

MAINVIEW® SRM StorageGUARD User Guide and Reference

Version 7.1

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

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About This Book

This book contains detailed information about the MAINVIEW® Storage Resource Manager StorageGUARD product by BMC Software and is intended for storage administrators.

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

- MAINVIEW SRM operations (see the *MAINVIEW SRM User Guide and Reference*)
- OS/390 operating system, job control language (JCL)
- Interactive System Productivity Facility (ISPF)

How This Book Is Organized

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

Chapter/Appendix	Description
Chapter 1, "Introduction to StorageGUARD"	provides an overall product description of StorageGUARD
Chapter 2, "StorageGUARD Functions"	explains how to start historical performance data collection and describes the functions available for use
Chapter 3, "Real Time Storage Performance Monitor"	describes the DASD Performance reports and how they work
Chapter 4, "Real Time RAID Configurations"	describes how to generate reports that assist you in reporting and viewing RAID hardware-specific information
Chapter 5, "Historical Space Data"	<ul style="list-style-type: none">• provides information about using the StorageGUARD space data collector• describes how to use historical space views

Chapter/Appendix	Description
Chapter 6, "Historical Performance Data"	<ul style="list-style-type: none"> • provides a reference for SMF and CMF/RMF parameters, optional system parameters for historical performance data collection, and a database calculator for estimating the historical performance database • describes how to use historical performance views that assist you in determining the current use and growth of performance in your data center
Chapter 7, "Workbench"	describes how to use views that can assist you with daily housekeeping of your DASD environment
Chapter 8, "Tape Reporting"	describes how to use the tape reporting facility
Appendix A, "Copy/Merge Utility"	provides a utility program to convert the StorageGUARD database to the current version

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BMC Software products are supported by several types of documentation:

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

In addition to this book and the online Help, you can find useful information in the publications listed in the following table. These publications are available on request from BMC Software.

Category	Document	Description
MAINVIEW common documents	<i>OS/390 and z/OS Installer Guide</i> <i>MAINVIEW Installation Requirements Guide</i> <i>MAINVIEW Common Customization Guide</i> <i>Using MAINVIEW</i> <i>MAINVIEW Administration Guide</i> <i>Implementing Security for MAINVIEW</i>	provide instructions for installing, configuring, using, and administering MAINVIEW
MAINVIEW SRM customization documents	<i>MAINVIEW SRM Customization Guide</i>	provides instructions for configuring and customizing MAINVIEW SRM for OS/390 including StorageGUARD
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
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.
specific (standard) keyboard key names	Press Enter .
field names, text on a panel	Type the appropriate entry in the Command field.
directories, file names, Web addresses	The BMC Software home page is at www.bmc.com .
nonspecific key names, option names	Use the HELP function key. KEEPDICTIONARY option
calls, commands, control statements, keywords, parameters, reserved words	Use the SEARCH command to find a particular object. The product generates the SQL TABLE statement next.
code examples, syntax statements, system messages, screen text	//STEPLIB DD The table <i>table_name</i> is not available.
emphasized words, new terms, variables	The instructions that you give to the software are called <i>commands</i> . In this message, the variable <i>file_name</i> represents the file that caused the error.
single-step procedures	>> To enable incremental backups, type y and press Enter at the next prompt.

This book uses the following types of special text:

Note: Notes contain important information that you should consider.

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

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

Syntax Statements

Syntax statements appear in 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.	<i>dtsbackup control_directory</i>
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.	[<i>table_name, column_name, field</i>]
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.	{ <i>DBD_name table_name</i> }
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> .	{ <i>commit cancel</i> }
An ellipsis indicates that you can repeat the previous item or items as many times as necessary.	<i>column_name . . .</i>

Chapter 1 Introduction to StorageGUARD

This chapter provides a high-level overview of the BMC Software MAINVIEW SRM StorageGUARD product. The following information is included:

Overview	1-1
StorageGUARD Data Collectors	1-2
Historical Space Data Collector	1-3
Historical Performance Data Collector	1-3
Storage Performance Monitoring	1-4
RAID Configuration Monitoring	1-5
StorageGUARD Workbench	1-5
Tape Reporting	1-6

Overview

StorageGUARD is a component product of MAINVIEW SRM. For a description of the interface and system navigation instructions, refer to the *MAINVIEW SRM User Guide and Reference*. If you are migrating from a previous release of StorageGUARD, see the *MAINVIEW SRM Customization Guide* (if you have not already done so).

To plan and forecast DASD utilization, you first must know how your existing DASD environment is being used and how it is performing over time. To do so, you must collect, display, automate, manage, and report on relevant DASD information.

StorageGUARD monitors and reports on DASD consumption and allows you to dynamically control DASD utilization. Views enable the DASD administrator to review historic DASD usage and control current and future DASD usage. Physical views of storage devices can be supplemented with user-defined application views by the MAINVIEW SRM SG-Control product, allowing for budgeting and measurement by logical groups. The MAINVIEW SRM SG-Auto product provides an automation facility that monitors utilization and fragmentation, drives an unlimited series of corrective actions, and supports user customization.

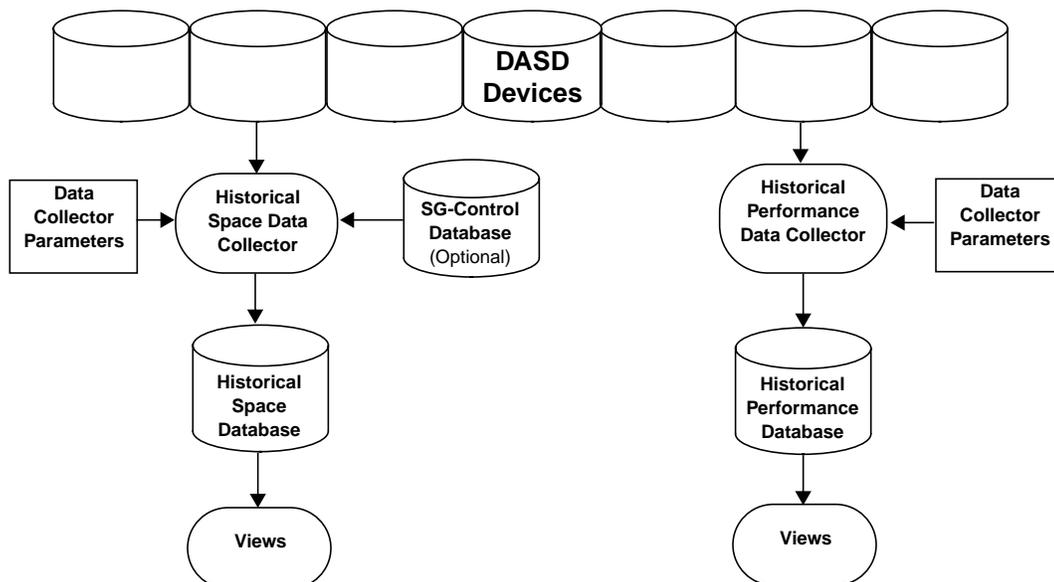
StorageGUARD also provides for the collection of historical performance information. You control the collection of data set-level information.

StorageGUARD Data Collectors

StorageGUARD is equipped with two data collectors: *historical space* and *historical performance*.

Figure 1-1 on page 1-2 provides an overview of the StorageGUARD data flow process, showing the relationship between the historical space and historical performance data collectors.

Figure 1-1 StorageGUARD Data Collector Process Flow



Historical Space Data Collector

Historical space views are updated automatically at user-defined intervals (called snapshots). The historical space data collector writes the snapshot to a linear data set that maintains storage utilization information by volume, pool, and application. The period for which information is available is determined by the frequency of the snapshot as well as the size of the StorageGUARD database. If SG-Control is installed and active, application-level information can be extracted from the SG-Control database. Table 1-1 provides a quick reference to historical space views.

Table 1-1 Historical Space View Summary

To view...	Go to...	Page
a list of interval snapshots and links to summarized and other views for DASD devices	SPSNAP	5-10
pool-level space usage information	SPPOOL	5-12
RAID device usage information	SPRAID SPRAIDVO	5-15 5-17
application-level space usage information	SPAPPL	5-20
volume-level space usage information	SPVOL	5-23

Historical Performance Data Collector

The historical performance data collector extracts information from sources such as SMF, RMF, or CMF MONITOR and combines it with additional information on the current status of a volume. The historical performance collector can store data in a maximum of 100 databases before old data is overwritten. There is never more than one *active* historical performance database, but at startup, previously collected data from all databases can be accessed.

Historical performance views are updated automatically at user-defined intervals (called snapshots). Information is provided for activity for devices, I/O queuing, and channels and contention by enqueue and reserves.

Table 1-2 provides a quick reference to historical performance views.

Table 1-2 Historical Performance View Summary (Part 1 of 2)

To view...	Go to...	Page
summarized performance history information by time for historical data	PRSSUM	6-9
all the interval reports on the database	PRINTV	6-11

Table 1-2 Historical Performance View Summary (Part 2 of 2)

To view...	Go to...	Page
a selected channel path record for a specific date and time	PRCHP	6-12
a selected cache controller record for a specific date and time	PRCCU	6-15
a selected logical control unit record for a specific date and time	PRLCU	6-19
a selected pool record for a specific date and time	PRPOOL	6-23
a selected volume record for a specific date and time	PRVOL	6-26
a selected storage class record for a specific date and time	PRSCL	6-30
a selected data set record for a specific date and time	PRDS	6-32
a selected job record for a specific date and time	PRJOB	6-36

Views enable you to drill down to the data set level, obtain extensive details, or view historical information.

Storage Performance Monitoring

StorageGUARD provides a unique perspective on DASD-related performance information. Views show DASD device, channel, and I/O queuing activity.

Table 1-3 provides a quick reference to real-time storage performance views.

Table 1-3 Storage Performance View Summary

To monitor the...	Go to...	Page
volume status, SMS status, mount status, and paging indicators	MDEV	3-4
percentage-busy statistics of the channel (both numerically and graphically) and to examine channels with large continuous amounts of busy time for possible performance degradation problems	MCHAN	3-6
performance throughput of your I/O subsystem and to get help in determining I/O queuing bottlenecks in your DASD I/O configuration	MIOQ	3-6
outstanding RESERVE requests against the serially reusable resources in the system	MRES	3-7
contention that exists for all serially reusable resources in your system	MENQ	3-7

RAID Configuration Monitoring

Vendor-specific RAID configuration views use vendor-supplied APIs (as available) and provide information that is critical to the optimization of these devices. For example, StorageGUARD maps logical volumes to physical volumes, providing critical information for solving common problems with many RAID devices. Hardware configuration and performance characteristics are also reported.

Support is provided for

- EMC Symmetrix Integrated Cache Disk Array (ICDA)
- IBM® RAMAC, RAMAC Virtual Array (RVA)
- IBM Enterprise Storage Server (ESS)

Table 1-4 provides a quick reference to RAID configuration views.

Table 1-4 RAID Configuration View Summary

To monitor the...	Go to...	Page
hardware configuration and performance characteristics of Symmetrix 5000 RAID subsystems	REBOX	4-4
racks accessed by the current OS/390 system	RIBOX	4-6

From each of these views, you can drill down to specific information about each device type.

StorageGUARD Workbench

The MAINVIEW SRM Workbench provides a set of real-time data set-level and VTOC-level reports to simplify the following daily DASD housekeeping functions:

- HLQ (High-Level Qualifier)
- Catalog Super Locate
- VTOC Scan Facility

A powerful search engine drives this component and uses the tabular display facility. With these reports and utilities, you can locate problem data sets and take action if necessary. You can inspect data sets from the catalog and VTOC viewpoints.

Table 1-4 provides a quick reference to RAID configuration views.

Table 1-5 Workbench View Summary

To...	Go to...	Page
see a top-down view of high-level qualifiers in the catalog	WBHLQ	7-4
zoom in on a specified high-level qualifier	WBSL	7-5
scan all the VTOCs to find duplicate and non-cataloged data sets	WBVTOC	7-8

Catalog Super Locate and VTOC views have action commands that allow you to manage data sets actively, as needed.

Online view customization enables you to move, mask or filter, scroll left and right, sort, rearrange columns, export data, and generate printed reports of the data. Selection criteria can be customized for displays.

Tape Reporting

The tape reporting facility derives and consolidates information from your existing tape management software and other sources to assist in the prevention of errors related to tape.

The tape reporting facility reports on both physical and virtual tape library systems and supports both the IBM and StorageTek virtual library systems and interfaces with CA-1, DFSMSrmm, and Control-T.

The tape reporting facility provides reports that enable you to

- determine if the tape resource is being used efficiently
- manage the Automated Tape Library (ATL) and to report on usage of the tape library
- view both the performance and the utilization of the virtual tape system and take the necessary steps to improve both

The tape reporting facility can help reduce operations expenses with better resource utilization. Capacity analysis can help you achieve workload balancing by getting more benefit from fewer resources. Global auditing reduces errors related to tape and increases availability.

Table 1-6 **Tape Reporting Summary**

To...	Go to page...
define system parameters	8-6
initiate a tape scan collection	8-6
access tape scans	8-7
access tape views	8-8
navigate to drill-down views	8-10
navigate using view names	8-24
see sample reports	8-26

Chapter 2 StorageGUARD Functions

This chapter describes the functions that StorageGUARD uses for collecting historical space and performance data. The following information is included:

Overview	2-1
Filter List Parameters	2-2
Function Descriptions	2-6

Overview

In MAINVIEW SRM StorageGUARD, storage management services are divided into functions. Functions provide all the runtime services for MAINVIEW SRM. Functions are defined in the SMFUNCxx parmlib member. SMFUNCxx is read by MAINVIEW SRM during system start up. The suffix specification in the SMMSYSxx member indicates which version of SMFUNCxx contains function specifications for the particular configuration of MAINVIEW SRM that is being executed.

SMFUNCxx points to the SMFLSTxx (filter list) member, which selects resources and controls the operation of the functions. SMFUNCxx is a required member, and StorageGUARD does nothing without defined function parameters. For more information about system and function definition, see the *MAINVIEW SRM User Guide and Reference*.

Filter List Parameters

Table 2-1 lists all the filter list parameters used by StorageGUARD functions. Because parameters are used for more than one function, they are listed in alphabetical order in this table. Within the description of each function, there is a list of parameters used by that function.

Table 2-1 Filter List Parameters for StorageGUARD (Part 1 of 4)

Parameter	Description
DSN=xxxxxxxxxxxxxxxx	data set name (1–44 characters)
DSTYPE=xxxx	data set type (PERM, TEMP, GDG)
EVENTID=xxxxx	specifies an event identifier
JOB=xxxxxxx	job, TSO, or STC name (1–8 characters)
SGDA_ALNV=nnnnnnnnnn	specifies the total space allocated to non-VSAM data sets in the account
SGDA_ALV=nnnnnnnnnn	specifies the total space allocated to VSAM data sets in the account
SGDA_AVAIL=nnnnnnnnnn	specifies the total space available in the account
SGDA_GRP=xxxxxxxx	specifies the SG-Control group name; also known as account name
SGDA_IDLE=nnnnnnnnnn	specifies the total allocated space that is unused in the account
SGDA_NVDS=nnnnn	specifies the number non-VSAM data sets in the account
SGDA_VSD=nnnnn	specifies total number of VSAM data sets in the account
SGDP_ALNV=nnnnnnnnnn	specifies the space allocated for non-VSAM data sets in the pool
SGDP_ALV=nnnnnnnnnn	specifies the total space allocated to VSAM data sets in the pool
SGDP_AVAIL=nnnnnnnnnn	specifies the total space available in the pool
SGDP_IDLE=nnnnnnnnnn	specifies the space allocated and unused in the pool
SGDP_NCLPER=nnnn	specifies the net capacity load percentage in tenths of a percent (0-1000)
SGDP_NNV=nnnnn	specifies the number of non-VSAM data sets in the pool
SGDP_NV=nnnnn	specifies the number of VSAM data sets in the pool
SGDP_NVOL=nnnnn	specifies the number of volumes in the pool
SGDP_PERFUL	specifies the Percentage Full or Percentage Allocated for all volumes in the pool
SGDP_POOL=xxxxxxxx	specifies the pool name for reporting
SGDP_RSVD=nnnnnnnnnn	specifies the total reserved space in the pool
SGDP_RVAARC=nnnnnnnnnn	specifies the array capacity of the device for RVA pools
SGDP_RVAIND=YES/NO	specifies whether the pool is for an RVA device
SGDP_RVANCL=nnnnnnnnnn	specifies the net capacity load of the RVA device
SGDP_RVAFSC=nnnnnnnnnn	specifies the amount of space collected by free space collection activity during the interval for RVA pools

Table 2-1 Filter List Parameters for StorageGUARD (Part 2 of 4)

Parameter	Description
SGDP_RVAFNC= <i>nnnnnnnnnn</i>	specifies the amount of space not collected by free space collection activity during the interval for RVA pools
SGDP_TYPE= <i>x</i>	specifies the type of pool
SGDV_ALREXT= <i>nnnnn</i>	specifies the number of additional tracks in largest free extent on the volume
SGDV_FRAGI= <i>nnnnn</i>	specifies the fragmentation index on the volume
SGDV_FRCYL= <i>nnnnn</i>	specifies the number of free cylinders on the volume
SGDV_FREXT= <i>nnnnn</i>	specifies the number of free extents on the volume
SGDV_FRVIR= <i>nnnnn</i>	specifies the free VIR count on the volume
SGDV_IDTR= <i>nnnnn</i>	specifies the total number of idle tracks on the volume
SGDV_LREXT= <i>nnnnn</i>	specifies the number of cylinders in largest free extent on the volume
SGDV_LREXTT= <i>nnnnn</i>	specifies the size of largest extent in tracks on the volume
SGDV_NDS= <i>nnnnn</i>	specifies the total number of data sets on the volume
SGDV_NF0DSC= <i>nnnnn</i>	specifies the format 0 (free) DSCB count on the volume
SGDV_PERFUL	specifies the Percentage Full or Percentage Allocated for the volume
SGDV_POOL= <i>xxxxxxxx</i>	specifies the first pool name in which the volume is defined
SGDV_POOL1= <i>xxxxxxxx</i>	specifies pool name in which the volume is defined
SGDV_PTYP= <i>x</i>	specifies the pool type
SGDV_RVAIND= <i>YES/NO</i>	indicates whether the volume exists on a RVA frame
SGDV_RVAFDV= <i>xxxxxxxx</i>	specifies the functional device ID for a volume existing on a RVA frame
SGDV_RVAPCS= <i>nnnnn</i>	specifies the physical capacity shared for a volume existing on a RVA device
SGDV_RVAPCU= <i>nnnnn</i>	specifies the physical capacity used for a volume existing on a RVA device
SGDV_RVASSF= <i>xxxxxxxx</i>	specifies the RVA subsystem frame name for the RVA frame the volume exists on
SGDV_RVAVOL= <i>xxxxxxxx</i>	specifies the descriptive volume name of a volume existing on a RVA frame
SGDV_RSRVDT= <i>nnnnn</i>	specifies the number of reserved tracks (not included in free space) on the volume
SGDV_USEXT= <i>nnnnn</i>	specifies the number of used extents on the volume
SGDV_VOL= <i>xxxxxxxx</i>	specifies the volume serial number of the volume
SGP_@BUSY=>< <i>nnn</i>	specifies channel path busy threshold for inclusion or exclusion
SGP_BESCOLT= <i>nnnnnnnn</i>	specifies the collected back-end space in tenths of a MB
SGP_BESFREE= <i>nnnnnnnn</i>	specifies the free back-end space in tenths of a MB
SGP_BESTOTL= <i>nnnnnnnn</i>	specifies the total back-end space in tenths of a MB
SGP_BESUNCL= <i>nnnnnnnn</i>	specifies the uncollected back-end space in tenths of a MB
SGP_CFWHIT@=>< <i>nnn</i>	specifies number of CFAST writes reads per-second threshold

Table 2-1 Filter List Parameters for StorageGUARD (Part 3 of 4)

Parameter	Description
SGP_CFWPRSC=><nnn	specifies number of CFAST writes reads per-second threshold
SGP_CHPID=><xx	specifies channel paths to be included or excluded
SGP_CNTLUID=><xx	specifies subsystem IDs of cache controllers to be included or excluded
SGP_CONNTIM=><nnnnn	specifies the data set connect time threshold in .1 millisecond increments
SGP_CUBSYDL=><nnnnn	specifies the control unit busy delay threshold in .1 millisecond increment
SGP_DFWHIT@=><nn	specifies percentage of DFAST writes satisfied by cache threshold
SGP_DFWPRSC=><nnn	specifies number of DFAST writes per-second threshold
SGP_DISCTIM=><nnnnn	specifies the data set disconnect time threshold in .1 millisecond increments
SGP_DP@BUSY=><nn	specifies director port busy percentage to be included or excluded
SGP_DPBSYDL=><nnnnn	specifies the director port busy delay time threshold in .1 millisecond increments
SGP_DVBSYDL=><nnnnn	specifies the device busy delay time threshold in .1 millisecond increments
SGP_ECMCFBS=nnnnnnnn	specifies the ECAM channel programs bypassed due to busy configuration in tenths of a MB
SGP_ECMMSGs=nnnnnnnn	specifies ECAM messages processed in tenths of a MB
SGP_ECMNSPC=nnnnnnnn	specifies the ECAM channels programs bypassed due to no buffer space in tenths of a MB
SGP_ECMPGMS=nnnnnnnn	specifies the ECAM channel programs in tenths of a MB
SGP_FSCBYRD=nnnnnnnn	specifies the collected free space bytes read in tenths of a MB
SGP_FSCPERC=nnnn	specifies the percentage of collected free space in tenths of a percent
SGP_FSUPERC=nnnn	specifies the net capacity load percentage in tenths of a percent
SGP_IOPRSEC=><nnn	specifies number of IOs per-second threshold
SGP_IOSQTIM=><nnnnn	specifies the data set IOSQ time threshold in .1 millisecond increments
SGP_LCU@BUSY=><nn	specifies LCU busy percentage to be included or excluded
SGP_LCUID=><xx	specifies the logical control unit id of those controllers to be included or excluded
SGP_NCLPERC=nnnn	specifies the percentage of uncollected free space in tenths of a percent
SGP_NRDHIT@=><nnn	specifies percentage of normal reads satisfied by cache threshold
SGP_NRDSEC=><nnn	specifies number of normal reads per-second threshold
SGP_NWRHIT@=><nnn	specifies percentage of normal writes satisfied by cache threshold
SGP_NWRTPSC=><nnn	specifies number of normal writes per-second threshold
SGP_PENDTIM=><nnnnn	specifies the data set pending time threshold in .1 millisecond increments
SGP_RDHIT@=><nnn	specifies percentage of reads satisfied by cache threshold
SGP_RDSPRSC=><nnn	specifies number of reads per-second threshold
SGP_READ@=><nnn	specifies the percentage of IOs that are reads threshold
SGP_RESERV@=><nn	specifies percentage volume is reserved for inclusion or exclusion

Table 2-1 Filter List Parameters for StorageGUARD (Part 4 of 4)

Parameter	Description
SGP_RESPTIM=><nnnnn	specifies the data set response time threshold in .1 millisecond increments
SGP_RSFNAME=xxxxxxx	specifies the IXPF subsystem frame name
SGP_SRDHIT@=><nnn	specifies percentage of sequential reads satisfied by cache threshold
SGP_SRDPRSC=><nnn	specifies number of sequential reads per-second threshold
SGP_SWRHIT@=><nnn	specifies percentage of sequential writes satisfied by cache threshold
SGP_SWRPRSC=><nnn	specifies number of sequential writes reads per-second threshold
SGP_WRHIT@=><nnn	specifies percentage of writes satisfied by cache threshold
SGP_WRITE@=><nnn	specifies percentage of IOs that are writes threshold
SGP_WRPRSEC=><nnn	specifies number of writes per-second threshold
VOL=xxxxxx	volume name (1–6 characters)

Function Descriptions

Table 2-2 provides a description StorageGUARD functions and lists valid filter list parameters for each. There are no valid rule list parameters for StorageGUARD functions. Examples for many of the functions are shown following the table.

Table 2-2 StorageGUARD Functions (Part 1 of 5)

Function	Description	Filter List Parameters
SGDACCT	application utilization thresholds - allows events to be generated from thresholds on values in the group utilization record.	EVENTID SGDA_ALNV SGDA_ALV SGDA_AVAIL SGDA_GRP SGDA_IDLE SGDA_NVDS SGDA_VDS
SGDPOOL	pool utilization thresholds - allows events to be generated from thresholds on values in the pool utilization record	EVENTID SGDP_ALNV SGDP_ALV SGDP_AVAIL SGDP_IDLE SGDP_NCLPER SGDP_NNV SGDP_NV SGDP_NVOL SGDP_POOL SGDP_RSVD SGDP_RVAARC SGDP_RVAFNC SGDP_RVAFSC SGDP_RVAIND SGDP_RVANCL SGDP_TYPE SGDP_PERFUL

Table 2-2 StorageGUARD Functions (Part 2 of 5)

Function	Description	Filter List Parameters
SGDVOL	volume utilization thresholds - allows events to be generated from thresholds on values in the volume utilization record	EVENTID SGDV_ALREXT SGDV_FRAGI SGDV_FRCYL SGDV_FREXT SGDV_FRVIR SGDV_IDTR SGDV_LREXT SGDV_LREXTT SGDV_NDS SGDV_NF0DSC SGDV_POOL SGDV_POOL1 SGDV_PTYT SGDV_RSRVDT SGDV_RVAFDV SGDV_RVAIND SGDV_RVAPCS SGDV_RVAPCU SGDV_RVASSF SGDV_RVAVOL SGDV_USEXT SGDV_VOL SGDV_PERFUL
SGPCCURC	cache controller records - controls the inclusion or exclusion of the cache controller records	EVENTID JOB SGP_CNTLUID SGP_IOPRSEC SGP_NRDHIT@ SGP_NRDPRSEC SGP_NWRHIT@ SGP_NWRTPSC SGP_RDHIT@ SGP_RDSPRSC SGP_READ@ SGP_SRDHIT@ SGP_SRDPRSC SGP_SWRHIT@ SGP_SWRPRSC SGP_WRHIT@ SGP_WRITE@ SGP_WRPSEC
SGPCPREC	channel path records - controls the inclusion or exclusion of the channel path records members	EVENTID JOB SGP_CHPID SGP_DP@BUSY SGP_IOPRSEC

Table 2-2 StorageGUARD Functions (Part 3 of 5)

Function	Description	Filter List Parameters
SGPDSREC	data set records - controls the inclusion or exclusion of the data set records.	DSN DSTYPE EVENTID JOB SGP_CONNTIM SGP_DISCTIM SGP_IOPRSEC SGP_IOSQTIM SGP_JOB_CNT SGP_PENDTIM SGP_RDHIT@ SGP_READ@ SGP_RESPTIM SGP_SERVTIM SGP_WRHIT@ SGP_WRITE@ STORCLAS VOL
SGPFILTR	data set type filter - controls the inclusion or exclusion of the data set record based on the data set type SGPFILTR applies to all data sets. Filtering temporary data sets with SGPFILTR will give better performance than using the DSTYPE keyword in the SGPDSREC member.	DSN DSTYPE EVENTID
SGPJBIRC	job records - controls the inclusion or exclusion of the job records	EVENTID JOB SGP_CONNTIM SGP_DISCTIM SGP_IOPRSEC SGP_IOSQTIM SGP_PENDTIM SGP_RDHIT@ SGP_READ@ SGP_RESPTIM SGP_SERVTIM SGP_WRHIT@ SGP_WRITE@
SGPLCURC	logical control unit records - controls the inclusion or exclusion of the logical control unit records	EVENTID JOB SGP_DP@BUSY SGP_IOPRSEC SGP_LCUID SGP_LCU@BSY

Table 2-2 StorageGUARD Functions (Part 4 of 5)

Function	Description	Filter List Parameters
SGPPSMRC	storage pool records - controls the inclusion or exclusion of the storage pool records.	EVENTID JOB POOL SGP_ALLCSPC SGP_ALLOC@ SGP_IOPRSEC SGP_RESPTIM SGP_TOTSPAC
SGPRSFRC	RVA subsystem frame record creation - controls processing for the IBM RAMAC Virtual Array (RVA) subsystem frame resource. To implement this functionality, you must first make JCL changes in the StorageGUARD space data collector. For information about setting up the space data collector, see "Historical Space Data Collector" on page 5-1.	EVENTID SGP_BESCOLT SGP_BESFREE SGP_BESTOTL SGP_BESUNCL SGP_ECMCFBS SGP_ECMMSGS SGP_ECMNSPC SGP_ECMPGMS SGP_FSCBYRD SGP_FSCPERC SGP_FSUPERC SGP_NCL SGP_NCLPERC SGP_RSFNAME

Table 2-2 StorageGUARD Functions (Part 5 of 5)

Function	Description	Filter List Parameters
SGPSCLCRC	storage class summary records - controls the inclusion or exclusion of the storage class summary records.	EVENTID JOB SGP_CONNTIM SGP_DISCTIM SGP_DSNCNT SGP_IOPRSEC SGP_IOSQTIM SGP_PENDTIM SGP_RDHIT@ SGP_READ@ SGP_RESPTIM SGP_SERVTIM SGP_WRHIT@ SGP_WRITE@ STORCLAS
SGPVOLRC	volume records - controls the inclusion or exclusion of the volume records.	EVENTID JOB SGP_@BUSY SGP_CFWHIT@ SGP_CFWPRSC SGP_CONNTIM SGP_CUBSYDL SGP_DFWHIT@ SGP_DFWPRSC SGP_DISCTIM SGP_DPBSYDL SGP_DSALLOC SGP_DVBSYDL SGP_IOPRSEC SGP_IOSQTIM SGP_NRDHIT@ SGP_NRDPSEC SGP_PENDTIM SGP_RDHIT@ SGP_READ@ SGP_RESERV@ SGP_RESPTIM SGP_SERVTIM SGP_SRDHIT@ SGP_SRDPRSC SGP_WRHIT@ SGP_WRITE@ STORGRP VOL

Example

Use SGPCCURC to include only cache controllers in which the I/Os-per-second rate is greater than 10 or the read-hit percentage is less than 25.

```
SET  MODE=ACT
INC  SGP_IOPRSEC>10
INC  SGP_RDHIT@<25
```

Example

Use SGPCPREC to include only channel paths that are busy more than 25 percent of the time.

```
SET  MODE=ACT
INC  SGP_@BUSY>25
```

Example

Use SGPDSREC to exclude all data sets with a name that starts with SYSTEM and that reside on volume 111111.

```
SET  MODE=ACT
EXC  DSN=SYSTEM/ VOL=111111
```

Include only data sets that have an I/Os-per-second rate that is greater than 30 or a response time greater than 10 milliseconds.

```
SET  MODE ACT
INC  SGP_IOPRSEC>30
INC  SGP_RESPTIM>100
```

Note: The response time is stated in .1-millisecond units; therefore, 100 is 10 milliseconds.

Example

Use SGPFILTR to exclude all data sets whose name starts with SYSTEM and are GDGs.

```
SET  MODE=ACT
EXC  DSN=SYSTEM/ DSTYPE=GDG
```

Example

Use SGPJBIRC to exclude all jobs whose name starts with SMF and have I/Os-per-second rate is less than 20.

```
SET  MODE=ACT
EXC  JOB=SMF/ SGP_IOPRSEC<20
```

Example

Use SGPLCURC to include only LCUs whose director port is busy more than 25 percent of the time, or the LCU itself is busy more than 50 percent of the time.

```
SET  MODE=ACT
INC  SGP_DP@BUSY>25
INC  SGP_LCU@BSY>50
```

Example

Use SGPPSMRC to exclude all pools whose name starts with SAM and have I/Os-per-second rate is less than 20.

```
SET  MODE=ACT
EXC  POOL=SAM/ SGP_IOPRSEC<20
```

Example

Use SGPSCCLRC to exclude all storage classes whose name starts with CICS and have I/Os-per-second rate is less than 20.

```
SET  MODE=ACT
EXC  STORCLAS=CICS/ SGP_IOPRSEC<20
```

Example

Use SGPVOLRC to exclude all volumes whose serial starts with WRK, or volumes whose I/Os-per-second rate is less than 20.

```
SET  MODE=ACT
EXC  VOL=WRK/SGP_IOPRSEC<20
```

Chapter 3 Real Time Storage Performance Monitor

This chapter describes the real time storage performance monitor. The following information is included:

Overview	3-1
How Data Frequency Is Determined	3-2
Storage Performance Views	3-3
Device Activity Views	3-4
Channel Activity Views	3-6
I/O Queuing Activity Views	3-6
Enqueue/Reserve Activity Views	3-7
Enqueue Activity Views	3-7

Overview

Storage Performance views provide performance information about DASD device, channel, and I/O subsystem activity. Performance views are based on the RMF/CMF API, with additional fields to indicate the current status of the volume.

Some performance information is based on the CMFMON product from BMC Software or the RMFMON II product from IBM. It is helpful to be familiar with these products to interpret this information.

How Data Frequency Is Determined

Data frequency is dependent on the collector. The performance statistics for the Device Activity and I/O Queuing Activity views are averaged over the length of the current CMF EXTRACTOR or RMFMON I recording interval. For example, if the interval is 4 minutes old, the statistics are averaged for the last 4 minutes. The actual statistics are recalculated each recording interval cycle. Typically, a recording interval cycle is 1 to 5 seconds, depending on how RMF or CMF is set up.

The Device Activity and I/O Queuing Activity view support the DELTA command that allows you to turn DELTA mode on or off. DELTA mode OFF (TOTAL MODE) is the default when you start the report. DELTA mode OFF indicates that StorageGUARD averages performance statistics for the entire recording level. DELTA mode ON indicates that StorageGUARD averages performance statistics for the number of recording interval cycles that have occurred since you pressed **Enter**. This gives you a much higher level of performance statistic granularity. With DELTA mode on, you can analyze specific volumes having short duration performance problems that might not be obvious when averaged over the life of an entire recording interval.

The Channel activity report calculates statistics by using DELTAs that have occurred since you pressed **Enter**. In essence, it runs only with DELTA mode on, so you should wait a few seconds before pressing **Enter**, especially if the channel does not show much activity.

Storage Performance Views

To access the storage performance monitor

» From the EZSRM Menu, select **Storage Performance**.

The Storage Performance pop-up menu is displayed, as shown in Figure 3-1.

Figure 3-1 Storage Performance Pop-up Menu

```

28NOV2001 10:42:17 ----- MAINVIEW WINDOW INTERFACE -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
>W1 =EZSRM====EZSRMS===SJSJG=====*=====28NOV2001==08:08:00====MVS SRM====D====1
                                EZSRM Menu

SRM Real Time Monitor          SRM Historical Data
+ Storage Performance ==+
> Groups and Pools             . Device Activity           . > Historical Space
> RAID Configurations         . Channel Activity          . > Historical Performance
> Storage Performance         . I/O Queueing              . > EasyHSM
> Tape                         . ENQ/Reserve Activity      . > SGControl Applications
> Automation                  . ENQ Activity              . > SMF Report Library
                                . Return...                  .
SRM Administration            +-----+ SRM Tools and Menus
                                . Workbench
> Parmlib Members             . MVS SRM View List
. Functions                   . MVS SRM Batch Reports
. SRM Component Status        . MainView Messages
                                . Return....

```

Table 3-1 defines the available views. View invocation and actions are described on the following pages.

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

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

Table 3-1 Storage Performance Views

View	Description	View Name	Page
Device Activity	provides a listing of device activity and performance on a volume-by-volume basis	MDEV MDEVVD MDEVSUM MDEVSP MDEVSPD	3-4
Channel Activity	provides a listing of channel activity and performance for all online channels	MCHAN MCHAND MCHANSUM	3-6
I/O queuing Activity	provides a listing of all online LCUs and associated channels that have had activity during the current CMF/RMF recording interval	MIOQ MIOQD MIOQDS	3-6
Enqueue/Reserve Activity	displays all currently outstanding RESERVE requests that have been made against the serially reusable resources in your system	MRES MRESD	3-7
Enqueue Activity	displays information on the contention that exists for all serially reusable resources in your system	MENQ MENQD	3-7

Device Activity Views

When you select Device Activity from the Storage Performance popup menu, the Device Activity tabular (MDEV) view is displayed

The Device Activity tabular view provides a listing of device activity and performance on a volume-by-volume basis. View information includes volume status, SMS status, mount status, and paging indicators.

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

The summary view displays device activity, summarized by device, for a single system (CON sysid) or for all systems in the sysplex (CON ALL).

View Type	View Name	View Invocation
tabular	MDEV	MDEV
detail	MDEVVD	MDEVVD
summary	MDEVSUM	MDEVSUM

You can also view specific device activity by volume and by device with the MDEVSP view. By selecting the MDEVSP view, you can collect several snapshots of how the device is operating on a single screen for comparison.

The MDEVSP view contains the same data as the MDEV view, except that each time you press **Enter**, a new row is added to the bottom of the display. This new row contains the current status of the volume with performance statistics.

View Type	View Name	View Invocation
tabular	MDEVSP	MDEVS volume device
detail	MDEVSPD	MDEVSD volume device

View Invocation Input

Optional Input		Valid Values	Default
Volume	volume serial number	volume serial number; if not specified, defaults to * and the Device field must be specified	* (All) ¹
Device	unit device number	unit device number; if not specified, defaults to * and the Volume field must be specified	* (All) ¹

1 This view is invoked by passing the volume serial number or the device number, one of which is required.

No actions are available on these views.

Channel Activity Views

The Channel Activity tabular view lists channel activity and performance for all online channels. See “How Data Frequency Is Determined” on page 3-2 for information on how values are generated.

Channel Activity view displays the percentage of time that the channel is busy, both numerically and graphically. You should examine channels with continuous amounts of busy time should be examined for possible performance degradation problems.

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

The summary view displays channel activity that is summarized by channel for a single system (CON sysid) or for all systems in the sysplex (CON ALL).

View Type	View Name	View Invocation
tabular	MCHAN	MCHAN
detail	MCHAND	MCHAND
summary	MCHANSUM	MCHANSUM

No actions are available on these views.

I/O Queuing Activity Views

The I/O Queuing Activity tabular view provides a listing of all online LCUs. This view assists you in determining I/O queuing bottlenecks in your DASD/IO configuration.

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

The summary view displays summarized I/O queuing activity for a single system (CON sysid) or for all systems in the sysplex (CON ALL).

View Type	View Name	View Invocation
tabular	MIOQ	MIOQ
detail	MIOQD	MIOQD
summary	MIOQDS	MIOQDS

No actions are available on these views.

Enqueue/Reserve Activity Views

The Enqueue/Reserve Activity tabular view displays all currently outstanding RESERVE requests that have been made against the serially reusable resources in your system. You can use this view to show resource control contention.

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

View Type	View Name	View Invocation
tabular	MRES	MRES
detail	MRESD	MRESD

No actions are available on these views.

Enqueue Activity Views

The Enqueue Activity tabular view displays information on the contention that exists for all serially reusable resources in your system. You can use this view to show resource control contention.

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

View Type	View Name	View Invocation
tabular	MENQ	MENQ
detail	MENQD	MENQD

No actions are available on these views.

Chapter 4 Real Time RAID Configurations

This chapter describes the real time RAID configuration views. The following information is included:

Overview	4-1
EMC Symmetrix Views	4-4
IBM RVA/Shark/RAMAC Views	4-6

Overview

Vendor-specific RAID configuration views use vendor-supplied APIs (as available) and provide information that is critical to the optimization of these devices. For example, StorageGUARD maps logical volumes to physical volumes, providing critical information for solving common problems with many RAID devices. Hardware configuration and performance characteristics are also reported.

Support is provided for

- EMC Symmetrix Integrated Cache Disk Array (ICDA)
- IBM RAMAC, RAMAC Virtual Array (RVA)
- IBM Enterprise Storage Server (ESS)

The RAID configuration views assist you in reporting and viewing RAID hardware-specific information.

To access the RAID real time monitor

»» From the EZSRM Menu, select **RAID Configurations**.

The RAID Devices pop-up menu is displayed, as shown in Figure 4-1.

Figure 4-1 RAID Devices Pop-up Menu

```

28NOV2001 10:42:47 ----- MAINVIEW WINDOW INTERFACE -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
>W1 =EZSRM====EZSRMR===SJSG=====28NOV2001==08:08:00====MVSRM====D====1
                                EZSRM  Menu

SRM Real Time Monitor                                SRM Historical Data
+ RAID Devices =====+
> Groups and Pools      . EMC Symmetrix          . > Historical Space
> RAID Configurations  . IBM RVA/Shark/RAMAC . > Historical Performance
> Storage Performance  . Return...          . > EasyHSM
> Tape                 +-----+          . > SGControl Applications
> Automation           > SMF Report Library

SRM Administration                                SRM Tools and Menus

> Parmlib Members      > Workbench
. Functions             . MVSRM View List
. SRM Component Status . MVSRM Batch Reports
                       . MainView Messages
                       . Return....

```

Table 4-1 defines the available views. View invocation and actions are described on the following pages.

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

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

Table 4-1 RAID Configuration Views

View	Description	View Name
EMC Symmetrix	provides specific views of the hardware configuration and performance characteristics of Symmetrix 5000 RAID subsystems	REBOX
IBM RVA/Shark/RAMAC	lists the racks accessed by the current OS/390 system One rack can contain multiple storage subsystems, with each subsystem containing a maximum of 64 logical volumes. The rack also contains multiple drawers, with each drawer controlling four physical disks containing multiple volumes.	RIBOX

EMC Symmetrix Views

The EMC Symmetrix tabular view provides specific views of the hardware configuration and performance characteristics of Symmetrix 5000 RAID subsystems.¹

View Type	View Name	View Invocation
tabular	REBOX	REBOX

The following actions are available on the REBOX view:

Action	Description	Hyperlinks
C	lists the specific configuration for a Symmetrix system	RECONFIG
D	lists all directors within an EMC Symmetrix system or box A director in an EMC subsystem is a set of micro processors that control disk, channel, ESCON, and remote operations.	REDIR
P	lists all physical volumes for a selected director	REPHY
R	lists the remote volumes that are associated with a Symmetrix Remote Data Facility (SRDF) configuration	RESRDF
S	displays the highest level for a Symmetrix subsystem The SSID shows all EMC subsystems that are defined on the current system.	RESUB
V	lists all Symmetrix logical volumes within a selected subsystem A logical volume is defined as the host volume.	REVOL

The following actions are available on the REDIR view:

Action	Description	Hyperlinks
D	lists all devices for a selected director	REDEV
P	lists all physical volumes for a selected director	REPHY
V	lists all Symmetrix logical volumes within a selected subsystem	REVOL

The following actions are available on the REPHY view:

Action	Description	Hyperlinks
D	lists all devices for a selected director	REDEV
P	lists performance statistics for a selected volume	MVOLPER
V	lists all Symmetrix logical volumes within a selected subsystem	REVOL

1. The EMC RAID reporting feature of StorageGUARD was made possible by the use of an API provided by EMC Corporation.

The following actions are available on the RESUB view:

Action	Description	Hyperlinks
V	lists all Symmetrix logical volumes within a selected subsystem	REVOL

The following actions are available on REVOL view:

Action	Description	Hyperlinks
C	lists cache statistics for a selected volume The information is obtained through IDCAMS services and shows read and write hit rates along with other cache usage statistics.	MVOLCACH
P	lists performance statistics for a selected volume	MVOLPER

The following actions are available on MVOLPER view:

Action	Description	Hyperlinks
P	lists performance statistics that were gathered by the DASD Performance Option (DPO) for the UCBs related to the selected volume	MVOLPAV

IBM RVA/Shark/RAMAC Views

The IBM RVA/Shark/RAMAC tabular view lists the racks that are accessed by the current OS/390 system. One rack can contain multiple storage subsystems, with each subsystem containing a maximum of 64 logical volumes. The rack also contains multiple drawers, with each drawer controlling four physical disks containing multiple volumes.

View Type	View Name	View Invocation
tabular	RIBOX	RIBOX

The following actions are on the RIBOX view:

Action	Description	Hyperlinks
D	lists the drawers containing volumes that are accessed by the current OS/390 system One drawer contains four physical disks, with the user volumes striped across the first three physical disks; the fourth disk is used for parity.	RIPHY
S	lists the storage subsystems within IBM devices The subsystem must contain a volume that was generated on the current OS/390 image to be included.	RISUB
V	lists volumes that are contained within IBM devices You can invoke this view to display the volumes for a rack, the volumes for a drawer, or the volumes for a subsystem.	RIVOL

The following actions are on the RIPHY view:

Action	Description	Hyperlinks
P	lists performance statistics for a selected volume	MVOLPER
V	lists volumes that are contained within IBM devices You can invoke this view to show the volumes for a rack, the volumes for a drawer, or the volumes for a subsystem.	RIVOL

The following actions are on the RISUB view:

Action	Description	Hyperlinks
V	lists volumes that are contained within IBM devices You can invoke this view to show the volumes for a rack, the volumes for a drawer, or the volumes for a subsystem.	RIVOL

The following actions are on the RIVOL view:

Action	Description	Hyperlinks
C	lists cache statistics for a selected volume The information is obtained through IDCAMS services and shows read and write hit rates, along with other cache usage statistics.	MVOLCACHE
P	lists performance statistics for a selected volume	MVOLPER

Chapter 5 Historical Space Data

MAINVIEW SRM historical space utilization views 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 applications, and by volumes.

This chapter describes the following topics:

Historical Space Data Collector	5-1
Database Overview	5-2
Data Collector Parameters	5-3
Activating and Deactivating the Historical Space Data Collector . . .	5-3
Using More Than One Data Collector	5-5
Implementing Security	5-6
Historical Space Views	5-8
Summary by Time Views	5-10
Pool Utilization View	5-12
RAID Device Utilization View	5-15
RAID Volumes by RAID Device View	5-17
SG-Control Applications View	5-20
Volumes View	5-23

Historical Space Data Collector

Historical space utilization data is stored in the historical space data collector. The historical space data collector writes a snapshot to a linear data set that maintains storage utilization information by volume, pool, and application. The period for which information is available is determined by the frequency of the snapshots as well as the size of the historical space database. If SG-Control is installed and active, application-level information can be extracted from the SG-Control database.

Database Overview

The historical space database consists of three linear data sets: volume, pool, application. Each data set contains a series of snapshots of DASD utilization taken from different perspectives. A fourth data set also is allocated. This fourth data set is not used at present but is required to ensure upward compatibility with future releases.

The *volume* data set contains a series of volume snapshots. The volume snapshots are created at regular intervals from the information that is available in the volume table of contents (VTOC) on each DASD volume.

The *pool* data set contains a series of pool snapshots. A pool is a user-defined group of DASD volumes that are monitored as a single entity. Volume pool definitions are defined using the data collector input parameters.

The *application* data set contains a series of snapshots that are extracted from the SG-Control database. SG-Control is the optional component that provides real-time monitoring, budgeting, and control of DASD space utilization. Applications are user-defined and can be used to track space utilization by developers, project teams, applications, and departments.

Note: Application-level information is extracted from the SG-Control database; therefore, SG-Control must be active to obtain this information.

The data collector writes to the database using a wraparound method. When a data set is full, the earliest snapshots are overwritten by the current snapshot.

Refer to the *MAINVIEW SRM Customization Guide* for information about customizing StorageGUARD, including the Historical Space Database Allocation Calculation Worksheet and instructions for allocating a database.

Data Collector Parameters

System parameters and pool definitions are used to control the data collector function. The input parameters are used to specify the volumes to be monitored, how pools are constructed, and the read and write intervals.

System SET Statements

The following system parameters are specified in the SMMSYS $_{xx}$ member of $?prefix.BBPARM$. The parameters are described in the *MAINVIEW SRM Reference Summary*.

PASSWORD=	SGDCOLLECT $_{n=}$
SG_INITPOOL=	SGDPROCNM $_{n=}$
SG_INITVOL=	SGDSMFID $_{n=}$
SG_MAXACCT=	SGINITPOOL $_{n=}$
SG_MAXPOOL=	SGINITVOL $_{n=}$
SG_MAXSSDSZ=	SGMAXACCT $_{n=}$
SG_READNTVL=	SGMAXPOOL $_{n=}$
SG_RETRYLIM=	SGMAXSSDSZ $_{n=}$
SG_SPACHLDR=	SGREADNTVL $_{n=}$
SG_SUBTASKS=	SGRETRYLIM $_{n=}$
SG_WRITNTVL=	SGSPACHLDR $_{n=}$
SGD_PROCNM=	SGSUBTASKS $_{n=}$
SGD_SMFID=	SGWRITNTVL $_{n=}$
SGDCOLLECT=	

Pool Definitions

The historical space data collector collects information for volumes that have been assigned to a pool only. See the *MAINVIEW SRM User Guide and Reference* for instructions on how to define a pool.

Activating and Deactivating the Historical Space Data Collector

The historical space data collector is activated when StorageGUARD is started with MAINVIEW SRM Operator Services (SVOS). The data collector is deactivated when StorageGUARD is stopped by using SVOS.

Note: Data collector load modules must be located in an APF-authorized load library.

The JCL that is used to activate the StorageGUARD data collector data sets is in $?prefix.BBSAMP$ (SGDCOLLS). The started task name is specified by using the SGD_PROCNM parameter in the SMMSYS $_{xx}$ system member. Modify SGDCOLLS according to the instructions in the member header, and then copy the member to a system procedure library.

Tip: Ignore any IEC999I IFGOTC0A, IFGOTC0B messages that occur during shutdown. These informational messages may appear when the data collector terminates an RVA collection subtask.

Data definition (DD) statements that are used in SGDCOLLS have the following requirements:

Data Definition	Contents	Requirements
SGRDVOL	volume snapshots	This DD statement is required and the data set should be allocated with a DISP=SHR.
SGRDPOOL	pool snapshots	This DD statement is required and the data set should be allocated with a DISP=SHR.
SGRDACNT	application snapshots	This DD statement is required and the data set should be allocated with a DISP=SHR.
SGRDDSN		Reserved for future use. This DD statement is required and the data set should be allocated with a DISP=SHR.
SGCDB	SG-Control application database	This DD statement is required and the data set should be allocated with a DISP=SHR. If you do not use SG-Control, you can code //SGCDB DD DUMMY.
SIBLMSG	IXFP SIBBATCH output messages work file	This DD statement is required only when you are collecting IXFP RVA device information.
SIBRMSG	IXFP SIBBATCH output reports work file	This DD statement is required only when you are collecting IXFP RVA device information.
STEPLIB	StorageGUARD load modules	Defines the <i>?prefix</i> .BBLINK library, which contains the StorageGUARD load modules, and the user-defined <i>?prefix</i> .USER.BBLINK library. User exits should be placed in an authorized, user-defined <i>?prefix</i> .USER.BBLINK library. When you are collecting IXFP RVA device information the following IXFP load libraries must be included in the link list or added to the STEPLIB concatenation: <i>?ixfphlq</i> .SIBLOAD <i>?ixfphlq</i> .STKLOAD <i>?ixfphlq</i> .SIBLINK
SVWEXEC	StorageGUARD REXX procedures	Defines the <i>?prefix</i> .BBCLIB library which contains the StorageGUARD REXX procedures. This DD statement is required only when you are collecting IXFP RVA device information.
SYSIN	IXFP SIBBATCH control statements work file	This DD statement is required only when you are collecting IXFP RVA device information.
SYSPRINT	IXFP SIBBATCH system messages output file	This DD statement is required only when you are collecting IXFP RVA device information.

Data Definition	Contents	Requirements
SYSTEM	IXFP SIBBATCH terminal output file	This DD statement is required only when you are collecting IXFP RVA device information.
SYSTSPRT	system output file	This DD statement is required when you are collecting IXFP RVA device information. This system output data set is used by the REXX interpreter for error messages, as well as output from the REXX SAY command.

Using More Than One Data Collector

In most cases, a single data collector is sufficient for all of your installation's purposes. If you find a significant need to run one or more additional data collectors, use the sample SGDCOLLX in *?prefix.USER.BBLINK*. Place a copy of this new procedure in a standard accessible PROCLIB data set and modify it as described previously for SGDCOLLS. The JCL in SGDCOLLX differs from the JCL in SGDCOLLS because SGDCOLLX contains a symbolic parameter that is used in the PARM field for the SGRDCOLL program.

Assign a unique number (1–8) to each alternate collector. Then, specify the name of the procedure as the value on the SGDPROCNM n parameter.

Example

If you assigned the number 3 to an alternate collector, the parameter and value for it would be SGDPROCNM3=procedure name. You then define other parameters (for example, SGMAXTASKS3, SGREADNTVL3, and SGMAXPOOL3) to specify any differences from the default values.

You must also use SGDCOLLECT3=YES in the system pool member to identify the pools that should be monitored by this collector. Only pools that are explicitly designated are monitored by an alternate collector. (See the *MAINVIEW SRM Reference Summary* for descriptions of these parameters.) The symbolic SVSGD3 would be used in a SVOS start command to invoke the alternate collector.

Each data collector must have its own copy of the data collector data sets. Data collector data sets cannot be shared between collectors.

The following values are set by SVOS when StorageGUARD is started in SVOS:

SSID=sss

sss is the Subsystem ID assigned to SVOS in the STC JCL PARM field,

PARM='SUBSYS=sss'

SGDID=*n*

n is the alternate collector ID number

This number is assigned by SVOS when the product is started. The SVSGD default is 0 in the JCL; SVSGD1–8 are 1–8. See the description of the SGDPROCnMn= parameter in the MAINVIEW SRM Summary Guide.

Implementing Security

The data collector must have sufficient authorization to be able to collect information about all volumes in the system. However, the data sets that are involved in data collection must be secured against unauthorized modifications.

The data collector must be able to access all data sets that are assigned to it. In addition, it requires update access to its own databases (DD names SGRDVOL, SGRDPOOL, SGRDACNT and SGRDDSN).

All users who are authorized to use the MAINVIEW SRM ISPF interface should have read access to the data collector data sets. Storage management staff may also require read access to the data sets that are used by the REXX procedures as well. These data sets contain a log about exceptional conditions that were encountered, information about the jobs that were submitted to background, and so on.

It is important to prevent simultaneous updates of data sets. You cannot use the standard method that is provided by OS/390 to give the data collector exclusive control of the data sets. Under OS/390, no other task could read these data sets while the task (which exclusively owns the data sets) is running. But you may want to read both the database and the other data sets for current information. Since the data collector should running always (if your system is up), one method of dealing with this problem involves allocation of data sets as DISP=SHR. This removes the protection that OS/390 would otherwise provide.

Note: You must make sure that no improper modification occurs. Update access to the database, logs, and so on should *not* be assigned to users.

Be careful when you are running multiple data collectors. Each data collector must have a dedicated data set of its own. No standard technology prevents you from starting the same task several times in your processor complex, but a simple method provides help. You can assign a separate data set to each data collector with exclusive control. These data sets can be allocated with no space occupied at all (with SPACE=(TRK,0)) because they serve only to activate the OS/390 control mechanism that ensures data set integrity.

This mechanism is used to make sure that no other task can allocate this data set when the data collector is active. This technique delays the second (accidental) start of a procedure that is already running on a processor. This simple method cannot be used on different processors unless you have Global Resource Serialization (GRS) or a similar product that expands the same protection mechanism to cover the whole enterprise. It is the responsibility of operating personnel to make sure that the same procedure is never active on more than one processor.

Historical Space Views

To access the historical space utilization views

» From the EZSRM Menu, select **Historical Space**.

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

Figure 5-1 EZSRMSGD Menu

```

14MAY2001 11:01:26 ----- INFORMATION DISPLAY -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
>W1 =EZSRMSGD=====SJSJ=====14MAY2001==11:01:26====MVSMSGD=D====1
                                EZSRMSGD Menu

Historical Space      +-----+
|                     |         |
| Place cursor on    |         |
| menu item and     |         |
| press ENTER       |         |
+-----+
> Summary by Time
. Pool Utilization
. RAID Physicals
. SGControl Applications
. Volumes

SRM Administration

SRM Tools and Menus

> Parmlib Members
. Functions
. SRM Component Status

> Workbench
. MVSMSGD View List
. MVSMSGD Batch Reports
. Return....
    
```

Table 5-1 defines historical space views. View invocation and actions are described on the following pages.

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

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

Note: Setting the TIME command is critical for viewing historical information. For instructions on using the TIME command, see the *Using MAINVIEW* manual or enter **HELP TIME** on the **COMMAND** line.

Table 5-1 **Historical Space Views**

View	Description	View Name	Page
Summary by Time	provides a list of interval snapshots and links to summarized and other views for DASD devices	SPSNAP	5-10
Pool Utilization	provides pool-level space usage information	SPPOOL	5-12
RAID Physicals	provides RAID device usage information	SPRAID SPRAIDVO	5-15 5-17
SG-Control Applications	provides application-level space usage information	SPAPPL	5-20
Volumes	provides volume-level space usage information	SPVOL	5-23

Summary by Time Views

To access the Summary by Time views

»»From the EZSGD Menu, select **Summary by Time**.

The Summary Range pop-up menu is displayed, as shown in Figure 5-1.

Figure 5-2 Summary Range Pop-up Menu

```

14MAY2001 11:02:13 ----- INFORMATION DISPLAY -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
>W1 =EZSRMSGD=EZSRMT===SJSJ=====14MAY2001==11:01:26===MVSMSGD=D====1
                                EZSRMSGD Menu

Historical Space

> Summary by Time          + Summary Range =====+
. Pool Utilization        . Snapshot                .
. RAID Physicals          . Daily                    .
. SGControl Applications . Weekly                    .
. Volumes                  . Monthly                  .
                           . Return...                  .

SRM Administration      +-----+ SRM Tools and Menu

> Parmlib Members
. Functions
. SRM Component Status

> Workbench
. MVSMSGD View List
. MVSMSGD Batch Reports
. Return....
    
```

Table 5-2 defines the available views. View invocation and actions are described on the following pages.

Table 5-2 Summary by Time Views

View	Description	View Name
Snapshot	lists all snapshots for DASD devices in a given time period	SPSNAP
Daily	provides a daily summary of snapshots using the TIME command range	SPSNAPD
Weekly	provides a weekly summary of snapshots using the TIME command range	SPSNAPW
Monthly	provides a monthly summary of snapshots using the TIME command range	SPSNAPM

Space Utilization View

The SPSNAP view lists all snapshots by time for DASD devices. From this view, you can link to detailed information, applications, pools, volumes, and summary views by day, week, and month.

View Type	View Name	View Invocation
tabular	SPSNAP	SPSNAP

The following actions are available on the SPSNAP view:

Action	Description	View Name
A	displays applications for the selected snapshot	SPAPPL
D	displays details for the selected snapshot	SPSNADT
P	displays pools for the selected snapshot	SPPOOL
V	displays volumes for the selected snapshot	SPVOL
I	provides a daily summary of snapshots using the TIME command range	SPSNAPD
W	provides a weekly summary of snapshots using the TIME command range	SPSNAPW
M	provides a monthly summary of snapshots using the TIME command range	SPSNAPM

Example

SPSNAP

displays historical space snapshots for an interval The interval defaults to 7 days preceding the current date/time or the TIME command range (if used).

Pool Utilization View

The SPPOOL view provides historical space usage information by date and time for pools. From this view, you can link to

- detailed information for a selected pool
- a list of all snapshots for a selected pool (history) based on the TIME command range
- a volume list for a selected pool
- snapshots for a selected pool (history) based on the TIME command range, summarized by day
- snapshots for a selected pool (history) based on the TIME command range, summarized by week
- snapshots for a selected pool (history) based on the TIME command range, summarized by month

View Type	View Name	View Invocation
tabular	SPPOOL	SPPOOL <i>intdate inttime grptype grpname</i>

INTERVAL View Invocation

Optional Input		Valid Values	Default
<i>intdate</i> <i>inttime</i>	interval date/interval time	format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Defaults to * if not specified. When * is specified or taken as the default, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed.	*
<i>grptype</i>	group type	INTERVAL displays all pool entries for the specific snapshot date and time <ul style="list-style-type: none"> • If the interval date and time are specified, this value displays all pools for the specified snapshot that is identified by the interval date/time. • If the interval date and time are <i>not</i> specified or are not specified as *, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. 	INT or *

Example

```
SPPOOL
```

displays pools for the last snapshot for an interval

The interval is determined from the TIME command end date and time.

Example

```
SPPOOL 2000/12/11 21:02:00
```

displays pools for a specified snapshot interval

The interval is determined from the user input, using 2000/12/11 as the date and 21:02 as the time.

TREND View Invocation

Optional Input		Valid Values	Default
<i>intdate</i> <i>inttime</i>	interval date/interval time	format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Values * * should be specified as positional parameters. The TIME command is used to identify the range.	* *
<i>grptype</i>	group type	TREND displays snapshots for a specified pool using the date/time range that is indicated in the TIME command	TREND
<i>grpname</i>	group name	<i>poolname</i> specifies the pool name for snapshot selection	

Example

```
SPPOOL * * TREND PUBA
```

displays snapshots for the specified range that is indicated in the TIME command for pool PUBA

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If the TIME command is not set, the default is a duration of 7 days (168 hours) before the current date and time.

The following actions are available on the SPPOOL view:

Action	Description
D	displays a detailed view for selected pool snapshot
H	displays snapshots for time span for specified the pool
V	displays volumes for the selected pool
I	displays snapshots for a selected pool (history) based on the TIME command range, summarized by day
W	displays snapshots for a selected pool (history) based on the TIME command range, summarized by week
M	displays snapshots for a selected pool (history) based on the TIME command range, summarized by month

RAID Device Utilization View

The RAID Device Utilization view provides RAID device usage information by date and time. From this view, you can link to

- detailed information for a selected snapshot
- a list of all snapshots for a specific RAID device (history)
- RAID volumes for a selected RAID device
- snapshots for a selected RAID device (history) based on the TIME command range, summarized by day
- snapshots for a selected RAID device (history) based on the TIME command range, summarized by week
- snapshots for a selected RAID device (history) based on the TIME command range, summarized by month

View Type	View Name	View Invocation
tabular	SPRAID	SPRAID <i>intdate inttime grptype grpnamehex devicetype grpname</i>

Snapshot View Invocation

Optional Input		Valid Values	Default
<i>intdate</i> <i>inttime</i>	interval date/interval time	* * only value supported; defaults to current interval	* *
<i>grptype</i>	group type	* displays all RAID devices for the current snapshot	*

Example

SPRAID

displays RAID devices for the last snapshot for an interval

The interval is determined from the TIME command end date and time.

TREND View Invocation

Optional Input		Valid Values		Default
<i>intdate</i> <i>inttime</i>	interval date/interval time	* *	only value supported; defaults to the current interval	* *
<i>grptype</i>	group type	TREND	displays all snapshots for the time period that is identified in the TIME command for the specified volume	
<i>grpnamehex</i>	group name HEX	<i>grpnamehex</i>	RAID device internal Hex name; used to select the device data in the database	
<i>devicetype</i>	device type	<i>devicetype</i>	RAID device type	
<i>grpname</i>	group name	<i>devicename</i>	RAID device name	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If the TIME command is not set, the default is a duration of 7 days (168 hours) before the current date and time.

Example

```
SPRAID * * TREND 0100000004170AC0 EMC-PVOL 01047-0A-C0
```

displays snapshots for the specified range indicated in the TIME command for RAID device 0100000004170AC0

Note: These values are used for output on view EMC-PVOL 01047-0A-C0.

The following actions are available on the SPRAID view:

Action	Description
D	displays a detailed view of selected snapshot
H	displays snapshots for a specified RAID device using the TIME command range
V	displays RAID volumes for a selected RAID device
I	displays snapshots for a selected RAID device (history) based on the TIME command range, summarized by day
W	displays snapshots for a selected RAID device (history) based on the TIME command range, summarized by week
M	displays snapshots for a selected RAID device (history) based on the TIME command range, summarized by month

RAID Volumes by RAID Device View

The RAID Volumes by RAID Device view displays RAID volumes for a selected RAID device. To access RAID volumes by RAID Device, you can access the SPRAIDVO view in two ways:

- Use the **V** Volumes Action from the RAID Device Utilization view (SPRAID).
- Type the view invocation command that is described below.

View Type	View Name	View Invocation
tabular	SPRAIDVO	SPRAIDVO <i>intdate inttime grptype grpnamehex volume devicetype grpname</i>

INTERVAL View Invocation

User Input		Valid Values	Default
intdate inttime	interval date/interval time	format: YYYY/MM/DD HH:MM specifies the date and time for a snapshot interval Defaults to * if not specified. When * is specified or taken as the default, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval selected to display.	* *
grptype	group type	INTerval displays all volume entries for specific snapshot date and time <ul style="list-style-type: none"> • If interval date and time are specified, displays all volumes for specified snapshot that is identified by the interval date and time. • If interval date and time are <i>not</i> specified or are not specified as *, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. 	INT or *
grpnamehex	group name Hex	hexname RAID device internal Hex name; used to select the device date in the database	

Example

```
SPRAIDVO 2000/12/11 21:02:00 INT 0100000004170AC0
```

displays snapshots for the volume in the specified RAID device for the specified interval

Example

SPRAIDVO * * INT 0100000004170AC0

displays volumes for the specified RAID device for the last snapshot or the TIME command end date/time (if set)

TREND View Invocation

User Input		Valid Values		Default
<i>intdate</i> <i>inttime</i>	interval date/interval time	format: YYYY/MM/DD HH:MM specifies the date and time for a snapshot interval Values * * should be specified as positional parameters. The TIME command is used to identify the range.		* *
<i>grptype</i>	group type	TREND	displays all snapshots for the time period that is identified in the TIME command for the specified RAID device and volume	
<i>grpnamehex</i>	group name Hex	<i>grpnamehex</i> (required)	RAID device internal Hex name; used to select the device date in the database	
<i>volume</i>	volume	<i>volume</i> (required)	volume that is used for snapshot history selection	
<i>devicetype</i>	device type	<i>devicetype</i> (optional)	RAID device type	
<i>grpname</i>	group name	<i>devicename</i>	RAID device name	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If the TIME command is not set, the default is a duration of 7 days (168 hours) before the current date and time.

Example

SPRAIDVO * * TREND 0100000004170AC0 SMSA00 EMC-PVOL 01047-0A-CO

displays snapshots for the specified range that is indicated in the TIME command for RAID device 0100000004170AC0 for volume SMSA00

Note: These values are used for output on view EMC-PVOL 01047-0A-C0.

The following actions are available on the SPRAIDVO view:

Action	Description
D	displays a detailed view of selected snapshot
H	displays snapshots for the volume in the specified RAID device using the TIME command range
I	displays snapshots for a selected volume in the specified RAID device (history) based on the TIME command range, summarized by day
W	displays snapshots for a selected volume in the specified RAID device (history) based on the TIME command range, summarized by week
M	displays snapshots for a selected volume in the specified RAID device (history) based on the TIME command range, summarized by month

SG-Control Applications View

The Applications view provides space usage information for the applications in the specified snapshot date and time or for the last snapshot. From this view, you can link to

- detailed information for a selected snapshot
- a list of all snapshots for a specific application (history) for a specific time period
- snapshots for a selected application (history) based on the TIME command range, summarized by day
- snapshots for a selected application (history) based on the TIME command range, summarized by week
- snapshots for a selected application (history) based on the TIME command range, summarized by month

View Type	View Name	View Invocation
tabular	SPAPPL	SPAPPL <i>intdate inttime grptype grpname</i>

INTERVAL View Invocation

Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: YYYY/MM/DD HH:MM specifies the date and time for a snapshot interval Defaults to * if not specified. When * is specified or taken as the default, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval selected to display.	*
grptype	group type	INTERVAL displays all volume entries for specific snapshot date and time <ul style="list-style-type: none"> • If interval date and time are specified, displays all volumes for specified snapshot that is identified by the interval date and time. • If interval date and time are <i>not</i> specified or are not specified as *, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. 	INT or *

Example

SPAPPL

displays applications for the last snapshot or TIME command end date and time if used.

Example

SPAPPL 2000/12/01 21:02:00

displays applications for a specified snapshot interval

The interval is determined from the user input, using 2000/12/01 as the date and 21:02:00 as the time.

TREND View Invocation

Optional Input		Valid Values	Default
<i>intdate</i> <i>inttime</i>	interval date/interval time	format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Values * * should be specified as positional parameters. The TIME command is used to identify the range.	* *
<i>grptype</i>	group type	TREND displays all snapshots for a specific application	
<i>grpname</i>	group name	<i>application name</i> the application name that is used for snapshot selection	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If the TIME command is not set, the default is a duration of 7 days (168 hours) before the current date and time.

Example

SPAPPL * * TREND AGENCY

displays snapshots for the specified range that is indicated in the TIME command for the AGENCY application

The following actions are available on the SPAPPL view are

Action	Description
D	displays a detailed view for the selected application snapshot
H	displays snapshots for the application using the TIME command range
I	displays snapshots for a selected application (history) based on the TIME command range, summarized by day
W	displays snapshots for a selected application (history) based on the TIME command range, summarized by week
M	displays snapshots for a selected application (history) based on the TIME command range, summarized by month

Volumes View

The Volumes view provides space usage information for the volumes in the specified snapshot date and time or the last snapshot. From this view, you can link to

- detailed information for a selected snapshot
- a list of all snapshots for a specific volume (history) for a specific time period
- snapshots for a selected volume (history) based on the TIME command range, summarized by day
- snapshots for a selected volume (history) based on the TIME command range, summarized by week
- snapshots for a selected volume (history) based on the TIME command range, summarized by month

View Type	View Name	View Invocation
tabular	SPVOL	SPVOL <i>intdate inttime grptype grpname</i>

INTERVAL View Invocation

Optional Input		Valid Values	Default
<i>intdate</i> <i>inttime</i>	interval date/interval time	format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Defaults to * if not specified. When * is specified or taken as the default, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed.	*
<i>grptype</i>	group type	INTERVAL displays all pool entries for the specific snapshot date and time <ul style="list-style-type: none"> • If the interval date and time are specified, this value displays all pools for the specified snapshot that is identified by the interval date/time. • If the interval date and time are <i>not</i> specified or are not specified as *, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. 	INT or *

Example

SPVOL

displays volumes for the last snapshot or TIME command end date/time (if used)

Example

SPVOL 2000/12/01 17:21:00

displays volumes for a specified snapshot interval

The interval is determined from the user input, using 2000/12/01 as the date and 17:21:00 as the time.

POOL View Invocation

Optional Input		Valid Values	Default
<i>intdate</i> <i>inttime</i>	interval date/interval time	format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Defaults to * if not specified. When * is specified or taken as the default, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed.	*
<i>grptype</i>	group type	POOL displays all volume entries for a specific pool in the specified snapshot date and time <ul style="list-style-type: none"> • If the interval date and time are specified, this value displays all pools for the specified snapshot that is identified by the interval date/time. • If the interval date and time are <i>not</i> specified or are not specified as *, the last snapshot date and time are used unless the TIME command has been specified. If the TIME command has been specified, the TIME end date and time is the interval that is selected to be displayed. 	
<i>grpname</i>	group name	<i>poolname</i> the pool name that is used for volume selection	

Example

SPVOL 2000/12/01 17:21:00 POOL PUBA

displays volumes for a specified snapshot interval for pool PUBA

The interval is determined from the user input, using 2000/12/01 as the date and 17:21:00 as the time.

TREND View Invocation

Optional Input		Valid Values	Default
<i>intdate</i> <i>inttime</i>	interval date/interval time	format: YYYY/MM/DD HH:MM specifies the date and time of the specific recording interval from which historical space statistics are to be obtained Values * * should be specified as positional parameters. The TIME command is used to identify the range.	* *
<i>grptype</i>	group type	TREND displays all snapshots for a specific volume	
<i>grpname</i>	group name	<i>volume</i> the volume name for snapshot selection	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If the TIME command is not set, the default is a duration of 7 days (168 hours) before the current date and time

Example

SPVOL * * TREND PUBA01

displays snapshots for the specified range that is indicated in the TIME command for volume PUBA01

The following actions are available on the SPVOL view:

Action	Description
D	displays a detailed view for selected volume snapshot
H	displays snapshots for the time span for the specified volume
I	displays snapshots for a selected volume (history) based on the TIME command range, summarized by day
W	displays snapshots for a selected volume (history) based on the TIME command range, summarized by week
M	displays snapshots for a selected volume (history) based on the TIME command range, summarized by month

Chapter 6 Historical Performance Data

This chapter includes information about the following topics:

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Overview

Historical performance data assists you in determining the impact that current use and trends in storage use have on the performance of the storage resources in your data center. Both the absolute utilization of physical volumes and the allocation of specific data sets can cause response time changes. Being able to pinpoint problems when they occur as well as project when problems are likely to occur provide Storage Administrators with information for managing their DASD resources. This is even more important for the optimization of high capacity, high performance RAID implementations. MAINVIEW SRM historical performance provides access to all saved performance data gathered by the historical performance data collector.

Historical Performance Data Collector

The historical performance database is a repository that is used to store data collected by the historical performance data collector. You can choose to store data in a maximum of 100 databases before old data is overwritten. There is never more than one *active* historical performance database, but at system startup, previously collected data from all databases can be accessed.

Starting Data Collection

Historical performance data collection is executed as a started task through MAINVIEW SRM operator service (SVOS), which handles starting, stopping, and all console communications to the collector. Collection of historical performance data may also be executed as a batch job. However, SVOS must also be active for this collection to be executed in batch. The step library for historical performance collection must be APF-authorized.

Collection is started with the following SVOS command after SVOS has started:

```
/S SVSGP
```

For information about SMF and CMF/RMF parameters, optional system parameters, and a database calculator for estimating the historical performance database, see “Activating SMF and CMF/RMF Parameters” on page 6-3.

MAINVIEW SRM FLST Functions

Collection of historical performance data uses the MAINVIEW SRM FLST capability to identify the data that should be recorded in the performance database. Each function is defined in *?prefix.BBPARM* member SMFUNCxx. Each definition, except SGPFLTR, controls the inclusion or exclusion of a particular record type. Each function is defined as ACTIVE=NO in SMFUNCxx. If a function is left inactive, no records of that type are recorded in the historical performance database.

Each function is defined in a filter list SMFLSTPxx member in *?prefix.BBPARM*. Each filter list member specifies that all records of a particular type are to be recorded in the historical performance database when the function is activated.

In general, to use a function, perform the following steps:

- Step 1** Set the ACTIVE parameter to YES in the function definition in SMFUNCxx.
- Step 2** Define a filter list in an SMFLSTPx member with MODE=ACT and with parameters to apply the function to a set of resources (jobs, data sets, volumes, pools, and so on).

Activating SMF and CMF/RMF Parameters

For StorageGUARD to collect historical performance data the following requirements must be met:

- SMF and CMF or RMF must be active.
- SMF must have the IEUF83 and IEUF84 exits specified for the areas that data collection is desired.
- The SMF global recording interval should be specified, unless the system default of 30 minutes is acceptable. The SMF global recording interval should be synchronized with some part of the hour, unless the system default of 00 is acceptable.
- The CMF or RMF recording interval duration must be equal too or an even multiple of the SMF recording interval duration. For example, if the SMF recording interval duration is 30 minutes, the CMF or RMF recording interval may be 5, 10, 15, or 30 minutes.
- The CMF or RMF recording interval must be synchronized to the same part of the hour as SMF.

- SMF Type 30 and type 42 records must be turned on. The actual recording, in the SMF data set, of type 42 records can be controlled by the SGP_SMF42 system parameter in the SMMSYS xx member.

The recording interval of either CMF or RMF must be equal too or an even multiple of the SMF recording interval. The following parameters are the minimum required for CMF:

```
RECORD INTERVAL= $xx$ , RUNTIME=1440 , SMF=YES , SYNCH= $yy$ 
CHANNEL
DEVICE CLASS=DASD
```

In this example, xx is equal to or an even multiple of the SMF recording interval duration; yy is equal to the SMF recording interval part of the hour synchronization value.

Figure 6-1 shows how to set up SMF for the proper exits and record recording.

Figure 6-1 Example SMF Parameters

```
INTVAL(15) /*GLOBAL INTERVAL)*/
SYNCVAL(15) /*Synchronization value*/
ACTIVE /*ACTIVE SMF RECORDING*/
DSNAME(SYS1.MAN1, SYS1.MAN2, SYS1.MAN3) /* THREE DATA SETS */
NOPROMPT /*DO NOT PROMPT OPERATOR FOR OPTIONS*
REC(PERM) /*TYPE 17 PERM RECORDS ONLY*/
MAXDORM(3000) /* WRITE AN IDLE BUFFER AFTER 30 MIN*
STATUS(010000) /* WRITE SMF STATS AFTER 1 HOUR*/
JWT(0800) /* 522 AFTER 8 HOURS */
SID(SYSG) /* SYSTEM ID IS SYSG */
LISTDSN /* LIST DATA SET STATUS AT IPL*/
LASTDS(MSG) /*DEFAULT TO MESSAGE */
NOBUFFS(MSG) /*DEFAULT TO MESSAGE */
SYS(EXITS(IEFU83, IEFU84, IEFACRT, IEFUJV,
IEFUSI, IEFUJI, IEFUTL, IEFU29), INTERVAL(SMF, SYNC),
NODETAIL
SUBSYS(STC, EXITS(IEFU29, IEFU83, IEFU84, IEFUJP, IEFUSO),
INTERVAL(SMF, SYNC))
SUBSYS( $xxxx$ , EXITS(IEFU29, IEFU83, IEFU84, IEFUJP, IEFUSO),
INTERVAL(SMF, SYNC)) /* $xxxx$  IS SUBSYSTEM CMF TASK IS USING */
```

If you are running RMF, the parmlib member must specify the following measurement, timing, and recording options:

Measurement: CHAN
 DEVICE(DASD)
 Timing: SYNC(SMF) (synchronizes SMF/RMF intervals)
 Recording: RECORD

Controlling the Historical Performance Data Collector

The historical performance data collector is controlled by using the following system parameters:

Parameter	Description	Default
SGP_MAXDSNS	maximum number of data sets that could potentially be referenced during a recording interval duration	1000
SGP_MAXVOLS	maximum number of volumes that could potentially be referenced during a recording interval duration	250
SGP_MAXJOBS	maximum number of jobs that could potentially be referenced during a recording interval duration	200
SGP_MAXSCLS	maximum number of storage classes that could potentially be referenced during a recording interval duration	100
SGP_MAXPOLS	maximum number of pools that could potentially be referenced during a recording interval duration	100
SGP_MAXPTHS	maximum number of channel paths that could potentially be referenced during a recording interval duration	256
SGP_MAXLCUS2	maximum number of logical control units that could potentially be referenced during a recording interval duration If the value is set too low, the system does not set aside enough buffer space to handle all the records. You need to determine a value that provides enough buffer space for LCU records without causing a shortage of dataspace storage for other records.	256
SGP_MAXCCUS	maximum number of cache control units that could potentially be referenced during a recording interval duration	256
SGP_MAXDIRS	maximum number of RAID EMC directors that could potentially be referenced during a recording interval duration	256
SGP_MAXPVLS	maximum number of RAID EMC physical volumes that could potentially be referenced during a recording interval duration	250

Refer to the *MAINVIEW SRM Customization Guide* for customization tasks for StorageGUARD users, including a description of the Historical Performance Database Allocation Calculation Worksheet and instructions for allocating a database.

Historical Performance Views

To access the Historical Performance views:

» From the EZSRM Menu, select **Performance**.

The EZSGP menu is displayed, as shown in Figure 6-2. View invocation and actions are described on the following pages.

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

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

Figure 6-2 EZSRMSGP Menu

```

14MAY2001 11:03:05 ----- INFORMATION DISPLAY -----
COMMAND ==> SCROLL ==> PAGE
CURR WIN ==> 1 ALT WIN ==>
>W1 =EZSRMSGP=====SJSH=====14MAY2001==11:03:05====MVSMSGP=D====1
EZSRMSGP Menu

Historical Performance +-----+ SRM Administration
| Place cursor on | | > Parmlib Members
. System Summary by Time | menu item and | | . Functions
. Interval Data | press ENTER | | . SRM Component Status
. Channel Path +-----+ . MVSMSGP View List
. Cache Control Unit . MVSMSGP Batch Reports
. Logical Control Unit . Return....
. Pools RAID Performance
. Volumes . RAID Director
. Storage Class . RAID Physical Volume
. Data Set . RVA Subsystem Frame
. Job . 2105 Ranks
    
```

Table 6-1 defines the Historical Performance views.

Table 6-1 Historical Performance Views (Part 1 of 2)

View Description	Description	View Name
System Summary by Time	provides summarized performance history information by time for historical data	PRSSUM PRSSUMD PRSSUMW PRSSUMM PRSSUMDET
Interval Data	displays all interval reports on the database	PRINTV
Channel Path	displays a selected channel path record for a specific date and time	PRCHP PRCHPD PRCHPW PRCHPM PRCHPDL
Cache Control Unit	displays a selected cache controller record for a specific date and time	PRCCU PRCCUD PRCCUW PRCCUM PRCCUDTL
Logical Control Unit	displays a selected logical control unit record for a specific date and time	PRLCU PRLCUD PRLCUW PRLCUM PRLCUDTL
Pools	displays a selected pool record for a specific date and time	PRPOOL PRPOOLD PRPOOLW PRPOOLM PRPOOLDTL
Volumes	displays a selected volume record for a specific date and time	PRVOL PRVOLD PRVOLW PRVOLM PROVLDTL
Storage Class	displays a selected storage class record for a specific date and time	PRSCL PRSCLD PRSCLW PRSCLM PRSCLDTL

Table 6-1 Historical Performance Views (Part 2 of 2)

View Description	Description	View Name
Data Set	displays a selected data set record for a specific date and time	PRDS PRDSD PRDSW PRDSM PRDSDTL
Job	displays a selected job record for a specific date and time	PRJOB PRJOB PRJOBW PRJOBM PRJOBCTL

System Summary by Time Views

System Summary by Time tabular views provide summarized performance history information by time for historical data by system, by day, by week, and by month. The detail view displays the selected system record in vertical format.

View Type	View Name	View Invocation
tabular	PRSSUM	PRSSUM
summarized by day	PRSSUMD	PRSSUMD
summarized by week	PRSSUMW	PRSSUMW
summarized by month	PRSSUMM	PRSSUMM
detail	PRSSUMDET	PRSSUMDET

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If hex zero start and end dates and times are given, all system summary records are returned.

The following actions are available on the tabular view:

Action	Description	Hyperlinks
J	shows jobs for a selected system summary	PRJOB date time INTERVAL
L	shows logical control units for a selected system summary	PRLCU date time INTERVAL
P	shows pools for a selected system summary	PRPOOL date time INTERVAL
V	shows volumes for a selected system summary	PRVOL date time INTERVAL
CC	shows cache control units for a selected system summary	PRCCU date time INTERVAL
CP	shows channel paths for a selected system summary	PRCHP date time INTERVAL
DR	shows RAID directors for a selected system summary	PRRDIR date time INTERVAL
DS	shows data sets for a selected system summary	PRDS date time INTERVAL
PV	shows RAID physical volumes for a selected system summary	PRVOL date time INTERVAL
RF	shows RVA subsystem frames for a selected system summary	PRRSF date time INTERVAL

Action	Description	Hyperlinks
RR	shows RAID ranks for a selected system summary	PRRRK <i>date time</i> INTERVAL
SC	shows storage classes for a selected system summary	PRSCCL <i>date time</i> INTERVAL
D	displays details for the selected snapshot	PRSSUMDET
I	displays a daily summarization of snapshots using the TIME command range	PRSSUMD
W	displays a weekly summarization of snapshots using the TIME command range	PRSSUMW
M	displays a monthly summarization of snapshots using the TIME command range	PRSSUMM

Interval Data View

The Interval Data view displays all interval views that are stored in the database.

View Type	View Name	View Invocation
tabular	PRINTV	PRINTV

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. If hex zero start and end dates and times are given, all system summary records are returned.

The following actions are available on the tabular view:

Action	Description	Hyperlinks
J	shows jobs for a selected interval	PRJOB <i>date time</i> <i>INTERVAL</i>
L	shows logical control units for a selected interval	PRLCU <i>date time</i> <i>INTERVAL</i>
P	shows pools for a selected interval	PRPOOL <i>date time</i> <i>INTERVAL</i>
V	shows volumes for a selected interval	PRVOL <i>date time</i> <i>INTERVAL</i>
CC	shows cache control units for a selected interval	PRCCU <i>date time</i> <i>INTERVAL</i>
CP	shows channel paths for a selected interval	PRCHP <i>date time</i> <i>INTERVAL</i>
DR	shows RAID directors for a selected interval	PRRDIR <i>date time</i> <i>INTERVAL</i>
DS	shows data sets for a selected interval	PRDS <i>date time</i> <i>INTERVAL</i>
PV	shows RAID physical volumes for a selected interval	PRVOL <i>date time</i> <i>INTERVAL</i>
RF	shows RVA subsystem frames for a selected interval	PRRSF <i>date time</i> <i>INTERVAL</i>
RR	shows RAID ranks for a selected interval	PRRRK <i>date time</i> <i>INTERVAL</i>
SC	shows storage classes for a selected interval	PRSCL <i>date time</i> <i>INTERVAL</i>

Channel Path Views

Channel Path tabular views display selected channel path records for specific dates and times. The detail view displays the selected channel path record in vertical format.

View Type	View Name	View Invocation
tabular	PRCHP	PRCHP <i>intdate inttime grptype grpname</i>
summarized by day	PRCHPD	PRCHPD <i>intdate inttime grptype grpname</i>
summarized by week	PRCHPW	PRCHPW <i>intdate inttime grptype grpname</i>
summarized by month	PRCHPM	PRCHPM <i>intdate inttime grptype grpname</i>
detail	PRCHPDL	PRCHPDL <i>intdate inttime grptype grpname</i>

View Invocation			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which channel paths are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*
grptype grpname	group type group name	<p>INTERVAL shows channel paths that are defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and, when specified, is ignored. If the group name is not specified, INTERVAL is the default group type.</p> <p>LCU shows channel paths for a specific LCU The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character LCU ID.</p> <p>VOLUME shows channel paths for a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 6-character volume serial number.</p> <p>TREND shows channel path trending over a number of intervals The group name parameter must be a 4-character channel path ID. The TIME command start and end dates/times are used to determine the time span to report.</p>	INTERVAL (if no group game parameter is specified)

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
L	shows logical control units for a selected channel path	PRLCU <i>date time</i> CHANPATH ID
V	shows volumes for a selected channel path	PRVOL <i>date time</i> CHANPATH ID
CC	shows cache control units for a selected channel path	PRCCU <i>date time</i> CHANPATH ID
D	displays details for the selected snapshot	PRCHPDL <i>intdate inttime grptype grpname</i>
H	displays snapshots that provide the history of the selected channel path	
I	displays a daily summarization of snapshots using the TIME command range	PRCHPD <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRCHPW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRCHPM <i>intdate inttime grptype grpname</i>

Example

PRCHP

displays channel paths for an interval

The interval is determined from the TIME command end date and time.

Example

PRCHP 20001109 1200

displays channel paths for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRCHP * * VOLUME BAB200
```

displays channel paths for volume BAB200 in the interval that is determined from the TIME command end date and time

Example

```
PRCHP * * LCU 00BB
```

displays channel paths that are associated with LCU 00BB in the interval that is determined from the TIME command end date and time

Example

```
PRCHP 20001109 1200 VOLUME BAB200
```

displays channel paths that are associated with volume BAB200 in the interval that is determined from user input, using 2000/11/09 as the date and 12:00 as the time

Example

```
PRCHP * * TREND 0019
```

displays channel path records for channel path 0019

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Cache Control Unit Views

Cache Control Unit tabular views display selected cache control unit records for specific dates and times. You can use optional positional parameters to limit the displayed cache control units to those that are related to a specific object.

The detail view displays the selected cache controller unit record in vertical format.

View Type	View Name	View Invocation
tabular	PRCCU	PRCCU <i>intdate inttime grptype grpname</i>
summarized by day	PRCCUD	PRCCUD <i>intdate inttime grptype grpname</i>
summarized by week	PRCCUW	PRCCUW <i>intdate inttime grptype grpname</i>
summarized by month	PRCCUM	PRCCUM <i>intdate inttime grptype grpname</i>
detail	PRCCUDTL	PRCCUDTL

View Invocation (Part 1 of 2)			
Optional Input		Valid Values	Default
<i>intdate</i>	<i>interval date/interval time</i>	format: CCYYMMDD Specifies the date and time of the specific recording interval from which cache control units are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*

View Invocation (Part 2 of 2)				
Optional Input		Valid Values		Default
grptype grpname	group type group name	<p>INTERVAL shows CCUs that are defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.</p> <p>CHANPATH shows CCUs for a specific channel path The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character channel path ID.</p> <p>LCU shows CCUs for a specific LCU The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character LCU ID.</p> <p>RAIDRANK shows CCUs for a specific RAID rank The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character cache control unit ID.</p> <p>RVAFRAME shows CCUs for a specific RVA frame The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must contain one to four 4-character subsystem IDs.</p> <p>TREND shows CCU trending over a number of intervals The group name parameter must be a 4-character CCU ID. The TIME command start and end dates and times are used to determine the time span to report.</p>	INTERVAL (if no group name parameter is specified)	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
V	shows volumes for a specific CCU	PRVOL date time CCU ID
DR	shows RAID directors for a specific CCU	PRRDIR date time CCU ID
PV	shows RAID physical volumes for a specific CCU	PRVOL date time CCU ID
RF	shows RVA subsystem frames for a specific CCU	PRRSF date time CCU RVAFRAME

Action	Description	Hyperlink
RR	shows RAID ranks for a specific CCU	PRRRK date time CCU ID
D	displays details for the selected cache control unit	PRCCUDTL
H	displays snapshots that provide the history of the selected cache control unit	
I	displays a daily summarization of snapshots using the TIME command range	PRCCUD <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRCCUW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRCCUM <i>intdate inttime grptype grpname</i>

Example

```
PRCCU
```

displays CCUs for an interval

The interval is determined from the TIME command end date and time.

Example

```
PRCCU 20001109 1200
```

displays CCUs for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRCCU * * LCU 00BB
```

displays CCUs that are associated with LCU 00BB in the interval that is determined from the TIME command end date and time

Example

```
PRCCU 20001109 1200 LCU 00BB
```

displays CCUs associated with LCU 00BB in the interval determined from user input, using 2000/11/09 as the date and 12:00 as the time

Example

```
PRCCU * * TREND 0140
```

displays CCU records for cache controller unit 0140

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Logical Control Unit Views

Logical Control Unit tabular views display selected logical control unit records for specific dates and times. You can use optional positional parameters to limit the displayed cache control units to those that are related to a specific object.

The detail view displays the selected logical control unit record in vertical format.

View Type	View Name	View Invocation
tabular	PRLCU	PRLCU <i>intdate inttime grptype grpname</i>
summarized by day	PRLCUD	PRLCUD <i>intdate inttime grptype grpname</i>
summarized by week	PRLCUW	PRLCUW <i>intdate inttime grptype grpname</i>
summarized by month	PRLCUM	PRLCUM <i>intdate inttime grptype grpname</i>
detail	PRLCUDTL	PRLCUDTL

View Invocation (Part 1 of 2)			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which logical control units are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*

View Invocation (Part 2 of 2)				
Optional Input		Valid Values		Default
grptype grpname	group type group name	<p>INTERVAL shows LCUs that are defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.</p> <p>CCU shows LCUs for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character LCU ID.</p> <p>CHANPATH shows LCUs for a specific channel path The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character channel path ID.</p> <p>VOLUME shows LCUs that are attached to a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 6-character volume serial number.</p> <p>RAIDRANK shows CCUs for a specific RAID rank The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character cache control unit ID.</p> <p>TREND shows LCU trending over a number of intervals The group name parameter must be a 4-character LCU ID. The TIME command start and end dates and times dates are used to determine the time span to report.</p>	INTERVAL (if no group name parameter is specified)	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
V	shows volumes for a specific LCU	PRVOL date time LCU ID
CC	shows cache control units for a specific LCU	PRCCU date time LCU ID
CP	shows channel paths for a specific LCU	PRCHP date time LCU ID
D	displays details for the selected LCU	PRLCUDTL

Action	Description	Hyperlink
H	displays snapshots that provide the history of the selected LCU	
I	displays a daily summarization of snapshots using the TIME command range	<i>PRLCUD intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	<i>PRLCUW intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	<i>PRLCUM intdate inttime grptype grpname</i>

Example

```
PRLCU
```

displays LCUs for an interval

The interval is determined from the TIME command end date and time.

Example

```
PRLCU 20001109 1200
```

displays LCUs for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRLCU * * CCU 00AA
```

displays LCUs that are associated with cache control unit 00AA in the interval that is determined from the TIME command end date and time

Example

```
PRLCU * * CHANPATH 0070
```

displays LCUs that are associated with channel path 0070 in the interval that is determined from the TIME command end date and time

Example

```
PRLCU * * VOLUME BAB200
```

displays LCUs that are associated with volume BAB200 in the interval that is determined from the TIME command end date and time

Example

```
PRLCU * * VOLUME BAB200
```

displays LCUs that are associated with volume BAB200 in the interval that is determined from the TIME command end date and time

Example

```
PRLCU 20001109 1200 VOLUME BAB200
```

displays LCUs that are associated with volume BAB200 in the interval that is determined from user input, using 2000/11/09 as the date and 12:00 as the time

Example

```
PRLCU * * TREND 00AA
```

displays LCU records for LCU 00AA

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Pool Views

Pool tabular views display selected pool records for specific dates and times. You can use optional positional parameters to limit the pools displayed to those that are related to a specific object. The detail view displays the selected pool record in vertical format.

View Type	View Name	View Invocation
tabular	PRPOOL	PRPOOL <i>intdate inttime grptype grpname</i>
summarized by day	PRPOOLD	PRPOOLD <i>intdate inttime grptype grpname</i>
summarized by week	PRPOOLW	PRPOOLW <i>intdate inttime grptype grpname</i>
summarized by month	PRPOOLM	PRPOOLM <i>intdate inttime grptype grpname</i>
detail	PRPOOLDTL	PRPOOLDTL

View Invocation			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which pools are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*
grptype grpname	group type group name	INTERVAL shows pools defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type. TREND shows pool trending over a number of intervals The group name parameter must be an 8-character pool name. The TIME command start and end dates and times are used to determine the time span to report.	INTERVAL (if no group name parameter is specified)

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
V	shows volumes for a specific pool	PRVOL date time pool name
DS	shows data sets for a specific pool	PRDS date time pool name
D	displays details for the selected pool	PRPOOLDTL
H	displays snapshots that provide the history of the selected pool	
I	displays a daily summarization of snapshots using the TIME command range	PRPOOLD <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRPOOLW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRPOOLM <i>intdate inttime grptype grpname</i>

Example

PRPOOL

displays pools for an interval

The interval is determined from the TIME command end date and time.

Example

PRPOOL 20001109 1200

displays pools for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PPRLCU * * TREND DEVPOOL
```

displays pool records for pool DEVPOOL

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Volumes Views

Volume tabular views display selected volume records for specific dates and times. You can use optional positional parameters to limit the displayed volumes to those that are related to a specific object. The detail view displays the selected volume record in vertical format.

View Type	View Name	View Invocation
tabular	PRVOL	PRVOL <i>intdate inttime grptype grpname</i>
summarized by day	PRVOLD	PRVOLD <i>intdate inttime grptype grpname</i>
summarized by week	PRVOLW	PRVOLW <i>intdate inttime grptype grpname</i>
summarized by month	PRVOLM	PRVOLM <i>intdate inttime grptype grpname</i>
detail	PRVOLDTL	PRVOLDTL

View Invocation (Part 1 of 2)			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which volumes are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*
grptype grpname	group type group name	<p>INTERVAL shows volumes that are defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.</p> <p>CCU shows volumes for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character CCU ID.</p> <p>CHANPATH shows volumes for a specific channel path The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character channel path ID.</p> <p>DATASET shows volumes for a specific data set The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 6-character volume serial number.</p>	INTERVAL (if no group name parameter is specified)

View Invocation (Part 2 of 2)		
Optional Input	Valid Values	Default
	<p>LCU shows volumes for a specific LCU The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 4-character LCU ID.</p> <p>POOL shows volumes for a specific pool The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 6-character pool name.</p> <p>RAIDDIR shows volumes for a specific RAID director The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 7-character RAID director ID.</p> <p>RAIDPVOL shows volumes for a specific RAID physical volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 9-character RAID physical volume ID (Box # + Director # + SCSI #).</p> <p>RAIDRANK shows volumes for a specific RAID rank The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 5-character RAID rank.</p> <p>RVAFRAME shows volumes for a specific RVA subsystem frame The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must contain one to four 8-character RVA frames.</p> <p>TREND shows volume trending over a number of intervals The group name parameter must be a 6-character volume serial number. The TIME command start and end dates and times are used to determine the time span to report.</p>	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
L	shows logical control units for a specific volume	PRLCU date time volume serial
CP	shows channel paths for a specific volume	PRCHP date time volume serial

Action	Description	Hyperlink
DS	shows data sets for a specific volume	PRDS date time volume serial
PV	shows RAID physical volumes for a specific volume	PRVOL date time volume serial
RF	shows RVA subsystem frames for a specific volume	PRRSF date time volume serial
RR	shows RAID ranks for a specific volume	PRRRK date time volume serial
D	displays details for the selected volume	PRVOLDTL
H	displays snapshots that provide the history of the selected volume	
I	displays a daily summarization of snapshots using the TIME command range	PRVOLD <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRVOLW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRVOLM <i>intdate inttime grptype grpname</i>

Example

PRVOL

displays volumes for an interval

The interval is determined from the TIME command end date and time.

Example

PRVOL 20001109 1200

displays volumes for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRVOL * * LCU 00BB

displays volumes that are associated with logical control unit 00BB in the interval that is determined from the TIME command end date and time

Example

```
PRVOL 20001109 1200 RAIDPVOL 010471AC2
```

displays volumes associated with the RAID physical volume 010471AC2

The interval is determined from user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRLCU * * TREND BAB200
```

displays volume records for volume BAB200

The records from intervals in the TIME command start date and time to the end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Storage Class Views

Storage Class tabular views display selected storage class records for specific dates and times. You can use optional positional parameters to limit the displayed storage class views to those that are related to a specific object. The detail view displays the selected storage class record in vertical format.

View Type	View Name	View Invocation
tabular	PR_SCL	<i>PR_SCL intdate inttime grptype grpname</i>
summarized by day	PR_SCLD	<i>PR_SCLD intdate inttime grptype grpname</i>
summarized by week	PR_SCLW	<i>PR_SCLW intdate inttime grptype grpname</i>
summarized by month	PR_SCLM	<i>PR_SCLM intdate inttime grptype grpname</i>
detail	PR_SCLDTL	PR_SCLDTL

View Invocation			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which storage class are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*
grptype grpname	group type group name	<p>INTERVAL shows storage classes defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.</p> <p>TREND shows volume trending The group name parameter must be a 8-character storage class name. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified storage class over a number of intervals.</p>	INTERVAL (if no group name parameter is specified)

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
DS	shows data sets for a specific storage class	PRDS <i>date time storage class name</i>
D	displays details for the selected storage class	PRSCDLTL
H	displays snapshots that provide the history of the selected storage class	
I	displays a daily summarization of snapshots using the TIME command range	PRSCLD <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRSCLW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRSCLM <i>intdate inttime grptype grpname</i>

Example

```
PRSCCL
```

displays storage classes for an interval

The interval is determined from the TIME command end date and time.

Example

```
PRSCCL 20001109 1200
```

displays storage classes for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRLCU * * TREND SCENG
```

displays storage class records for storage class SCENG

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Data Set Views

Data set tabular views display data set records for specific dates and times. You can use optional positional parameters to limit the displayed data sets to those that are related to a specific object. The detail view displays the selected data set record in vertical format.

View Type	View Name	View Invocation
tabular	PRDS	<i>PRDS intdate inttime grptype grpname</i>
summarized by day	PRDSD	<i>PRDSD intdate inttime grptype grpname</i>
summarized by week	PRDSW	<i>PRDSW intdate inttime grptype grpname</i>
summarized by month	PRDSM	<i>PRDSM intdate inttime grptype grpname</i>
detail	PRDSDTL	PRDSDTL

View Invocation (Part 1 of 2)			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which data sets are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*

View Invocation (Part 2 of 2)				
Optional Input		Valid Values		Default
grptype grpname	group type group name	INTERVAL	shows data sets defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.	INTERVAL (if no group name parameter is specified)
		JOB	shows data sets for a specific job The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 8-character job name and 8-character job reader time.	
		POOL	shows data sets for a specific pool The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 6-character pool name.	
		STORCLAS	shows data sets for a specific storage class The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 8-character storage class name.	
		VOLUME	shows data sets for a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 6-character volume serial number.	
		TREND	shows data set trending The group name parameter must be a 8-character data set index number. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified data set over a number of intervals.	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
J	shows jobs for a selected data set	PRJOB date time data set index
V	shows volumes for a selected data set	PRVOL date time data set index
SC	shows the storage class for a selected data set	PRSCL date time data set index

Action	Description	Hyperlink
D	displays details for the selected data set	PRSDTL
H	displays snapshots that provide the history of the selected data set	
I	displays a daily summarization of snapshots using the TIME command range	PRDSD <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRDSW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRDSM <i>intdate inttime grptype grpname</i>

Example

PRDS

displays data sets for an interval

The interval is determined from the TIME command end date and time.

Example

PRDS * * POOL ABBAB3

displays data sets that are associated with pool ABBAB3 for the interval that is determined from the TIME command end date and time.

Example

PRDS 20001109 1200

displays data sets for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRDS 20001109 1200 STORCLAS SCENG
```

displays data sets associated with the storage class SCENG

The interval is determined from user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRDS * * TREND 0000003C
```

displays data set records for the data set index number 0000003C

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Job Views

Job tabular views display selected job records for specific dates and times. You can use optional positional parameters to limit the displayed jobs to those that are related to a specific object. The detail view displays the selected job record in vertical format.

View Type	View Name	View Invocation
tabular	PRJOB	PRJOB <i>intdate inttime grptype grpname</i>
summarized by day	PRJOB	PRJOB <i>intdate inttime grptype grpname</i>
summarized by week	PRJOBW	PRJOBW <i>intdate inttime grptype grpname</i>
summarized by month	PRJOBM	PRJOBM <i>intdate inttime grptype grpname</i>
detail	PRJOBCTL	PRJOBCTL

View Invocation			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which jobs are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*
grptype grpname	group type group name	<p>INTERVAL shows jobs defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.</p> <p>DATASET shows jobs for a specific data set The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 8-character data set index number.</p> <p>TREND shows job trending The group name parameter must be a 8-character job name and an 8-character job reader time. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified job over a number of intervals.</p>	INTERVAL (if no group name parameter is specified)

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
DS	shows data sets for a specific job	PRDS <i>date time job name and an 8-character job reader time</i>
D	displays details for the selected job	PRJOBCTL
H	displays snapshots that provide the history of the selected job	
I	displays a daily summarization of snapshots using the TIME command range	PRJOB <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRJOBW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRJOBM <i>intdate inttime grptype grpname</i>

Example

PRJOB

displays jobs for an interval

The interval is determined from the TIME command end date and time.

Example

PRJOB 20001109 1200

displays jobs for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRJOB 20001109 1200 DATASET 0000003C
```

displays jobs associated with the data set index number 0000003C in the interval is determined from user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRJOB * * TREND ANTMAIN 0028599B
```

displays job records for job ANTMAIN 0028599B

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

RAID Performance Views

To access the RAID Performance views

» From the EZSRM Menu, select **Performance**.

The EZSGP menu is displayed, as shown in Figure 6-2 on page 6-6.

Table 6-2 describes the RAID Performance views. View invocation and actions are described on the following pages.

Table 6-2 RAID Performance Views

View	Description	View Name
RAID director	displays a selected RAID director record for a specific date and time	PRRDIR PRRDIRD PRRDIRW PRRDIRM PRRDIRDT
RAID physical volume	displays a selected RAID physical volume record for a specific date and time	PRPVOL PRPVOLD PRPVOLW PRPVOLM PRPVOLDL
RVA subsystem frame	displays a selected RVA record for a specific date and time	PRRSF PRRSFD PRRSFW PRRSFM PRRSFDTL
RAID ranks	displays information on RAID rank performance for the selected time period	PRRRK PRRRLD PRRRKW PRRRKM PRRRKDTL

RAID Director Views

RAID director tabular views display selected RAID director records for specific dates and times. You can use optional positional parameters to limit the displayed RAID directors to those that are related to a specific object. The detail view displays the selected RAID director record in vertical format.

A director is a card that occupies one slot in the Symmetrix backplane. There are front end directors (EA for ESCON Adapter, CA for Channel Adapter) and disk directors (DA for DASD). The front-end director handles I/O from the host, determines if a request can be satisfied out of Symmetrix cache memory, and maintains data in the cache based on data access patterns. On a write request, the front-end director writes data to the cache. A disk director manages a number of physical disks. These directors move data between the cache and the appropriate physical disks and devices.

View Type	View Name	View Invocation
tabular	PRRDIR	PRRDIR <i>intdate inttime grptype grpname</i>
summarized by day	PRRDIRD	PRRDIRD <i>intdate inttime grptype grpname</i>
summarized by week	PRRDIRW	PRRDIRW <i>intdate inttime grptype grpname</i>
summarized by month	PRRDIRM	PRRDIRM <i>intdate inttime grptype grpname</i>
detail	PRRDIRDTL	PRRDIRDTL

View Invocation (Part 1 of 2)			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which RAID directors are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*

View Invocation (Part 2 of 2)				
Optional Input		Valid Values		Default
grptype grpname	group type group name	INTERVAL	shows RAID directors defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.	INTERVAL (if no group name parameter is specified)
		CCU	shows RAID directors for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 5-character RAID box serial number.	
		TREND	shows RAID director trending The group name parameter must be a 7-character RAID director ID (Box Serial # + Director #). The TIME command start and end dates and times are used to determine the time span to report. Displays the specified RAID director over a number of intervals.	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
V	shows volumes for a specific RAID director	PRVOL date time volume serial
PV	shows RAID physical volumes for a specific RAID director	PRPVOL date time RAID director
D	displays details for the selected RAID director	PRRDIRTL
H	displays snapshots that provide the history of the selected RAID director	
I	displays a daily summarization of snapshots using the TIME command range	PRRDIRD <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRRDIRW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRRDIRM <i>intdate inttime grptype grpname</i>

Example

```
PRRDIR
```

displays RAID directors for an interval

The interval is determined from the TIME command end date and time.

Example

```
PRRDIR 20001109 1200
```

displays RAID directors for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRRDIR * * CCU 010471A
```

displays RAID director 010471A associated with a cache control unit from the interval determined from the TIME command end date and time

Example

```
PRRDIR * * TREND 010471A
```

displays RAID director records for director LCU 010471A

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

RAID Physical Volume Views

RAID Physical Volume tabular views display selected RAID physical volume records for specific dates and times. You can use optional positional parameters to limit the displayed RAID physical volumes to those that are related to a specific object. The detail view displays selected RAID physical volume record in vertical format.

Multiple physical disks are controlled by a DASD director, which is identified by the director number. The SCSI ID field defines the path from the DASD director to the physical disk.

View Type	View Name	View Invocation
tabular	PRPVOL	PRPVOL <i>intdate inttime grptype grpname</i>
summarized by day	PRPVOLD	PRPVOLD <i>intdate inttime grptype grpname</i>
summarized by week	PRPVOLW	PRPVOLW <i>intdate inttime grptype grpname</i>
summarized by month	PRPVOLM	PRPVOLM <i>intdate inttime grptype grpname</i>
detail	PRPVOLDTL	PRPVOLDTL

View Invocation (Part 1 of 2)			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which RAID physical volumes are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*

View Invocation (Part 2 of 2)				
Optional Input		Valid Values		Default
grptype grpname	group type group name	INTERVAL	shows RAID physical volumes that are defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.	INTERVAL (if no group name parameter is specified)
		CCU	shows RAID physical volumes for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 5-character RAID box serial number.	
		RAIDDIR	shows RAID physical volumes for a specific RAID director The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 7-character RAID director ID (Box # + Director #).	
		VOLUME	shows RAID physical volumes for a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 9-character RAID physical volume serial number (Box # + Director # + SCSI #).	
		TREND	shows RAID physical volume trending The group name parameter must be a 9-character RAID physical volume ID. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified RAID physical volume over a number of intervals.	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
V	shows volumes for a specific RAID physical volume	PRVOL <i>date time RAID physical volume ID</i>
D	displays details for the selected RAID physical volume	PRPVOLDTL
H	displays snapshots that provide the history of the selected RAID physical volume	

Action	Description	Hyperlink
I	displays a daily summarization of snapshots using the TIME command range	PRPVOLD <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRPVOLW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRPVOLM <i>intdate inttime grptype grpname</i>

Example

```
PRPVOL
```

displays RAID physical volumes for an interval

The interval is determined from the TIME command end date and time.

Example

```
PRPVOL 20001109 1200
```

displays RAID physical volumes for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRPVOL * * CCU 01047
```

displays RAID physical volume 01047 associated with a cache control unit for the interval determined from the TIME command end date and time

Example

```
PRPVOL * * RAIDDIR 010471A
```

displays RAID physical volume 010471A associated with a specific RAID director

The interval is determined from the TIME command end date and time

Example

```
PRPVOL 20001109 1200 VOLUME 101471AC2
```

displays RAID physical volume records associated with a specific volume

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PRPVOL * * TREND 101471AC2
```

displays RAID physical volume records for RAID director volume 101471AC2

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

RVA Subsystem Frame Views

RVA Subsystem Frame tabular views display selected RVA records for specific dates and times. You can use optional positional parameters to limit the displayed RVA subsystem frames to those that are related to a specific object. The detail view displays the selected RVA subsystem frame record in vertical format.

View Type	View Name	View Invocation
tabular	PRRSF	<i>PRRSF intdate inttime grptype grpname</i>
summarized by day	PRRSFD	<i>PRRSFD intdate inttime grptype grpname</i>
summarized by week	PRRSFW	<i>PRRSFW intdate inttime grptype grpname</i>
summarized by month	PRRSFM	<i>PRRSFM intdate inttime grptype grpname</i>
detail	PRRSFDTL	PRRSFDTL

View Invocation (Part 1 of 2)			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which RVA subsystem frames are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*

View Invocation (Part 2 of 2)				
Optional Input		Valid Values		Default
grptype grpname	group type group name	INTERVAL	shows RVA subsystem frames defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.	INTERVAL (if no group name parameter is specified)
		CCU	shows RVA subsystem frames for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 8-character RVA subsystem frame name.	
		VOLUME	shows RVA subsystem frames for a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be an 8-character RVA subsystem frame name.	
		TREND	shows RVA subsystem frame trending The group name parameter must be an 8-character RVA subsystem frame name. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified RVA subsystem frame over a number of intervals.	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
V	shows volumes for a specific RVA subsystem frame	PRVOL date time RVA subsystem frame ID
CC	shows cache control units for a specific RVA subsystem frame	PRCCU date time RVA subsystem frame ID
D	displays details for the selected RVA subsystem frame	PRRSFDTL
H	displays snapshots that provide the history of the selected RVA subsystem frame	
I	displays a daily summarization of snapshots using the TIME command range	PRRSFD <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRRSFW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRRSFM <i>intdate inttime grptype grpname</i>

Example

PRRSF

displays RVA subsystem frames for an interval

The interval is determined from the TIME command end date and time.

Example

PRRSF 20001109 1200

displays RVA subsystem frames for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRRSF * * CCU RVAFN1

displays RVA subsystem frame RVAFN1 associated with a cache control unit for the interval determined from the TIME command end date and time

Example

```
PPRRSF 20001109 1200 VOLUME RVAFN1
```

displays RVA subsystem frame records associated with a specific volume

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

```
PPRSF * * TREND RVAFN1
```

displays RVA subsystem frame records for RAID director volume RVA subsystem frame RVAFN1

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

RAID Rank Views

RAID rank tabular views display selected RAID rank performance for specific dates and times. You can use optional positional parameters to limit the displayed RAID ranks to those that are related to a specific object. The detail view displays the selected RAID rank record in vertical format.

View Type	View Name	View Invocation
tabular	PRRRK	<i>PRRRK intdate inttime grptype grpname</i>
summarized by day	PRRRKD	<i>PRRRKD intdate inttime grptype grpname</i>
summarized by week	PRRRKW	<i>PRRRKW intdate inttime grptype grpname</i>
summarized by month	PRRRKM	<i>PRRRKM intdate inttime grptype grpname</i>
detail	PRRRKDTL	PRRRKDTL

View Invocation (Part 1 of 2)			
Optional Input		Valid Values	Default
intdate inttime	interval date/interval time	format: CCYYMMDD Specifies the date and time of the specific recording interval from which RAID ranks are to be obtained. Defaults to * if not specified. When * is specified or taken as the default, the TIME command end date and time are used as the interval time to be displayed.	*

View Invocation (Part 2 of 2)				
Optional Input		Valid Values		Default
grptype grpname	group type group name	INTERVAL	shows RAID ranks defined by a system summary record or interval record The interval date and time or the TIME command end date and time are used to determine an interval. The group name parameter is not used for this group type and when specified is ignored. If the group name parameter is not specified, INTERVAL is the default group type.	INTERVAL (if no group name parameter is specified)
		CCU	shows RAID ranks for a specific cache control unit The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 5-character RAID rank ID.	
		VOLUME	shows RAID ranks for a specific volume The interval date and time or TIME command end date and time are used to determine an interval. The group name parameter must be a 5-character RAID rank ID.	
		TREND	shows RAID rank trending The group name parameter must be a 5-character RAID rank name. The TIME command start and end dates and times are used to determine the time span to report. Displays the specified RAID rank over a number of intervals.	

Start and end dates and times are retrieved from the parameters in the MAINVIEW TIME command. The format of the TIME command fields is CCYYMMDD and HHMM. These TIME command fields are used only for TREND (trending) requests. The end date and time are used for the interval date and time when those parameters are specified as *.

The following actions are available on the tabular view:

Action	Description	Hyperlink
V	shows volumes for a specific RAID rank	PRVOL <i>date time RAID rank ID</i>
CC	shows cache control units for a specific RAID rank	PRCCU <i>date time RAID rank ID</i>
D	displays details for the selected RAID rank	PRRRKDTL
H	displays snapshots that provide the history of the selected RAID rank	
I	displays a daily summarization of snapshots using the TIME command range	PRRRKD <i>intdate inttime grptype grpname</i>
W	displays a weekly summarization of snapshots using the TIME command range	PRRRKW <i>intdate inttime grptype grpname</i>
M	displays a monthly summarization of snapshots using the TIME command range	PRRRKM <i>intdate inttime grptype grpname</i>

Example

PRRSF

displays RAID ranks for an interval

The interval is determined from the TIME command end date and time.

Example

PRRSF 20001109 1200

displays RAID ranks for an interval

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRRSF * * CCU 00300

displays RAID rank 00300 associated with a cache control unit for the interval determined from the TIME command end date and time

Example

PRRSF 20001109 1200 VOLUME 00300

displays RAID rank records associated with a specific volume

The interval is determined from the user input, using 2000/11/09 as the date and 12:00 as the time.

Example

PRRSF * * TREND 00300

displays RAID rank records for RAID director volume RAID rank 00300

The records from intervals in the TIME command start date and time to end date and time range are displayed. The summary views for the day, week, and month can be used to summarize this data.

Chapter 7 Workbench

This chapter describes the workbench tools that StorageGUARD provides to simplify daily DASD housekeeping. The following information is included:

Overview	7-1
High-Level Qualifier View	7-4
Catalog Super Locate View	7-5
VTOC Scan Facility	7-8
System Parameters	7-8
Rule List SET Parameters	7-9
VTOC Scan Facility Collection	7-13
VTOC Scan Facility Views	7-14

Overview

The MAINVIEW SRM Workbench provides a set of real-time data set-level and VTOC-level views to simplify the following daily DASD housekeeping functions:

- HLQ (High-Level Qualifier)
- Catalog Super Locate
- VTOC Scan Facility

A powerful search engine drives this component and uses the tabular display facility. With these reports and utilities, you can locate problem data sets and take action if necessary. You can inspect data sets from the catalog and VTOC viewpoints.

To access MAINVIEW SRM Workbench

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

The Workbench menu is displayed in a pop-up menu in the center of the EZSRM view, as shown in Figure 7-1. View invocation and actions are described on the following pages.

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

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

Figure 7-1 Workbench Pop-up Menu

```

14MAY2001 11:03:48 ----- INFORMATION DISPLAY -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
>W1 =EZSRM====EZSRMW====SJSJG====*=====14MAY2001==11:03:44====MVSRM====D====1
                                EZSRM  Menu

SRM Real Time Monitor                                SRM Historical Data
+ Workbench =====+
. Pools . HLQ . > Historical Space
. SMS Storage Groups . Catalog Super Locate. > Historical Performance
. SMS Pools . VTOC Reporting . > EasyHSM
> RAID Configurations . Return... . > SGControl Applications
> Storage Performance +-----+ > SMF Report Library

SRM Administration                                SRM Tools and Menus
> Parmlib Members > Workbench
. Functions . MVSRM View List
. SRM Component Status . MVSRM Batch Reports
. MainView Messages
. Return....

```

Step 2 Select the menu option of your choice. For HLQ and Catalog Super Locate, a data entry panel is displayed in which you can filter the data you want to see.

Step 3 To filter data, complete the fields provided on the data entry panel.

Step 4 Type **S** to the left of the <== symbol to process the request.

Table 7-1 describes the options that are available from the Workbench menu.

Table 7-1 Workbench Views

View	Description	View Name
HLQ	lists all high-level qualifiers in the catalog The master catalog is read and a list is compiled of all high-level qualifiers. This option can be used as a utility to search for entries in a top-down manner.	WBHLQ
Catalog Super Locate	provides an enhanced facility that replaces ISPF 3.4 and ISMF Data Set Services, comprising the best of both worlds with increased ease of use and flexibility	WBSL
VTOC Reporting	displays information on the DASD volume, such as the volume serial number, mount type, percentage full, number of free DSCBs, free space, and so on	WBVTOC

High-Level Qualifier View

The High-Level Qualifier view provides a top-down view of the catalog entries. If you want to search for specific entries and are not completely sure the high-level qualifier, you can search each high-level qualifier individually, instead of searching the entire catalog structure. When you select the view from the EZSRM menu, a dialog box is displayed to allow you to specify a high-level qualifier or mask.

After a list of high-level qualifiers is displayed, you can focus on a specific high-level qualifier by using either the S or XS action line command. The S action line command displays a list of data set names and displayed data set types for that high-level qualifier. If you want to narrow the list of data set names or expand the amount of information for the selected data sets, use the XS command. It presents you with the Catalog Super Locate panel on which you can alter the catalog search options.

View Type	View Name	View Invocation
tabular	WBHLQ	WBHLQ hlq

The following actions are available on the tabular view:

Action	Description
S	select Invokes 'WBSL hlq/ all yes' This option displays a super-locate list of all data sets that start with the high-level qualifier. Defaults: data set type = All migrated data set = Yes
XS	extended select invokes 'WBSL hlq/' This command is the same as the select command except that it allows you to override the data set type and migrated data sets.
CL	catalog list displays catalog information for the data set

Catalog Super Locate View

The Catalog Super Locate view scans the catalog(s) for data sets with the search criteria you specify either in the dialog box that is displayed from the EZSRM menu or as a qualifier for view invocation. A list of data sets is displayed from which you can take further action. The Catalog Super Locate view contains the best features of ISPF DSLIST (3.4) and ISFM Data Set Services. It combines them into a single view.

View Type	View Name	View Invocation
tabular	WBSL	WBSL <i>dsname dstype migrated</i>

View Invocation		
Optional Input	Valid Values	Default
dsname	data set name level or data set filter All qualifiers can participate in the data set name filter. Valid masking characters are '?' for a single unknown character and '*' for an arbitrary number (possibly zero) of characters.	none
dstype	data set type - catalog type ALL displays all catalog entries VSAM displays only VSAM data sets NONVSA displays only non-VSAM data sets, including PDSEs and striped data sets M PAGE displays only system paging data sets CATALOG displays only data sets that are defined as catalog data sets OTHER displays any data set type that is not included in one of the other categories These data set types include GDG definitions, VVDS definitions (if cataloged), and others.	ALL
migrated	migrated data sets Indicates that the Catalog Super Locate view should not include any migrated data sets in the data set list. Migrated data sets are determined by the volume name of MIGRAT or ARCIVE YES includes migrated data sets NO excludes migrated data sets ONLY displays only migrated data sets	Yes

The following actions are available on the tabular view:

Action	Description	Action Performed
B	Browse	invokes standard ISPF browse for the selected data set. For the data set to be browsable, it must adhere to ISPF Browse data set restrictions.
BV	Backup Versions	lists all backup versions recorded in the BCDS for a particular data set
CL	Catalog List	calls IDCAMS with a LISTCAT ALL request The resulting IDCAMS output is available to you in an ISPF EDIT session where you can view or modify the output to suit your needs.
CO	Data Set Copy	assists you in constructing a DFDSS job stream to copy a data set
DEL	Delete Data Set	deletes and uncatalogs the selected data set If the data set is migrated, a DFHSM HDELETE request is performed instead to delete the migrated version
E	Edit	invokes standard ISPF Edit for the selected data set For the data set to be edited, it must adhere to ISPF Edit data set restrictions.
F	Partial Release	freed unused space in a data set, PDS, or PDSE For example, if a data set is allocated at 100 tracks but is using only 60 tracks, the free action releases the 40 tracks that are not being used. If the data set had been allocated in cylinders, all tracks beyond the last used cylinder would have been freed.
HBA	DFHSM Backup	schedules an HBACKDS request to the DFHSM region This action allows you to direct DFHSM to make an immediate backup of a data set without having to wait for the automated backup procedures to run.
HBD	DFHSM Delete Backup	Schedules a DFHSM HBDELETE command to the DFHSM system. This action allows you to delete all backups or a specific backup version for a data set.
HMI	DFHSM Migrate	schedules an HMIGRATE command to move a data set to ML1 or ML2 Additionally, you use this command to move a data set from ML1 to ML2.
HRC	DFHSM Recover	restores a data set from either the most current backup or a specific backup version The data set does not need to be cataloged for the recovery to occur.
HRE	DFHSM Recall	recalls a DFHSM migrated data set from either ML1 or ML2 back to disk You can schedule the request in the background or wait for the recall to complete.
I	Data Set Information	displays detailed data set information You see different panels and statistics depending on the location and type of data set. For DFHSM-migrated data sets, detailed information is displayed about the migrated data set, such as the location (ML1 or ML2) and how long the data set was at ML1 before it is migrated to ML2.
UC	Uncatalog Data Set	removes the data set from the catalog This function is valid only for non-SMS data sets.
V	VTOC Dump	displays a formatted dump of the VTOC entry for the data set

Action	Description	Action Performed
VIN	Volume Information	displays volume-level information for the volume on which the data set resides
Z	Compress	initiates a PDS-compression function for the data set

Table 7-2 describes the values that may appear in the Message column of a Super Locate record.

Table 7-2 Super Locate Messages

Message	Description
CANDIDATE VOL	the data set does not exist on the volume, but the volume is marked as candidate in the catalog entry
CATALOG ERROR	a non-zero return code was received from catalog services
D2/3 OB FAILED	the OBTAIN macro failed to locate the Format 2 or 3 DSCB record in the VTOC This may indicate VTOC corruption or just a timing glitch. For example, the system may read the F1DSCB then the data set is deleted, then the system tries to find the F3DSCB.
HSMREQERR=xxx	a non-zero return code was received from an HSM request
HSMSVCERR=xxx	a non-zero return code was received from the HSM SVC
NO HSM SUPP	the HSM MCDS was not allocated to the user
OBTAIN FAILED	the OBTAIN macro had a non-zero return code The probable reason: the data set is not on the volume indicated by the catalog.
POSS. UPGD SET	a VSAM DATA component contained a reference to a volume, but there was no extent of that component on the volume This may indicate that an extent has been incorrectly scratched, but more likely there is an upgrade set with a data component on the volume.

VTOC Scan Facility

This sections describes how to set up the VTOC Scan Facility collector and view VTOC statistics.

System Parameters

The parameters in SMVSCFxx that specifically affect VTOC scans are described in the following table:

Table 7-3 VTOC System Parameters

Parameter	Purpose
VSCAN_MNTSK=	Specifies the minimum number of tasks (TCBs) used by the VTOC scan to perform the collection (2-30; default 2)
VSCAN_MXTSK=	Controls the number of tasks (TCBs) involved in scanning VTOCs for VTOC reporting and automation requests (2-30; default 8). It can also be used to affect the response given to automation requests.
VSCAN_OINDX=	Specifies the prefix name of the VTOC scan collection data set. <i>Dyymmdd.Thhmmss</i> is appended to the prefix to complete the full data set name (1-28 characters)
VSCAN_OPRI=	Specifies the primary allocation size in cylinders for the VTOC scan collection data set (1-4369; default 10)
VSCAN_OSEC=	Specifies the secondary allocation size in cylinders for the VTOC scan collection data set (1-4369; default 10)
VSCAN_OUNIT=	Specifies the device type of the VTOC scan collection data set (1-8 characters)
VSCAN_OVOL=	Specifies the volume serial number of the VTOC scan collection data set (1-6 characters)
VSCAN_TPRI=	Specifies the primary allocation size in cylinders for the VTOC scan temporary data set (1-4369; default 10)
VSCAN_TSEC=	Specifies the set secondary allocation size in cylinders for the VTOC scan temporary data (1-4369; default 10)
VSCAN_TUNIT=	Specifies the device type for the VTOC scan temporary data set (1-8 characters)
VSCAN_TVOL=	Specifies the volume serial number for the VTOC scan temporary data set (1-6 characters)

Rule List SET Parameters

The rule list parameters for VTOC scan are described in the following table:

Table 7-4 SET Statement VTOC Scan Facility Parameters

Parameter	Required	Description
RECORD_TYPE= <i>x</i>	N	Specifies whether to generate data set or volume records
DSN_MASK= <i>xxxxxxxxxx</i>	N	Specifies the data set name or mask
DSN_TYPE= <i>x</i>	N	Specifies the data set type
MRG_CATINFO= <i>YES/NO</i>	N	Specifies whether to include catalog information in the collected statistics
MRG_SGCINFO= <i>YES/NO</i>	N	Specifies whether to include SG-Control data in the collected statistics
VOLUME= <i>xxxxxxx</i>	N	Specifies the volser or mask
START_UNIT= <i>nnnn</i>	N	Specifies the starting unit address range
END_UNIT= <i>nnnn</i>	N	Specifies the ending unit address range
MNT_STATUS= <i>xx</i>	N	Specifies the volume mount status
SMS_STATE= <i>xxxxxxxxxx</i>	N	Specifies the volume's SMS status
SMS_GROUP= <i>=</i>	N	Specifies the SMS group name or mask

Parameter Explanations

DSN_MASK=

Purpose: Specifies the data set name or mask.

Syntax: DSN_MASK=*xxxxxxxxxx*

where *xxxxxxxx...* is the data set name or data set filter. A forward slash specifies all data set names.

Required: No

Default: DSN_MASK=*=*

DSN_TYPE=

Purpose: Specifies the data set type.

Syntax: DSN_TYPE=*x*

where *x* is

A = All

V = VSAM

N = NONVSAM

Required: No

Default: DSN_TYPE=A

END_UNIT=

Purpose: Specifies the ending unit address range.

Syntax: END_UNIT=*xxxx*

where *xxxx* is 4 characters

Required: No

Default: END_UNIT=FFFF

MNT_STATUS=

Purpose: Specifies the mount status of the volume.

Syntax: MNT_STATUS=*x*

where *x* is

A = All

P = Public

V = Private

S = Storage

Required: No

Default: MNT_STATUS=A

MRG_CATINFO=

Purpose: Specifies whether to include catalog information in the collection statistics.

Syntax: MRG_CATINFO=YES/NO

Required: No

Default: MRG_CATINFO=YES

MRG_SGCINFO=

Purpose: Specifies whether to include SG-Control data in the collected statistics.

Syntax: MRG_SGCINFO=YES/NO

Required: No

Default: MRG_SGCINFO=YES

RECORD_TYPE=

Purpose: Specifies the whether to generate the report by data set or volume.

Syntax: RECORD_TYPE=*x*

where *x* is

D = data set and volume statistics records

V = volume statistical records

Required: No

Default: RECORD_TYPE=V

SMS_GROUP=

Purpose: Specifies the volume's SMS group name or mask.

Syntax: SMS_GROUP=xxxxxxx

where xxxxxxx is an SMS storage group name or filter. A forward slash specifies all SMS storage group names.

Required: No

Default: SMS_GROUP=/

SMS_STATE=

Purpose: Specifies the SMS status for the volumes.

Syntax: SMS_STATE=x

where x is

A= All

I= Initial

M = Managed

U = Unmanaged

Required: No

Default: SMS_STATE=A

START_UNIT=

Purpose: Specifies the starting unit address range.

Syntax: START=xxxx

where xxxx is 4 characters

Required: No

Default: START=0000

VOLUME=

Purpose: Specifies the volume serial number or volume serial number filter.

Syntax: VOLUME=xxxxxx

where xxxxxx is 1- to 6-character valid volume serial number defined in your environment. A forward slash specifies all volumes.

Required: No

Default: VOLUME=/

VTOC Scan Facility Collection

The VTOC scan collection code resides in the MAINVIEW SRM SVOS PAS. You can initiate a VTOC scan using the following system MODIFY command:

```
/SVOS VSCAN,SUF=xx
```

xx is the suffix of the SMVSCFxx parmlib member to use in the scan

You can also initiate a VTOC scan using an primary line command on the VTOC scan output data set view.

For information about the SVOS PAS and parmlib members, see the *MAINVIEW SRM User Guide and Reference*.

The output of the collection is written to a sequential data set, where it is available for viewing. The data set name that contains the scan output is indicated in a message appearing in the SVOS job log in response to this command. The output data set is also available in the WBVTOC view.

VTOC Scan Facility Views

The VTOC Scan collection view, WBVTOC, is the initial view that is displayed. WBVTOC view shows one row per VTOC scan output data set and one row per in-flight or aborted VTOC scan. Each row displays a summary of the output data set contents and the search criteria that were used to populate the data set. From the WBVTOC view, you can select a data set for data set-level statistics viewing, volume-level statistics viewing, or data set (VTOC scan output data set) deletion.

View Type	View Name	View Invocation
tabular	WBVTOC	WBVTOC

From the WBVTOC scan collection view, you can initiate a scan through the VSCAN primary line command:

VSCAN *xx*

xx is the suffix of the SMVSCF*xx* parmlib member containing the VTOC scan filter criteria. If *xx* is omitted, the default is 00.

The following actions are available on the tabular view:

Action	Description	Action Performed	Hyperlink
B	Browse	browses the filter parmlib member	
D	Data Set Statistics	displays data set level statistics for the selected row	WBVTOCD
DEL	Delete	deletes the collection data set or removes the aborted scan entry	
E	Edit	edits the filter parmlib member	
G	Summary	retrieves the summary record from the collection data set	
V	Volume	displays volume-level statistics	WBVTOCV

VTOC Data Set-Level Statistics View

The VTOC data set-level statistics view displays the data set information about selected data sets.

View Type	View Name	View Invocation
tabular	WBVTOCD	WBVTOCD

The following actions are available on the tabular view:

Action	Description	Action Performed
B	Browse	browses the data set
BV	Backup Versions	lists all backup versions that are recorded in the BCDS for a particular data set
CL	Catalog List	calls IDCAMS with a LISTCAT ALL request The resulting IDCAMS output is available to you in an ISPF EDIT session where you can view or modify the output to suit your needs.
DEL	Delete Data Set	deletes and uncatalogs the selected data set If the data set is migrated, a DFHSM HDELETE is performed instead to delete the migrated version
E	Edit	edits the data set
F	Partial Release	frees unused space in a data set, PDS, or PDSE For example, if a data set is allocated at 100 tracks but is using only 60 tracks, the free action releases the 40 tracks that are not being used. If the data set had been allocated in cylinders, all tracks beyond the last used cylinder would have been freed.
HBA	DFHSM Backup	schedules a HBACKDS request to the DFHSM region This allows you to direct DFHSM to make an immediate backup of a data set without having to wait for the automated backup procedures to run.
HBD	DFHSM Delete Backup	schedules a DFHSM HBDELETE command to the DFHSM system This action allows you to delete all backups or a specific backup version for a data set.
HMI	DFHSM Migrate	schedules an HMIGRATE command to move a data set to ML1 or ML2 Additionally, you use this command to move a data set from ML1 to ML2.
HRC	DFHSM Recover	restores a data set from either the most current backup or a specific backup version The data set does not need to be cataloged for the recovery to occur.
I	Data Set Information	displays detailed data set information
UC	Uncatalog Data Set	removes the data set from the catalog This function is valid only for non-SMS data sets.
V	VTOC Dump	displays a formatted dump of the VTOC entry for the data set

Action	Description	Action Performed
VIN	Volume Information	displays volume-level information for the volume where the data set resides
Z	Compress	initiates a PDS-compression function for the data set

VTOC Volume-Level Statistics View

The VTOC volume-level statistics view displays the volume-level statistics based on the criteria you entered.

View Type	View Name	View Invocation
tabular	WBVTOCV	WBVTOCV

The following actions are available on the tabular view:

Action	Description	Action Performed
L	List Data Sets	lists data set level statistics for the selected volume
VIN	Volume Information	displays volume-level information for the volume on which the data set resides
VST	Volume Statistics	displays volume-level statistics for the volume on which the data set resides

Chapter 8 Tape Reporting

This chapter describes the information you need to

- define system parameters
- initiate a tape scan
- access tape reports
- navigate to drill-down views
- navigate using view names

The following information is included:

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Overview

The tape reporting facility derives and consolidates information from your existing tape management software and other sources to assist in the prevention of errors related to tape.

The tape reporting facility reports on both physical and virtual tape library systems and supports both the IBM and StorageTek virtual library systems and interfaces with CA-1, DFSMSrmm, and Control-T.

The tape reporting facility provides reports that enable you to

- determine if the tape resource is being used efficiently
- manage the Automated Tape Library (ATL) and to report on usage of the tape library
- view both the performance and the utilization of the virtual tape system and take the necessary steps to improve both

The tape reporting facility can help reduce operations expenses with better resource utilization. Capacity analysis can help you achieve workload balancing by getting more benefit from fewer resources. Global auditing reduces errors related to tape and increases availability.

How Does It Work?

When the SVOS TSCAN command is submitted, a process examines the status of the tape environment and extracts data from the available sources. This process extracts data and stores a refreshed set of tape related information. This stored data (MVS data spaces and/or data sets) is available for faster scrutiny, such as further analysis, query, and reporting, from online or batch requests.

Information is gathered from multiple sources for both real and virtual tape volumes (Automatic Tape Libraries and conventional tape devices). Software interrogated when gathering data that represents the tape environment is shown in Table 8-1:

Table 8-1 Interrogated Software

Software	Acronym Description	Vendor
AMS	Access Method Services	IBM
CA-1	Computer Associates Tape Management System	CA
CONTROL-T	CONTROL-T Tape Management System	BMC
DFSMSdfp	Storage Management Subsystem data facility product	IBM
DFSMSshsm	Storage Management Subsystem hierarchical storage management	IBM
DFSMSrmm	Storage Management Subsystem removable media manager	IBM
HSC	Host Software Component	StorageTek
OAM	Object Access Method	IBM
SMF	System Management Facility	IBM
VTCS	Virtual Tape Control System	StorageTek

Some of the available data, such as AMS data set catalog entries and SMF record types 21, 73, 74, 94, and the STK user type are common. Some will vary for different environments depending on the hardware and software used (for example, HSC and SMF user records or AMS library and volume catalog entries and SMF type 94 records). This alternate software usage can be separated into the arbitrary categories of

- tape management
- storage management
- data archiving
- ATL real volumes
- ATL virtual tape volumes

Software by usage category is shown in the following table:

Table 8-2 Software Categories

Tape Management	Storage Management	Data Archiving	ATL (real)	ATL (virtual)
CA-1	DFSMSdfp	DFHSMShsm	HSC	VTCS and HSC
CONTROL-T			OAM	OAM
DFSMSrmm	device group,...		OAM	OAM

After the extraction and merger of the volume data, a complete detailed tape inventory is available for all real and virtual volumes. Exceptions between data sources for common elements are noted. The detail for non-scratch volumes includes such items as data sets on the volume and the volume's location. For StorageTek ATLS, such items as the library location, selection count, insertion time, and last selection and mount times are recorded. Statistics are available at the device level. Hence, utilization and performance data is available for summarization at the ATL, device, and volume level grouped into user-defined applications.

With the reports provided, performance problems due to improper utilization (excessive or under-utilization) of the storage media (tape, DASD, cache storage) or hardware (ATL, CU, device) become more apparent. You can make decisions for device selection and allocation (Automatic Class Selection (ACS) for management, storage, and data) to better

- balance the work load
- reduce physical volume movement
- reduce virtual volume thrashing

You can also

- make data migration decisions for migration levels (MLs) to minimize delays due to volume mounts associated with data set recall
- generate reports that provide the data needed for better planning and forecasting
- redistribute shared tape devices to suit the work load
- identify a resource shortage (scratch volumes, empty cells, available cache, devices, and so on) before the shortage becomes critical

Environment

The tape reporting facility provides information on for the majority of enterprise tape environments with the exception of the IBM Automated Tape Library (ATL) and the IBM Virtual Tape Server (VTS).

Due to the lack of access of information from within the IBM Automated Tape Library and the IBM Virtual Tape Server, the TCDB (Tape Catalog DataBase) and SMF 94 records are the only source of obtaining the desired information for those environments. Therefore the information provided for the IBM Automated Tape Library and Virtual Tape Server will be on an hourly basis because, which is how often the SMF 94 record is written for the IBM ATL and the IBM VTS.

There are no other constraints or limitations with the tape reporting facility within the enterprise tape environment. For other enterprise tape environments, information is accessed using an API, data sets, or extract file.

Features

The tape reporting facility provides the following features:

Table 8-3 **Features**

Feature	Description
Auditing	allows you to detect any <i>out of sync</i> conditions that may exist between the various data sources, for example, the tape catalog, the OS/390 catalog, and so on
Query	allows you to view information from the TSCAN results of your choice for a single entity, be it a tape volume, a tape unit, or a data set name
Reporting	allows you to select an online view of the report in which you are interested and allows you to print the report using the MVS RM Batch Reports process

Reports

The tape reporting facility generates a comprehensive set of reports, both scheduled in batch and ad hoc, which can be viewed online or printed. Reports provide you with a complete picture of the current and anticipated state of all components of the tape system and can be used for accounting, capacity planning, auditing (error or exception reporting), performance tuning and troubleshooting. The product assists you in resolving problems related to the interaction of the various tape system components (TMC, VTS, and MVS) and in using the tape system to maximum efficiency. Table 8-5 on page 8-9 lists the reports available from the tape reporting facility.

Defining System Parameters

The system parameters that are used to set up the tape reporting facility are described Table 8-4. For information about defining system parameters, see the *MAINVIEW SRM User Guide and Reference*.

Table 8-4 System Parameters

Parameter	Purpose
TAPE_CA1DSN=xxxxxxxxxxx	specifies the data set name of the CA1 data set
TAPE_CAT=(xxxxxxxx,xxxxxxxx,...)	specifies the tape management system(s) available for report generation The values are one or more of CONTROLT, CA1, or RMM. That is, TAPE_CAT=CONTROLT indicates that CONTROL-T is the only system that you are interested in. On the other hand, TAPE_CAT=(CONTROLT,RMM,CA1) indicates that you have all three systems and you want reports on all three.
TAPE_CCTLTH=xxxxxxxxxxx	specifies the high-level qualifier for the CONTROL-T data sets
TAPE_CHLQ=xxxxxxx	specifies the high-level qualifier for the TSCAN data sets; limited to 20 characters RELEASE <i>cannot</i> be turned on for TSCAN data sets.
TAPE_CPRI=nnnn	specifies the number of cylinders for the primary allocation
TAPE_CSEC=nnnn	specifies the number of cylinders for the secondary allocation
TAPE_CTLTRL=x	specifies the release number for Control T
TAPE_CVOL=(xxxxxx,xxxxxx,...)	specifies the volume serial number(s) of the volumes to used for the linear data sets, with a maximum of six volsers
TAPE_HSCCDS=xxxxxxxxxxx	specifies the name of the STK CDS data set
TAPE_RMMDSN=xxxxxxxxxxx	specifies the data set name for the RMM control data set
TAPE_SMFDS n =xxxxxxxxxxx	specifies 1-9 SMF data set names You can specify up to 9 SMF data sets. If you skip one, for example, specifying SMFDS4 and SMFDS6 but not SMFDS5, processing will stop at the first gap, which means that SMFDS6 would not be allocated. The SVOS TSCAN processes files created by IFSMFDP, not live VSAM files. If you do not want SMF data, do not specify the data set name.

Initiating an SVOS TSCAN

The TSCAN command initiates a tape scan collection. Based on your input, the system scans the tape catalog data set and extracts information about tape volumes and tape data sets that exist in the system. Information is also extracted from the tape silo, the VTS, and the HSM OCDS.

Tip: If you need to stop a TSCAN before completion, you can issue the following command:

ENDTSCAN

This data is built in linear data sets that have the date and time as a part of the name. These linear data sets are then processed to produce the TSCANLS view.

Accessing Tape Views

The tape reporting facility provides a set of near real-time reports resulting from the tape scan. The reports are available in the form of online views that can be printed using MAINVIEW Batch Reports facility (MVSRRM Batch Reports on the MVSRRM main menu).

To access tape views

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

The TSCANLS view is displayed, as shown in Figure 8-1. The TSCANLS view is a list of 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.

Figure 8-1 TSCANLS View

```

17OCT2001 13:11:25 ----- INFORMATION DISPLAY -----
COMMAND ==>                               SCROLL ==> PAGE
CURR WIN ==> 1           ALT WIN ==>
W1 =TSCANLS=====SJSJG=====*=====17OCT2001==13:11:24====MVSRRM====D====8
Date-Time Stamp
=====
.D011017.T124410
.D011008.T134510
.D011008.T124506
.D011008.T115129
.D011008.T103430
.D011008.T095616
.D011008.T085215
.D010930.T201317

```

Step 2 Review the list of scan Date-Time Stamps for the data you want to see. If the you wish, you can start a new scan by typing **TSCAN** on the **COMMAND** line, and pressing **Enter**. Be aware, however, that the scan will take some time to complete. If need be, you can stop a TSCAN by issuing the **ENDTSCAN** command.

Place your cursor on the date and time for the view you want to see, and press **Enter**.

The Tape menu is displayed, as shown in Figure 8-2.

Figure 8-2 EZSRMT Tape Menu

```

17OCT2001 12:38:51 ----- INFORMATION DISPLAY -----
COMMAND ===>                                     SCROLL ===> PAGE
CURR WIN ===> 1           ALT WIN ===>
>W1 =EZSRMT=====SJSG=====17OCT2001==12:38:51===MVS RM====D====
                                EZSRMT Tape Menu

. ACS Contents                +-----+ . Scratch Tape Location
. Demand Enter Detail        | Place cursor | . Tape Data Set Audit
. Library Aging              | on menu item | . Tape Details
. Library Contents           |   and       | . Tape Last Referenced
. Library Media Sizing       | press ENTER | . Tape Summary
. Library Utilization        +-----+ . Tape Utilization
. MVC and VTV Migration      . Tape Volume Audit
. Pass-Through Mounts        . Return...
    
```

Step 3 Select the menu option of your choice.

Step 4 To filter data on some options, complete the fields provided on the data entry panel or accept the defaults.

Step 5 Type **S** to the left of the **<==** symbol to process the request.

Table 8-5 describes the Primary Selections that are available from the EZSRMT Tape Menu. Descriptions for each field can be accessed online.

Table 8-5 Primary Selection Views

Report Name	Description
ACS Contents (ACR)	provides a summary view of the contents of StorageTek tape libraries
Demand Enter Detail (DEDT)	provides a detailed list of tapes from demand entry to the library
Library Aging (LAR1)	summarizes the number of cells and cleaning cartridges for each tape library Detailed information on the types of media in each library and the last time the tapes were referenced is available for each library.
Library Contents (LCR)	reports on tape movements (enter/eject count, pass-through events, and whether mounted as scratch/non-scratch), scratch count, free cells, and total cells; for STK, this is summarized by ACSs
Library Media Sizing (TCSRZ)	reports counts for media type within the library
Library Utilization (LUR)	lists the total number of tapes and average utilization and total tapes by utilization ranges in 10% increments
MVC and VTV Migration Report (MVMR)	lists the number of VTV migration and recalls by age, data set name, mounts, and data transferred
Pass-Through Mounts (PTMR)	reports on number of pass-through events to process the mount required The report contains the time of the pass-through and the number of LSMs required to pass-through to service the mount.
Scratch Tape Location (SLR)	summarizes the location of real and virtual scratch tapes
Tape Data Set Audit (TSAR2)	a data set-name based audit 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 it was last referenced
Tape Last Referenced (VDR)	summarizes tape use by the date the tape was last referenced, identifying the number of tapes containing spanned data sets or containing multiple data sets
Tape Summary (TAR)	summarizes how many tapes of each media type that are used by each tape library type
Tape Utilization (TUTIL)	summarizes the amount of data stored on the different types of media within preset bands
Tape Volume Audit (TSAR1)	volume serial-number based audit with emphasis on the Tape Management Catalog

Navigating to Drill-Down Views

Of the primary selection views listed on the EZSRMT menu, the following views are stand alone:

- Demand Enter Detail
- MVC and VTV Migration
- Pass-Through Mounts

The following views provide a detail view, which redisplay the primary view fields in vertical format:

- Tape Summary
- Tape Utilization

The following views require filtering through a data entry panel prior to displaying the primary selection view:

- Tape Data Set Audit
- Tape Volume Audit
- Tape Details

The following primary selection views are the starting point for accessing more specific information. This section describes navigation from the following primary selection views:

ACS Contents	8-11
Library Aging View	8-13
Library Contents	8-14
Library Media Sizing	8-15
Library Utilization	8-16
Scratch Tape Location	8-16
Tape Details	8-19
Tape Last Referenced	8-21

ACS Contents

From the ACS Contents view, when you select the library on which you want to find more information, the Contents EZcmd menu is displayed, as shown in Figure 8-3.

Figure 8-3 Contents EZcmd Menu

```

01NOV2001 15:25:49 ----- INFORMATION DISPLAY -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =ACR=====LCRZ=====SJS=====*=====01NOV2001==15:25:35====MVSRM====D====1
                                Contents EZcmd Menu

Library..... 00-1

      Commands          +-----+
                        |         |
. Cleaning Cartridges  | Place cursor on |
. Detail View          | menu item and  |
. Tape Aging           | press ENTER   |
. Volumes in Library  +-----+
    
```

The options on this menu are described in Table 8-6. Descriptions for each field can be accessed online.

Table 8-6 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
Tape Aging (LAR2)	shows scratch tapes in the selected library summarized by the time since they were last accessed
Volumes in Library (DGARS)	provides detailed information on the tapes being used by the selected tape library

From the **Volumes in Library** option, you can select a volume serial number and press **Enter** to display the Library EZcmd Menu, as shown in Figure 8-4.

Figure 8-4 Library EZcmd Menu

```

05NOV2001 16:15:10 ----- INFORMATION DISPLAY -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =DGARS====DGARZ====SJSG=====05NOV2001==16:14:01====MVSRM====D====1
                                Library EZcmd Menu

Volume..... A038D8

      Commands      +-----+
                    |         |
. Detail View      | Place cursor on |
. Tape Location    | menu item and  |
. Tape Volume Audit |   press ENTER  |
. Volume Details   +-----+
    
```

The options on this menu are described in Table 8-7. Descriptions for each field can be accessed online.

Table 8-7 Library EZcmd Menu Views

Report Name	Description
Detail View (DGARD)	displays the volumes in library fields in vertical format
Tape Location (SLRV)	displays the tape location detail <ul style="list-style-type: none"> A tape located in the Tape Management Catalog may also be in the Automated Tape Library or Virtual Tape System. A Virtual Tape may be backed up to Multi Volume Cartridges. The MVCs for Virtual Tapes are shown.
Tape Volume Audit (TSAR1)	provides volume serial-number based audit with emphasis on the Tape Management Catalog
Volume Details (VDR)	provides detailed information on the selected volume

Library Aging View

From the Library Aging view, when you select the library on which you want to find more information, the Library EZcmd menu is displayed, as shown in Figure 8-5.

Figure 8-5 Library EZcmd Menu

```

01NOV2001 15:44:43 ----- INFORMATION DISPLAY -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =LARZ=====SJSG=====01NOV2001==15:44:42====MVS RM====D====1
          Library EZcmd Menu

Library Name..... 00-0

          Commands          +-----+
          |                 |
. Cleaning Cartridges      | Place cursor on |
          |                 | menu item and  |
. Media Utilization        |                 |
          |                 | press ENTER   |
. Tape Aging               +-----+
. Volumes in Library
    
```

The options on this menu are described in Table 8-8. Descriptions for each field can be accessed online.

Table 8-8 Library EZcmd Menu Views

Report Name	Description
Cleaning Cartridges (LAR3)	lists the cleaning tapes used by the selected library
Media Utilization (TCSR)	provides information on media usage within the selected library
Tape Aging (LAR2)	shows scratch tapes in the selected library summarized by the time since they were last accessed
Volumes in Library (DGARS)	provides detailed information on the tapes being used by the selected tape library

From the **Volumes in Library** option, you can select a volume serial number and press **Enter** to display the Library EZcmd Menu, as shown in Figure 8-4 on page 8-12.

Library Contents

From the Library Contents view, when you select the library on which you want to find more information, the Contents EZcmd menu is displayed, as shown in Figure 8-6.

Figure 8-6 Contents EZcmd Menu

```

001NOV2001 16:02:11 ----- INFORMATION DISPLAY -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =LCR=====LCRZ=====SJSJG=====*=====01NOV2001==16:01:37===MVS RM=====D=====1
          Contents EZcmd Menu

Library..... NCSVSM01

          Commands          +-----+
          |                 |         |
          | Place cursor on |         |
          | menu item and  |         |
          | press ENTER    |         |
          +-----+
. Cleaning Cartridges
. Detail View
. Tape Aging
. Volumes in Library
    
```

The options on this menu are described in Table 8-6. Descriptions for each field can be accessed online.

Table 8-9 Contents EZcmd Menu Views

Report Name	Description
Cleaning Cartridges (LAR3)	lists the cleaning tapes used by the selected library
Detail View (LARCD)	displays detailed information for the selected library
Tape Aging (LAR2)	shows scratch tapes in the selected library summarized by the time since they were last accessed
Volumes in Library (DGARS)	provides detailed information on the tapes being used by the selected tape library

From the **Volumes in Library** option, you can select a volume serial number and press **Enter** to display the Library EZcmd Menu, as shown in Figure 8-4 on page 8-12.

Library Media Sizing

From the Library Media Sizing view, when you select the library on which you want to find more information, the Library EZcmd menu is displayed, as shown in Figure 8-7.

Figure 8-7 Library EZcmd Menu

```

01NOV2001 16:06:01 ----- INFORMATION DISPLAY -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =TCSR=====TCSRZ=====SJSG=====*****01NOV2001==16:05:07====MVS RM====D====1
          Library EZcmd Menu

Library Name..... NSDFDRM

          Commands          +-----+
          |                  |
          | Place cursor on  |
          | menu item and   |
          | press ENTER     |
          +-----+
. Cleaning Cartridges
. Tape Aging
. Volumes in Library
    
```

The options on this menu are described in Table 8-10. Descriptions for each field can be accessed online.

Table 8-10 Library EZcmd Menu Views

Report Name	Description
Cleaning Cartridges (LAR3)	lists the cleaning tapes used by the selected library
Tape Aging (LAR2)	shows scratch tapes in the selected library summarized by the time since they were last accessed
Volumes in Library (DGARS)	provides detailed information on the tapes being used by the selected tape library

From the **Volumes in Library** option, you can select a volume serial number and press **Enter** to display the Library EZcmd Menu, as shown in Figure 8-4 on page 8-12.

Library Utilization

From the Library Utilization view, when you select the library name on which you want to find more information, the **Volumes in Library** (DGARS) view is displayed.

From the **Volumes in Library** view, you can select a volume serial number and press **Enter** to display the Library EZcmd Menu, as shown in Figure 8-4 on page 8-12.

Scratch Tape Location

From the Scratch Tape Location view, when you select the tape location on which you want to find more information, the data entry panel in Figure 8-8 is displayed.

Figure 8-8 Data Entry Panel

```

01NOV2001 16:31:33 ----- INFORMATION DISPLAY -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1           ALT WIN ==>
W1 =SLRV1F=====SJSJ=====*=====01NOV2001==16:31:33===MVS RM====D====1
s <== Type S to process request

From volume.....
To volume.....
Maximum to display (nnnnn).. 10
    
```

- Step 1** Complete the fields provided on the data entry panel or accept the defaults.
 - Step 2** Type **S** to the left of the **<==** symbol to process the request.
- The Tape Location view is displayed with the requested volumes.

When you select one of the volume serial numbers, the Tape Location EZcmd menu is displayed, as shown in Figure 8-9.

Figure 8-9 Tape Location EZcmd Menu

```

07NOV2001 08:38:32 ----- INFORMATION DISPLAY -----
COMMAND ==>>                                SCROLL ==>> PAGE
CURR WIN ==>> 1          ALT WIN ==>>
>W1 =SLRV=====SLRVZ=====SJSJ=====*=====07NOV2001==08:38:26====MVS RM====D====1
          Tape Location EZcmd Menu

Volume..... A00042
Data Set Name..... HSM.BACKTAPE.DATASET
MVC1 Volume.....
MVC2 Volume.....

          Commands          +-----+
          . Detail View     | Place cursor on |
          . Volume Details  | menu item and  |
                              | press ENTER     |
                              +-----+
    
```

The options on this menu are described in Table 8-11. Descriptions for each field can be accessed online.

Table 8-11 Tape Location EZcmd Menu Views

Report Name	Description
Detail View (SLRVD)	displays the tape location detail <ul style="list-style-type: none"> • A tape located in the Tape Management Catalog may also be in the Automated Tape Library or Virtual Tape System. • A Virtual Tape may be backed up to Multi Volume Cartridges. The MVCs for Virtual Tapes are shown.
Volume Details (VDR)	provides detailed information on the selected volume

From the **Volume Details** option, you can select a volume and press **Enter** to display the Volume Detail EZcmd Menu, as shown in Figure 8-12 on page 8-20.

Figure 8-10 DOV Detail EZcmd Menu

```

02NOV2001 08:58:57 ----- INFORMATION DISPLAY -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
>W1 =DOV=====DOVZ=====SJSG=====*=====02NOV2001==08:56:06====MVS RM====D====1
          DOV EZCmd Menu

Data Set Name..... HSM.BACKTAPE.DATASET
Volume..... A00003

      Commands      +-----+
                    |           |
. Data Set Audit    | Place cursor on |
. Data Set Location | menu item and |
. Detail View       | press ENTER  |
. Multi-Volume Data Sets
. Volume Sequence
    
```

The options on this menu are described in Table 8-12. Descriptions for each field can be accessed online.

Table 8-12 DOV EZcmd Menu Views

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 located in the Tape Management Catalog may also be in the Automated Tape Library or Virtual Tape System. • A Virtual Tape may be backed up to Multi-Volume Cartridges. The MVCs for Virtual Tapes are shown.
Detail View (DOVD)	lists all data sets that reside on the selected volume
Multi-Volume Data Sets (MVD)	displays data sets that spans 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 Details

When you select the Tape Details view, the data entry panel in Figure 8-11 is displayed.

Figure 8-11 Data Entry Panel

```

02NOV2001 08:33:31 ----- INFORMATION DISPLAY -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1           ALT WIN ==>
W1 =VSEL=====SJSG=====*=====02NOV2001==08:33:31====MVS RM====D====1
  <== Type S to process request

  From volume.....
  To volume.....
  Nonscratch, Scratch or All?.. N
  Maximum to display (nnnnn).. 1000
    
```

- Step 1** Complete the fields provided on the data entry panel or accept the defaults.
- Step 2** Type **S** to the left of the <== symbol to process the request.

The Tape Details view is displayed with the requested volumes.

When you select a specific volume to view details, the Volume Detail EZcmd Menu is displayed, as shown in Figure 8-12.

Figure 8-12 Volume Detail EZcmd Menu

```

02NOV2001 08:37:14 ----- INFORMATION DISPLAY -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =VDR=====VDRZ=====SJSJG=====*=====02NOV2001==08:34:10====MVSRRM====D====1
          VolDetail EZcmd Menu

Data Set Name..... HSM.HMIGTAPE.DATASET
Volume..... A00004

      Commands      +-----+
                    |         |
. Data Sets on Volume | Place cursor on |
. Detail View         | menu item and  |
. Multi-Volume Data Sets +-----+
. Tape Location
. Volume Audit
. Volume Sequence
    
```

The options on this menu are described in Table 8-13. Descriptions for each field can be accessed online.

Table 8-13 Volume Detail EZcmd Menu Views

Report Name	Description
Data Sets on Volume (DOV)	lists data sets that reside on the specified volume
Detail View (VDRD)	provides detailed view on selected volume
Multi-Volume Data Sets (MVD)	displays data sets that spans more than one volume
Tape Location (SLRV)	displays the tape location detail <ul style="list-style-type: none"> • A tape located in the Tape Management Catalog may also be in the Automated Tape Library or Virtual Tape System. • A Virtual Tape may 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 Tape Management Catalog
Volume Sequence (VSEQ)	lists volumes that are linked because they contain a data set that spans this and another volume in the sequence

From the **Data Sets on Volume** option, you can select a data set and press **Enter** to display the DOV EZcmd Menu, as shown in Figure 8-10 on page 8-18.

From the **Data Set Location** option, you can select a volume serial number and press **Enter** to display the Tape Location EZcmd Menu. For options on that menu, see Figure 8-9 on page 8-17.

Tape Last Referenced

From the Tape Last Referenced view, when you select age band on which you want to find more information, the data entry panel in Figure 8-13 is displayed.

Figure 8-13 Data Entry Panel

```

02NOV2001 09:31:44 ----- INFORMATION DISPLAY -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =ASEL=====SJSG=====02NOV2001==09:31:44====MVS RM====D====
<== Type S to process request

From volume.....

To volume.....

Age Band..... unknown

Maximum to display (nnnnn).. 1000
    
```

- Step 1** Complete the fields provided on the data entry panel or accept the defaults.
- Step 2** Type **S** to the left of the **<==** symbol to process the request.

The Tapes within Age Band view is displayed with the requested volumes and age band.

When you select one of the volume serial numbers, the Age Volume EZcmd menu is displayed, as shown in Figure 8-14.

Figure 8-14 Age Volume EZcmd Menu

```

02NOV2001 09:34:40 ----- INFORMATION DISPLAY -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
>W1 =VAB=====VABZ=====SJSJG=====*=====02NOV2001==09:33:14====MVSJRM=====D=====
          AgeVolume EZcmd Menu

Data Set Name..... HSM.HMIGTAPE.DATASET
Volume..... A00006

      Commands      +-----+
                    |         |
. Data Sets on Volume | Place cursor on |
. Detail View         | menu item and  |
. Multi-Volume Data Sets +-----+
. Tape Location
. Volume Audit
. Volume Sequence
    
```

The options on this menu are described in Table 8-14. Descriptions for each field can be accessed online.

Table 8-14 Age Volume EZcmd Menu Views

Report Name	Description
Data Sets on Volume (DOV)	lists all the data sets that reside on the specified volume
Detail View (VABD)	provides detailed information on the volumes within the previously selected age band
Multi-Volume Data Sets (MVD)	displays data sets that spans more than one volume
Tape Location (SLRV)	shows the tape location <ul style="list-style-type: none"> • A tape located in the Tape Management Catalog may also be in the Automated Tape Library or Virtual Tape System. • A Virtual Tape may be backed up to Multi-Volume Cartridges. The MVCs for Virtual Tapes are shown.
Volume Audit (TSAR1)	displays volume serial-number based audit with emphasis on the Tape Management Catalog
Volume Sequence (VSEQ)	lists volumes which are linked because they contain a data set that spans this and another volume in the sequence

From the **Data Sets on Volume** option, you can select a data set and press **Enter** to display the DOV EZcmd Menu, as shown in Figure 8-10 on page 8-18.

From the **Tape Location** option, you can select a volume serial number and press **Enter** to display the Tape Location EZcmd Menu, as shown in Figure 8-9 on page 8-17.

See “Report Samples and Descriptions” on page 8-26 for samples of each batch report.

Navigating Using View Names

The tape reporting facility is fairly menu-dependent because of all the parameters that must be passed to get to a view. However, power users who wish to navigate using view names rather than menus may find the information in Table 8-15 helpful.

Review the following information to help you understand view names conventions used in the tape reporting facility.

- **Detail Views**

View names ending in D are detail views. They take the selected record and redisplay it in vertical format, so you don't have to page right to see all the fields. All views that are wide enough to be difficult to see on a 72-column screen has a D view.

Detail views can either be selected from the EZcmd menu or, if it is the only selection available from a table, they are displayed by hyperlinking 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 hyperlink from the MVD table.

- **EZcmd Menus**

View names ending in Z are EZcmd menus. Many of the primary selections make use of EZcmd menus if you select the hyperlink. They can often be accessed from more than one primary selection path. For example, the hyperlink from SLRV displays SLRVZ—the Scratch Location EZcmd Menu.

Table 8-15 Navigation Quick Reference (Part 1 of 2)

EZSRMT Primary Selection Option	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						

Table 8-15 Navigation Quick Reference (Part 2 of 2)

EZSRMT Primary Selection Option	Level						
	1st	2nd	3rd	4th	5th	6th	7th
Library Aging	LAR1	LARZ	LAR2 TCSR LAR3 DGARS	DGARZ			
Library Contents	LCR	LCRZ	LAR2 LARCD LAR3 DGARS	DGARZ			
Library Media Sizing	TCSR	TCSRZ	LAR2 LAR3 DGARS	DGARZ			
Library Utilization	LUR	DGARS	DGARZ				
MCV 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					

Report Samples and Descriptions

All of the tape reports can be viewed online and printed as batch reports. This section provides a sample of and field descriptions for each of the following reports:

ACS Contents Report	8-27
Cleaning Cartridges Report	8-48
Data Sets on Volume Report	8-55
Demand Enter Detail Report	8-28
Library Aging Report	8-29
Library Contents Report	8-30
Library Media Sizing Report	8-32
Library Utilization Report	8-33
Multi-Volume Data Set Report	8-53
MVC and VTV Migration Report	8-34
Pass-Through Mounts Report	8-35
Scratch Tape Location Report	8-36
Tape Aging Report	8-49
Tape Data Set Audit Report	8-37
Tape Details Report	8-39
Tape Last Referenced Report	8-41
Tape Location Report	8-60
Tape Summary Report	8-42
Tape Utilization Report	8-44
Tape Volume Audit Report	8-46
Volumes in Library Report	8-51
Volume Sequence Report	8-57
Volume Details Report	8-58

ACS Contents Report

The ACS Contents Report (ACR) provides volume, cell, and movement activity counts for automated tape libraries. This report is a primary selection from the EZSRMT menu.

Figure 8-15 ACS Contents Report

```

05NOV2001 08:37:32          MainView Batch Report          PAGE 1
ACR=====SJSH=====*****05NOV2001==08:37:26====MVSRM====D====2

ACS-LSM  Total  Scratch Free  Enter Eject Pass  Scratch Private Total  Drive SCAN
Number  Volumes Volumes Cells Count Count Count  Mounts Mounts  Mounts Count Entry
00-0    8054    117 2702
00-1    2660     1 2918
                                28 .D011026.T085427
                                8  .D011026.T085427

```

Field	Description
ACS-LSM Number	The name of the tape library. Note: All numeric fields on this view contain the sum of any row of data with the same ACS-LSM number.
Total Volumes	The total number of all tapes in the library.
Scratch Volumes	The total number of scratch tapes in the library.
Free Cells	The total number of free cells or slots in the library.
Enter Count	The number of tapes entered or imported into the library.
Eject Count	The number of ejects or exports from the library.
Pass Count	The pass-through count for StorageTek ACS.
Scratch Mounts	The number of scratch mounts for a StorageTek automated library.
Private Mounts	The number of private mounts a StorageTek automated library.
Total Mounts	The total number of private and scratch tapes in the library.
Drive Count	The number of drives in a StorageTek LMS.
SCAN Entry	The date and time on which the tape scan data set was created. Asterisks may appear in this field indicating multiple non-matching values or names.

Demand Enter Detail Report

The Demand Enter Detail Report (DEDT) lists the library, volume, device, and jobname. This report is a primary selection from the EZSRMT menu.

Figure 8-16 Demand Enter Detail Report

```

05NOV2001 08:37:36          MainView Batch Report          PAGE 1
DEDT=====SJSH=====*****=05NOV2001==08:37:33====MVSRM=====

SMF Activity Volume Library Job      Start      Start      Bytes      Source      Dest
RTY Type      Serial Name      Name      Date      Time      I/O      Address      Address
    
```

Field	Description
SMF RTY	SMF record type, for example: x'15' = 21
Activity Type	Type of activity or SMF data. Valid values are: ENTER EJECT PASS RECALL MIGRATE RECALL MOUNT DISMOUNT
Volume Serial	The cartridge volume serial number.
Library Name	Library name. For StorageTek ATLs, this is ACS#-LSM#.
Job Name	MVS job name for StorageTek mounts.
Start Date	Start date of activity (yyyy/mm/dd).
Start Time	Start time of activity (hh:mm:ss).
Bytes I/O	The sum of bytes written and bytes read.
Source	Device address, library location, or MVC volser that represents the source of the volume being moved.
Destination	Device address, library location, or MVC volser that represents the destination of the volume being moved.

Library Aging Report

The Library Aging Report (LAR1) summarizes the number of cells and cleaning cartridges for each tape library. This report is a primary selection from the EZSRMT menu.

Figure 8-17 Library Aging Report

```
05NOV2001 08:37:44          MainView Batch Report          PAGE 1
LAR1=====SJSH=====*****05NOV2001==08:37:43====MVS RM====D=====4
```

Library Name	Maximum Cells	Empty Cells	Cleaning Carts.	Clean Prefix
C3PO	965	1	0	
00-0	6154	2235	1	CLN
00-0	6154	467	1	CLN
00-1	6154	2918	0	CLN

Field	Description
Library Name	The name of a library cluster. Individual libraries are indicated by the Library ID field.
Maximum Cells	The maximum number of slots (cells) contained in the library.
Empty Cells	The number of empty or free cells available in the library.
Cleaning Carts	The total number of cleaning cartridges contained in the library.
Clean Prefix	The prefix of cleaning cartridges contained within the library.

Library Contents Report

The Library Contents Report (LCR) reports on tape movements (enter/eject count, pass-through events, and whether mounted as scratch/non-scratch), scratch count, free cells, and total cells; for STK, this is summarized by ACSs. This report is a primary selection from the EZSRMT menu.

Figure 8-18 Library Contents Report

```

05NOV2001 08:37:46          MainView Batch Report          PAGE 1
LCR=====SJSH=====*****05NOV2001=08:37:44====MVSRM====D====5

Library L L Total Scratch MVC Free Enter Eject Pass Scratch Private Total MVC Drive SCAN
Name M T Volumes Volumes Volumes Cells Count Count Count Mounts Mounts Mounts Mounts Count Entry
I A
C3PO I V 1
UNKNOWN M M 142
00-0 S A 8054 117 2702
00-1 S A 2660 1 2918
    
```

Field Description

Library Name The name of the tape library.

Library Manager (L/M) The tape library is managed by
 I = IBM
 M = Manual
 S = StorageTek

Library Type (L/T) The tape library is either an ATL or a VTS
 A = Automated Tape Library
 V = Virtual Tape System

Total Volumes The total number of tapes in the library.

Scratch Volumes The number of scratch tapes in the library.

MVC Volumes The number of Multi-Volume Cartridges (*real* tapes) in the library.

Free Cells The total number of free cells or slots in the library.

Enter Count The number of tapes entered or imported into library.

Eject Count The number of ejects or exports from the library.

Pass Count The pass-through count for the StorageTek ACS.

Scratch Mounts The number of scratch mounts for a StorageTek automated library.

Private Mounts The number of private mounts for a StorageTek automated library.

Total Mounts	The total number of private and scratch tapes in the library.
MVC Mounts	The number of <i>real</i> tape mounts for a virtual library.
Drive Count	The number of drives in StorageTek LMS.
SCAN Entry	The date and time on which the tape scan data set was created.

Library Media Sizing Report

The Library Media Sizing Report (TCSR) reports counts for media type within the library. This report is a primary selection from the EZSRMT menu.

Figure 8-19 Library Media Sizing Report

```
05NOV2001 08:37:49          MainView Batch Report          PAGE 1
TCSR=====SJSH=====*****=05NOV2001==08:37:47====MVSRM====D=====4
```

Library Name	Media Type	# of tapes	Total Capacity	Used Capacity
		143		
00-0		4687		
00-1		2660		
01-0		3367		

Field	Description
Library Name	The name of the tape Library.
Media Type	The type of media as passed by VTS, ATL, or TMS.
# of Tapes	The number of tapes within the specified aging band and with the specified scratch status.
Total Capacity	The total capacity of all tapes within the specified aging band and with the specified scratch status. Numbers that are too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.
Used Capacity	The total number of bytes used on all the tapes within the specified aging band with the specified scratch status. Numbers that are too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.

Library Utilization Report

The Library Utilization Report (LUR) lists the total number of cartridges and average utilization and total cartridges by utilization ranges in 10% increments. This report is a primary selection from the EZSRMT menu.

Figure 8-20 Library Utilization Report

```

05NOV2001 08:37:51          MainView Batch Report          PAGE 1
LUR=====SJSH=====*****05NOV2001==08:37:49====MVS RM====D===13

Percent # of Total      Used      Avg %
Bracket tapes Capacity Capacity Used
UNKNOWN 10857
SCRATCH
0-1
1-10
11-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
91-100

```

Field	Description
Percent Bracket	The percentage of the tape that is currently used.
# of Tapes	The number of tapes within the specified aging band and with the specified scratch status.
Total Capacity	The total capacity of all tapes within the specified aging band and with the specified scratch status. Numbers that are too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.
Used Capacity	The total number of bytes used on all the tapes within the specified aging band with the specified scratch status. Numbers that are too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.
Average % Used	The percentage of total capacity used within the specified aging band.

MVC and VTV Migration Report

The MVC and VTV Migration Report (MVMR) shows statistics about the number of times Multi-Volume Cartridges and Virtual Tape Volumes have been mounted within the specified range of days. It also shows the number of bytes transferred within the time range. This report is a primary selection from the EZSRMT menu.

Figure 8-21 MVC and VTV Migration Report

```

05NOV2001 08:37:51          MainView Batch Report          PAGE 1
MVMR=====SJSH=====*****=05NOV2001==08:37:51====MVSRM====D=====6

Age Band   Number Number of   Bytes
=====   Mounts 32k Pages Migrated
unknown    0       0
0 - 1      0       0
2 - 3      0       0
4 - 6      0       0
7 - 10     0       0
10+       0       0

```

Field	Description
Age range	The number of days since a <i>real</i> tape was last mounted to migrate data.
Number of Mounts	The number of times that real tapes were mounted to migrate data. This information is collected from the StorageTek VTCS SMF subtype 16 record.
Number of 32k Pages	The number of 32k pages that were migrated from virtual to real tapes. This information is collected from the StorageTek VTCS SMF subtype 18 record.
Bytes Transferred	The approximate number of bytes that were migrated to real tape. Since not all of the 32k pages will be full, this number may be higher than the actual number of bytes migrated. This information is collected from the StorageTek VTCS SMF subtype 18 record. Numbers that are too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.

Pass-Through Mounts Report

The Pass-Through Mounts Report (PTMR) reports on number of pass-through events to process the mount required. The report contains the time of the pass-through and the number of LSMs required to pass-through to service the mount. This report is a primary selection from the EZSRMT menu.

Figure 8-22 Pass-Through Mounts Report

```

05NOV2001 08:37:54          MainView Batch Report          PAGE 1
PTMR=====SJSH=====*=====05NOV2001==08:37:52====MVSRM=====
SMF Activity Volume Library Job      Start      Start      Bytes      Source      Dest
RTY Type      Serial Name   Name       Date       Time       I/O        Address     Address

```

Field	Description
SMF RTY	SMF record type, for example: x'15' = 21
Activity Type	Type of activity or SMF data. Valid values are: ENTER EJECT PASS RECALL MIGRATE RECALL MOUNT DISMOUNT
Volume Serial	The cartridge volume serial number.
Library Name	Library name. For StorageTek ATLS, this is ACS#-LSM#.
Job Name	MVS job name for StorageTek mounts.
Start Date	Start date of activity (yyyy/mm/dd).
Start Time	Start time of activity (hh:mm:ss).
Bytes I/O	The sum of bytes written and bytes read.
Source Address	Device address, library location, or MVC volser that represents the source of the volume being moved.
Dest Address	Device address, library location, or MVC volser that represents the destination of the volume being moved.

Scratch Tape Location Report

The Scratch Location Report (SLR) shows the scratch tape location. A tape located in the Tape Management Catalog may also be in the Automated Tape Library or a Virtual Tape.

A Virtual Tape may be backed up to Multi-Volume Cartridges. Scratched Virtual Tapes on a non scratched MVC are also shown.

This report is a primary selection from the EZSRMT menu.

Figure 8-23 Scratch Location Report

```

05NOV2001 11:13:45 ----- INFORMATION DISPLAY -----
COMMAND  ===>
CURR WIN ===> 1      ALT WIN ===>
<W1 =SLR=====SJSJ=====*=05NOV2001==11:13:19====MVSRM====D====7
Tape
Location
Tape Management Catalog      215502      58.89      365928
Automated Tape Library       118         1.25       9448
Virtual Tapes                 9845       98.45      10000
ALL Scratched Tapes         225465     58.49      385484
Scratched Virtual Tapes on Active MVC1      373         3.73       10000
Scratched Virtual Tapes on Active MVC2       79          0.79       10000
Duplicate Volume Serial Numbers in TCAT     150738     41.19      365928
    
```

Field	Description
Tape Location	Shows the location of scratch tapes. A tape located in the Tape Management Catalog may also be in the Automated Tape Library or a Virtual Tape. A Virtual Tape may be backed up to Multi-Volume Cartridges. Scratched Virtual Tapes on a non-scratched MVC are also shown.
Number of Scratches	The the number of scratch tapes at this location.
Percent of Total	The percentage of scratch tapes at this location.
Total Tapes	The total number of tapes at this location. The Scratched Virtual Tapes on Active MVCn total is the number of Virtual Tapes.

Tape Data Set Audit Report

The Tape Data Set Audit Report (TSAR2) is a data set-name based audit with emphasis on the OS/390 user catalog contents. This report is a primary selection from the EZSRMT menu.

Figure 8-24 **Tape Data Set Audit Report**

```

07NOV2001 08:05:10 ----- INFORMATION DISPLAY -----
COMMAND ===>
CURR WIN ===> 1          ALT WIN ===>
>W1 =TSAR2=====SJSJG=====*=====07NOV2001==08:04:54====MVSRM====D===10
Data Set      Error      Error
  Name        Type       Details
$BOOT        Catalog    DSN cataloged
$BOOT        Catalog    DSN cataloged
AAO.BB27393.UBBPROC    Catalog    DSN cataloged
AAO.BB27393A.UBBPROC   Catalog    DSN cataloged
AAO.BB29015A.UBBPROC   Catalog    DSN cataloged
AAO.ETR5E390.SYSLOG.MVS430    Catalog    DSN cataloged
AAO.TEST            Catalog    DSN cataloged
AAO22.MDR1.ASM.BKUP1.D910628    Catalog    DSN cataloged
AAO22.MDR1.DATA.BKUP1.D910628    Catalog    DSN cataloged
AAO22.MDR1.MACLIB.BKUP1.D910628    Catalog    DSN cataloged

```

Field	Description
Data Set Name	The data set name.
Error Type	The type of error detected:
Scratch	The error that was detected was in scratch status. The Tape Management Catalog should match the Virtual Tape System if present. The Tape Management Catalog should match the Automated Tape Library if present.
Chaining	The error that was detected was in the multi-volume chain. The volume indicated as the previous volume does not show the current volume as its next volume.
	OR
	The volume indicated as the next volume does not show the current volume as its previous volume.
Catalog	The user catalog indicates that the data set is on a volume but it is not on that volume in the tape management catalog.

	<p>CATLG VOLS The volume serial numbers from the user catalog are shown when information is requested for a specific data set name.</p>
Error Details	<p>Provides more information regarding the error.</p>
Scratch	<p>The error that was detected was in the scratch status. The location VTS or ATL is shown. The Tape Management Catalog should match the Virtual Tape System if present. The Tape Management Catalog should match the Automated Tape Library if present.</p>
Chaining	<p>The error that was detected was in the multi-volume chain. PREV or NEXT is shown.</p> <p>The volume indicated as the previous volume does not show the current volume as its next volume.</p> <p>OR</p> <p>The volume indicated as the next volume does not show the current volume as its previous volume.</p>
Catalog	<p>The user catalog indicates that the data set is on a volume but it is not on that volume in the tape management catalog.</p>
	<p>CATLG VOLS The volume serial numbers from the user catalog are shown when information is requested for a specific data set name.</p>
Volume Serial Number	<p>The Volume Serial Number identifies the tape volume. Duplicate Volume Serial Numbers may be shown when there is more than one tape management catalog. This may be the case if you are converting to another tape management system.</p>
Catalog Name	<p>The user catalog in which the data set is cataloged.</p>

Tape Details Report

For each volume, the Tape Details Report (VDR) lists the number of data sets or volume number for that data set, library location (Cache, MVC(1), MVC(2) if VTV), MB, estimated utilization percentage, last-referenced date, number of accesses, device type, cartridge length, scratch status, data set name, file sequence, block count, block size, record size, and record format.

This report is a primary selection from the EZSRMT menu.

Figure 8-25 Volume Detail Report

```

05NOV2001 11:17:52 ----- INFORMATION DISPLAY -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
+W1 =VDR=====SJSG=====*=05NOV2001==11:17:23====MVS RM====D====1
Volser   Last   Library Access  Data Data Set Name          TMC
===== Referenced Location Count Sets =====Src
A00040 --          C3PO          0      *                          R

```

Field	Description
Volser	The volume serial number.
Scr	Indicates whether the tape is marked as a scratch tape.
Media Type	The type of tape media, for example, 3480, 3590.
Bytes used	The number of used bytes on the volume. If the tape is compressed, this may be less than the total number of uncompressed bytes used by all the data sets combined. Numbers too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.
Tape Capacity	The estimated total capacity of the tape. Numbers too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.
Last referenced	The last date the volume was accessed.
Library location	The name of the library in which the tape is located.
Access Count	The number of times the volume has been referenced.
Data sets	The number of data sets resident on the volume.

TMC Src This identifies the Tape Management System that provided the information displayed.

C = CA-1 from Computer Associates International

R = RMM from IBM

T = Control T from BMC Software, Inc.

Tape Last Referenced Report

The Tape Last Referenced Report (TAR) displays the information about tape usage based on the last date the tape was referenced.

This report is a primary selection from the EZSRMT menu.

Figure 8-26 **Tape Aging Report**

```

05NOV2001 08:38:00                MainView Batch Report                PAGE 1
TAR=====SJSH=====*****=05NOV2001==08:37:59====MVSRM====D====9

Age Band  Chained Stacked  Total      Used   Total
=====  Volumes Volumes Volumes  Capacity Capacity
scratch   0        0        0          0         0
unknown   0        0        0          0         0
0 - 30    0        0        0          0         0
31 - 60   0        0        0          0         0
61 - 90   0        0        0          0         0
91 - 120  0        0        0          0         0
121 - 180 0        0        0          0         0
181 - 365 0        0        0          0         0
366+     0        0        0          0         0

```

Field	Description
Age Band	<p>The number of days since the cartridge was last accessed:</p> <ul style="list-style-type: none"> • Scratch tapes are listed separately. • Tapes that have not been date-stamped by the Tape Management System are listed as <i>unknown</i>.
Chained Volumes	The number of volumes that contain at least one data set that starts or ends on another volume and that were last accessed within the specified range of days.
Stacked Volumes	The number of tapes that contain more than one data set and that were last accessed within the specified range of days.
Total Volumes	The total number of tapes that were last accessed within the specified range of days.
Used Capacity	The total used capacity of tapes that were last accessed within the specified range of days. Numbers that are too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.
Total Capacity	The total capacity of tapes that were last accessed within the specified range of days. Numbers that are too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.

Tape Summary Report

The Tape Summary Report (VSR) provides a count of the number of tapes summarized by tape device/media type for each automated tape library (ATL), virtual tape library (VTS), and manual library. All tapes/volumes that are not part of an ATL or VTS are considered manual.

This report is a primary selection from the EZSRMT menu.

Figure 8-27 Volume Summary Report

```

07NOV2001 08:07:14 ----- INFORMATION DISPLAY -----
COMMAND ==>                               SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
+W1 =VSR=====SJSJG=====*=====07NOV2001==08:06:37====MVSJM====D====5
Library --Redwood- --Redwood- --Redwood- ---3590E-- ---3590--- ---3490--- --
Name     ----50G--- ----25G--- ---12.5G-- ====== ====== ====== ==
STK ATL
STK VTS
STK VTS
Manual                               641      139529
Totals                               641      139529
    
```

Field	Description
Library Name	<p>The type of the library, specified as:</p> <ul style="list-style-type: none"> ATL—Automated Tape Library VTS—Virtual Tape Library manual—other library types <p>The ATL and VTS libraries can be either IBM or STK, in which case they are listed as:</p> <ul style="list-style-type: none"> IBM ATL STK ATL IBM VTS STK VTS
Redwood 50G	The number of Redwood 50 G tapes in this library.
Redwood 25G	The number of Redwood 25 G tapes in this library.
Redwood 12.5	The number of Redwood 12.5 G tapes in this library.
3590E	The number of 3490E tapes in this library.
3590	The number of 3590 tapes in this library.

3490	The number of 3490 tapes in this library.
3480	The number of 3480 tapes in this library.
3400	The number of 3400 tapes in this library.
3423	The number of 3423 tapes in this library.
256TRK (RMM)	The number of 256 track (RMM) tapes in this library.
OCDS Volumes	The number of OCDS volumes in this library.
MediaType CST	The number of 400 MB Cartridge System Tapes in this library.
MediaType ECCST	The number of 800 MB Enhanced Cartridge System Tapes in this library.
MediaType HPCT	The number of High Performance Cartridge Tapes in this library.
MediaType EHPCT	The number of Extended High Performance Cartridge Tapes in this library.
Unknown Dev/Type	The number of volumes of an undefined type or of Media Type of 0 (zero).
Virtual Volumes	The total number of virtual volumes.
Real Volumes	The total number of real volumes.

Tape Utilization Report

The Tape Utilization Report (TUTIL) lists the total number of tapes within the *bytes used* band ranges. It also reports the *total used* capacity in bytes. This report is a primary selection from the EZSRMT menu.

Figure 8-28 Tape Utilization Report

```

05NOV2001 08:48:49          MainView Batch Report          PAGE 1
TUTIL=====SJSH=====05NOV2001=08:48:45=====MVSRM=====
_Num_Bytes_used  Redwood  Redwood  Redwood  3590  3490-E  3490  3480  3400  3423 RMM_256TRK
=====  50g  25g  12.5g  =====
    
```

Field	Description
Number Bytes Used	<p>This is a range of bytes used on an individual cartridge.</p> <p>000 mb - 200 mb = zero to 200 megabytes</p> <p>200 mb - 400 mb = 200 to 400 megabytes</p> <p>400 mb - 800 mb = 400 to 800 megabytes</p> <p>800 mb - 001 gb = 800 megabytes to 1 gigabyte</p> <p>001 gb - 010 gb = 1 gigabyte to 10 gigabytes</p> <p>010 gb - 020 gb = 10 gigabyte to 20 gigabytes</p> <p>020 gb - 030 gb = 20 gigabyte to 30 gigabytes</p> <p>030 gb - 040 gb = 30 gigabyte to 40 gigabytes</p> <p>040 gb - 050 gb = 40 gigabyte to 50 gigabytes</p> <p>050 gb - 060 gb = 50 gigabyte to 60 gigabytes</p> <p>060 gb - 070 gb = 60 gigabyte to 70 gigabytes</p> <p>070 gb - 080 gb = 70 gigabyte to 80 gigabytes</p> <p>080 gb - 090 gb = 80 gigabyte to 90 gigabytes</p> <p>090 gb - 100 gb = 90 gigabyte to 100 gigabytes</p> <p>Undetermined = Unable to determine the number of bytes used. This will be a count of the number of tapes and not the number of bytes. This row will not be included in the totals.</p> <p>Total = Column totals</p>
Redwood 50G	The number of Redwood 50 G tapes found in this band.
Redwood 25G	The number of Redwood 25 G tapes found in this band.
Redwood 12.5G	The number of Redwood 12.5 G tapes found in this band.
3590	The number of 3590 tapes found in this band.
3490-E	The number of 3490-E tapes found in this band.
3400	The number of 3400 tapes found in this band.

3480	The number of 3480 tapes found in this band.
3490	The number of 3490 tapes found in this band.
3423	The number of 3423 tapes found in this band.
RMM 256 track	The number of RMM 256 track tapes found in this band.
OCDS	The number of OCDS tapes found in this band.
Media Type CST	The number of tapes of Media Type Cartridge System Tapes (CST) found in this band.
Media Type ECCST	The number of tapes of Media Type Enhanced Capacity Cartridge System Tapes (ECCST) found in this band.
Media Type HPCT	The number of tapes of Media Type High Performance Cartridge Tapes (HPCT) found in this band.
Media Type EHPCT	The number of tapes of Media Type Extended High Performance Cartridge Tapes (EHPCT) found in this band.
Undefined types	The number of tapes of an undetermined device or media type found in this band.
Used Capacity	The number of bytes used for all of the cartridges in this band. Numbers that are too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.

Tape Volume Audit Report

The Tape Volume Audit Report (TSAR1) is a volume serial-number based audit with emphasis on the Tape Management Catalog. This report is a primary selection on the EZSRMT menu and can be accessed from the EZcmd menus of the following views:

View	View Name	View Name	EZcmd Menu	View Name	EZcmd Menu
Tape Details	VDR	n/a	VDRZ		
Tape Details	VDR	n/a	VDRZ	DOV	DOVZ
Tape Last Referenced	TAR	VAB	VABZ		

Figure 8-29 Tape Volume Audit Report

```

07NOV2001 08:08:23 ----- INFORMATION DISPLAY -----
COMMAND ==>>                                SCROLL ==>> PAGE
CURR WIN ==>> 1          ALT WIN ==>>
>W1 =TSAR1=====SJSG=====*=====07NOV2001==08:08:19====MVSRM====D==10
  Volume  Error      Error
Serial Num Type      Details
U21455   Scratch    TCAT Scratch status does not match    ATL
200204   Scratch    TCAT Scratch status does not match    ATL
201041   Scratch    TCAT Scratch status does not match    ATL
201045   Scratch    TCAT Scratch status does not match    ATL
202242   Chaining   Multi-volume chaining error - PREV
203574   Scratch    TCAT Scratch status does not match    ATL
203752   Scratch    TCAT Scratch status does not match    ATL
300234   Scratch    TCAT Scratch status does not match    ATL
300234   Scratch    TCAT Scratch status does not match    ATL
301451   Scratch    TCAT Scratch status does not match    ATL
    
```

Field	Description
--------------	--------------------

Volume Serial Number	The Volume Serial Number identifies the tape volume. Duplicate Volume Serial Numbers may be shown when there is more than one tape management catalog. This may be the case if you are converting to another tape management system.
----------------------	--

Error Type	This is the type of error detected.
------------	-------------------------------------

Scratch	Error detected in the scratch status. The Tape Management Catalog should match the Virtual Tape System if present. The Tape Management Catalog should match the Automated Tape Library if present.
---------	--

	Chaining	Error detected in the multi-volume chain. The volume indicated as the previous volume does not show the current volume as its next volume.
		OR
		The volume indicated as the next volume does not show the current volume as its previous volume.
	Catalog	The user catalog indicates that the data set is on a volume but it is not on that volume in the tape management catalog.
	CATLG VOLS	The volume serial numbers from the user catalog are shown when information is requested for a specific data set name.
Error Details		Provides more information regarding the error.
	Scratch	Error detected in the scratch status. The location VTS or ATL is shown. The Tape Management Catalog should match the Virtual Tape System if present. The Tape Management Catalog should match the Automated Tape Library if present.
	Chaining	Error detected in the multi-volume chain. PREV or NEXT is shown. The volume indicated as the previous volume does not show the current volume as its next volume.
		OR
		The volume indicated as the next volume does not show the current volume as its previous volume.
	Catalog	The user catalog indicates that the data set is on a volume but it is not on that volume in the tape management catalog.
	CATLG VOLS	The volume serial numbers from the user catalog are shown when information is requested for a specific data set name.

Cleaning Cartridges Report

The Cleaning Cartridges Report (LAR3) lists the cleaning tapes used by the selected library. This report can be accessed from the EZcmd menus of the following views:

View	View Name	EZcmd Menu
ACS Contents	ACR	LCRZ
Library Aging	LAR1	LARZ
Library Contents	LCR	LCRZ
Library Media Sizing	TCSR	TCSRZ

Figure 8-30 Cleaning Cartridges Report

```

05NOV2001 11:10:30 ----- INFORMATION DISPLAY -----
COMMAND ===>
CURR WIN ===> 1          ALT WIN ===>
W1 =LAR3=====SJSJ=====*=====05NOV2001==11:10:29====MVSRM====D====1
Seq Library Volume First Last Times Storage
=== ID ID Used Used Used Location
1 01-0 CLN082 19991011 19991124 2 N/A

```

Field	Description
Seq	Sequence number.
Library ID	The name of the library in which the cleaning cartridge resides.
Volume ID	The volume serial number of the cleaning cartridge.
First Used	The date when the cleaning cartridge was first used in yyyyymmdd format.
Last Used	The date when the cleaning cartridge was last used in yyyyymmdd format.
Times Used	The number of times the cleaning cartridge has been used.
Storage Location	The storage location of the cleaning cartridge.

Tape Aging Report

The Tape Aging Report (LAR2) shows scratch tapes in the selected library summarized by the time since they were last accessed. This report can be accessed from the EZcmd menus of the following views:

View	View Name	EZcmd Menu
ACS Contents	ACR	LCRZ
Library Aging	LAR1	LARZ
Library Contents	LCR	LCRZ
Library Media Sizing	TCSR	TCSRZ

Figure 8-31 Tape Aging Report

```

05NOV2001 11:11:16 ----- INFORMATION DISPLAY -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =LAR2=====SJS=====*=====05NOV2001==11:11:16====MVS RM====D====8
===== Scratch      % of      % of      # of      % of      % of
Age Band  # of      Scrh     Total    NonScr  NonScr   Total
-----
0 - 5     0         0        0        0        0        0
6 - 15    0         0        0        0        0        0
16 - 30   0         0        0        0        0        0
31 - 90   0         0        0        0        0        0
91 - 180  0         0        0        0        0        0
181 - 365 0         0        0        0        0        0
GT - 365  88        100      3        3279    100      97
Unknown   0         0        0        0        0        0

```

Field	Description
Age Band	The number of days since the cartridge was last accessed: <ul style="list-style-type: none"> Scratch tapes are listed separately. Tapes that have not been date-stamped by the Tape Management System are listed as <i>unknown</i>.
# of Scratch	The number of scratch tapes that were last accessed within the specified number of days.
% of Scratch	The percentage of the total scratch volumes that are scratch volumes and were accessed within the specified range of days.
% of Total	The percentage of the total scratch and non-scratch volumes that are scratch volumes and were accessed within the specified range of days.
# of Non-scratch	The number of non-scratch volumes that were last accessed within the specified number of days.

% of Non-scratch The percentage of the total non-scratch volumes that are non-scratch volumes and were accessed within the specified range of days.

% of Total The percentage of the total scratch and non-scratch volumes that are non-scratch volumes and were accessed within the specified range of days.

Volumes in Library Report

The Volumes in Library Report (DGAR) provides detailed information on the tapes being used by tape libraries. This report can be accessed from the EZcmd menus of the following views:

View	View Name	EZcmd Menu
ACS Contents	ACR	LCRZ
Library Aging	LAR1	LARZ
Library Contents	LCR	LCRZ
Library Media Sizing	TCSR	TCSRZ

In addition, you can access this report by selecting a library from the Library Utilization view (LUR).

Figure 8-32 Volumes in Library Report

```

30NOV2001 15:39:12 ----- MAINVIEW WINDOW INTERFACE -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
>W1 =DGARS=====SJS=====*=====30NOV2001==15:36:57====MVS RM====D=3837
Volume Library  Vol Aging   Age Total   Used   %   Percent  Create  Data Set
Serial Name    Type Band   Days Capacity Capacity Used Bracket Jobname Name
#51257 00-0    RTV UNKNOWN 37K
#51258 00-0    RTV UNKNOWN 37K
AB4787 00-0    RTV UNKNOWN 37K
AH4382 00-0    RTV UNKNOWN 37K
AL91G6 00-0    RTV UNKNOWN 37K
AM5400 00-0    RTV UNKNOWN 37K
A049BF 00-0    RTV UNKNOWN 37K
A27N26 00-0    RTV UNKNOWN 37K
A3092D 00-0    RTV UNKNOWN 37K
A33323 00-0    RTV UNKNOWN 37K
A41466 00-0    RTV UNKNOWN 37K
A41854 00-0    RTV UNKNOWN 37K
A47477 00-0    RTV UNKNOWN 37K
A47543 00-0    RTV UNKNOWN 37K
A55724 00-0    RTV UNKNOWN 37K
A66405 00-0    RTV UNKNOWN 37K

```

Field	Description
Volume Serial	The volume serial number.
Library Name	The name of the library.
Volume Type	The type of volume <ul style="list-style-type: none"> • RTV—Real Tape Volume • VTV—Virtual Tape Volume

Aging Band	The number of days since the cartridge was last accessed: <ul style="list-style-type: none">• Scratch tapes are listed separately.• Tapes that have not been date-stamped by the Tape Management System are listed as <i>unknown</i>.
Age Days	The number of days since the volume was last accessed.
Total Capacity	The total capacity of all tapes within the specified aging band and with the specified scratch status. Numbers too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes) and so on.
Used Capacity	The total number of bytes used on all the tapes within the specified aging band with the specified scratch status. Numbers too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes) and so on.
% Used	The percentage of total capacity used within the specified aging band.
Percent Bracket	The percentage of the tape that is currently used.
Create Jobname	The name of the job that created the last data set on this tape.
Data Set Name	The name of the first data set on the volume.

Multi-Volume Data Set Report

The Multi-Volume Data Set Report (MVD) shows data sets that spans more than one volume. This report can be accessed from the EZcmd menus of the following views:

View	View Name	View Name	EZcmd Menu	View Name	EZcmd Menu
Tape Details	VDR	n/a	VDRZ		
Tape Details	VDR	n/a	VDRZ	DOV	DOVZ
Tape Last Referenced	TAR	VAB	VABZ		

Figure 8-33 Multi-Volume Data Set Report

```

07NOV2001 08:10:27 ----- INFORMATION DISPLAY -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
>W1 =MVD=====SJSJ=====*=====07NOV2001==08:10:27===MVS RM===D===2
Data Set Name                Label Volume Rec  Record  Block A
=====                   ===== Fmt  Length  Size
HSM.HMIGTAPE.DATASET        1 A00020 FB   16384  16384
HSM.HMIGTAPE.DATASET        1 A00004 FB   16384  16384

```

Field	Description
Data Set Name	The name of the data set.
Label	The label number of the data set. This field is blank if the information is not available.
Volume	The volume that contains a segment of the data set.
Rec Fmt	The record format of the data set.
Record Length	The record length of the data set.
Block Size	The block size of the data set.
Approx Bytes	The uncompressed size of the data set in bytes. Numbers too large to be displayed in bytes are rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.
Compressed Size	The compressed size of the data set in bytes. Numbers too large to be displayed in bytes are rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.

TMS Src

The Tape Management System that provided the information displayed:

C—CA-1 from Computer Associates International

R—RMM from IBM

T—Control T from BMC Software, Inc.

Data Sets on Volume Report

The Data Sets on Volume Report (DOV) list the data sets that resided on a specified volume. This report can be accessed from the EZcmd menus of the following views:

View	View Name	View Name	EZcmd Menu
Tape Details	VDR	n/a	VDRZ
Tape Last Referenced	TAR	VAB	VABZ

Figure 8-34 Data Sets on Volume Report

```

07NOV2001 08:10:58 ----- INFORMATION DISPLAY -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
>W1 =DOV=====SJS=====*=====07NOV2001==08:10:58====MVSRM====D====1
Data Set Name                Expiration Exp Volume Rec  Record
=====                    or Retpd  Typ ===== Fmt  Length
HSM.BACKTAPE.DATASET        9899999 K  A00003 F    16384

```

Field	Description
Data Set Name	The name of the data set.
Expiration or Retpd	The date on which the data set will expire or did expire in yyyy/mm/dd format.
	OR
	Dashes, where the retention is completely defined by the expiration type, for example, under MVS catalog control.
	OR
	A number defined by the expiration type, for example, days in vault.

Exp Typ	<p>Description of the value in the expiration date field:</p> <p>C—Number of cycles D—Expiration date E—Controlled by EDM I—Number of days in vault J—Expiration date from JCL K—CA-1 EXPDT keyword (see list below) L—Days since last reference M—Controlled by the MVS catalog P—Permanent S—Controlled by the SMS class V—Controlled by the vault</p> <p>The following are CA-1 EXPDT values: 88uuu—User defined tape not under TMS control 90ddd—Tape will be retained for <i>ddd</i> days and then pass to MVS control 98000—Nonresident tape not under TMS control 98ddd—Days since last reference 99000—Controlled by the MVS catalog 99366—Permanent 99ccc—Number of cycles</p>
Volume	The volume that contains the listed data sets.
Rec Fmt	The record format of the data set.
Record Length	The record length of the data set.
Block Size	The block size of the data set.
Approx Bytes	<p>The uncompressed size of the data set in bytes.</p> <p>Numbers too large to be displayed in bytes are rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.</p>
Compr Bytes	<p>The compressed size of the data set in bytes.</p> <p>Numbers too large to be displayed in bytes are rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.</p>
Next Volume	The volume in a chained sequence that follows this one.
Label	The label number of the data set.
File Seq	The sequence of the file in a multi-volume data set.

Volume Sequence Report

The Volume Sequence Report (VSEQ) lists volumes that are linked because they contain a data set that spans this and another volume in the sequence. This report can be accessed from the EZcmd menus of the following views:

View	View Name	View Name	EZcmd Menu	View Name	EZcmd Menu
Tape Details	VDR	n/a	VDRZ		
Tape Details	VDR	n/a	VDRZ	DOV	DOVZ
Tape Last Referenced	TAR	VAB	VABZ		

Figure 8-35 Volume Sequence Report

```

05NOV2001 11:15:08 ----- INFORMATION DISPLAY -----
COMMAND ==>                               SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =VSEQ=====SJSJ=====*=====05NOV2001==11:15:08====MVS RM====D====1
Volser Library      Last      Data Set Name
===== Location Referenced =====
A00006 C3PO        --          HSM.HMIGTAPE.DATASET

```

Field	Description
Volser	The volume serial number.
Library Location	The name of the library where the tape is located.
Last Referenced	The last date the volume was accessed.
Data Set Name	The data set name that is the first or only data set on the tape.

Volume Details Report

The Volume Details Report (VDR) provides detailed information on the selected volumes. This report can be accessed from the EZcmd menu of the following view:

View	Primary View Name	Secondary View Name	EZcmd Menu
Scratch Tape Location	SLR	SLRV	SLRVZ

Figure 8-36 Volume Details Report

```

05NOV2001 11:17:52 ----- INFORMATION DISPLAY -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
+W1 =VDR=====SJSJ=====*=====05NOV2001==11:17:23====MVS RM====D====1
Volser   Last   Library Access  Data Data Set Name          TMC
===== Referenced Location Count Sets =====Src
A00040 --      C3PO          0      *                      R

```

Field	Description
Volser	The volume serial number.
Scr	Indicates whether the tape is marked as a scratch tape.
Media Type	The type of tape media, for example, 3480, 3590.
Bytes used	The number of used bytes on the volume. The number of used bytes on the volume. If the tape is compressed, this may be less than the total number of uncompressed bytes used by all the data sets combined. Numbers too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.
Tape Capacity	The estimated total capacity of the tape. Numbers too large to be displayed in bytes will be rounded to Ki (1024 bytes), Mi (megabytes), Gi (gigabytes), and so on.
Last referenced	The last date the volume was accessed.
Library location	The name of the library in which the tape is located.
Access Count	The number of times the volume has been referenced.
Data sets	The number of data sets resident on the volume.

Data Set Name	The data set name that is the first or only data set on the tape.
TMC Src	This identifies the Tape Management System that provided the information displayed. C = CA-1 from Computer Associates International R = RMM from IBM T = Control T from BMC Software, Inc.

Tape Location Report

The Tape Location Report (SLRV) shows the location the tape:

- A tape located in the Tape Management Catalog may also be in the Automated Tape Library or Virtual Tape System.
- A Virtual Tape may be backed up to Multi-Volume Cartridges. The MVCs for Virtual Tapes are shown.

This report can be accessed from the EZcmd menu of the following view:

View	Primary View Name	Secondary View Name	EZcmd Menu	View Name	EZcmd Menu
Tape Details	VDR	n/a	VDRZ		
Tape Details	VDR	n/a	VDRZ	DOV	DOVZ

Figure 8-37 Tape Location Report

```

07NOV2001 08:11:40 ----- INFORMATION DISPLAY -----
COMMAND ==>
CURR WIN ==> 1      ALT WIN ==>
>W1 =SLRV=====SJSJG=====*=====07NOV2001==08:11:39====MVSJRM====D====1
  Volume  Located  Scratch  Located  Scratch  Located  Located
Serial Num in TCAT  in TCAT  in ATL   in ATL   in HSM   in VTS
A00003    Y
    
```

Field	Description
Volume Serial Number	The Volume Serial Number identifies the tape volume. Duplicate Volume Serial Numbers may be shown when there is more than one tape management catalog. This may be the case if you are converting to another tape management system.
Located in TCAT	Indicates whether the tape is in the tape management catalog.
Scratch in TCAT	Indicates whether the tape is shown as a scratch tape in the tape management catalog.
Located in ATL	Indicates whether the tape is in the automated tape library.
Scratch in ATL	Indicates whether the tape is shown as a scratch tape in the automated tape library.
Located in HSM	Indicates whether the tape is in Hierarchical Storage Manager system.

Located in VTS	Indicates whether the tape is in the virtual tape system.
Scratch in VTS	Indicates whether the tape is shown as a scratch tape in the virtual tape system.
MVC1 VOLSER	When the virtual tape was backed up to Multi-Volume Cartridges (MVC), this is the volume serial number of the <i>first</i> tape that contains the virtual tape.
MVC2 VOLSER	When the virtual tape was backed up to Multi-Volume Cartridges (MVC), this is the volume serial number of the <i>second</i> tape that contains the virtual tape. This tape will be used if there is a problem with the MVC1 volume.
Expiration Date	The date the tape is or was available to be reused as shown in the tape management catalog.
Number of Data Sets	The number of data sets that are on the volume as shown in the tape management catalog.
Volume Seq Number	For data sets too large to fit on one tape volume, the volume sequence number indicates when the tape was created. <i>One</i> means that it was the first volume created for the data set, <i>two</i> means second, and so on.
File Seq Number	When a tape contains more than one data set, this is normally the file number of the first data set on the volume. This will be the file number of a specific data set if information was requested for a data set instead of a tape volume.
First DSN	Normally, the first data set on the volume. This is a specific data set name if information was requested for a data set instead of a tape volume.
TCAT Source	Identifies the Tape Management System that provided the information displayed. C = CA-1 from Computer Associates International R = RMM from IBM T = Control T from BMC Software, Inc.

Appendix A Copy/Merge Utility

This appendix describes the Copy/Merge utility that StorageGUARD provides that allows you to

- use historical space databases from previous versions of the product
- expand the historical space database to accommodate new functionality
- create a backup for the active historical space database
- reorganize the database if the historical space data collector encounters a name table overflow

The following information is included:

Overview	A-2
Processing Options	A-2

Overview

The SGRDCOPYJ Copy/Merge utility can be tailored so that the time interval and the time step between snapshots become a subset of the input snapshots. This utility is particularly useful when you are creating a backup for the active historical space database (for example, you are requesting a calendar month or year information). This program must be used to reorganize the database if the historical space data collector encounters a name table overflow (message SGRD64E). Sample JCL is in the SGDCOPYJ member in *?prefix*.BBSAMP. Copy SGDCOPYJ to UBBSAMP before modifying for your site.

Note: This utility is also used to expand the historical space database to accommodate new functionality if you are upgrading from a release of the product before version 3.1. Expanded databases, after being updated with RAID and/or RVA information, cannot be used by previous releases of the product.

Warning! Do not use SGRDCOPYJ on empty or unused files, which can result in looping.

Processing Options

Processing options tell the StorageGUARD Copy/Merge utility the kind of processing that it should perform. The processing options must be specified through the PARM= job control parameter.

The following options and descriptions are available. Each option can be defined by using a keyword parameter. Keywords are listed in alphabetical order. Each parameter can be specified only once.

ACTION=COPY | BACKUP

This optional parameter defines the action that the Copy/Merge utility must take when the first defined extent fills during the writing of the output data set.

ACTION=COPY specifies that the Copy/Merge utility should behave just like the data collector. That is, the Copy/Merge utility should perform a wraparound when the first extent is full on the output data set, thus overwriting the oldest snapshot with the next one. This action ensures that the defined size for the output data set is used. Refer to the *MAINVIEW SRM Customization Guide* for a worksheet for calculating the database size.

ACTION=BACKUP is used when no wraparound should occur. In other words, the Copy/Merge utility allows secondary extents to be allocated when the first extent fills. This option is used when you do not want to calculate the exact size of the data set containing a given amount of information or when you do not want to lose space by allocating more size than absolutely necessary.

The default value is **COPY**.

Abbreviations: **Action=**

BEGIN=date of oldest snapshot to be copied

This optional parameter defines the date of the oldest snapshot that should be included in the output data set. Snapshots that were created earlier than the specified date are excluded from the copy operation.

The following formats are supported:

YY.DDD
YYYY.DDD
DD/MM/YY
DD-MM-YY
DD.MM.YY
DD/MM/YYYY
DD-MM-YYYY
DD.MM.YYYY

If this parameter is omitted, no filtering for the oldest record takes place.

Abbreviations: **BEGin=**

END=date of last snapshot to be copied

This optional parameter defines the date of the latest (most recent) snapshot that should be included in the output data set. Snapshots that were created after the specified date are excluded from the copy operation.

The following formats are supported:

YY.DDD
YYYY.DDD
DD/MM/YY
DD-MM-YY
DD.MM.YY
DD/MM/YYYY
DD-MM-YYYY
DD.MM.YYYY

If this parameter is omitted, no filtering for the most recent record takes place.

MAXACCNTCODES=number of account codes used

This optional parameter defines the number of different account codes that the output data set must accommodate. The value you enter must be between 325 and 65535.

The default value is 325.

Abbreviations: **MAXACCNTCODEs=**, **MAXACCTCODEs=**

MININTERVAL=minimum time interval between permanent snapshots in minutes

This optional parameter is used to determine the minimum time step in minutes between snapshots that are written to the output data set. This parameter is used only to exclude snapshots that are already present on the input, thus allowing the same data set size to cover a longer (although less detailed) history. In particular, **MININTERVAL** has meaning only when it defines a greater value than the time interval that is used on the input data set (very likely determined through the **WRITEINTERVAL** parameter on the data collector).

If you define a value that is not greater than the value in effect in the input data set, or if you omit this parameter, all complete snapshots are copied to the output data set.

The value you enter must be between 1 and 1440.

Abbreviations: **MININTErval=**, **MINNTVI=**, **INTERVal=**, **NTVL=**

SMFID=0 or SMF record number

This parameter tells the Copy/Merge utility which StorageGUARD SMF records to select when it reads SMF input. The same record number must be defined for this keyword as was defined earlier for the data collector. This parameter is required and is allowed only when reading SMF input.

Abbreviations: **SMFid=**

TYPE=VOLUME | POOL | ACCOUNT

This parameter tells the Copy/Merge utility the type of StorageGUARD records to be copied. This parameter must always be defined. **TYPE=ACCOUNT** is valid only with StorageGUARD release 2.2 and above.

VERSION=1.1 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 3.1 | 4.1 | 5.1 | 6.1

This optional parameter tells the Copy/Merge utility which version of StorageGUARD input records should be copied (or converted). The output data set is always formatted according to the most recent version. The Copy/Merge utility verifies that the input records correspond to the version that is defined (or used by default). Record (format) conversion is performed as required when you define releases older than the current one.

The default value is the most recent version.

Abbreviations: **VERsion=**

Glossary

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

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

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

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

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

See also indicates an entry that contains related information.

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

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

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

CMF MONITOR Online

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

CMF Type 79 API

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

CMFMON

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

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

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

CMRDETL

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

CMRSTATS

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

column

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

collection interval

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

command delimiter

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

COMMAND line

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

Command MQ Automation D/S

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

Command MQ Automation S/390

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

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

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

Command MQ for D/S

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

Command MQ for S/390

See MAINVIEW for MQSeries.

COMMON STORAGE MONITOR

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

composite workload

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

constituent workload

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

contention

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

context

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

CONTEXT command

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

control statement	(1) Statement that interrupts a sequence of instructions and transfers control to another part of the program. (2) Statement that names samplers and other parameters that configure the MAINVIEW components to perform specified functions. (3) In CMF MONITOR, statement in a parameter library member used to identify a sampler in the extractor or a report in the analyzer, or to describe either component's processing requirements to the operating system.
coupling facility monitoring (CFMON)	Coupling facility views that monitor the activity of your system's coupling facilities.
current data	Data that reflects the system in its current state. The two types of current data are real-time data and interval data. <i>Contrast with</i> historical data. <i>See also</i> interval data, real-time data.
current window	In the MAINVIEW window environment, window where the main dialog with the application takes place. The current window is used as the default window destination for commands issued on the COMMAND line when no window number is specified. <i>Contrast with</i> alternate window. <i>See</i> active window, window.
DASD	(Direct Access Storage Device) (1) A device with rotating recording surfaces that provides immediate access to stored data. (2) Any device that responds to a DASD program.
DASD ADVISOR	An interactive software tool that diagnoses DASD performance problems and makes recommendations to reduce overall service time. This tool measures and reports on the operational performance of IBM and IBM-compatible devices.
data collector	Program that belongs to a MAINVIEW product and that collects data from various sources and stores the data in records used by views. For example, MAINVIEW for OS/390 data collectors obtain data from OS/390 or z/OS services, OS/390 or z/OS control blocks, CMF MONITOR Extractor control blocks, and other sources. <i>Contrast with</i> extractor.
delta mode	(1) In MAINVIEW for DB2 analyzer displays, difference between the value sampled at the start of the current statistics interval and the value sampled by the current analyzer request. <i>See also</i> statistics interval. (2) In CMFMON, usage mode wherein certain columns of data reflect the difference in values between one sample cycle and the next. Invoked by the DELta ON command. <i>See also</i> collection interval, sample cycle, total mode.
DFSMS	(Data Facility Storage Management System) Data management, backup, and HSM software from IBM for OS/390 or z/OS mainframes.
DMR	<i>See</i> MAINVIEW for DB2.

DMS	(Data Management System) <i>See</i> CA-Disk.
DMS2HSM	<i>See</i> MAINVIEW SRM DMS2HSM.
DSO	(Data Set Optimizer) CMF MONITOR Extractor component that uses CMF MONITOR Extractor data to produce reports specifying the optimal ordering of data sets on moveable head devices.
EasyHSM	<i>See</i> MAINVIEW SRM EasyHSM.
EasyPOOL	<i>See</i> MAINVIEW SRM EasyPOOL.
EasySMS	<i>See</i> MAINVIEW SRM EasySMS.
element	(1) Data component of a data collector record, shown in a view as a field. (2) Internal value of a field in a view, used in product functions.
element help	Online help for a field in a view. The preferred term is <i>field help</i> .
Enterprise Storage Automation	<i>See</i> MAINVIEW SRM Enterprise Storage Automation.
event	A message issued by Enterprise Storage Automation. User-defined storage occurrences generate events in the form of messages. These events provide an early warning system for storage problems and are routed to user-specified destinations for central viewing and management.
Event Collector	Component for MAINVIEW for IMS Online, MAINVIEW for IMS Offline, and MAINVIEW for DBCTL that collects data about events in the IMS environment. This data is required for Workload Monitor and optional for Workload Analyzer (except for the workload trace service). This data also is recorded as transaction records (X'FA') and program records (X'F9') on the IMS system log for later use by the MAINVIEW for IMS Offline components: Performance Reporter and Transaction Accountant.
expand	Predefined link from one display to a related display. <i>See also</i> hyperlink.
extractor	Program that collects data from various sources and keeps the data control blocks to be written as records. Extractors obtain data from services, control blocks, and other sources. <i>Contrast with</i> data collector.
extractor interval	<i>See</i> collection interval.
fast path	Predefined link between one screen and another. To use the fast path, place the cursor on a single value in a field and press Enter . The resulting screen displays more detailed information about the selected value. <i>See also</i> hyperlink.

field	Group of character positions within a screen or report used to type or display specific information.
field help	Online help describing the purpose or contents of a field on a screen. To display field help, place the cursor anywhere in a field and press PF1 (HELP). In some products, field help is accessible from the screen help that is displayed when you press PF1 .
filter	Selection criteria used to limit the number of rows displayed in a view. Data that does not meet the selection criteria is not displayed. A filter is composed of an element, an operator, and an operand (a number or character string). Filters can be implemented in view customization, through the PARM/QPARM commands, or through the Where/QWhere commands. Filters are established against elements of data.
fire	The term used to indicate that an event has triggered an action. In MAINVIEW AutoOPERATOR, when a rule selection criteria matches an incoming event and <i>fires</i> , the user-specified automation actions are performed. This process is also called <i>handling</i> the event.
fixed field	Field that remains stationary at the left margin of a screen that is scrolled either right or left.
FOCAL POINT	MAINVIEW product that displays a summary of key performance indicators across systems, sites, and applications from a single terminal.
form	One of two constituent parts of a view; the other is query. A form defines how the data is presented; a query identifies the data required for the view. <i>See also</i> query, view.
full-screen mode	Display of a MAINVIEW product application or service on the entire screen. There is no window information line. <i>Contrast with</i> windows mode.
global command	Any MAINVIEW window interface command that can affect all windows in the window area of a MAINVIEW display.
graph	Graphical display of data that you select from a MAINVIEW window environment view. <i>See also</i> chart.
hilevel	For MAINVIEW products, high-level data set qualifier required by a site's naming conventions.
historical data	(1) Data that reflects the system as it existed at the end of a past recording interval or the duration of several intervals. (2) Any data stored in the historical database and retrieved using the TIME command. <i>Contrast with</i> current data, interval data and real-time data.

historical database	Collection of performance data written at the end of each installation-defined recording interval and containing up to 100 VSAM clusters. Data is extracted from the historical database with the TIME command. <i>See</i> historical data.
historical data set	In MAINVIEW products that display historical data, VSAM cluster file in which data is recorded at regular intervals.
HSM	(Hierarchical Storage Management) Automatic movement of files from hard disk to slower, less-expensive storage media. The typical hierarchy is from magnetic disk to optical disk to tape.
hyperlink	<p>(1) Preset field in a view or an EXPAND line on a display that permits you to</p> <ul style="list-style-type: none"> • access cursor-sensitive help • issue commands • link to another view or display <p>The transfer can be either within a single product or to a related display/view in a different BMC Software product. Generally, hyperlinked fields are highlighted. (2) Cursor-activated short path from a topic or term in online help to related information. <i>See also</i> fast path.</p>
Image log	<p>Collection of screen-display records. Image logs can be created for both the BBI-SS PAS and the BBI terminal session (TS).</p> <p>The BBI-SS PAS Image log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Image log stops when both data sets are filled and the first data set is not processed by the archive program.</p> <p>The TS Image log is a single data set that wraps around when full.</p>
IMSplex System Manager (IPSM)	MVIMS Online and MVDBC service that provides Single System Image views of resources and bottlenecks for applications across one or more IMS regions and systems.
interval data	<p>Cumulative data collected during a collection interval. Intervals usually last from 15 to 30 minutes depending on how the recording interval is specified during product customization. <i>Contrast with</i> historical data.</p> <p>Note: If change is made to the workloads, a new interval will be started.</p> <p><i>See also</i> current data and real-time data.</p>
InTune	Product for improving application program performance. It monitors the program and provides information used to reduce bottlenecks and delays.

IRUF	IMS Resource Utilization File (IRUF). IRUFs can be either detail (one event, one record) or summarized (more than one event, one record). A detail IRUF is created by processing the IMS system log through a program called IMFLEEDIT. A summarized IRUF is created by processing one or more detail IRUFs, one or more summarized IRUFs, or a combination of both, through a sort program and the TASCOSTR program.
job activity view	Report about address space consumption of resources. <i>See</i> view.
journal	Special-purpose data set that stores the chronological records of operator and system actions.
Journal log	Collection of messages. Journal logs are created for both the BBI-SS PAS and the BBI terminal session (TS). The BBI-SS PAS Journal log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Journal log stops when both data sets are filled and the first data set is not being processed by the archive program. The TS Journal log is a single data set that wraps around when full.
line command	Command that you type in the line command column in a view or display. Line commands initiate actions that apply to the data displayed in that particular row.
line command column	Command input column on the left side of a view or display. <i>Contrast with</i> COMMAND line.
Log Edit	In the MAINVIEW for IMS Offline program named IMFLEEDIT, function that extracts transaction (X'FA') and program (X'F9') records from the IMS system log. IMFLEEDIT also extracts certain records that were recorded on the system log by IMS. IMFLEEDIT then formats the records into a file called the IMS Resource Utilization File (IRUF).
MAINVIEW	BMC Software integrated systems management architecture.
MAINVIEW Alarm Manager (MV ALARM)	In conjunction with other MAINVIEW products, notifies you when an exception occurs. MAINVIEW Alarm Manager is capable of monitoring multiple systems simultaneously, which means that MAINVIEW Alarm Manager installed on one system keeps track of your entire sysplex. You can then display a single view that shows exceptions for all MAINVIEW performance monitors within your OS/390 or z/OS enterprise.

MAINVIEW Alternate Access

Enables MAINVIEW products to be used without TSO by providing access through EXCP and VTAM interfaces.

MAINVIEW Application Program Interface (MVAPI)

A CLIST- or REXX-based, callable interface that allows MAINVIEW AutoOPERATOR EXECs to access MAINVIEW monitor product view data.

MAINVIEW AutoOPERATOR

Product that uses tools, techniques, and facilities to automate routine operator tasks and provide online performance monitoring, and that achieves high availability through error minimization, improved productivity, and problem prediction and prevention.

MAINVIEW control area

In the MAINVIEW window environment, first three lines at the top of the view containing the window information line and the COMMAND, SCROLL, CURR WIN, and ALT WIN lines. The control area cannot be customized and is part of the information display. *Contrast with* MAINVIEW display area, MAINVIEW window area.

MAINVIEW Desktop Version of the MAINVIEW window interface designed to run on OS/2 and Windows workstations.

MAINVIEW display area

See MAINVIEW window area.

MAINVIEW Explorer Product that provides access to MAINVIEW products from a Web browser running under Windows. MAINVIEW Explorer replaces MAINVIEW Desktop.

MAINVIEW for CICS Product (formerly MV MANAGER for CICS) that provides real-time application performance analysis and monitoring for CICS system management.

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

MAINVIEW for DBCTL (MVDBC)

Product that provides real-time application performance analysis and monitoring for DBCTL management.

MAINVIEW for IMS (MVIMS) Offline

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

MAINVIEW for IMS (MVIMS) Online

Product that provides real-time application performance analysis and monitoring for IMS management.

MAINVIEW for IP

Product that monitors OS/390 and z/OS mission-critical application performance as it relates to TCP/IP stack usage. Collected data includes availability, connections, response times, routers, service levels, storage, traffic, Web cache, and so on.

MAINVIEW for Linux–Servers

Product that allows you to monitor the performance of your Linux systems from the MAINVIEW windows interface.

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

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

MAINVIEW for OS/390

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

MAINVIEW for UNIX System Services

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

MAINVIEW for VTAM

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

MAINVIEW for WebSphere Application Server (formerly known as MAINVIEW for WebSphere)

Product that provides extensive monitoring for the IBM WebSphere Application Server for z/OS and OS/390 environment.

MAINVIEW Selection Menu

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

MAINVIEW SRM

See MAINVIEW Storage Resource Manager (SRM).

MAINVIEW SRM DMS2HSM

Product that facilitates the conversion of CA-Disk, formerly known as DMS, to HSM.

MAINVIEW SRM EasyHSM

Product that provides online monitoring and reporting to help storage managers use DFHSM efficiently.

MAINVIEW SRM EasyPOOL

Product that provides control over data set allocation and enforcement of allocation and naming standards. EasyPOOL functions operate at the operating system level to intercept normal job processing, thus providing services without any JCL changes.

MAINVIEW SRM EasySMS

Product that provides tools that aid in the conversion to DFSMS and provides enhancement to the DFSMS environment after implementation. EasySMS consists of the EasyACS functions, the SMSACSTE function, and the Monitoring and Positioning Facility.

MAINVIEW SRM Enterprise Storage Automation

Product that delivers powerful event generation and storage automation technology across the storage enterprise. Used in conjunction with MAINVIEW AutoOPERATOR, automated solutions to perform pool, volume, application, or data set-level manipulation can be created and used in response to any condition or invoked to perform ad hoc requests.

MAINVIEW SRM SG-Auto

Product that provides early warning notification of storage anomalies and automated responses to those anomalies based on conditions in the storage subsystem.

MAINVIEW SRM SG-Control

Product that provides real-time monitoring, budgeting, and control of DASD space utilization.

MAINVIEW SRM StopX37/II

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

MAINVIEW SRM StorageGUARD

Product that monitors and reports on DASD consumption and provides historical views to help control current and future DASD usage.

MAINVIEW Storage Resource Manager (SRM)

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

MAINVIEW SYSPROG Services

See SYSPROG services.

MAINVIEW VistaPoint

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

MAINVIEW window area

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

monitor

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

Multi-Level Automation (MLA)

The user-defined, multiple step process in Enterprise Storage Automation that implements solutions in a tiered approach, where solutions are invoked one after another until the condition is resolved.

MVALARM

See MAINVIEW Alarm Manager.

MVAPI

See MAINVIEW Application Program Interface.

MVCICS

See MAINVIEW for CICS.

MVDB2

See MAINVIEW for DB2.

MVDBC

See MAINVIEW for DBCTL.

MVIMS

See MAINVIEW for IMS.

MVIP

See MAINVIEW for IP.

MVLNX

See MAINVIEW for Linux–Servers.

MVMQ

See MAINVIEW for MQSeries.

MVMVS

See MAINVIEW for OS/390.

MVScope

MAINVIEW for OS/390 application that traces both CPU usage down to the CSECT level and I/O usage down to the channel program level.

MVSRM

See MAINVIEW Storage Resource Manager (SRM).

MVSRMHSM

See MAINVIEW SRM EasyHSM.

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

PAS	Product address space. Used by the MAINVIEW products. Contains data collectors and other product functions. <i>See also</i> OS/390 product address space (PAS) <i>and</i> BBI subsystem product address space (BBI-SS PAS).
performance group workload	Collection of address spaces defined to OS/390 or z/OS. If you are running OS/390 or z/OS with WLM in compatibility mode, MAINVIEW for OS/390 creates a performance group workload instead of a service class.
PERFORMANCE MANAGER	MAINVIEW for CICS online service for monitoring and managing current performance of CICS regions.
Performance Reporter (MVIMS)	MVIMS Offline component that organizes data and prints reports that can be used to analyze IMS performance.
Performance Reporter	Product component that generates offline batch reports. The following products can generate these reports: <ul style="list-style-type: none"> • MAINVIEW for DB2 • MAINVIEW for CICS
Plex Manager	Product through which cross-system communication, MAINVIEW security, and an SSI context are established and controlled. Plex Manager is shipped with MAINVIEW window environment products as part of the coordinating address space (CAS) and is accessible as a menu option from the MAINVIEW Selection Menu.
pop-up display	Full-screen panel that displays additional information about a selected event in a detail trace.
pop-up window	Window containing help information that, when active, overlays part of the window area. A pop-up window is displayed when you issue the HELP command while working in windows-mode.
PRGP workload	In MVS/SP 5.0 or earlier, or in compatibility mode in MVS/SP 5.1 or later, composite of service classes. MAINVIEW for OS/390 creates a performance group workload for each performance group defined in the current IEAIPS.xx member.

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

- the distributed parameter library, called BBPROC
- a site-specific parameter library or libraries

These can be

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

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

product address space

See PAS.

profile library

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

- the distributed profile library, called BBPROF
- a site-specific profile library or libraries

These can be

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

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

query

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

real-time data

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

Resource Analyzer

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

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

screen definition	Configuration of one or more views that have been stored with the SAVEScr command and assigned a unique name. A screen includes the layout of the windows and the view, context, system, and product active in each window.
selection view	In MAINVIEW products, view displaying a list of available views.
service class workload	<p>Collection of address spaces defined to OS/390 or z/OS. If you are running Workload Manager (WLM) in goal mode, MAINVIEW for OS/390 creates a service class workload for each service class that you define through WLM definition dialogs.</p> <p>If you are running MVS 4.3 or earlier, or MVS/SP 5.1 or later with WLM in compatibility mode, OS/390 creates a performance group workload instead of a service class. <i>See</i> performance group workload.</p>
service objective	Workload performance goal, specified in terms of response time for TSO workloads or turnaround time for batch workloads. Performance group workloads can be measured by either objective. Composite workload service objectives consist of user-defined weighting factors assigned to each constituent workload. For compatibility mode, neither OS/390 nor z/OS provides any way to measure service.
service point	<p>Specification, to MAINVIEW, of the services required to enable a specific product. Services can be actions, selectors, or views. Each target (for example, CICS, DB2, or IMS) has its own service point.</p> <p>The PLEX view lists all the defined service points known to the CAS to which the terminal session is connected.</p>
service request block (SRB)	Control block that represents a routine to be dispatched. SRB mode routines generally perform work for the operating system at a high priority. An SRB is similar to a task control block (TCB) in that it identifies a unit of work to the system. <i>See also</i> task control block.
service select code	Code entered to invoke analyzers, monitors, and general services. This code is also the name of the individual service.
session	Total period of time an address space has been active. A session begins when monitoring can be performed. If the product address space (PAS) starts after the job, the session starts with the PAS.
SG-Auto	<i>See</i> MAINVIEW SRM SG-Auto.
SG-Control	<i>See</i> MAINVIEW SRM SG-Control.

single system image (SSI)

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

Skeleton Tailoring Facility

A facility in MAINVIEW AutoOPERATOR that allows skeleton JCL to be used during job submission. Skeleton JCL can contain variables within the JCL statements to be substituted with data values at job submission time. Directive statements can be used in the skeleton JCL to cause the repetition of a set of skeleton statements. This facility functions similar to the TSO skeleton tailoring facility.

SRB *See* service request block.

SSI *See* single system image.

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

started task workload

Address spaces running jobs that were initiated programmatically.

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

stem variables A REXX facility, supported in MAINVIEW AutoOPERATOR REXX EXECs and the Skeleton Tailoring Facility, where variable names end with a period followed by a number, such as &POOL.1. This configuration allows each variable to actually represent a table or array of data, with the zero variable containing the number of entries in the array. For example, &POOL.0 = 5 would indicate variables &POOL.1 through &POOL.5 exist.

StopX37/II *See* MAINVIEW SRM StopX37/II.

StorageGUARD *See* MAINVIEW SRM StorageGUARD.

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

SYSPROG services	Component of MAINVIEW for OS/390. Over 100 services that detect, diagnose, and correct OS/390 or z/OS system problems as they occur. Accessible from the OS/390 Performance and Control Main Menu. Note that this component is also available as a stand-alone product MAINVIEW SYSPROG Services.
system resource	<i>See</i> object.
target	Entity monitored by one or more MAINVIEW products, such as an OS/390 or z/OS image, an IMS or DB2 subsystem, a CICS region, or related workloads across systems. <i>See</i> context, scope, SSI context.
target context	Single target/product combination. <i>See</i> context.
TASCOSTR	MAINVIEW for IMS Offline program that summarizes detail and summary IMS Resource Utilization Files (IRUFs) to be used as input to the offline components.
task control block (TCB)	Address space-specific control block that represents a unit of work that is dispatched in the address space in which it was created. <i>See also</i> service request block.
TCB	<i>See</i> task control block.
terminal session (TS)	Single point of control for MAINVIEW products, allowing data manipulation and data display and providing other terminal user services for MAINVIEW products. The terminal session runs in a user address space (either a TSO address space or a stand-alone address space for EXCP/VTAM access).
TDIR	<i>See</i> trace log directory.
threshold	Specified value used to determine whether the data in a field meets specific criteria.
TLDS	<i>See</i> trace log data set.
total mode	Usage mode in CMFMON wherein certain columns of data reflect the cumulative value between collection intervals. Invoked by the DELta OFF command. <i>See also</i> collection interval, delta mode.
trace	(1) Record of a series of events chronologically listed as they occur. (2) Online data collection and display services that track transaction activity through DB2, IMS, or CICS.

trace log data set (TLDS)

Single or multiple external VSAM data sets containing summary or detail trace data for later viewing or printing. The trace log(s) can be defined as needed or dynamically allocated by the BBI-SS PAS. Each trace request is assigned its own trace log data set(s).

trace log directory (TDIR)

VSAM linear data set containing one entry for each trace log data set. Each entry indicates the date and time of data set creation, the current status of the data set, the trace target, and other related information.

transaction

Specific set of input data that initiates a predefined process or job.

Transaction Accountant

MVIMS Offline component that produces cost accounting and user charge-back records and reports.

TS

See terminal session.

TSO workload

Workload that consists of address spaces running TSO sessions.

UAS

See user address space.

UBBPARM

See parameter library.

UBBPROC

See procedure library.

UBBSAMP

See sample library.

user address space

Runs a MAINVIEW terminal session (TS) in TSO, VTAM, or EXCP mode.

User BBPROF

See profile library.

view

Formatted data within a MAINVIEW window, acquired from a product as a result of a view command or action. A view consists of two parts: query and form. *See also* form, job activity view, query.

view definition

Meaning of data that appears online, including source of data, selection criteria for data field inclusion and placement, data format, summarization, context, product, view name, hyperlink fields, and threshold conditions.

view command

Name of a view that you type on the COMMAND line to display that view.

view command stack

Internal stack of up to 10 queries. For each command, the stack contains the filter parameters, sort order, context, product, and time frame that accompany the view.

view help	Online help describing the purpose of a view. To display view help, place the cursor on the view name on the window information line and press PF1 (HELP).
window	Area of the MAINVIEW screen in which views and resources are presented. A window has visible boundaries and can be smaller than or equal in size to the MAINVIEW window area. <i>See</i> active window, alternate window, current window, MAINVIEW window area.
window information line	Top border of a window. Shows the window identifier, the name of the view displayed in the window, the system, the scope, the product reflected by the window, and the tomfooleries for which the data in the window is relevant. <i>See also</i> window status field.
window number	Sequential number assigned by MAINVIEW to each window when it is opened. The window number is the second character in the window status field. <i>See also</i> window status field.
window status	One-character letter in the window status field that indicates when a window is ready to receive commands, is busy processing commands, is not to be updated, or contains no data. It also indicates when an error has occurred in a window. The window status is the first character in the window status field. <i>See also</i> window information line, window status field.
window status field	Field on the window information line that shows the current status and assigned number of the window. <i>See also</i> window number, window status.
windows mode	Display of one or more MAINVIEW product views on a screen that can be divided into a maximum of 20 windows. A window information line defines the top border of each window. <i>Contrast with</i> full-screen mode.
WLM workload	In goal mode in MVS/SP 5.1 and later, a composite of service classes. MAINVIEW for OS/390 creates a workload for each WLM workload defined in the active service policy.
workflow	Measure of system activity that indicates how efficiently system resources are serving the jobs in a workload.
workload	(1) Systematic grouping of units of work (for example, address spaces, CICS transactions, IMS transactions) according to classification criteria established by a system administrator. (2) In OS/390 or z/OS, a group of service classes within a service definition.
workload activity view	Tracks workload activity as the workload accesses system resources. A workload activity view measures workload activity in terms of resource consumption and how well the workload activity meets its service objectives.

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

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

Workload Definition Facility

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

workload delay view

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

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

workload objectives

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

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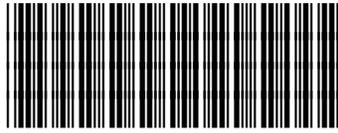
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