A SETSRM POOL(X) command is issued and the pool and group EZCmd menu is presented.

The Configuration and Status item in the Volumes In Pool section is selected from the EZCmd menu. The MPOOLVOL view is displayed containing the volumes in POOL X and their status.

The user then manually enters SETSRM POOL(Y) on the command line. The MPOOLVOL view is updated and now contains the volumes in POOL Y and their status. When the user backs out of MPOOLVOL for POOL Y using F3/End, the MPOOLVOL for POOL X is again displayed.

To extend this scenario, assume that the POOL keyword was set to POOL Z prior to entering the GPCNFG view. When a selection was made on GPCNFG the POOL keyword was set to X and the pool and group EZCmd menu was displayed. When F3/End is used to go back to the GPCNFG view from the pool and group EZCmd, the POOL keyword is reset to Z.

SETSRM Keywords

Table A-1 on page A-4 provides an alphabetical list of the keywords you can use with the SETSRM command. It also includes a description of each keyword, including the default value, whether it is required, any value specifications, abbreviations for the keyword (shortcuts), and examples using the keyword.

Table A-1 SETSRM Keywords (Part 1 of 25)

Keyword	Description
AGEBAND	<p>Use this optional keyword to specify the age band used by a view; the range of an age band depends on the view being generated.</p> <p>Default: If you do not specify a value, then all data is assumed unless the view requires a value.</p> <p>Shortcut: AB</p> <p>Examples: SETSRM AGEBAND(61-90) SETSRM AB(OVER 365)</p>
ALLOCSIZE	<p>The value is a 15-digit allocation size in bytes. This keyword is used for data set report filtering. When specified, only data sets with an allocation size larger than the value entered will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: Values are whole numbers, zero through 999,999,999,999,999</p> <p>Shortcut: none</p> <p>Example: SETSRM ALLOCSIZE(500)</p>
APPL	<p>Use this keyword to limit data displayed in the view to the application you specify.</p> <p>Values: A single application name, as defined by the application collector. Mask values are <i>not</i> supported. You must following application naming conventions as defined in the application collector. If you specify an undefined application name, then views will respond as if no data is available for the application. Some real-time views will indicate that the application does not exist.</p> <p>Default: If you do not specify a value, then all applications are assumed unless the view requires a value.</p> <p>Shortcuts: A, AP, APP</p> <p>Examples: SETSRM A(DEVAPPL) SETSRM AP(WORK APPL) SETSRM APPL(MY APPL)</p>

Table A-1 SETSRM Keywords (Part 2 of 25)

Keyword	Description
APPL	<p>The value is a single application name, which is established through the Applications Management option on the EZSRM menu. The value limits data displayed to the specified application.</p> <p>Mask values are <i>not</i> supported.</p> <p>Default: If you do not specify a value, then all applications are included unless the view requires a value.</p> <p>Values: Values must follow application naming conventions as defined in application collector. The application does not have to exist. If a undefined application name is entered, subsequent views will respond as if no data is available for the application. Certain real-time views will indicate that the application does not exist.</p> <p>Shortcuts: A, AP, APP</p> <p>Examples: SETSRM A(DEVAPPL) SETSRM AP(WORK APPL) SETSRM APPL(MY APPL FOR TESTING)</p>
BLOCKEFF	<p>The value is a 3-digit blocking efficiency percentage, which is used for data set report filtering. When specified, only data sets with a blocking efficiency less than the value entered will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: Values are whole numbers, zero through 100.</p> <p>Shortcut: BLKEFF</p> <p>Examples: SETSRM BLOCKEFF(80) SETSRM BLKEFF(100)</p>
CASPLITS	<p>The value is a 3-digit number of CA splits. This keyword is used for data set report filtering. When specified, only VSAM data sets with more CA splits than the value entered will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: whole numbers, zero through 999.</p> <p>Shortcut: none</p> <p>Example: SETSRM CASPLITS(100)</p>

Table A-1 SETSRM Keywords (Part 3 of 25)

Keyword	Description
CATEGORY	<p>The value is a 9-character error category used by the HSMERDT view.</p> <p>Default: none</p> <p>Keyword is required for HSMxxxx views. If you do not specify a value, then an error message is generated.</p> <p>Values: 9 position</p> <p>Shortcut: none</p>
CATINFO	<p>The value indicates whether catalog information should be included in the view. This is used in the HSM-related views. As catalog accessing can in some cases be time consuming, this allows a fast-path to the non-catalog related information, reducing response time and resource consumption related to the view.</p> <p>Default: If you do not specify a value, then CATINFO YES is assumed and catalog information is included.</p> <p>Values: Y, YES, ON, NO, N, OFF</p> <p>Shortcut: CAT</p> <p>Examples: SETSRM CAT(Y) SETSRM CATINFO(NO)</p>
CHP	<p>The value is a channel path ID. This keyword is used by some performance views in conjunction with the GRPTYPE keyword. See CHP value of the GRPTYPE keyword for where this is used.</p> <p>The CHP keyword causes certain performance views to display resources associated with the channel path specified here when used in conjunction with GRPTYPE(CHP).</p> <p>Default: If not specified along with GRPTYPE(CHP), performance views show all resources.</p> <p>Values: Valid channel path IDs.</p> <p>Shortcut: none</p> <p>Example: SETSRM GRPTYPE(CHP) CHP(00AC)</p>

Table A-1 SETSRM Keywords (Part 4 of 25)

Keyword	Description
CISPLITS	<p>The value is a 3-byte number of CI splits. This keyword is used for data set report filtering. When specified, only VSAM data sets with more CI splits than the value entered will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: whole numbers, zero through 99.</p> <p>Shortcut: none</p> <p>Example: SETSRM CISPLITS(50)</p>
DATE	<p>The value is a date in either of the following formats:</p> <p>YYYYMMDD or YYYY/MM/DD</p> <p>Default: If you do not specify a value, then the TIME command END DATE value is used. If that is not specified, the current date is assumed.</p> <p>Values: must be a valid date.</p> <p>Usage: This date is used internally in the historical space and performance components to provide navigation when a specific time interval is selected.</p> <p>Shortcut: none</p> <p>Examples: SETSRM DATE(20021231) SETSRM DATE(2002/12/31)</p>
DAYSREF	<p>The value is a 3-digit number of days-not-referenced. This keyword is used for data set report filtering. When specified, only data sets that have a larger days-not-referenced value than the value entered will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: whole numbers, zero through 999.</p> <p>Shortcut: none</p> <p>Example: SETSRM DAYSREF(30)</p>

Table A-1 SETSRM Keywords (Part 5 of 25)

Keyword	Description
DEV	<p>This required keyword specifies the 4-position device number, which is used in the MDEVSP view. It determines the device number to display. Note: For MDEVSP either this DEV keyword or the VOL keyword is required.</p> <p>Default: None</p> <p>Values: 4-position device number. The device number does not have to exist; however, if it does not, MDEVSP will generate a error message.</p> <p>Shortcut: none</p> <p>Example: SETSRM DEV(A30B)</p>
DIR	<p>The value is a 5-digit box serial number followed by a two digit EMC director number. When specified causes views to display resources associated with the EMC director. Used by performance views in conjunction with GRPTYPE(DIR).</p> <p>When used in conjunction with GRPTYPE(DIR) causes certain performance views to display resources associated with the EMC director. See GRPTYP value of DIR.</p> <p>Default: If you do not specify a value, then all resources are displayed.</p> <p>Values:</p> <ul style="list-style-type: none"> • box serial number as reported in the configuration component • EMC director number is a decimal number between 1 and 64 • the maximum number of directors on a box <p>Shortcut: none</p> <p>Examples: SETSRM DIR(01047-01) SETSRM DIR(02343-09)</p>
DSN	<p>Use this optional keyword to specifies a data set name or name mask for which to show activity.</p> <p>Values: Fully qualified data set name, partial data set name suffixed with "/", or "/".</p> <p>Default: "/" (All)</p> <p>Shortcut: DSNM, D, DS</p> <p>Examples: SETSRM DSN(my.data.set.name) SETSRM D(my.data/) SETSRM D(my.**.name)</p>

Table A-1 SETSRM Keywords (Part 6 of 25)

Keyword	Description
DSN	<p>The value is a data set name or data set name mask. MAINVIEW SRM standard data set masking applies unless otherwise specified.</p> <p>Limits data displayed to data sets matching the specified name or name mask or to resources associated with the data set.</p> <p>Default: If you do not specify a value, then all data sets or resources are assumed, unless the view requires a value.</p> <p>Values must follow data set naming conventions as defined by IBM. The data set does not have to exist. If an undefined data set name or name mask is entered, subsequent views will respond as if no data is available for the data set or mask.</p> <p>Shortcuts: DSNM, D, DS</p> <p>Examples: SETSRM DSN(my.data.set.name) SETSRM D(my.data/) SETSRM D(my.**.name)</p>
DSORG	<p>The value is a 4-character data set organization. This keyword is used for data set report filtering. When specified, only data sets with the specified data set organization will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: PDS, PO, PS, PDSE, VS, DA, IS, and '-'. (that's two dashes '-').</p> <p>Shortcut: none</p> <p>Example: SETSRM DSORG(PO)</p>

Table A-1 SETSRM Keywords (Part 7 of 25)

Keyword	Description
DSTYPE	<p>The value indicates the type of data sets to display, as listed below. This is used in the HSM-related views, and in SuperLocate. Certain values only apply to SuperLocate and are not valid in HSM views.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values:</p> <ul style="list-style-type: none"> • A All data sets. • V VSAM data sets only • N Non-VSAM data sets • P Page data set type This is only valid in SuperLocate (is not valid for HSM views). If used in HSM views no data will be displayed. • C Cataloged data sets are to be displayed Valid only in SuperLocate (is not valid for HSM views). If used in HSM views, no data will be displayed. • O Data set types only that are not in one of the above categories These data set types include GDG definitions, VVDS definitions (if cataloged) and others. <p>Shortcut: none</p> <p>Example: SETSRM DSTYPE(N)</p>
EXTENTS	<p>The value is a 2-digit number of extents. This keyword used on data set report filtering. When specified, only data sets with more extents than the value specified will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: Values are whole numbers, 0 through 99.</p> <p>Shortcut: EXT</p> <p>Examples: SETSRM EXT(5) SETSRM EXT(99)</p>
FROMDSN	<p>Use this optional keyword to specify a data set name or mask at which to start.</p> <p>Default: If you do not specify a value, then the default is the first data set.</p> <p>Values: Fully qualified data set name or partial data set name suffixed with “/”, or “/”.</p> <p>Shortcut: none</p> <p>Example: SETSRM FROMDSN(my.data.set.name.aaa) TODSN(my.data.set.xxx)</p>

Table A-1 SETSRM Keywords (Part 8 of 25)

Keyword	Description
FROMVOL	<p>Use this optional keyword to specify a volume at which to start.</p> <p>Default: If you do not specify a value, then the default is the first volume.</p> <p>Values: Complete volume serial number or volume serial number suffixed with “/”, or “/”.</p> <p>Shortcut: none</p> <p>Examples: SETSRM FROMVOL(WRK000) TOVOL(*) SETSRM FROMVVOL(AA*) TOVOL(BB*)</p>
FROMVOL	<p>The value is a volume serial or volume serial mask value. Standard MAINVIEW SRM masking characters apply. Used in HSMOCDS and HSMOCSDD views, in connection with TOVOL sets a range of volumes to report on.</p> <p>Default: If you do not specify a value, then defaults to '*', meaning all volumes up to the TOVOL keyword are reported on.</p> <p>Values: must follow volume naming conventions. Volume does not have to exist.</p> <p>Shortcut: none</p> <p>Examples: SETSRM FROMVOL(WRK000) TOVOL(*) SETSRM FROMVOL(AA*) TOVOL(BB*)</p>

Table A-1 SETSRM Keywords (Part 9 of 25)

Keyword	Description
GROUP	<p>The value is used in connection with the TYPE keyword to specify a pool, subpool, or storage group name.</p> <p>Value is either a single: SMS group name, up to 30 characters in length Values as defined by SMS pool name, up to a maximum of 8 characters Values as defined by MAINVIEW SRM SMPOOLxx member subpool name, up to a maximum of 8 characters Values as defined by MAINVIEW SRM SMSPOLxx member</p> <p>Mask values are not supported.</p> <p>The TYPE keyword indicates if the value specified here is a pool, a subpool, or a storage group name. If no TYPE value is specified, the GROUP value is assumed to be a storage group.</p> <p>When GROUP is specified it limits subsequent views to data associated with the group, pool, or subpool specified.</p> <p>Default: If you do not specify a value, then all groups are assumed, unless the view requires a value.</p> <p>Values: Storage groups must follow storage group naming conventions as stated by SMS. Pool and subpool names must follow MAINVIEW SRM conventions. The storage group, pool, or subpool specified does not have to be defined. If an undefined group/pool/subpool name is entered subsequent views will respond as if no data is available for the group/pool/subpool. Certain real-time views will indicate that the group/pool/subpool does not exist.</p> <p>Shortcuts: G, GRP, STORGROUP, STOGROUP, STORGRP, STOGRP</p> <p>Examples: SETSRM G(PRIMARY) SETSRM GRP(MEDIUM)</p>

Table A-1 SETSRM Keywords (Part 10 of 25)

Keyword	Description
GRPTYPE	<p>The value used in historical performance (SGP) to pass data between views used to associate one resource to another. Possible values for GRPTYPE follow:</p> <p>LCU - indicates to display resource(s) for an associated LCU. The LCU keyword contains the LCU. Used by</p> <ul style="list-style-type: none"> • PRCCU—SGPCachCntUnt • PRVOL—SGPVolume • PRCHP—SGPChannelPath <p>VOL - indicates to display resources for an associated volser. The VOL keyword contains the volume. Used by</p> <ul style="list-style-type: none"> • PRCHP—SGPChannelPath • PRLCU—SGPLogicalCntUnt • PRDS—SGPDataset • PRPVOL—SGPRaidPhyVolume • PRRSF—SGPRVASubsysFrame • PRRRK—SGPRaidRank • SSSPACE—Subsystem Space <p>CHP - indicates to display resource(s) associated with a specified channel path. The CHP keyword contains the channel path. Used by</p> <ul style="list-style-type: none"> • PRCCU—SGPCacheCntUnt • PRLCU—SGPLogicalCntUnt • PRVOL—SGPVolume. <p>PHY - indicates to display resources associated with a specified physical disk. The PHY keyword contains the physical disk id. Used by</p> <ul style="list-style-type: none"> • PRCCU—SGPCacheCntUnt • PRVOL—SGPVolume <p>CCU - indicates to display resource(s) associated with a specified CCU/subsystem. The SUBSYS keyword contains the cache control unit id, also called the subsystem ID. Used by</p> <ul style="list-style-type: none"> • PRVOL—SGPVolume • PRRDIR—SGPRaidDirector • PRPVOL—SGPRaidPhyVolume • PRLCU—SGPLogicalCntUnt • PRRSF—SGPRVASubsysFrame • PRRRK—SGPRaidRank <p>DSN - Indicates to display resource(s) associated with a specified data set name. The DSN keyword contains the data set name. Used by</p> <ul style="list-style-type: none"> • PRVOL—SGPVolume <p>POOL - Indicates to display resources associated with a specified pool. The GROUP keyword contains the group/pool name. The TYPE keyword contains the group/pool type. Used by</p> <ul style="list-style-type: none"> • PRVOL—SGPVolume • PRDS—SGPDataset • VOLSPACE —SpaceVolSnap • SSSPACE—Subsystem Space

Table A-1 SETSRM Keywords (Part 11 of 25)

Keyword	Description
GRPTYPE (continued)	<p>DIR - Indicates to display resources associated with an EMC director. DIR keyword contains director number. Used by</p> <ul style="list-style-type: none"> • PRVOL—SGPVolume • PRPVOL—SGPRaidPhyVolume <p>SCL - Indicates to display resources associated with a specified storage class. The SCL keyword contains the storage class. Used by</p> <ul style="list-style-type: none"> • PRDS—SGPDataset <p>Default: If the GRPTYPE keyword is not specified, all space and performance views show information on all resources for the interval defined by the TIME command or SETSRM DATE and TIME keywords.</p> <p>Usage: used in the performance (SGP) and space (SGD) views.</p> <p>Shortcut: none</p> <p>Examples: SETSRM GRPTYPE(VOL) VOL(BAB200) SETSRM GRPTYPE(PHY) PHY(01047-09-C0)</p>
HLQ	<p>Data set high level qualifier.</p> <p>Default: If you do not specify a value, then all HLQs are included in the report, unless the view requires a value.</p> <p>Values: Any valid 1 to 8 position data set name high level qualifier. The HLQ does not have to exist as the HLQ of a data set. Masking characters are not allowed</p> <p>Shortcut: none</p> <p>Examples: SETSRM HLQ(PAYROLL) SETSRM HLQ(TEST)</p>
INTERVAL	<p>The value indicates an interval of time in number of seconds, which is used in the real-time volume performance views.</p> <p>Default: If you do not specify a value, then the default is 5 minutes.</p> <p>Values: Whole number up to 4 digits indicating the number of seconds. Value of 30 is the minimum. Values lower than 30 seconds will default to 30. Value of 1800 is the maximum value (30 minutes). Values above 1800 default to 1800.</p> <p>Shortcut: none</p> <p>Examples: SETSRM INTERVAL(0030) SETSRM INTERVAL(120)</p>

Table A-1 SETSRM Keywords (Part 12 of 25)

Keyword	Description
LCU	<p>The value is a logical control unit ID. This keyword is used by some performance views in conjunction with the GRPTYPE keyword. See the LCU value of the GRPTYPE keyword for where this is used.</p> <p>The LCU keyword causes certain performance views to display resources associated with the LCU when used in conjunction with GRPTYPE(LCU).</p> <p>Default: If not specified along with GRPTYPE(LCU), performance views show all resources.</p> <p>Values: Valid LCU IDs.</p> <p>Shortcut: none</p> <p>Example: SETSRM GRPTYPE(LCU) LCU(00CC)</p>
LIBMGR	<p>Use this keyword to specify the one-byte tape library manager. It is optional unless the view requires it.</p> <p>Default: If you do not specify a value, then all library managers are included.</p> <p>Values: S=STK I=IBM</p> <p>Shortcut: LM</p> <p>Examples: SETSRM LM(I) SETSRM LIBMGR(S)</p>
LIBRARY	<p>Use this optional keyword to specify a library name or name mask for which you want to show activity.</p> <p>Default: If you do not specify a value, the default is “/” (All).</p> <p>Values: Fully qualified LIBRARY, partial LIBRARY suffixed with “/”, or “/”.</p> <p>Shortcut: none</p> <p>Example: SETSRM LIBRARY(C3PO)</p>

Table A-1 SETSRM Keywords (Part 13 of 25)

Keyword	Description
LIBTYPE	<p>Use this keyword to specify a one-byte library ID. It identifies the tape as being from a manual tape library, a virtual tape system or an automated tape library. It is optional unless the view requires it.</p> <p>Default: If you do not specify a value, then all library IDs are included.</p> <p>Values: M=manual tape library V=virtual tape library A=automated tape library</p> <p>Shortcut: LT</p> <p>Examples: SETSRM LIBTYPE(V) SETSRM LT(A)</p>
MAXVOLS	<p>Use this optional keyword to specify the maximum number of volumes or data set names to display in the view.</p> <p>If this value is too large, you may run short on MAINVIEW SRM system storage that is used to create the view.</p> <p>Default: If you do not specify a value, then the default is 1,000.</p> <p>Shortcut: MXV</p> <p>Examples: SETSRM MAXVOLS(500) SETSRM MXV(250)</p>
MGMTCLASS	<p>The value is an 8-character management class name (as defined by SMS). This keyword is used for data set report filtering. When specified, only data sets in the specified management class will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: valid management class names; the management class does not have to exist.</p> <p>Shortcut: MC</p> <p>Example: SETSRM MC(CLASS1)</p>

Table A-1 SETSRM Keywords (Part 14 of 25)

Keyword	Description
MIGDS	<p>The value indicates whether migrated data sets should be included in the display or not. This is used in the HSM related views.</p> <p>Default: If not specified all data sets are displayed.</p> <p>Values:</p> <ul style="list-style-type: none"> • Y or YES indicates to include migrated data sets • N or NO indicates not to include migrated data sets • O or ONLY indicates to include only migrated data sets <p>Shortcut: none</p> <p>Examples: SETSRM MIGDS(YES) SETSRM MIGDS(ONLY)</p>
MIGLEVEL	<p>The value indicates whether data sets across all migration levels, only data sets at migration level 1, or only data sets at migration level 2 are displayed. This is used in the HSM related views.</p> <p>Default: If not specified all data sets will be displayed.</p> <p>Values:</p> <ul style="list-style-type: none"> • A indicates data sets across all migration levels. • 1 indicates data sets at migration level 1 will be displayed. • 2 indicates data sets at migration level 2 will be displayed. <p>Shortcut: none</p> <p>Examples: SETSRM MIGLEVEL(A) SETSRM MIGLEVEL(2)</p>
MODE	<p>The value is an 8-position literal of either REALTIME or HISTORY. This keyword is used in data set analysis reporting and determines whether the data set reporting initiates a VTOC Scan collection to populate the view, or is from a VTOC Scan collection data set already collected. If REALTIME is specified, subsequent views will initiate a VTOC scan collection and wait for it to complete prior to displaying data. If HISTORY is specified, or taken as a default, the TKN keyword is used to determine the VTOC Scan collection data set to use in the reporting.</p> <p>Default: HISTORY</p> <p>Values: either REALTIME or HISTORY</p> <p>Shortcut: none</p> <p>Examples: SETSRM MODE(REALTIME) SETSRM MODE(HISTORY) SETSRM MODE()</p>

Table A-1 SETSRM Keywords (Part 15 of 25)

Keyword	Description
PCTUSED	<p>The value is a 3-digit allocation percent used. This keyword is used for data set report filtering. When specified, only data sets with a percent used value less than the value entered will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: Whole numbers, zero through 100</p> <p>Shortcut: none</p> <p>Examples: SETSRM PCTUSED(80) SETSRM PCTUSED(100)</p>
PERCENT	<p>Specifies the percentage band used for the view. It is optional unless the view requires it.</p> <p>Default: If you do not specify a value, then all data is used.</p> <p>Values: SCRATCH=Scratch tapes 00-01=0% to 1% 01-10=1% to 10% 11-20=11% to 20% 21-30=21% to 30% 31-40=31% to 40% 41-50=41% to 50% 51-60=51% to 60% 61-70=61% to 70% 71-80=71% to 80% 81-90=81% to 90% 91-100=91% to 100%</p> <p>Shortcut: PCT</p> <p>Examples: SETSRM PERCENT(21-30) SETSRM PCT(91-100)</p>

Table A-1 SETSRM Keywords (Part 16 of 25)

Keyword	Description
PHY	<p>Value is a physical disk ID, which causes views to display resources associated with the physical disk when specified.</p> <p>This keyword is used by numerous displays of configuration, performance, and space information.</p> <p>The PHY keyword causes certain performance views to display resources associated with the physical disk when used in conjunction with GRPTYPE(PHY). See GRPTYP value of PHY.</p> <p>Default: If you do not specify a value, then resources for all physical disks are displayed.</p> <p>Values: Valid physical disk IDs.</p> <p>Shortcut: none</p> <p>Examples: SETSRM PHY(01047-01-C0) SETSRM PHY(02343-00100)</p>
RC	<p>The value is a 2-digit return code value. This keyword is used for data set report filtering. When specified, only data sets with a collection return code greater than the value entered will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: whole numbers, 0 through 99</p> <p>Shortcut: none</p> <p>Example: SETSRM RC(0)</p>

Table A-1 SETSRM Keywords (Part 17 of 25)

Keyword	Description
<p>RECID</p>	<p>This optional keyword specifies the scratch or search function to be executed.</p> <p>Default: If you do not specify a value, then all functions are included.</p> <p>Values:</p> <p>ALLS=scratch tapes from all locations ATL=scratch tapes from the automated tape library DUP=search for duplicate volume serial numbers in the TCAT HSM=scratch tapes from the Hierarchical Storage Manager SDSN=specific data set name request SVOL=specific VOLSER request SVT1=scratch tapes from virtual tapes on Active MVC1 (STK only) SVT2=scratch tapes from virtual tapes on Active MVC2 (STK only) TCAT=scratch tapes from the tape management catalog VTS=scratch tapes from the virtual tape system</p> <p>Shortcut: none</p> <p>Example: SETSRM RECID(TCAT)</p>
<p>RESTYPE</p>	<p>The value indicates the type of resource to report on in data set analysis views. The value affects the subsequent data set analysis views until it is reset.</p> <p>These views show data set statistics that encompass all data sets accessible from the system where the PAS/SVOS started task resides.</p> <p>Default: The keyword is optional within system wide data set reporting and if not specified data set summaries for all resources is displayed.</p> <p>Valid values:</p> <p>G=display statistics for group, pool, and subpool resources H=display statistics for HLQs I=display statistics for HLQs by group, pool, subpool M=display statistics for SMS Management Classes A=display statistics for Applications V=display statistics for Volumes</p> <p>Shortcut: none</p> <p>Examples: SETSRM RESTYPE(G) SETSRM RESTYPE(H)</p>

Table A-1 SETSRM Keywords (Part 18 of 25)

Keyword	Description
SCRATCH	<p>This optional keyword specifies whether volumes that are marked as scratch are to be included in the report.</p> <p>Default: If you do not specify a value, then scratch volumes are not included in the view.</p> <p>Values: Y=Yes (include scratch volumes) N=No (do not include scratch volumes)</p> <p>Shortcut: SCR</p> <p>Examples: SETSRM SCRATCH(N) SETSRM SCR(Y)</p>
SGDID	<p>This optional keyword controls which space collector supplies data for space collector view requests. This value corresponds to the SGDID= value supplied in the PARM= keyword of the space collector JCL EXEC statement. This keyword must be entered manually by the user.</p> <p>Default: zero (0)</p> <p>Values: Zero (0) through 8</p>
STGCLASS	<p>The value is an 8-character storage class name (as defined by SMS). This keyword is used for data set report filtering. When specified, only data sets in the specified storage class will be displayed.</p> <p>Default: If you do not specify a value, then all data sets are displayed.</p> <p>Values: valid storage class names; the storage class does not have to exist.</p> <p>Shortcut: SC</p> <p>Example: SETSRM SC(STGCL1)</p>
SUBSYS	<p>The value is a 4-byte alpha-numeric subsystem ID.</p> <p>Mask values are <i>not</i> supported.</p> <p>Default: If you do not specify a value, then all subsystems are assumed, unless the view requires a value.</p> <p>Values must follow subsystem ID naming conventions as documented by IBM. The subsystem does not have to exist.</p> <p>Shortcuts: SS, SSID</p> <p>Examples: SETSRM SS(0A00) SETSRM SSID(0102)</p>

Table A-1 SETSRM Keywords (Part 19 of 25)

Keyword	Description
SYSID	<p>Use this optional keyword to limit the data that is displayed to the system you specify.</p> <p>Default: If not specified then data from all systems is assumed.</p> <p>Values: 4-byte system ID</p> <p>Shortcut: SYS</p> <p>Examples: SETSRM SYSID(SJSG) SETSRM SYS(SYSI)</p>
SYSID	<p>The value is a 4-byte system ID, which is used in the HSM views. SYSID limits data displayed to the system specified.</p> <p>Default: If you do not specify a value, then data from all systems is displayed.</p> <p>Values: Must follow system naming conventions. The SYSID does not have to exist</p> <p>Shortcut: SYS</p> <p>Examples: SETSRM SYSID(SJSG) SETSRM SYS(SYSI)</p>
T03FIL1	<p>Use this keyword to set selection flags.</p> <p>Byte 1 values: D=Detail Record A=Age Band Summary P=Percent Bracket Summary *=Sum on Lib Media</p> <p>Byte 2: unused</p>
TAPESCANID	<p>This required keyword specifies the date and time stamp of the TAPESCAN to be used. Use the following format: .DYYMMDD.THHMMSS (note the leading period)</p> <p>Default: None; if you do not specify a date and time stamp, the view request fails.</p> <p>Shortcut: TS</p> <p>Examples: SETSRM TAPESCANID(.D020919.T151833) SETSRM TS(.D020826.T051618)</p>

Table A-1 SETSRM Keywords (Part 20 of 25)

Keyword	Description
TIME	<p>The value is a time of day in either of the following formats:</p> <p>HHMM or HH:MM</p> <p>Default: If you do not specify a value, then the TIME command END TIME of day value is used. If that is not specified, the current time is the default.</p> <p>Values: Must be a valid time.</p> <p>Usage: This is used in the historical space and performance components to provide navigation when a specific time interval is selected.</p> <p>Shortcut: none</p> <p>Examples: SETSRM TIME(2359) SETSRM TIME(00:00)</p>
TKN	<p>The token value is either a 2-position SMVSCF suffix value, a 4-position VTOC Scan collection data set token number as appears on WBVTOC, or a complete data set name. This value is used to determine the VTOC Scan data set to use in satisfying data set view requests.</p> <p>Default: If TKN is not specified, the master VTOC Scan file is used.</p> <p>Values:</p> <ul style="list-style-type: none"> • SMVSCF suffix. A SMVSCF member with the specified suffix does not have to exist. If specified, the most current VTOC scan collection file created from the member is used. • Data Set Token. The whole number identifying a VTOC scan collection data set. If specified the collection data set with the specified token number is used. This is a four position number. For example, 0001. Note that the master VTOC Scan collection file will always be assigned a token of 0001. • Data Set Name. The complete data set name of the VTOC Scan collection data set. If specified the data set is used. <p>NOTE: If the data set name is too long to fit on the command line, use either the 4-character token value or the SETSRM VIEW to enter the data set name.</p> <p>Shortcut: none</p> <p>Examples: SETSRM TKN(00) SETSRM TKN(0002) SETSRM TKN(MVSRM71.VCAN.D053102.T110000)</p>

Table A-1 SETSRM Keywords (Part 21 of 25)

Keyword	Description
TMS	<p>This optional keyword specifies the tape management system to be used for the view.</p> <p>Values: C=CA-1 from Computer Associates International R=RMM from IBM T=CONTROL-T from BMC Software, Inc.</p> <p>Default: If you do not specify a value, then processing includes all tape management systems that MAINVIEW SRM supports.</p> <p>Note: If a tape scan was performed with only a value of "T," then only CONTROL-T data is available to all views that use that tape scan database.</p> <p>Shortcut: none</p> <p>Example: SETSRM TMS(T)</p>
TODSN	<p>Use this optional keyword to specify a data set name or mask at which to end.</p> <p>Default: If you do not specify a value, then the default is the last data set.</p> <p>Values: Fully qualified data set name or partial data set name suffixed with "/", or "/".</p> <p>Shortcut: none</p> <p>Examples: SETSRM FROMDSN(my.data.set.name.aaa) TODSN(my.data.set.xxx)</p>
TOVOL	<p>Use this keyword to specify a volume serial or volume serial mask value. Standard MAINVIEW SRM masking characters apply. Use it in connection with FROMVOL to set a range of volumes on which to report.</p> <p>Default: All volumes</p> <p>Values: must follow volume naming conventions; Volume does not have to exist.</p> <p>Shortcut: none</p> <p>Examples: SETSRM FROMVOL(WRK000) TOVOL(*) SETSRM FROMVOL(AA*) TOVOL(BB*)</p>

Table A-1 SETSRM Keywords (Part 22 of 25)

Keyword	Description
TREND	<p>Specifies resource trending options. The TREND keyword indicates whether trending reporting is on or off, and whether trending should be done at the snapshot level.</p> <p>Valid in performance and space views.</p> <p>TRENDING ON causes the historical views to display information on a single resource over multiple collection intervals. The TIME command is used to determine the start and stop date/times of the interval. The single resource is indicated by another SETSRM keyword. For example, view PRVOL is invoked with trending ON. The VOLUME keyword of SETSRM then indicates the volume to trend. The TIME command indicates the time interval to cover. The resulting display contains one entry for each collection interval the volume was a part of. The display starts with the TIME command END DATE/TIME and proceeds backwards through time for the TIME command INTERVAL value.</p> <p>TREND values of YES, ON, and SNAPSHOT indicate to display one line of data for each collection interval during the time span indicated by the TIME command.</p> <p>TRENDING OFF displays data for all volumes for the time indicated by either the TIME command or the DATE/TIME SETSRM keywords.</p> <p>Default: If you do not specify a value, then the default is OFF.</p> <p>Values: YES, Y, ON, SNAPSHOT, NO, N, OFF</p> <p>Shortcut: TR</p> <p>Examples: SETSRM TREND(YES) SETSRM TR(SNAPSHOT)</p>

Table A-1 SETSRM Keywords (Part 23 of 25)

Keyword	Description
TXXFILL	<p>Use this keyword to set selection flags, using each byte for a different selection, as follows:</p> <p>Byte 1 is used to select SMF data or not. Values: Y = use SMF data N = do not use SMF data</p> <p>Byte 2 is used to select that a detail view be displayed Value: D = generate a detail view</p> <p>Byte 3 is used to determine if the detail view is for application group, volume, or library. This field applies only to detail views. Values: A = detail view based on application group L = detail view based on library V = detail view based on volume</p> <p>Defaults: Byte 1: "N" Byte 2: none Byte 3: none</p> <p>Shortcut: none</p> <p>Examples: SETSRM TXXFILL(YDV) - produce a detail report on a single entry based on the volume and use SMF data SETSRM TXXFILL(NNL) - produce a report for all library records (use T01 records)</p>
TYPE	<p>Specifies whether the GROUP keyword value is a pool, subpool, or storage group name</p> <p>Possible values are: POOL, P, SUBPOOL, SP, STORGROUP, STORGRP, SG</p> <p>Default: If you do not specify a value, then the default is storage group.</p> <p>Shortcut: T</p> <p>Examples: SETSRM T(P) GROUP(WORKPOOL) SETSRM TYPE(POOL) GROUP(APPLPOOL)</p>

Table A-1 SETSRM Keywords (Part 24 of 25)

Keyword	Description
VOLMEDIA	<p>Use this optional keyword to specifies a volume media. <i>See also</i> LIBTYPE.</p> <p>Values: A=automate tape library V=virtual tape library M>manual tape library</p> <p>Default: If you do not specify a value, then all volume media are used.</p> <p>Shortcut: VM</p> <p>Examples: SETSRM VOLMEDIA(A) SETSRM VM(V)</p>
VOLTYPE	<p>Use this optional keyword to specify a three byte-volume type.</p> <p>Values: MTV=Manual Tape Volume MVC=Multi-Volume Cartridge RTV=Real Tape Volume VTV=Virtual Tape Volume</p> <p>Default: If you do not specify a value, then all volume types are included.</p> <p>Shortcut: none</p> <p>Example: SETSRM VOLTYPE(VTV)</p>
VOLTYPE	<p>The value indicates the type of volume for reporting purposes. The volume type is used in the HSM-related views.</p> <p>Default: If you do not specify a value, then all volume types are displayed.</p> <p>Values:</p> <ul style="list-style-type: none"> • A indicates all volume types. • M indicates migration volume types • D indicates daily backup volume types • B indicates spill backup volume types • U indicates unassigned volume types <p>Shortcut: none</p> <p>Example: SETSRM VOLTYPE(M)</p>

Table A-1 SETSRM Keywords (Part 25 of 25)

Keyword	Description
VOLUME	<p>Use this optional keyword to specify a volume at which to start.</p> <p>Values: volume serial number that follows volume naming conventions</p> <p>Default: If you do not specify a value, then all volumes are included.</p> <p>Shortcut: VOL, VOLSER, V</p> <p>Examples: SETSRM VOL(WORK01) SETSRM V(HSM002)</p>
VOLUME	<p>The value is a volume serial or volume serial mask value. Standard MAINVIEW SRM masking characters apply unless otherwise specified.</p> <p>This keyword is used by some performance views in conjunction with the GRPTYPE keyword. See LCU value of the GRPTYPE keyword for where this is used.</p> <p>Default: If you do not specify a value, then all volumes are displayed unless the view requires a value.</p> <p>Values must follow volume naming conventions. The volume does not have to exist.</p> <p>Shortcuts: VOL, VOLSER, V</p> <p>Examples: SETSRM VOL(WORK01) SETSRM V(HSM002)</p>

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(b) **Fees.** The annual fee for Support is 20% of the Software's list price less the applicable discount or a flat capacity based annual fee. BMC may change its prices for the Software and/or Support upon at least 30 days notice prior to Your support anniversary date.

VERIFICATION. If requested by BMC, You agree to deliver to BMC periodic written reports, whether generated manually or electronically, detailing Your use of the Software in accordance with this Agreement, including, without limitation, the License Capacity. BMC may, at its expense, audit Your use of the Software to confirm Your compliance with the Agreement. If an audit reveals that You have underpaid fees, You agree to pay such underpaid fees. If the underpaid fees exceed 5% of the fees paid, then You agree to also pay BMC's reasonable costs of conducting the audit.

EXPORT CONTROLS. You agree not to import, export, re-export, or transfer, directly or indirectly, any part of the Product or any underlying information or technology except in full compliance with all United States, foreign and other applicable laws and regulations.

GOVERNING LAW. This Agreement is governed by the substantive laws in force, without regard to conflict of laws principles: (a) in the State of New York, if you acquired the License in the United States, Puerto Rico, or any country in Central or South America; (b) in the Province of Ontario, if you acquired the License in Canada (subsections (a) and (b) collectively referred to as the "**Americas Region**"); (c) in Singapore, if you acquired the License in Japan, South Korea, Peoples Republic of China, Special Administrative Region of Hong Kong, Republic of China, Philippines, Indonesia, Malaysia, Singapore, India, Australia, New Zealand, or Thailand (collectively, "**Asia Pacific Region**"); or (d) in the Netherlands, if you acquired the License in any other country not described above. The United Nations Convention on Contracts for the International Sale of Goods is specifically disclaimed in its entirety.

ARBITRATION. ANY DISPUTE BETWEEN YOU AND BMC ARISING OUT OF THIS AGREEMENT OR THE BREACH OR ALLEGED BREACH, SHALL BE DETERMINED BY BINDING ARBITRATION CONDUCTED IN ENGLISH. IF THE DISPUTE IS INITIATED IN THE AMERICAS REGION, THE ARBITRATION SHALL BE HELD IN NEW YORK, U.S.A., UNDER THE CURRENT COMMERCIAL OR INTERNATIONAL, AS APPLICABLE, RULES OF THE AMERICAN ARBITRATION ASSOCIATION. IF THE DISPUTE IS INITIATED IN A COUNTRY IN THE ASIA PACIFIC REGION, THE ARBITRATION SHALL BE HELD IN SINGAPORE, SINGAPORE UNDER THE CURRENT UNCITRAL ARBITRATION RULES. IF THE DISPUTE IS INITIATED IN A COUNTRY OUTSIDE OF THE AMERICAS REGION OR ASIA PACIFIC REGION, THE ARBITRATION SHALL BE HELD IN AMSTERDAM, NETHERLANDS UNDER THE CURRENT UNCITRAL ARBITRATION RULES. THE COSTS OF THE ARBITRATION SHALL BE BORNE EQUALLY PENDING THE ARBITRATOR'S AWARD. THE AWARD RENDERED SHALL BE FINAL AND BINDING UPON THE PARTIES AND SHALL NOT BE SUBJECT TO APPEAL TO ANY COURT, AND MAY BE ENFORCED IN ANY COURT OF COMPETENT JURISDICTION. NOTHING IN THIS AGREEMENT SHALL BE DEEMED AS PREVENTING EITHER PARTY FROM SEEKING INJUNCTIVE RELIEF FROM ANY COURT HAVING JURISDICTION OVER THE PARTIES AND THE SUBJECT MATTER OF THE DISPUTE AS NECESSARY TO PROTECT EITHER PARTY'S CONFIDENTIAL INFORMATION, OWNERSHIP, OR ANY OTHER

PROPRIETARY RIGHTS. ALL ARBITRATION PROCEEDINGS SHALL BE CONDUCTED IN CONFIDENCE, AND THE PARTY PREVAILING IN ARBITRATION SHALL BE ENTITLED TO RECOVER ITS REASONABLE ATTORNEYS' FEES AND NECESSARY COSTS INCURRED RELATED THERETO FROM THE OTHER PARTY.

U.S. GOVERNMENT RESTRICTED RIGHTS. The Software under this Agreement is "commercial computer software" as that term is described in 48 C.F.R. 252.227-7014(a)(1). If acquired by or on behalf of a civilian agency, the U.S. Government acquires this commercial computer software and/or commercial computer software documentation subject to the terms of this Agreement as specified in 48 C.F.R. 12.212 (Computer Software) and 12.211 (Technical Data) of the Federal Acquisition Regulations ("FAR") and its successors. If acquired by or on behalf of any agency within the Department of Defense ("DOD"), the U.S. Government acquires this commercial computer software and/or commercial computer software documentation subject to the terms of this Agreement as specified in 48 C.F.R. 227.7202 of the DOD FAR Supplement and its successors.

MISCELLANEOUS TERMS. You agree to pay BMC all amounts owed no later than 30 days from the date of the applicable invoice, unless otherwise provided on the order for the License to the Products. You will pay, or reimburse BMC, for taxes of any kind, including sales, use, duty, tariffs, customs, withholding, property, value-added (VAT), and other similar federal, state or local taxes (other than taxes based on BMC's net income) imposed in connection with the Product and/or the Support. This Agreement constitutes the entire agreement between You and BMC and supersedes any prior or contemporaneous negotiations or agreements, whether oral, written or displayed electronically, concerning the Product and related subject matter. No modification or waiver of any provision hereof will be effective unless made in a writing signed by both BMC and You. You may not assign or transfer this Agreement or a License to a third party without BMC's prior written consent. Should any provision of this Agreement be invalid or unenforceable, the remainder of the provisions will remain in effect. The parties have agreed that this Agreement and the documents related thereto be drawn up in the English language. Les parties exigent que la présente convention ainsi que les documents qui s'y rattachent soient rédigés en anglais.

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